Florida’s urbanization is still young – in most cases only a primary layer. This is not least due to its specific natural condition, whose instability (swamps, heavy rain, periodic floods) made it for long impossible to domesticate. Only through technical systems such as air-conditioning, water-management and the highway network could its complex natural balance be transferred into a new, equally complex artificial balance – but then very fast and comprehensively. Florida’s urbanization thus had from its beginning a territorial dimension and character. Road infrastructure, real-estate speculation, mining operations, agriculture, wetlands and all other functions in the territory form a tightly interlinked system; each, and this includes even nature protection, measured and treated based on its performance for the system. This managerial approach creates unexpected links between the urban centers and their territory such as mitigation banking, where through a free market mechanic the externalities of building in the city are redeemed in faraway parks. Seemingly untouched wilderness reveals to be depending on the most artificial environments, such as the Disney parks or the highly simulated lifestyle communities, and vice versa.

This project continues ETH Studio Basel’s series of territorial investigations and is based on fieldwork that was conducted in Central Florida in collaboration with the University of Florida.
Florida
PRIVATE MANAGEMENT OF AN URBAN SYSTEM

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ETH Studio Basel has been working for five years on urban portraits of international metropolises. This research was part of a joint program dealing with “specificity”: Our aim was to show why cities that are drawn into the undertow of global developments do not, as might be expected, become immersed in placeless uniformity, but develop new differentiations. In the most general sense, this research raised the question of which role “identity” will play in a world that tends to set off similar mechanisms of urban development across the globe. In brief, the results can be summarized as follows: The differences and specificities that these metropolises develop are different from the traditional hallmarks of identity in organically evolved cities. But they have retained the dual – and ambiguous – character that has always distinguished the special traits of cities. The new qualities, of course, also exhibit the characteristics of a “culture of difference”, they showcase the determination of an urban society to establish non-exchangeability, i.e., identity, under the new conditions. But urban differentiation is by no means only a matter of agenda. Differences that are not the result of intentional action are evidence of the fact that globalization is inevitably subject to the physical nature of the location and the anthropological conditions. Globalization can neither overcome topography or the climate, nor can it exceed the limitations of resources or the local exposure to the forces of nature. “Specificity”, one might say, is also the doomed attempt of mankind to shed the bonds of discrete, conditional existence completely in favor of a global promise.

During the past several years we have learnt a lot about the transformation processes of contemporary cities under globalization pressures. But what is the impact of these forces on territories, beyond the clear gravitational fields of metropolitan centers? To answer this question, this year we ventured into the territory of Florida, looking for its specific forms of urbanisation. The project continues the ETH Studio Basel’s territorial researches in Switzerland (1999-2005), the Nile Valley (2009) and Italy (2010), all clearly showing ways in which densely populated environments develops toward new types of urban spaces: traditional natural or rural areas turn into urbanized territories characterized by a multilayered occupation of landscape, overlapping structures and meanings.

A vital part of this research was a joint two-week expedition, moving along the the Interstate 4 corridor, from Tampa Bay to Orlando to Cape Canaveral. Each team of two to three students operated individually en route in their territory. At Studio Basel, we shaped our results into this common book.
FLORIDA: URBANIZATION AS SUSPENSION OF TIME AND SPACE

Seen from Europe Florida appears an extraordinary state: It lacks the permanence we associate with larger contiguous geographic and political entities. Neither Florida’s urbanized nor its agricultural territories elicit any urban or rural traditions. In its entirety, all of the landscape as seen and shaped by its inhabitants, appears only just now to be taking (or to have found its) shape, seemingly emerging through an ongoing struggle with current forces and movements. Correspondingly, Florida appears as if caught in a state of radical availability, as its inhabitants’ engagement with the space scatter its territorial identity.

An aerial photograph first drew our attention to Florida, a photograph not of the coastline, but of an area mid-way along Florida’s cross-section, between Saint Petersburg and Cape Canaveral. This is the phosphate mining area Bone Valley, located near Bartow in Polk County, to the west of central Florida. Phosphate mining results in different forms of urbanization. However, these all relate immediately to actual land usage, be that agricultural industry, settlements, or ground water balance in areas kept free of settlements. The aerial image of the district between Bartow and Mulberry makes evident the inexorable link connecting these different phenomena, as the spatial organization of the mining industry, of agricultural industry, and of the settlements are all inscribed on the Jeffersonian Grid, the foundational principle dividing the US countryside into an orthogonal grid. Here, traditional rules seem suspended with the abstract concept of the grid not serving to organize, but to shape the landscape itself as chalk levees create enormous basins and high detention basins made of plaster erect geometric hills, Florida’s highest elevations. Areas that the mining industry has taken over in the more and less recent past enclose areas urbanized through settlements. Located at times in immediate adjacency, these situations convey the impression that neither the mining industry’s territory nor urbanity has achieved stability over time. The image is one of fragile balance. Settlements appear likely to develop along the North/South and East/West axes of the transportation network and of its intersections. However, these settlements never culminate in traditional urban environments, but instead create agglomerated settlements that lack any specific urban outline. Where logistic reasons previously dictated the close functional proximity between the mine and the mining town, this proximity has since been discarded, with new quarries opening up at the site of older settlements, resulting in their destruction. Transportation networks through sparsely populated regions complement these settlements, creating an image of rural space a nebulous as that of urban space.

There is another reason why the aerial photographs of Bartow/Mulberry suggest a state in imbalance. The interventions and artifacts overall, when seen from the air, appear closely linked, as if they had an immediate, functional connection. This is a result of Florida’s history, which only recently began leaving permanent marks, beginning with the mid-19th and continuing through the 20th century. This is due to the fact that pre-settlement cultures showed restraint when structuring the territory. If at all, especially when compared to Europe and many Asian regions. No older or lower levels are evident and upon which newer levels have been established. No figure-ground structure exists. The fixed ground where urbanization could have inscribed itself is missing. Not only are superimposed traces produced during extended time periods missing, there are also no visible traces from the recent past that would indicate how urbanization developed in interaction with the landscape. In this aerial photograph, the entire territory of Florida seems to exist as a mirror image and without any depth to indicate layering. The relationships between landscape and urban space resolve themselves within a planar network and not across a three-dimensional structure as it unfolds over a period of time. Both landscape and urban space equally appear part of the same disposable matter. The various urban landscapes found along this cross-section between the coasts are of recent date. These are settlements with low density and located more or less proximate to larger centers. The traditional ideal of American settlements corresponds closest to middle class urbanism where it follows the street grid constructed in the years prior to WW II. Though these developments relate closely to the immediately adjoining urban settlements, the most manifest examples of urbanism in this territory are found in those settlements developing independent of surrounding developments. Such settlements exist as privately owned communities designed and run as free-market entities. While the immigration into Florida is diverse, these developments specifically address older people, pensioners retiring to Florida. These communities, whose origins include Walt Disney World (1971) theme parks of the community “Celebration” (1993), are strictly run, even today, according to specific lifestyle codes. Though these communities offer living space for 80,000 people, life in these communities cannot be compared to that of traditional European or American cities. The fundamental urban experience, the renewed continuous unfolding of competing forces within a single place giving inhabitants a sense both of contributing to and being subjected to urban life is absent.
mobile home parks situated close to transport hubs that enable the inhabitants reach their workplaces in the nearby centers. In addition, these parks are simply forms of traditional settlements generally found in the commuter belt of larger urban centers. Racial segregation and exclusion are also practiced in such parks.

This parallelism between the phenomena that is typical of Florida’s urbanization, with the settlers’ intervention in the landscape leaving no lasting outlines, also shapes Florida’s agriculture industry: Citrus Farming. This important branch of the agricultural industry extends in concentrated fashion along Highway 27 from North to South. The Highway follows the “Ridge,” a slightly elevated plateau, whose sandy consistency is especially fertile. Even this territory lacks the stability generally connected to agriculture. Due to the influence of complex climate changes, the citrus industry is continuously being pushed further South. At the same time, settlements seek to insert themselves into this space along the main transport route, thereby displacing the farms. Moreover, the mechanism common to all agricultural business is in effect, with smaller farmers having to yield to larger production units and being displaced under this pressure. The citrus trees are not cultivated on the plantations but are instead matured in tree nurseries before the farmers relocate them to the fields. Harvesting only occurs after a few years. Workers are employed on a temporary basis for the labor intense harvesting seasons. These migrant workers, seventy percent of whom are Mexican, move on with the end of the harvest season. Hence, even the citrus agricultural industry offers no firm ground for urbanization, belying the external impression conveyed through the strict linearity and dense arrangement of the citrus plantations.

Only the nature conservation areas, especially the Wetlands, are unspoiled nature. From the outset, these areas, with certain landscapes in Alpine resorts, but from their dynamic interrelation with urbanizing energies. Since the 1960s, models have been developed to show how nature conservation areas can be establishing using the added value of urbanization. However, in light of such tandem measures, the housing crisis resulted largely in the elimination of the revenue sources to finance the nature parks. In Florida the effects have been more disastrous than elsewhere as enclosing the protected areas served to secure the water reserves on which the settlements rely for their existence. Florida’s territory, with its location between the coastlines, recalls an artwork the American conceptual artist Gordon Matta-Clark completed in 1969. Matta-Clark poured heated milk and honey over zinc and left it dry. The bacteria there continue to act on the metal surface and change its composition. Referencing US America he titled the work: “The Land of Milk and Honey.”

Roger Diener, 2013
RESEARCH TOPICS

Each research topic was developed by an individual team of student-researchers and tested through case studies. Each case study relates to a specific physical location, in which the recent tendencies are best visible.

I  Product-Based Urbanism
II  Light Urbanism
III  Middle Class Urbanism
IV  Phosphate Mining
V  Citrus Production
VI  Spaces of Flow – Road Urbanization
VII  Urbanization of the Water Landscape
VIII  Urbanized Nature
IX  Florida Space Coast
X  Downtowns, Plazas, And Voids
The basic construction to achieve this “totality” is the so-called Home Owner Community. If you buy a house you are obligated to become a member of the community and to follow the rules. The lead of the community is in the hands of the developer, who controls not only the construction and selling process but also the administration afterwards. A surprising consequence of that condition is a strange mixture between private and public administration; even the police is partly paid by the community… One could speak of a philosophy and technology of private lifestyle community. In the historical perspective we assume that there are two important roots, a theoretical and a practical one. The theoretical framework – at least for the urban and architectural form – is driven by the movement of the New Urbanism, which was even partly “invented” in Florida (e. g. Arch. Duan). The more practical background – one could also say the “mentality” – is rooted in Walt Disney’s projects, namely his perfection in constructing “illusions”/artificial worlds… It is no coincidence that one of the early and for sure the purest development – where the two aspects to say so joined – was initiated by Disney and realized under the name Celebration (started in 1994). Since then several other developments became built (see sites below). They describe a phenomenological range with the Disney Parks (it’s not about housing, but for sure a import generator of urbanization with it’s specific lifestyle qualities…) or The Villages (read the Tages-Anzeiger-Magazin article…) on the one hand side and the more moderate, middle-class oriented Avalon Park on the other side.

Research in the larger scale
Try to define a set of characteristics of such developments and then search and map all the built and planned projects in Florida. Combine this map with a timeline. Research the history of the Disney projects in Florida as well as the history and ideals of the New Urbanism movement. Prepare the research on site, establish contacts and set meeting for the fieldtrip.

Research on site
Choose a main case (e.g. Avalon Park). Visit, describe and map the site in its physical appearance. Map also the different facilities. Talk to developers, experts and people on the street and try to reconstruct the “mechanics” behind the development process, which also includes the financing and the negotiation process with the public administration. Describe the economy: investment, land and house prices, subprime crisis, foreclosures, etc. Make comparisons between different projects. Try to catch the specific mode of life as well the “mentality”.

Site(s)
Avalon, Celebration, Lake Noria, Baldwin Park, The Villages, ev. a Disney Park
The title “Light or Weak Urbanism” describes the phenomenon of affordable housing. Affordable housing in the States can be found in settlements like Mobile homes parks, RV Parks, districts with little wooden houses without basement etc. which often appear in a precarious condition in the circle of mobility, “petrification” and decay. Light Urbanism has to do with temporality, ephemeral conditions and self-made. Light Urbanism is therefore also a specific lifestyle (what it is about is to show…). Light Urbanism is in many cases a phenomenon of poverty and expression of a lack of affordable flats (respective the absence of the state in the social housing development). But there are other cases like mobile home parks for retired people, often signed with “55+”. You find Light Urbanism allover Florida; it is present in St. Petersburg close to Downtown as well as in the “fallow land” of the Heartland with of its weak economy.

**Research in the larger scale**

The Atlas work should start with a research about demography and sociology in the States and especially in Florida (social segments in affordable housing?). Try in a second step to map this data in combination with the locations of such phenomenon respective the different types of Light Urbanism (us GIS-data). Investigate also the relation to infrastructure: water, power, street network etc. Collect information about the state policies, governmental strategies, planning rules and property (is there squatting?). Try also to organize your information on a timeline.

**Research on site**

St. Petersburg. Visit, describe and map the sites in their physical appearance; the description can have a documentary and intimate character presenting individual cases. Talk to experts and people on the street and try to reconstruct the social and economical background behind the Light Urbanism. Describe the economy: what and where do people work? For how long do they do their work? When did they move here (nomadic aspects…)? Etc. Make comparisons between the different cases. Try to catch the specific mode of life as well the spirit… Further on we would like to like the question of the rural areas – quiet zones and/or fallow lands. Try to observe this wider context while studying the phenomenon of Light Urbanism. What’s about agriculture? What else is produced in such areas?

**Site(s)**

Heartland, ev. St. Petersburg (ask Pat Steed for a good site.)
Research in the larger scale

The Atlas work is first of all a study about the history of the last fifty years of suburban development. Collect and document for each decade the dominant typology of houses, street layouts and urban patterns. Show the demographic development, which pushed the construction process and its economic logic. Who are the actors? What about the transport and supply facilities, the public space, entertainment and shopping? Use maps and statistics. Check the rich literature.

III Middle Class Urbanism LIVING, WORKING AND CONSUMING IN THE SPRAWL

What we call “Middle Class Urbanism” concerns the major part of cities in Florida that land with an endless sea of detached houses, highways and the so-called plazas. Since World War II and rise of the car this type of settlement grew rapidly and became the predominant way of life. The work should describe the current trends of suburbanization and status the actual situation. We want to figure out how the “classic sprawl” from the 50ies and 60ies developed further on…

Research on site

The research on site could focus on the area of Orlando. Choose a manageable area and try first to describe the current, physical location and appearance. Map also the different facilities. Make a typology of the elements in the urban pattern. What are the most important design aspects? Look for the most recent housing projects. Talk to developers, experts and people on the street and try to reconstruct the “mechanics” behind the development process, which also includes the financing and the negotiation process with the public administration. Describe the economy: investment, land and house prices, subprime crisis, foreclosures, etc. Try to catch the specific mode of life as well the “mentality” (inspiration: Dan Graham, Homes for America).

Site(s)

Around Orlando
IV Phosphate Mining LANDSCAPE OF PRODUCTION - PRODUCTION OF LANDSCAPE

The unique geo-morphological condition of the region called “bone valley” southwest of Lakeland in the counties Polk and Hardee offers one of the richest and most accessible phosphate deposits in the world. The exploitation of phosphate is a complicated and long-term process, which has a tremendous physical impact on the earth surface during the excavation phase. The mined Phosphate ore must be chemically processed before it can be used as a water-soluble fertilizer of which Florida provides 75 percent used by U.S. farmers and about 25 percent of the world production. The large scale physical impact that phosphate mining generates on the existing landscape with its accompanying environmental consequences has forced the different mining companies to massively invest into land reclamation techniques - an attempt to regenerate the exploited land back into its original status of a pristine nature.

Today, land reclamation efforts developed over the past thirty years have been successfully carried out, either for the creation of nature parks providing new habitats for wildlife, or for agricultural land – in few cases as we have heard, it eventually also attracts interest for urban and real-estate development.

Research in the larger scale
Within our category LANDSCAPE OF PRODUCTION the phosphate mining exemplifies a highly specific type of urbanisation. The work shall reveal the wide-ranging anthropogenic impact behind the imposing, artificially transformed lake-landscape in Polk and Hardee county. In the first instance and for the atlas work, we would like to know more about the geology, topography and the physical geography of this unique area of the central Florida. Further on, we would be interested to learn about the historical aspects of phosphate extraction, such as the technological refinement in this process and the changing character of the workforce over time. Can we draw a timeline showing the different influential steps in this process, such as changing mining technologies, the implementation of regulations etc.? What can we say about the economy of phosphate mining: how important is it in comparison to other economical strength in Florida in terms of production revenues and employment? Can we say something about Florida’s phosphate exploitation and its main product the fertilizer in relation to the US- and the global market? It would be interesting to reveal the different actors involved in the mining process, from state authorities, to environmental organisations, the various mining companies as well as local communities, farmers etc. To what extend are these different parties incorporated into the process? What are their benefits? How is the mining industry managed and regulated? Another important question concerns the impact of the phosphate mining on the environmental and the eco-systems. Vast amounts of water are needed to separate phosphate from sand and clay. How is this consumption handled vis-à-vis the growing concern on Florida’s shrinking water resources? It would be also interesting to draw the phosphate extraction process with its different phases from the exploitation of the ground to the fertilizer in a diagrammatic representation.

Research on site (Case studies)
The research on site may start from a phenomenological perception, describing in a precise manner the physical aspects of the phosphate mine landscape and it’s various stages in the transformation, from excavation to the reclamation of the land to the regeneration of eco-systems, agricultural land etc. as well as the different infrastructure facilities needed for the process. It would be interesting to map the different areas of the process, infrastructures and scale of the phosphate-mining region to understand it’s extend. Focus on the mining areas near Forth Meade south of Bartow, where we have established contacts with one of the largest mining companies - the Mosaic Company. What can you say about the organisation, activities and philosophy of this or other firms regarding the whole process of mining and restoration of the landscape? How are they linked and in cooperation with regional and local authorities, environmental organisations and the local community? How important are such companies as employer and economical factor for the region? Contrariwise, to what extend is the 130 years old mining industry part of a cultural consciousness of the local population, how are they depending on it, what are their benefits? What are their concerns? Does the phosphate mining generate also potential for conflicts, for instance with local farmers or environmental organisations? How is the landownership managed in the mining economy? It would be interesting to describe the different categories of reclaimed land after the mining process. Besides the generation of eco-systems or land for agricultural uses, is there also a tendency to occupy the newly created land for urban development? Are there mining companies that even/also function as developers?

Site(s)
Mines of the Mosaic Company and others near Forth Meade, Hardee County.
V Citrus Production

CITRUS AND OTHER LARGE SCALE FARMING

History of citrus farming in Florida begins with the discovery of America. Christopher Columbus introduced citrus trees to the Americas from the Orient in 1493. Since the early XIX century until the present, citrus farming has grown to one of the state’s main economies; Florida is now one of the leading producers of citrus fruit in the world, next to Brazil. The purpose of this research is to investigate and reflect on the trends affecting Florida’s agriculture, with the special emphasis on the citrus farming industry and its relation to urbanization. For example, it appears that the housing construction has lead to the steady loss of agricultural land, especially in the high-pressure counties surrounding the Interstate 4. Another reason for the loss in citrus farming is related to climatic change: several catastrophic freezes since the 1980s drove many citrus farms further south, in particular to the southwest of Lake Okeechobee, while in the 19th and beginning of the 20th century production flourished in central Florida, especially along the Lake Wales Ridge, a gentle hilly valley along the US Highway 27.

Research in the larger scale

The research would start with an investigation on the history of agriculture in Florida in general and citrus farming in particular. Try to develop a historic timeline showing the major changes and influences on agriculture and citrus production in Florida. Map the current farming areas in Florida and compare it with historic maps – is it possible to draw quantitative conclusions regarding the loss of agricultural land? Investigate on the biological condition for the growth of the citrus fruit: what are the ideal climatic conditions for the citrus fruit plantations? Despite the fact that farmland is decreasing due to pressure from urbanization or climatic changes, yield is still increasing through new expertise in growth techniques and biological investigations in more resistant fruits for example. We would be interested in the latest development in citrus fruit research and plantation techniques. The sustainable management with the water resources is a highly actual discussion in Florida: what kinds of irrigation and drainage systems are used for the watering of the plantations? What is the impact of climate changes on agriculture, for example from frequent hurricanes, but especially the changing “freeze-line” moving southwards. Can we map those changes? Do you find statistical data about it? How is agricultural industry and farmland related to the nature protection and other conservation practices? Who are the main actors of citrus farming and what is the role of the government? To what extent is agriculture subsidized in Florida? Does the picturesque landscape of the citrus fruit areas is today no longer existing; large areas of these landscapes have been transformed into land for urban development. What are the mechanisms behind this changing land use? What kind of policy and regulations do the various authorities deploy, in order to tackle the pressure from the sprawling urbanization? If former agricultural land has turned its destination into buildable land, how does that affect the property rights and land prices etc.? What types of development takes place on this land? What is the economical importance of agriculture and the citrus farming industries in comparison to the global and the national scale in terms of export revenues? What is its benefit and influence on a local scale? What is the level of the industrialization of agriculture? What is the character of the workforce in citrus farming and are there pressures on citrus farming resulting from the global market competition, for example, cheaper labour?

Research on site

The field research would focus on the citrus farming area surrounding the US Highway 27, from the Interstate 4 southwards along the so-called Lake Wales Ridge. Document, describe and map the various agriculture structures and citrus fruit plantations and their corresponding infrastructures and facilities. How are the different farming enterprises organized? Are there different types of agriculture farms? Talk to farmers and employees, experts and authorities in the citrus farming business and try to describe the economy, regulations and management behind this industry. Are they large companies or are they organized in small farming enterprises organized in consortia? To what extend is the local community involved in the agricultural production? Try to understand the cultural anchorage of citrus farming in the local and rural population; is this form of industrialized agriculture still strongly tied to a rural mentality? Describe the process leading from citrus fruit to the juice: from the maintenance of the plantations to the harvesting, the treatment after the crop, the storage, and distribution until the production. Since Florida is the US’ main provider of orange juice, there must be large distribution and logistic centers but also production factories where the fruits are processed into juice and other products. Describe and map these infrastructural facilities. The Citrus Research and Education Centre (CREC) of the University of Florida, based in Lake Alfred, is concerned since 1917 with scientific research that have been pivotal to the citrus farming research. The CREC is also to a large extent concerned with the changes in the environmental that lead to a loss in the citrus farming areas in central Florida in the last decades. Describe these changes and document its physical impact in this area. What characteristics are the new occupations of the former farming land? Describe the mechanisms behind the change of land use and talk to the actors involved, such as farmers, authorities and developers.

Site(s)

Citrus orchards along the US Highway 27
VI  Spaces of Flow – Road Urbanization  

TECHNICAL LANDSCAPE OF 
INTERSTATE 4 CORRIDOR

Within less than a hundred years Florida has been transformed from a tropical wilderness to the fourth most populous, and currently fastest growing, state of the USA. This rapid process of occupation and cultivation is powered by a potent system of transportation and distribution. The development of the North American Interstate Highway System from the nineteen-fifties onwards enabled the economic development of Florida and the Migration of Millions from the Industrial North to the Sunshine State. The railway system served as a major economic catalyst during the development of Florida’s tourism but has since, as everywhere in the United States, been reduced mostly to a carrier for goods. With the Florida High Speed Rail system a new public transportation network between Tampa, Orlando and Miami is in planning. Florida’s ports could increase in importance with the widening of the Panama canal.

Start charting the mayor flows of goods out of, into and within Florida. Where are goods produced and consumed? Try the same as above for people. Which are the areas of residence? Which are the areas of work? What are the commuter flows? What are the means of transportation? How do the flows of tourists fit into this picture?

Research on site (Case studies)

Follow the Interstate 4 between Tampa and Orlando and try to map and understand both its physical body and the way it is connected to the territory. How are the different transportation systems organized along this corridor and how do they connect? Follow the pathways of different groups and products along the I-4 corridor to understand the mechanics of distribution and mobility. Visit several distribution centers including Ports (Tampa, Canaveral), Airports (Orlando) Downtowns (Tampa) to observe their spatial and functional organization.

Research in the larger scale

Investigate the development of car and railway infrastructure through time and develop a historic time line. Map the existing transportation network (street, rail, seaports, airports), its carriers (Amtrak, Lynx, Disney’s Magical Express, Cruiseline transportation etc.) and its conditions (travel times, prices, frequencies etc.). Collect information about on-going and future project in this sector (Port of Tampa expansion, High Speed Rail System etc.).
VII Urbanization of the Water Landscape

WATER RESOURCES
UNDER THREAT

With this research topic, we would like to shed light on the link between water resources and urbanization, and to reveal some of the complexity of water management in Florida. Since the time when indoor plumbing became common, individuals, industries and utilities supplying water to the public have drilled wells into the underground water source — called aquifer — to pump fresh water to the earth’s surface for a variety of uses. Most people and industries use groundwater from the Floridian aquifer as their main water supply. Maintaining the balance of the aquifer system is a complex effort; for example, overpumping may lead to the salt-water intrusion into areas where fresh water used to be; further, changes in the landscape and land use, such as building and paved surfaces, tend to alter the quality and quantity of water that seeps into the aquifer, etc. One of the biggest concerns currently present in Florida is the sustainable management and protection of these water resources.

example, water is transported over large distances from Northern Florida. Another interesting aspect of the water resources is related to the specific geological consistency of Florida – the karst-terrain – a land surface produced by water, dissolving the limestone rock. Rather than being drained by a system of creeks, streams and rivers, karst terrain is marked by a series of funnel-shaped basins that drain water underground – such as sinkholes and other cavern systems in the limestone. Not only the heavy rainfall and the drought, but also the man’s activity, such as construction or pollution cause instability and accelerate surface collapse of the karst terrain.

Research in larger scale
We would be interested to learn more about the various facets of the delicate balance between the water resource and the ever-expanding urbanization. What are the water resources other than the aquifer present in Florida, and how are they utilized? The availability of maps showing the various forms of water resources in Florida as single phenomena is a minor issue. Try to compile maps that combine these different forms of water resources such as the aquifer, the sinkhole-regions, the storm water lakes, but also rivers and watersheds as well as artificial water infrastructure. Originally a swampy wetland covered with mangrove woods, Florida’s landscapes have undergone massive drainage campaigns and have slowly changed from subtropical wetlands to landscapes dominated by human activity, predominantly agriculture, tourism, and housing sprawl. Analyze this relatively short history of draining of the country: what where major projects and implementations of the various technological advancements? How did the water consumption patterns change over time, for example with the influences of industrialization and tourism? Explain the different actors involved in water management, what are their roles and responsibilities? What kind of policies and regulations exist to deal with the scarcity of the resources? What is the political dimension of the water issue in Florida? Are there voices talking about potential conflicts between the different governmental jurisdictions regarding water rights?

Research on site (Case studies)
For the field research and possible case studies we recommend focusing on the area of Tampa bay and its corresponding watershed. One of the main sources seems to be the Hillsborough River coming from the Green Swamp nature park area. Describe and map the predominant water sources and water infrastructures in this area and its supply to the different governmental jurisdictions regarding water rights. What are the relationships between the water resources and the natural ecosystems, such as rivers, estuaries and wetlands? What are the attempts and efforts made to preserve water resources and water ecosystems? Talk to the different actors involved in the management and maintenance of water supply and distribution and the protection of resources. Is it organized by the state or partly by private initiatives? Talk also to consumers facing the issue of an increasing scarcity of water in an everyday use. What are their concerns and fears concerning this issue? Which economic sector or part of the society is the largest consumer of water resources?

Site(s)
Tampa Bay and Southwest Florida Water management District, desalination plant in Tampa bay, big water reservoir “C.W. Bill Young”, Hillsborough river etc.
Florida’s specific and rich natural condition is an important pillar of its identity and attraction. At the same time, the Florida lifestyle is based on the domestication and annihilation of this nature (Air conditioning, golf courses etc.). For long Florida’s ecosystem has been altered without any regard to its value. Land development and water use have transformed the state, primarily through drainage and infill of the wetlands that once covered most of the peninsula. The myth of transforming “useless swamps” into “high-quality living environments” through the means of modern engineering lies at the base of its Florida’s speculative real-estate development.

Only since the Seventies has a sense for the value and vulnerability of Florida’s ecosystem developed. Today, many public and private organizations are involved in natural preservation on different scales. Especially private “environmentalist” groups exercise great influence on all development. Nature protection has become a powerful land user and environment-friendliness an unavoidable criteria.

What is the logic behind this effort to “protect nature”? Is there an economy of nature protection? Who are the actors involved and what are their strategies and goals? How, in a highly deregulated real-estate market, is nature protection negotiated with Florida’s rapid urbanization? The goal of this work is to excavate the mechanics behind the notion of nature protection the role it plays in the ongoing urbanization process.

**Research in larger scale**
Learn all about Florida’s natural environment (climate, vegetation and wildlife) and try to graphically represent its features. Draw a time line of events that shows both the gradual consumption of Florida’s natural environment and the development of the concept of “Nature protection.” Map the existing Nature protection areas in Florida and characterize the different actors and models involved.

**Research on site (Case studies)**
Start with the example of Avalon Park, a real-estate development where environmentalist pressure played an important role. Identify the actors and forces present and try to unravel their interrelations. Visit several nature protection parks (The Green Swamp, Lake Kissimee State Park) and investigate the way they are planned, financed, “constructed” and regulated. An further interesting site is the St. John river basin where the conflicting interests of urbanization and nature protection are at the moment publicly debated.

**Site(s)**
Avalon Park, Lake Kissimee State Park, St. John river basin, Orlando Wetlands
Tourism is Florida’s main economy. The pillars of this $57 billion industry are the theme parks and the coastline. Another major economic engine in Florida is the United States Military. There are 109,390 U.S. military personnel currently stationed in Florida, contributing, directly and indirectly, $52 billion a year to the state’s economy. On the Space Coast these two sectors, Tourism and Rocket Industry (both military and civilian) coexist within an unusual geographical setting.

Cape Canaveral was the most prominent stage of the legendary Space Race and is today both a highly secured military infrastructure and a touristic hotspot. It is embedded in large scale Nature Reserves (Canaveral National Seashore, Merritt Island National Wildlife Refuge) that protect it from the outside and at the same time profit from the various ways in with public access to the area is controlled. It seems that the interests of national security, tourism and real estate development and wildlife protection form a complex and somewhat unusual symbiosis that take full use of the area’s natural environment.

The Indian River Lagoon is North America’s most diverse estuary with more than 2,200 different species of animals and 2,100 species of plants and major tourist attraction. In 2007, visitors spent an estimated 3.2 million person-days in recreation on the lagoon. Brevard county, also known as the Space Coast, forms a growing metropolitan region of around 450,000 inhabitants. Nearly 44,943 new houses were built from 2000 through 2009. This was enough to house 112,000 people. However, only 60,000 people moved into the county, leaving the remaining homes vacant and helping to precipitate bursting the United States housing bubble. In 2010 Kiplinger.com rated the county one of five “best” places in America to retire.

Research in larger scale

Create a timeline that shows the evolution of tourism in Florida. Confront this with the history of the Space Race and Cape Canaveral as a center of the aerospace and later the tourist industry. Learn all you can about the natural conditions (flora, fauna, hydrology, geology) of the Indian River Lagoon and the Florida barrier islands in general and try to visualize this information. Interesting issues will be the sweet and salt water balance or the consequences of a possible sea level rise. Investigate and chart the history of technical interventions into this environment (Spaceport, Bridges, Atlantic Intracoastal Waterway, Canaveral Barge Canal, C-54 Canal, Haulover Canal etc.).

Research on site (Case studies)

Investigate and map all the different functions along the space coast (Patrick Air Force Base, Kennedy Space Center, Cape Canaveral Air Force Station, Canaveral National Seashore, Merritt Island National Wildlife Refuge, housing settlements etc.). How are they connected? How are they separated? How is the coastal urbanization developing? In a second step try to show the mechanics behind their coexistence. How are these different interests negotiated? How are the “topographies” of real estate economy, national security and nature conservation interest overlaying and interlocking?

Site(s)

Cape Canaveral
One of the most significant changes in animated space can be seen in the mutations of Plazas. From the traditional open civic space to indoor shopping malls and outdoor strip malls anchored by grocery stores, the values and tendencies of local culture physically manifest themselves in these variations of Plaza. The tension between the traditional Downtown form and the new Plaza has resulted in abundant finely-grained communities outside of the center and vast Void territories close to the core. This urban void is a special kind of absence that carries the weight of what is missing and can manifest itself physically, socially, and economically.

Downtowns, Plazas, and Voids investigates places of daily activity and the residual vacancies between them. Tampa and Orlando are distinct conurbations joined by Interstate 4 and sprawling pockets of development. Tampa’s role as an import-export city has shaped an urban space very different from the tourism support center of Orlando. The formation of these territories reflects a variety of economic stimuli and the pervasive middle class suburban movements of the past sixty years. The impact of the resultant sprawl and its relationship with downtown cores is inseparable. The term “Downtown” has traditionally implied a high concentration of business, government, commerce, and leisure spaces, yet these components are no longer centrally located in Tampa or Orlando. Although the city cores still house significant business and governmental agencies, places of commerce and leisure have extended far beyond the city proper. Isolated self-governing utopias have emerged within the fabric, such as Disney World, and even Downtown Disney. If components of the Downtown formula are de-emphasized or removed what is the new definition of “Downtown”? Is the form, location, and function of “Downtown” temporal?

Research in larger scale
The research begins with an investigation of territory. Using Orlando and Tampa as the end caps of an emerging megalopolis, it examines the political and economic beginning of these cores and their continual expansion through the merging of smaller centers. What is the organizing framework of these two cores? How are they independent yet intrinsically connected? The second portion identifies isolated utopias, within this megalopolis, which function as independent downtowns, most notably occurring in Walt Disney World. Considering the high concentration of business, government, commerce, and leisure, are these utopias Downtowns in themselves or are they part of a greater notion of downtown that socially and economically reaches beyond its physicality? This isolation is compared to the evolution of traditional downtown centers in Tampa and Orlando. These transformations are examined in tandem with the sprawl and mutation of commerce and leisure centers. If these centers abandon the traditional downtown format and move to the suburbs, does the territorial area of downtown increase? Can downtown sprawl exist? Does the function of downtown change and in turn the definition? Finally, the resultant physical, social, and economic voids are presented in conjunction with the transient prosperity that brings them into being. Are the voids necessary? Are there positive and negative voids? Is the void inherently part of the creation and evolution of downtowns? What is the definition of downtown in the megalopolis of Interstate 47?
PRIVATE
PRODUCT-BASED
URBANISM

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Spring Semester 2011
I
PRIVATE URBANISM
A SETTING OF INDIVIDUALITY

THE PERFECT MIXTURE:
HOW TO COMPOSE PRIVATE COMMUNITIES
More Than Just a House: a Complete Lifestyle
Golf Course Community
Waterfront Living
Retirement Village
Traditional Suburban Development
Neotraditional Community

PARADIGMS AND PROTAGONISTS
OF PRIVATE URBANISM
Three Parallel Histories
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THE PERFECT MIXTURE:
HOW TO COMPOSE PRIVATE COMMUNITIES

Private communities are housing developments that are planned and built by private companies or individuals rather than by the government. Because they play such an important role in Florida’s present land development, competition is rife between them. As a result, each community specializes and caters to a very specific target group. This results in homogeneous communities which thrive on marketing. This chapter exposes the vast array of possible combinations and then analyses the basic characteristics and land uses of the private communities in Florida using five concrete examples, one from each typology identified.
Florida’s private communities come in all shapes and sizes; each community complements their offer with a dazzling array of amenities, creating a complete package to suit every lifestyle. Their product can be tailored to specific age groups, income levels, entertainment options and lifestyle choices. Within the many possibilities, we have chosen five key examples based on their unique use of land (waterfront living and golf-course community), demographics (retirement villages), and efforts for sustainable development (neotraditional community), and, in addition, a traditional suburban development as a comparison point.

**Infinite Choices**

The diagram on top maps out the different types of private communities in relationship to the characteristics of the buyer. The table above takes 11 types of private communities in Florida (listed on the left) and matches them to the amenities offered (listed on top). Almost every combination is possible.
Golf Course Community
The idea behind a golf-course community is to live directly on a golf course. As a result, houses are arranged in clusters between the golf links. The development of the course in itself is not profitable. However, the investment pays off with the price premiums that a house on a golf course commands. A large number of retirees live on golf course communities, as their free time allows them to play often.

Facts
Location: 2995 Remington Boulevard, Kissimmee, FL
Population: 1275
Number of households: 673
Racial composition:
55% Hispanic, 32% White, 9% Black, 4% Other
Amenities: restaurant, shop, golf school, swimming pool, banquets, weddings
Islands in a Sea of Green

The houses in a golf course community are arranged in compact clusters between the golf links. A main connector road provides access to these clusters, which in turn have smaller roads, mostly with dead-ends and cul de sacs. The roads and houses are organically shaped to better integrate them with the surrounding golf-course. The ratio of green versus built space is almost 1:1. The public space however is monofunctional: only for playing golf. Few other amenities exist.
Waterfront Living
One of the most extreme forms of land development in Florida is the waterfront or canal house. Here, massive earth movements are undertaken to maximize the length of the coastline, allowing residents to park their boats directly in front of their houses. This community also appeals to retirees, specifically boat fanatics.

Facts
Location: 5819 Driftwood Parkway, Cape Coral, FL
Population: 2075
Number of households: 748
Racial composition: 90% White, 8% Hispanic, 2% Other, 0% Black
Amenities: yacht club, shops, restaurants
The structure of the typical waterfront community has long, thin fingers of land with a road in the middle. This enables plots to have street access on one side and waterfront views on the other. Waterfront communities are relatively expensive to build: there are big earth movements involved and the canals take up a lot of space. As a result, no green public space is provided. The only amenity is boating, while some communities also have a marina.
Retirement Village
Retirement villages attract people from all over America to retire in sunny Florida. Because their residents have unlimited free time, this type of development is loaded with amenities and activities such as restaurants, shops, swimming pools, movie theaters, and golf courses. The residents are part of what is known as the “third age”, retired but definitely not old. Everything is controlled and choreographed to make the residents feel young and healthy. People under 55 are not allowed.

Facts
Location: The Villages, FL 32162
Population: 75,000
Number of households: 38,983
Racial composition:
97% White, 2% Other, 1% Hispanic, 0% Black
Amenities: restaurants, shops, banks, post office, bowling, hairdresser, church, health center, supermarket, movie theater, dentist, vitamin shop, town hall, police, golf course, recreation centers
Retirement communities have a clearly discernible center where amenities are concentrated. This center incorporates some aspects of Disney, including a main street with a square at the end. Close to the center, there are large retail structures surrounded by parking lots. The homes are arranged further out in traditional suburban fashion. Plots, however, are especially homogeneous as almost every family is the same size: two. The center is reached via a second network of streets for golf carts, which operate independently from cars.

**Forever on Vacation**
Traditional Suburban Development

This type of development is the most common in Florida. Its origins date back to the 1950s with the proliferation of the automobile and the baby-boom. Even though the basic typology has not changed, suburbia is increasingly being planned by private developers. Within the traditional suburban development, we can distinguish between gated communities and private (but not gated) ones. Very few amenities, if any, are provided.

Facts

Location: Waterford Lakes, Mark Twain Blvd, Orlando, FL
Population: 885
Number of households: 240
Racial composition:
63% White, 23% Hispanic, 7% Black, 7% Other
Amenities: Supermarket, post office, bank, sport club, dentist, pediatrics
Traditional suburban developments are extremely land intensive. The street network is laid out so there is no through traffic. Only the residents that live there drive on that street. The result is a high concentration of cul de sacs and closed circuit roads, making the entrance easy to control via a gate or a control point. The structure of suburbia is completely dependent on the car. People who are unable to drive are totally excluded.
Neotraditional Community
A neotraditional community aims to recreate the past as the ideal for future living. Houses are arranged in small neighborhoods, ideally within a five-minute walk of the town center. The town center provides all the basic daily needs like pharmacies, bakeries, supermarkets and banks. Office space and schools are also provided, allowing its residents to live, learn, work and play without the stressful commute.

Facts
Location: Avalon Park, Orlando, FL 32828
Population: 11,000
Number of households: 4831
Racial composition: 54% White, 28% Hispanic, 10% Other, 8% Black
Amenities: YMCA, baseball, tennis, swimming pool, parks, supermarket, bakery, restaurants, doctors, bank, pharmacy, gas station

Max, lives in an apartment building of Avalon Park
“The benches by the lake are perfect!”

Chrystel, sister of a resident of Avalon Park
“The bakery is awesome!”
Back to the Future

Neotraditional developments look to the small-town past to model their communities. There is a clearly discernible center which accommodates all of the daily needs such as schools, office space, supermarkets, pharmacies, banks, restaurants, retail, among many others. A key concept is never having to move away from the community. Children can walk to school, adults can work in the center, empty-nesters can move into small apartments and there is assisted living for the elderly.
PARADIGMS AND PROTAGONISTS OF PRIVATE URBANISM

Florida’s present housing development patterns are a result of three parallel histories. Having previously had a very low population density, the state’s lands were subdivided into large tracts of land. Chapter 190 of the Florida Statues provides a legal basis for private individuals and corporations to establish self-government. This combination was crucial in attracting Walt Disney, which in turn provided the fantasy-like, artificial-world component to the mix. In fact, The New Urbanist community of Celebration provides a direct link between Disney and Florida’s artificial “lifestyle” communities. The timeline below illustrates these three parallel phenomena and how they provide the ideal conditions for Florida’s present private product-based communities to exist.
Three Parallel Histories
Florida's land development history, the influence of Walt Disney in the region, and more recently the growing momentum of the New Urbanist movement have all played a decisive role in shaping the state's private communities.
Land Development of Florida

Until the beginning of the 20th century, Florida had an extremely low population density. The state was thus divided into large tracts of land. Ever since, however, its growth has been spectacular and marked by big infrastructure projects built all at once, such as the Tamiami Trail or the Overseas Highway. The state government, however, has not been able to provide housing for all this growth. As a result, chapter 190 of the Florida Statutes was introduced to allow for private corporations and individuals to provide these investments, in return for having a certain degree of autonomy. The existence of this legal base, in addition to the large tracts of land available and a healthy market of buyers, make private developments particularly attractive in Florida.

Hot Spot of Growth

Florida attracts Americans from across the country, particularly the mid-west and the rust-belt. It also attracts many immigrants, mostly from Central and South America. The result is one of the highest rates of growth in the nation. Combined with the millions of tourists who visit the state’s attractions and beaches, Florida’s infrastructure is constantly being challenged.

Florida Statutes

Title XIII: Planning and Development
Chapter 190: Community Development Districts

190.001 Short title. - This act may be cited as the “Uniform Community Development District Act of 1980.”

190.002 Legislative findings, policies, and intent.

(1) The Legislature finds that:
(a) There is a need for uniform, focused, and fair procedures in state law to provide a reasonable alternative for the establishment, power, operation, and duration of independent districts to manage and finance basic community development services; and that, based upon a proper and fair determination of applicable facts, an independent district can constitute a timely, efficient, effective, responsive, and economic way to deliver these basic services, thereby providing a solution to the state’s planning, management, and financing needs for delivery of capital infrastructure in order to service projected growth without overburdening other governments and their taxpayers.

http://www.leg.state.fl.us/Statutes/
**Walt Disney World (since 1971)**

WDW is the biggest entertainment center of the world (122 km²). It is visited by 17 millions people per year and contains four theme parks, two water parks, six golf courses and twenty-three hotels.

**EPCOT (1982)**

The Experimental Prototype Community of Tomorrow was originally intended to be a real living community: a prototype for the future development of American cities. The center provided the transportation hub and a high concentration of retail and hotel space. The individual neighborhoods were arranged radially and accessed through the people movers. Unfortunately, Disney's dream died with him and EPCOT was built as a mere futuristic theme park.

**Celebration (1993)**

Celebration, Florida was the first living community built and developed by the Disney Company. As in its theme parks, the aesthetics are strictly regulated. Combined with the principles of New Urbanism, this community makes Disney’s fantasy world available for everyday living. Its numerous imitators in the form of private lifestyle communities and New Urbanist developments are testament of the huge success this concept enjoys.

**Walt Disney**

Walt Disney’s ambitions for his Florida project went far beyond fantasy and entertainment: urbanistic ideals were at the core of his vision. Learning from his own mistakes in Disneyland in California, and taking advantage of the vast space available, every single detail was thoroughly planned. A particularly important topic was transportation. In an era when the automobile was increasingly dominating everyday America, Disney was one of the first opponents of this phenomenon. His plans for Walt Disney World in Florida included railroads, the Monorail, and the famed People Movers.

**Walt Disney World (since 1971)**

WDW is the biggest entertainment center of the world (122 km²). It is visited by 17 millions people per year and contains four theme parks, two water parks, six golf courses and twenty-three hotels.
Main Street, USA
A key element in both Disneyland in California and Magic Kingdom in Florida is Main Street, USA. This generic street was modeled on the historic Main Street of every small American town. Disney thus aimed to transport his visitors back to the Main Street of their childhood memories.
Fantasy and Reality
The Disney Company portrays the Magic kingdom as an island of fantasy in the middle of nowhere. However, the satellite image reveals a vast infrastructure backstage of parking lots, roads and maintenance areas that make the magic happen. A system of tunnels (below) is used for delivery and for employees to move around without being seen.
The not-so-Magic Kingdom

The separation of land uses of Disney’s Magic Kingdom reveal vast areas devoted to backstage activities. The perfect fantasy of Main Street does not happen by magic. There are huge parking lots and infrastructures hidden from view that make everything run smoothly.

An Area for Every Function

Nature is used to hide the backstage areas. Transportation modes are also separated; pedestrian do not share streets with cars, delivery is carried out underground, out of view of the visitors, and tourist can arrive at the Magic Kingdom by land (buses), water (ferry) or air (monorail).
New Urbanism in Florida

Urbanism and planning have a long history in Florida. In 1919 John Nolen, America’s preeminent planner in the early 20th century, initiated the planning of new towns based on the garden city ideal and strongly influenced prominent English architect and town planner Raymond Unwin. In 1925 Nolen planed Venice, the most complete example of garden city in Florida. In the 70s and 80s Léon Krier’s ideas about the reconstruction of the “European city” had a strong reception in Florida. He helped to master plan the private community of Seaside, the first New Urbanist Experiment. As of the 1990s the New Urbanist Movement has gained strong momentum in Florida. Since the building of Celebration, many other developments have successfully implemented the ideals of New Urbanists across the state.

New Urbanist principles

1. Walkability
   - Most things within a 10 minute walk of home and work
   - Pedestrian friendly street design

2. Connectivity
   - Interconnected street grid network disperses traffic and eases walking
   - A hierarchy of narrow streets, boulevards, and alleys

3. Mixed-Use & Diversity
   - A mix of shops, offices, apartments, and homes on site
   - Diversity of people - of ages, income levels, cultures, and races

4. Mixed Housing
   - A range of types, sizes and prices in closer proximity

5. Quality Architecture & Urban Design
   - Emphasis on beauty, aesthetics, human comfort, and creating a sense of place
   - Special placement of civic uses and sites within community

6. Traditional Neighborhood Structure
   - Discernible center and edge
   - Public space at center
   - Public open space designed as civic art
   - Contains a range of uses and densities within 10 minute walk
   - Transect planning: Highest densities at town center; progressively less dense towards the edge

7. Increased Density
   - More buildings, residences, shops, and services closer together for ease of walking, to enable a more efficient use of services and resources, and to create a more enjoyable place to live

8. Green Transportation
   - A network of trains connecting cities, towns, and neighborhoods
   - Pedestrian-friendly design that encourages a greater use of bicycles, rollerblades, scooters, and walking as daily transportation

9. Sustainability
   - Minimal environmental impact of development
   - Eco-friendly technologies, respect for ecology and value of natural systems
   - Less use of finite fuels
   - More walking, less driving

10. Quality of Life
    Taken together these add up to a high quality of life well worth living, and create places that enrich, uplift, and inspire the human spirit.

http://www.newurbanism.org/newurbanism/principles.html

The New Signature

Calthorpe, Duany, Moule, Plater-Zyberk, Polyzoides, and Solomon founded the Congress for the New Urbanism in 1993. The CNU has grown to more than 3,000 members, and is the leading international organization promoting New Urbanist design principles. It holds annual congresses in various U.S. cities.

http://www.newurbanism.org/newurbanism/principles.html
CHOREOGRAPHY OF INDIVIDUAL EXPERIENCE:
A CASE STUDY OF AVALON PARK

Using Avalon Park as our case study, we examine the role of the developer at the center of the design process. To what extent is his vision carried out and what role do government authorities and other actors play? What factors make up the individual identity of Avalon Park that make it different from the surrounding communities? We believe these communities provide much more than housing and a center: they provide a complete lifestyle, identity and individual experience.
Overview

Avalon Park is a 7.5 km² neotraditional, private community located East of Orlando. Planning includes 3,223 single-family units, 800 multi-family units and 46,000 m² of commercial space, workplace, and civic sites. “Avalon Park was built on the rich traditions of small-town life. Trees-lined streets, lakes, lush landscaping, rocking chair porches and nearby schools, shops and professional services were designed to evoke an ideal small-town America.” (Avalon Park web site)
Beat Kähli, developer of Avalon Park

“You have to lobby, and lobby, and then lobby some more”

Project Development

Avalon Park took over 20 years to develop, and it is still not 100% complete. The most time consuming stages of the development process are the negotiations with environmental groups and government authorities. The construction of the town center is also significantly slower than the construction of the individual neighborhoods. It takes time for retail demand to build up. An all-at-once construction is not financially viable.

1989

Land purchased, 1989
9’500 acres of agricultural land were bought in Orange County, well beyond the farthest Eastern suburb of Orlando.

Original planning
First planning for Avalon Park by Andrés Duany for 15’000 homes.

Planning involved
Since 90% of the land had been sold, a new smaller concept had to be made.

1990

Building Permits
Land east of the Econolothockee River sold
As part of the negotiation process with the environmental groups, between 1992 and 1996, 80% of the land was sold off and protected from development.

1996

Development of Regional Impact, 1996
Application to the State of Florida, the Regional Planning Council and Orange County for construction and planning permits.

Permits obtained, 1998
Authorized to build 2’831 homes and 720’000 square feet of retail and office space.

1996-1997

Negotiations with the banks, 1996-1997
Bank of America agreed to finance Avalon Park under the condition that its houses and the same as those in neighboring communities.

1997

Access bridge built, 1997
A bridge needed to be constructed in order to access the construction site.

Construction starts
The homes of Live Oak Village, the first phase of Avalon Park, are started in 1998.

2005

Construction of town center starts, 2005
Supermarket, pharmacy, banks, restaurants, bakery, gas station, etc. all built within 6 years.

2009

First residents move in
Avalon Park’s first houses were occupied in the summer of 1999.

Property Owner’s Association transferred to residents
Since 75% of the houses are occupied, the control of the POA passes from the developer to the residents, who form a board of directors.
The Swiss Developer
A native of Zurich, Switzerland, Beat Kähli had different ideas about suburban development. As a foreigner in Florida, it was not easy at the beginning to explain why his ideas were better than what was being built. Over a span of 20 years, however, his project became the top selling development in Florida. He is now one of the most influential businessmen in Orlando. As he personally describes it, Avalon Park is a fusion of Zurich and Florida, with European urbanistic principles at its core but adapted to American culture.

Negotiations and Conflicts
The developer in the center has to negotiate with several actors in order to build his community. In the case of Avalon Park, these discussions did not always run smoothly. As explained in the graph above, three were particularly problematic.

State
A good relationship with the local and state government is crucial to a private community, as they ultimately give the construction permits. However, they also profit from this development in the form of tax dollars. Avalon Park contributes over $18 million in taxes per year and Kähli estimates the city of Orlando makes about $10 million in profits.

Environmental Groups
Negotiating with environmental groups is especially cumbersome for the developer. Kähli had to sell 80% of the land (everything east of the Econlockhatchee river) and put it under environmental protection to be able to develop the remaining 20%.

Residents
The developer’s relationship with the residents is temporary. Once over 75% of the homes are occupied, the control of the community passes over to the Property Owners’ Association. For Avalon Park, however, Kähli is part of the POA so he does retain some control.

Constructors
Homes in Avalon Park were built and sold by independent contractors according to Beat Kähli’s ideas. Convincing these firms to agree to the design criteria of Avalon Park was extremely difficult. In Florida, home builders normally save costs by building the same home on several adjacent lots. They did not like the idea of having homes of different price ranges together and were especially against the garages in the back. After a long search, Kähli found some small firms willing to take the risk.

Investors
Securing the financing for Avalon Park was a long negotiation process. The banks feared the project lacked a magnet to attract buyers and were sceptical of the financial viability of the project. They really wanted a golf course. Kähli found a creative solution by providing all levels of schools to attract residents.
Lifestyle as a Brand
The Avalon Park brand is part of the individual resident's identity. A vast array of activities is offered as a means to create a community, some of which are depicted on the opposite page. This is especially important in American culture, where the average person moves every five years. The Avalon Park brand is therefore not restricted to the built environment, it is part of the identity of every resident.

Scott, 3 year resident of Avalon Park
“I love this close knit community”

Something for Everyone
There are activities designed for every taste, every age group, every time of day, and all throughout the year.
Live, Learn, Work and Play

Avalon Park’s original slogan was “live, work and play.” “Learn” was later added to underline the importance of schools in the community. Avalon Park has two elementary schools, one middle school, one high school and one technical college. When the School Board lacked the funds to build the high school, Avalon Park donated the land and even built the school itself, only selling it to the school board several years later. A complete set of schools is cited as being the prime reason why Avalon Park has been the fastest selling development in Orlando for several years running.

Ross, architect and resident of Avalon Park

“This is the only community where children can go safely on foot to school and where parents are not taxi drivers”
Construction
The average American changes house every five years. As a result, homes are seen as consumable goods and it is thus important that the house cost as little as possible to produce. In order to save costs, homes are often constructed in series, with the same house repeated multiple times on the same street. In addition, houses are segregated by price range; all houses on one street cost more or less the same. Avalon Park tried to both increase the quality of the construction and to mix up the home's sizes in the community. At the beginning, this was relatively successful. As the project progressed, however, the original vision was somewhat lost. The demand for homes increased dramatically and there was a need to expand rapidly. The later neighborhoods of Avalon Park reflect this and have mass-produced homes of lower quality.

Price Evolution
The price of the house does not depend on its quality. The first homes of Avalon Park were relatively inexpensive and built by small home builders that paid close attention to details. As demand increased dramatically and the speed of construction picked up, there was a marked decrease in quality. Big home building companies turned to mass-production techniques. Avalon Park even developed a whole neighborhood with garages in the front as the demand for them was so high.
The Property Owners’ Association

This community association represents the common interest of the homeowners. Buying a house in Avalon Park automatically makes you part of the POA and every house is subject to its rules and regulations. The relationship between the residents and the POA is not always problem-free. This association strictly regulates what each resident can and cannot do with his own home, some of which are listed in the opposite page. The POA also oversees the upkeep of the homes and is the first one to complain if the front yard is not well taken care of. However, the residents view this as a necessary evil to maintain control over the aesthetics of the community. In particular, the POA assures that homes in its community do not lose value. This is of vital importance in America, where buying a house is used as a means to make money given the various tax-breaks available for mortgages. In just 25 years, the number of community associations in the United States has grown from 10,000 to over 249,000, representing over 50 million people.

Use Restrictions and Rules of the Avalon Park Property Owner’s Association, Inc

B. Exterior Appearances and Landscaping: The painting, coating, stain, roof shingle and other exterior finishing colors and materials on all residential buildings may be maintained as originally installed, (…) prior approval by the Architectural Review Committee shall be necessary before any such exterior finishing color or material is changed. All paint colors must be selected from the approved color books located in the POA’s office.

G. Flag Poles: (…) One American Flag, no greater than 3 feet by 5 feet, mounted on brackets or poles located on the house or garage will be allowed and ARC approval will not be required.

H. Trash and Garbage: (…) Containers shall be placed at the curb on the day a pick up is to be made (…). Trash containers must be removed within twelve (12) hours of collection. At all other times, such sealed and covered containers shall be stored so they cannot be seen from surrounding property and streets.

K. Clothes Drying: No portion of any of the Properties shall be used as a drying or hanging area for laundry of any kind.

U. Animals: Each household shall not exceed a total of four (4) animals, consisting of dogs and/or cats. No horses, cattle, swine, goats, fowl, or any other animals (…) shall be kept on the Properties.

W. Maintenance of Landscape Areas: All landscaped areas (as well as the paved public right-of-way) shall be maintained in a live, healthy and growing condition, properly watered and trimmed.

X. Trees: (…) Single-Family homes are required to have one Grade A, Single leader, 2-3 Caliber, Live Oak Tree installed in the right-of-way in front of their home.

HH. Air Conditioning and Pool Equipment: No window air conditioning units shall be permitted. (…) All air conditioning units, heating units and pool equipment shall be shielded by landscaping or fencing, so that they shall not be readily visible from any adjacent street.

http://www.avalonparkpoa.com/live/community-docs/

Avalon Park POA Budget 2010: $5’065’036.00

- General and administrative expenses 43%
- Grounds maintenance 30%
- Recreational expenses 11%
- Utilities 6%
- Reserves expenses 11%

- Management fees, security, insurance, community events
- Plants, parks, irrigation, termite bond, lights
- Electricity, water, telephone, cable TV
- Pool, community center, fitness center, tennis court, parking lots
- Roof and paint of townhouses and clubhouse, alleys ways
The Backstage Concept

Disney's idea of hiding service infrastructure in the back is transplanted to a residential community. The front facade of the house is carefully designed and landscaped. It is intended as a public space and gathering point for the community. In fact, the rules of the Property Owners' Association regulate the front of the house only. It is kept garage-free to create a pedestrian-friendly environment. In turn, the garages have been moved to the back of the house, where they are accessed through a network of alleys (see opposite page). The side and back facades are also much simpler and inexpensively built. It is all about keeping up appearances in the front, with the real workings of the house relegated to the back.

The Back Alley

A second network of smaller streets runs in the back of the house and provides access to the garages. Compared to a traditional suburban development, the required area for roads is more or less the same, the only difference is that the garage is in the back. This is an example of a compromise between new urbanist principles and American culture: the car is hidden because American culture is unwilling to give up the car completely.
Green Public Space

In traditional suburbia, green space is privatized in the form of a back-yard. Avalon Park turns this around and provides green space that is public and in the front. As a result, community ties are strengthened as this green space is used as a gathering point, to play frisbee or to walk the dog. Moreover, because houses are oriented towards the front and not the back, there is increased social interaction between neighbors. By contrast, in the suburban communities the green space is traditionally private, in the form of a back yard (1a). Due to the form of the front-loading houses, the public space is interrupted by a series of garages entrances (1b).
Security Concerns

Security is a key reason why families move to private communities. However, there are diverging opinions on whether a gated community is safer than a non-gated one. Avalon Park is of the opinion that open, all-inclusive communities are safer. Criminals often choose to live in gated communities as the police cannot get to them. Security in Avalon Park is provided by a public/private partnership. No private police officers are present, but the community pays the city for it to send extra police officers. A neighborhood watch program is in place with the Orange County Sheriff’s Office, whereby a network of neighbors report and notify suspicious activities.

Avalon Park’s Drug dealer

What happens if a known drug dealer buys a home in the community and his kids are beating up the other kids? The Property Owners’ Association does not have the power to kick him out. When this happened at Avalon, the community paid for a police to park in front of his house 24 hours a day. The drug dealer moved out on his own accord two weeks later.
Foreclosures
Avalon Park was not seriously hit by the financial crisis. Considering that Florida, and specifically Orlando, are one of the worst affected centers of the speculative bubble, there are relatively few houses in foreclosure within the community. Part of this can be attributed to good luck; the bulk of the construction was done just prior to the recession. However, the developer also deserves part of the credit. Residents were chosen more carefully and conservatively than in other communities.
The Stage
Having a private developer at the center of the design process results in communities which are extremely homogeneous in terms of their visual identity. Because competition between communities is rife, marketing plays a crucial role in the success of the community. Residents believe their community is sustainable if it is marketed as such, irrespective of whether it is truly sustainable. This allows developers to create key views and signature buildings, those that are prominently portrayed in their publicity. In a sense, these act as the stage where the pre-conceived lifestyles play out. We believe such residential developments are much more than houses and urban design, they are about the complete organization of life.
COMMENTARY
PRIVATE URBANISM

Florida’s urbanization is still very young and so are its communities. A large proportion of the people living in Florida today grew up and spent their life somewhere else (typically the industrial north). For the younger generation work-related dislocations have anyway become a matter of course as the average American changes his home every five years. In the boom years with constant valorization owning a house was also a lucrative speculative investment and only a stepping stone on the way to an even better home. This ephemerality might be one factor behind the emergency of private housing developments which not only supply a variety of so called housing products but also a curated if not staged community life. Such places – products of private urbanism - cater to any need in the market of lifestyles. The work shows the whole spectrum of such personal dreams come through in a matrix of age, security, income and lifestyle. Legally they are based on Chapter 190 of the Florida Statutes which allows private individuals to form such virtually self-governed communities and tax their inhabitants for the services – infrastructure, security, media and often a specific lifestyle – provided. Some invent their own history, for example based on their inhabitants youth in post-war America, and entertain their often elderly population with an endless program of activities and events. In this attempt to reproduce an instant and cellular version of the perfect American life developers take inspiration both from Disney’s logic of simulation and marketing and from the New Urbanists small town ideology. Such untainted idylls can of course only be achieved through the rigorous control and exclusion of any only remotely disturbing elements.
II
LIGHT URBANISM

A Vague Definition
Light Is Dense
Five Places to Study
On the Road

A TEMPORARY URBANISM
Sun ‘n’ Fun Air Show
Traveling with Events

A SNOWBIRD’S PARADISE
Harbor RV Resort and Marina
Moving with the Climate Conditions

A BETTER RESORT ON THE COAST
Sun ‘n’ Fun Campground and Resort
Going Mobile

AN AGE QUALIFIED COMMUNITY
Colony Cove
Mechanisms of Urban Growth
Building Under a Roof
Petrification of the Mobile

AFFORDABLE LIVING OR
THE TRAILER PHENOMENON
Thrasher Road
Mechanisms of the Countryside
The Hurricane Act

WHERE WILL THEY END UP?
The Coast
The Heartland
A Vague Definition

When you speak about Light Urbanism in the United States, hardly anyone will understand what you mean; it seems to be a term which does not bring images to mind. While we were thinking about a living form below on-site built homes, people thought about the urban fractures that will fly away whenever a hurricane hits. Light Urbanism may be an expression like “Weak Urbanism” - it describes a living situation with minimal infrastructure, often of low quality. But in exchange for amenities they offer affordable prices for young families, and immigrants, and give elderly people the chance to buy a seasonal home to spend mild winters in Florida.

The history of Light Urbanism started with the first boom of camping trailers in the US in the early 20th century. People started exploring America’s beautiful landscape, pulling along a home’s comfort behind their cars. While some trailers were small and light, most others got larger and heavier. In the fifties, the first mobile homes appeared. They became too large to be moved frequently and offered a spacious home for far less money than a site-built home. By taking off the wheels, the mobile home lost its original advantage of mobility to petrification.

The industry reacted by calling their products prefabricated homes, which began to look more like houses than trailers. They praised the advantage of building a home like a car in a factory, until losses due to hurricanes weakened their reputations. In the 1970’s the government set up building codes to reduce the risk of destruction, bringing along the only changes in production until now.
Light Is Dense

Although the word “light” in front of urbanism suggests a less dense development it is not quite like that. Light urbanism can be split into different fields: the mobile home park (composing 50 percent of all the mobile homes), the mobile homes in the suburbs, and RV parks. All these categories surprisingly form rather dense communities. Only out in the country, mobile homes appear widespread between towns. This fact draws a line between light and middle class urbanism. While middle class normally means a backyard, maybe some woods, and a scenic road, the surroundings of a mobile home in a park are rather reduced. Even in the mobile home parks, the density does not get really high considering that six dwellings units per acre are already “high density” in Florida.
The mass of mobile home parks and campgrounds in Florida is almost countless. Touristic places are often on the coast, together with the more expensive mobile home parks. Inland Florida, called heartland, the poorer, less touristic region, offers campgrounds for a lower budget, as well as mobile home parks as affordable living possibilities. This study is focused on five of them - different in size, place, and price - giving an overview of the whole range of parks and campgrounds.
Diagrammatic Overview
This diagram shows every tenth mobile home park in Florida, ordered in size and latitude.
On the Road

Light Urbanism not only provides affordable housing for people who cannot afford a normal site-built house, but also a form of tourism and lifestyle. Our team rented a recreational vehicle (RV) to experience our topic more directly - living the RV lifestyle. We spent most nights in camping and mobile home parks, taking pictures of the locations and talking to the people living there.

Our RV was 25 feet long and surprisingly comfortable. We always carried kitchen, toilet, shower, living room and six sleeping accommodations around. The fresh water tank had a capacity of 180 liters; gas and generator allows for several days. Less surprising was the high gas consumption, which helps to explain why people in RVs stay longer in one place instead of on the road everyday.
A TEMPORARY URBANISM

An uncertain number of people, estimates say around four million, travel the whole year through America. Most are in their so called “third age,” a group of active, retired people. They are hard to count, because they have no permanent home. They are generally on the road, but from time to time they get together and from a temporary city. Most of these cities are linked to an event, like a race or a music festival. Sometimes they camp in places where no city could exist, i.e. in a desert. They use their advantage of an self sufficient vehicle for short time, before they go back to refill gas and water and the temporary city disappears again.
**Sun ‘n’ Fun Air Show**

Lakeland Linder Airport is located about ten kilometers eastwards from Lakeland downtown. The airport offers daily connections to other regional airports like Plattsburgh, NY. The airport is known to aviation fans for the annual festival. The festival hosts several thousand visitors every year and about 5,000 planes over six days. More than 2,000 RVs travel to Lakeland to witness the Fly-In. These guests participate in a kind of leisure nomadism; many of them are retired, some are veterans.
Sun ‘n’ Fun Air Festival, Lakeland

Count......................................................................... Polk County
Next City..................................................................... Lakeland
Area............................................................................. 396,182 sqm

Founded in.............................................................. 1974
Organization......................................................... Sun ‘n’ Fun, Voluntary Organization
On-site Built + Festival Buildings............................... 198
RVs.............................................................................. 1205 + ca. 1000 Planes
Mobile Homes............................................................. 0

Price to stay one Night in an RV (no electricity/water)...... 35 $
What makes these events a kind of temporary town or “event city” is not only the large number of people going there but also the large amount of infrastructure offered by the organizations and/or the visitors themselves. Sun ‘n’ Fun has nine different public bus routes, a daily newspaper, museums, air shows, a radio station, a flea market, a fair, public toilets, wifi-internet, public electricity generators, two temporary Starbucks, and a lot of other food and drink stalls, mostly organized by volunteers.
Mobile Police and Fire Station
Postal Service
Public Bus System
Satellite Dish for TV, Radio, even Internet

6421 Cars
915 Planes
1245 Recreational Vehicles
190 Hangers, Permanent, and Temporary Buildings
Aviation Fans from All Over
Aviation freaks drive long distances for their festivals, some even come down from Canada to Florida for a few days. A place, where you can see old aviation fans discussing is the flee market, where every part of a plane is for sale. Old pieces, mostly broken pieces, and are only usable if you have a big background knowledge about aviation.
Traveling with Events
The United States offer a wide choice of beautiful nature parks and open air events. These are perfect circumstances to live a mobile life. Many people own a home on wheels, using it several days a year to go to certain events. The only things they need: a big network of streets, satellites for TV and internet connection as well as huge parking lots to camp on. Some people sell their house when they get older and retire from work, to buy an RV. They generate a new type of nomadism - the leisure nomadism - and live an old American Dream: forever on the road.

The biggest annual event is the Burning Man Festival in the middle of nowhere; somewhere in the desert in Nevada. The festival is a gigantic art exhibition and show-off event for everybody. The highlight of the eight day event is setting a huge silhouette of a man on fire.
A SNOWBIRD’S PARADISE

When the trees turn to warm, red colors again, and early autumn is in the air, it gets time for the elderly people in the North to prepare their homes for a long absence. They pack all they need in their big car, truck, or RV, and drive south, to the Florida peninsula where they meet their friends from Michigan, Ohio, Wisconsin, and New York State. Most of these so-called “snowbirds” return to the same place every year. Some own a cheap mobile home in a park, some bring along their trailer or RV every year - even though the gas prices are continually rising. When the northern snow is gone, the Snowbirds return home.
Next to Lake Rosalie, which is part of the Lake Kissimmee State Park, is an old trailer park. The main activity here is fishing. Even though it is officially called a 55+ community, everyone seems to be welcome. The park is as calm as the area around it without highways, railroad, or city. Only a grocery store with a gas station is reachable by foot or golf cart. In summer, the park is empty.

Around the park there are more mobile homes which are less organized - they profit from the Harbor RV and Marina's attendance. Prices are low, and people normally stay here for several months.
Harbor RV Resort and Marina

- County: Polk County
- Next City: Lake Wales
- Area: 26'400 sqm
- Founded in: 1987
- Owner: Robert B. Smith
- On-site Built: 2
- RVs: 51
- Mobile Homes: 28

Price to stay one night in an RV (with electricity/water): $24

- Fresh Water
- Waste Water
- Gravel Lot
- Shadow Tree
- Wifi Internet
- Electricity
- Picnic Table

Land Collapse
Lakes appear
Controlled River
Land Cultivated

Reforming Lakes
Road Built
Channel Built

Land Collapse
Lakes Appeared
Controlled River

Land Collapse
Lakes appear
Controlled River

Land Collapse
Lakes appear
Controlled River

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Passing Time
Some go cycling, some love fishing, and most just sit in front of their winter homes and enjoy the climate of Florida, knowing they would freeze up North where they come from and will go back when Florida is too hot and humid in summer time.
To Treat Oneself in Florida
The park is generally a 55+ community. Since there is no entertainment infrastructure around the park, the community organizes all events on its own.

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Annual Area Occupancy

<table>
<thead>
<tr>
<th>January</th>
<th>April</th>
<th>October</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Park</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

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Visitors Profile

<table>
<thead>
<tr>
<th>Home in North Eastern America</th>
<th>Mobile Home in Florida</th>
<th>Recreational Vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stay Duration</td>
<td>Costs to Stay</td>
<td>Mobility of Homes</td>
</tr>
<tr>
<td>Costs to Stay</td>
<td>Mobility of Homes</td>
<td>Living Space in Homes</td>
</tr>
<tr>
<td>Mobility of Homes</td>
<td>Living Space in Homes</td>
<td>Owners Age</td>
</tr>
</tbody>
</table>
Moving with the Climate Conditions

The Florida residents call them “snowbirds,” typically a senior couple from New York State or Michigan, who come in the fall and leave in spring again - about 800,000 people every year. They travel with the climate conditions, preferring an average temperature of about 15° Celsius. They are unlike Florida’s tourists, they consume more nature than theme parks. Snowbirds are half year residents who spend money while bringing no need for jobs. They normally are richer and better educated than Florida’s average population. Some of them come to the Sunshine State for several years and settle down sometime, selling their Northern homes to buy a cheap house and maybe a boat in Florida. Parallel to this, about 340,000 elderly people who permanently live in Florida leave the state in the hot summer time traveling North. Although in a more moderate way, this phenomenon appears not only in Florida but also in California, Texas, and Arizona.
A BETTER RESORT ON THE COAST

Before the crisis, the coast gradually gentrified. The campgrounds along the coast, but also the ones a little more inside, are offering leisure time experiences for the better earning snowbirds and tourists, mainly coming from the northern states. The parks along on the coastline are often fully occupied all year long. In order that their guests find everything in place, they offer, unlike a lot of the parks in the heartland, a big variety of sport facilities and entertainment. The aspect of the campground just being an extended car parking can be found in these resorts. While prices to stay on the campground are comparatively high during the winter time, the parks cut them in half in the summer season.
Sun 'n' Fun Campground and Resort
Although Sun 'n' Fun Campground is not directly located on the coast, it is a typical park for the seaside. Lying near Sarasota City, it is one of the biggest parks, just about ten kilometers from one of the most beautiful beaches of the Gulf of Mexico away.
Being so close to a big intersection of the Interstate and Fruitville Road the guests can enjoy a wide variety of food and shopping facilities. This way the park does not have to provide any restaurants or shops of their own.
Sun ‘n’ Fun, Sarasota

County: Sarasota
Next City: Sarasota
Area of the Campground: 778,000 sqm

Founded in: 1986
Owner: Royalty Resorts

On-site Built: 25
RVs: 600
Mobile Homes: 805

Price to stay one Night in an RV (with electricity/water): $60

1940
Land Collapsed
Roads Built

1948
Lakes Filled
Urban Development
Cultivation of Land

1957
Roads Enlarged
Lakes Filled
Cultivation of Land

1969
Highway Built
Roads Enlarged
Urban Structures Replaced Agriculture
Campground Developed

2011
Full Entertainment

In contrast to smaller parks in Floridian Heartland, camping resorts along the coast offer a wide spectrum of entertainment. All kinds of sports as well as events make sure the visitor never gets bored. Sarasota is one of the richest areas in Florida. The popular white beaches - they call them the most beautiful in the world - attract a big amount of good paying tourists every year.
A Changing Visitor’s Profile

Due to its entertainment infrastructure, Sun ‘n’ Fun Campground is not only interesting for old guests, but also families, often from Florida. They camp there when kids are off of school. For these younger guests, the park’s service is only affordable because of the price cut in low season.
Going Mobile
When cars became popular and especially more affordable, a new way of camping arose - a new lifestyle: Going mobile, pulling the home out to the most beautiful places in North America. Many trailers were custom made, sometimes they look like only the horse have been replaced by a car. Innovative people developed first living coaches, a fusion of the trailer and motor section.

"Here Today and Gone Tomorrow" is an advertising commercial by Chevrolet in 1937. While the camera slowly moves over an early campground in Florida, the voice talks about technical achievements and celebrates this new way of life.
Camping in Nature
America was the first country in the world, to start to protect big territories for next generations. The Yellowstone National Park opened 1872, being directly controlled by the national government. The first National Park in Florida was the subtropical wilderness in Southeast, the Everglades. It is officially protected since 1938. Two more National and about 180 State Parks protect Florida’s nature and providing attractive camping possibilities for RV tourism.

Rolling on the Interstates
America’s Interstate Highway system is the largest in the world. In 1938, President Franklin D. Roosevelt started to plan a street network similar to the German Autobahn system for military and commercial reasons. In 1992, 36 years later, Roosevelt’s original planned network was completed. In 2006, the system has a total length of 78,440 km, having constantly been expanding since construction began in 1952. In Florida, the Interstate 4 and 10 connect East and West, number 75 and 95 North to South.
AN AGE QUALIFIED COMMUNITY

Age qualified communities are gated, with a minimum age for their inhabitants, mostly 55+. This is one of the biggest sectors of tourism and housing in Florida. It offers safety as a gated and a stable life, under equals, as an age qualified community. Like most campgrounds, the gated communities are full of snowbirds, or former snowbirds - who decided once to stay in sunny Florida instead of going back to where they come from.
Colony Cove
Located in Manatee, close to Sarasota City, this park is the biggest mobile home park in Florida with 2,200 lots. The park was founded in 1974 and has grown since that time by expansions, mainly by buying other parks around, integrating them into the community. It does not offer more than a few sport facilities and a central „town“ hall. Residents have to leave the park for shopping but most of the people spent their days inside the gated area anyway, visiting each other or the coasts and nature parks.
Colony Cove, Ellenton

County: Manatee
Next City: Sarasota
Area of the Gated Community: 1,572,000 acres

Founded in: 1974
Owner: Hometown America

On-site Built: 12
Mobile Homes: 2001
Additional: 1992 Garages/961 Extensions

Price for a Mobile Home to buy: $5,000 - $100,000

Grass Lot, Electricity, Internet, Telephone, Fresh Water, Waste Water

Highway under Construction
Colony Cove in Development
Cultivation of Land

Interstate Highway Finished
Colony Cove Extended
Roads Enlarged
Urban Developments

Further Colony Cove Extensions
Single Family Developments
No Trespassing

Gated communities like Colony Cove have no walls around them. The fences are very low and sometimes in PVC. They often signalize much more an optical border than an obstacle. The better protection are the inhabitants, who immediately call a park guard if they see anything suspicious. This kind of gated communities sells less the feeling of safety, than the feeling of belonging to a community with homogenous character.

Mechanisms of Urban Growth

Mobile Home Parks are often the pioneers of an urban development. Depending on the internal structure of ownership, they disappear quickly or stay for a long time. If there is only one owner, he will sell the park soon or later to another park owner or investors like a big reseller chain. Some parks even become part of a middle class urbanism development. If there is a shared owner management, a park stays much longer. Successful parks sometimes expand by integrating other, close-by parks. This was the way, Colony Cove in Ellenton became one of the biggest mobile home parks in the US.
Becoming Permanent

As the life expectancy is rising, the so-called third age, a longer life in retirement is becoming normal. The snowbirds, spending just the winters in Florida turned into permanent residents. The same change happened to their vehicles, becoming more and more permanent. At the end, the mobile home is rather an economic house, looking more at the price than mobility; the snowbird a retired bird. Some of the permanent snowbirds escape to the North in the hot summer time - they are called Sunbirds.
Building Under a Roof

A main difference between on-site built houses and mobile homes is the production. Today's mobile homes are not built to be moved often. Instead of construction on site, they are built in a huge hall. It starts with a steel frame on wheels. Often, the wheels are taken off when the house arrives and sold back to the mobile home company. They check and use them again. A factory normally builds on demand; they do not have parking lot full of finished homes to sell. The customer's wishes are widely spread; individual for a mass product. A section of a double wide home is built in only three days. The roof can already be built and easily connected within short time, while others are still preparing the floor. Due to the low price, mobile homes normally are even less stable than normal balloon frame constructions. A good coordination and indoor construction are two more reasons for the home's extremely low price.
Petrification of the Mobile
Shortly after the mobile home is produced it gets delivered to its destination. The whole production is done just-in-time. Electricity, water and waste water connections are already prepared. The producer directly takes the wheels away, to use them again on the next home. The home gets connected, if double wide. Already a day after delivery it is ready. The gap around the house gets closed with a wall or a look-a-like and a pathway and a garden gets set up. The first extension normally is the garage, which is not only meant for cars but is also used as a patio and entrance. Later on, more extensions get done. All of this leads to the loss of the mobility. The mobile home often stays longer than its first owner and changes owners almost like an on-site built house. After a while, when the home has gone through its petrification process, the last difference to an on-site built house is its lose connection to the ground.
The Cheap Single Unit
Originally, every mobile home was a single unit. Over the last decade, they became less popular in Florida. In 2008, only 1,000 single units were placed, the average price was $37,400. Compared to 1980, when 12,300 units were sold at $13,900.

The Spacious Double Wide
The industry calls the double wide "prefabricated homes." They look more like a house than a trailer and they are as roomy as an on-site built house. In 2008, 3,200 were sold at an average price of $74,800, compared to 1980, when 17,500 placed at a price of $28,500.

Actually, it only looks like wood...
Having a look into the houses, mobile homes and RVs reveals a surprising truth. The interiors are so similar, that it gets hard to distinguish where you are in. The interior represents the idea of being home, placed into everything moving as well, although the materials are substitutes.
AFFORDABLE LIVING OR THE TRAILER PHENOMENON

The United States of America does not offer affordable housing in general. This is why the mobile home is so popular all over America, creating notorious trailer parks. Mobile homes and trailers are not only the cheapest buildings, they also lose value almost like a car which makes them even more affordable with age. This kind of urbanism strongly relies on existing settlements. They cluster on secondary arteries between them and suburban areas; profiting from the cities infrastructures and the countryside’s low price and freedom.
Thrasher Road
This is one of the uncountable small conglomerations in central Florida, on a deserted area close to the Interstate 4 between Plant City and Lakeland. It consists of about 15 dwelling units of different construction methods. The residents live here but work and shop in the nearby cities. Thrasher Road is inhabited by Floridian residences. Similar to the parks on the coast and to most of the cities in America, there is a segregation of races.
Thrasher Road, Plant City

- County: Polk County
- Next City: Plant City
- Area: in between Cities
- First Appearance: 1960
- Owner: Several
- On-site Built: 14
- RVs: 3
- Mobile Homes: 17
- Price for a Mobile Home to buy: $500 - 20,000

- 1938
  - Cities Enlarged
  - Roads Built

- 1958
  - Interstate 4 Built
  - Thrasher Road Built
  - Further Urbanization

- 1968
  - Land Collapse
  - Lakes appear
  - Controlled River

- 1982
  - Land Collapse
  - Lakes appear
  - Controlled River

- 2011
  - Grass Lot
  - Electricity
  - Telephone
  - Waste Water
  - Fresh Water
  - Internet
  - TV
Inhabitants Profile

<table>
<thead>
<tr>
<th>January</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Homes</td>
<td>Mobility of Homes</td>
</tr>
<tr>
<td>Living Space in Homes</td>
<td>Stay Duration</td>
</tr>
<tr>
<td>Costs to Stay</td>
<td>Owners Age</td>
</tr>
</tbody>
</table>

Occupation
Mechanisms of the Countryside
As on the coast, mobile homes in the countryside are a pioneer development on the edges and in between cities. The arteries between cities offer a connection not only as a network for traffic, but also for electricity and water. Farmers sell these properties, arranged in the US grid, in strips to the settlers. The main criteria for every parcel is a connection to the road. Zoning regulations that limits one house for every 5 acres, even on farm land, combined with the freedom to do what you want with your own land leads to what may be considered the true soul of light urbanism.
The Hurricane Act

Most changes implemented by the mobile home industry are due to stronger hurricane protection regulations. People in trailers are at the weather's mercy; hurricanes regularly hit old mobile home parks, causing big destruction and sometimes even fatalities.

In 1974, the American Housing Construction & Safety Act was released by the government, including building codes for mobile homes. Since then the construction has gradually improved. Still, a mobile home is anchored by only a few pegs. The lobby calls their recent products very safe, as they have for the last 50 years.
WHERE WILL THEY END UP?

The formation of new mobile home parks has, it seems, come to an end. No new parks have been approved in Polk County since 2007 and this seems to be true for all of Florida, including the coasts. The market is stagnant, for both the tourism and the housing sectors, and factory owners have radically reduced production. Low income housing is an ongoing need. If this need is not covered by the state, the trailers on the countryside will survive. These settlements will continue to emerge, unseen by the public eye, and integrate into the infrastructure, as they have done until now.
The Coast
Since World War II, Florida has constantly been growing due to the highest domestic immigration in the whole country. The new residents, richer and better educated, developed their communities along the coast, pushing everything else into the heartland. Florida nowadays consists of two different worlds with a hard line between them.

The Heartland
For the first time since WWII the domestic immigration to Florida has almost halted. Due to the financial crisis tourism numbers have reduced for the whole state. The Heartland has not been as seriously affected by this circumstance- also the way of urbanizing the land and the role of the mobile home and the trailer seem to be a stable factor. They might even be profiting out of the crisis, still offering affordable houses.
Education
> 20% with Bachelor Degree

Income
> $45,000 Income/Household

Density
> 300 People/Square Mile

The Coast

Age
> 25% of Population 65+

Poverty
> 20% below Poverty Line

The Heartland

Education
< 80% with no High school Degree
COMMENTARY
LIGHT URBANISM
This work follows a typical phenomenon of American urbanity that has one of its epicenters in Florida. Light urbanism describes several forms of mobile living and the relative detachedness of the Florida home from its ground in general. It portraits an almost biological form of urbanization that in its many configurations permeates the Floridian landscape. While prefabricated houses (mobile homes) are usually placed in one location and left there permanently, they do retain the ability to be decoupled from the surrounding and moved. Recreational vehicles on the other hand are based on the ideal of mobility but habitually form communities that over time can become increasingly permanent. The careful examination of this broad spectrum then manages to refute certain preconceptions. Light urbanism does not mean scattered settlements; in Florida light urbanism produces some of the densest settlements. Light urbanism can be both the expression of luxury (not having the need to settle down) and destitution (not having the means to properly settle down). In its entirety Light Urbanism seems a logical expression of an urban culture that is not organized around public place but rather events or activities of independent communities.
III
MIDDLE CLASS URBANISM

ORLANDO
History of Orlando
Polycentric Development of the City
Urban Growth
Demographics and Housing Statistics
Urban Morphology

NEIGHBORHOOD MORPHOLOGIES
Case 1: Lake Eola Heights
Case 2: Richmond Heights
Case 3: Lake Nona Estates

MODERN HOUSING TYPOLOGIES
Retrospective
Current Style
House Building Process 1: Production-Built Home
House Building Process 2: Semi Custom-Built Home
House Building Process 3: Custom-Built Home

THE MIDDLE CLASS HOUSING OF TOMORROW
The Home of the Future
ORLANDO

Orlando is a major city in Central Florida and its metropolitan area has more than 2 million inhabitants. Due to its weather conditions, the area became a large and important citrus-growth region, which gave Orange County its name. Today, Orlando is the largest inland city of Florida and one of the most visited American cities, thanks to the nearby Disney World and Universal Studios, attractions which bring thousands of tourists all year round. With the arrival of Disney Industries, Orlando experienced a rapid growth, lasting until the current century.
History of Orlando
The very first settlers in the area were European and arrived in 1836, when Orlando was still known under the name of Jernigan, named after the first permanent settler. Later the settlement was renamed, probably after the soldier Orlando Reeves. Used mainly for cattle ranching, the land of what today is Orange County was soon recognized as suitable for citrus farming, which became the most important economic factor until the arrival of Disney Industries.

Orange Avenue
As one of the first roads to lead through the town of Orlando, Orange Avenue has always been an important north-south connection and still offers downtown services such as leisure facilities and hotels.
Polycentric Development of the City
The planning strategy for Orlando envisions a transit-friendly commercial, office, and multifamily residential development with high intensity, mixed-use, activity centers that are surrounded by lower intensity single-family neighborhoods, parks and natural amenities. For this development pattern, the City of Orlando has emerged as a successful leader. This approach to development has firmly established Orlando as the economic, cultural and symbolic heart of Central Florida.
Urban Growth
The outlines of the City of Orlando have an unusual shape. The territory of Orlando has been growing constantly for the past one hundred years; each year one or more neighborhoods a year join the City of Orlando. Each neighborhood has the ability to vote to decide to join the City of Orlando. The main reasons to join are to access city services such as fire and police, thus a house is more marketable if the property can be advertised as part of the City of Orlando.

Density
Since Orlando City has the large International Airport and the smaller Executive Airport within the city limits, the density can vary a lot from neighborhood to neighborhood. There are a few concentrations in the area of the Millenia Mall and the Universal Orlando Resorts.

Ethnicity
The major ethnicities represented in Orlando are Caucasian and African-American. In the city you can witness in the bigger picture as a sharp division in African-American and White neighborhoods along the railway – a remnant of historic segregation policy. Also, the Orange Blossom Trail, from the Central Business District in a southward direction, is mainly inhabited by African-Americans. At the scale of individual neighborhoods, black and white areas lie right next to each other.
Household Income
Most of the Orlando inhabitants earn less than $50,000 a year.

Age
Orlando is in comparison to Florida a young city, since the state is known for having the most retired people in the United States.

Ethnicity
26.6% of the people living in Orlando are African-American, 61.3% Caucasian, and 17.7% Hispanic.

Average House Sale Price
The average house sale price is a little lower in the city of Orlando than in the whole Orange County.

Demographics and Housing Statistics
These diagrams show the City of Orlando classified by different aspects. The areas on the outskirts or the recently annexed areas of the city are the ones where new subdivisions were built/are being built. The district around the center of the city is considered historic and is being preserved. Also the majority of African-Americans live in the poorer neighborhoods in less expensive houses.

Typography of Differences
This diagram shows the overlay of all four single layers and shows that relatively young, Caucasian and well-earning citizens live either in the historic district around the city center or in new subdivisions along the city borders.
**Lake Nona Estates**
Lake Nona Region is Tavistock Group’s 7,000 acre (28 km²) mixed-use development plan within the city limits of Orlando. Developed by Lake Nona Property Holdings, the Lake Nona Region is home to Lake Nona Golf & Country Club, a life sciences cluster becoming known as Lake Nona’s medical city, and an array of retail centers, recreational facilities and residential options. Lake Nona Estates is a gated community, which attracts mainly families with younger children, with a high income.

**Richmond Heights**
Richmond Heights is a mainly black neighborhood with a percentage of 93.4% African American residents in the western part of Orlando.

**Lake Eola Heights**
This is a neighborhood with 89.6% white residents. The houses are with an average of $625,000 very expensive in comparison to the average household income per year with $59,496, which can be explained with the location being very close to the downtown area. The City of Orlando has designated the neighborhood as The Lake Eola Heights Historic District in 1989 and placed on the National Register of Historic Places in 1991.

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### Demographic Overlay
The overlay of these diagrams show the differences between a mainly White, well-earning neighborhood, a Black, rather poor neighborhood and another mainly White gated community. In the gated Community (Lake Nona Estates) there is almost 100% employment and almost no poverty, while in the black neighborhood (Richmond Heights) the population in poverty is at 34%. Accordingly, the average house sale price is much lower than in the other neighborhoods.

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Case Study Neighborhoods
For each street pattern category one case study neighborhood will be analyzed further. Area 1 shows a grid-like street pattern, the pattern in number two represents the transitional pattern, whereas neighborhood number 3 is located in a ladder area.

Urban Morphology
Categorizing the city's streets into three types of patterns allows an idea of how the urban mass grew and developed over the last decades. The street grid - here marked red - was common for the city's early years before World War II, when also some parts of the orange areas were already developed. The yellow ladder areas mark a phenomenon of roughly the last three decades. The black line marks the official Orlando city area, as defined by the City of Orlando government.
Predictable
To find your way around in these areas is rather easy, as streets extend in two directions only and form simple cross intersections.

Grid Pattern
The traditional grid street pattern can be found mainly in the downtown area and its surrounding historic districts, therefore in the areas first settled and built.

Rectangular
The street picture shows mostly perpendicular streets, forming rectangular blocks. Over the decades this strict grid was loosened and adjusted.
Surprising
Getting from one point to another might seem easier than it actually is, as your way might be cut off by an unexpected turn.

Transitional Pattern
These street patterns are found scattered throughout most of the area, leading from the historical neighborhoods to the more recent developments.

Irregular
The grid idea can still be found in these patterns, however, the road running doesn’t follow it as rigid anymore and elements like loops and curves are added.
Confusing
These patterns can easily get confusing as the direction of a street might turn at what seems the most impossible point, making a certain point difficult to reach.

Ladders
Ladder areas are found in suburban areas, scattered in smaller fields, as these areas usually belong to various developers with different interests.

Random
Streets follow random patterns, where apparently no rules apply. Streets seldom run straight and often have a dead-end in order to eliminate through traffic for more privacy.
NEIGHBORHOOD TYPOLOGIES

For each of the earlier mentioned street pattern categories we are analyzing one case-study neighborhood within Orlando further, looking deeper into the urban block and housing aspects. Case 1 presents Lake Eola Heights, a downtown-neighborhood, case 2 Richmond Heights west of the city centre, and finally case 3 Lake Nona Estates, which is part of a larger, fairly new development in the south of the city.
The block
The block analysis for the neighborhood of Lake Eola Heights shows a variety of different house shapes and sizes and also their placement on the lot. The average built percentage for one lot lies at 27% and therefore the ratio for private green fairly high. The public walkway defines the outer lot-line and is parted from the street by a rather small amount of public green.

Case 1: Lake Eola Heights
The neighborhood of Lake Eola Heights is located just east of the Orlando downtown district. It is considered a historic district and is therefore preserved by the City of Orlando Historic Preservation Department. This - and its mainly upper middle class inhabitants - could be taken as the driving force for its clean and well-maintained appearance. The houses in this neighborhood are mainly owned by Caucasians, who are all obliged to preserve the historic appearance of their homes. The oldest houses in the area are from the 1910s.

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<th>Services</th>
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<td>Located only a few driving or even walking minutes away from downtown, Lake Eola Heights is a favorable place to live for those who prefer a small scale, single-family house neighborhood but still enjoy the qualities of the Orlando downtown.</td>
<td>The neighborhood offers a wide range of services, such as restaurants, coffee shops, gas stations, etc. It is also a prestigious location for smaller businesses, for example lawyers or - mostly private - medical institutions.</td>
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The Lake
Lake Eola is an important recreational site for the neighborhood residents.
The house
Most of the houses in this historic district have a front porch facing the street. Lots of people enjoy spending time on their patio after a day at work, chatting with neighbors and friends. It’s a gathering spot and embodies the most social aspect of the neighborhood. The average house sales price in this area lies at $625,000.

The street section
The example shown of a street section makes the diversity of the neighborhood visible. A larger, two-story building stands across a smaller, one-story high building. Their location within the lot varies, and therefore so does the ratio front yard - house - backyard. Vehicles are parked either in the private driveways or in carports which are attached to either side of the house.
The block
The drawing of the exemplary block of Richmond Heights shows a coherent picture: the lots are more or less the same size, the houses are all one-story high, lie in the middle of the lot, and the roof pictures are similar. The buildings take up approximately a quarter of the lot, which again is bound by the public walkway.

Case 2: Richmond Heights
The neighborhood of Richmond Heights lies in the west of the city centre and is mainly inhabited by African-Americans. The homes can be considered lower middle class housing, are rather modest in size and also in appearance and big differences can be noticed in how the properties are maintained; some houses even seem abandoned.

Recreation
Small parks offer appreciated recreational space.

Orange Blossom Trail
The nearby Orange Blossom Trail offers everyday services like shopping, leisure activities, and restaurants, and functions as a feeder road for the Interstate 4.

Homes
Even though the zoning structure shows a coherent picture, we can still see big differences in the condition of the buildings. Some appear to be well maintained and taken care off, others are literally falling apart.

Local Businesses
Scattered throughout the neighborhood we find smaller, locally run business that provide employment options for the residents.
The house
The small-scale buildings consist of a simple volume and are placed parallel to the street with their long side. The entrance is usually located on the front side and can be covered by a simple roof. These houses are sold for an average price of $65'000.

The street section
The street section for Richmond Heights strengthens the image of a coherent appearance. The smaller and similar looking homes are all located in about the middle of the lot and face the street. Cars are parked in front of the house on private ground and only a few trees are placed in the yards or on public green.
13% street
16% houses
2% public walkway
6% private walkway
25% public green
17% private green
21% water

average ratio lot-house: 38%

The block
The waterfront lots at Lake Nona Estates are arranged in a bent structure and are therefore not rectangular. These private properties also include the walkways that would be considered public, and the buildings cover about 40% of the lots. Due to the large amount of public surface - mainly "useless" water - the private yards rather small. The shape of the houses is diverse, but the volume is similar for each building.

Case 3: Lake Nona Estates
The area around Lake Nona lies in the south east of Orlando and is newly planned and built. The whole development shows ladder street patterns and therefore each block appears to be quite different.

The Site
The area is still mainly unbuilt as the development has just recently started. Future homeowners can purchase their preferred lot before the required home will be built according to the owner’s wishes.

Interior
A few model homes on the property are open to the public and deliver an image of high-end architecture, that however doesn’t always respond with the methods of construction and the selected building materials.

Nonaology
The whole area of Lake Nona is being developed with the idea of creating a "Nonaology", a lifestyle that revolves around the newly planned communities. Claiming that “Lake Nona is close to everything Central Florida has to offer”, the developer hopes to attract future home owners who appreciate community life in a gated and what appears to be safe, child-friendly, clean and representative environment. The development process began in 2007, the first homes were put up for sale in 2009, and 76% of the properties now are sold.
The house
The dissimilar houses at Lake Nona Estates are made of the same elements but with different materials and colors. The built volumes stretch in the direction of the lot and usually have a large driveway where the car(s) can be parked. Houses of that kind cost about $275,000.

The street section
The section is dominated by the big, multi-story tall building on the one side and the public (water)surface on the other. The building takes up a large amount of the lot length and is surrounded by only a little amount of private ground, which is mainly driveway rather than greenery.
MODERN HOUSING TYPOLOGIES

Mass produced housing is prevalent in the United States. Through the whole country, more or less the same styles repeat over and over again. Especially in Florida, where many of the houses were built in a short time, they look like so-called “cookie cutter” houses. The home builders adapt their floor plans and their materials and details to surveys on which features, such as porch, chimney, or french doors, people prefer for their homes.
The single family house has developed a great deal in the last hundred years. The biggest change is probably noticeable in the size of the floor plans. While in the 1920s the floor plans were very efficient and did not waste any square footage, a single family house today shows a lot of named and circulation areas. The general perception today still is ‘bigger is better’, so a bigger house seems more prestigious to most people. Appearance is the most important concern, so even if a material is not what it is pretending to be, it does not matter.
Today there are several styles of single family homes that are most popular in the United States. These styles are the result of an intensive real estate and builders market research. Especially in Florida, where a huge number of homes were built in a very short time, designers relied on surveys on what people wish their new home to look like.

**Craftsmen Style Home**
Typically a two-story bungalow-style home, noted for their low-pitched and gabled roof, decorative wood beams and horizontal wooden siding. These homes have also been adapted into one-story cottages with half-porches.

**Cape Cod Style Home**
Typically one and a half story homes with upper dormers that allow for sloping interior ceilings on the upper levels, featuring a central or end chimney. Wooden clapboard is the most common exterior building material.

**Indifferent Style Home**
An evolution of the single family home, a kind of a standard house that includes all the favorite parts of different styles but does not have a real identity anymore. It has a bland appearance.

**Colonial Style Home**
Simple one and a half to two story, rectangular house with a center-oriented staircase. Typically features a flat front facade with classical embellishments, including roof dormers or columns on either corner, with a natural wood siding.

**Ranch Style Home**
Ranch style homes are characterized by their low-sloping roofs and single story construction. They are built for efficiency, general living quarters are situated at one end while bedrooms are at the opposite end.

**Mediterranean Style Home**
Most often, exterior walls are constructed of 'stucco', while roofs are sloping and usually covered with reddish tiles. Walls are typically painted in a neutral color such as peach, salmon or yellow. Also common features are columns and high archways.

**Row House**
Row Houses are becoming more and more popular again, they try to resemble nice English Townhouses. They do not have neighboring units below or above them.

**Indifferent Style Home**
Influences of the real estate crisis

The real estate crisis began in the United States but eventually had an influence on the whole world economy. The above charts list its most significant events and matches them with the evolution of housing prices in the USA (prices include land) and is illustrated by covers from the British magazine “The Economist”, that dedicated many of its issues to these happenings.
Individual Property
The land of a community is usually owned by an investor who hired a contractor to organize the whole building process. The land is divided in different lots, some more expensive than others classified by different factors such as view, size, and location on the property.

Neighborhood
The typical neighborhood to find this type of house in is usually some kind of community with a strong identity. The goal of the developer is to create a feeling of community and affiliation. One way to do this is to create houses that look similar and have more or less the same features and standards.

Process
For a community, there is an investor who owns a big property of land. He then finds a contractor and an architecture firm to do the land and the house planning for him, ideally he chooses a firm that offers both services. After the land has been planned, the customers choose a lot and a house and move in. Typically there are model homes on the site that the customer can visit.
Catalogue
This is the actual catalog of the housing choices given at Lake Nona Estates. The houses have more or less the same expression, the differences in the appearance are small and depend on the number of bedrooms, bathrooms, porch or garage sizes.

Cambridge
Luxury Single Family Home
4 Bedrooms + Den
3.5 Baths
3 Car Garage

Pinehurst
Luxury Single Family Home
4 Bedrooms
3.5 Baths
2 Car Garage

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This is the actual catalog of the housing choices given at Lake Nona Estates. The houses have more or less the same expression, the differences in the appearance are small and depend on the number of bedrooms, bathrooms, porch or garage sizes.

Cambridge
Luxury Single Family Home
4 Bedrooms + Den
3.5 Baths
3 Car Garage

Pinehurst
Luxury Single Family Home
4 Bedrooms
3.5 Baths
2 Car Garage

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Individual Property
The land in a conventional neighborhood is usually not purchased from a developer or investor but from a private person. It is even fairly common to tear down the existing house and build their own, according to their preferences.

Neighborhood
The typical neighborhood to find this type of house in is usually a place where people with similar interests and income live. The price of the lot attracts people with similar demographic data. Sometimes there may be some kind of identification like a neighborhood name.

Home Building Process 2: Semi Custom-Built Home
If a family owns a piece of property and they want to build a house for themselves, they have the option to choose between different home builders and choose their house with the look and features they prefer, depending very much on the budget they have. Since most of the home builders have ready-made floor plans, it is cheaper for the customer to stick with these plans rather than starting from zero with an individual builder.

Using stock plans, the Production Home Builder will construct a large number of buildings each year. Often homes may be customized by selecting a variety of options, but the homes are not truly Custom Homes.

Process
The person or family that purchased a piece of land can hire a builder of their choice. Because of the similar budget that people have in a neighborhood the houses do not show a lot of difference in appearance and size.
Catalogue

The home builder that the customer chooses offers a variety of floor plans and footage in the floor plans. The customer can basically order a house online. Once the floor plan is chosen, the only thing left is the interior equipment and decoration. There is a certain freedom in choosing the building company, but as shown in the picture series above there is not a lot of difference and individual choices to be found.
House Building Process 3: Custom-Built Home

A Custom Home Builder constructs a one-of-a-kind home that is designed for a specific client and for a particular location. The Custom Home Builder may use plans created by an architect or by a professional home designer. Some Custom Home Builders also offer professional design services. Because each house is unique, Custom Home Builders generally construct only a few homes a year. In most cases, Custom Home Builders construct on land the home buyer already owns. A Custom Home is not the usual case, most future homeowners prefer a Production Built Home because they are much cheaper and the time required for the whole planning and building process is much shorter.

Individual Property

The land in a conventional neighborhood is usually not purchased from a developer or investor but from a private person. It is even fairly common to tear down the existing house and build their own, according to their preferences.

Process

The person or family that purchased a piece of land can hire an architect and builder of their choice.
Catalogue
For the custom-built homes, there is no catalogue. Every client can get their floor plans designed according to their ideas, the only limit is the zoning plan of the city. This process will take a lot more time and is more expensive than a production-built house would, but it is a truly individual home.
THE MIDDLE CLASS HOUSING OF TOMORROW

The following chapter deals with the question of what middle class housing and the American single-family house might look like in 10, 50, 100 years. Of course we can’t predict with certainty, but the following estimations are based on the historic development up until today and the understanding of how the built environment will continue to grow.
The Home of the Future

Architecture of the future seems to be considered as a choice of lifestyle: the purchase of a real estate object will not only get you a house, but also a whole new lifestyle. This large investment indicates status, therefore appearance and reputation become the most important forces, and those can mostly be found in new subdivisions, where developers have recognized this potential.

Going Green

A trend goes towards eco-friendly architecture, which also is part of a new lifestyle that can be purchased together with a house. Homeowners get the feeling of doing something good for the environment, but is this a real commitment?

It’s all about the Curb Appeal!

Looks tend to be more important than floor plans, building materials or interiors: the more impressive the better. However, the facade of a building can pretend to be more expensive and more representative than the house - or its owner - actually is.

Privacy Please

This sign at the entrance of a gated community shows the importance of privacy and a sense of security. People like to feel safe in their living environment and appreciate (or endure?) the qualities of a gated community like being watched through cameras or having to pass a gate when entering your own neighborhood. To be able to live in such a place, people give up being close to a downtown, as most of these developments are located in the outskirts of larger cities.
COMMENTARY
MIDDLE CLASS URBANISM

Under the title Middle Class Urbanism we tried to take a closer look at the prevalent phenomenon of suburbanization in the United States, which has, due to the rise of mass mobility, driven urban development outwards, proliferating the construction of the common single family house. We wanted to investigate whether this process of proliferation is as linear and homogenous as assumed or if there have been changes within the last decades leading to a stratification of the ostensible uniformity. The study has therefore an explicitly historic dimension taking the urban development of Orlando as a case. It shows that there are definite differences in density and morphology and that those differences are fundamentally related to the structures of the street networks. The three districts that were investigated not only differ in their street layout and accessibility but also in their social and historical profiles. The study reveals that only few older neighborhoods in the center transformed into mixed and densified districts, whereas most of the others are characterized by a remarkable social homogeneity, which is comparable to the phenomena we investigated in the study Private Urbanism. Linked to this is a research on the development of housing typologies that shows the continuous evolution of the suburban housing dream.
PHOSPHATE MINING

ETH Studio Basel
Contemporary City Institute
Roy Gehrig, Daniel Deering
Prof. Roger Diener, Prof. Marcel Meili
Mathias Gunz, Rolf Jeno, Milica Topalovic
Christian Museler, Indi Herszin
Spring Semester 2011
IV

PHOSPHATE MINING

THE BONE VALLEY TERRITORY
Maritime Sediments
Spatial Correlation of Mining and Urbanization
Strategic Resource
Simultaneity of Land Transformation Processes

LANDSCAPE OF PRODUCTION
Territorial Expansion
Systematic Contouring
Phosphate Landmarks

PRODUCTION OF LANDSCAPE
Recreation of Nature
Geometrized Landscape
Amalgam
Categories of Palimpsests
THE BONE VALLEY TERRITORY

The Bone Valley is situated in the greater area of Bartow, the capital of Polk County. It was named for the archeological discovery of bones, which are directly linked to the vast phosphate rock deposits. These phosphates are now mined by surface-strip mining, resulting in visible and permanent modifications to the landscape.
Features along Highway 60

Highway 60 leads from Bartow to Mulberry, defining the core of historical mining.
South Fort Meade

– Phosphate mining –

– The Bone Valley territory –
**Maritime sediments**
Florida's west coast shoreline used to be 60km further inland. The phosphate concentration has accumulated through excrements and cadavers washing up and disintegrating on the shores.

**Soil composition**
- Overburden: 80% sand, 20% clay
- Matrix: 33% sand, 33% clay, 33% phosphate rock
- Bedrock: limestone

**Strip-mineability**
Bone Valley is the most profitable area. Although the layer gets thicker towards the south, the masses of overburden that need to be moved make it economically less sensible.
Spatial correlation of mining and urbanization

Most of the historical mining has taken place in Polk County, an inland county with close proximity to Tampa and St. Petersburg. While most of Florida's population and wealth is accumulated on both coasts, mining has been of great importance for Polk's budget. Future mining will move to Hardee County and possibly De Soto County, two more remote counties further South.
Growth on and around mined lands
In the last 20-30 years, the urban network on Interstate-4 - Plant City - Lakeland - Bartow has undergone a rapid growth, just where the mining industry has transformed.
**No. 1 Phosphate Company**

With headquarters in Plymouth, Minnesota, Mosaic operates in ten countries, employing 7,500 people worldwide and 3,500 in Florida. With their phosphate production in Central Florida and potash mines in Canada they are the world’s biggest and second-biggest producers respectively.

**“Feeding the World”**

Formed by a merger of Cargill and IMC Global in 2004, the Mosaic Company is a global player in the nutrition business.

**7th Largest Landowner in Florida**

More than 100,000 km² of land have gone into Mosaic’s hands and are kept there.
Strategic Resource
Phosphorus, the element in phosphate, is vital for plant and animal growth. As a fossil resource, it is crucial for any autonomous agricultural economy. With current technology, future availability is estimated for the next 60-100 years.

Effectivity of Fertilizer
Fertilizer increases crop harvest by 40-60%, therefore reduces

World Fertilizer Consumption
China and India together utilize 50% of world fertilizers.

Harvesting Acreage
World grain and oilseed harvest area increases.
**The US Dependence on Imports**

US fertilizer exports are worth 3.7 billions of which Mono-ammonium - and Diammonium phosphates are 2.7 billions. Most of this goes to India and Brazil. For the processing of phosphate the US relies on additional imports from Canada and Trinidad.

**Distribution of Phosphate Reserves**

China, the US and Morocco make up 66% of the world market. But only in Morocco there are extensive resources for the future.

**Shift of Markets**

US phosphate used to be as much as 80% of the world production. With its resources drying up, its share of the global market is shrinking.
Simultaneity of land transformation processes

In the process of surface mining, functioning soils are restructured. Due to separated particles which can only partially ensure stability, unstable soil pile-ups are left behind, with limited potential land functions and uses.
LANDSCAPE OF PRODUCTION

Florida's phosphate is mined in a land-extensive strip-mining method. In order to get to the precious matrix, about six times as many tons of earth have to be moved and later filled back into the excavated pits. The physical separation of phosphate rock from sand and clay is achieved in the cheap wet process, using vast amount of water which is flushed into large ponds where the materials settle out.
Electric Draglines
Draglines, the current mining tool, came into use with the dawn of electricity and diesel power in the 1920's and 1930's.

Steam Draglines
Mechanized excavation began between 1900 and 1905 with steam shovels. Early steam shovels held only one cubic yard of earth, but one steam shovel operated by three men did the work 80 men could do by hand.

Electric Draglines
Draglines, the current mining tool, came into use with the dawn of electricity and diesel power in the 1920's and 1930's.

Pit Mining
Early mining was done with wheelbarrows, picks and shovels. Next came mule-drawn scrapers. The dragline significantly changed the mining operation. In 1900 it took a year to mine a 15-acre mine site with picks and shovels. Today, a dragline mines 15 acres in a month.

Hydraulic Mining
Around 1908 river pebble mining could not compete with land pebble and hard rock. As a result, river pebble production, which peaked in 1893, ceased entirely.
Territorial Expansion

Higher standards and increased economic pressure have reduced the number of companies in the mining business to only two, while in earlier days there were up to twelve major companies operating in the Bone Valley area. Their production cycles are loosely connected and spread out, in Mosaic’s case into several locations. There are basically three locations to be differentiated: the mining site and physical processing, the chemical plant and the warehouse and port.

- Mosaic
- CF Industries
- Former mines
- Future mines

Territorial Expansion

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Moving Southwards
In the early days, mining was dependent on proximal towns. As mobility and efficiency increased over time, the mining industry has moved southwards, the only direction where mineable phosphate is found. With increasing industrialization, demand and reclamation requirements, properties have become disproportionately bigger.

Usurping Land Buy
Money persuades people to sell their land. The Jefferson grid is the basis on which parcels are divided up. The grid dimensions measure 1 mile by 1 mile.

A Mining Company as a Neighbor
Physical and visual emissions and restrictions in functionality compromise the use of a property next to mining.
Mining Can Move Towns
Pierce was a company town founded by the American Agricultural Chemical Company for their workers in 1906. Those days, proximity to the otherwise remote locations was crucial to the companies. When sewage became a problem, it was decided to split the town and move the houses into three separate locations, two of them on previously mined land.

The Original Town
Pierce was still strongly connected to the industry, although most company towns were closed in the 30s when unions started to negotiate contracts. The railroad and highway 37 had passed through it.

Dispersed Settlements
No new town was founded, but the houses dislocated to three small, but already existing villages. With the split came also social segregation. While poorer families tended to stay in the area, wealthier moved to Oak terrace or could afford to commute from nearby cities.
White Collar
Oak terrace is the settlement where the wealthier employees of the mining company have moved. It is rather small and there are mostly two-storey houses. It is situated on a ridge, on mined land, with a view on mining north of Pierce.

Blue Collar
The poorer employees moved to Rolling hills (or Pine Dale). It is situated within the woods and does not have much to offer, except for reasonably large lots around one-storey houses.
Strip Mining
The land is mined in slopes, covering the landscape with the same pattern.

Clay Settling Pond
10m high dams built on stripped land close to the beneficiation plant. A clay-tailings-slurry from beneficiation is gradually poured into the pond, the clay particles settle out, cleared out water is recycled.

Systematic Contouring
The mining of the land happens in a system based firstly on process efficiency and low cost and secondly on environmental concerns. Due to the huge masses and long distances of the operation, proximity and effectiveness is extraordinarily important. The dimensions of how the landscape is shaped visually in its consistency are epic. For financial and other reasons, the resulting landscape is unlikely to be altered as significantly again.

Strip Mining
The land is mined in slopes, covering the landscape with the same pattern.
1995

- Phosphate mining
- Landscape of Production

1999

Wetlands
Beneficiation plant
Strip mining
Clay settling area
Backfill reclamation
Infrastructural canal

Roads

Landscape of Production
2004

2010

- Phosphate mining –
- Landscape of Production –

- Wetlands
- Beneficiation plant
- Strip mining
- Clay settling area
- Roads
- Backfill reclamation
- Infrastructural canal
Extraction of the Matrix
The Bucket is placed on the spot and pulled back, scraping off up to 60m³ of matrix in one cycle.

Pipeline
The matrix slurry is transported up to 10km to the beneficiation plant.

Removal of the Overburden
First the overburden needs to be removed. By dragline it is stripped off and piled up in the recently mined pits to the side of the actual pit.

Slurrying of Matrix
The Matrix discharged into a small pit where it is slurred by a low-pressure water gun.

Mining Direction
The dragline moves backwards, leaving a mined dredge. Overburden is piled up to one side and matrix to the other.

Production Landscape
Sand out of the beneficiation process is being piled up temporarily, to be filled back on the mine site.
Backfill and Change of Elevation
The Matrix discharged into a small pit where it is slurried by a low-pressure water gun.

Permanent Land Elements
Wetlands and conservation areas are highly protected zones, if wetlands are disturbed 1/4 more area have to be replaced on a site.

Amplified Scale
The most significant transformation is the much larger scale of the transformed landscape. A clay settling pond, basically a 10m high dam can reach dimensions of 2km by 2km, creating almost arena-like sceneries.
Phosphate Landmarks
Gypsum stacks are needed for the long term storage of the slightly radioactive phosphogypsum which is a byproduct of the chemical process of phosphate. The areas around the stacks are highly protected to prevent the public from encountering the hazardous materials. The stacks are always next to the chemical plants where phosphate rock is processed into phosphoric acid and then into fertilizer products Monoammoniumphosphate and Diammoniumphosphate.

Marking of the Production Sites
The stacks mark the landscape and indicate the associated chemical plants. The areas are strictly shielded from the ambient environment.

Geometrical Mountains
Visible elevation curves.
Long-term Storage
The stacks are created to store the waste gypsum over a long time. There is no intent to use it in any (touristic) way.

Closure of Stacks
The Gypsum stack is covered up with a fabric and later covered with topsoil.

Florida's Mountains
Gypsum stacks can reach heights of 10 up to 60 meters. They are the highest elevations in Florida.

Gypsum Stack Locations
22 Gypsum stacks are spread over the Tampa and Bone Valley region in 15 locations.
The landscape is a resource and a product of the mining industry and this duality is inseparably intertwined. The landscape is a portrayal, but also a regulation. The alterations are significant, and invasive, and thus all the more interesting.
Re-creation of Nature

In 1975, the Mandatory Act was introduced which obligated every company to reclaim the area they disturb with their mining activity. Reclamation means to bring back the original status as well as possible. This regulation only mentions the superficial, visible entities of the land and not its soil composition. Reclamation includes recontouring of the landscape with bulldozers, into a more flattened landscape, and its initial revegetation. Reclamation has to be started within 7 years after mining and has to fulfil successive 5-year plans. Reclaiming one hectare can cost up to 25'000$. 

Reclamation Status

Most of the areas that have not and will not be reclaimed are situated close to the urban clusters around the Interstate 4, where most of the future growth is expected to be. Non-reclaimed areas are still developable, but may seem more savage than reclaimed ones.
Ecological Concerns

The biggest hazards that come with mining are spills of contaminated waters into the environment during thunderstorms. The water in the gypsum stacks has a very low pH-level, and is very muddy while processing. Retention basins have been built as precaution.

Integrated Habitats

The Integrated Habitat Network IHN is a strategy introduced in 1992 that focuses on a sustainable network of environments that may become isolated.
Wetland Capillaries
Wetlands ensure the water management and habitat of a landscape and are the places with highest biodiversity.

Wetland Arteries
Albeit the efforts to try and sustain the wetlands over the course of the mining of a site, the destruction of the microcosms are unavoidable. Instead, in order to achieve the number of square meters that have to be restored, the wetlands are concentrated in corridors, as a restoration of the original state is hardly possible to achieve.
– Phosphate mining –

– Production of Landscape –
Geometrized Landscape

Mining, too underlies the principles of the Jefferson grid, the basic territorial division of the US into 2.5km² lots and further subdivision.

The Jeffersonian Grid Module

Almost all geometries of a current mine can be derived from the Jefferson grid in wholes, halves or thirds.
Mosaic Builds a Resort

The streamsong resort is the first site that Mosaic develops themselves. So far they have kept their lands and have sold their land only in small bits.

Beautiful Wasteland

The spectacle of the artificial landscape is what should make this resort special. Its remoteness should add on to the experience of going there.

Outlining of Parcels

The outlining of the mining parcels is an easy method of hiding human impact on the landscape from view on the ground.
Amalgam

The district between Mulberry and Bartow is where the history of the region is most visibly imprinted. All of this area around the capital of Polk County and the Peace River has been mined in the past.
– Phosphate mining –

– Production of Landscape –
Predetermined Zoning
The zoning in the sector plan for the Clear Springs DRI (Development of Regional Impact) adheres directly to the formerly mined lots.

Visual Zoning
The mining pattern remains visible if seen from a ridge.
Definitions of Mine Geometry

The restructuring of land geometry is tightly bound on street layout and property limits, while natural boundaries can be overridden more easily.

Categories of Palimpsests

Mining restructures the environment people live in. Humans always find ways to utilize their environment, whether it has undergone significant transformations or not. The further transformation of what mining has left behind is yet another layer of a landscape that can be read as a palimpsest of former uses. The palimpsest is in these cases a stunning oddity.
Imprints in the Landscape
Government pegged fares allow for wide-ranging economic accessibility because they are often set lower than market value.

Limiting Elements
The Interstate-4 sets boundaries to the mining. Polk parkway is built just around the mining boundaries.

Ignored Elements
The existing roads get “swallowed” by the mining. Part of the road around Lake Parker is dislocated.
Land and Lakes Reclamation
Bridgewater had been mined in 1967 and was reclaimed in the land and lakes typology, meaning, the overburden piles get flattened out and the remaining pits are filled with water. In most cases this method is applied due to lack of backfill material.

Suitability for Housing
The dimensions of the mining pattern are wide enough to reasonably develop the leftover land in 2 or even 3 parallel row of houses.

Lake Pits
The terrain drops quickly and in a very steep slope to a far greater depth than normal ponds. Additionally, Florida’s rich fauna makes swimming undesirable.
Real-estate Dream Location

The price for reclaimed land is significantly lower than for undisturbed land, and for a housing developer it is more attractive, as a contoured and planted landscape has more to offer. Buy for less, sell for more.
Re-recontouring of Mined Land
The predominant method of using the existing, recontoured landscape is abandoned here, as Santiago Calatrava projects a lake on a previously mined and backfilled area. The mining context is ignored in favour of a landmark on I-4.

Catalyst Projects
Owned by the Williams Company, the project still only covers part of their remaining properties. A mixed use on sand-tailings and overburden backfill are proposed, using the existing layout of lakes. Formerly the boundaries to the mining, the I-4 and Polk Parkway offer a brilliant location for accessibility.
Leisure Park and Natural Habitat

As the area of Saddle Creek does not offer any other possibility for development, using it as a leisure park or not at all seem to be the only solutions. The park’s use is quite limited to the central axis running through the park, there is plenty of room for a flourishing fauna to coexist.

Non-reclaimed Site

Saddle Creek park was mined in 1955. It has not been found eligible for reclamation in the Zeller-Williams report, therefore it has not been reclaimed, only some contouring has taken place. Yet Florida’s flora growth is strong enough to revegetate the site.

Fishing Activity

An excellent location for fishing, tackle and bait shops can be found around the park.

Inland Motor Boating

Tricky and wide-spreading, the park offers several landings to go motor boating inland.
Categories of Palimpsest

Categories of Mining: Backfill and Reclamation - Development

IV/351
COMMENTARY
PHOSPHATE MINING

Phosphate Mining is a long-term large-scale process of land transformation in Central Florida. This process started in the north almost one hundred years ago and, steadily enlarging its scale, worked its way towards the south since. It is basically a gigantic machinery that slowly rolls over the landscape altering it irreversibly. In a first step agricultural land is usurpated by the powerful mining corporations. The surface mining itself is performed by monstrous machines that move over the land in long serpentine excavating several meter of ground. Once they have deprived the land of the valuable phosphates any natural features of the landscape have been annihilated. Still nowadays strict regulations demand the original landscape to be reconstructed before it is released from the mining process. This reconstruction is based only on quantitative figures (square meter wetland etc.) but strangely negates the design aspect it obviously involves. Although this second nature tries to hide any trace of its once industrial cultivation a closer look reveals that its spatial structures inherits the logic of the mining process. Although only temporary the mining process is permanently inscribed in the memory of the landscape. More than that, certain territorial features (the grid) that existed before the mining endure and outlast this drastic transformation. In all its crudeness, phosphate mining becomes a prototypical narrative of man and landscape. Although the mining itself is a form of cultivation rather than urbanization, through the process of complete landscape de- and reconstruction, it functions as a catalyst for urbanization. It intakes rural networks and releases denser and more complex networks of urbanization – often housing developments, whose artificial land- and waterscapes retrace the path of the long forgotten mining machines.
V

INTENSIVE AGRICULTURE

CITRUS FARMING
Farming System
Citrus Farming Industry
History of Citrus Industry

CLIMATE CHANGE
Location Influences

URBAN PRESSURE
The Coast - Tourism vs. Farming
Density around the Highway
Temporary Urbanization - Labor Force Migration

ECONOMIC FORCES
Progression of Efficiency and Production
Global Competition and Trade
Internal Forces: Restructuring Areas of Farming

AGRICULTURE IN TRANSFORMATION
Politics and Agriculture
Citrus vs. Alternative Agriculture
Citrus vs. Development
Structure Survives Land Use Change
CITRUS FARMING

The landscape of Florida is deeply marked by the large scale structure of agriculture. The most cultivated product in Florida is the citrus fruit, especially oranges. The main region for citrus production is Central Florida, where growing conditions are especially favorable. From the beginning of the citrus industry in the 19th century until today, citrus farming is central to Florida’s identity.
The structure of agriculture does not form a special network as it does in Switzerland, but it adopts the typical American grid. The structure of the agricultural area does not differ from the town area.

Farming system
The large and strong structure system of the agricultural plantations and the strong economical impact of the agriculture, particularly the impact of the citrus industry, influence nearly all the systems of Florida.
The Field as Module

Within the grid the agricultural products are cultivated in a very strictly subdivided manner, in a very efficient way and on a large scale; one field corresponds to 17 Swiss fields. The orange trees are planted in a strong alignment and in very short distance. The distance between two lines can vary between 1.5 m and 3m.
Florida Production in Terms of Total U.S. Value

Florida is the main supplier of citrus fruits in the U.S. On the orange market about 65% of the whole U.S. production come from Florida.

Florida Industry Ranking

The citrus industry ranks second to tourism in Florida and is the second highest source of income.

Florida Agriculture Cash Receipts %

Florida produces a range of agricultural products, throughout the state, whereas citrus farms are mainly situated in central Florida, especially in Polk and Highland county.
The Ridge

The citrus farming area is concentrated along Hwy 27. This region is situated a little higher and is called The Ridge. It is a geological formation from millions of years ago. The "ridge" is a prehistoric sand bar that remained above sea level when much of Florida was underwater. This sandy soil is especially good for the growth of citrus fruits.

Citrus Fruit

All citrus are small, spreading, evergreen trees or tall shrubs, which may reach 6-9 m in height in nature, but most cultivated trees are smaller than 4.5 m. Stems are often armed with long thorns. The flowers are solitary or in small corymbs, each flower is 2-4 cm diameter, with five white petals and numerous stamens. The fruit is a hesperidium, a specialized berry, globose to elongated, 4-30 cm long and 4-20 cm diameter, with a leathery rind surrounding segment filled with pulp vesicle.

Citrus Farming Industry

The citrus farming in Central Florida is intensive and essentially concentrated around the main highways. There are several different highly industrialized proceedings before the fruit arrives at the consumer. The citrus fruit market is separated in two parts, the fresh fruit, representing only 10% of the total citrus production, and the processing market which represents 90% of the Florida citrus production.
Citrus farming Cycle -
From the Seed to the Market

There are special establishments in Florida which grow the citrus plants in their early phase. Once the plants have reached a certain height in the tree nursery, they are sold to the farmers who plant them on their farms in strictly ordered alignments. On the field, the trees first fruit after 3 years, and reach full earning potential after 5 years. Few laborers are needed to nurture the young plants, in comparison to the harvesting season, when a lot of pickers are necessary. The number of pickers in this high season situates between 100 and 150 per 10,000 orange acres.
Two Markets: Fresh and Processed Citrus Products

In the packinghouses the fruits get selected by computer after color and size. Good looking fruit goes to the fresh market, the rest, about 90%, goes to the processing market. Then workers pack the fruit along a conveyor belt.
History of Citrus Industry

The first orange trees in the US were planted in Florida, in 1518 around St. Augustine. During the 19th century the citrus trees grew wild in many of Florida's forests. The citrus industry was established in 1821 in Florida, but the real boom of this industry started in 1920 with the production of citrus concentrates.

Big freezes have strongly influenced the production during history.
Citrus Agriculture as Identity
The citrus industry exploded in the beginning of the 20th century and has grown to a very strong identity for the inhabitants of Florida. It is also used as a marketing strategy. Florida is very proud of its citrus industry.

Field Size Decrease and Farming Move to the South
Since the big freezes in the 1980s the citrus areas have been shrinking steadily, and have progressively been transferred to more southern locations. However, the freezes have increased and now also occur in more southern zones.
CLIMATE CHANGE

Climatic circumstances play a crucial role due to the sensitivity of citrus trees. In Florida the climate has changed in recent years, which has had a significant impact on citrus industry. In the north the temperatures are too cold for citrus plantations and in the south the possible cultivation area is bordered by the Everglades National Park. Due to severe freezing in the past years, the citrus area is moving further and further south.
Climate Conditions
The citrus plants need a lot of sun and temperatures between 14-18°C in order to grow well and produce. To survive the citrus plant does not need a lot of water in comparison to other fruits like strawberries or blueberries, but the total water use for citrus farming is enormous. The majority of this water is used for cold protection.

Location Influences
Citrus fruit only grow under certain conditions, they require specific temperature, irrigation, soil and nutrients. The citrus fruit growth is entirely dependent on the climate.

Self-supplied Water Sources for Irrigation and Cold Protection
The water used in citrus agriculture is generally self-supplied, what means that the water comes from locally available water supplies like wells and ponds that are developed on the property of the growers. The problem that comes with this method is that the water usage is not under control. This leads to severe ground water problems. Other sources for irrigation include for instance Lake Okeechobee and its surrounding canals or Lake Apopka. Water from these sources feed into canals or ditches and are then pumped onto fields or groves.
Citrus Trees Need Specific Nutrients and Soil Conditions to Reach Full Earnings

In Florida there are six different kinds of soil of which two are suitable for citrus plants. That is one of the reasons why citrus areas are mainly located in central Florida. The best soil condition for citrus plants is a very sandy ground with a lot of nitrogen.
**Temperature Conditions**

Citrus fruits grow only on certain locations around the world, because of their highly dependence of dedicated temperature and soil. Citrus growing is just possible in central Florida because the temperatures in the northern regions are not warm enough and the possibility of freezing is almost 100%. In the central Florida farmers always have to watch weather and freeze warnings to protect their crop.

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**Northern Citrus Areas Suffered under Major Freezes in the late 80s**

After severe freezings in the late 80s it was not profitable anymore to replant the citrus areas in northern regions, that is why most of the area developed. Nowadays there are a lot of markets or tourist attractions that remind on the golden citrus years, but most of the plantations are gone. This climatic change can be recognized in a extreme way for instance in Minneola in Lake County. Citrus areas have almost disappeared since 1965.
Florida has evolved in the last years principally from tourism. The coast is the most urbanized area, but also the area around the main infrastructures has highly grown up, specially the regions around the main cities as Tampa and Orlando. The citrus areas in those regions are suppressed by the urbanization which is the strongest force.
The Coast - Tourism vs. Farming

The pressure of high urbanization along the coast is felt by the citrus industry. Whereas in 1951 there were a lot of citrus groves in Pinellas County, today it is totally urbanized.
Density around the Highway
The north-south axis of highway 27 passes through the Ridge, which is the best cultivable acreage for citrus fruit. This region is also perceived as a part of the agglomeration of the main city of Orlando and is therefore highly urbanized. This high development occurs to the detriment of citrus plantations; in regions around the highways the urban pressure is stronger than farming industry.

Development in Lake Placid
Lake Placid is a farming city situated on the south of the Ridge, where the citrus farming is the main industry. Although future developments are planned on existing farms, even in this farming city the urbanization is stronger than agriculture.
The Public Planning Councils plan really in a different way than the privates would wish it. They want to densify the territory so that the public services and infrastructures can be used in a more efficient way. They have to find some investors who are interested in a high density community.

Americans desire a lot of space. The dream of home ownership, a house on a big green area, prevails. In Florida everybody who owns land can build on it, providing the local regulations are followed. In some place the law allows to build no more than one house per 5 acres.

In the same way as in Lake Placid, a densification is planned for the Ridge. Finally the citrus farming areas around the highway 27 will be situated out of town only.

The Public Planning Councils plan really in a different way than the privates would wish it. They want to densify the territory so that the public services and infrastructures can be used in a more efficient way. They have to find some investors who are interested in a high density community.
Temporary Urbanization - Labor Force Migration

A significant percentage of people who work in the harvesting aspect of agriculture (across a wide range of different fruits and vegetables) are “migrants”. They move from crop to crop and from location to location. They may pick oranges in Florida, then blueberries in Georgia, then watermelons in Indiana over a 6 month period. Most of the people who work in Florida pick crops in North Carolina and Georgia as well. The harvesting season of the different fruit generate a temporary urbanization in those places.

Employment Impact

28% of the Florida labor force are working in agriculture industry, therefrom 14% are working in the fruit framing. Mexican farm workers are representing more than 70% of the labor force in Florida. In the U.S workers on the field or in the agriculture industry are considered by the society as being on a very low social rank.

Florida Hired Farm Workers by Agricultural Service:
- October: 41'000 workers
- January: 58'000 workers

Migration depends on the harvesting season:
- December-February
- June-July
- April-June
- February-June

Employment in Florida:
- Agriculture: 213'904 jobs
- Mining: 763'065 jobs
- Vegetable farming: 20'201 jobs
- Fruit farming: 30'189 jobs
- U.S. Labor Force: 146'000'000 jobs
- U.S. Agriculture: 1'600'000 jobs
- Mexican farm workers: representing more than 70% of the labor force in Florida.
Two Salary Systems

As worker in the industry or farming services you can choose to be paid per hour or per loaded boxes. The salary is also depending on the harvesting season and the economy. In the high harvesting period the salary is higher because the farmers need a lot of workers.

Work on the Field as a Picker

The work as picker is really a hard job. Most of them are men coming from Latin America. Often they are only engaged for a few weeks or months, depending on the harvesting season of the fruit.

Work in the Industry as a Packer

The most of the workers in the packing houses are women from Latin America. They are generally engaged for a period of 6 months. The work speed is really fast, the packers who are working for lots of years can load a orange box of 80 fruits in 1 minute.

Labor Force Business - Production Flexibility

The pickers don’t need a particular formation or experience to get a job. In this way they will be engaged in a very short term, but also only for a short time - for a few days or weeks. By this means farmers can very quickly adapt the number of employees depending on how the production is running.

Pickers’ Work Planning

The pickers working time is around 9 hours a day.

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30 am</td>
<td>Interview with farmer; Fill out a form</td>
</tr>
<tr>
<td>09:00 am</td>
<td>At the farm house - Hygiene, hand wash</td>
</tr>
<tr>
<td>10:15 am</td>
<td>Drive on the field</td>
</tr>
<tr>
<td>11:15 am</td>
<td>Picking</td>
</tr>
<tr>
<td>12:00 am</td>
<td>Back to farm house - Noonetime</td>
</tr>
<tr>
<td>14:00 am</td>
<td>Back on the field - picking</td>
</tr>
<tr>
<td>18:45 pm</td>
<td>Back to farm house - Salary</td>
</tr>
<tr>
<td>19:00 pm</td>
<td>Sending money to Mexico</td>
</tr>
</tbody>
</table>

Wages paid on the field per crop

<table>
<thead>
<tr>
<th>Month</th>
<th>Rate per box</th>
</tr>
</thead>
<tbody>
<tr>
<td>October</td>
<td>$8.90</td>
</tr>
<tr>
<td>January</td>
<td>$9.60</td>
</tr>
</tbody>
</table>

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No Direct Connection between Living Space and Farming Space

The living place of the labor force is really affected by this harvesting migration. Most of them have two or three different living spaces, depending on where they have to work. Often in each town where agriculture is present, there is a labor force community quarter, which is the most poor part of town. In Lake Placid, farmers and farm managers own houses around the lakes and own agricultural areas outside of the town, they haven't a direct connection to their plantations. The labor force picking the fruits are living on the leftover spaces in the town.

In Lake Placid 45.1% of the population are Hispanic

In Lake Placid 29% of the population are working in the agriculture
Very few farms provide houses for the pickers. They only provide infrastructure if the farm is situated in an isolated location to be sure to get enough people to work there during the harvesting season.

Self-organized Home
The most extended labor force living in Florida is the mobile home. In most of the towns around the highway 27 no mobile homes are no longer allowed. It can be a problem for the workers to find a place to live. The existing mobile home parks can remain but no more are planned.

Farm Managers Provide Home for Workers
Very few farms provide houses for the pickers. They only provide infrastructure if the farm is situated in an isolated location to be sure to get enough people to work there during the harvesting season.
ECONOMIC INFLUENCES

The main competitor to the Florida citrus market is Brazil. Continuous research is required to advance technologies and increase the efficiency of the process. Florida’s citrus industry is highly industrialized and leads in the development of defense against diseases.
Progression of Efficiency and Production

To be able to keep up with the global competition citrus farming has become more and more effective during the last years. Furthermore there are institutions like the Citrus Research Center (CREC) in Winter Haven which specialize in research on disease defense, and increased production. Citrus production has expanded more than 4 times since the industrial production started in 1920.

Presently the production of citrus fruits is rising, though farming areas are smaller, as citrus trees are planted closer together.

Citrus Canker and Citrus Greening

The research center is a part of the University of Florida and teaches everything about citrus. The facility is directly connected to the growers and supports them through annual reports. The main topics investigated by CREC are the frozen concentrated orange juice, the control of citrus greening and canker, and the impact of nutrients on citrus.

The goal is to find tools for growth and protection of fruit, and genetic solutions to increase productivity.
Global Competition and Trade
USA’s orange production equals 15.9% of the world orange production, of this, 75% is produced in Florida. Although Florida contains just a small growing area compared to other citrus countries but it is so efficient that it produces 12.1% of the world citrus production.

Export Market
Orange juice is very popular in the United States that is why 70% of Florida’s orange production stays in the US whereas 75% as processed juice and 25% as fresh fruit. The main export market is Canada followed by Japan and China.
Citrus Business, Companies and Labels

The citrus industry is mainly divided in two markets: Fresh and processed fruit. 90% of all citrus crop goes to processing industry where the fruit is getting frozen concentrated orange juice. In the majority of cases one of the big citrus labels is working together either directly with farming corporations or processing facilities.
Internal Forces: Restructuring Areas of Farming

Besides global competition and efforts to raise efficiency in technologies it is noticeable that there is something going on within the structure of Florida's citrus industry. Today you can generally find four different farming types. These types mainly distinguish in size of farming area, diversity of products and their trading connections. Small landowners more and more give up their land to big business farmer.
Farming for Living
Small landowners are still the majority in Florida. They have studied citrus or live in citrus growing regions and opened and own businesses just to cover the living costs. Everyone in Florida can buy some agriculture acres in the right regions and begin to harvest citrus. Normally these small farmers have a membership in cooperatives to sell the fruit to better prices.

Grower Cooperative Associations
“Formed in 1948, Mutual has served the Florida citrus grower for more than 60 years. Led by a board of 21 member-elected directors, Mutual is the largest cooperative association dedicated to helping Florida citrus growers produce and market their crops at a profit. We’re looking out for the best interest of the growers every day, whether it is in the halls of Congress or the groves of Florida’s citrus belt.” Florida Citrus Mutual
Family Farmer

**Farming as Family History:**

Next to small landowners there are farming structures based on family dynasties. Great-grandfathers who worked in other businesses came down from other states to Florida and bought acreage to build a new commercial activity. This became family tradition and most of the children and grand children take over farming affairs. Lots of children from family farmers also marry other children from family farmers.
High-profit Oriented Farming

There are just a small number of mega-farms and big farming corporations in Florida. They grow various products and in most cases they own a packing house and a processing facility. Normally they work together with a big citrus label and buy additional fruits from small landowners. These businesses do not have a sentimental connection to citrus, they are profit driven.

<table>
<thead>
<tr>
<th>Farming Area</th>
<th>over 100,000 acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work forces (during harvesting season)</td>
<td>600 - 800</td>
</tr>
<tr>
<td>Orange Production per Year</td>
<td>400,000 Boxes (Oranges)</td>
</tr>
<tr>
<td>Diversity of Products</td>
<td>Oranges, Blueberries, Strawberries, Cattle, Palms, Grass</td>
</tr>
<tr>
<td>10%</td>
<td>28%</td>
</tr>
<tr>
<td>Orange Production per Year</td>
<td>1.2 Million Boxes (Oranges)</td>
</tr>
<tr>
<td>Diversity of Products</td>
<td>Different kind of Oranges, Grapefruits, Tangelos</td>
</tr>
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</table>
Extinction of Small Landowners - Growth of Mega-Farms

Today there are about 9000 small landowners existing in Florida, this is nearly 90% of all growers. However the future trend is towards the large landowner. In the end the result will be several mega farms and business farmer in Florida and the extinction of small landowners.
AGRICULTURE IN TRANSFORMATION

Especially in northern regions agriculture land is sold for other purposes, particularly along the highway 27 where it is not profitable anymore to harvest citrus crops. Though it is possible that the new buyer is going to cultivate other crops or does other agricultural affairs. However in the majority of cases near by highway 27 the land use got changed into residential, commercial or industrial land uses.
Politics and Agriculture
In Florida there is no political movement existing to protect the agricultural settings. In general the public is not interested in agriculture policy, whereas local farmers represent the most effective force in regulating the industry.

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Two Kinds of Generators to Change Land-use
A public institution like a regional planning council initiates a new master plan for their region. This master plan shows the future zoning plan with the accordant uses. Out of this master plan the local private landowner can decide whether they want to change their land or not. The public institution always has to dispute with the private owners.

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Citrus vs. Alternative Agriculture
If citrus farming is not profitable anymore (due to different reasons) or climate protection is not possible and no demand for urban development is existing the area is often used for alternative agriculture forms. Such as pine tree farming, cattle ranching or Christmas tree farming.

Climate Change & Economic Influences
1. Citrus plantation of northern regions
2. Freezings destroy the crops and often also the trees
3. Citrus farming is not profitable anymore in this region, so they let the trees dying
3.1 The land is used now for alternative agriculture like cattle ranching
3.2 or Christmas tree farming
3.3 or pasture farming for instance for golf courts
Urban Pressure
1. One of the reasons which push a landowner to change the use of his land is the comparison of the price of agricultural land to residential land.
2. The trees are destroyed.
3. ...and removed for new development.
4. New residential buildings are built.
5. The price for the same land after the land use change depends on a lot factors: infrastructure, location, soil quality, water resources and so on.

Citrus vs. Development
Different factors lead to replacement of citrus areas into residential or commercial building areas. Movement is due to climatic circumstances and, more importantly, to urban pressure along the coast or around the highways. In these specific areas urban pressure always wins the battle against agriculture. However in Florida’s heartland are still regions where citrus agriculture is stronger than any other influences.
Due to certain circumstances like climate change or urban pressure, citrus basically disappears, but the idea of the image of citrus and its significance for Florida is still there as a brand and to promote the new urbanized areas.

**Climate Changes & Urban Pressure**

1. Citrus plantations in northern regions
2. Freezing, cold periods, and diseases destroy the crops and the trees
3. The trees die...
4. ...and do not get replaced. The farmer decides to replant somewhere else and sells the area
5. Usually the area changes residential or commercial use

**Orange Tree Village, Lake County**

**Lake County, Minneola**

Farm
87.44 acres
$25,000 per acre
New use: Mixed use

“Excellent Investment. Mixed use, 125 single homes, 120 condominiums, and 13 +/- acres of commercial property. Ideally located just minutes from Hwy 27 and Florida Turnpike, area schools, shopping and restaurants.”

**Citrus as Promotion for New Development**

Due to certain circumstances like climate change or urban pressure, citrus basically disappears, but the idea of the image of citrus and its significance for Florida is still there as a brand and to promote the new urbanized areas.
Recreation Areas as Ecology Strategy

Most of the land in Florida is owned by private owners. Normally the rule is that for each 5 acres of agriculture land somebody can built one house on his property. For owners of large estates who want to make money with new residential developments on their property this rule is not conducive. It is possible to get permission for large development areas but they have to make sure that the balance with recreation areas is guaranteed. On this land they neither build nor cultivate.

Recreation Areas - Atlantic Blue Ranch

Atlantic Blue is an example for a mega-farm in Florida. It is situated near Lake Placid next to highway 27. Besides harvesting different fruits they have large areas of cattle ranching and are involved in real estate development. Owner of a large estate who wants to create residential areas must give up an equal area for recreation.
Citrus Farming Resists Urban Pressure and Climate Change Thanks to the Strong Economic Impact

Nowadays there are almost no more spaces left for the citrus agriculture to spread. National forests and phosphate mining border the citrus area even like soils that are not suited for citrus agriculture and in northern regions the temperatures are not warm enough. Besides the urban pressure along the coast and the highways. What makes the citrus industry survive is the very strong economic impact in Florida and strong concentration of the citrus area. After tourism citrus agriculture has the second largest economy impact of Florida. Furthermore the industry generates lots of workplaces.
In Florida infrastructure is constructed first. In the majority of cases the infrastructure is built as a grid with defined distances. All variety of land uses are then fit into this grid. Therefore the agriculture structure is highly geometric and after land use changes the structure of the agriculture fields are still present. The structure survives even as the usage changes. Sixty years ago there was a lot of citrus in Pinellas County and today every part is urbanized. Nevertheless you can still find the main structures of the citrus plantation.
COMMENTARY
INTENSIVE AGRICULTURE

Florida’s warm climate is the basis for its two core industries: tourism/real-estate and agriculture. Agriculture as the lighter, simpler form of territorial appropriation came first and used to occupy large parts of the Floridian peninsula. Tourism and the connected real estate business, as they require a higher form of urbanization came slower but are, in their full development, more profitable. Florida’s agriculture, dominated by its famed citrus fruit production, has thus been subjected to a constant process of pressure and expulsion. Although agriculture has lost some of its best farmland, especially along the coast, the citrus industry is still today an important economic sector and Florida the United State’s main supplier of citrus produce. The work portraits the state of Florida’s intensive agriculture and its reaction to the threat of more lucrative land uses. In this reaction it discovers specific patterns and techniques that reflect Florida’s mode of urbanization in general. The agriculture is shown constantly on the move fleeing deteriorating economic and climatic conditions. This spacial flexibility and complete unsentimentality for place is, at least from a Swiss perspective, surprising for a land use that is more than any other rooted in the ground.

Under pressure agriculture has continuously and relentlessly consolidated so that it produces now more fruit on fewer land with lower production costs. Agriculture in Florida is not so much the territorial and cultural background layer of urbanization but just another competing form of land exploitation measured strictly on its productivity.
SPACES OF FLOW

ETH Studio Basel
Contemporary City Institute
Nico Abt, Gianna Ledermann, Samuel Scherer
Prof. Roger Diener, Prof. Marcel Meili
Mathias Gunz, Rolf Jenni, Milica Topalovic
Christian Mueller Inderbitzin

Spring Semester 2011
VI
SPACES OF FLOW
ROAD URBANIZATION

NETWORKS OF FLOW
Development of the Floridian Transportation Modalities
The Omnipresent Road
Railway = Cargo
A Super Dense Airway Network
Cultural Heritage of Aviation
Ocean Connection to South and East
Everything Connected Through Roads

FLOW OF PEOPLE
Living, Working, Commuting
Interstate 4: Accelerator and Attractor of Development
Public Transport: A Burden or Potential?
The Road System
Importance of the Interstate 4

ROAD URBANIZATION
What Defines a Metropolitan Area?
Public and Economic Use Embrace Arterials
Large Scale Distribution of Products
Standardized Planning Guarantees Social Segregation
Elements of Road Urbanization
NETWORKS OF FLOW

Florida possesses a dense network of multiple modalities to allow fast travel and fast transport of freight. Besides ship, rail, airway and even a space port, the main transportation network is the road. This dense grid of interstates, arterials and smaller roads has been heavily developed since the federal interstate network was built after the World War II as a strategic military distribution and evacuation system.
Development of the Floridian Transportation Modalities

Florida has been conquered with railroads. However, when the car superseded rail, Florida’s ascent towards an automobile dependent society began. Continuous road expansion made the network into an omnipresent infrastructure that shapes the everyday life today.
The Omnipresent Road

The road network is the basis for movement within the urbanized structures. To move for every day needs, social interactions, or travel, a car is essential. Such a high mobility can only be achieved with cheap gasoline prices, which are still available. In that manner the car accessibility is the foundation for the American way of life.

High Vehicle Availability

According to the U.S. Census data 2010, 95% of Florida residents own a car. The legal driving age is 16 years, and cheap used cars are abundant. Attaining the license is an important step, since mobility is decreased dramatically without a car.

One Man One Car

To travel in Florida you need a car. Without one you are stuck wherever you are.
Railway = Cargo

In the 1960s a transition from public transport to freight traction was initiated. Railway has since then grown into an economically efficient modality to traffic great quantities of goods. The only handicap is its speed. It is usually faster to dispatch by truck. Public transport however is on the fringe. Money and time costs deem it to be unprofitable, only maintainable through governmental funding.

Redundant Railway Tracks

Many tracks are unused and neglected. The aeronautical advance superseded railway as the fastest modality.

Marginal Public Transport

Amtrak, the National Railroad Passenger Corporation, offers a scheduled daily train ride from South Florida to New York.

Railway a Relict from a Past Age

Railway is outdated and a symbol for the good old times. The glorification of old transportation modalities is a common hobby, and tourist attraction.
Take Off / Landing
In High Altitude
Airports
Urbanized area
Lakes
In high altitude
Take Off / Landing
Airports
Urbanized area
Lakes
In high altitude
Take Off / Landing
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Lakes
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In high altitude
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Airports
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Lakes
In high altitude

Fly, When Roads Fail
For long distance travel flying is popular, because the road system is often congested and rail is not an option.

A Super Dense Airway Network
During World War II the flight industry was drawn to Florida’s favorable yearly climate and military air bases were established. Today Florida’s aviation industry is still in a leading role of training pilots and manufacturing flight related products.

Cultural Heritage of Aviation
The state enthusiasm for aviation probably has its roots in the World War II flight boom, e.g. air shows are still attract crowds.

Impact of Private and Military Airports
Private airports are used for fast and unbureaucratic travel. Military airports are used as deployment and training facilities.
Ocean Connection to South and East

The ports of Florida operate as a gate to the American domestic market and in combination with the Panama Canal they are an efficient and fast path to Asia and South America. In addition the ports have a central regional role as employers.

West Coast: Freight Transport

The west coast especially the ports of Tampa are important for the freight handling. In future the importance will grow with the extension of the Panama Canal.

East Coast: Cruise Lines to the Caribbean

The Port of Cape Canaveral is the home base for scores of cruise line enterprises and have a crucial role in the tourism market of Florida especially with the Walt Disney Cruise Lines.
Transit Corridor Interstate 4: I-4

The I-4 is a work area connector and a transit corridor for freight traction.

Trucks per Day

The truck network usage is concentrated on the North-South connections, and is an indicator for Florida’s role as gateway.

Passengers per Day

Equal network usage except in the highly urbanized areas.

Everything Connected Through Roads

Roads are the basic infrastructural grid upon which daily movement happens.
Dense Infrastructure = Urban Areas
The more condensed the infrastructure the denser the urbanized area.
FLOW OF PEOPLE

A region with a heavy commuter population is dependent on an efficient road system. The I-4 highway connects great distances between work place and home and attracts high commuter flows. Public transportation offers no alternative to the car commute because it mainly develops in city centers.
Scattered Living Areas
The low and middle density urban agglomeration spreads over all the I-4 area. This type of settlement typically shows single family houses.

Living, Working, Commuting
The usual lack of mixed use in the typical low density settlement of the I-4 Corridor leads to numerous commuter flows. Through fast connections on highways the physical distance to the workplace loses importance; cost of the home becomes the determining factor for choosing the place of living.

Condensed Working Areas
In contrast to housing, work areas are densely clustered, yet, due to the segregation of living and working areas, many of these places are only populated during working hours.
In 5 minutes reachable
In 10 minutes reachable
In 15 minutes reachable
In 20 minutes reachable

Commuter flow
Interstate or Arterial
46,000 Jobs
17,000 Jobs
8,500 Jobs
4,400 Jobs
1,500 Jobs

Commuter Flows to Attractions near I-4
Important workplaces such as Central Business Districts or Walt Disney World are all located near the I-4. This generates regional and trans-regional commute flows and creates a polycentric road network.

Average Commute Time: 24 Minutes
There are two reasons for the concentrated commuter flows: the fast connection and the lack of alternative routes to the workplaces. Commute time varies greatly during the day, depending on rush hour congestion, its crucial to note variations.
1936: People mostly live in the town centers

1959: The area near Orlando but belonging to Osceola County is dominated by agricultural use

1989: Disney chose to settle down right after the completion of the I-4 when land was cheap to buy

1990: With the I-4 and Disney World the growth was encouraged

1999: A second exit from the I-4 was built for the increasing Walt Disney area, mainly serving tourists

2000: Urban agglomerations are steadily growing toward each other

2007: Urban agglomerations are overlapping to a continuous region

2010: A third exit was built to connect growing developments around Walt Disney

**Interstate 4: Accelerator and Attractor of Development**

The former isolated city centers were connected through the I-4 which lead to growth towards and along the arterial. The cheap land between the central nodes attracted countless enterprises. With Disney World as an example, tourism and settlement in this area highly increased.
Development of Lakeland

The city's development is primary due to the construction of the I-4 and the augmenting importance of the airport.

Engine of growth: Disney World
Missing Connections Between Centralities

It is impossible to reach Tampa from Orlando by public bus.

Public Transport: A Burden or Potential?

The public transport network, consisting of few railway lines that only connect several cities and a bus line serving the city cores and its agglomeration, did not keep up with the fast growth of the urban areas. The public bus line is mainly used by low income individuals who can't afford a car. This mode of transportation takes time and greatly increases the daily commute.

Lack of Coverage

The bus line grid is too widely meshed to cover the urban areas.
No Money? Take the Bus.
The target group of the bus companies, in this example Lynx in Orlando, are people with low income. Their mobility is extremely limited without a car but at least the access to medical care centers is guaranteed by public transportation.

Public Stations as Empty Places
The missing connections between different public transport providers lead to unused public stations. There are no parking lots available and often the locations are not centrally located.

Fast Growth = Uncovered Regions
The existing bus network is too static and underdeveloped to keep up with the dynamic growth of Orlando’s urban area.
The Road System
The roads are grouped into different categories according to the character of service they are intended to provide.

High Mobility = Little Land Access
The assigned function of the different road types is established to generate a functioning road network.

- Flow of People –
- Spaces of Flow –

Land Access
Mobility
Local
Collectors
Interstate
Proportion of Service

streets only designed for cars
cul de sac streets make fast connections impossible
Local Road
The local road provides direct access to a parcel. It contains one lane and has to be driven very slowly. Local roads are often designed as dead end streets.

Collector Road
The collector road gives access to districts, and usually leads to a connector road. It has two lanes. Overall it is important to point out that individual roads and streets do not serve travel independently in any way.
Arterial Road
The arterial road provides higher level of service and connects the urban areas. Often commerce and offices are built along arterials. It has six lanes.

Connector Road
The connector road gives access to larger areas and connects arterials. It has four lanes.
Road Classification Overview

Generally the local road system is disconnected and does not distribute movement in all directions. This leads to an inefficient connection within the districts. The connection between districts is achieved by connector or arterial roads.

Interstate 4

The interstate road is the connection between bigger cities and is the highest capacity road. In this case I-4 connects the major cities Tampa and Orlando. It has eight lanes.

No Interconnectivity in Districts

Dead end local streets block efficient circulation.

Road Classification Overview

Generally the local road system is disconnected and does not distribute movement in all directions. This leads to an inefficient connection within the districts. The connection between districts is achieved by connector or arterial roads.
Arterial and Interstate Used as a Connector
The lack of connectivity within the districts and the often missing connector roads lead to a usage of arterials and the Interstate for short distances.

Importance of the Interstate 4
The high capacity road I-4 shows different usage modes it is not just a long distance link. The dependency of the local urban region on the corridor makes the I-4 a crucial aspect of every day transportation.

Example: route from a living area to the mall

Congestion due to this usage
Interviews showed that most people use I-4 daily whether for long, regional or short distances.

Daily Flow Examples

Jennifer, student, 2 trips, 0.6h drive time
Kevin, publisher, 4 trips, 0.5h drive time
Sandra, secretary, 5 trips, 1.3h drive time
Daniel, manager, 6 trips, 1.6h drive time
Michael, barkeeper, 3 trips, 1.5h drive time
Keira, tourist, 5 trips, 1h drive time

Mary, retired, 5 trips, 0.5h drive time
Sam, animator, 6 trips, 1.7h drive time

Eva, housewife, 10 trips, 1h drive time
Jeff, salesman, 5 trips, 2h drive time
Kevin, publisher, 4 trips, 0.5h drive time
Sandra, secretary, 5 trips, 1.3h drive time
Daniel, manager, 6 trips, 1.6h drive time
Michael, barkeeper, 3 trips, 1.5h drive time
Keira, tourist, 5 trips, 1h drive time
I-4 Usage Modes
The Interstate is not only used for transit and as a region connector, by commuters for example, but also as a fast shortcut on the local scale.

I-4: Backbone of Urban Agglomeration
The Interstate 4 enlarges the reachability under the aspect of time and distance. Scattered living is enabled by this fast connection to the different centralities.
The door to door movement pattern in Florida is generally a walking to the garage, driving and parking right next to the destination. Many drive the car across a street to the next parking just to visit the opposite shop. The resulting urban landscape of scattered buildings surrounded by parking and road infrastructure is the mundane image. This type of development can partially be traced back to economic and social factors.
What Defines a Metropolitan Area?
A metropolitan area is a polycentric urban agglomeration. A conurbation that is connected through economic control centers, innovation and competition and that has access to a multimodal gateway network. Conditions that are met by the metropolitan area along the I-4 corridor.

Masked Urbanization
However, the impressions on eye-level may be different. One is confronted with pictures of open space as well as dense urbanization.
Driving Regional Factors
A wide range of products manufactured on an advanced technological level are key to I-4 corridor economy.

Transnational Corporations in Central Florida
Many global corporations are based in Orlando or Tampa.
A Region with Quadramodal Gateways
The transportation network has a high quality standard, measured by its competitiveness to other regions.

Growth Occurs along Arterials
Arterial roads are attractors for growth and shape the urban footprint. The only barrier for growth seems to be of natural occurrence: wetlands.
Public and Economic Use Embrace Arterials

Public and economic land use clusters on arterial and interstate roads, while living is more scattered.
Arterial as Linear Centralities
Similar land uses attract each other and create linear strips with adjacent mono uses and scattered living areas in between.
Large Scale Distribution of Products

The road system in Florida is used efficiently by corporations like Walgreens. With two Distribution Centers - one near Orlando and another near Miami - and all their shopping centers along arterial roads they can distribute their goods economically.
Economic Efficiency at the Expense of Consumer Time

With the given road system, and the conventional economic usage, a small scale distribution targeting neighborhoods or districts is very uncommon. Travel is necessary for daily necessities, which leads to even more time spent in car.
Choose Your Neighborhood!
Since the individual’s credit rating defines the size of the mortgage available for the purchase, same sized lots are usually grouped in districts. This clustering is done for cost effectiveness, but is sold with the argument of social integration, of living together with a like-minded population.

Choose Your Product!
Based on standardised lot sizes and categorized by income averages a house products palette is offered. Depending on your credit rating, your bank offers you a house mortgage on one product.

Standardized Planning Guarantees Social Segregation
Cost effective mass-production was invented during the World War II for Military housing. The concept further developed in Levittown, New York, as the first and largest mass-produced postwar suburbs. Growth along these patterns and ideas was and still is very much in use in USA and Florida.
Segregation of Lot Groups
While different lot size groups are located next to each other, they are still separated.
Elements of Road Urbanization
The car is the main ingredient. It is central to this form of urbanism.
Big parking lots are a common sight

Drive through life
Car friendly design

Home, sweet home
The freeways could be the real monuments of the future, the places set aside for special celebrations by people able to experience space and light and motion and relationships to other people and things at a speed that so far only this century has allowed.

Here are structures big enough and strong enough, once they are regarded as part of the city, to re-excite the public imagination about the city. This is no shame to be covered by suburban bushes or quarantined behind cyclone fences. It is the marker for a place set in motion, transforming itself to another place.

Charles Moore
1965
COMMENTARY
SPACES OF FLOW

The fact that American mobility and therefore its entire urbanization is based on the automobile is common sense. This applies to Florida even more than to other places as it was only the implementation of the freeway system that really allowed Florida’s urbanization. Florida’s road structure is laid out as a series of horizontal combs, crossing coast to coast. The communities connected to this infrastructure are usually not interconnected as real-estate on dead-ends is considered safer and thus more valuable than on through-fares. Work often takes place in the urban centres, virtually uninhabited conglomerates of services and office towers which create very limited centrality. The most conceivable contrast within Florida’s urban structure is between coast and inland, for obvious reasons. Apart from that the urban aggregate state of any point seems mostly defined by its location within the road grid. The most central point within this system is the highway exit. Here one can conveniently find daily services and supply. In this lifestyle of convenience, where the car becomes the extended living-room, encounters and exchange happens no longer in the city but at home or within defined institutions such as school or church.
VII
THE URBANIZATION OF THE WATER LANDSCAPE

THE CHANGING WATER LANDSCAPE
Natural Conditions of Florida’s Water
Water Consumers in a Subdivided Territory

HOUSE -
IMPERVIOUS SURFACE VS INFILTRATION
Pressure on the Water Landscape
Housing Development Leading to Sealed Surfaces and Excessive Water Use
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INDUSTRY -
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Large Spatially Defining Effect Due to Rapid Transformations
Wish of Total Control through Complex Artificial Water Network
THE CHANGING WATER LANDSCAPE

A rapid and intense urbanization of the Florida landscape has transformed the original pristine water conditions to the urbanized water bodies of today. To understand today's water landscape, climatic conditions and the basic water bodies, along with the different major water consumers and the state-wide organizations dealing with water issues are presented.
Natural Conditions of Florida’s Water

Florida’s ancient history as a submerged plateau is rather apparent in this 1764 made map of cartographer Jacques-Nicolas Bellin. This drawing of the peninsula gives the impression of Florida as a series of islands with adjacent waterways. It shows the complete dominance of water over the landscape. Over half of the ancient landscape used to be covered with swamps and marshland. A varied ecological habitat was inherent to those wetlands. A water cycle including precipitation and the balance between surface- and groundwater took place in a self-adjusting way.
Seasonal Climatic Change
In Florida, precipitation varies regionally and especially seasonally. While in the north-west of the state, there is considerable rainfall all year long, in the Tampa Bay area for example, precipitations vary during the year. In Tampa Bay, during the winter months, there can be droughts, while in summer there is heavy rainfall. Also in the Tampa Bay region, the chance of heavy thunderstorms is much higher than in the north. This uneven and seasonal concentration of rainfall can lead to an immense and rapid accumulation of water.

Florida’s Aquifers
An aquifer is a wet underground layer of permeable rock or sand that stores groundwater. Florida has several aquifers, generally divided into surficial, intermediate and Floridian aquifer. Surficial aquifers such as the Biscayne Aquifer (only in the south) are highly vulnerable to pollution as they lie close underneath the surface. The Floridian Aquifer is the deepest, largest and oldest in the southeastern U.S. and is one of the most productive in the world. It contains water under pressure and in cases where the pressure is high enough, groundwater is pushed towards the surface and a spring flows.
Surface Water/Watersheds
The state has 29 major watersheds. A watershed is a drainage basin where surface water from rainfall flows to a single point. It is therefore not a political but a natural border. The Floridian peninsula is covered with different types of surface water and has more than 11,000 miles of rivers, streams and waterways. Beside freshwater bodies like springs, lakes, streams, rivers or wetlands, Florida has saline water bays as it is surrounded by the ocean.

Springs Primarily in the North
As water flows into the aquifer, groundwater increases its pressure. When the water pressure is great enough, groundwater then breaks through the surface and a spring forms. The state has more than 600 natural springs, bringing groundwater from the different aquifers to the surface. The water temperature in Floridian springs is relatively constant at about 21°C (70°F).

Dense Network of Rivers
A river is a natural freshwater course mainly flowing from a spring towards another river, a lake or the ocean. In Florida, water from the river is often used for drinking water supplies. Beside rivers as natural watercourses, Florida has a so-called "River of Grass" representing the Everglades, a world renowned wetland where the water flows through.

Wetland as Most Dominant Natural Element
Wetlands consist of areas which are permanently or seasonally moist. The soil of those areas is saturated either by ground- or surface water. Wetlands fulfill different tasks concerning the natural ecological balance. They are responsible to equalize the water balance and represent a biologically diverse ecosystem with a wide range of wildlife and vegetation. Further, they recharge the underlying aquifer. Therefore, wetlands play a key role in Florida’s landscape. Today wetland areas still dominate the natural environment in Florida.

A State Full of Lakes
There are several thousand lakes in Florida which clearly dominate the natural scenery. Some of them were naturally formed, mostly through erosion, some of them were artificially made whether for aesthetic pleasure, flood control, storm water treatment, irrigation, fishing or recreation.

The Surrounding Ocean
With a coastline of over 1,100 miles, the ocean is a major attractor for Floridian tourism but also for urbanization. Tampa Bay is Florida’s largest open-water estuary with about 400 square miles. An estuary is a water body where freshwater mixes with saltwater.

Springs
Rivers/Lakes
Swamps
Watersheds

Distribution of the different surface water and the watersheds in Florida

Scale 1 : 2,900,000
The occupation and organization of the Floridian water landscape is explained. During the past 150 years only, Florida has undergone a major transformation. Through the fast growing population of the peninsula, an intense urbanization process occurred. Land and water were reallocated and are nowadays shared amongst different water consumers and some single remainders of the ancient water landscape. Towards the end of last century, the territory was subdivided into a system of organizations which influenced the steady growth of water consumption. Those organizations will be presented in this chapter.

**Wetland**
Wetlands consist of areas with continuous flooding. They can be subdivided into marshes which are shallow, and swamps which may be larger and deeper.

**Water Consumers in a Subdivided Territory**
The occupation and organization of the Floridian water landscape is explained. During the past 150 years only, Florida has undergone a major transformation. Through the fast growing population of the peninsula, an intense urbanization process occurred. Land and water were reallocated and are nowadays shared amongst different water consumers and some single remainders of the ancient water landscape. Towards the end of last century, the territory was subdivided into a system of organizations which influenced the steady growth of water consumption. Those organizations will be presented in this chapter.

**Agriculture**
Florida’s agriculture is one of the leading on the north American continent. Agriculture is a major consumer of water.

**Industry**
Beside widespread industry, the Floridian industry sector knows an important contributor in phosphate mining, which also uses high amounts of water.

**Housing and Urban Areas**
Private or public housing represents a large water consumer of the Floridian peninsula.
Distribution of Water use in Time and Space

The map above shows the spatial allocation of major water users parallel with the main Floridian water bodies. It shows that the main water consumer, agriculture, has huge spreads especially in South Florida. Urban areas tend to concentrate along the coast and the phosphate mining industry concentrates around central Florida. The north of the state is less occupied and therefore consumes less water.

Agriculture is the main water consumer in the state, requiring water to irrigate the crops. The public supply of mostly urbanized areas represents the second largest user. The mining industry, only covering a rather low percentage of the state’s land, accounts together with commercial industries for 6.5% of the total water use in Florida. During the last 40 years, agriculture had the highest consumption, followed by the public supply. In both cases, an increase of water use can be noticed. Between 2000 and 2005, agricultural water withdrawals decreased due to losses in irrigated acreage attributed to diseases, weather, urbanization and long-term water restrictions.
Department of Environmental Protection

The Department of Environmental Protection (DEP) is the mother agency of the 5 existing Floridian water management districts. It protects, conserves and manages the water resources and enforces the environmental regulations of the state. It not only considers water related issues, but the whole environment. Concerning the water, its main goal is to protect and restore the water quality.

South West Florida Water Management District

The South West Florida Water Management District (SWFWMD) declares their main mission is to ensure a sustainable water supply to meet public demand, while protecting the environment and the water resources. They try to improve water quality and are further assigned to flood control in their district. It is further divided into 8 watershed basins, where the basin board members identify water resource problems in their basin and suggest plans and budgets to improve it. The SWFWMD has an important role in the management of the water supply.

Tampa Bay Regional Planning Council

1862, the oldest of Florida’s eleven Regional Planning Councils, the Tampa Bay Regional Planning Council, was established. The TBRPC coordinates planning among local governments and other appointees. Concerning the water, they are especially concerned about water quality, the protection and restoration of the Tampa Bay estuary but also flood protection through emergency preparedness planning.

County

Florida has 67 counties. The mission of Hillsborough County is to treat and deliver drinking water to its inhabitants and to collect and treat wastewater and distribute reclaimed water. It follows the water use restrictions set by the SWFWMD.

City

The City of Tampa is subdivided into several departments. Among others, there is a water, a storm water and a wastewater department. The water department is in charge of water conservation and treating and delivering drinking water. The storm water department is responsible for the planning and maintenance of the storm water system. This system has over 600 miles of storm water pipes and over 100 treatment ponds. Also they clean the roads so the water entering the drainage system is less polluted. Further, the wastewater department maintains the sanitary sewer system and directs reclaimed water. The department promotes the use of reclaimed water for irrigation to conserve drinking water.

Organization of Water Management

Florida gives the impression of having enough water as the whole landscape is laced with lakes, rivers, wetlands etc. But still, seasonal changing precipitations and the growth of population need a well organized concept to be able to guarantee water supply not only in high quantity but also in high quality. The protection of the water resources and the environment is a major issue that needs to be considered. Therefore, different organizations have been set into place which coordinate the water management in the Floridian peninsula.

III/532

– The Changing Water Landscape –

IV/533

– The Changing Water Landscape –
HOUSING -
IMPERVIOUS SURFACE VS INFILTRATION

Land reclamation in Florida evolved with the needs for different human activities, a major one being housing. By conducting the water through drainage canals and creating dry land, housing areas could spread over the peninsula. The construction of houses and streets caused a large growth in sealed surface which led to unforeseen catastrophic consequences. A related rise in ornamental applications caused excessive water use.
Housing and the Water; from Wetland to Storm Lake

Drainage and occupation of the water landscape

Housing development with excessive water use

Flooding due to impervious surfaces

Step towards controlled water practices

First steps from a natural towards an occupied landscape

Floridian settlement in drained landscape

Omnipresence of water hazards

Storm water ponds in a typical Floridian settlement
Pressure on the Water Landscape

Before the Floridian urbanization process of the past 150 years began, the Floridian landscape was still over 50% wetlands. Those specific areas containing diverse habitats of flora and fauna were major attractors for nature lovers and other visitors. Over the years, a demographic growth took place. But to give room to this growth, the water landscape had to be controlled and therefore underwent a huge transformation. By draining the wetlands, the water landscape became usable for human activities so urban and agricultural areas could develop throughout Florida.

Early Tourism and Settlements

In the first half of the nineteenth century, people became interested in recreation—hunting or fishing and bird-watching. Later, artists and photographers were attracted to the peninsula. The springs and wetlands with their diverse habitat were an eye catcher for many people. In 1926, the above-pictured brochure was sent to domestic homes throughout the U.S. to advertise Florida as the “Emerald Kingdom.” The commercial water-based image-making was very important and helped Florida tourism.
**Shell Canals of the Caluso Indians**

The Caluso Indians are native Americans who used to live in the southern part of Florida in the 16th century and later. Their culture was based especially on estuary fishery. Therefore, they used to make the water usable and dug canals. As so-called "Shell Indians," they used to clad the canals with shells. Nowadays, some of those canals can still be visited. Caluso Indians were the first people to make the Floridian water landscape usable for supply purposes.

**Development of Drainage**

With Hamilton Disston, the modern history of the water drainage of Florida began. In 1881, he wanted to drain the Everglades in South Florida and bought 4 million acres of wetlands. The goal in draining wetlands was to make the Floridian landscape usable by either having the possibility of building houses or creating new agricultural land. Also, the newly built drainage canals became navigable and connected inland towns such as Chasm with the Gulf of Mexico.

**Intensity of Transformation through Drainage**

The use of the landscape in Florida is heavily influenced by the process of drainage. Dark grey regions have undergone large changes in their landscape, also due to drainage. Through this transformation, more than 50% of the original wetlands were drained. In general, Florida can today be divided into urban areas, agricultural land, and natural environment, which consist mainly of wetlands.
Housing Development Leading to Sealed Surfaces and Excessive Water Use

Population growth and housing development have caused an immense increase in the total water use as shown in the graphic above. In Florida, about 50% of the water consumed by a household is used for irrigation. This means that half of the drinking water that is at the disposal for a domestic home is used to spray over lawn, bushes, or other plants. Also the use of water for aesthetic reasons such as fountains in public or private spaces consumes a huge amount of water. At the same time, by constructing streets and houses in general, a large area of the surface of the Floridian peninsula has been sealed. This transformation of the land surface causes alterations to the evaporation of the rainwater and the amount of water draining into the soil, called runoff.

Sprawling developments

The development in Florida is not centralized but spreads over wide parts of the landscape. This causes more built-up land with sealed surface. Depending on the size and the type of the building (residential, industrial etc), different types of storm water systems exist.

Streets as the Primary Urban Element

Due to the large street networks, streets count as a big provider of impervious surface as it seals large parts throughout the state. Therefore, one may encounter large storm water ponds especially at intersections of highways and roads to support the runoff.
Runoff and Impervious Surfaces Related to Land-use

As heavy rainfall occurs, the runoff can be retained to drain into the soil by different kinds of impervious surfaces such as streets or buildings. Depending on the degree of imperviousness of the surface, the evapotranspiration, infiltration and runoff can vary strongly and therefore cause diverse consequences on the quantity of runoff.

Non-regional Specific Lawn

St. Augustine grass is the most popular lawn in Florida but it needs a lot of water and does not withstand drought. Some home developers urge their inhabitants to plant this kind of lawn, despite its high need of water.

Decorative Use of Water

In Florida, one encounters water everywhere and in different forms. What catches one’s eye is the fact that many fountains act as an embellishment of the public space. This gives the impression that water is available to a sufficient extent.

Natural Ground Cover

25% deep infiltration
25% shallow infiltration
15% runoff
40% evapotranspiration

10-20% impervious surface

25% deep infiltration
25% shallow infiltration
20% runoff
38% evapotranspiration

35-50% impervious surface

20% deep infiltration
20% shallow infiltration
30% runoff
35% evapotranspiration

75-100% impervious surface

55% runoff
30% evapotranspiration
5% deep infiltration
10% shallow infiltration
16% shallow infiltration
15% deep infiltration
Flooding Hazard
Due to the combination of intense rainfall and sealed surfaces, Florida became an area with an accumulation of severe floods. The extent of insurance to pay for a property may vary strongly depending on its chance of having a flood there. The FEMA (Federal Emergency Agency) releases maps of flood prone areas that identify zones that may be flooded during a 100 year storm event. Those properties are required to carry flood insurance.

Excessive Irrigation
In a typical Florida household, the water used to irrigate the lawn makes over 50% of the total water consumption. Also, homeowners water their plants during midday, when the temperature is highest and due to evaporation, the water amount that sprays out of an irrigation system doesn’t match the amount finally draining into the soil.
Storm Water Pond as Flood Protection
Beside its main purpose to prevent floods, a storm water pond also removes pollutants from the water draining into the groundwater. In the past, due to the continuous growth of impervious surfaces, storm water runoff became a primary source of pollution. Therefore, in the 1980s the Floridian legislature made laws requiring the treatment of storm water in storm water ponds.

Aquascaping as Decorative and Filtering Element
Landscaping the shoreline of a pond is called Aquascaping. Those specific plants help to filter the pollutants contained in storm water runoff. Further, they can serve as a provider for a broad habitat.

Step towards Controlled Water Practices
When the rain falls down on impervious surfaces, the runoff flows into ditches or swales which send it to a storm water pond where the water can finally drain into the ground. A storm water pond is primarily designed to prevent the surrounding area from flooding.

Laws require property holders and developers to have storm water ponds which results in a landscape consisting of a mixture of buildings, streets and the obligatory lakes. The Floridian territory displays many water bodies, many of them existing due to the requisite of storm water ponds.

Considering the lavish use of water, different programs aim to minimize this water use by recommending variable solutions such as micro irrigation or the use of specific lawns and plants. Also, water shortage restrictions can be declared in dry season. For example, landscape irrigation can be limited to two days a week.

Evacuation Roads
Another kind of protection from flooding consists in organizing the territory in order to be able to evacuate inhabitants in case of an emergency such as an approaching hurricane. Evacuation Route signs are found in coastal areas to point residents where to escape during severe storms.

Florida-friendly Landscaping and Microirrigation with Reclaimed Water
This program recommends using low maintenance plants and environmentally sustainable practices. It gives hints on how and when to water specific plants efficiently.

Also the precise application of water to a plant can improve the efficiency of irrigation. By watering plants using microirrigation, the water is directed to the root and therefore a lot of water can be saved in comparison to water sprayed over plants. Further, irrigation with reclaimed water is being suggested by different organizations to save on drinking water.
AGRICULTURE - WITHDRAWAL VS RECHARGE

Agriculture represents the highest water consumer in Florida. As immense quantities of water are redirected to irrigate the Floridian crops, the water table can sink and alter the ground, with catastrophic consequences. To replenish the aquifer, different techniques are applied.
Agriculture and Water; from Aquifers to Sinkholes

- Cultivating the water landscape

- Drainage of water landscape

- Excessive irrigation due to cold snap greatly expedites the formation naturally occurring sinkhole

- Wells to recharge and stabilize the underground reservoir

- Sinkholes become lakes

- Sinkholes as a repetitive and continuously growing phenomenon

- Wetland areas in between drained surfaces
Enabling Agricultural Land-use

As a starting point, agriculture in Florida had the problem of having a landscape inundated by water. Wetlands covering most of the areas, large scale agriculture could not develop in Florida without a major transformation of the water landscape. Ditches and canals allow to control the conduct and drainage of the water which is fundamental for agricultural cultivation.

The Draining System of Agricultural Land

This major transformation of the water landscape consists in building dikes and canals to be able to get rid of the excess water in the historic Floridian landscape. Only by draining the land is it suitable for agriculture, which has become an immense branch of economic activity counting about 47,500 farms which cultivate and cover about 9.25 million acres of land.
Cultivating the Water Landscape

Large scale irrigation explains why agriculture uses 42% of the total withdrawn freshwater in Florida. With this amount, it consumes more water than the public supply. Beside surface water, the irrigation of the crops also depends largely on groundwater. 31% of the total groundwater withdrawals account for agricultural irrigation. But the connection of agriculture towards groundwater is not only a story about freshwater withdrawals, but also about consequences in natural damages such as the development of sinkholes or the intrusion of saltwater into the aquifer.

Fertilizer Stresses the Groundwater

To a great extent fertilizer is responsible for the growth of agricultural production. Unfortunately, the different nutrients included in it drain into the soil, consequently the groundwater may get contaminated. Phosphate, one kind of nutrient, is gained in phosphate mining areas in central Florida.

Wells for Groundwater Pumping

To make irrigation possible through groundwater, it needs to be pumped through wells. Those wells can vary in size and depth. Many areas obtain good irrigation water from shallow aquifers. But also from the upper Floridian Aquifer, the most dependable water source, where wells range from 250 to 1,000 feet, water to irrigate the crops can be pumped up.

Citrus Watering

Florida accounts for about 70% of the total citrus production of the U.S. Citrus farming uses the microirrigation technique. Compared to overhead sprinkler systems, it saves a lot of water.

Flood Irrigation of Sugarcane

Especially the irrigation of the sugarcane needs huge amounts of water. The growers irrigate and drain their fields by the method of subirrigation. Subirrigation means that a new water table is created above an existing one or above an impermeable soil layer by pumping water into open ditches. Afterwards, it gets drained and the process is inversed.
Excessive Irrigation Due to Cold Snap Leads to Sinkholes

Due to climate changes, frost occurs in regions where it used to be warm enough all year long. A city with the name of Frostproof attests the frost free region in central Florida. But in 2010, a freeze which lasted for several days made farmers fight against the loss of their crops. Therefore, irrigation was increased. Those protection measures had far reaching consequences in the ground. High amounts of water withdrawn from the aquifer can also result in another phenomenon called saltwater intrusion.

Crop Protection through Icy Insulation

To protect the crop, farmers spray water over the plants during the night when temperatures fall below the freezing point. This insulates the base of the trees and concentrates the moisture in the fruit. Unfortunately, this technique needs huge amounts of water.

Accumulation of Sinkholes

As the freeze of the early 2010 occurred on several consecutive nights, farmers had to spray their crops repeatedly during the night to protect them from getting damaged. The enormous amount of water withdrawn from the aquifer resulted in a severe drop of the groundwater table in the aquifer which had the consequence that several sinkholes started to open up. In general, the urban development accelerates the formation of sinkholes as urbanization causes alterations of the drainage flows, increasing water use and redistributions of the soil. Therefore, insurances assume, that since 1930, the amount of sinkholes caused by humans have doubled.

Types of Sinkholes

One distinguishes between the common collapse, the solution and subsidence sinkholes. A collapse sinkhole forms suddenly where the overburden is thick and the cavities roof breaks through frequently due to fluctuations in the water table. A solution sinkhole develops if the surface is dissolved slowly by erosion from wind, rain and surface water. It causes a growing depression in the surface. The subsidence sinkhole develops gradually. The overburden is thin and covers a layer of sand and gravel which erodes continually and forms a depression.
Few sinkholes generally shallow and broad that develop gradually
Few sinkholes, shallow and of small diameter that develop gradually
Sinkholes are most numerous, of varying diameter that develop abruptly
Very few sinkholes but of large diameter and deep
Groundwater contamination
Sinkhole

The Sinkhole Topography
Florida's natural karst topography leads to the development of sinkholes. As the groundwater moves through the aquifer it erodes voids and cavities. When the water table starts to drop, those voids and cavities collapse due to lack of support through the water. Consequently, on the surface sinkholes may develop and a direct connection between the surface and the groundwater is created. This becomes a major way to replenish the aquifer.

Groundwater Contamination
A collapse sinkhole represents a direct connection between the surface and the subjacent aquifer. Therefore it may cause groundwater contamination as pollutants can drain directly to the aquifer. Some people use sinkholes to store their garbage and waste which causes contamination as rainwater runoff can collect in the sinkhole and drain into the groundwater. In December 2010, a 13 meter deep and 23 meter wide sinkhole opened under a landfill in eastern Hillsborough County.

Saltwater Intrusion
This groundwater phenomenon may occur either naturally when a storm/hurricane pushes saline water into the aquifer's freshwater or through human interaction. As groundwater is pumped out of the aquifer through wells, the water table sinks and the hydrostatic pressure declines. Therefore, in coastal areas, saltwater from the ocean can be pulled into the aquifer. The freshwater then is contaminated by saltwater. A mix of fresh- and saltwater can occur. This mixture is called brackish water. Therefore, saltwater intrusion poses a problem to the drinking water, as brackish or saltwater isn't potable and would have to run through desalination treatment to be usable again.

Reduced Spring Flow
Spring flows have reduced in many Floridian springs. In the past decades, an increase of water use through a growing population has caused a reduction of the level of the aquifers. As a consequence, the spring connected to those aquifers have reduced stream flows.
Aquifer Storage and Recovery

In times of excessive availability of water as in the rainy season during summer, treated or untreated water is injected into the aquifer. This water already has to meet Florida’s drinking water quality standards. If needed during drier seasons, the water can be withdrawn through the same well and be pumped into the water supply system. ASR stores water that would have been lost to the tides or to evaporation. Therefore it is a very important feature to manage the water supply as it balances the demand for water.

Wells to Recharge and Stabilize the Underground Reservoir

As too much water is withdrawn from the aquifer through different types of wells, either above-mentioned sinkholes or saltwater intrusion may happen, another scenario is that the groundwater level sinks and no water gets through the well anymore. To avert this from happening different kinds of aquifer recharge systems exist. Natural aquifer recharge happens through wetlands, lakes or urban runoff. Except for the wetland, the lake water or urban runoff can contain pollutants which will then drain into the groundwater. Beside those natural draining processes, techniques have been invented to recharge the aquifer.

Artificial Recharge

Natural recharge happens through infiltration of the rainwater. Artificial recharge may be used to store treated sewage effluent and excess storm water runoff for later use. This water is pumped into areas below the Floridian Aquifer.
INDUSTRY - STRAIN OF URBANIZED SURFACE WATER

On its way from the spring, through different surface water bodies, the water meets different sorts of industries before reaching the bay. One major user is the phosphate mining which withdraws and releases surface water. Also, surface water is used to supply large areas with freshwater. Therefore, a big infrastructural system is set into place to gain and treat water. The water flowing into the bay finally comprises different traces of the various forms of water use.
Industry and Water; Strain of Urbanized Surface Water
Affected Surface Water Due to Human Impact
The different kinds of surface water in Florida have gone through some major changes, which have mainly a connection to the urbanization of the landscape. It is believed that the use of surface water as a water supplier will grow in the future as the steady growing demand for freshwater may not be satisfied with groundwater anymore. Also, by somehow urbanizing the surface water, dangers of contamination are presented in this chapter.
Lake as Attractive Urban Component

There are several thousand lakes in Florida. Some of them were naturally formed, mostly through erosion like sinkholes, some of them were artificially made whether for aesthetic pleasure, flood control, storm water treatment, irrigation, fishing or recreation and more.

River as Water Supplier

The Tampa Bay area has two major natural watercourses called the Hillsborough River and the Alafia River. The City of Tampa’s drinking water is mainly based on treated water from the Hillsborough river. As upstream Alafia River, mining companies are located, the fluoride concentration is 10x higher than in other rivers. Florida strengthens bone and teeth but in exceeding quantities it damages not only the human body but also the habitat.

Springs as Fun Parks

Florida’s springs have been a major attraction for people for hundreds of years and still are today. Some springs developed a fun park like concept to attract people. The Weeki Wachee Spring offers for example underwater theater plays. Beside fertilizer, such leisure activities can lead to pollution of spring water. The South-West Florida Water Management District supports passive use of springs, such as fishing, and exploring but it doesn’t suggest active leisure use for springs as the above-mentioned underwater theater.

Ocean as Tourist Attraction and Final Destination of the Water Flow

With a coastline of over 1,100 miles, the ocean is a major attractor for Floridians. Tampa Bay is Florida’s largest open-water estuary with about 400 square miles. An estuary is a water body where freshwater mixes with saltwater. Tampa Bay receives pollution through storm water runoff containing fertilizer as well as through atmospheric depositions from cars and power plants. An excessive amount of nutrients causes a growth of algae which takes the oxygen out of the water and endangers the habitat.
Water Flowing through the Phosphate Mining Industry
Phosphate is mined to use in the production process of agricultural fertilizer. In Florida, phosphate mining occurs especially in the so-called Bone Valley in central Florida. The area, which includes Hillsborough, Polk, Hardee, Manatee and Desoto County mines over 90 percent of Florida’s phosphate. There are 27 phosphate mines covering more than 491,900 acres of land in Florida. Mining is a major Floridian industry and uses huge amounts of water for the mining process, however mining companies claim to recycle up to 95% of the water.

Land Changes through Digging and Watering
Annually, 4000 to 6000 acres of land are disturbed by phosphate mining, about 25 to 30% of the disturbed areas are wetlands, which means that along with the high water use comes a destruction of Florida’s natural water landscape.

Water as Main Element of Mining Procedure
The mining industry accounts for about 8.5% of the total groundwater withdrawals and about 4.5% of the total surface water withdrawals in Florida. The matrix (phosphate, clay and sand mix) is mixed with water to create a slurry which gets pumped to the washing plants where the phosphate is separated from the other materials. Waste products settle then in huge ponds. Those processes change the concentration of natural materials which results in making them hazardous. This concentration influences the ecosystem in the bay, as the pollutants flow over the river into the bay.

Renaturation of Reclaimed Land
About 71% of the phosphate mined land since 1975 have been reclaimed. Annually, an average of 4000 to 5000 acres is reclaimed since 1996, for every acre that is mined, another acre has to be reclaimed. Only destroyed wetlands have to be restored to their original condition. Reclaimed land may be used for recreation, pasture, industry or homes.
The Water Supply Industry

To supply a state like Florida with freshwater, great efforts are required. Due to seasonal changes of precipitation, the availability of water can change. To balance this availability, different infrastructures are set in place. The source of the water running out of the tap in a household in the Tampa Bay area may vary a lot depending on the season. From October through April, the amount of rainfall are high and therefore, surface water production is high as well. When there’s less rain during summer, groundwater is withdrawn from the aquifer and sent to the different users. Beside the seawater desalination plant, also the C.W. Bill Young Reservoir as well as the Tampa Bypass Canal help to balance the varying water amount.

Tampa Bay Water

Tampa Bay Water is a wholesaler of water and is considered as a government entity but it has no governmental powers. They deliver drinking water to 3 counties - Hillsborough, Pinellas and Pasco - and 3 cities - New Port Richey, St. Petersburg and Tampa. To be able to deliver water to over 2.4 million people, they have a whole system of water infrastructure helping them to be able to satisfy the demand. Their sources of drinking water are groundwater at different wellfields, surface water including the Alafia and Hillsborough River, the Bypass Canal, the C.W. Bill Young Reservoir and the Tampa Bay Desalination Plant. The City of Tampa for example, can supply their own with Hillsborough River water, but during drought, they buy water from Tampa Bay Water.
C.W. Bill Young Regional Reservoir
This reservoir stores surplus water from the Alafia and Hillsborough River and the Bypass Canal. When water is needed during dry times, the reservoir water is pumped to the Surface Water Treatment Plant. Air gets pumped into the water at 10 positions in the reservoir. This is to mix the water and keep it from fouling.

Reparation
In 2006, cracks began to appear in the reservoir. When the reservoir carries less water, pressure from underneath the concrete structure damages the walls of the reservoir. This shows that original calculations were flawed. Repair works are expected to cost nearly the same as the original cost of the infrastructure which was about $146 million.

Tampa Bypass Canal
This 14 mile long waterway connects the Hillsborough River to the Bay and serves as flood protection as well as water supply for the area.

Desalination Plant
This plant is a drought-proof water supply infrastructure for the Tampa Bay area. It can provide up to 10% of the regions need of water. The plant treats seawater through a reverse osmosis process and finally gets water with drinking water quality. Desalinated water from this plant is sent to the Surface Water Treatment Plant where it is mixed with other water sources but not treated. Also, minerals and salt are added to it.

Wellfield
A wellfield is a location where multiple wells bring groundwater to the surface. Several wellfields in the Tampa Bay area are installed and used by Tampa Bay Water to pump groundwater out of the different aquifers. Variable types, depths and sizes exist depending on different factors.

Warm Water from Power Station
The Big Bend Power Station withdraws and discharges seawater from Tampa Bay to cool the power plant. After this, The Tampa Bay Seawater Desalination Plant which is close by, catches parts of the warm water and treats it to drinking water.

Surface water use in 2009
The Water Treatment Industry

This industry either treats raw water to make it drinkable or it treats wastewater until it is clean enough to discharge it into a surface water body. The Surface Water Treatment Plant (SWTP) of the city of Tampa treats water of the above-presented resources, blends and mixes them, then pipes and sells the drinking water to the 6 local governments. The wastewater treatment plant (WWTP) treats sewage water from the whole city. Different programs aim to inform people about the use of reclaimed water from the WWTP to use as irrigation water.
Water Tower as Storage Tank
The excess water that the city receives is stored in water towers. In case that demand of water is suddenly increasing, those towers can deliver the stored water. They serve to balance the short term demand of drinking water.

Howard F. Curren Advanced Wastewater Treatment Plant
This facility treats all wastewater from the City of Tampa. It can process up to 96 mgd. After Treatment, the cleaned water is either discharged to the bay or used as reclaimed water for irrigation or cooling. Only a very restricted area in the south of Tampa is tapped with reclaimed water to use for irrigation for example. Also, to be able to access the reclaimed water network which allows reuse, the customer has to pay for the installation of the systems and the pipes. Nevertheless, Pinellas County has a 100% reuse of reclaimed Water for irrigation or commercial and industrial use.

Water Treatment By-products
Beside delivering reclaimed water, this WWTP also produces electricity by burning methane gas that forms during the cleaning process. It generates about 25% of the total consumed electricity of the facility. Also the sludge used to clean the water in both the WWTP as well as the SWTP finally digests and gets converted to fertilizer.
**Water Quality in the Bay Area**

This map shows the quality of the water in Tampa Bay which is rather poor. Impacts from users pollute the water flowing into the bay. Urban areas contribute runoff from polluting facilities, agricultural areas contaminate water with fertilizer, and deplete supply with excessive irrigation which in turn can create sinkholes with potential to contaminate groundwater. Mining and agricultural industries blend water with excessive amounts of nutrients which promote the growth of algae. Algae take the oxygen out of the water and endanger the habitat of the bay.

**Constructed Wetlands As Nature’s Kidney**

Among other functions such as flood control or habitat provider, wetlands filter pollutants and act as a kidney for Florida’s water. Beside naturally existing wetlands, artificially constructed wetlands started to be built in Florida for wastewater treatment. During this biofiltration, microorganisms remove about 90% and plants remove 7 to 10% of the pollutants.
URBANIZATION OF WATER LANDSCAPE - DEMAND FOR HYPER-CONTROL

The complexity of the Floridian water system means that every change to the conditions will result in several consequences which can be rather severe. This balancing act requires an enormous technical and organizational effort with the goal to be able to regain control over the water.

Large Spatially Defining Effect Due to Rapid Transformations
Rapid transformations which arose through the settlement lead inevitably towards a massive disruption of the water cycle. The quantitative as well as the qualitative consumer behavior has caused contamination and topographic transformations as sinkholes.

The rapid pace of the territorial settlement and manipulation, with great influx of new residents, generally means that the user isn't aware of or responsive to regionally specific conditions. The resulting conditions, which pose direct hazards for people, are inevitably new territorial conditions which demand a response.
Drainage/Sealing as Watercage
Drainage and the resulting sealing of the surface have disrupted the natural balance with devastating consequences. Without rainwater drainage areas can flood, at the same time groundwater doesn’t get the automatic recharge that it needs. This has consequences on the surface of the earth, as the reduction of pressure from underneath can lead to a collapse. To work against those difficulties, complex and expensive installations have to be set in place retroactively.

Excessive Water Use
In the country of endless opportunities Florida also seems to be the land of the endless water quantity. Population growth was rapid and intense, and an almost lavish consumption of water developed. For all primary elements of territorial occupation as agriculture, housing, power generation, leisure, etc., water is fundamental. Through the use as well as through transformation from clean to filthy water the ecosystem is strained and destabilized. Resources are burdened and a supplementary effort is needed for treatment.

Water as a Forceful Limit
In its original condition the water acted as a generator of borders and limits. Rivers, lakes, and the sea defined the land. The map from Bellin clearly shows the fact that water divides and organizes the territory. As humans took authority those borders were adjusted, newly regulated and controlled. Water has spatial limits and limits in quantity. Although it appears that Florida has an abundance of water, this work shows that good quality water is rather scarce.
Wish of Total Control through Complex Artificial Water Network

The consequent form of past transformations lead to complex methods of control over all water usage activities. New constructions differ from any natural situation, therefore enormous time, cost, and effort are needed to reestablish a balance. Floridian innovations achieve this new balance, for example through the construction of reservoirs, though flawed calculations led to cracks and expensive repairs. The effort to balance this new formed territorial system has its limits. The population produces, modifies and sells water, but water still has enormous force and inner autonomy which escapes to any human control.
Tendency towards Total Control by Institutionalizing the Water

The control over the water has to be organized. The different jurisdictional instances and institutions establish strict and clear rules on quantitative water usage, however there is no agreement on qualitative procedures. It seems that the different organizations do not agree on the fact that the set of problems concerning water quality and contamination should start at the earliest possible point of influence, as the water exits the soil, to minimize the efforts of water treatment.

Tendency towards Total Control by Industrializing the Water

The balancing act through industrial treatment of the water is enormous. Using technical instruments, emptied storage tanks can be replenished, contaminated water can be conveyed away or cleaned, “used” water can be recycled, and phases of water shortage can be balanced. Even originally natural elements as wetlands are nowadays artificially planned and set into place.

This begs the question: Does the industrialization of the water landscape represents a sustainable strategy, or should it be reconsidered along with larger development issues, with consideration given to behavioral patterns and regionally specific conditions?
COMMENTARY
WATER LANDSCAPE

The study on water management holds an important position within our study because virtually all land in Florida was originally marshland. Without the establishment of a hydrological balance, subduing the ‘instability’ of nature on the peninsula, a cultivation and urbanization of the territory would not have been possible. This concerns the construction of houses and infrastructures in the same way as it does agriculture and industry. The study gives a comprehensive image of that specific hydrological balance and the necessary technological skills developed by man for its maintenance. It describes the difficult equilibrium between impervious surfaces and water infiltration in urbanized territories, which is needed to avoid floods in settled areas after a strong rainfall. It describes also the intricacies of the hydrological balance in agriculture, where on the one hand water has to be drained, but at same time stored for irrigation. And it describes on the example of the phosphate mining the handling of water issues within heavy industry, which is in an ecological respect all too often in contradiction with the need for a sufficient supply with clean drinking water. The study succeeded in describing the hydrological balance and water cycle consisting of aquifers, surface water and rainfall, but also in the presentation of the systemic correlations with human activity.
VIII
URBANIZED NATURE

CONFLICT AND DEPENDENCY
Competing Growth: Urban Development and Nature Protection
Wetlands: The Most Important Resource

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AN URBANIZED NATURE
CONFLICT AND DEPENDENCY

At a first glance, urban development and nature conservation appear as conflicting aspects. Looking at the urbanization processes, both urban development and nature conservation need their own space and have their own important values. However, they are more than just two separate units, they are highly connected symbiotic system.
Competing Growth: Urban Development and Nature Protection

Looking at the future of Florida’s urban and nature protection development several conflict zones can be seen, especially in Central Florida. The same areas are affected by the future prognosis of urban development for 2060 and environmentally sensitive areas, which are on the nature conservation acquisition list.

Urban Development

Florida is highly developed in coastal regions, where fewer and smaller nature conservation areas are found. Areas which are under higher development pressure exist predominantly in the back country and are considered the future conflict areas.

Nature Protection

Today, the American Nature Conservancy has two different levels of protection. One focuses on site protection and is supported by different conservation land acquisition programs. The second one is a task-oriented protection, which is concerned with endangered species and wetlands which are not necessarily connected to a protected location.
Wetlands: The Most Important Resource

The most protected resource in Florida are the wetlands. Their protection started in the 1960s due to flood problems and bad water quality which were caused by the ongoing destruction of wetlands through the urbanization processes.

Different Kinds of Wetlands

Wetlands naturally hold water. But the amount of water in a wetland varies based on the amount of rainfall that occurs in an area. Water levels in wetlands typically rise during the rainy season and decline during the dry season. Wetlands help purify and filter water that passes through them.

Source: South West Florida Water Management District
NATURE CONSERVATION DEVELOPMENT

The nascent conservation movement slowly developed in the 19th century, starting first in the scientific forestry methods pioneered by Prussia and France in the 17th and 18th centuries. While continental Europe created the scientific methods later used in conservationist efforts, British India and the United States are credited with starting the conservation movement.

World Map of Nature Conservation

This map contains nationally designated protected areas with IUCN (International Union for Conservation of Nature) Categories I-VI and sites within other International Conventions and Agreements.

Source: World Conservation Monitoring Centre
Nature Conservation Development in Comparison: USA and Switzerland

The history of the development of nature conservation is young. Over time, the philosophies on what should be protected has evolved. At first conservation movements focused on specific objects. Later movements focused on natural areas and more recent efforts place connected ecosystems at the forefront.
Scales of nature conservation: Nature conservation map of the USA

Protected Areas (nationally designated protected areas with IUCN Categories I-VI and sites within other International Conventions and Agreements)

Switzerland USA

– Urbanized Nature –

– Conservation Development –

Scales of nature conservation: Nature conservation map of the USA
**Categories of Nature Conservation: Switzerland**

Category I is the highest level of nature protection. The Swiss National Park, Alluvial Forest and Moor Landscapes are fixed in this level. The category II comprise objects like the UNESCO World Heritage and the federal controlled parks. The Communal and Cantonal Nature Parks compose category III. In this case the Canton Zürich is pictured. The biggest amount of protection areas are determined by category II. The largest growing park system since 1992 is the category I. Several protected areas overlap. Some conservation areas are made for visitors, some are to protect the environment. Many parks are located in commercial unattractive places.

**Categories of Nature Conservation: Florida**

The three categories show the protection status of the conservation area. Category I is the highest protection and reserved for lands that are specifically and judiciously managed for biodiversity protection. Category II applies to lands that are generally managed for their natural values but that may incur additional uses such as habitat manipulation for game species and/or some recreation infrastructure. Category III correspond to lands maintained for multiple uses, including consumptive or recreational values, and not specifically or wholly dedicated to biodiversity conservation.
Florida’s Natural Resources

Beside resource water, connected to the wetlands, Florida has 1,800 miles of coastline, including 1,200 miles of sandy beach. It is the only state to have an extensive shallow coral reef system near its coast. Mangroves, sea grass, and salt marsh are critical to the health of estuaries. Florida’s forests are vital for clean air, wildlife habitats and wood production. The state has the widest variety of trees in the continental United States, making forest preservation even more important. Trees found in Florida include the pine, maple, hickory, oak, ash, magnolia, gum, basswood and locust as well as many tropical varieties.

Source: Office of Response and Restoration
Levels of Nature Conservation Management

Nature Managers
The nature conservation areas in Florida are managed and owned by different governmental authorities and private parties. The most powerful managers are on the federal and state level, followed by local and private managers. The organization and fragmentation of the nature conservation areas are mainly defined by the financial power of their manager, but also by the influence an area has for federal, state, local or private interests.

Federal Managers
USDA Forest Service, USDI Fish and Wildlife Service, USDI National Park Service, US Department of Defense, Other Federal Managed Lands

State Managers
DACS Division of Forestry, DEP Division of Recreation and Parks, Fish and Wildlife Conservation Commission, Water Management Districts, Other State Managed Lands

Local Manager
Areas Managed by Counties or Municipals of Florida or by different Programs on local Level

Private Manager
Florida Audubon Society Inc, Tall Timbers Research Inc, The Nature Conservancy, Other Private Organization, Private Individuals

Private Manager
Not Protected 70.9 %
STATE ACTOR STRATEGY

The biggest part of nature conservation land is owned by the state managers. These managers are the strongest actors in nature protection and thus are involved in the most important and most sensitive natural areas in Florida. The areas are divided into different State Divisions corresponding to their main focus, e.g., the Water Management District, Division of Forestry, etc. The divisions are highly specialized on resource management tasks and are powerful partners for local or private nature conservation land actors.

The Green Swamp, looking north on Highway 471 which divides the whole area.
The Green Swamp

The 870 square miles of this unique environmental area is located in Central Florida. The Green Swamp is between Tampa and Orlando and lies almost entirely within the large triangle formed by Interstates 4 and 75, and the Florida Turnpike. The conservation area is divided into seven tracts, six are owned by different state agencies and one of them is privately owned.

Nature Conservation Reception

Every entrance has wooden signs and panels with information about what you can do and what you should care about. There is also a guest list for visitors to sign in so the park managers know how frequently the areas are visited. Additionally, there is a map of each tract showing the trails and facilities open to the public. Almost all the tracts have grass parking areas, wheelchair accessible restrooms, informational kiosks, picnic pavilions, and several picnic tables and grills.

Entrance of the East Tract:
The sign-in sheets are important for the park managers to document the number of visitors.

Entrance of the West Tract:
The panels provide information about the name of the conservation land, the manager’s agency, and the various recreational activities.
The Green Swamp offers over 80 miles of hiking trails, including approximately 15 miles of the “Florida National Scenic Trail.” There are twelve campsites for different needs, such as primitive, back country, group, and equestrian camping. Most of the roads which mostly were built before the Green Swamp became a conservation land are open for public cars only during hunting seasons. Since public usage of state and local nature conservation lands is required by law, the public infrastructure is an important aspect of the Green Swamp.

Recreational Infrastructure
Due to the usage of the Green Swamps for various recreational activities, the swamp is able to preserve its natural state. 98% of the area is open to the public. Each year, 30,000 visitors come to the Green Swamp to participate in various recreational activities like hunting, fishing, horseback riding, camping, hiking, canoeing, and bicycling. Many also come to conduct historical research. Most individuals visit the Green Swamp on weekends.
Example of a camping zone which belongs to the Water Management District Tracts. It looks clean and has a lot of infrastructure to offer, such as fire places, non-water toilets, benches, and picnic shelters.

There is a forester’s lodge near the entrance of the Green Swamp West Tract. Often, buildings and roads were constructed before the land became protected. Today, construction is only allowed for two reasons: recreational purposes and park maintenance. The law restricts construction to one building per ten square miles (in special cases per twenty square miles) in the conservation zone. During the week, people come to the Green Swamp in the late afternoon and evening to walk with their dogs or for other recreational activities. The picnic areas and campgrounds are more frequently used on weekends.
Green Swamp Biosphere

The uniqueness of the Green Swamp is characterized by its large size, its natural values, and its composite natural biological systems. The composition of wetlands, flatlands, and uplands creates a distinctive mosaic of natural communities. The Green Swamp contains 7% uplands, 35% wetlands, 3% open water, and 35% disturbed lands, including agricultural lands. The remaining area of the Green Swamp is primarily made up of natural plant communities and habitats. Thanks to the vegetative variety an estimated 335 species of wildlife reside in the preserve, of which about 30 are threatened or endangered (e.g. black bears).

1 Xeric hardwoods; hammock, sandhills and oak scrub:
These forests occur on nutrient-poor, well-drained sandy soils on outwash plains, rivers, terraces and beach ridges.

2 Herbaceous wetlands; Wet prairies and marshes:
Permanently flooded sites that are usually associated with oxbow lakes, dune lakes, or potholes.

3 Pine Flatwoods; Mesic and xeric:
Pinelands grow where the elevation is higher than surrounding land and is characterized by outcroppings of rough limestone and thin soil.

4 Cypress Swamps; Domes and strands:
The dominating plants are bald cypress and/or pond cypress trees. The cypress dome refers to the phenomenon that the larger cypress grow in the middle of the dome, and then get progressively smaller as one goes out from the center.

5 Floodplain swamps, Bottomland forest, hydric hammock, bayhead, riverine:
Floodplains are associated with rivers and streams. While flood events they are frequently or permanently flooded hydric soils adjacent to stream and river channels and in depressions and oxbows within floodplains.
1935

First Conservation Areas

1964

Four River Project
After the flooding disaster in 1960, the Water Management District as a flood-control agency was created by the Florida Legislature. Dams and water-retention areas were built in order to reduce the flooding.

1970

Investors divided and sold the Land
Investors split the land into small pieces to sell it to different people all over the USA as a piece of paradise.

1972

Area of Critical State Concern
Florida Environmental Land and Water Management decided to protect 322,000 acres of Florida's natural Resources of regional or statewide importance.

1976

Construction of the Highway 471
Use of the Land
Agri-Timber bought land to produce timber, some land was leased for hunting and cattle farming. Lime rock mines were operated in the area.

1980

the Philosophy changed
Politicians began to think differently, because of the negative impact of the road construction on the conservation area. The state agency started to keep their protected areas more natural to raise the resource qualities.

1981 - today

Conservation Land Acquisition Programs
Save our Rivers, Preservation 2000, Florida Forever, and Water Management Lands Trust Fund. Funds to buy and protect lands and maintain their natural state and functions.

Area of Critical State Concern
In Chapter 380 of the Florida Statute “The Area of Critical State Concern” is described as follow- ing: areas that contain natural resources of regional or statewide importance, areas that are, or will be, significantly affected by major public facilities, or areas of major development potential. Defined as an Area of Critical State Concern by the State of Florida, the Green Swamp is both an administrative unit and an ecological reality. The interior swamps and marshes contrast sharply with the higher, better drained lands found on the boundary of the nature conservation area. The Green Swamp suffered a loss of sites in the twentieth century due to different developments including drainage, logging, reformation into pasture, pine plantations or citrus groves, and restructuring for mining for sand and peat or for other agricultural activities.

1928 the Cummer Sons Cypress Company began timbering
The Hydrologic Heart of Central Florida

Behind the Everglades, the Green Swamp is Florida’s second-largest wetlands system. It covers portions of Polk, Lake, Sumter, Pasco, and Hernando counties. The area is home to the headwaters of four major rivers. Flatter than a pool table, the incredibly gradual slope of its plateau retains annual rains, reduces the flood peaks in rivers, and allows underlying aquifer layers to recharge over an extended period of time. Due to the long time the swamp’s water spends on the surface in the sparsely populated rural center of Florida, it is generally of higher quality than other watersheds.

Central Florida High

The Green Swamp rises up to 132 feet above mean sea level and builds up pressure for a multitude of springs similar to an underground water tower. The functionality as a natural water tower is primarily due to the underlying geology. The pressure of the Green Swamp High and the Floridian aquifer supply fresh water to the majority of Florida’s population. In addition, salt water that intrudes into the aquifer is curbed and fresh water is made accessible for households along the heavily populated coastline.
Historic Land Usage
Decades ago, when the Green Swamp was first settled, much of its original cypress and pine forests were clear-cut. Eventually trees began to reestablish themselves and other agricultural crops, cattle ranching, and small scale sand, peat and limestone mining joined the logging industry as the basis of local economies. Since much of the swamp was saturated with water, ditches were dug to drain wetlands. All together, land clearing, and alterations for pasture, citrus groves, and development have impacted at least 41 percent of the non-wetland area of the Swamp.

Land Usage Today
After the big flood in 1960, the U.S. Army Corps of Engineers developed a plan to reduce flooding in the Tampa Bay region by purchasing a big piece of land within the Green Swamp and constructing a series of dams and retention areas. However controversies regarding the disruption of natural systems convinced the District to take a non-structural approach to flood control. The pattern of north-south remaining dunes and swales were dominated by cypress and did not represent a banded arrangement of uplands and wetlands. Most of this land is now in public ownership. The disturbed lands are primarily privately owned and have been converted to agricultural or low-density residential areas. Today, the land use is predominantly managed by the Water Management District, their sub managers, and contractors.
Lead Agency: Water Management District

Task:
Regulating, protecting, preserving, restoring, use water resources and land resources, water storage during hurricanes and storm events, land management, use of natural trails, provide public infrastructure and accessibility.

Finances:
Funded through taxes, secondary income from water Permits: Environmental Resource Permit (ERP), Water use Permit (WUP), Well construction Permit.

DACS Division of Forestry

Task:
Oversees the forested lands, wildlife emergency plans, prescribed burns, keep waterways safe, and cooperate with other law enforcement agencies providing homeland security, help when natural disasters occur, birding classes and outdoor recreation classes.

Finances:
Funded through taxes, secondary income from sales of resources like timber and seedlings.

Fish and Wildlife Conservation Commission

Task:
Enforcement of state laws pertaining to wildlife, concerned health and natural balance, public hunt, monitoring of wildlife and the control of exotic species, forestry assistance for landowners, timber management, ecological restoration and outdoor recreation.

Finances:
Funded through taxes, secondary income from licenses, permits for hunting and fishing, boating and waterways.

State Agencies as Managers of the Ecosystem

The four biggest nature conservation state managers are involved in managing the Green Swamp. They are all managers of important natural resources: Water, timber, animals, plants, and recreation. By putting the important resource land into governmental control, the state managers effectively protect these resources from the free market system.
Nature Conservation Acquisition: The Past Strategy?
Florida has a long history of purchasing land to conserve its natural and cultural resources. The first established conservation land acquisition program was founded in 1963. Until today, several programs with different philosophies followed, like the Conservation and Recreation Lands Program (CARL), Save our Rivers (SOR), Preservation 2000, Florida Communities Trust, and the Florida Forever Program. The funding of the latest programs is directly linked to the real estate market and thus to taxes on real estate stamps. Florida has one of the most aggressive US land acquisition programs and is often criticized for buying more land than it can manage. Today, the Florida Forever Program is frozen due to a loss of funding tied to the recent economic crisis.
Conservation Easements: The Future Strategy?

Conservation easement, a new strategy for purchasing land was developed after the conservation acquisition program was struggling. The problems of the program started when it was not possible to manage all the acquired land. Later the program suffered from financial losses due to the financial crisis. These problems lead to the creation of conservation easement.

A conservation easement is a voluntary, legally binding agreement between a landowner and a governmental or non-governmental conservation organization that keeps land in agricultural and/or open space uses. The agreement is customized to meet the landowner’s objectives and, in most cases, is perpetual. It is obvious, that there are more private landowners who are willing to put a conservation easement on their property than ones who sell their property completely to land conservation.

Green Swamp Easements

The most recent extensions for the protection of the Green Swamp were achieved with two individual conservation easements for over 1.2 million dollars. The Green Swamp Land Authority (1995-1999) and the Florida Department of Environmental Protection secured land protection agreements or conservation easements on 40,000 acres of privately owned lands.
LOCAL ACTOR STRATEGY

Just about 5% of the whole nature conservation land of Florida is owned by local managers. They are in charge of the counties, municipalities, and various conservation land acquisition programs on a local level and focus on sensitive natural regions. Wetlands and waterways are still very important, but the local managers focus on providing natural places for the public. In order to do so they need the support of the local people since the funding of the nature conservation programs comes from taxes.
Cypress Creek Preserve
This nature protection site is located north of Tampa in Hillsborough county. The area is enclosed by housing development used for residential, agricultural, and institutional purposes. The Cypress Creek river, which crosses the Preserve, is a state designated Outstanding Florida Water. It is a major tributary of the Hillsborough River, which is the primary source of drinking water for the City of Tampa.

Visitor information sheet at the main entrance. Paintball is a typical recreational activity taking place in the nature preserve.

A Hidden Park
The Cypress Creek preserve is hard to find. There are no road signs which lead possible visitors and local people don’t know a lot about the preserve. The entrances are just marked with small paper sheets or plates. This is not the ideal situation, but rather the result of the local managers small budget.

The preserve’s opening hours schedule near a secondary walk-thru entrance.

A sign showing the park rules and the managers contact information.
Behind the Fence
The whole Cypress Creek Preserve is fenced in order to protect the area and secure it from violators. The residential area around the Preserve has low to medium density with some backyards facing the Cypress Creek Preserve boundary. Near the main entrance there are some restoration sites, which are well-kept compared to the private lands behind the fence.
Public Infrastructure

Compared with the state managed conservation lands, the Cypress Creek Preserve is lacking infrastructure and is not in poor condition. There are some trails for hiking and a total of three entrances, of which only one has good accessibility and a small parking area for about two cars. For the future, the creation of some more trails, parking lots, and picnic areas are planned at the southern part of the Preserve. This restructuring is important to attract more people and make the preserve more public, so that it can eventually attain a higher protection status. The infrastructure planning map is an essential aspect for a positive acquisition decision by the governmental Environmental Land Acquisition and Protection Program (ELAPP).

The main entrance is marked by a few little signs, which look old and are damaged. The gate is dimensioned to walk-thru.

The pathways are overgrown with grass and just for hiking purposes.
Connecting Waterways

Hillsborough County is a typical Floridan coastal area. Characteristics include a high density of housing developments with sparse residual natural environments. The efforts to acquire nature conservation land over the last 20 years have been strong. The goal was to protect and conserve the left over land pieces. The focus of the land acquisition lied and still lies on water regions since they are essential for the water supply of Tampa and Plant City.
Urban Shaping of a Landscape

The historical agricultural land use and Florida’s natural conditions had a strong influence on the appearance of today’s landscape. When the first farmers began to use the land, they started to cut off all the pine trees and dried out the wetlands. They formed a camouflage looking pattern of forest, wetland and grassland. With the population growth, housing developments started to replace the agricultural land. Some of the new structures are built into this old agricultural pattern and avoid the wetland areas, due to their high protection status and negative construction conditions. Inside the nature conservation area, the grassland are restored to their original natural state.

Before the urbanization process: Wetlands and uplands form a diverse mosaic of vegetations

Aerial image of 1938: Farmers logged the pine trees around the cypress swamps and wet areas

Aerial image of today showing the preserve boundary: The grassland pieces inside the conservation land were restored back into pine flatwoods, the development structures were built into the old pattern
The Influence of the Financial Crisis on Nature Protection

Due to their strong dependency on the real estate market, the current financial condition of primarily local nature conservation programs is not strong. The programs are funded through taxes on real estate transactions. This means that with the financial crisis, no money can be raised for new land acquisition. In turn there are no actions to acquire important unprotected natural areas.

A Valuable Nature Conservation Site

Local managing tasks are nearly the same as state ones. These tasks include prescribed burns, the control of invasive species and exotics, the restoration of logged forests or drained wetlands, and the construction of infrastructure for public use. Some of these tasks are outsourced to contractors or state agencies due to governmental hierarchy or the small budget of local managers. This is especially true for topics related to water and wetlands, which are monitored and controlled by the water management district not only on state but even on local lands.
Find Different Ways
The local actor strategies are the result of the local managers’ small budgets and their lower political power. Local managers try to find other ways to raise money for land acquisitions and to reach higher protection for their lands. For example, they try to involve state actors in acquisition and managing processes in order to achieve a better nature conservation status for their lands. In contrast to state actors, local managers have to be more flexible to find alternative money sources and they have to compromise. In order to reach their goals, local managers also have to place significant efforts in public education regarding the importance of nature conservation.
PRIVATE ACTOR STRATEGY

Owning less than 2% of all nature conservation areas, private managers possess the least of the protected land. The private actors sometimes have different conservation philosophies than the government of Florida, but they often work together with state or local agencies for financial or managing reasons. The biggest private landowners are nature conservatory organizations; the Florida Audubon Society, The Nature Conservancy, and the Tall Timber Research Incorporation. All of them are financed by private donors.

View on Hatchineha Ranch from Hatchineha Lake
Hatchineha Ranch
The property encompasses approximately 4,786 acres and is located west of Lake Hatchineha in Polk County, Florida. The property is adjacent to the existing Catfish Creek Preserve, which provides a regionally significant habitat restoration and enhancement project for creating and preserving an expansive wildlife corridor.

A Temporarily Locked Property
The Hatchineha Ranch is currently closed to the public due to nature conservation restoration work. The property became a conservation land in 2008. Protection of Hatchineha Ranch contributes substantially to ongoing efforts to restore the watershed of the Kissimmee River and the Everglades.
A small road with a “No Trespassing” sign leads into Hatchineha Ranch.

No Public Infrastructure

The Hatchineha Ranch is not accessible to the public. There are some small roads leading into the Ranch, but they are gated. Inside the preserve there is a private property. Because the owner of the property was not willing to sell it to conservation, it was going to remain private and unprotected. When the restoration work is finished, there will be some public infrastructure provided by the involved state agencies. Existing roads and existing buildings will be rebuilt and used for recreational and park supporting activities.
The Limits to Growth?
The Hatchineha Ranch has been the proposed site of nearly 5,000 single- and multi-family homes and a golf course. It was and is still owned by Hatchineha Ranch LLC. Despite the minimal planned wetland impacts, the public authorities denied the application for development. The reason for denial was the important role the property has for natural resources, especially the wetlands with the threatened and endangered species. After some negotiations, in which the Nature Conservancy was involved, the private owner could eventually be convinced to put his property into conservation.

Hatchineha Becomes a Mitigation Bank
There were three reasons that made the property owner, who is a building developer, change his mind: troubles in getting the property permitted, some interest in nature conservation, and lastly the possibility to make money through the mitigation banking process, a kind of certificate trading with wetlands or protected species.
Nature Banking

In 1992 there were only 46 banks permitted, almost all of which were publicly-sponsored single user banks, in which entities such as state agencies or large corporations stockpile wetland credits for their own later use. In 2005, an inventory by the Corps’ Institute for Water Resources estimated a total of 450 approved mitigation banks (59 of which have sold out of credits) and an additional 198 banks in the proposal stage.

Management of a Mitigation Bank

Mitigation banking is a practice in which an environmental enhancement and preservation project is conducted by a public agency or private entity (“banker”) to provide mitigation for unavoidable impacts on wetlands or protected species within a defined region (mitigation service area). The bank is the site itself, and the currency sold by the banker to the impact permittee is a credit, which represents the ecological value equivalent to the complete restoration of one acre of wetland or habitat. The number of potential credits permitted for the bank and the credit debits required for impact permits are determined by the permitting agencies.

This form of “third-party” compensatory mitigation, in which the responsibility for compensatory mitigation implementation and success is assumed by a party other than the permittee, has been a very attractive feature.

Source: Florida Department of Environmental Protection

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Mitigation banking is the youngest tool for nature conservation. The growth of the mitigation market is significant for the success of this new strategy.

Source: Florida Department of Environmental Protection
AN URBANIZED NATURE

Despite Florida's very young urbanization history, all his nature is a property in an urban system, which is defined in a regular master plan. It is hardly possible to find any square meter of original, self-regulating, and original nature.

The housing development “Harmony” in Florida
Urban activities in nature conservation lands such as water resource development projects, water supply projects, storm water management projects, linear facilities, sustainable agriculture, forestry, forest management projects, and recreation uses prove their urban reality.

Managing Resources
- Restoration of wetlands and forests
  - plants
  - resource control
  - water supply

Managing Resources
- Real Estate Market
  - economic upswing
  - financial crisis

What is an Urbanized Nature?
Urban activities in nature conservation lands such as water resource development projects, water supply projects, storm water management projects, linear facilities, sustainable agriculture, forestry, forest management projects, and recreation uses prove their urban reality.

No original nature
Urbanized nature is a highly controlled and managed, rather than self-regulating or abandoned system.

Conservation of the natural basis of life
Urbanized nature is existential for every urban system and raises its qualities.

Urbanization forms natural areas
The appearance of urbanized nature is defined through the interaction with other urban systems.

Nature depends on the Market
The quality and size of urbanized nature are linked to economical growth.

A lot of natural philosophies
Different levels of urbanized nature provide different strategies for the protection and management.
The increase in housing construction near nature conservation areas is an evidence for the need of urbanized nature in every urban environment.

**Urban Systems with a High Quality**

Housing growth rates:
- One km beside a nature conservation area
- 50 km beside a nature conservation area
COMMENTARY
URBANIZED NATURE
Florida’s urbanization is characterized by a remarkable flatness. There seems to be no hierarchy between land occupations, neither historic nor based on a city-countryside antagonism. The land-use of a specific site in a specific moment is determined solely by market forces. This makes land-use temporary and interchangeable. A city might develop on a pasture but might just as well be returned to pasture again once it has lost its economic base. Nature is no exemption. Urbanization in Florida is laid on a highly volatile natural system. Balancing, adjusting and controlling this system is integral part of any development. Nature protection thus has a very important status but is not based on the conservative often romantic notion of preservation. Nature is simple an integral aspect of the urban logic and is just as much measured on its performance (e.g. water absorption capacity) as any other land-use operation. It is only logic that nature here has become a tradable commodity. Any land development must e.g. include wetlands but not necessarily on the same plot. The ecologic compensation can thus be outsourced to so called mitigation banks. These commercial nature parks establish a direct economic link between City and Nature.
FLORIDA SPACE COAST

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Spring Semester 2011
IX

FLORIDA SPACE COAST

Florida’s Generic Coastline

SPACE COAST™
The Moon in the Living Rooms
The Reception of Space
Cape Canaveral

CONTROLLED SPACES
Restricted Areas
Nature Preservation
Engineered Nature
Administrative Entities and Competitive Urbanization

DEPENDENT SHORE
The Struggle of Titusville
NASA’s Economic Neighborhood
Post-Shuttle Scenarios?

EMANCIPATED HINTERLAND
Space Coast Port
Space Coast Tourism
The Generic in Between
Reef Typology: The Coastal Strip
Florida’s Generic Coastline

Bordering the Atlantic Ocean, Florida’s Coastline stretches 800 km southwards and turns towards the Gulf of Mexico. This shoreline is heavily urbanized with a very specific pattern. Along the lagoon and the reef a strip-like city follows this longitudinal segment of Florida’s coastline.

Daytona Beach

In between the lagoon and the beaches at the edge of the Atlantic Ocean three main zones exist in the North-South direction:

- Bungalows – the Coastal Strip with retail facilities – and large scale condominiums and hotels.
NASA Launch Facilities
Approximately in the center of the Florida Costal Strip a gap emerges – Cape Canaveral. On this peninsula NASA established the launch facilities for their famous space program.
The United States launched their first rockets into outer space in the early fifties for military purposes: the “Cold War” called for novel surveillance technologies by satellites and initiated a “Space Race” between the United States of America and the Soviet Union. Fueled by patriotic spirit, the breathtaking technological progress in the 21st century enabled the United States to reach their goal: Neil Armstrong was the first to set foot on the moon in 1969. The technological progress not only allowed for space exploration but also changed the possibilities of photography and other developing media. NASA’s controlled publication of images and their mass production created a virtual reality, which itself created a pathos and affected the society of the Nation and of the World.

The height of physical of medial presence of the space program at the time of the moon-landing has been in gradual decline over the past forty years. Due to this decline NASA has decided to stop its Space Shuttle program ending its last iconic media focal point. This has resulted in reverberations on Florida’s eastern costal landscape and America’s collective consciousness.
The Moon in the Living Rooms

On 20th of July 1969 Neil Armstrong made his famous step on the rocky surface of Earth’s only natural satellite. The Mission was an enormous technological success; however, the synchronous development of information technology was also an essential aspect of the Moon Landing. The live broadcast allowed the entire world to be part of this moment in humankind’s history.

The Project of a Generation

The moon landing fulfilled John F. Kennedy’s claim from 1961 to reach the closest extraterrestrial body within a decade. Although the early rocket launch history of the United States was characterized by failure – the USSR cosmonaut Jurij Gagarin was the first man in outer space – NASA finally succeeded in overtaking the Soviet Union thanks to an effort, that was promoted by the President and delivered by the whole nation. This lead to the victory in the so called “Space Race”: Being first on the moon.
Moon Landing Mission Apollo 11
20th July 1969
Crew: Neil Armstrong, Buzz Aldrin and Michael Collins
Mission Duration: 8 d 03 h 18 m 35 s
Lunar Surface Time: 21 h 31 m 20 s
Rocket: Saturn V (h=110.6 m; d=10.1 m; w=3039 t)
The Reception of Space

With the lunar landing, the race to the moon ended. Until 1973 NASA completed another five missions to the moon. After the Apollo Program, they initiated the Space Shuttle program, the next manned launch vehicle. As a reusable space ship it was meant to be more cost efficient, but in reality was not. Its first launch was on the 1st of April 1981 and was followed by 132 additional missions. In the early years of Space Race, NASA’s imagery was a global novelty and production was elaborate. They focused not only on the launches and the missions, but also on construction and research. In the past thirty years the Space Shuttle program produced an enormous amount of pictures showing statistics and research in a more documentary and less dramatic way: reflecting a certain exhaustion of virtual reality production.

Theming and Banalization

In 1967 the Kennedy Space Center Visitor Complex was dedicated on the property of the Kennedy Space Center. The park features a “Rocket Garden” - an exhibition of different types of rockets from the past fifty years, the “Apollo/ Saturn V Center” - where one of the two remaining Saturn V rocket is exhibited, an IMAX® theater - where “you can feel the thrill of space exploration” interactive space flight simulators, and a small piece of the moon which can be touched. In addition, visitors can also have “Lunch with an astronaut” for $25. The visitor complex does not evoke an historical pathos or memorial but is an attraction with adventure oriented theming.
Kennedy Space Center Visitor Complex can be understood as a theme park among others. Its importance for Florida, where 8 of the World’s 25 most visited theme parks are located, is relatively small.

KSC Visitor Complex: A Theme Park
Kennedy Space Center Visitor Complex can be understood as a theme park among others. Its importance for Florida, where 8 of the World’s 25 most visited theme parks are located, is relatively small.
Compared to entertainment related to space the more important part of NASA’s spending is for research and space exploration. This business is nation wide and even globalized – NASA facilities and the contractors are spread in clusters all over the U.S. The Kennedy Space Center serves as flagship and center of the entertainment aspect.

Globalized Space Exploration
Since the 80s most space programs are multinational collaborations. The unification of these efforts allowed projects like the ISS but did not radiate a pathos comparable to the Space Race.

Cape Canaveral
From the very beginning of Space Race, Cape Canaveral was the preferred site for space exploration in the United States for various reasons: on a physical level - the proximity to the equator and advantages from the earth’s rotation at this point, on an infrastructural level - the connection to the mainland, on a sociopolitical level - the loose existing settlement on site, and finally on a safety level - the positioning on the easter coast permitted launching over open sea instead of populated areas.
Kennedy Space Center
For the lunar mission engineers developed the oversize Saturn V rocket and bigger launch facilities were needed. In 1958 NASA was separated from the U.S. Air Force. North of Cape Canaveral they obtained the Merritt Island area and started the construction of their installations in 1963. The Kennedy Space Center consists of the Industrial Area, the Vehicle Assemblage Building, the Launch Complex 39 and the KSC Visitor Complex. NASA launched manned space crafts at Kennedy Space Center for more than 30 years.

End of Manned Space Flights
The end of the Space Shuttle program has been planned in a longer term. Nevertheless, President Obama is blamed by newspapers and publicity for the shut down and the uncertain future for a lot of direct and indirect effected Jobs. In fact, under the Obama government NASA was subjected a fundamental reorientation: Privatization. Because of that, the President cancelled the Constellation program.

Cape Canaveral Air Force Station
Cape Canaveral Air Force Station was used as a military airport during WW II and changed in the 50s to the prime site for U.S. Army rocket launches. Today it is a busy launch site used by the U.S. Air Force and by private companies for unmanned launches, military tests and satellites. It is closed to public. The private funded rocket launches are a prospering business at Cape Canaveral Air Force Station and due to officials, future space exploration will be financed even more by private entrepreneurs.
The Independence of Federal Areas

NASA was emancipated from the U.S. Air Force by the National Authorization Space Act in 1958. Since then, the entities coexist adjacently.
CONTROLLED SPACES

While “Cape Canaveral Air Force Station” is self contained and gated, the borders of “Kennedy Space Center” have less physical presence. Even where a formal border is defined, open Space is the dominant means of physical access and control on Merritt Island. The use of nature as an abstract buffer can be observed at a small scale on Merritt Island, and as a large scale phenomenon on the mainland. On Merritt Island, nature is engineered by technical interventions to improve the conditions on site for NASA’s employees.
Greater Cape Canaveral Area

A system of barrier reefs spreads out in front of the mainland of Florida. At Cape Canaveral and Merritt Island this linear system widens up resulting in a flat system of wetlands, lagoons and the mainland. St. John's River follows the coast northwards in a distance of around 10 km parallel to the lagoon shore. Both, the reef and the mainland are sparsely urbanized.
Morphology of the Cape
Horizontality and wideness dominate the perception of the landscape. Width can be understood in the direction of the Indian river but also in the strip-like array of the lagoon, the island, and the reef – The distance from St. John’s River to Cape Canaveral is about 23km.
Water Body
The barrier island creates a variety of water bodies with different qualities of water, which depend on rain and wind, but also on man-made inlets and natural freshwater inflows.

Geology of the Coast
The coastal barrier consists of shelly sand and clay. Only in the areas of Cape Canaveral and the eastern middle of Merritt Island, which was chosen by the U.S. Air Force Army and NASA for rocket launches, is the soil compounded by medium fine sand and silt.

Wetlands
Wetlands include different types of landscape: tidal salt marshes, mangrove swamps or freshwater marshes. The term "wetland" is defined by the moisture content of the soil.

Highlands
Due to the geological structure and the natural conditions, the actual highland is the remain of water body and wetlands. Thus the landscape is highly defined by these elements.
Impact on Site

Merritt Island, a landscape formed by the permanent influences of wind and wave, was initially characterized by freshwater inlets and salt marshes. In 1962 the NASA bought 570 km² of land and started constructing gigantic launch facilities for the purpose of lunar landing. These interventions completely changed the landscape.
Restricted Areas
Cape Canaveral and Merritt Island are characterized by specific borders. The Cape Canaveral Air Force Base is a military area and therefore has a strong physical border with surveillance and armed control. On the other side, Merritt Island borders are formally and legally defined, but are rarely articulated on site. NASA’s control is of a passive quality. The land is owned by the federal authority and is dispensed for management purposes to different players.

Launch and landing experience
On launch day, there are over 100,000 visitors on site to watch the launch. For safety reasons, security is increased on Merritt Island and access is restricted to the public on different dates.
Natural Buffer

The federal facilities on Merritt Island are surrounded by 570 km² of various coastal habitats including beaches, forested and non-forested wetlands, estuarine waters, impounded wetlands, upland shrub lands, and forests. By 1962, after the NASA purchased the land, northern Merritt Island was deposited as security and safety buffer zone. Based on this, the biosphere remained the only unbuilt barrier island of the coast.
Merritt Island National Wildlife Refuge

In 1963 the refuge was established by a management agreement between NASA and the National Wildlife Refuge System Service. Merritt Island’s lands and waters provide the conditions necessary for the space program but recognize the natural systems. The purpose of the Wildlife Refuge System is the management of the territory with a focus on the preservation and development of biodiversity.

Nature Preservation

Merritt Island’s is positioned between Indian River, Banana River and the Atlantic ocean, resulting in a mixture of different qualities of water and salinity creating an overlap of continental and subtropical climate leading to extraordinary biodiversity. With approximately 2'100 species of plants and 2'200 animal species, the lagoon is the most diverse estuary in North America.

Canaveral National Seashore

The Canaveral National Seashore was established in 1975 on land which was already either being managed by NASA or by MINWR. The National Park Service took over responsibility of Playalinda Beach and some areas further North. This led to complex pattern of management and ownership distribution today. The prime purpose of National Park Services is the protection and preservation of scenic, historic and natural aspects in order to create an accessible, attractive American history.

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Engineered Nature

The natural condition of the barrier was not an ideal platform for the lunar mission. Therefore, the agency had to redesign the site and surrounding areas. Besides the struggle of constructing the launch facilities on the small edge of medium fine sand and silt, they also had to cross the Indian River and the salt marshes of Merritt Island in order to connect the reef and the mainland. The presence of salt marshes caused another problem: during summer and fall, the mosquito breeding season, NASA’s employees were disturbed by an immense number of mosquitoes, which made work impossible. For that reason, NASA had to search for techniques to get rid of the dangerous insects, spreading disease like Dengue fever and Malaria.

Annual Mosquito Invasion

Merritt Island’s climate, topography and geographical setting hatchery for mosquito breeding. In the salt marshes of Florida’s east coast mosquitoes breed from May to October and create a drawback for human health. Due to the fact that mosquitoes are not able to breed on moving waters, mosquito control by hand-dug dikes began along Indian River Lagoon already in the 20s of the last millennium. The improvement in chemical industry and the development of DDT and other pesticides led to a shift in technique: by the early 50s mosquito control in the area was almost exclusively done by chemicals. But already 1955 mosquitoes became resistant against the pesticide control became a problem and led to recall upon the mechanical techniques.
Mosquito Control

The dikes on Merritt Island were constructed by the U.S. Army Corps of Engineers in the early 60s to control the breeding of salt marsh mosquitoes and on the other hand to make the land accessible for surveillance issues. By flooding the diked compartments with freshwater and keeping them flooded year in, year out, mosquitoes breeding was suppressed. The intervention also had consequences for the habitat. Because the flow of nutrients and the movement of species was blocked, the biotope has been altered. Water quality has diminished and the biodiversity has changed.

Species Management

Today, Merritt Island National Wildlife Refuge is managed by the Refuge Service. The Refuge focuses on preservation and development of biodiversity. On 570 km² over 500 animal species and over 1,000 species of plants coexist. In order to increase the biodiversity, the water level in the impoundments are controlled to offer a various range of ponds – from dry to wet to flooded. Today there are tendencies to restore some impoundments, as research shows that non-mosquito-breeder marshes were diked.
Visitor Facilities
Although the primary purpose of Wildlife Refuge Systems is not to attract tourists but to focus on biodiversity, the refuges are partially open to public, in areas where human activity does not disrupt the wildlife. The existence of drivable dikes in Merritt Island Wildlife Refuge makes the landscape accessible for bird watchers, anglers and also hunters.

MINWR annual visitors: 650,000
KSC annual visitors: 1,600,000
Administrative Entities and Competitive Urbanization

On Merritt Island and on Cape Canaveral Island the territory borders are relatively stable. The players are permanent and the long-term goals are controlled by various means. Opposing the lagoon, on the mainland the condition of land control is different. The various entities on different political hierarchies have changing short-term and long-term goals. On the smallest scale land ownership changes comparatively quick and the real estate market is competitive. Different processes and mechanics take place in the same time and overlap.

Areas with Conservation Purpose

Along St. John river the natural environment is divided in compartments of conservation which are managed either by state, county, local, or private authorities.

Cities and Urban Build-up

In Brevard County, municipalities are growing. The law enables municipalities to annex a willing community into their territory concerning a certain density. This causes a competitive growth of the cities. The consumption of land due to private building activity is neither controlled inside nor outside city borders.
Urbanization in Brackets

The mainland facing the Indian River lagoon is a special situation: It is restrained by federal, state, local or private governments with environmental conservation or military purposes. Cape Canaveral has an insular status, not just because of its geographical position but also because of the military purpose and is therefore controlled by access. Kennedy Space Center is controlling their area through surveillance and through physical distance but is not taking direct influence on mainland. The settlement is on one side bordered by the landscape, the Indian River, which forms a natural buffer for NASA's territory. On the other side, the conservation areas surrounding the St. John River suppress a development westwards. In comparison only the conservation areas block the urban sprawl. Municipalities have hardly any influence within the competitive system of urban development.
The authorities taking care of environmental policies are by nature interested in long-running processes. The "gentle giants" are the determining edges for rapid and reckless building activity within the cities and Brevard County.
DEPENDENT SHORE

NASA's long-term engagement in the region of Cape Canaveral had an enormous impact on a multitude of neighbors. While in the past the federal agency took direct and indirect control to reinforce their interest, there exist a countless number of players which were and will be dependent on NASA's decisions. The economic importance and investments of several billion dollars per year in the surrounding area led to not only an economic dependence, but also a visual omnipresence of NASA, fostered over forty years throughout the manned space program. The suppliers of NASA, the region, municipalities, and a countless number of private shopkeepers and restaurant owners have to react to these large scale political decisions. Most of them have neither the economical strength, the political power, nor the touristic attractiveness to influence the decisions related to Space Explorations.
Orlando’s Dead-End?
Arriving Titusville from Orlando leads over a four lane highway to an two lane dead-end with a picturesque building owned by the municipality’s storm water control.

The Struggle of Titusville
Titusville is the first city on mainland driving from Merritt Island and Kennedy Space Center westward. The location alongside the Indian River was an economical advantage in early American history and allowed the young community to grow and prosper. Since 1850 the barrier reef enabled ships to boat safely on the Indian river. In the early 50s, when the Air Force started rocket launches at Cape Canaveral and expanded the Patrick Air Base further south, the former strategic position was weakened. When long distance transportation started and the highway system was developed, Titusville lost its position as a costal hub. NASA’s engagement from the 60s onwards made Titusville win importance as a bridgehead. Titusville became, among other municipalities in Brevard County, a bedroom community for NASA employees but also a ideal site for NASA contractor’s. The location on NASA’s lifeline and the profit out of this neighborhood led to a certain dependency of Titusville. The end of Space Shuttle program in 2011 therefore will affect these places in NASA’s backyard.
Iconographic Dependence

The long-term engagement of NASA on Merritt Island created more than economical dependency. NASA’s image machinery created both: An imagination in men’s mind and an actual brand. “Space Coast” as a label is ubiquitous on the strips of Titusville. Space exploration as a symbol is not only connoted to a certain function but also to the proximity of the Kennedy Space Center.
NASA’s Economic Neighborhood

Different cities and authorities developed around Kennedy Space Center and Cape Canaveral Air Force Base. Their geographical position created conditions which are relevant for their economic wealth. The on-shore municipalities Mims, Titusville, Cocoa and Rockledge are located alongside Indian River with a relative distance to the beaches and therefore face different situations. Rockledge is the host for much of Brevard County’s administration. The City of Cocoa is at the Intersection of Highway 95 connecting North and South and State Road 528, the so called “Martin Andersen Beachline Expressway”, connecting Orlando to the shore. Titusville’s bridges connect the northern part of Merritt Island, the Kennedy Space Center and the Kennedy Space Visitor Center, the Merritt Island Wildlife Refuge, and the Cape Canaveral Seashore to the mainland.

NASA’s Commuter Towns

The settlements on the mainland are not just residential districts for NASA employees. In fact, NASA and the federal government only directly employ 2000 individuals. Other employment is done by private contractors such as the United Space Alliance, which is responsible for running the Kennedy Space Center Visitor Complex.
Post-Shuttle Scenarios?
After 30 years, the National Aeronautics Space Agency will end the Space Shuttle program in July 2011. The public is frightened by the possible impact that decisions by politicians could cause. In the short term perspective, the adjacent region could immediately lose a large number of direct and indirect jobs while subsequent few years may result in 7,000 to 12,000 jobs being cut by federal agencies. Each direct job reduction will cause the destruction of about 1.5 jobs indirectly related to space exploration in the greater area of Kennedy Space Center. Another current concern is the rising sea level. The predicted three foot rise will have a major impact on the entire barrier settlement including Merritt Island.
Circuit of Dependences

NASA attracted and created a local high tech sector but also evoked service facilities for their employees. Their need for workforce and supplies, while spilling enormous amounts of money into the region, created a circuit of dependences from which NASA will exit in 2011 with their final shuttle launch.
EMANCIPATED HINTERLAND

During the early years of the “Space Race”, the U. S. Army had the need to build launch facilities, infrastructural links to Florida, and the rest the United States. Important transportation routes were extended, widened, resulting in increased capacity. Additional road systems were also built from scratch. The excellent infrastructural network composed of roadways, railways, air connections, and waterways, not only contributed to the United States’ victory of the Space Race, but also encouraged tourists to visit the “Space Coast”. It also attracted high-tech enterprises and companies that in the early years had an affiliation with the NASA activities. With the economical upswing of the last decades, some enterprises which were once economically dependent on NASA emancipated themselves and created independent offsets and businesses which have become part of the coastline urbanization.
The Space Coast Port
The first deepwater port at Cape Canaveral was proposed by the Navy in 1878. Congress granted the approval 50 years later in 1929. Two decades later the dredging started. The port was dedicated in 1953 and was primarily used for military and commercial purpose. This is an example of one of the varied infrastructural additions that was constructed at the time and within the area of first shuttle launch.

1943: The untouched barrier reef
1951: The first interventions
1963: Rehabilitation of A1A
1969: Port Canaveral

Shift of Intervention
Local infrastructure was either constructed for launch activity or to support launch activity. At Port Canaveral for example, Space Shuttle’s external tanks were boated to the Vehicle Assembly Building. In 1964 the first cruise ship arrived at Port Canaveral and ushered in a new era. The first cruise terminal was built in 1982 and hence forward the cruise business grew rapidly. Today, Port Canaveral is one of the busiest cruise ports in the world.
$178.4 Million annual Income

Cruise - “Port of Choices”
2009
Total Jobs: 2,389
Total Income: $392.2 Million
Business Revenue: $916 Million
State & Local Taxes: $29 Million
Passengers per year: 3,573,960

Cargo - “Port of Opportunities”
2009
Total Jobs: 2,389
Total Income: $178.4 Million
Business Revenue: $126.2 Million
State and Local Taxes: $13.2 Million
Short tones per year: 2,395,779 short tons
Cargo: Petroleum, Cement, Newsprint, Salt, Slate, Granite, Rock, Aggregate, Lumber, Slag, Limestone

Port Canaveral’s qualitative export relations
Port Canaveral’s qualitative import relations
Cruising Tours towards or from Port Canaveral
Space Coast Tourism
In the early days, Florida’s Space Coast was controlled and affected by the Air Force and then NASA. They formed not just the landscape but also the National imagination of Florida’s eastern coast and created a connotation of physical and outer space. The local tourist economy promotes itself with this brand by covering their products with the label of space exploration. In fact, the space exploration and the Kennedy Space Center Visitor Complex have a rather small impact on the economical wealth of tourism.

Tourism Hot Spots at the East Coast
The lodging facilities gather at points of touristic attractions. In the area of Orlando, hotels and other lodges are in the surrounding of theme parks along the infrastructural arteries. Along the Coast, where beach tourism takes place, they are spread along the barrier and concentrate at hot spots like Daytona Beach, Port Canaveral or Cocoa Beach.

Tourism in Florida and Brevard
Beach Tourism at the Coast, Eco Tourism in the Wetlands and Theme Parks around the big cities are the main attractions in Florida. Therefore in the State of Florida 10.8% and in Brevard County 16.9% of employed are directly evolved in Tourism – compared to 5.1% in the US.
Beach Tourism:
The long beaches are used for Spring Break holidays as well as surfing.

Cruising
Pre-cruising days and cruising ships with stop over result in day tourists.

Historical Centers
Cocoa Village establish itself as a chilled out lagoon town with retail.

Space Related
On launch days thousands of spectators arrive, added to KSC visitors.

Activity Oriented
Entertainment and activity based recreation like golf and fishing.

Eco Tourism
The presence of huge parks and refuges evoke fast growing eco tourism.

Retirement Facilities
Elderly people enjoy the warm climate of the coast like all over Florida.

Space Coast Tourism Focus
Space Coast Tourism advertises with astronauts on vacations although tourism is independent from NASA and ranges from leisure to activity based tourism. Merritt Island and the mainland is dominated by nature related tourism whereas the coast benefits mainly from its beach tourism.
Touristic Reality

Each tourism facility advertises their own products in colorful images. On a closer look, the real spots are rather common, despite the label “Space Coast.”

- Jetty Park, Port Canaveral
- Historic Cocoa Village, Cocoa Village
- Sunset Harbour, Indian Harbour Beach
- The Cove, Port Canaveral
- The Cocoa Beach Pier, Cocoa Beach
- Kennedy Space Center Visitor Complex, Merritt Island

“The Best of Cocoa Beach,” Promotion Map of Cocoa Beach, 2001
The Generic In Between
Florida's eastern coast settlement is dominated by topography and touristic use. The condition of the coastal barriers is defined by orientation towards two sides: to the open sea and the lagoon and the relative small amount of affordable land due to the narrow barrier. These conditions create a specific type of barrier settlement. Southern Merritt Island is an topographical exception: an peninsula surrounded by the two lagoons. This creates a second typology of barrier settlement.

Merritt Island’s Barrier Sprawl

Merritt Island’s wider barrier evokes pattern that is similar to the urbanization on the mainland. The lack of economical pressure by beach tourism industry and the capacity of land created a sprawl-like situation. The different uses are dispersed all over and the density changes almost randomly. The distances are long and the different locations are only accessible by car.

Cocoa Beach’s Costal Strip

The settlement on Cocoa Beach’s barrier is not a singular phenomenon but a type which can be observed on large parts of the Eastern barrier – the Coastal Strip.
Finger Development
The coastline facing the lagoon is extended and unfolded in fingers to enable residential living on the water edge. The community on each finger is relatively closed due to the dead end street and the orientation of the houses to the artificial lagoon shore.

Reef Typology: The Coastal Strip
On the reefs Florida's east coast is dominated by a very specific built pattern: The Coastal Strip.

Residential Houses
The median part of the coastal strip consists of conventional one or two story buildings and a medium density.

The Coastal Strip
On the western side towards the lagoon the Coastal Strip is flanked by supply and retail facilities like restaurants, shops or smaller motels which advertise with large billboards.

Large Condominiums and Beach
Facing the open sea on the other side of the coastal strip, large condominium buildings and hotels allow mass tourism during Spring Break Holidays. The coastal strip looses its visual reference towards the sea. This proximity is only perceptible on a virtual level.
Uncontrolled Build-up
The prohibition of settlement on Cape Canaveral and on Merritt Island not just effect the islands itself but also impact the opposite shore. On Volusia and Brevard county border there is a gap in the built pattern.

Knots of Intersections
The pattern of Average Annual Daily Traffic count shows two different mechanics: a radial pattern around Orlando and a linear development along the coast with the arterial on the mainland and a second road on the barrier. At intersections of traffic infrastructure, the pattern of street densifies and creates knots on mainland’s shore.

Distribution of Functions
The typology of distribution of uses resembles the barrier the mainland’s built structure. The coastal strip follows the barrier northward and stops immediately at Port Canaveral’s military border. Further north it starts over again. Retail and business facilities mainly follow the ways of transportation– intensified in the typology of the Coastal Strip.

Reality
The steady heterogeneity of the Interstate 4 corridor is opposed by the Coast line, where specific patterns are squeezed into a dense setting of geological dependencies and pressures from authorities like the NASA or the preservation Areas.
Built Pattern

The distribution of functions on Florida’s Space Coast differs within its areas: From the mainland to Merritt Island, to the barrier reef, to Cape Canaveral and Kennedy Space Center. The federal areas are monofunctional used for infrastructural facilities. On the shore, the uses are strung along the costal strip. Merritt Island’s patterns are diverse in use and density.

The lagoon shores are dominated by Finger Settlements. The mainland is characterized by the commercial uses gathered at large roads from North to South and around infrastructural knots. The building structure on mainland’s lagoon bank is neither continuous nor specific.
The Exhausted Local Catalyst?

NASA as an economical motor is no longer essential for the region. As a catalyst, the federal agency formed the infrastructure which created social structures in the region and have provided a platform for new developments in the last forty years. Tourism, notably the cruises at Port Canaveral and beach tourism in Cocoa Beach are as independent as the high tech sector. Kennedy Space Center Visitor Center with Launch Pad 39 A and B, the exhibition of rockets, the gigantic Vehicle Assemblage Building and the other objects of mankind's history are no longer the vertex of global attention.
COMMENTARY
FLORIDA SPACE COAST

Under the working title Florida Space Coast we were interested in one particular section of the coast which represents an exception within the generic urbanization patterns along the waterline: Cape Canaveral. This special status is first of all based on its specific function as one of the most important bases of American or global space travel since the 1960s. The area has developed a kind of historicity due to this, in comparison to the relatively ‘young’ urbanization of Florida. Concerning the human control on the territory, which mostly means the attitude towards water management (as is the case in the entire State), Cape Canaveral has developed a high degree of technological and administrative capability and differentiation. The study names this condition ‘engineered nature’, in which the requirements of nature protection, water management and certain restricted areas are all meshed together. Furthermore, the study tried to describe the dense networks and interdependencies between astronautics, tourism, local economy and urbanization. It is interesting to see, that there is on the one hand, in the course of the decline of American astronautics, emerging a kind of a historiography of space travel, which is used to spur a theme-park like economy, in Florida known already from Disney. On the other hand certain areas try to develop new forms of tourism, especially around the surfing (sub) culture. However decline is still felt, as cities such as Titusville, which once profited from events surrounding shuttle launches, now struggle against economic stagnancy.
DOWNTOWNS, PLAZAS
AND VOIDS

DELINEATING TERRITORY
Orlando: Amalgamation of Urban Cores
Tampa: Excavation and Exportation

OSCILLATING COMMERCE AND LEISURE
Re-Purposing the Avenue
The Introverted Plaza
Plazas of Necessity
Plazas of Leisure
Infusion in Static Conditions
Plaza Revival

UTOPIAS OF ISOLATION
Disneyfication
The Path to Utopia

VOID
Government Policy and the Emergence of Void
Physical Voids in the Urban Core
Socio-Economic Voids
Orlando: Amalgamation of Urban Cores

The Orlando Metro area is the hub city of the Orlando-Kissimmee area. This territory includes portions of Orange, Osceola, Seminole, and Lake Counties with an estimated population of 20,032,496. The evolution of this metropolis was not a centrally concentric growth but rather an amalgamation of multiple towns and city centers. This multiplicity of cores was established in the pioneer era and amplified through the Citrus Boom, culminating at complete integration during the Disney and suburban movements of the past 50 years.
Accessing Seminole Land

Although the territory of Florida was sold to the United States in 1819, the urbanization of Central Florida did not begin until 1835. The second Seminole war pushed the Seminole Reservation south, allowing for the vast expansion of Mosquito County in 1840 and laying the foundation for the Citrus Industry to follow. This scattering of multiple forts across the Central Florida belt also set the framework for the evolution of abundant city cores in close proximity.
Accessing Seminole Land: Development of Mosquito County

- Mosquito County 1821
- Mosquito County 1840

Accessing Seminole Land: 3rd Seminole War, 1855-1858

- Military Fort
- Seminole Reservation post 1842
- Future (1920) Orange Seminole Area
- Fort Maitland - Future Orlando

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1835</td>
<td>Seminole begins and opens the Orange-Seminole area to settlement.</td>
</tr>
<tr>
<td>1840</td>
<td>War occurs; population is 73.</td>
</tr>
<tr>
<td>1842</td>
<td>Rice exceed population 173.</td>
</tr>
<tr>
<td>1845</td>
<td>Rice exceed population 300.</td>
</tr>
<tr>
<td>1850</td>
<td>Rice exceed population 800.</td>
</tr>
<tr>
<td>1852</td>
<td>Rice exceed population 1100.</td>
</tr>
<tr>
<td>1857</td>
<td>Rice exceed population 3000.</td>
</tr>
</tbody>
</table>

- Delineating Territory – Downtowns, Plazas, and Voids –
Transit Hub Foundations

Orlando’s first railroad station was built in 1881. From then, the rapidly-expanding railroad provided a means for the exportation of citrus to the north as well as access to goods from other portions of the county. Orlando’s central location made it the gateway to the south. This transit hub sentiment would later be reinforced in the mid 1900’s with the rapidly-expanding highway system.

Temporal Downtowns

The notion of downtown is commonly defined by Main Street. Typically such places are comprised of four components: government, businesses, places of commerce, and places of leisure. When Orlando’s Main Street was destroyed by fire in 1885 the concentration of these components relocated to Orange Avenue, bringing them all closer to the railroad and providing direct access to Central Florida from the north.

Population: 3000

Orlando grows into a sophisticated city that is referred to as the Phenomenal City.

1895

Downtown Orlando, FL 1895. Main Street, Orange and Center Streets. Courtesy of the Florida Photographic Collection.

Main Street, Orlando, FL 1893. Green House and Summerlin Hotel. Courtesy of the Florida Photographic Collection.
Leisure and Commerce

Although the railroad provided a means of exportation of citrus to the north, it also provided access to goods from other portions of the county. These goods were commonly sold and traded in open-air markets in the late nineteenth and early twentieth century. An intimate relationship between these commerce centers and places of leisure has been historically present at the core of Pioneer Era territories. Such places as Fort Maitland (now known as Lake Eola) were transformed into parks for leisure, but were also places of commerce. Today a pale shadow of this remains where the Sunday market has primarily become a leisure event rather than a necessary commerce market.

Citrus and a Triad of City Centers

Today the concentration of the citrus industry is located southwest of Orlando. However, this was not always the case. During the Citrus Boom in the late nineteenth century Sanford, Winter Park, and Orlando were significant producers of citrus. This industry was the primary economy until the mid-twentieth century. With the success of the citrus industry a triad of downtown supply centers emerged and evolved in integrated and significantly different ways. The economic relationships between these three centers would eventually merge to form the northern portion of the greater Orlando area.
Amalgamation of Urban Cores
Sanford, Winter Park and Orlando each developed their own distinct downtowns. However, as each entity grew a series of smaller-scaled commerce centers and leisure spaces followed the housing developments which sprawled between each of these city cores. This expansion has been so extensive in the Orlando, Winter Park, and Sanford area that the three cities have now merged into a larger urban format only separated by government defined boundaries.

Suburbanization and Disneyfication, 1965-2010.
The Great Freeze and Slow Recovery
1895-1920
Population of Orange County: 12,000-30,876
Consecutive temperature drops in December of 1894 and February 1895 caused the citrus industry to vanish from north Florida and resulted in a population reduction in the city of Orlando. However the citrus based economy was not destroyed. Near Sanford other crops such as celery and lettuce replaced the former citrus groves. The period that followed was one of steady growth and development.

The Great Florida Land Boom
1920-1930
Population of Orange County: 30,876-68,427
During the Great Florida Land Boom, Central Florida felt general national prosperity post-WWI. However, Orlando experienced its economic growth primarily from the automobile and expanding highway systems. At the time Florida was a largely untapped tourist frontier. Land was advertised to northerners who were drawn to Florida by its climate. Developers bought the land cheap and sold it at inflated prices. Although Central Florida did not see the same level of growth as Miami, Tampa, and Palm Beach, it was enough to push Orlando beyond its rural market town appearance. The steady growth at this time hints at the merging of Orlando and Winter Park to come.
The Depression and war years
1930-1950
Population of Orange County: 68,427-141,833
Population of Orlando: 27,330-36,738
During the depression Orlando still grew due to its role as a highway hub, the capital of the eastern half of the Florida citrus belt, and the shopping center for everyone between Ocala and Vero Beach. Additionally, WWII brought an Army Air Base to Orlando, creating a center of military activity. Significant developments in the highways created more direct paths than their predecessors. Most importantly, the merging of Orlando and Winter Park into a single urban core was clearly evident at the end of the 40’s.

The Space Boom
1950-1965
Population of Orange County: 141,833-388,940
Population of Orlando: 36,738-52,367
Much of Florida’s growth during the Space Boom was due to improvements in transportation. Orlando evolved as the financial, retail, and transport center for all of Central Florida. This was an age of increasing air travel and Orlando became the air traffic center for about a third of the peninsula. Much of this rapid growth manifested in suburban developments outside of the city proper.

Rollins College at the end of Park Avenue 1932.
Orlando International Airport.
The Space Boom and Transportation

Improvements in transportation greatly reduced travel time to Orlando, increasing its accessibility to the rest of the nation. However, the rapid growth of the highway system also isolated and divided the city core. Below is Interstate 4 under construction in 1964. Cutting directly through the core of the city, the interstate provided direct vehicular access to the downtown, but simultaneously formed a pedestrian barrier.
Suburbanization and Disneyfication
1965 - 2010
Population of Orange County: 388,940 - 1,145,956
Population of Orlando: 52,367 - 238,300
Population Orlando Metro Area: 2,082,628
Orlando’s most significant development period came after
the construction of Disney World in 1965. The sudden
increase in tourism and subsequent employment and popu-
lation amplified suburban development. Although Disney
World was economically linked with Metro-Orlando, it was
socially and physically an isolated environment connected
by roadways.
Tampa: Excavation and Exportation
Tampa, Florida is the 54th largest city in the country, located on the western coast of Florida. Tampa is the largest city within Hillsborough County, with a population of 300,000 residents. Tampa was established because of the development of the shipping port, cigar manufacturing of Ybor City, and the coming of the railroad. Since Tampa has had a long history of moving and producing goods, the development of transportation has shaped the city. Two major highways intersect in the city of Tampa, I-4 and I-275, and connect the city to the rest of the state of Florida.
Transit and Phosphates

The discovery of phosphates in Central Florida had a dramatic effect on the development of the city of Tampa both economically and socially. As the mines grew, the city experienced a great need for additional man power and increased transportation needs.
Port of Tampa
The Port of Tampa plays an important role for the development of the city because of the transportation demands from the phosphate mines in the Tampa area. The port itself has grown tremendously and become a hub of importing and exporting goods, not only for the state but also for the east coast of the United States. Today, the Port of Tampa is one of the biggest hubs of transportation throughout the nation, importing goods from the Asian peninsula and exporting goods to South American countries. It has an economic impact of $8 billion dollars per year and provides thousands of jobs to the area. It is also one of the top shipbuilding and repair centers in the southeast.

Growth of the Port of Tampa
Initially starting off as a transportation hub for fertilizers, the port has grown exponentially ever since. This growth has generated jobs and business opportunities for locals, following the growth of the port Tampa became an attractive location for investors. This lead to the population increase and the growth of the city.

Population Growth
The population growth in Tampa has a direct correlation with the growth of the Port of Tampa.
Lengthy railway transportation became less attractive for businesses transporting high volumes of goods across the nation. This fueled a motorway building boom which interconnected the cities of the United States. The construction of these highways reduced the distance between cities, the traffic, and subsequently the transit time. It also led to a sprawling of residences as commuters were capable of traveling a greater distance over an equivalent period of time. Typically the choice to move outward from the city core directly correlated to living cost. The two primary arteries which feed the Tampa Bay area are Interstate 75 and Interstate 4. The Interstate 4 corridor is significant because it forms a physical connection with Orlando, creating a void along the corridor which is quickly filling with rapidly forming developments along the road.
Building I-75 in Tampa, 1963
Construction of an intersection for I-75 near Tampa. With the increased traffic flow, the city needed major connections to highways. Since the residential developments were already built, they were cut by the road.

Built Intersection of I-75 in Tampa, 1980
Completed intersection of Interstate I-75.

Florida Road Maps, 1959
Map of the road network prior to the construction of I-75. The road system is focused on the port and its surroundings and is limited to close-by distances.

Florida Road Maps, 1979
With the construction of I-75, the city and its freight infrastructure has shifted outwards from the port area. Imported goods are now easily transported by motor ways.

Florida Road Maps, 1989
As the population increases and the economy grows bigger, Tampa starts to extend its city limits. With more demands on motor ways, the infrastructure has grown and expanded locally, feeding more freight to transportation hubs of Tampa.

Florida Road Maps, 1994
Towards the 21st century, Tampa has grown to become a series of cities with multiple ports of transportation that import and export goods from the east coast to the entire world. With its attractions and beaches, it became a major tourist attraction location. More highways and roads were built to accommodate the circulation load of the city.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1824</td>
<td>Fort Brooke established as the first settlement in today's Tampa area</td>
</tr>
<tr>
<td>1884</td>
<td>Henry B. Plant railroad extends to Hillsborough River</td>
</tr>
<tr>
<td>1885</td>
<td>Exportation of phosphate and fish products extends to the North of the United States</td>
</tr>
<tr>
<td>1902</td>
<td>Tampa Street Railway Company is established</td>
</tr>
<tr>
<td>1904</td>
<td>Seaboard Air Line (SAL) and Atlantic Coast Line (ACL) begins transporting goods to and out of Tampa</td>
</tr>
<tr>
<td>1912</td>
<td>Port of Tampa</td>
</tr>
<tr>
<td>1925</td>
<td>Tampa Union Station</td>
</tr>
<tr>
<td>1933</td>
<td>West Tampa population grows to 10,000: Florida's 5th largest city</td>
</tr>
<tr>
<td>1950</td>
<td>Trans-Florida Line opened by Seaboard</td>
</tr>
<tr>
<td>1956</td>
<td>University of Tampa</td>
</tr>
<tr>
<td>1962</td>
<td>Expansion of suburbs</td>
</tr>
<tr>
<td>1968</td>
<td>Tampa International Airport</td>
</tr>
<tr>
<td>1971</td>
<td>University of South Florida</td>
</tr>
<tr>
<td>1980</td>
<td>Federal Aid Highway Act I-75 / I-4 Approval for I-75 extension</td>
</tr>
<tr>
<td>1990</td>
<td>Sunshine Skyway Bridge</td>
</tr>
<tr>
<td>2001</td>
<td>Amtrak operates passenger rail service</td>
</tr>
<tr>
<td>2002</td>
<td>Port of Tampa growth: three Cruiselines</td>
</tr>
<tr>
<td>2005</td>
<td>Widening projects for I-275</td>
</tr>
</tbody>
</table>
OSCILLATING COMMERCE AND LEISURE

Supply and leisure spaces are two important components which delineate downtowns. The form, location, and frequency of these spaces have significantly mutated in response to the needs of the inhabitants of Orlando and Tampa. Below is an example of this transformation. Both are photos of the same location in Winter Park, FL. The one on the left is of Winter Park Shopping Mall taken in 1966, the one on the right is Winter Park Shopping Village taken in 2010. They were/are places of supply and leisure; however, the format of each is reflective of changing tendencies in urban planning both in Orlando and Tampa. Air conditioning in the late 60's moved supply centers from outside to inside in the format of shopping malls. The 90's reversed this thinking in an attempt to animate streets through walkable sidewalks and streets within open-air shopping villages. Perpetual mutations of the form, location, and density of commerce and leisure spaces is characteristic of the development of these places in Central Florida. Since commerce and leisure are significant components of a downtown, the following case studies investigate both the downtown core as well as the places which have stretched commerce and leisure across metro areas.
Both the role of the Main Avenue and the way its spaces are occupied has seen several iterations within the past century. Andre Corboz states, "In the United States, if there does exist an animated public place it is the street, or at least certain streets - truthfully, a rather small number of them, and even then only at certain hours." This is true of Orange Avenue in Orlando, FL and South Park Avenue in Winter Park, FL.
Corridor of Business
Orange Avenue is commonly referred to as the core of the city’s “downtown.” This spine is almost exclusively a business district yet the city zones it as an Activity Corridor. Although some buildings have shops and restaurants on the street level, they are more often deserted than animated.
Shifting Landmarks
The majority of Orange Avenue’s landmark buildings are government structures, banks, and offices. Recently the city has taken action to create cultural nodes within this area. The most recent addition is the new Amway Arena which has created a new corridor on the west side of Interstate 4. Future plans for a Performing Arts Center will anchor the southeast corner of Orange Avenue.

Corridor of Activity
Although Orange Avenue is predominantly a business district, it is still zoned as Orlando’s Activity Corridor. The limits of this corridor have been bounded by Interstate 4 however, the completion of a new Arena to the West has extended the Activity Corridor into historic neighborhoods.
Although Orange Avenue is primarily a business district, pockets on the south end transform into places of activity in the evening. Some of these areas are even closed off to vehicular traffic for events. This is a striking contrast to the vehicle-filled streets devoid of pedestrians during the day.

Business to Leisure
Orange Avenue

The Animated Street
Park Avenue
Park Avenue, located north of Orange Avenue, embraces the pedestrian traffic that its sister street seems to be missing during the day. This is primarily due to the high concentration of commerce and leisure spaces in the form of restaurants, shopping plazas, museums, and parks. It is technically the downtown of Winter Park with its own municipal buildings; however, it lacks the density of business present on Orange Avenue.
The Introverted Plaza
The age of air conditioning, in conjunction with residents moving out to the suburbs, directly impacted the downtown core. Air-conditioned commerce centers (shopping malls) followed residents out to the suburbs, providing them with a comfortable place of commerce and leisure. This conditioned format moved the pedestrian from an exterior avenue to an introverted structure which is indifferent to the street.
The Anchor Store Format
The shopping mall format is typically composed of three components, anchor stores, supplement stores, and wide open walkways. Although the shopping center may have one or two entrances into the covered walkways, the primary entrances are through the anchor stores. In turn, the anchor store serves both as a place of commerce but also as a necessary space of circulation. This entire structure sits in the center of a large open parking lot. The exterior is primarily a solid mass with openings only at the entrances out of necessity. This format isolates the shopping event from the exterior world.
The most frequently of all commerce spaces is the plaza of necessity. This is the plaza which residents must go to on a daily to weekly basis, primarily for food. Much like the air-conditioned mall, they are typically large opaque structures situated in an open parking lot. Framing the opposite end of the parking lot is typically a strip of shops fronting the street. This format does recognize the street; however, it does so as a mode of marketing, not as a mechanism for activation. Ironically, the format creates a comfortable social experience within the structure, but a spatial void between the buildings.
Suburbia and the Commerce Plaza

The sprawling nature of these plazas directly correlates the rapid growth of suburbia from 1965 to present day. Although they are highly criticized for creating landscapes of parked automobiles and their lack of outdoor leisure space, their format does provide pleasurable commerce space within. Additionally, their frequency in the greater metro area provides access to essential goods without the burden of traveling to the city center.
Suburban Growth in East Orlando
The Plaza of Efficiency

An intimate relationship between supply centers and leisure space has been historically present at the core of Pioneer Era territories. Such places as Fort Maitland were transformed into parks (now known as Lake Eola) which served as both places of relaxation as well as the acquiring of goods in a market format. Today a pale shadow of this remains today where the Sunday market has become a leisure event rather than a necessary supply center.
Plazas of Leisure
The most frequent occurrence of dedicated leisure space in the Orlando Metro Area exists in the form of outdoor parks. Only one significant park exists within the downtown core while the rest exist in a sprawling and introverted format. Much like the shopping mall, the park exists isolated to its contextual placement, rarely engaging the urban fabric.
Park as Event
Although Lake Eola Park is the only significant park in the Downtown core, it is also the only park which attempts to engage its contextual surroundings while simultaneously providing leisure, performance, and exercise space as an escape from the city.

Park as Attraction
Lou Gardens in Winter Park is typical of several parks in the Orlando Metro Area. It is a privately owned park and open to the public for a fee. This format limits public access. However, the control over usage creates a place where special events can be coordinated and planned in a park format.

Park as Daily Life
The neighborhood park is the most common type of park in Orlando. They are frequently built as amenities to privately developed communities. Their frequency and private nature usually results in low usage. However, it does provide convenient park access, available on a daily basis to those who take advantage of it.
Over time the downtown district has tried to reinvent itself by changing zoning laws, creating incentives for development, and developing the community. The original downtown was developed in an organized grid that spread out from there. The Port of Tampa, being such an influential part of Tampa’s economy and growth, affected the downtown condition. The downtown has remained a business-focused district causing the development to be static. Due to the distance of the Port to the downtown, residents set up housing communities in the land between the two major points of the city. This development drew residents away from the downtown and the situation has remained the same ever since.
Static Concentration of Business

Today’s downtown Tampa district still shows the business focused ideas of the past. Tampa’s government has focused hard on making the city a business center and has been very successful. Tampa houses the headquarters of many influential companies including, Citigroup, MetLife, JP Morgan Chase, New York Life Insurance Co, and Bausch and Lomb.
Business Driven Infrastructure

The following diagrams describe the factors that contribute to the business focused mindset of the city of Tampa. The downtown district of Tampa is primarily focused on car travel, the parking spaces needed to accommodate the city prevent a pedestrian-friendly area. The large parking lots emphasize the lack of public space and park space within the city. The lack of an entertainment district within downtown has lead the residents to move away from the downtown and develop other communities to supply their need, which had lead to the creation of other districts, including Channel Side and the Soho district. These communities act as a gathering place for locals and provide the live, work, play community people seek.
Infusing Mixed Use

The lack of green space, pedestrian friendly streets, public transportation and the reliance on the car all reinforce the lack of a mixed community. In order to try to overcome this condition the city of Tampa initiated several different ways to promote a more pedestrian friendly environment that will promote a more mixed purpose community. By introducing residential towers with shopping, restaurants, and hidden parking the focus will be diverted from a 9-5 community to a 24 hour community.
Plaza Revival

Over the past decade a push for community plazas has taken over Tampa. The lack of public gathering space within the downtown district has lead to the creation of cultural plazas on the edge of the city overlooking the water. These plazas include parks, playgrounds, shopping, and arts centers. There are two types of plazas that have been created in Tampa. One plaza focuses on the arts and houses the Tampa Museum of Art and Children’s Museum, located near the Tampa Performing Arts center. The second type of plaza is focused on shopping and entertainment. The Channelside Plaza houses a retail, entertainment, and dining district, along with the Tampa Aquarium. This plaza type is more focused on social gathering than cultural experience.
The Empty Green

The Tampa Museum of Art, designed by Stanley Saitowitz and Natoma Architects, serves as a modern day “temple and forum.” The building acts as art as well as being a clean background to display art while providing a space for gathering. The building located within a park, hovers over the landscape. This provides shade for those below, promoting assembly. “The building is not only in the landscape, but is the landscape, reflecting the greenery, shimmering like the water, flickering like clouds. It blurs and unifies, making the museum a park, the park a museum.”

The building also promotes the idea of assembly by creating a large atrium space with the galleries surrounding. The building form, composed of large voids, acts as a visual frame to Downtown Tampa, connecting the building with the landscape. At night the metal box is transformed into a lantern, providing color and light to the surrounding park. Although the main concept of the building was to produce a common gathering place, the actual use of the building does not match the intention. The space is currently not used to its full potential, instead of frequent gatherings, the park primarily remains empty.
Revitalizing the Past

Ybor City, once a manufacturing hub for cigars, has transformed into an entertainment district where the area’s rich history of culture and excitement lives on today. Within the past twenty years the historic district has been transformed from an area plagued by dilapidated buildings to a hub of activity. One cause of the deterioration of Ybor was the building of I4 through the district. In order to revitalize the area new zoning laws were established to permit nightlife activities, such as bars and clubs to stimulate the economy. Today, Ybor has a variety of forms of activities, including a movie theatre, restaurants, bars, and shopping areas creating a place for gathering and socializing.
UTOPIAS OF ISOLATION

The identification of downtowns with business, government, leisure, and supply generates an odd paradox when Orlando is examined in relation to Disney World. The coming of Disney World in the 60's had a significant impact on the economy of Orlando and its surrounding areas, socially binding the two territories together. This interconnected relationship is most visible in the expansion of roadways which connect the areas of high tourism with Orlando's current city proper. Yet this connective infrastructure has simultaneously created utopias isolated from the city proper. These utopias are significant in the delineation of downtowns for they are primary and inseparable contributors to the economics of the greater Orlando area. Curiously, they have simultaneously secured the right to govern their territory autonomously.
Disneyfication
Disney World in Kissimmee, FL is the world’s largest and most-visited recreational resort. The resort covers an area of 30,080 acres and includes four theme parks, two water parks, 23 on-site themed resort hotels, including a campground, two health spas and physical fitness centers, and other recreational venues and entertainment. “While it is relished as a collective fantasy of escape and entertainment, the theme park is a tightly structured discourse about society. It represents a fictive narrative of social identity - not real history, but a collective image of what modern people are and should be - and it exercises the spatial controls that reinforce this identity.”
Economics of World Making

The creation of this cluster of utopias requires significant resources. The construction of Walt Disney’s first theme park, Magic Kingdom, in the mid 60’s marked the beginning of a spike in population and employment in the greater Orlando area until the early 80’s, with steady growth continuing to today.
The Path to Utopia

The extensive highway expansions in the 60’s and 70’s created easy access to Walt Disney World for an automobile-centric nation. The itinerary between the highway to the park was carefully crafted. The sequence of events steadily removes the individual from the Orlando metropolitan area to an isolated utopia by leaving the parked cars behind in a massive parking lot and utilizing idealized “public” transportation.
I grew up [as] a Disney fan, as my parents would drive us from south Florida to Orlando at least three times a year to see the big felt Mickey Mouse. From the beginning the entire design and “magic” of Disney intrigued me. The whole idea of going through different themed areas of fantasy, including all of your favorite childhood movie characters, amazed me as a child. As a child, no other family vacation would ever compare to that. Growing up, I learn a little more about the park every time I visit which explains the “magic” behind the scenes secrets that explained a lot about how the park got to be so important to me as a child. Plus, it has an emotional attachment for me. It was more than just visiting a theme park. It marked a special occasion every trip, whether it was a birthday, a family reunion or an engagement.

When my fiancé and I began dating, we made frequent trips to Disney. When it came time to plan an engagement, he knew that the most significant place to me was the park. It was the only place where I have had significant memories since my toddler years. For the engagement, he made the trip separate from the rest by the surprise of my closest friends and my immediate family meeting me for lunch in the Disney castle. With experiences like those, it is almost impossible to continue to expect anything less than a childlike fantasy. I cannot help but be obsessed with everything Disney.
VOIDS

Manifesting themselves in both tangible and intangible forms, voids in the urban fabric are a natural occurrence, the by-product of an evolving city. These voids do not become problematic until they are so pervasive as to present a risk to the city’s continued health. This is a very real risk for Orlando, whose downtown area is riddled with infrastructural divides and the enormous surface parking lots that large venues require. Physical voids amplify the deteriorating socioeconomic condition of the city center, accelerated by the recent trend towards suburban development that has decentralized the city’s economic base.
Development along Lake Apopka

Government Policy and the Emergence of Void
Don’t confuse a sprawling city for an uncontrolled one. The unique growth patterns of the contemporary American city are not a mutation of some other established tradition of city development; they are the direct result of Federal-level legislation that has occurred in the last century. Florida has been particularly affected, given the legislation’s concurrence with Florida’s initial period of significant growth. In combination, the laws have effectively subsidized an extensive, automobile-based infrastructure and established the single-family home as the primary form of housing in America.
Laying a Legislative Infrastructure

Federal-level legislation establishing a strong infrastructural system of highways and zoning patterns occurred during a key moment in Florida's history, concurrent with the state's early growth period. Legislation also sought to make home ownership more widespread in the middle class, with an emphasis on stand-alone, single-family homes. As a result of these factors, Florida may be more predisposed to sprawling growth patterns than other, longer-established states.

The GI Bill of Rights

Following WWII, the Servicemen's Readjustment Act of 1944, commonly called the GI Bill of Rights, provided for the Federal funding of veterans’ education, as well as granting them access to VA-backed home loans. This bill is understood to have had a positive impact on strengthening America's middle class, which forms a strong economic base for the country's growth.

A System of Interstate Highways

The Federal Aid Highway Act, passed in 1956, established a nation-wide interstate highway system to provide for the defense and economic development of the nation, also cementing the American obsession with the automobile for decades to come.
Expanding Access to the American Dream

Providing motivation for the individual and stability for the society, home and land ownership has been a fundamental tenet of the American way of life forever, and Florida in the mid-20th century was a prospective homeowner’s dream: a temperate, coastal state with a virtually endless supply of land and a low cost of living. Federal legislation during this period also contributed to the state’s housing boom by promoting widespread homeownership and subsidizing affordable housing.

Projected Development

Extrapolation of Florida’s historical and projected growth patterns reveals expanded conurbation around the major cities, resulting in an amalgamation of several urban centers: Jacksonville, Orlando, Tampa, and St. Petersburg. Central to this process is the continued availability of inexpensive, developable land, which provides the economic incentive for less-dense, sprawling growth patterns.
Void Spaces in the Urban Core

In contemporary American cities, such as Orlando, voids are formed when a city grows beyond its original framework, leaving behind a series of spaces that carry the memory of what has been. This can be seen in a residential area whose economic base has been decentralized, or found when the city grows to encompass an undevelopable area, leaving a space of uncharacteristically low density in the urban fabric. Voids can provide a necessary space for density alleviation— a place for the city to breathe— but an overabundance of them can become a barrier to the territory's continued growth.
Looking southwest over Lake Eola

Former Amway Arena parking lot

I-4 Corridor at the new Amway Center

Void Spaces in Orlando, FL
Infrastructural Voids
A large commuting population requires a large transportation infrastructure, and so a series of elevated highways support the city. On ground level, however, they divide the territory and create unusable or undesirable areas.

Downtown Vacancies
According to US census data taken in 2010, vacancy rates in the downtown area range from 10 to 40%, while most of Orlando’s suburban development had lower vacancy rates.
Venue Capacity and Void

Entertainment is a key industry in Orlando, and the city has no shortage of large venues. These large venues attract large crowds, and therefore traffic, but while Disney may be famous for its state-of-the-art transportation systems, the City of Orlando is not. How does the city handle the high-intensity, short-span traffic that arenas and theatres create? In downtown Orlando, just west of I-4, the city has two arenas—one old, one new. Comparing these two venues reveals a significant shift in the city’s approach to high-capacity venues.
New Approach to High-Intensity Venues: Integration versus Isolation

Built in 1989, the Amway Arena was intended to replace the Orange County Convention Center as the city’s premiere venue, thereby bringing economic activity to the downtown area. Since then, however, the surrounding area has suffered from crime, lower property values, increased vacancies, and the physical void left by the arena’s extensive surface parking lots. In 2010, the arena’s successor, the Amway Center, was opened about a mile south of the old arena. The design of the new arena, when contrasted to that of the old arena, reveals a fundamental shift in the city’s approach to high-capacity, high-intensity venues. The new arena is integrated into the city in a neighborhood with a mix of uses and scales, and the use of a parking garage instead of surface parking reduces the space consumed by this necessary function.
Socio-Economic Voids
With the economic core of the city decentralized by sprawling urban development, a socio-economic void has developed in the downtown. Population density decreases in the vicinity of the core, and reforms into a ring of density a “safe” distance from the center. In a sprawling city like Orlando, the automobile has become a prerequisite to social viability, effectively establishing societal “upper” and “lower” classes, which often divide along racial lines.

Decentralized Density
The region considered Orlando’s downtown—the area near the interchange of I-4 and SR-408, is not more densely populated than the surrounding areas. Interestingly, the areas of densest population form a fragmented ring around the city’s downtown.
A Divided Downtown

The racial composition of Orlando is split dramatically along the I-4 corridor. East of I-4, in the downtown core, the population is primarily white, while Paramore Historic District, on the west side of I-4, has a predominantly black population. In the map below, one dot corresponds to 25 people of that ethnic or racial classification, and the distribution illustrates the density void that is at the core of the city.

Property Values in Void Spaces

Land values in the downtown area are high but fall dramatically on the west side of I-4. Large-scale venues buffer Paramore’s residential district from the noisy eyesore that is I-4, but property values are not similarly buffered. This area is riddled with vacant lots and has lower land values than the rest of the downtown area.
Paramore is visually connected to Downtown

Industrial areas create a foreboding streetscape

Social services are prevalent in the area

Existing Adjacencies
On the west side of I-4, in the shadow of Orlando’s downtown towers, many residential parcels in Paramore Historic District are directly adjacent to industrial areas. In some places, commercial lots mediate between the two land uses.

Filling the Gaps with Social Services
At the center of the Paramore Historic District’s residential area, a commercial hub is now riddled with vacancies. Government-run organizations, social services, and religious institutions fill many of the largest gaps in the district’s urban fabric.
COMMENTARY
DOWNTOWNS, PLAZAS & VOIDS

Florida’s cities are large, homogenous, non-directional, almost invisible. They may still have relevance through their strategic location (harbour, street-crossing etc.) but almost none through their physical built. Even inside the city the indifferent highways remains dominant and the actual downtowns are ‘just another highway exit’ characterized by a dense but – outside office-hours – lifeless agglomeration of skyscrapers. Only a closer look reveals the remnants of what seems like a now lost city: train stations, streetcars, historic buildings etc. These relics of an urban heritage are either neglected or touristically exploited for an entertainment culture that seems to be seen today as the only tool to revitalize the city cores. It appears the cities, once strong physical manifestations in an untamed wilderness, have melted into the now ubiquitous urban grid of Florida. The result is an equivalency of city and territory where the city is not an antipode to the surrounding landscape but merely place of higher density within the nonstop service grid of total urbanization.
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Colleen Kruk, Land Resource Department, Southwest Florida Water Management District
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