Oak Tree Road Urban Revitalization Plans

Senior Studio Fall 2012

Rutgers University Department of Landscape Architecture

RUTGERS

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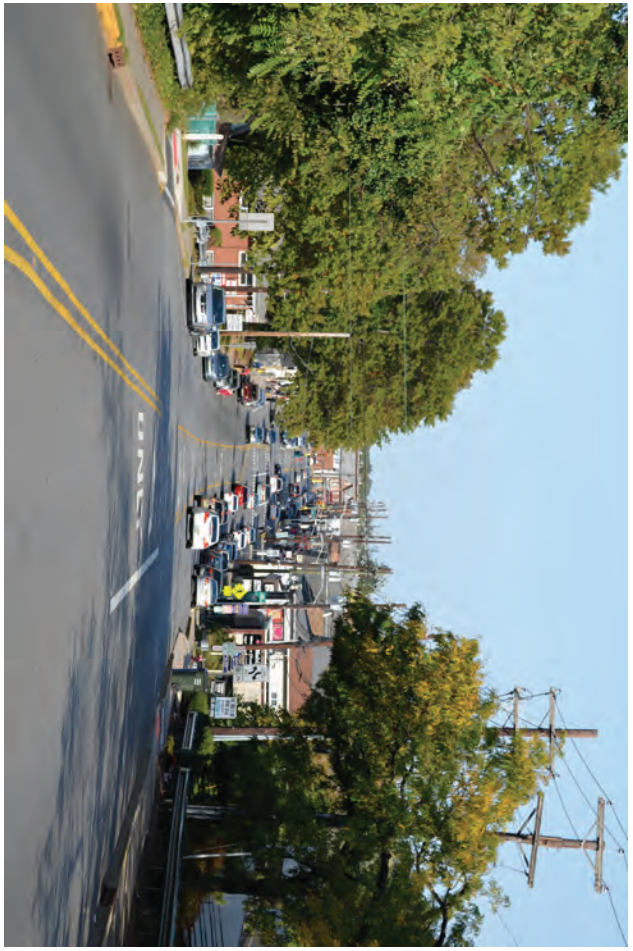
2. Introduction

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OAK TREE RD
HILLCREST AV

2 INTRODUCTION

Wolfram Hoefer

The Oak Tree Road neighborhood of Iselin, Woodbridge Township, has gained attraction as a cultural and commercial destination for New Jersey's South Asian American population. Exquisite Indian restaurants, clothing shops and ethnic grocery stores create a unique atmosphere — buzzing street life in a vibrant community. All this is happening in a residential area that dates back to the 1950's. This creates a burden on the existing infrastructure with respect to parking, pedestrian flow, storm water management, and so forth.

The neighborhood is just across the street from the Metro Park Train Station, a high speed train stop on the North East Corridor, connecting Boston, New York, and Washington D.C. as well as a high frequency commuter train stop providing convenient connection to Manhattan and Newark International Airport. Concerning access, the Garden State Park Way and Route 27 are spatial barriers, hindering a pedestrian and bicycle connection to the train station, however, most shoppers travel by the car. They use the Woodbridge intersection of Garden State Parkway and NJ Turnpike, convenient access to shops and parking is in high demand around Oak Tree Road. Last but not least, there are people living in this neighborhood, although some of the residential buildings show signs of deterioration while others are well taken care of. A thoughtful and sincere investigation of existing conditions will guide the study of potentials for urban revitalization.

The leadership of Woodbridge Township is well aware of the potentials of a vibrant commercial center with unique ethnic character and wants to support the local community; the township is also concerned about the challenges that come with that success. This is where this academic exercise comes into play. The goal of this senior landscape architecture design studio is to support the township's initiatives to develop long term sustainable solutions that find a balance between commercial needs the needs of local residents, and the goals of sustainable development.

These issues guided the work of this semester-long studio. After an initial discussion phase about the values and goals that each of the senior students brought into the class room, the groups were asked to develop criteria for site inventory and analysis. Chapter two documents site context, conditions, opportunities and constraints that were explored by the class.

The students explored possible (and not yet possible) solutions through creative design and by widening the perspective. Though these explorations several issues surfaced in the discussion that would deserve deeper investigations, documented in chapter three. The analysis of the site as well as the broader research topic informed the ongoing design process. The groups of three or four students each developed a concept for urban revitalization. Chapter four shows theses plans along individual open space design that explore some aspects of a possible vibrant community in more detail.

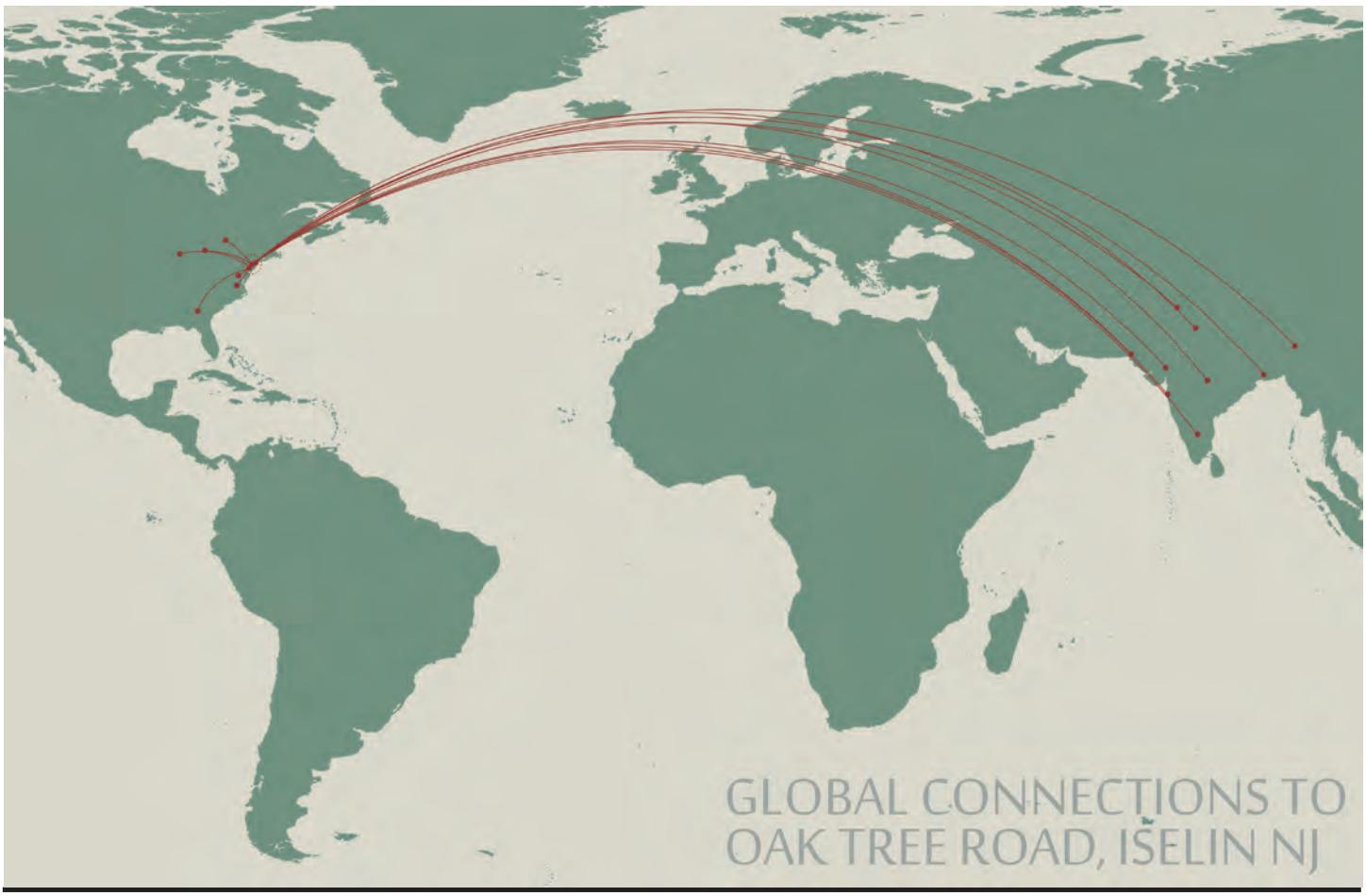
Overall this report documents the student's work as it was produced for the classroom. It was not edited for publication; however, we hope that this report will be a valuable contribution to the ongoing discussion about the future of Oak Tree Road.

We thank the Woodbridge Township as well as members of the local business community for providing valuable information and for active participation in student discussions and reviews.

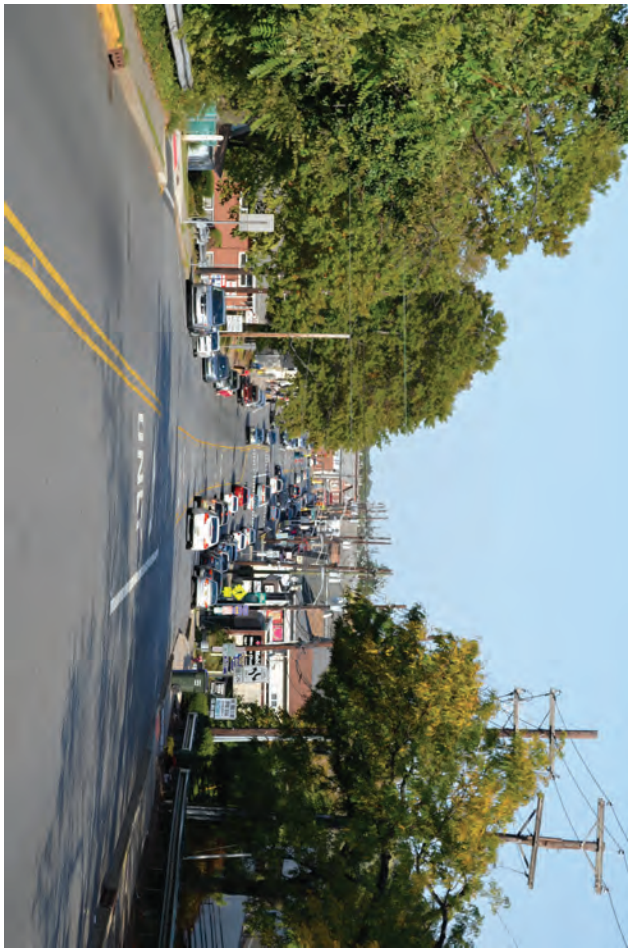
Oak Tree Road in Iselin, New Jersey is widely known within the Indian community. Its name is heard as far away as India itself.

Within the United States, people come to Oak Tree Road from places halfway across the country.

Maps in this page by Ben Granovsky



3. Inventory & Analysis

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3 Inventory and Analysis

3.1 Green/Open Space

Ben Granovsky
Chantae Moore
Frances Turner

The green space classification map (figure 1) defines the green space areas based on land use classifications from GIS data. The categories are: agriculture, cemetery, recreation, wetland, and forest/scrubland. It is important to note that the recreation category includes athletic fields and parks. The classification map is important to understand the existing conditions of the site.

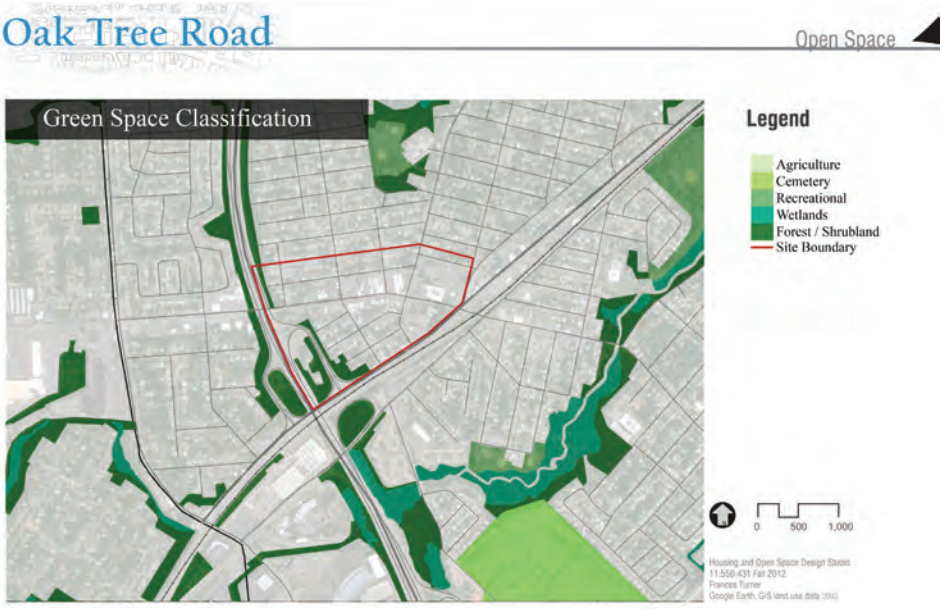


figure 1: Green Space Classification

The ownership map (figure 2) describes who owns the green spaces from the classification map. The categories include town, county, state, private, and unknown. It is important to understand the ownership of the sites because knowing the feasibility of attaining permission to incorporate these open spaces into the design and potentially change or develop them demonstrates an understanding of the multidisciplinary cooperation needed between designers, policy makers, landowners, and others.

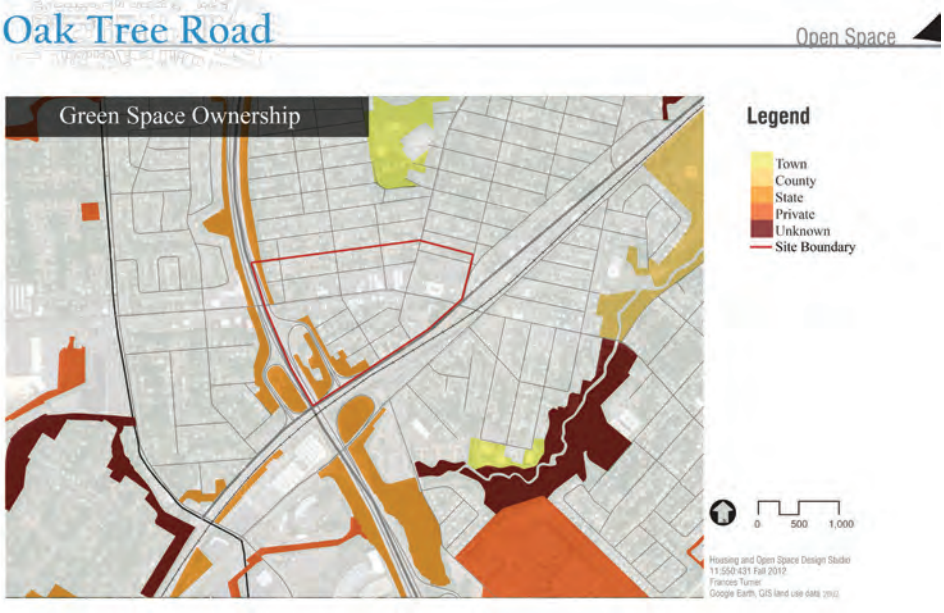


figure 2: Green Space Ownership

The first circulation map (figure 3) shows regional roads and transportation types, indicating that Little India is located along a major road, and

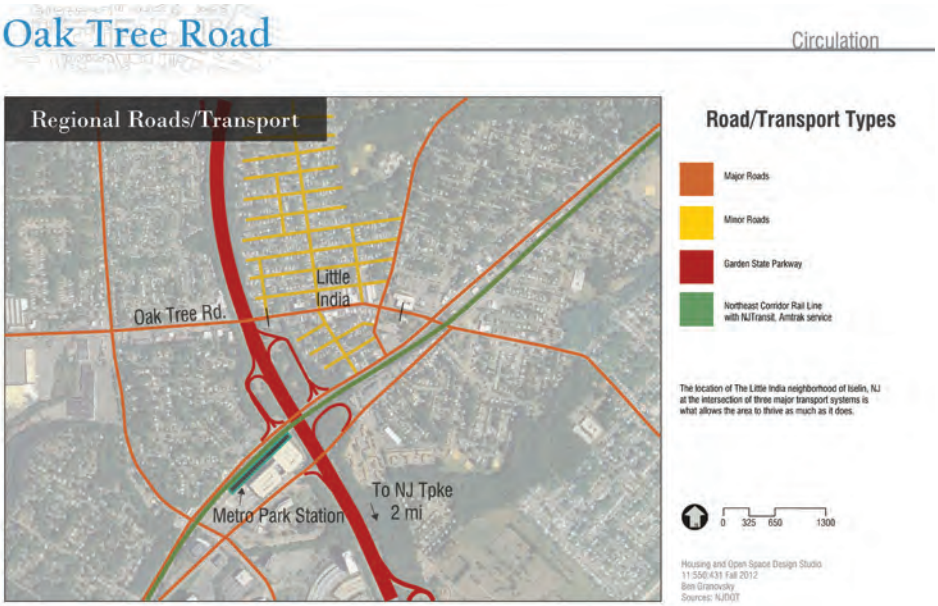


figure 3: Regional Roads/Transport

that it is in close proximity to the Metro Park train station- about a 10 minute walk- despite the Garden State Parkway acting as a physical and sound barrier. It also shows that there are extremely unsafe pedestrian conditions between Little India and the station. The second circulation map (figure 4) shows the direction of traffic flow and indicates dangerous intersections. These intersections were deemed dangerous due to high traffic volumes (especially on weekends) buildings along intersections being very close to

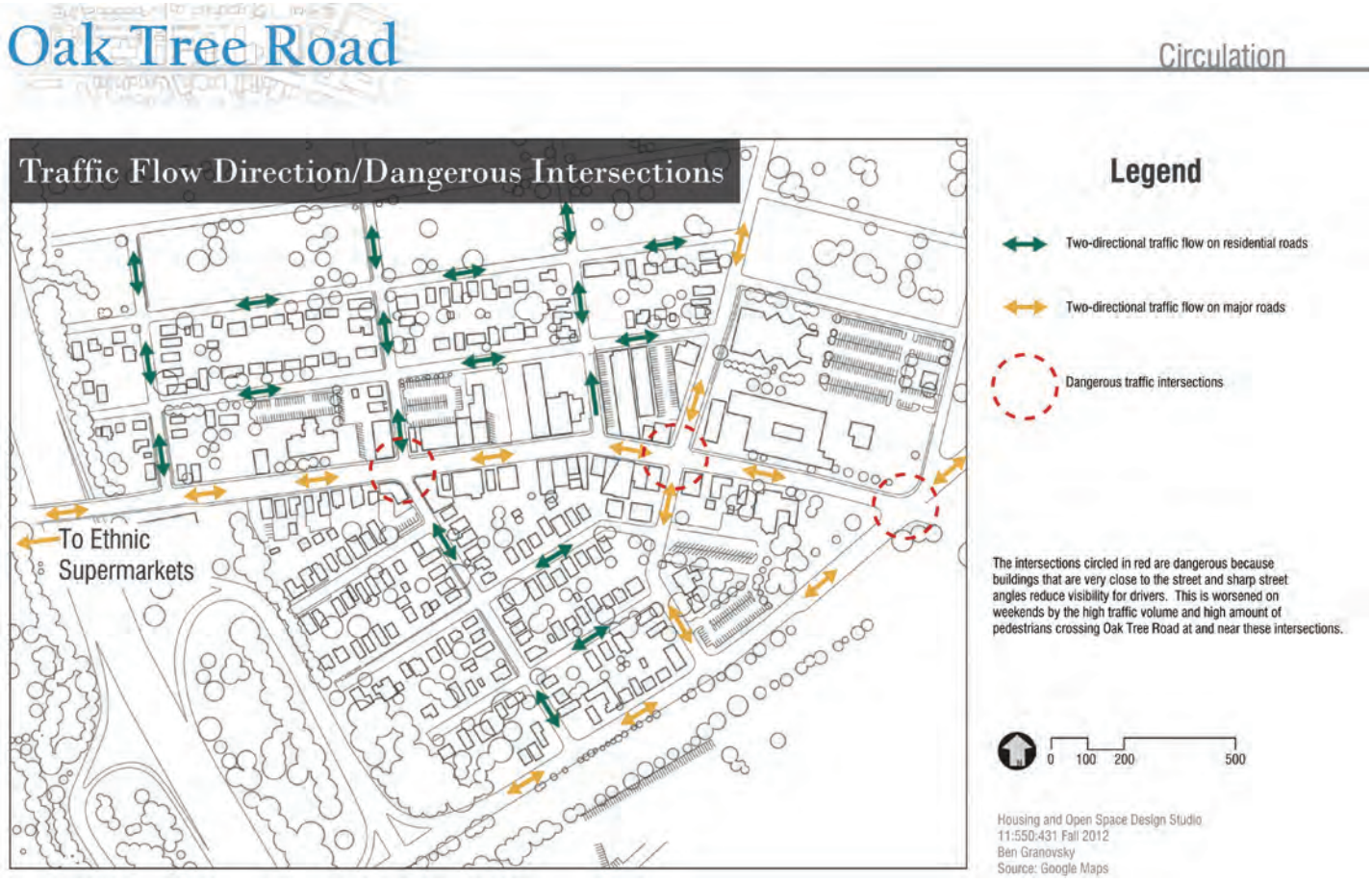


figure 4: Traffic Flow Direction/Dangerous Intersections

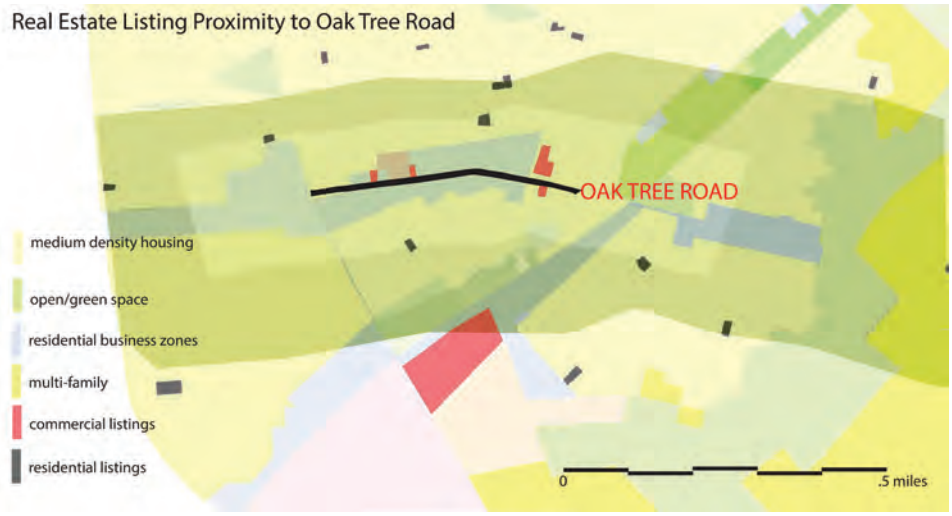


figure 5: Real Estate Map

the street, and sharp roadway angles. These conditions reduce driver visibility, creating unsafe conditions for both drivers and pedestrians. There are crosswalks in place at the road intersections as well as along Oak Tree Road, but jaywalking is prevalent likely due to major businesses flanking both sides of the road along the whole stretch between the Garden State Parkway and Rt. 27.

The real estate inventory and analysis map (figure 5) for the area surrounding Oak Tree Rd. shows current real estate listings for both commercial and residential sites in Iselin. The first map, Real Estate Listings, shows commercial property listings, represented in yellow, and residential in blue. As of late September 2012 there were 8 commercial listings and 27 residential properties. All of the commercial properties listed were along Oak Tree Rd, except for two listings in Metro Park in a corporate plaza.

The properties proximity to Oak Tree Rd. is measured by a buffer, at quarter, half and full mile distances. Commercial listings in close proximity to the corridor would prove to be a prime location for many different types of redevelopment and reinvestment. While the buffer of residential homes to Oak Tree road, presents opportunity for community growth as well as possible locations green spaces. In order for redevelopment to occur investors and community members must see potential in the type of development as well as financial and social benefits. Prices of property have a large impact on the feasibility of future uses.

3 Inventory and Analysis

3.2 Environmental Outlook

Justin Acal
Russell Sewekow
Janine St Jacques

Inventory

There were a total of eight maps for our environmental inventory. Key features included existing trees, materials, soil, watershed, contours, and contaminated sites. The first inventory map, canopy coverage, verified trees on the base map and compares the canopy coverage to the total area of the site. The second map examines the tree species at the site and categorizes them based on species, maturity, and location. The materials map essentially compares impervious land area (roads, sidewalks, parking lots, and buildings) to pervious land area (residential gardens and lawns, grass strips, and trees). The soil map shows the extent native soil, which is minimal, and the overwhelming amount of altered urban complex soil. The watershed map displays which watershed the site is located in and stream corridors closest to Oak Tree Road. Contours on the base plan show elevation changes. Finally, the contaminated and possible contaminated sites illustrate critical areas where pollutants could be spread from.

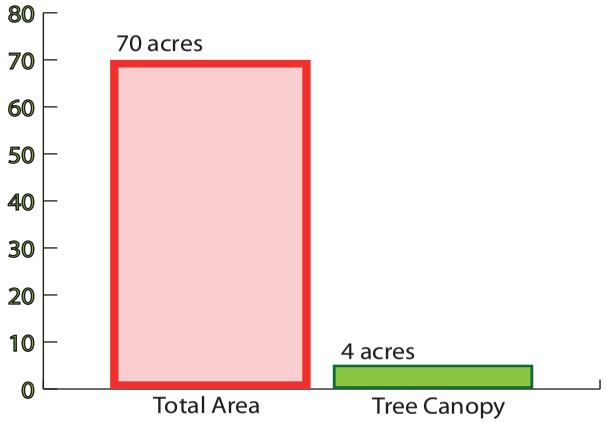
The majority of the information was gathered through site visits, aerials, and GIS data from the NJ Department of Environmental Protection, Soil Survey Geographic Database, Office of Information Resources management, and Bureau of Geographic Information and Analysis.

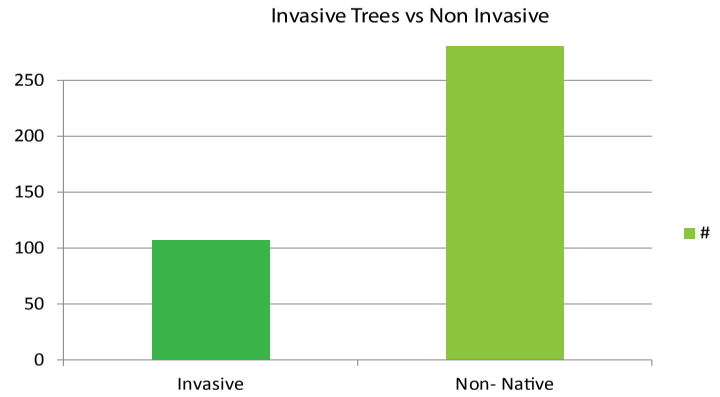
Analysis

One very important topic covered by our analytical map examines where the runoff exits the site and where it ends up. In order to determine this, storm drains were located and the contours were analyzed to see in which direction the water would flow. Naturally water flows from areas of higher elevations to low points. These low points are key areas for implementing storm water management. Areas that would normally be flooded may be remediated in the design by swales, catchment systems, and increased plantings. By also taking contaminated sites into account, a design can address the best ways on preventing or filtering contaminants from exiting the site.

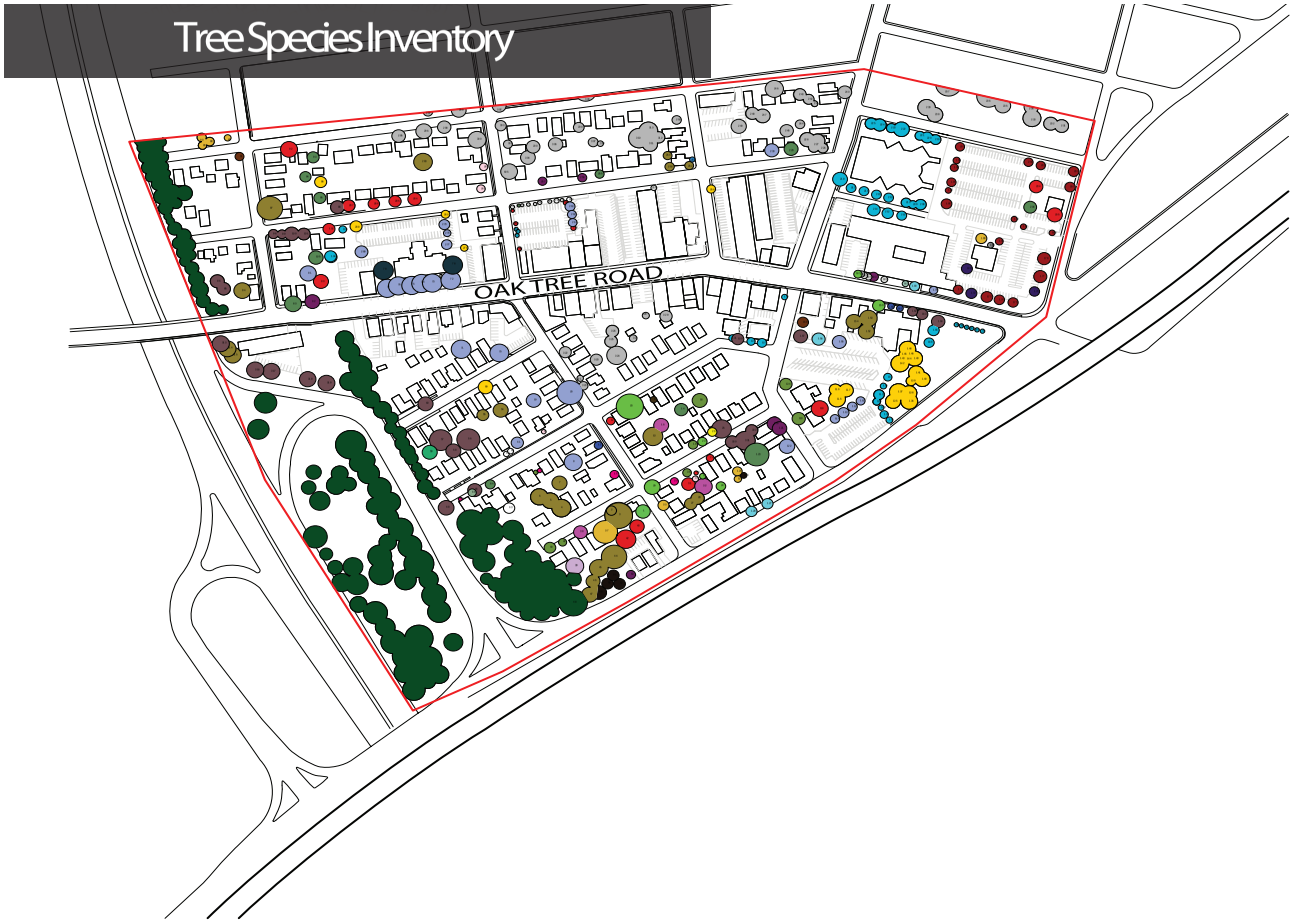
When the pervious materials and impervious materials maps are combined, the resulting map shows areas prone to Heat Island effect. Expanses without plant matter such as trees, both absorb and reflect heat with no means of thermoregulation. These areas would benefit from large canopy trees, other plantings, and other means of remediating Heat Island effect.

Finally, habitat viability was analyzed. In order to determine this, the soils map, existing trees, and stream corridor maps were examined. The best areas for extending green corridors are those with non-urban soil that connect existing communities of trees and the stream corridors.





Tree Species Inventory



- Blue Atlas Cedar
- Weeping Birch
- Eastern Hemlock
- Norway Spruce
- Catalpa
- Honey Locust
- Colorado Spruce
- Southern Magnolia
- Red Oak
- Red Maple
- Flowering Dogwood
- Norway Maple
- Mixed Woodland -
  - Red Oak
  - Black Locust
  - Red Maple
  - Norway Maple
  - Tree of Heaven
  - Birch
  - Ash
  - Wild Cherry Species
  - Mulberry
- Little Leaf Linden
- English Elm
- Japanese Maple
- Currently N/A
- White Pine
- London Plane
- Sweet Gum
- Wild Cherry Species
- Green Ash
- Ornamental Pear
- Ornamental Cherry
- Pin Oak

Housing and Open Space Design Studio
11:550:431 Fall 2012
Justin Acal - Janine St. Jacques - Russell Sewekow
Source - Class Basemap - Identified & Located by Class

Department of Landscape Architecture

A lot can be told about a site based on the information that can be gathered about the flora that is existent. As a team, our class has gathered information on most of the trees within our site boundaries in Iselin. Each tree was analyzed by its maturity as well as impact on the environment. A non-native invasive species is any introduced species that exemplifies intense vigorous growth and causes harm to indigenous ecosystem services. These plants are likely to spread and become “weedy” species. As seen in the graph to the right, many invasive species make up the little canopy cover that exists. The most prominent canopy cover surrounding the ramps of the Garden State Parkway consumes one of the largest portions of the existent non-native invasive species and would be a good site for ecological restoration and expansion.

Urban heat island effect is also another concern having to do with existent canopy cover and impervious surface cover. Impervious surfaces are those that deflect water from it and also absorb the heat of the sun. Examples of these surfaces include roads, sidewalks, and rooftops. The problem that arises when there is a large amount of impervious surfaces and a small amount of canopy cover is the urban heat island effect. This effect causes the warming of a microclimate in a city or suburb, greatly reducing the quality of life in these areas. Other problems with large amounts of impervious surface are flash flooding and other problems with runoff and stormwater management.

Impervious Surface Inventory

% Impervious Surfaces

Low amount of Impervious Surface

High amount of Impervious Surface

0 100 200 500

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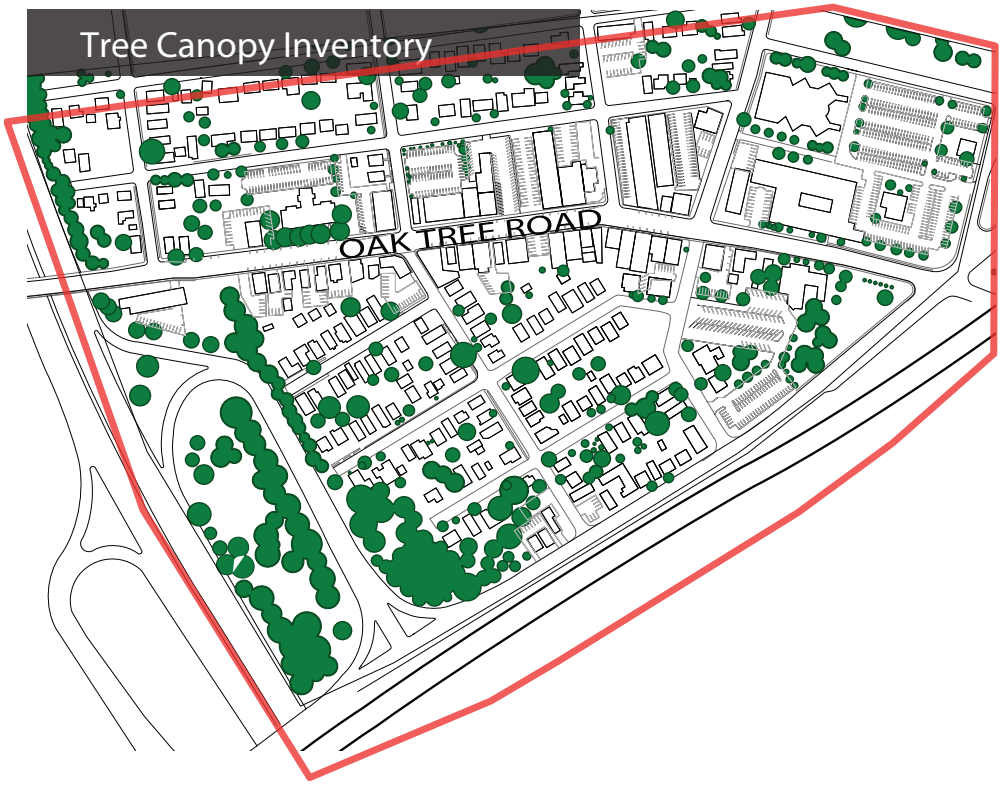
Justin Acal - Janine St. Jacques - Russell Sewekow
Sources - NJ LandUse Data - Class Basemap

Oak Tree Road

Tree Canopy Inventory



Tree Canopy

0 100 200 500

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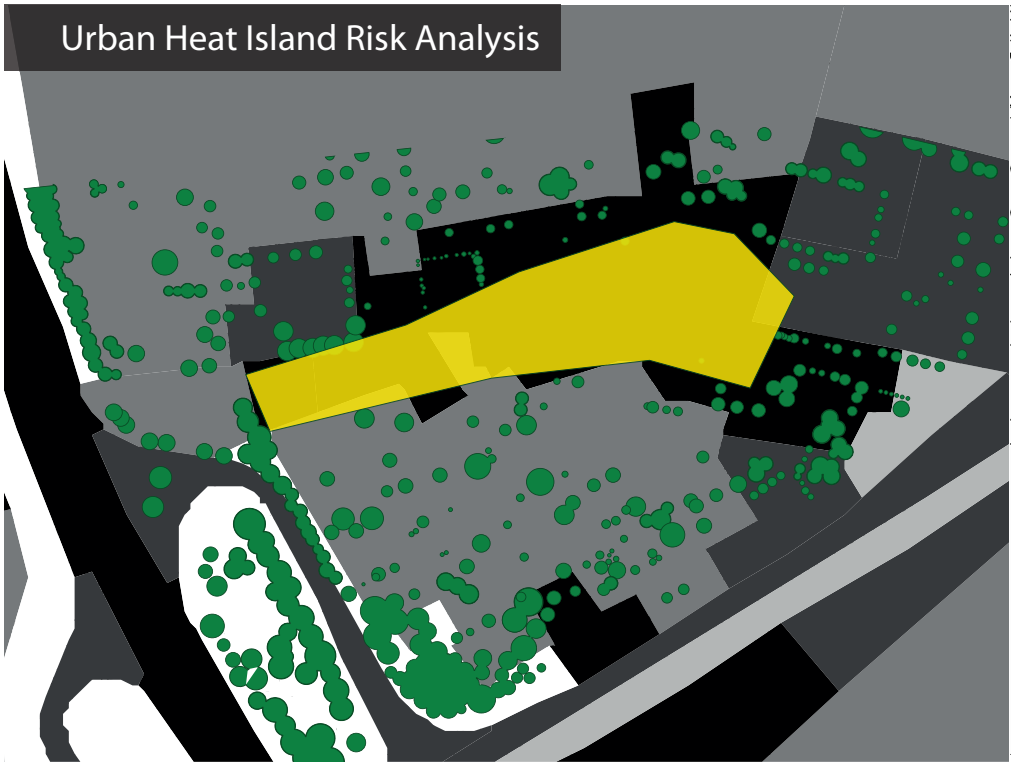
Justin Acal - Janine St. Jacques - Russell Sewekow
Source - Class Basemap - Identified and Located by Class

Oak Tree Road

Environmental Outlook

Urban Heat Island Risk Analysis



% Impervious Surfaces

Low amount of Impervious Surface

High amount of Impervious Surface

Tree Canopy

Largest Potential of urban heat island threat

0 100 200 500

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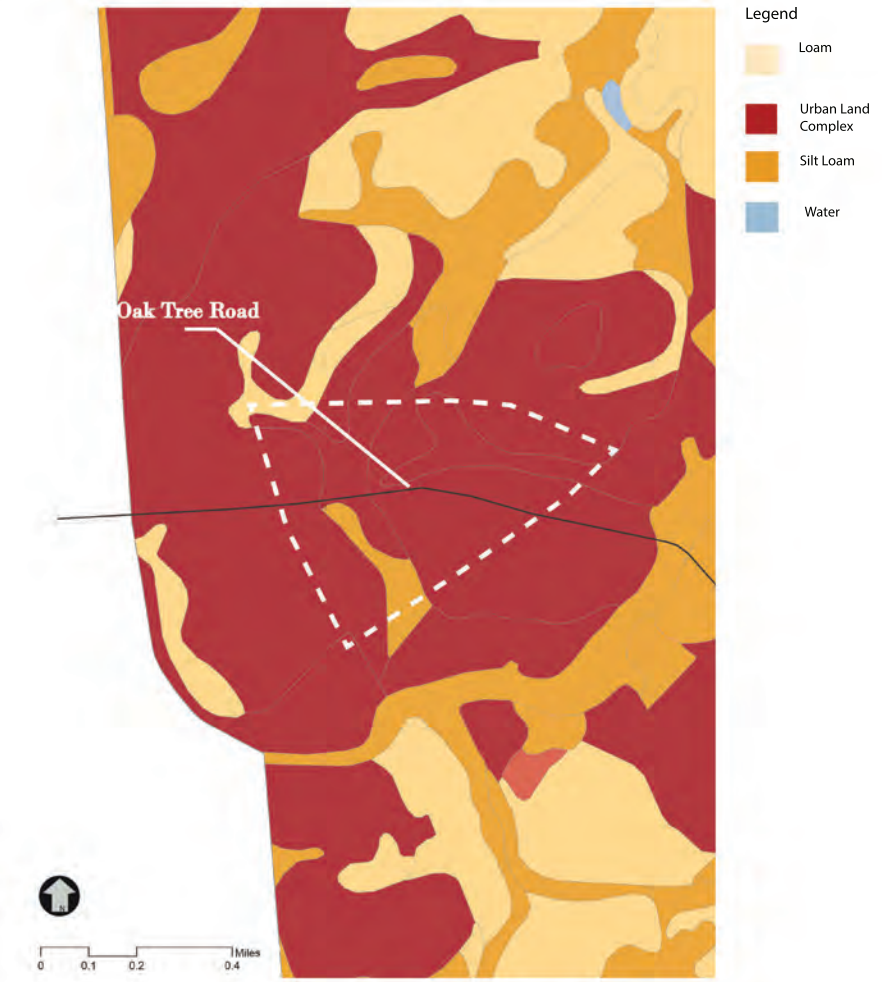
11:550:431 Fall 2012
Justin Acal - Janine St. Jacques - Russell Sewekow
Sources - NJ LandUse Data - Class Basemap

Oak Tree Road

Environmental Outlook

Soils: Inventory



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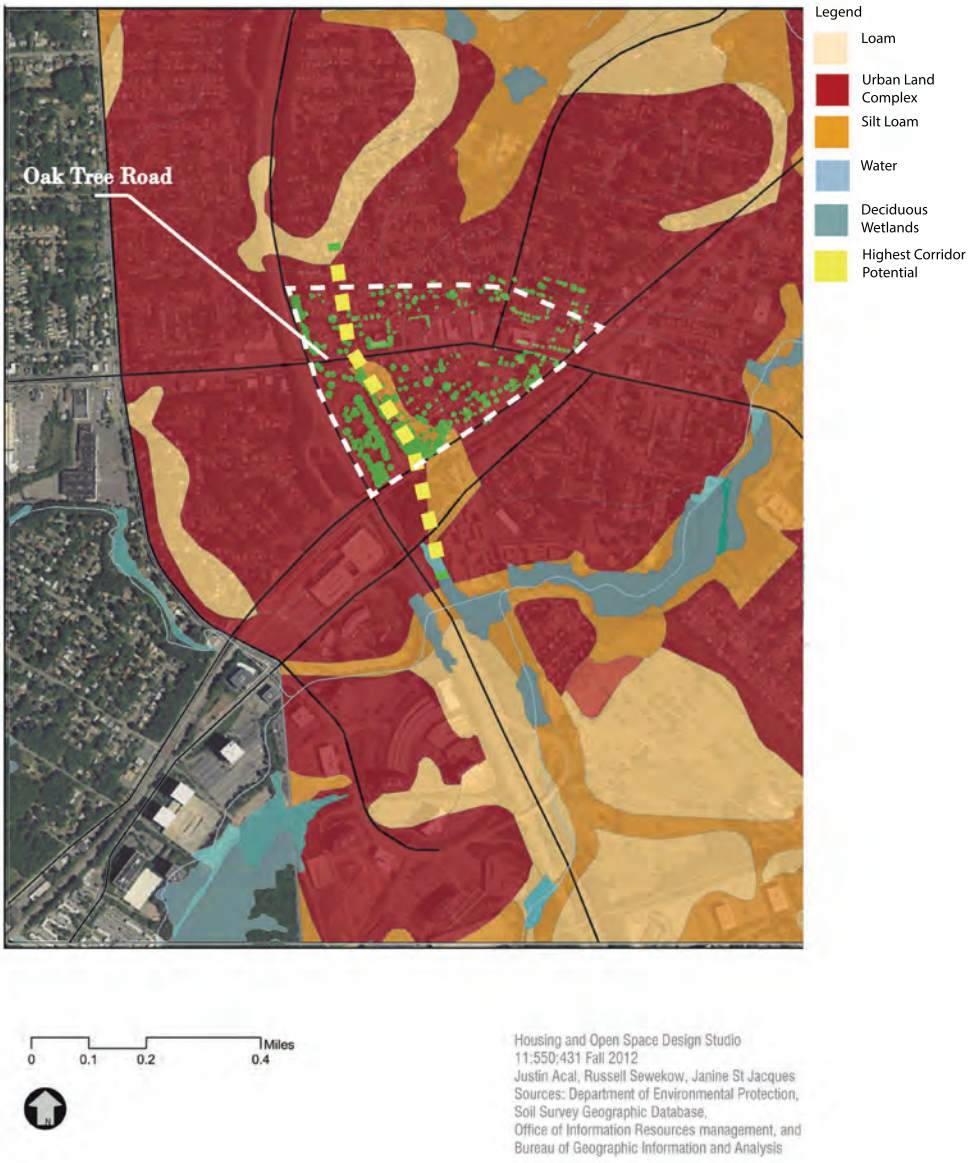
11:550:431 Fall 2012
Justin Acal, Russell Sewekow, Janine St Jacques
Source: Soil Survey Geographic (SSURGO)

In the soils inventory, one can see the general types of soil located in the vicinity of Oak Tree Road. The overwhelming majority is urban land complex, which essentially means disturbed urban soil. The other two notable types that are common in the area are loam and silt loam, both of which are preferable for sustaining plant life.

Oak Tree Road

Environmental Outlook

Environmental Viability: Analysis



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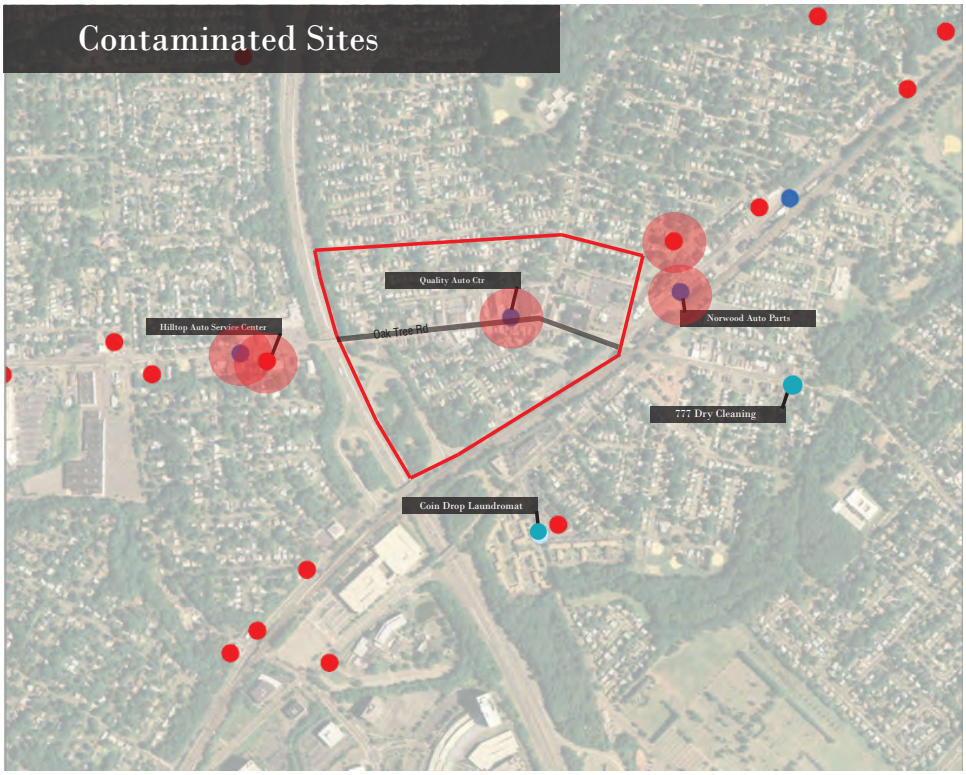
11:550:431 Fall 2012
Justin Acal, Russell Sewekow, Janine St Jacques
Sources: Department of Environmental Protection,
Soil Survey Geographic Database,
Office of Information Resources management, and
Bureau of Geographic Information and Analysis

The soils analysis displays the information from the soils inventory with the non-disturbed soils in the yellow and tan color. Water sources like streams and wetlands are also visible in the blue tones. The green circles are representative of the existing canopy on the site. By overlaying the information, one can visually ascertain where the areas for the highest ecological corridor potential are. On the southwest section of the site is distinct area with silt loam, a higher proportion of canopy, and a proximity to undisturbed soil to the north and south. The area to the south also happens to be part of a stream corridor. The yellow dashed line indicates where the area of highest environmental viability is located.

Oak Tree Road



Legend

- Possible Air Pollution
- Possible Runoff Pollution
- Kown Contaminated Sites

0 25 50

Housing and Open Space Design Studio
11:550:431 Fall 2012
Name: Justin Acal, Russell Sewekow, Janine St. Jacques
Source: NJDEP 2008

When conducting inventory for a site one most take into account the known contaminated sites surrounding the area. This is especially true for a site in New Jersey, which has one of the highest numbers of known contaminated sites nationwide. Oak Tree Rd in Iselin doesnt have any known contaminated sites within a 5 block radius. But, taking into account the possiblities over car and air pollution, the auto body shop, “Quality Auto Center” on the corner of Oak Tree Rd and Marconi Ave is possibility of being one.

The next step in environmental inventory is to look at Oak Tree Rds slope and water runoff circulation. When looking out the contours on the main road you will see that the road drops slowly at a consistant rate from the Garden State Parkway overpass. When the road reaches Marconi Ave. the road becomes much steeper, dropping 11 feet over a one block span, before it meets with route 27.

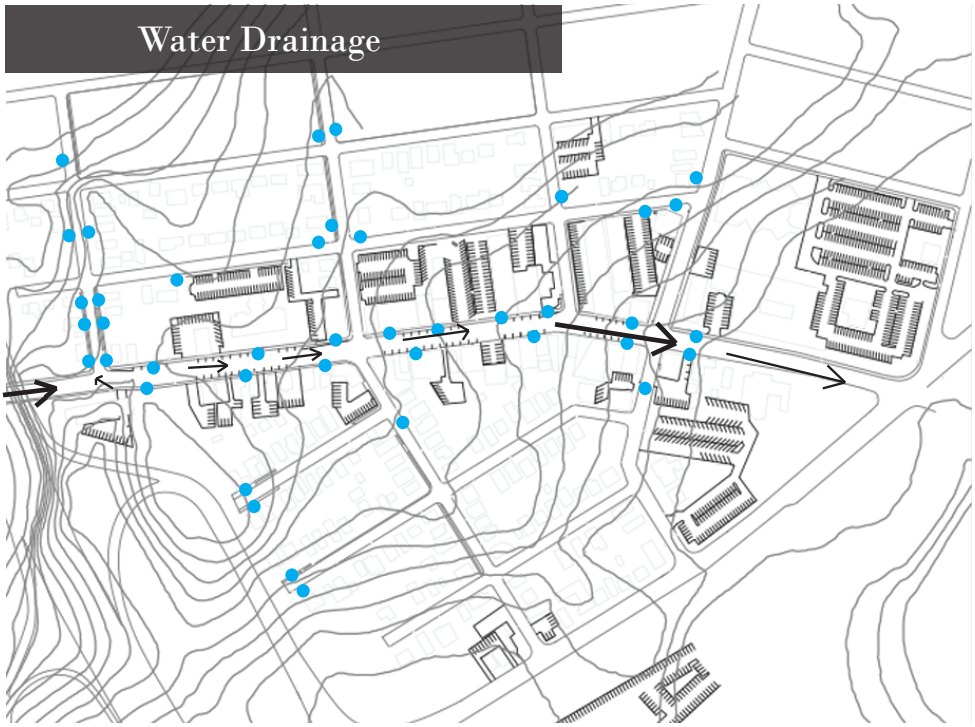
This creates a problem in Water Runoff where the water is then coming down and meeting at the corner of Oak Tree Rd and 27. Through other analysis one can see that water runs off the main street, Oak Tree Rd, and onto the side streets creating possible problems in flooding.

Oak Tree Rd Contours

Oak Tree Road

Environmental Outlook Inventory

Water Drainage



Legend

- Drains
- Runoff Direction

0 100 200 500

Housing and Open Space Design Studio
11:550:431 Fall 2012
Name: Justin Acal, Russell Sewekow, Janine St. Jacques
Source: NJDEP 2008

3. Inventory and Analysis

3.3 Circulation

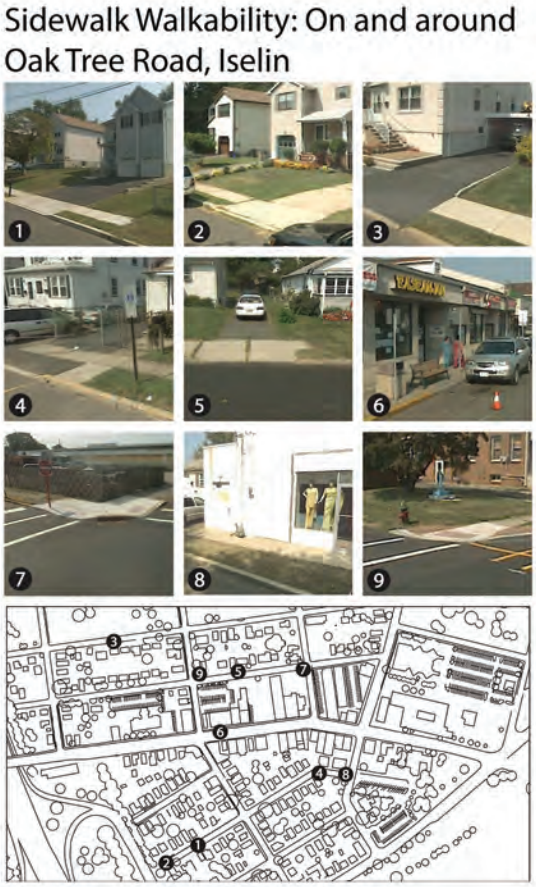
Josh Didriksen
John Ireland
Crystal Ana Vega

Method

We began our inventory by walking around the site and gathering every piece of information we felt was relative to our topic and could possibly be useful to us in the design process. Each part of our inventory took a bit of a different approach in order to gather the necessary information. After gathering some general points about the site we had a meeting about what information we had collected and what specific things we would need more of in order to have a well-nourished inventory of the site. In order to assess the walkability and accessibly of the shops of our study area of Oak Tree Road and its surroundings we set out to document where there were and were not sidewalks. We used a few sources for the mapping of the sidewalks or lack of sidewalks. We first looked at aerial images of the area to see where it seemed to have no sidewalks by way of Google Earth. However, in order to insure the accuracy of the information we went through site photos that we had acquired. Another helpful tool was the smaller inventories that our classmates did in order to acquire accurate information about a number of things that we needed in order to produce various maps. Lastly, we made multiple trips to Oak Tree Road to make sure the map we had created was accurate. Once we ensured that the information that we had was accurate we compiled it and made the map that shows in red where sidewalks do not exist. Its simplicity was important so that anybody looking at it could quickly understand what he or she was looking at. For aesthetics we recorded the placement of the following; utility poles, light poles, garbage cans, benches, and storm drains. We did this by walking around the site and locating each on a map. We then created a map from the inventory that we gathered again with color coordinated dots that signified what was located there. For the public transit inventory we took note of the bus stops we saw on Oak Tree Road then also used NJ Transit's website to find the schedules and stops of the bus routes that serviced these stops. The map that we created showed the parts of the bus routes that ran through Oak Tree Road and the stops that were located in the area. The colors on the map correspond to which route it is. There is also a brief summary of the service that each bus route provides.

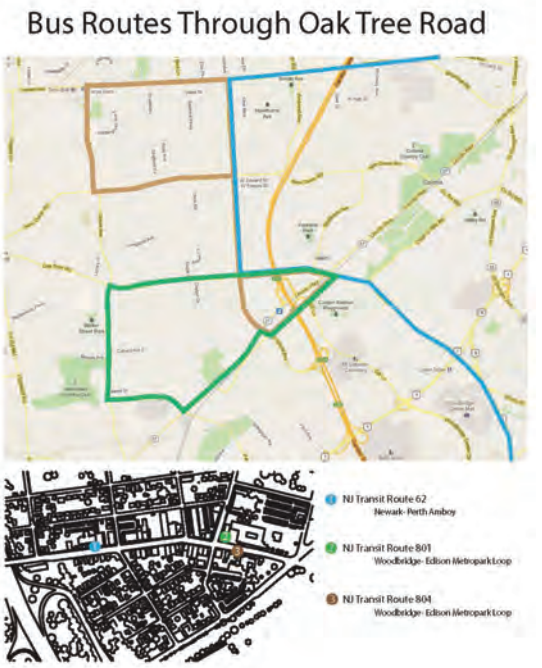
Analysis

When our group, inventory group B5, first walked the site we were assigned walkability and aesthetics as areas to focus on as we gathered information. When measuring walkability, we surmised that one is really measuring proximity to sidewalks, proximity to parking, and levels of pedestrian traffic. We went to work measuring these things on site and the Walkability Analysis is the last part of this process. Using the Walkability Analysis we started to compile a list of site elements that we could rearrange in a more efficient and more intelligent way. First we looked at on street seating, an important



B5 Inventory Groups's Inventory and Analysis

element in creating a sense of place in the streetscape. Oak Tree Road has only five benches currently, so we proposed to add more in the walkable areas of Oak Tree Road and the surrounding auxiliary streets. In Iselin, when someone buys a house they can choose whether or not to have a sidewalk in front of their house. Years of this practice has created a landscape of fragmentation and disconnection around the highly pedestrian friendly Oak Tree Road. We proposed a series of sidewalk repairs and installations that should connect the rest of the site to the main strip.



3 Inventory and Analysis

3.4 Parking

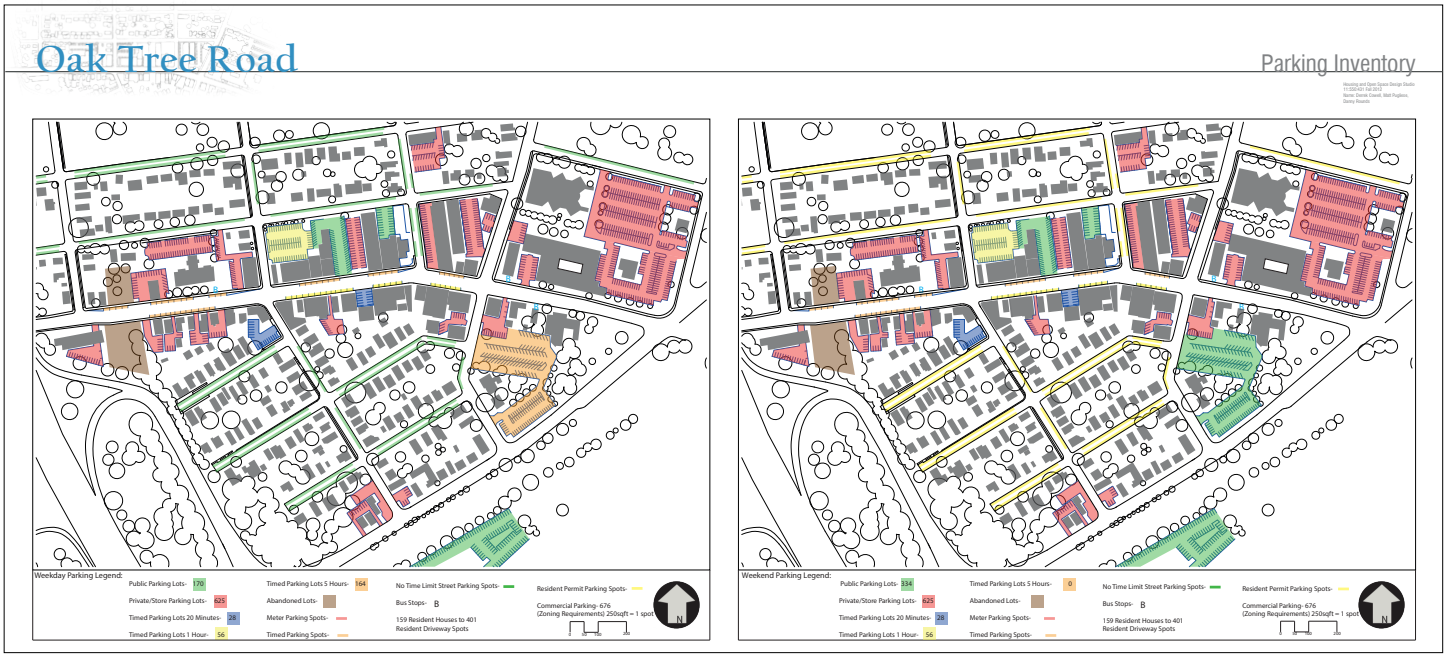
Derrek Cowell
Matthew Pugliese
Danny Rounds

Method

We began first by trying to develop a type of layout to fit both inventory and analysis on one large board. After a short office meeting and a group discussion we pushed more towards creating two separate large boards, one containing inventory and the other containing analysis. The first board with inventory we decided it was very important to show both weekday parking and weekend parking, so we produced two separate maps on the first board one for weekday and the other weekend. Now that we had our board layout set and the two different maps that would be shown, we continued on to the actual parking inventory we would show on these maps. We started with the obvious, meter parking spots, street parking spots, and parking lots. When trying to fit the site parking into these topics we realized they were too vague and we needed to expand. We then came up with a larger group of more specific parking types we would show. Parking inventory included public parking lots, private/store parking lots, 20 minute parking lots, 1 hour parking lots, 5 hour parking lots, abandoned lots, meter parking spots, timed parking spots, no time limit parking spots, resident permit street parking, resident driveway parking, and bus stops. The inventory would be shown for all of these types for both weekday parking and weekend parking. Having our Inventory board down we then moved onto our analysis board. The layout for the analysis is the same for inventory but of course would show different information. In order to analyze the parking we decided to do a minimum parking plan and a maximum parking plan. Showing this would be the same as inventory but highlighting our minimum and maximum changes.

Analysis

Weekend parking is the biggest problem in Iselin due to a lack of available parking spots to the visitors. These two maps show how the parking situation can be dealt with in a variety of ways. On the Minimum Parking map, the parking has been either removed or set back from oak tree road so that Oak Tree Road itself can take on a new, more inviting atmosphere. With the reduction of parking here, the building on Oak Tree Road can be set back from the street, making more room for pedestrian circulation and space for pocket parks to be enjoyed by the customers. The majority of parking would lie north of Oak tree Road with the entrances on the stemming from the secondary road to provide better circulation through the center of town. These parking lots would also be turned to public lots to maximize the use of them because most families that visit are here to shop in many stores, and not just one specific store. Also, by changing parking on Oak Street Road to metered parking, it will free up the street without taking away spots.
To maximize parking availability, most lots directly off of Oak Tree Road can be turned to public lots so people do not feel deterred from using them. The parking on Oak Tree Road would remain the same but parking for the public would also leak out into



the streets surrounding Oak Tree Road to increase parking for visitors while still preserving residential parking to a point. New parking would be added to current abandoned lots to really maximize the space for parking. Along with this, the northeast corner of Iselin, where the Church and Catholic school are located, would be converted to just parking lot and a parking garage that would accommodate a vast amount of visitors. The state of these existing structures are either for sale or soon to be so buying these and converting them could be a great use for the resources available.

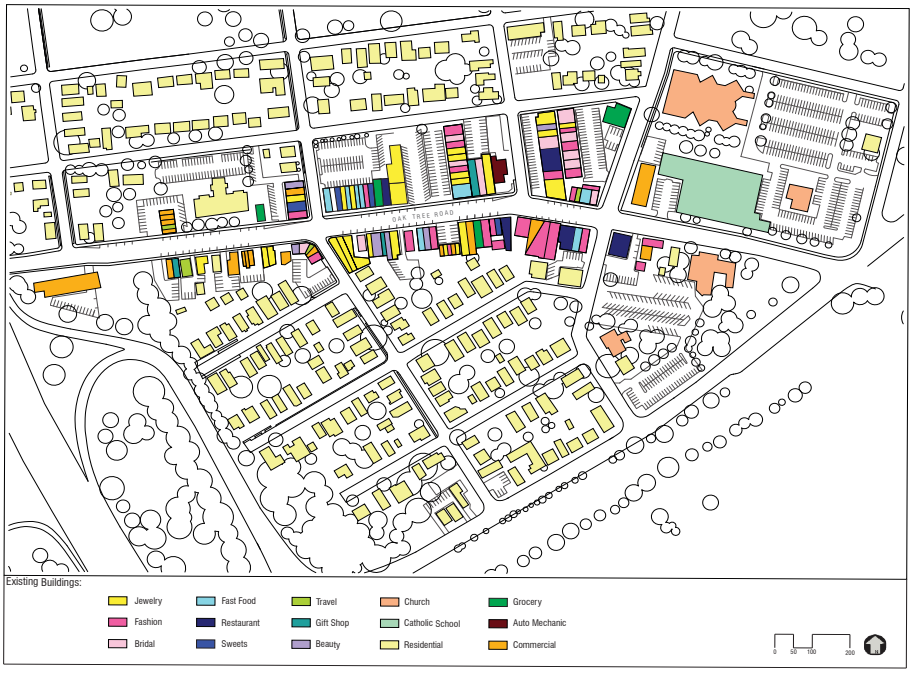
3 Inventory and Analysis

3.5 Housing

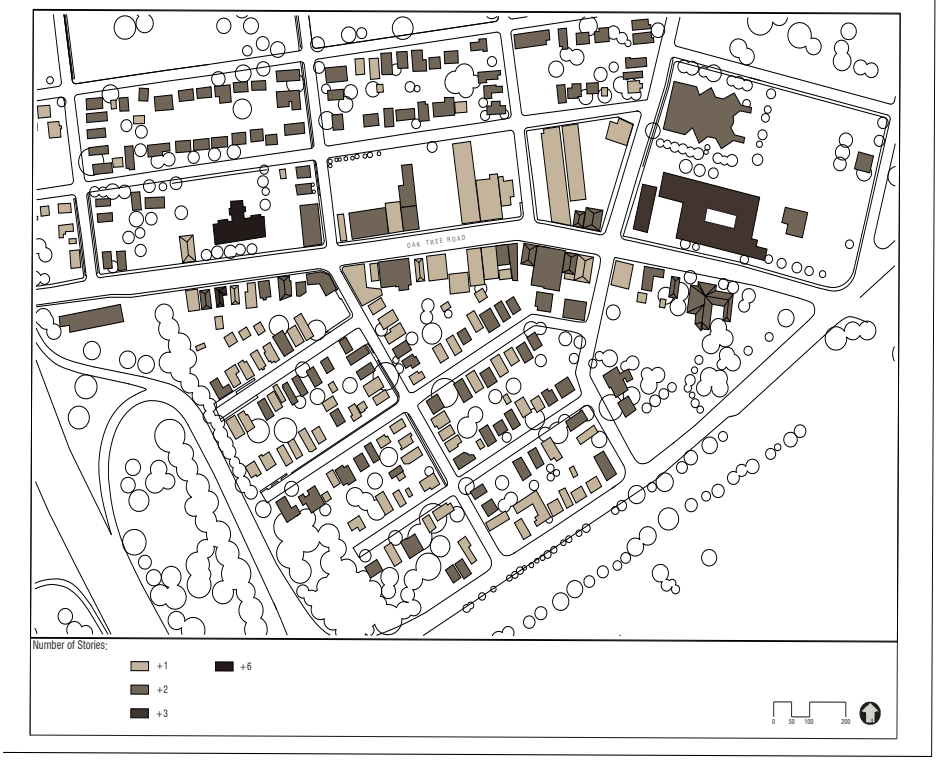
Alexandra Bolinder-Gibsand
Maria Torres

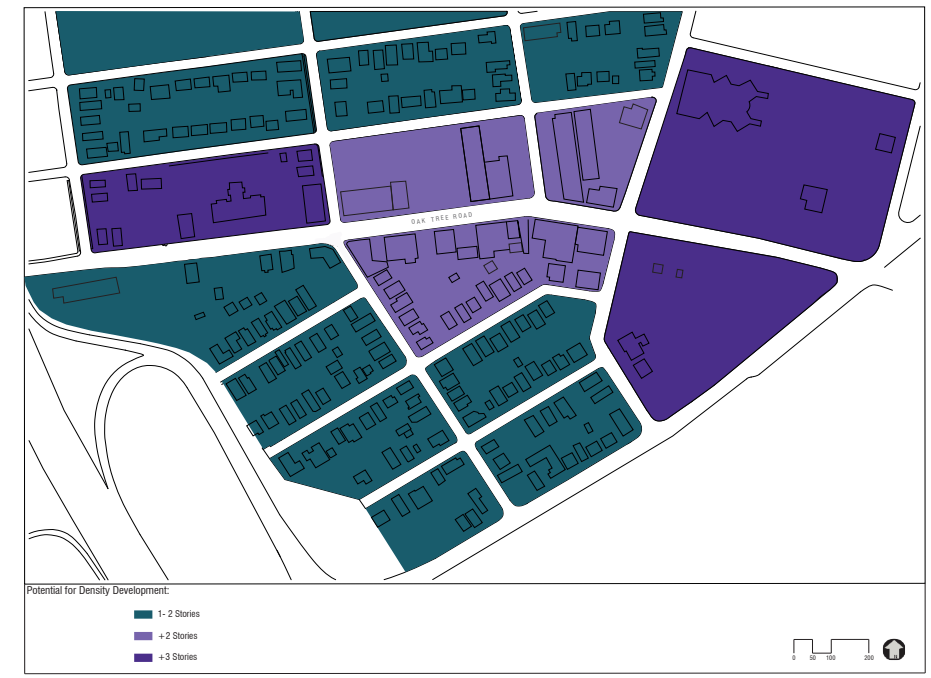
The existing buildings diagram shows specific uses along the commercial corridor. Oak Tree Road is a strip of a variety of uses attracting people to shop every weekend. Currently, the most common building uses are restaurants and clothing shops. The existing buildings along the commercial corridor maintain similar qualities in basic appearance; flat roofs, one story buildings, large signage. Only a select few buildings have two or more stories. The one story buildings along the commercial road give Oak Tree Road a strip mall facade. The signage is out of scale with pedestrian users and diminishes the sidewalk shop appeal of this urban streetscape. The only housing unit that holds more than three stories is the Cooper Build on the West end of Oak Tree Road. Most residences in the area are one story high. According to a local, new zoning allowed newer homes to be built with 2 stories.The one-story flat roof buildings along Oak Tree Road create an unpleasant strip mall facade. Along with building uses, housing units are also observed by the number of families per housing unit. Census 2000 shows data that there

are around 2 people families per house, however based on some of the cultural knowledge these numbers are most likely higher considering the number of generations living per household. Housing inventory estimates a mixed used of owner occupying resident versus non-owner occupied.



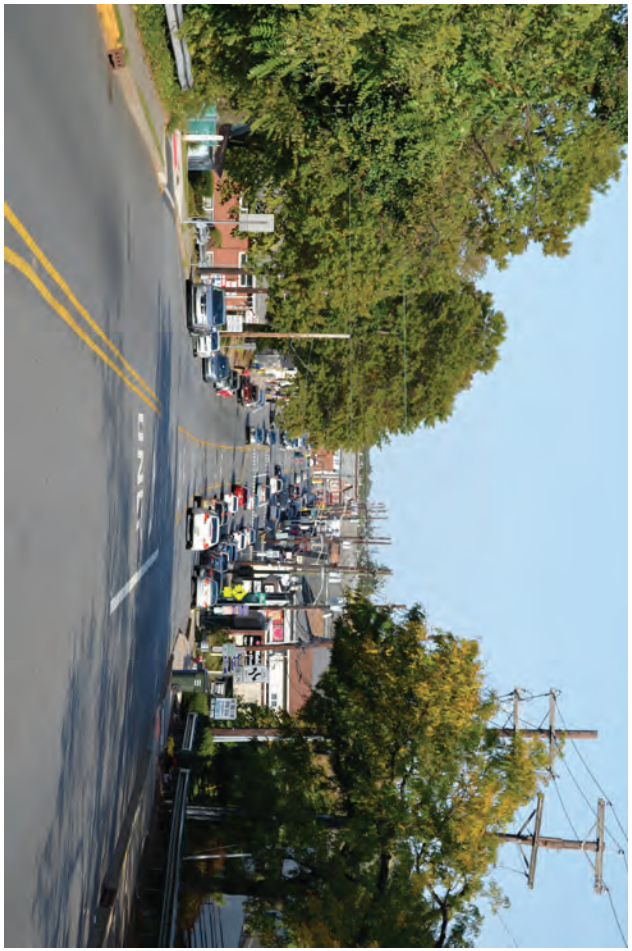
Oak tree road has potential for diverse housing opportunities along its business district corridor. This means housing units can change along Oak Tree Road to give the area the downtown clean appearance. The diagram shows the blocks most suitable for building unit changes for a matter of ten years. The main motive to change this area is to create a minimum of three story buildings at the entrance of Oak Tree Road near the train station to provide nearby housing to a transit area, but also renovating this area to provide a better entrance to Oak Tree Road. The building landmarks and shops will remain; however, some buildings can change in phases. The main heart of Oak Tree Road shopping can be redeveloped during the first phase. The first phase would include façade facelifts and potential construction of additional housing, based on need, by one or two (1-2) floors to existing one story buildings; no building in this area should exceed 3 stories. The East and the West blocks at each end entering Oak Tree Road could be redeveloped to provide multifamily units three or more (+3) stories high to





accommodate further housing needs in phase two. A pedestrian access to the Train Station would provide a better gateway for customers during weekdays, but also to accommodate additional parking for weekend shoppers. The existing residences in the surrounding neighborhoods will remain the same.The figure ground diagram analyzes the current building density within the site. The current density shows evenly distributed housing along the neighborhood. However, there is slight more concentration along Oak Tree Road. The distribution of housing density shows an unsustainable housing area. However, the housing distribution along the commercial district shows potential for better design solutions because of the slight higher density.

4. Special Research Topics




1422 COOPER TOWERS


PHONE CARDS
PHONE CARDS


OAK TREE RD
HILLCREST AV

4 Special Resarch Topics

4.1 Connecting Business Hubs and Residential Areas

Derrek Cowell

Iselin, NJ has a thriving business community that is aimed for Asian-Indians that come from all over the world to shop at. People in India know of this east coast wonder and have relatives that live there. This is a wonderful place to live and raise a family but there isn't enough housing to hold the demand of people waiting on lists to move in. One reason this is happening is urban sprawl. This is simply the uncontrolled expansion of these urban areas that are car dependent to do anything. The suburbs are the prime example of urban sprawl because they are far from the cities and take up two times the amount of area for a neighborhood compared to the urban areas. People separate homes and jobs creating congested roads, unnecessary use of fossil fuel commuting back and forth, and a waist of their time sitting in cars. Everyone wants their own backyards and cars, but Iselin is 10 minutes from Metropark Train Station which connects major cities on the east coast which host millions of job opportunities. How can this problem of urban sprawl be fixed by connect business hubs with residential areas? One solution is new urbanism. This is an urban design movement, which promotes walkable neighborhoods that contain a range of housing and job types. The goal for these neighborhoods is to reduce the dependence of the car and create more housing within a five to ten minute walk from the commercial area.

Image 5

By connecting business and housing it takes people out of their cars and onto the sidewalks. Now that they are right where we want them we should look into the key factors to a successful new urbanism neighborhood. We will start off with walkablity as one of the most important factors when trying to achieve a successful connection. This means that no resident living the immediate area should need a car to go anywhere in the community. It shouldn't take any longer than ten minutes to travel from your house to the store, school, post office, movies, bank, and so on. In order for a neighborhood to attain a walkable city is to invest in sidewalks and narrow streets. Jeff Specks, a co-author of *The Smart Growth Manual* states, "If a vital city has street life, how do you get people to walk?" (Speck and Duany). When looking at this question we want to keep a few things in mind. There has to be a reason to walk and a balance throughout the site. This insists that the circulation should connect to the major anchors whether it is a park, main shopping area, train stations, or whatever it might be. By connecting these anchors, pedestrians have a purpose to travel along the sidewalks you created. It is important to make these walks safe and comfortable so people will not feel threaten for their life on the way to work. This is done by separating the vehicular traffic and the pedestrian traffic. Some ways to do this is a row of trees along the sidewalk to create a safe zone for people to walk without worrying

a car will pop onto the sidewalk (Speck). On street parking also creates a temporary barrier to protect the pedestrians. The last thing that is recommended by Jeff Specks is to make an interesting walk for your pedestrians traveling these sidewalks. If these walks are a nice experience to travel along while heading to work or shopping they will appreciate the route they traveled more and think twice about taking their car.

Now we have to understand that people aren't going to just get rid of their cars all together so what do we do with them? Another key factor in new urbanism is to de-emphasize the footprint of parking lots and hide the cars in

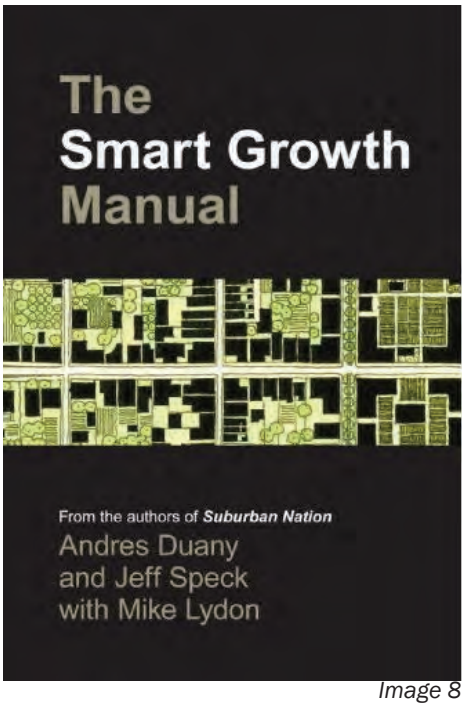


Image 8

neighborhoods. The main solution to reducing the parking footprint is to construct parking garages. They may take up less area but are not as easy to hide in the landscape and sometimes stick out like a sore thumb. Putting the parking structure behind a building so it isn't visible from the street is one way to solve that (Briney). Placing parking under the buildings would be the most

Image 6

idea situation so that there is no trace of mass parking. On street parking is still acceptable because it is temporary meaning the cars will only be there for a few hours before they have to move and it creates that buffer from pedestrians and vehicles. The cars shouldn't sit in front of your house drawing all the attention, it should be hidden. Placing the cars behind the house allows a clean look while traveling through the neighborhood but the downside is the front door becomes the back and vice versa. They can be on a back alley or in garages but it turns the back yard into the front and the front yard into the back as seen in Radburn, New Jersey.

Buildings are another key factor in new urbanism and how they should be used. They should be mixed in their style, size, price, and function. It's ok to place a small townhouse next to a larger single family home without it looking displaced. To generate the greatest usage and revenue, mixed-use buildings are suggested. This consists of a commercial space for shops and restaurants on the ground level, and apartments above. The commercial space not only gets used by people visiting the site but it also is used daily by the residents living up-stairs. Placing residents over commercial space reduces the distance people would travel to work if they ended up working in a shop nearby.

Staking housing is a great way to increase density and make it more affordable by having smaller unites in the buildings. Also, different styles throughout the neighborhood are good to include because it lets future buyers purchase a house that fits them instead of a cookie cutter suburb.

Unlike the suburbs, this idea of new urbanism builds a stronger community which is yet another key factor in this urban design movement. Decreasing the dependency of cars allow people to interact with each other more as they are walking to and from the commercial areas. It is important to maintain the connection between people with high density parks, open spaces, and community gathering centers like a plaza or neighborhood square. The housing and business in close proximity strengthens the community because residents will shop locally instead of driving to a mall or shopping center to shop. A strong community is needed in order to keep a sustainable city.

A perfect example of new urbanism is Seaside, Florida. To the extreme New Urbanites this 80 acre town is the antidote of urban sprawl. All of the walkways crisscross the development to encourage walking and the usage of bikes. The streets are narrow to reduce vehicular traffic speed and all of the streets are interconnected making it easy to get from one place to another. The streets are lined with trees or

Image 7

parallel-street parking to give the safe buffer for the sidewalks and make it a safe place to walk. For Seaside it was mandatory that every house had a porch to not only give the architecture a nicer look but so the residents could build a stronger community as they sit on their porch and meet neighbors. A common gathering place was also an important feature when developing Seaside because they wanted to have a place where people could get together and meet fellow neighbors in their community. Everything here is within a five minute walk from each house. This includes 95,630 square feet of commercial use, 76 merchants, the school, heath center, and of course the ocean. As perfect as this place sounds, Seaside also gets a lot of ridicule. People say that it is too much of a resort town rather than a livable community. With such a low number owning their property (10 percent) people come and go as vacations come and go. Rick Harrison a writer for New Geography talks about visiting Seaside and not seeing a lot of people. He explains how no one was sitting on their front porches or strolling through the gathering space. There weren't even people in the coffee shop when he went with his wife one

Image 9

Sunday morning (Harrison). If this place is supposed to be a prime example for new urbanism maybe it shouldn't be so expensive and resort like. So there are good qualities to new urbanism such as a 5 minute walk anywhere in town and bad qualities that make it resort like and fake. Not all new urbanism is resort like thou.

Kentlands is located in Gaithersburg, Maryland where it isn't on a beach front or has tropical weather year around. It seems like just a regular place but it is far from it. Kentlands is home to over 8,000 residents who all live within walking distance to Downtown Kentlands. The commercial district has roughly 1,000,000 square feet of commercial space that include grocery stores, banks, boutiques, offices, stores, dozens of restaurants, and a 10 screen cinema café. This downtown also contains mixed-use buildings with shops on the street level and apartments on top. Down towns are important because they are what draw people to the town so it is vital that they are functional. Two ways to make it more functional is to add bike lanes for cycles to travel on as an alternative transportation and limit the amount of one way roads. Jeff Sparks said, "Having too many one ways creates bad circulation and reckless driving because people try to pass each other instead of just waiting until someone turns which is the case when you have two way traffic streets" (Sparks). The schools are close enough for all the students to walk to and feel safe while doing so because of these street conditions. They are narrower slowing down traffic and street trees give that buffer. The distance from the sidewalk to the front porches can be as little as six feet and the design of Kentlands encourages the same type of encounter outdoors, with a series of interconnected outdoor spaces that are smaller and cozier than in a conventional suburb (Salant). This is a good example of a place that doesn't use its geographical beauty to get people to live there.

Image 10

Celebration, Florida is kind of in the middle of Seaside and Kentlands. It has the nice weather being in southern Florida that Seaside has but it also has a strong permanent community of about 8,000 residences. Celebration wanted to increase the density of residential areas that would have the shops, restaurants, town hall, post office, bank, and Movie Theater all within walking distance. They focused on plans for pedestrians and public transportation, creating friendly streets that encourage neighborly interaction through porches, stoops, and balconies; and to mix housing for various levels of income. At 4,900 acres, Celebration has all of the commodities as the other towns have and does it all in walkable fashion.

The idea of new urbanism can be implemented into any urban area as long as it has the right credentials to make successful. Looking at our site Iselin, New Jersey also known as Little India, we can start to find the potential that could make it the next successful new urbanism neighborhood. Iselin has a purpose that attracts people to come here which is the first step in being successful, getting people to the site. People travel from all over the world to come to Little India for its thriving businesses to buy cultural possessions that they couldn't get elsewhere. The commercial area is along Oak Tree Road which isn't necessarily a bad thing, but it does cause some safety hazards. Oak Tree Road is a busy throughway that is right

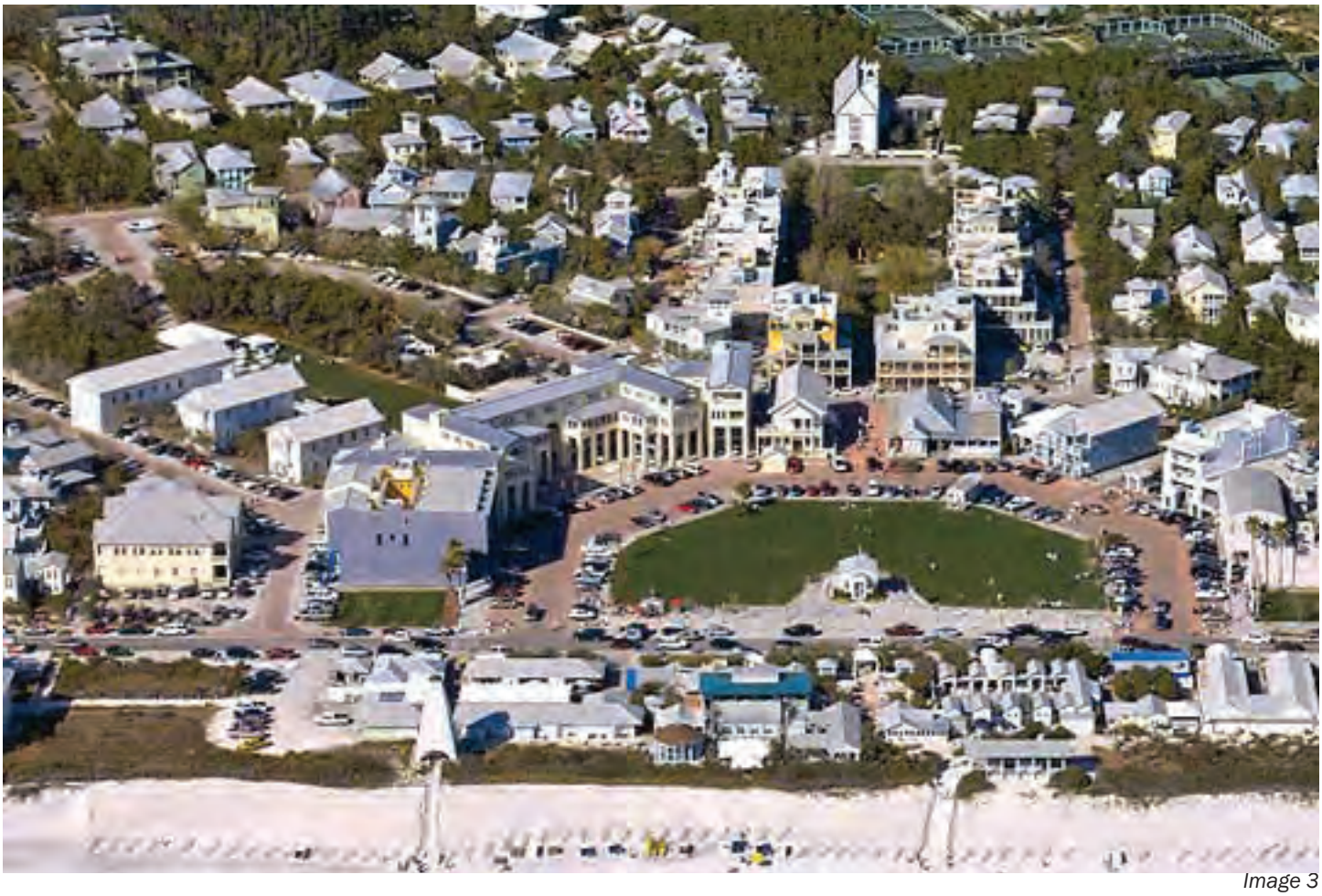


Image 3

Image 4

next to the sidewalks. Currently they have on street parking which serves as a temporary buffer to protect the pedestrians but the sidewalk is so small two people can't walk shoulder to shoulder. If the streets can be narrower it would slow down the flow of traffic and expand the sidewalks to allow street trees to be planted. This would give the pedestrian more room to walk and a better sense of comfort. The two major anchors that would be connected

with the new sidewalks would be the train station and the commercial shops. People will be able to arrive by train and take a pleasurable stroll to the shops. This walk will be direct but it should have some character to it giving the pedestrian an experience that makes them want to walk it again. They will pass all of the different housing combinations throughout the neighborhood, ranging from rows houses to single family homes and a few apartment buildings. If there is a way to incorporate mix-used buildings that could benefit the site greatly with cheaper housing above commercial spaces on the street level. Having different types of housing allow people of all classes to live in Iselin. It is important to have the people in the neighborhood interact with each other so a public plaza or green space can be included along with common courtyards by the housing. This will build a stronger community which sequentially supports the business area. Everything we talked about in this paper has the ability to be implicated in Iselin making it a wonderful place to live and visit. The key to connecting the business hub to the residential area is building an area based of the principles of new urbanism.

Image 11

Image 1

Image 2

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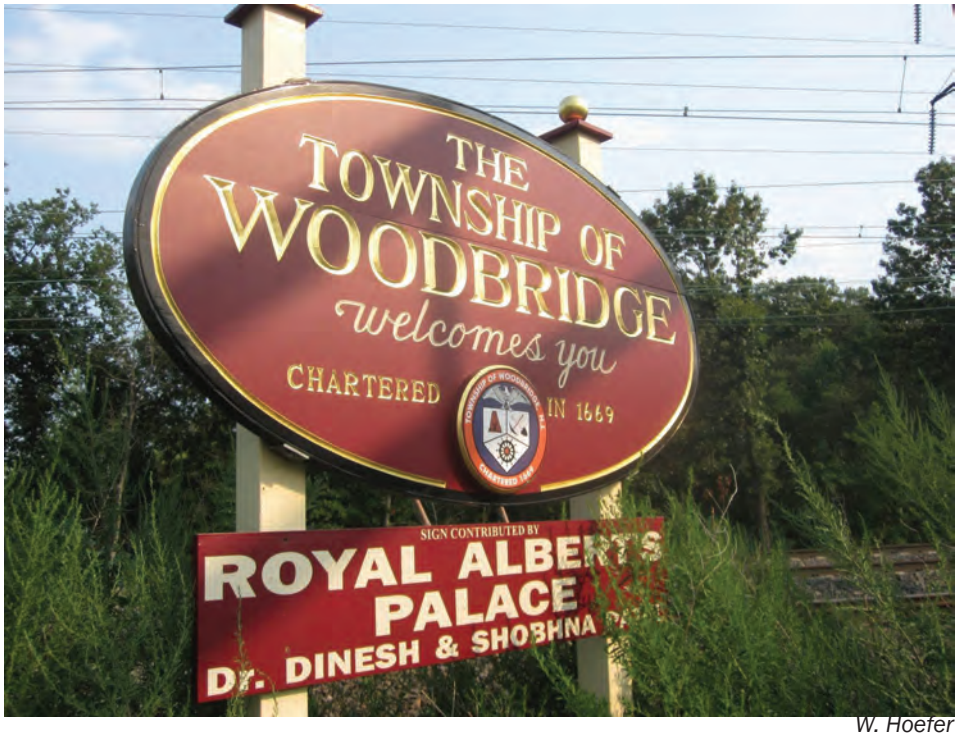

W. Hoefer

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(Image 1)

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4 Special Research Topics

4.2 Scale and American Commercial Spaces

Josh Didriksen

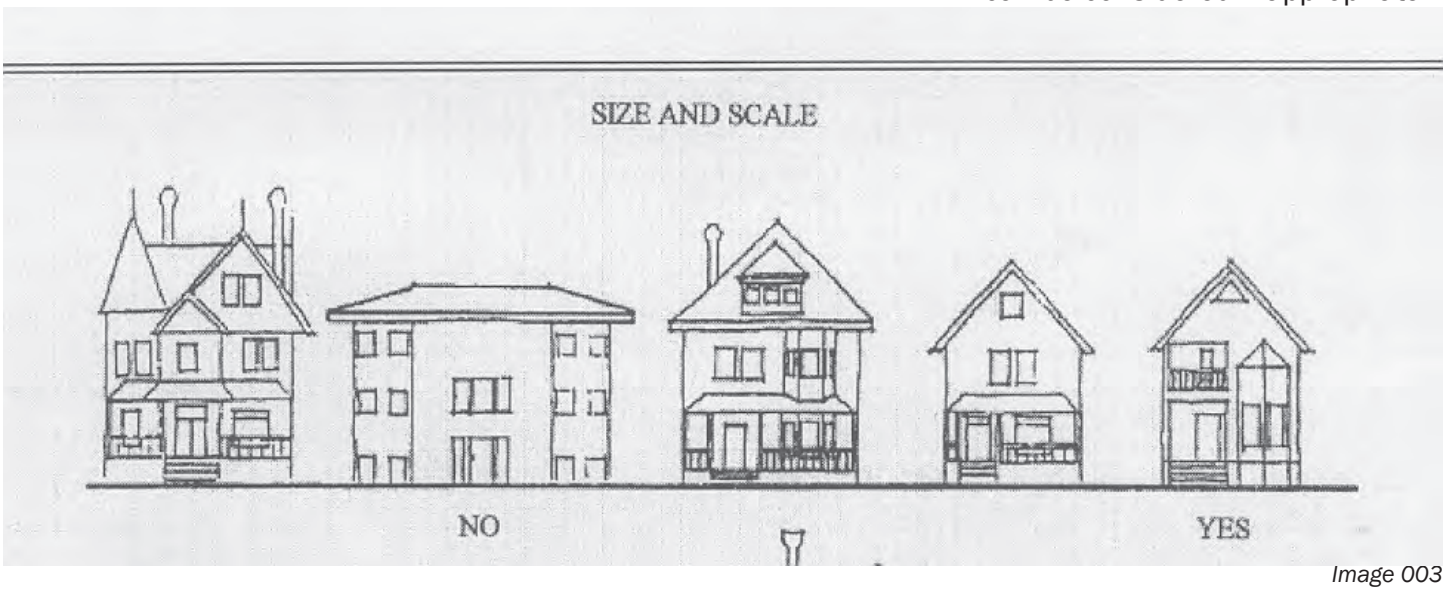
People are used to occupying spaces, either outside in plazas, malls, and even your front lawn, or inside houses, buildings, and skyscrapers. Commercial space is defined as “Real estate property that is used for business activities”(Abraham par.1). Commercial properties fall into many different categories, or typologies. These include industrial property, shopping centers, offices, hospitals and mixed use spaces. These typologies can be combined to form a commercial experience. When we experience space, we can tell either consciously, if one is trained, or subconsciously if we are comfortable. Spaces, and therefore structures, come in all different shapes and sizes, but a person only really feels comfortable when they occupy space that is at the “Human Scale.” The human scale isn’t a number, but it can be measured. Doors, windows, and ceiling heights are all informed by the human scale. One knows they are occupying a space at the human scale when they don’t feel claustrophobic and cramped, in the case of spaces that are too small, or lonely, confused, and isolated, which tends to happen when one is adrift in a space that is too large. The effectiveness of a space can be determined by looking at the scales of the structures creating the space, the typology and use of the structures creating it, and most importantly the feelings a person gains from experiencing a space. This paper seeks to employ this criterion to show which scales, spaces, and building typologies create the most effective spaces.

Image 001

The first part of the space effectiveness criteria is scale. Most people have a loose

Image 002

grasp of what scale means. In layman's terms, it's how big or little something is in relation to its surroundings. This is a workable definition, and it allows those who know it to have discussions about space and scale that one could draw useful conclusions from. However, in order to pinpoint what kinds of scales can be used to create the most effective spaces one needs a very precise definition of scale. The school of art and design at Arizona State University uses a definition of scale that can be used to understand how scale works. The definition is also important when one is using it as part of a criteria to rank the effectiveness of spaces. The ASU art programs definition of scale states "Scale is a term meaning "size" in relationship to some system of measurement. While we can speak generally of things that are "large or small in scale," in art and design when discussing scale we are referring to the size of objects in relationship to a clear set of measurements" (Buckley par. 3). When considering the scales of spaces these "clear sets of measurements" can be anything from the width of the street, the human scale, or the zoning restrictions on building height, width, and footprint.In terms of my argument, scale can be precisely considered as being correct or incorrect when using the definition previously stated. The scale for the space is correct if the relationship between the size of the structures and the space they create and the human scale is appropriate. The scale is incorrect if the relationship between the size of structures and the space they create to the human scale is disproportionate. The human scale allows designers to have a clear set of measurements that ensures the spaces they create can be utilized and experienced effectively.
If a building or space is out of proportion with the human scale then the scale of the buildings can be considered inappropriate.



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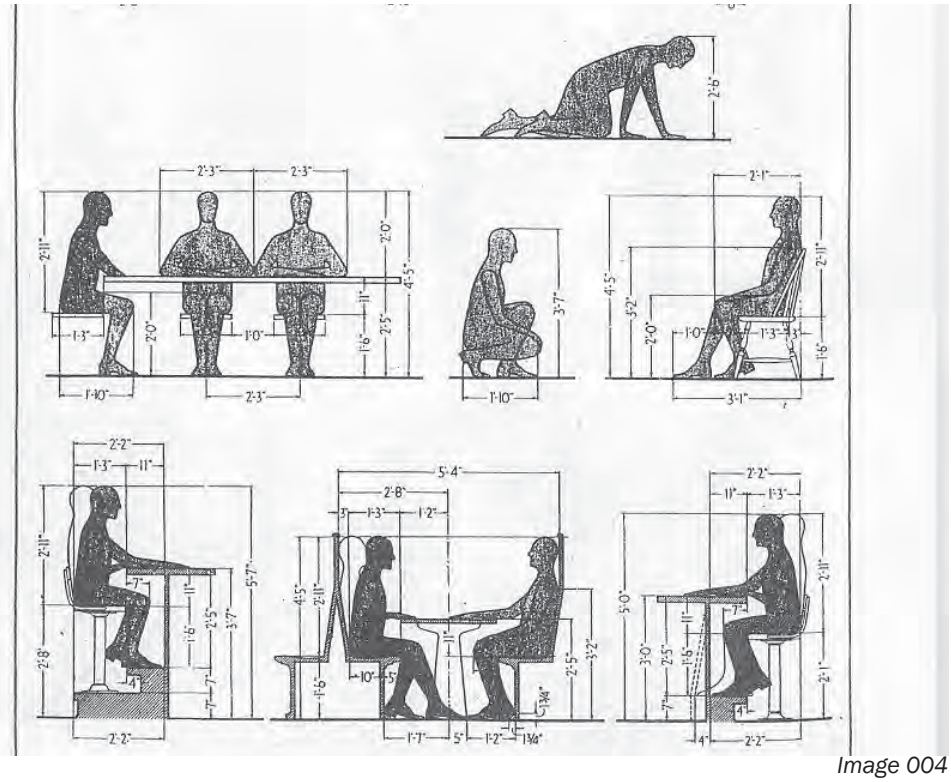

Image 004

The second aspect of the criteria one needs to understand is the building typology of the structures that are used to create space. Building typologies can be anything depending on their use; however, since this paper is focusing on just commercial spaces and structures, some rough categories can be determined. Comprehending these categories and how they impact the structures scale and the spaces that structure can help create is paramount to understanding spaces' effectiveness. The first kind of structural typology is Industrial Property. These buildings include: warehouses, factories, auto part stores, wood lots, and construction sites. Buildings and structures that fall under the industrial property typology are usually large in scale, that is, they are built to hold and facilitate things that are out of the human scale like construction equipment, machines for manufacturing, etc. Buildings that follow this typology also usually create a large amount of pollution. This occurs either while they are in use, like factory smoke stacks, or after they have been knocked down, like an auto mechanics shop. Sites that may have pollutants in the soil and groundwater that originated from a building or structure are called brownfields and"Though some brownfields are old industrial sites, others are commercial buildings with little or no environmental contamination. Brownfields could be former service station, dry cleaners, and warehouses among others." (Breggins par.3) Because they pollute and are harmful to the natural environment, spaces that are created by these typologies alone are usually sparsely inhabited by people if they haven't been remediated.

Another building typology that falls under the commercial

Image 005

Image 006

property category is shopping centers. Shopping centers are any building or structure that gives the public access to a large amount of different businesses and where money can be exchanged for goods and services. Unlike industrial property which is usually large in scale shopping centers can be found at any scale. Human scale shopping centers include: main streets, local stores, bodegas, and other small scale buildings where products can be bought or sold. Large scale shopping centers are usually found in formats like malls, or strip malls. Spaces that are created by shopping centers are usually filled with people and lack direct access to single stores, instead opting to create a circular circulation plan, sometimes to their detriment. It is easy for spaces created by shopping centers, especially ones that are out of the human scale to quickly get clogged with people. This is because while the experience of being inside these spaces is unpleasant the usual consumer will either consciously or unconsciously be lead around the place by the floor plan in order to get products they want at an affordable price. For example in the "Forum Shops at Las Vegas one doesn't pop in to make a quick purchase [at the Forum Shops at Caesars]. Once inside this pseudo-palatial labyrinth, your path is blocked, er , directed by faux-marble benches, enormous planters and ill-placed concierge desks. There are no short cuts allowed, no direct paths. Your leisurely stroll is in fact carefully choreographed, and ensures that you will come into contact, however briefly, with every single store in the mall" (Arieff Par.1). Spaces created by these large scale shopping centers can be open like outdoor malls, market places, flea markets or bazaars, or closed like the Mall of America or the Forum Shops at Las Vegas.

The third building typology

Image 007

is office space. Office space can be any scale, but usually it is very large in a similar way that industrial property is large. Large scale office spaces are skyscrapers, office buildings found in office parks, and corporation headquarters. Office space that is at the human scale can include: dentists or doctors' offices, insurance agencies, banks, or real estate agencies. Office buildings are characterized by their limited access to the public. Some like corporation headquarters don't allow any people in who don't work at the company. Others like banks or insurance agencies allow limited public access, but still have areas just for office workers that the public can never reach. This is the biggest difference between office space and shopping centers, especially at the human scale. Usually there aren't many places in a shopping center the public cant access. It's usually a back office or stock room. In office space there is generally a large amount of floor space that is open only to employees. Because of this spaces created by office buildings, like office parks or corporate compounds are usually isolated, quiet and sparsely populated.

Image 008

Image 009

The fourth and least common structure typology is hospitals. Hospitals are almost always large scale, as they have to accommodate a large amount of people and big equipment. Similar to office space, there are places inside hospitals that the public cant access. However, unlike shopping centers and offices the ratio of public to private space in hospital spaces is about even. Between doctors' private offices, places for the staff to wait and rest, and the open parts of the hospital, hospital spaces have the most even spread of public to private access. Spaces created by just hospital structures are usually filled with people and hospital staff. The people are usually sitting and waiting but hospital staff are constantly on the move. Some hospitals create spaces that are specifically designed to help facilitate healing. These spaces are landscaped with plants and other elements that promote calmness of mind

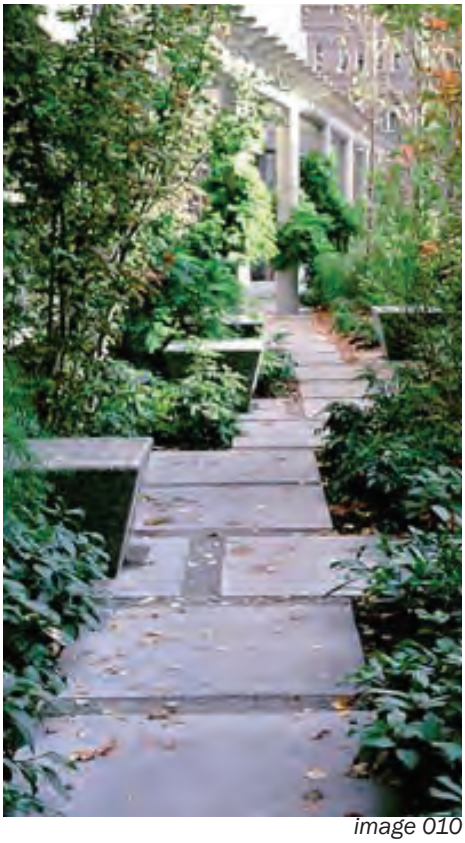

image 010

and stillness of body. Roger Ulrich, PH.D. in his paper for the conference "Plants for People" states "In the case of hospitals and other healthcare facilities, there is mounting evidence that gardens are especially effective and beneficial settings that foster restoration for stressed patients, family members, and staff" (Ulrich 3). Even though the hospital buildings themselves are usually constructed on a large scale, these healing spaces especially compared to other outside waiting areas or parking lots created by the hospitals are usually found at the human scale. Because of this, the patients that inhabit these healing spaces feel safe and secure, but if the spaces are too small they can feel trapped, cramped and awkward, especially if there is no relationship between these small scale spaces and the rest of the large scale hospital structures.

The fifth and most common of the building typologies are mixed use. Mixed use structures contain both commercial and residential spaces and they can be found in any scale. Large scale mixed use buildings are skyscrapers, apartment buildings or any large scale buildings with businesses on the first floor and housing on the rest. Small scale mixed use buildings are usually found in the same format, however instead of having nine, ten or more floors above the businesses they usually only have one or two. Because they mix commercial

Image 011

Image 012

and residential typologies, using mixed use buildings to create space is more complex than creating space with just one type. With different types of circulation to consider (ex. Shoppers v. commuters V. residents) mixed use spaces can easily become crowded, inefficient and unpleasant to experience. However, when used properly and when all different types of uses are considered, mixed use commercial space can be effective even at very small or very large scales.

Which building typologies and scales create the most effective spaces? By analyzing the strengths and weaknesses of each typology, and understanding that scale plays a large part in how a person experiences a space, one can begin evaluating examples found in the outside world. By using the criteria set up in this paper one can draw conclusions on the effectiveness of the spaces examined. In the following paragraphs a number of spaces will be analyzed and ranked using the effectiveness criteria. These examples, both the successful and unsuccessful can be used as visual aids and reminders of how scale and typologies impact spaces effectiveness.

The first example is Philadelphia's City Hall, the spaces created by it, and the skyscrapers surrounding it. This is an example of a space created by large scale mixed use buildings: the skyscrapers, a large scale office building: the City Hall itself, and the street. The skyscrapers in the foreground house residents and offices, but their bottom floors are restaurants and shops that have been decorated with lights. The sidewalks are wide and people can enjoy standing and talking on them while others can move pass. City hall itself provides an area that is not only culturally significant, but also, because of its placement at the end of the street, and the framing of the view that the skyscrapers provide, the focus of the space.

Image 013

The large scale of the structures, coupled with the wide sidewalks allow the pedestrians to feel safe and secure, a feeling provided by the tall buildings, without feeling cramped and stuck close to the sides, a feeling that usually accompanies narrow sidewalks. The sidewalks are informed and thus widened by the first floor business, which spill into the sidewalks with open doors, seating, and welcoming windows and signs. The combination of the large scale structures, with welcoming furnishings provided at the human scale from the first floor business make the space created by these structures effective.

The second example is the Eisenhower Executive Office Building and the courtyard it creates in Washington D.C. This space is created by a large scale office property, trees and lawns on both sides, and the street. These elements combine to create a courtyard that has been furnished with decorative paving and benches. The space that this building creates has problems that can be traced to the typology. The designer created this courtyard space in the hopes that people would gather in it, that is why he or she provided ample space and seating. However, because the building is an office building that isn't open to the public and the building itself doesn't relate to the courtyard at all, no one uses it. Even though the space is aesthetically pleasing, the large scale of the office building compared to the relatively small scale of the courtyard creates a feeling of unimportance and disassociation in a person experiencing the space. This combined with the fact that since the structure is only open to employees of the building, there are a very small amount of people who actually could use this courtyard on a regular basis. People feel more comfortable occupying a space when they aren't the only one there. "When people see friends, meet and greet their neighbors, and feel comfortable interacting with strangers, they tend to feel a stronger sense of place or attachment to their community – and to the place that fosters these types of social activities." (Kent par.4) The courtyard lacks any elements that would draw in people thus it lacks any sense of place and because of this and a mismatching of appropriate typologies and appropriate scales the space created by the building and its surroundings is relatively ineffective.

The third example is the main street in York Pennsylvania. The space is created by small scale mixed use buildings on either side of the street and each building is only two or three stories tall. Examples of effective use of the human scale can be found in various places throughout the space and include large bay windows, on street signage and wide sidewalks. The use of the human scale on this main street separates it from similar spaces like the space created by the Philadelphia City Hall. While in Philadelphia the large scale buildings make people feel safe because they are paired with wide sidewalks, in York the streets feel safe even though the buildings are relatively small scale. This is because York is a much smaller town then Philadelphia but also because the streets are closed to

Image 014

automobiles, effectively turning the streets into one big sidewalk. The closed off streets and vendor booths provide a welcoming experience to pedestrians and allow for an easy flow of people through the space and into the businesses. The large bay windows provide the shop owners views out into the streets and provide pedestrians views into the shops to see their wares. An effective use of the humans scale combined with mixed use buildings and streets closed off to cars create a pleasant welcoming and effective space.

The fourth and final example is Fashion Valley Mall in San Diego California. The mall structures that create the space are a mix of large and small scale shopping center properties. The spaces are defined by the facades of the stores and businesses with most having either two story facades, or two separate stores with access provided by a second story catwalk. The large scale buildings here are still only two or three stories high but typically have a very large footprint as to provide as much shopping space as possible (Insert image 016). Unlike the main street in York, there is a lack of elements at the human scale here. The normal things like doors, hand rails and windows are still included but the signs hang high above the sightlines of the people, the spaces in between the building with the addition of large kiosks creates a space that feels cramped. The plantings take up even more space that pedestrians could use to walk and the absence of group seating makes it impossible for shoppers to sit together and enjoy the natural benefits of having an outdoor mall. While the spaces layout does provide a large amount of access to stores the experience of being in the mall is frenzied and crowded.

Image 015

Judging from the varied amount of space effectiveness in the examples one can draw a number of conclusions about the relationship between effectiveness scale, and building typology. In all the examples they either suffered because they relied on only one kind of scale or typology, or were effective because they were created using a thoughtful mix of different typologies and scales. For example, the main street in York and the space created by the Philadelphia City Hall. Both spaces are created using a mix of shopping center, office, and mixed use typologies. Furthermore both are formed with mixed use buildings that cater both to the pedestrians at the human scale while the larger scale structures frame and contain the space giving people who experience these spaces a sense of safety and belonging. In conclusion mixing the types of building uses and scale in a thoughtful and flexible way creates spaces that are much more effective compared to spaces that are created using just one typology or scale.

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4 Special Research Topics

4.3 Public Spaces and Plazas

Alexandra Bolinder-Gibsand

Landscapes are scenes; a series of moving images in created spaces, immediate or remote, communicating the success and nature of human society. The picturesque film shaped by perceptions of what we see is a complex layering of accumulated “stuff” that contain a set of implications; intended use, restrictions, regulations, rules. In the United States, there is an apparent affinity towards branding; products and labels have provided an incredible sentimental value and connection to status and social class between members in society. In short, in some cases products have replaced the necessity to connect with people in the immediate surroundings. But America that holds promises of opportunity and economic success to those who work hard, is quickly changing. Today’s generation of kids are growing up to a different reality than the baby boomers. In many cases, there is not enough wealth to obtain the lavish lifestyle expected by older generations, and places for healthy social interactions outside

Image 1: Phoenix, Arizona

the digital world are hard to come by. Iselin is a thriving community with a lack of public open space for planned and spontaneous gatherings and activity.

How can we begin to act as a united society rather than compartmentalized individuals? In order to begin to answer that question, it is important to analyze the current situation experienced by millions of people across the country. The reality is that most Americans live closed off in a Suburban abyss of homogeny enclosed invisible boundaries and white picket fences. As written by Robert Frost in his 1914 poem mending wall, “Good fences make good neighbors,” This statement clearly signals the metaphorical significance of delineation of space. What can be seen across the vast American landscape is a collection of duplicated houses, springing up like weeds among a sea of green; the manicured lawn. Connected by rivers of black tar, and the occasional concrete sidewalk, the country is consistently navigated in bulky metal statues on wheels. The car is an essential object to survival in the suburbs due to

the proximity of basic necessities such as food.

In Everyday Urbanism, John Leighton Chase states, “Parking spaces are typically considered a utility for the temporary housing of a machine, but these utilitarian spaces for mechanical equipment take up valuable urban real estate.” What he is referring to in this statement is downtown Los Angeles, or car heaven. A similar condition, however, can be witnessed in the suburbs. Strip malls have replaced town centers; parking lots eliminate the need for inviting or exciting storefronts. These car-centric spaces have become gathering spaces for people, but are certainly not designed for people.

So, how did we end up here? Charles Waldheim, a landscape urbanist states, “The scattering of population across the landscape in a thin exurban settlement pattern would be useful not only in reducing the casualties of a nuclear attack but also, just as importantly, in preventing the attack in the first place by frustrating attempts at target acquisition by aerial observation.” He is talking about the explosion of suburban development in the 1950s, after World War II. In this somewhat morbid depiction of the American suburb, Waldheim describes the phenomenon as a military tactic; a civil defense strategy made possible by the U.S. interstate highway system. Although this could be a point of argument, few homeowners today were probably thinking about this when choosing to settle down in a two-story- two-car-garage-box on their quiet street. This is a fascinating thought, still, since the picturesque motif of suburbia has been painted to portray an ideal lifestyle; the American Dream. But how is the American Dream defined in the 21st century? The American suburb has become the alternative to big city living, and even replaced small towns. All suburbs share similar characteristics, yet many lack a sense of identity from one another. What they share is a population of people; American born and immigrants seeking a better quality of life for themselves and families.

Once a woman from Florida said in passing, “this is the most rural place I’ve ever lived in!” talking about New Jersey. This statement was puzzling; most people know New Jersey is the most densely populated state in the country. According to population data found on Wikipedia, New Jersey contains 1, 189 people per square mile! But the Garden State, with its plague of vinyl siding and Japanese maples, has parts that are, in fact, rural, green, and open to the public. Those parts are slowly disappearing too.

People may come to Suburbia seeking refuge or to start a family, but it seems that people who move to the suburbs have a problem with sharing. Everyone wants their own yard, pool, play set, and the occasional dog or two. In the Moral Order of a Suburb, Mary Baumgartner describes in her introduction to the book, “Social life is encapsulated for the most part within private homes and yards,” which is true for most cases. In turn, there are few opportunities to meet people in the suburbs without being in a place that promotes some form of consumption. So, is that the American Dream? Regardless, the case in Iselin provides an example with favorable qualities for creating a great public space. Iselin is walkable and there is a town ‘center’ although it is currently designated for shopping and parking, not a park or plaza.

In the introduction to her book the Fountainhead, Ayn Rand states, “And for the benefit of those who consider relevance to one’s own time as of crucial importance, I will add, in regard to our age, that never has there been a time when men have so desperately needed a projection of things as they ought to be.” This statement signals the constant human need for innovation in terms of increasing quality of life for all. Although this was penned in 1943, it was an attempt to address society as a whole, collectively, in solving problems affecting everyone. The answers lie in cooperation and understanding of other people; lessons learned while

actively or passively participating in society. Public spaces in towns or suburbs offer a place to gather information; places of equal opportunity to engage with the people living in the same conditions and time today without being limiting to specific members of society.

The importance of designed public spaces, the benefits, and solutions are hard to communicate with the public realm. In any case, public spaces are for people and should be designed that way. In Gateway: Visions for an Urban National Park, Kate Orff makes a statement about our needs today, "This new reality demands an aesthetic that goes beyond the picturesque and sublime (a framework appropriate for a world existing outside of us) to one that empowers people and mobilizes participation, akin to the shared labor of gardening." In this statement, Orff comments on a general idea of public space; activating a society to take action. Spaces designated for public use have held importance throughout history as hosts of social movements and speeches, but also to intimate, personal moments such as spending time with a loved one.

While discussing the role of iconic landscapes in history, Sharon Zukin offers another outlook in her book Landscapes of Power, "the landscapes document a moment in space and time when local social relations are transformed on the basis of change in larger social and economic institutions." This cannot speak more true than to Iselin. This is a community that has completely transformed within twenty years, feeding off a booming economy and belief in the mystical American Dream!

To personally address the importance of designed landscapes affecting the mental and emotional well-being of humans, I will refer to some research I assisted last year. During the summer of 2011 working with Dr. Colin Ellard, cognitive neuroscience, and Charles Montgomery, writer and urban experimenter, my colleague and I assisted and lead research experiments in the Lower East Side of New York City. Every Thursday afternoon between July-October for about two hours a day we acted as urban scientists measuring human happiness and quality of life. The tests were conducted by self-assessment of participants; their emotional state and their level of arousal (excitement/boredom) at each stopping point along the tour. The experiments were also geared towards testing people's ability to identify with a particular place and provide written responses based on three criteria; what is currently going on here? What can you imagine other people doing here? And finally, what would you do here? These responses were then measured with data collected from devices recording skin conduction of participants. We held a post-tour discussion to collect additional feedback from the participant's experience; the results were fascinating and we learned a lot from our human subjects.

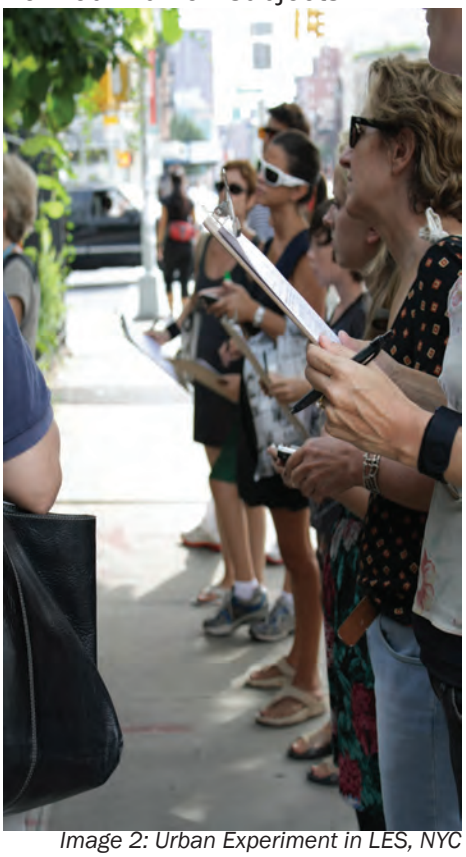

Image 2: Urban Experiment in LES, NYC

The most important lesson to take away is that people feel better and are generally happier anytime there are plants nearby. This was a discovery made that can be traced back to both written responses and physiological data which indicated lower stress levels in places in close proximity to vegetation. On the other side of this discovery, at a busy intersection some of the written responses did not correspond with the physiological data. Written responses stated that some people felt indifferent or content in this microenvironment, but compared to the data their body was under stress. We decided maybe this

is a mental adaptation of such a usual event today; our brain thinks that cars rushing by is fine, but our body is working harder to prepare for what may come next. More about this research can be found on the BMW Guggenheim Lab website and in the works, a book written by Charles Montgomery called Happy City.

A pioneer in analyzing the success of public space, William H. Whyte and his book "The Social Life of Small Urban Spaces" was the starting point for the people at Project for Public Spaces, a non-profit place making group. On their website, they provide useful tools for assessing the success of public spaces. Some of the principles taken from PPS in imagining a successful public space include; image and identity, attractions and destinations, amenities, flexible design, seasonal strategy, access, the inner and outer square, reaching out like an octopus, the central role of management, and diverse funding sources. These are some helpful assessments in judging a public space. PPS is an organization focused on people and is often criticized for their lack of appreciation for design. In order to find a happy medium, the following case studies will be analyzed by loosely applying PPS methodology combined with design thinking and personal experiences in the field. Breaking it down to basics, the next few examples will analyze pavement, seating, planting, landscape elements or landmarks, and water features.

Image 3: www.bmwguggenheimlab.org

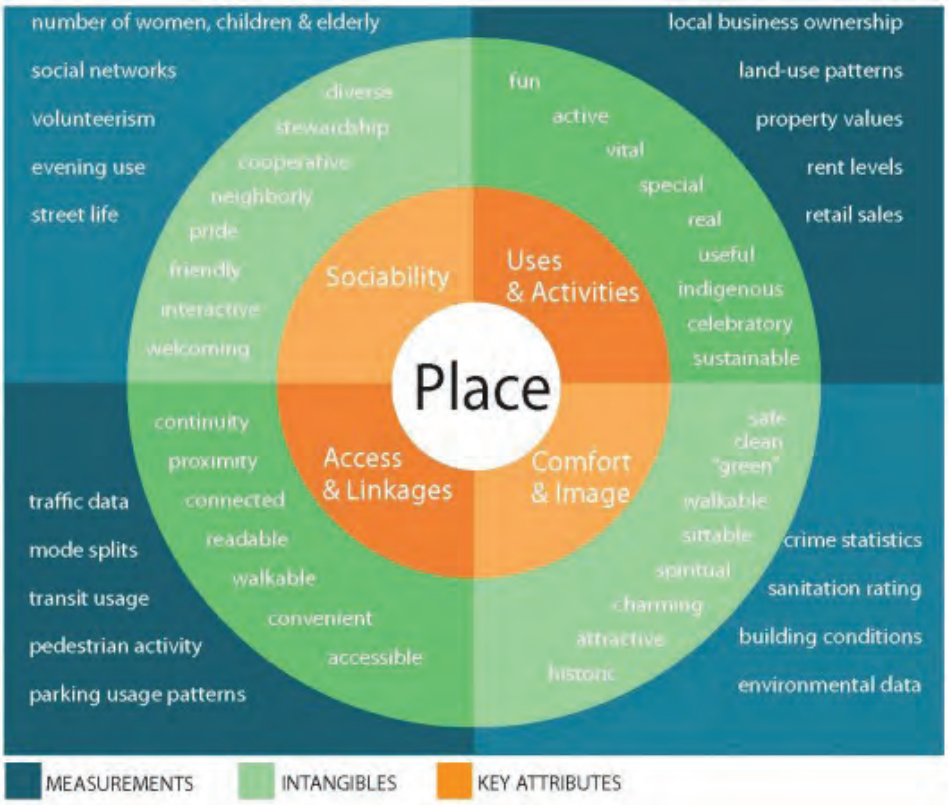

Image 4: Project for Public Spaces

Ken Smith's Village of Yorkville Park in Toronto, a project featured in his book Ken Smith Landscape Architect, is definitely worth mentioning based on PPS criteria and as an achievement recognized by the American Society of Landscape Architects. This dynamic park established in 1994, and winner of the ASLA Landmark Award in 2012, is a park that deserves this award of excellence for many reasons. First, the variety in this park is extraordinary in creating different spatial qualities within a block. The careful attention to canopy paired with multiple ground conditions provides a stimulating contrast along the park. The selection of seating is another important characteristic making this a successful urban space; there are rocks, walls, and moveable chairs all intended for use. The incorporation of landscape elements such as pergolas, walkways, fountains and lights provide a visually exciting space throughout the seasons. There is room for picnics, but unfortunately there is no café included inside the park itself. But clearly, with such high honor as indicated by an ASLA Landmark Award, this park has been successful in providing the city with an oasis, and will continue being a major part of Toronto's urban fabric.

Image 5: Village of Yorkville Park in Toronto

Image 6: Village of Yorkville Park in Toronto

Image 7: Village of Yorkville Park in Toronto

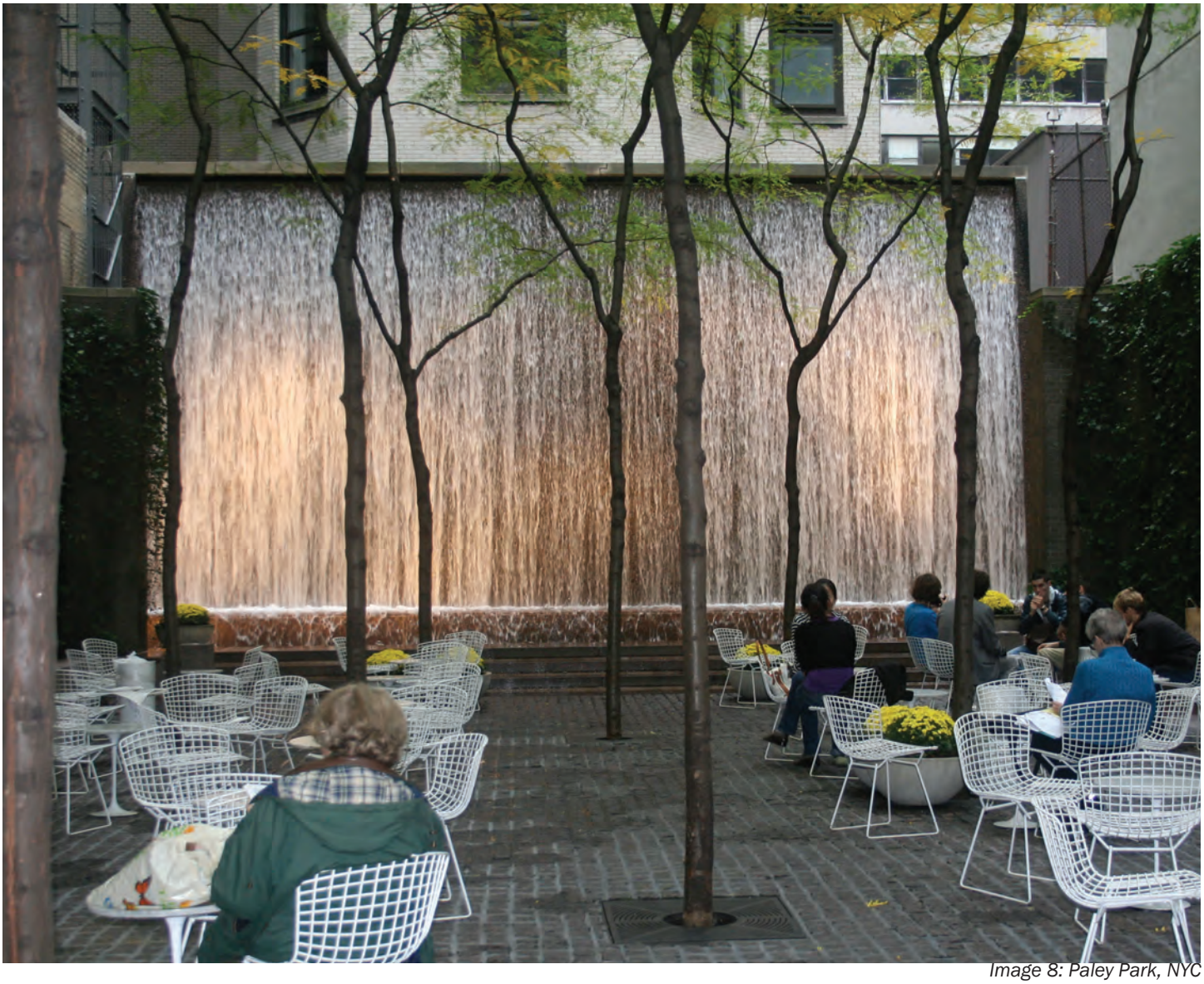

Image 8: Paley Park, NYC

To make a shift in scale, Paley Park, designed by Zion & Breen and opening in 1967 is known as one of the best public spaces in the United States. During a tour in October organized by the Cultural Landscape Foundation called "Midtown Modernism" led by Ken Smith and Donald Richardson, one of the designers of the park, I was able to learn more. The pocket park design, tucked away from the street, provides the key features of a successful park. This is arguably the first minimalist American landscape; the entrance pavement funnels visitors into a space surrounded by tall brick walls on two sides, and a rushing waterfall on the other siphoning the sounds of the city on the outside. Inside, the walls are surrounded by a low seating wall and climbing English ivy and moveable tables and chairs which are ideal for sitting in desired conditions. The honey locust Bosque provides a light and airy canopy, allowing dappled light during sunny days for a comfortable cooler space than on the sidewalk during hot summer days. In the fall, the trees turn a golden yellow color and change the dynamic of the space yet again. During the right season, there is a famous hot dog vendor serving the visitors of the park and there is a café right next door as well. Paley Park has all the ingredients for a successful small public space, executed in a minimalist way; it contains the essentials for human pleasure and use.

Photo Creds.....

The last public space evaluated, Millennium Park in Chicago as seen in New Public Spaces and Plazas by Sarah Gaventa, is a massive public park filled with amenities. A creation of various designers and opened to the public in 2005, this is a destination for many visitors and inhabitants of Chicago each year. This host of many activities, night and day, organized or informal, has enormous added cultural value to the city and its people. The park is large enough to have a performance space designed by Frank Gehry, which also provides a strong visual landmark even without performers present. But the real trademark, or American branding, of this public park is the jellybean sculpture by Anish Kapoor. This large park contains Lurie Garden composed by Kathryn Gustafson, Robert Israel, and Piet Oudolf, who is also famous for his plant selection for High Line Park in New York City. The garden contains spaces of multiple scales and is defined by vegetation and different pathways. One of the more fascinating uses of technology in this park can be found in the reflecting pool. On opposite ends of the pool are two towers displaying changing videos, lights, and water flowing down the facades. With a name like Millenium Park, this is a space created in the 21st century that symbolizes a time where technological advances made a park like this one possible to conceptualize and build.

As outlined in the beginning of this paper, Landscapes are scenes; a series of moving images in created spaces, immediate or remote, communicating the success and nature of human society. In a country like the United States, a melting pot of people from all over the world seeking to achieve the American Dream, public spaces in suburbs are sometimes forgotten, or are often created as an afterthought. As discovered during the compilation of this research, successful places can look very different, and come in all sorts of sizes- the same can be said for the American population.

The importance of these spaces, however, is that they provide a place for people to come and be with other people, spontaneously, outside the privacy of their own backyards. A challenge for prospective designers is defining the American Dream in the 21st century while making stronger connections to the public landscape a part of the equation for suburbs as well as cities. This has been a mission to present urban examples of public spaces and analyzing what works. By applying lessons learned to create a landscape designed with suburbia in mind, the result is the Oak Tree Plaza in section 5.2.3.1. By designing suburban landscapes where people are the focus and driving force of creation will result in longevity of a successful place. This type of landscape includes sensitivity to accessibility and access from further distances. The realization of these types of landscapes will not only build a happier, healthier community, but will evoke a strong sense of identity and belonging among inhabitants in a continued suburban sprawl America.

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Image 1: Personal photography taken from Airplane over Phoenix, Arizona November 2011.

Image 2: Personal photograph taken on Bowery, NYC August 2011.

Image 3: Multimedia. BMW Guggenheim Lab, 1 Dec. 2012. Web. 1 Dec. 2012. <http://www.bmwguggenheimlab.org/ >.

Image 4: "What Makes a Successful Place? Project for Public Spaces." Project for Public Spaces Placemaking for Communities. N.p., n.d. Web. 1 Dec. 2012. <http://www.pps.org/reference/grplacefeat>.

Image 5, 6, &7: Smith, Ken, and John Beardsley. Ken Smith Landscape Architect. New York: Monacelli, 2009. Print. (Image 5-7)

Image 8: Stanton, Agnes. "Waterfalls in Manhattan." Manhattan Privy. N.p., 26 Oct. 2010. Web. 25 Nov. 2012. <http://manhattanprivy.files.wordpress.com/2010/10/paley-park.jpg>.

Image 9: Gaventa, Sarah. New Public Spaces. London: Mitchell Beazley, 2006. Print.

4 Special Research Topics

4.4 Community Green Spaces

Justin Acal

What is a Community Green Space? To answer this question you must define what a green space is. This is not an easy task to follow. When looking up the definition to green space, you will find several different ways to define it. After looking extensively for at least one definition that matches another I was unable to find one. A definition from Dictionary.com read a plot of undeveloped land separating or surrounding areas of intensive residential or industrial use that is maintained for recreational enjoyment (Dictionary.com). While one from Britannica.com read wooded and grassy areas that provide sites for recreation and enjoyment of nature, often located in the midst of urban areas that are otherwise occupied by buildings and paved areas (Britannica the Encyclopedia). That got me thinking of whether or not there was an actually definition for green space.

Photo rendered by Greendelphia

After presenting my findings to my fellow classmates we started to debate on what the definition should be. We were able to come to the conclusion that green space can be determined in different ways depending on the person. A green space for a person in the countryside might be the forest near their house. While a person from the suburbs might just see a green space as their high school football and baseball fields. And a person from the city thinks that the pocket park at the corner of their block is one. Green space can be anything that we perceive it to be but as a task for our studio, we decided to define it.

We started by asking several key questions and agreed in whole what the answers should include. What does a green space have to have? It has to include an aspect or element of nature, like a tree, plants,

Photos of of London Office

Photo of Autumn Ambles in London

water, something other than just pavement surrounding you. Where does a green space have to be? Anywhere that's possible, it could be indoor or outdoor, on a roof or on the floor, in the city or in the suburbs, it just has to be accessible. What can you do there? Anything that you would like, it should be an experience. After coming to these final answers we took several tries at coming up with a definition that fits all criteria. Our definition of green space is a place or area that provides an experience between people and the elements of nature. After defining a green space you can take into account a community green space, which is a place or area within a community that provides an experience between the people within the community and the elements of nature.

When talking about green spaces there are many types of green spaces that we should consider such as recreation parks, community gardens, National Parks, preserved land, cemeteries, golf courses, green office areas, etc. Taking into account the community factor, these green spaces provide certain qualities for the area there in. The main factor that they provide is spaces with plants and vegetation provide biodiversity in the area. Community gardens provide food for their community. Other green spaces tend to bring people together with certain events, recreation and sports, picnics, and perfect scenery making it a getaway. Some green spaces also make traveling from one place to another faster and more enjoyable. Each of these types of spaces bring people out of there natural environment and closer to nature. Children especially benefit from ready access to green space with a variety of functions. It is from this that they learn much about how nature works, and there is increasing evidence that children crave direct contact with natural environments.

With every green space comes the question of ownership. There are two possible categories when discussing ownership, private and public. They are two different ways of operating the green space. Some differences include the users, uses, maintenance, accessibility, and financial stand point. The users

Families are also a main source of users of green spaces

Workers of all kind use green spaces

Bikers in Central Park

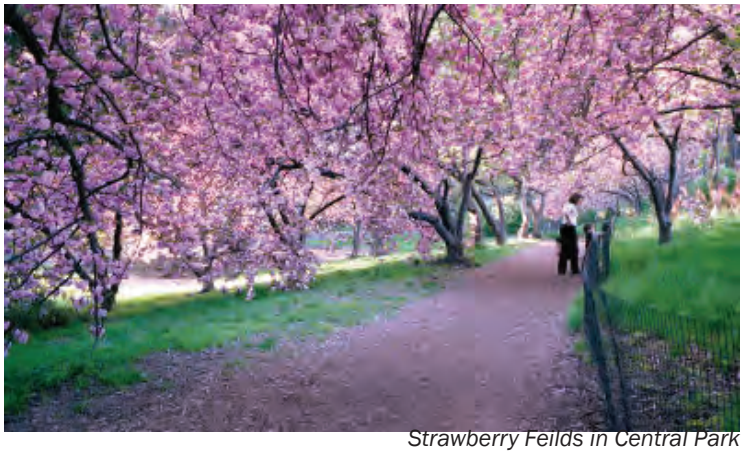
of a privately owned green space might be the workers that work for the company, visitors of the company, and sometimes these areas can be open for the public. A public green space is open to the public and sometimes the time for use can vary. A private space may vary in there uses, they can be used for lunch areas, corporate meetings, relaxation, private events. It usually has a better organization of their space then a public green space. On the public side there are more uses and possibilities for activities and conversing between people and nature. The maintenance of a public facility is usually well kept due to the increased number of people using the area as compared to the average number of people in a private green space.

The people who visit and residents located near our site in Iselin, Woodbridge, New Jersey, have limited green space that is accessible. Most of the visitors come to Oak Tree Rd to shop at the businesses and there are currently no green spaces in that area. A community green space should be on this site considering the lack of trees to begin with on Oak Tree Rd. This space will bring enjoyment to the customers of the business owners in many ways. One way is it will produce an area for relaxation. After shopping for an hour or two a person tends to tire out and get weak from walking, without any space to relax that person goes home making the business lose potential customers and money. A green space in this area is one way for customers to take a break, reenergize and spend some more. There are many examples of green spaces that reach out to nature in urban environments.

A better look at a nature in a city setting is one of New York City's greatest attractions, Central Park. Built in 1857 Central Park has been around for over 150 years, its success is well known. The history behind this park is what makes its success grow in each part this 1.317 sq mile park. The park runs 51 city blocks long and 3 avenues wide that means it's surrounded by 108 streets. It has 50 entrances with some being vehicular entrances as well,

The mall in Central Park

Belvedere Castle in Central Park



Strawberry Feilds in Central Park

that's around an entrance every two blocks, which is an accessible walking distance for an average resident and visitor in New York City. But it's success is more than just being a huge monumental park located in New York. It's the way the park was integrated into the landscape to give both vehicular and pedestrian the best experience without conflict. For example, Olmsted took great care to conceive the pathway and circulation system so that even today, vehicles and pedestrians can easily move through the park without interfering with each other. The park's sunken transverses also allowed carriages, and now cars, to cross the park unobtrusively. Pedestrians' paths guide people through the park via various destinations, such as the Sailboat Pond, the historic Belvedere Castle, and Strawberry Fields. While vehicles are limited on several park roads during certain hours. (The official Website of Central Park)

The outstanding Mall of Central Park is a wide, tree-lined promenade designed to provide beautiful scenery when one walks down the coble stone path. While the heavily wooded Ramble creates a feeling of dense forest and seclusion for more privacy. Open meadows give one a sense of natural expanse and have accommodated a few of the largest outdoor concerts in the country. The park also plays host to 275 species of birds and sponsors a large group of experienced and beginner birders. (The official Website of Central Park)

If a person in a city wants to experience nature and habitat, they should visit a green space closest to them such as a community garden or recreational park. But, if one wants to surround themself with nature, then they should visit a National Park usually located in a rural area. One of the most successful National Parks is called Yellowstone. Made a National Park in 1872, Yellowstone National Park spans an area of 3,468.4 square miles, covers parts of Wyoming, Montana and Idaho. Yellowstone is simply one of America's most iconic parks. One of its most famous

Yellowstone national park

Yellowstone national park

Radburn,NJ

The planned community of Radburn, NJ

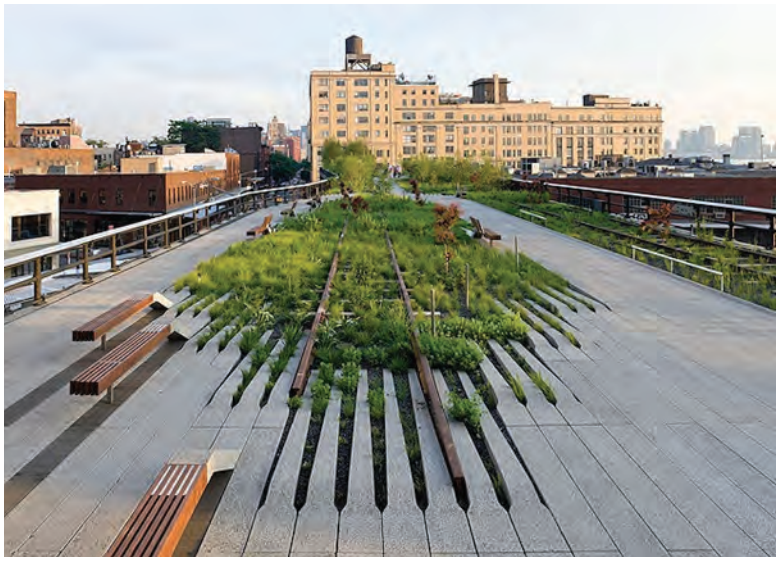
landmarks is Old Faithful, which is a definite crowd bringer. But the park offers much more than its popular identity of hot springs and geysers. Much of the land is covered with rocks and lava flows, yet it spans miles of lakes, rivers, and mountain ranges, making it one of the earth's largest ecosystems. Visitors are at the center of a wildlife sanctuary containing hundreds of species of popular and endangered animals. (National Park Service)

Staying in past successful green spaces is Radburn in Fair Lawn, New Jersey which is internationally known throughout the design community of urban planners. The style of this planned community was one that infused neighborhoods and green space into a seamless transition throughout the community. In 1929, planners Clarence Stein and Henry Wright, and landscape architect Marjorie Sewell Cautley designed Radburn with the roads on the backburner, putting the community and its green space first. The houses at Radburn though clustered closely together, are private and have access to green space. Most homes are oriented so their front doors face a park or a "walk street" that leads to one of the three parks. (RADBURN)

As a class for this studio we took a road trip on a Saturday morning to Radburn in Fair Lawn, New Jersey where we were able to walk the entire green space without stopping for vehicular traffic or interrupting the residents themselves. The site visit was perfect way to actually see and understand the concept of separating vehicular traffic and concentrating on a center communal green space. The houses oriented towards the center green space gave a since of enclosure and boundary away from the cars, allowing us to view a pedestrian only sense of space. The public sidewalks or lanes between each house provides an easy accessibility to the elements of nature.

Heading back to NY for a more recent look into a successful community green space is the Highline. Created in 2009, the Highline is continuously growing and is currently a little over 1 mile long. The highline is a successful park that uses an old elevated railway as its structure. This gives the users, such as walkers, a faster means of travel without the conflict between pedestrian and vehicular traffic. The park is open

The Highline



The Highline

to the public and has many uses such as relaxation, great scenery, and the chance to explore nature. (The High Line)

In conclusion, a person must look at how a green space can fit within their community. There are many uses for green spaces, whether the use is for relaxation, recreation or even if the green space creates food for the community, it is important and essential to have one that is reachable in a neighborhood. Finding ways to incorporate green space in cities, suburbs or rural areas shouldn't be that hard considering the different approaches some of the most successful community green spaces have created. With endless possibilities to the way we can shape the future of green space there shouldn't be an issue why every community and person doesn't have a place or area that provides an experience between people and the elements of nature.

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4 Special Research Topics

4.5 Urban Ecology

Daniel Rounds

The urban setting has many factors that can make it a daunting place to be. high volumes and many noises, building cascading stories above you, and many times there is little green space to be found. This can lead to many negative factors and cities are notorious for residents with high stress levels. There are ways to combat this, and a good way, one important to societies well-being, are the implantation of green spaces. To correctly implement green spaces into urban areas, knowledge of how the different elements of the urban setting are vital to know, and this can be done through urban ecology.

Urban ecology is ecological research done in cities and towns. With urban ecology come two branching definitions. Urban, being a type of land use, is defined as often a large and densely populated area characterized by industrial, business, and residential districts. This land use can also be determined by density. And urban area is an area with a population density of 150 people per square kilometer or more (Niemelä, 1999).

Image 001

Then there is ecology, and this refers to the study of the relationships that living organisms have with each other and with their natural environment. Natural can thought of in many different ways. Some say natural would have to be an undisturbed nature preserve, some think that parks are natural, but in this case, the natural environment would be the urban setting; the setting where the these organisms interact with their surroundings(Niemelä, 1999).

To really grasp the meaning of Urban Ecology; separating these terms if fundamental. Separating them lets you put them back together different ways and through this you can see that urban ecology is actually more complex than at first glance. Urban ecology is not necessarily only the natural science of ecology but may include elements

from the social sciences. This leads to the fact of not only the study of biological factors within the environment, but paired with social factors in the community. These different studies are often separated, but the combination of these two studies can show things not visible in either one alone (Niemelä, 1999).

Knowledge of the function and the structure of an urban society can greatly help to understand the ecology of that area, while similarly knowing the ecology of these urban areas would help in the planning and social aspects of said area (Niemelä, 1999). This would lead to places of high value in these highly populated areas; area that can improve the quality of well-being, health and life of the population. Many parts of the world lack knowledge of these things. Many places have trouble integrating green spaces into their urban areas because there is not enough understanding of the ecological aspects of the area. And proper maintenance of already existing green spaces would rely on the understanding of both the function and the makeup of the urban setting.

To understand the ecology of

Image 003

Image 002

and urban area, you need to look at different factors that make up the whole. First, and arguably the most influential of the factors are humans. All humans' actions have an effect on the environment, whether good, bad, small or large. The ways that humans affect the ecosystem were split into three different types by McDonnell and Pickett. These types are bad, subtle, and good. The "bad" types of effects are those that have an obvious negative impact and the ecosystems like those of toxic waste or oil spills. Still no good for the ecosystem are the "subtle" effects. These are characterized as a variety of discreet or unintended disturbances in the ecosystem such as the introduction of invasive species (Niemelä, 1999).

The "good" effects are in a different category from the other two. Unlike the others, "good" effects are those that are directly related to areas that people populate. This does not mean that all the effects of the people are necessarily good, but that it is socially desirable. These human effects are so crucial because of the area that is studied, and that is the urban area. As stated earlier, these areas are highly populated and created ecosystem where we people are a critical part (Niemelä, 1999).

Another influential factor of the urban ecosystem is, in many cases, the separation of habitats, or patchiness of them. With the vast amounts of built structures, these habitats have become separated and decreased in size.

Image 004

With this, studies have been done in references to two theories; the island biogeography theory (MacArthur and Wilson, quoted in Niemelä, 1999) and the metapopulation theory (Hanski and Simberloff, quoted in Niemelä, 1999) . Island biogeography examines factors that influence the species richness of isolated natural communities.

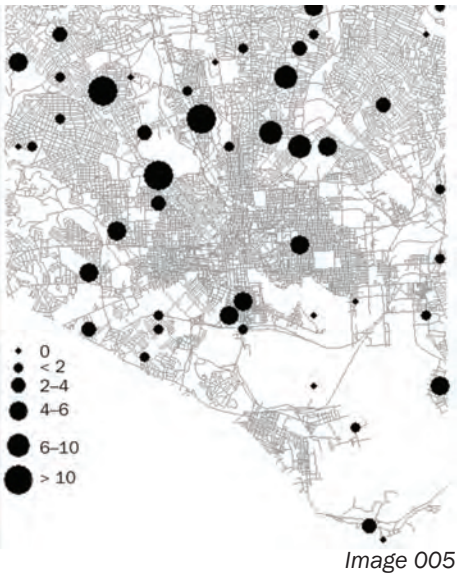

Image 005

Image 006

Metapopulation consists of populations of the same species that are spatially separated and interact at some level; in this case due to the matrices made by the various built structures. While this is another study deep within urban ecology, they can both be influenced by creating more connectivity between the patches. Corridors would allow for such movement between these nodes, and in many cases, is the only way to create this connection in such a highly developed area (Niemelä, 1999).

Diving deeper into the cities structure, Mazerello and Villard have said that "a town or city can be viewed as a complex habitat mosaic (Tzoulas, 2007)." A variety of units make up this habitat mosaic, the dominant and most extensive of them being the matrix. This matrix is made up of a series of streets, open spaces, and various types of buildings. The dominant landscape elements are those small green areas scattered throughout the city. These elements differ from city to city and even within each city themselves (Tzoulas, 2007). There are high and low density buildings and high and low disturbance areas. This can be related to vehicular or pedestrian uses. There are alos elements that break the matrix like transits, rivers, or even large green areas, for example, Central park. Central park is a large element that breaks the matrix of Manhattan.

With so many elements to take into account for an urban area, it is assumed that most urban areas will have their own unique habitat mosaic. The species richness and distribution of an area have a high correlation to what elements are contained there. Cities, like Brooklyn, where there is limited green space and built areas take up the most room, you will most likely find less species diversity and more species separation while in other places, like Woodbridge Township, you will find greater diversity. Studies have shown that with permeability, species diversity has greatly increased. In many cases, this was due to domestic garden (Loram, 2008). These gardens provided many shorter paths and places to dwell and keep moving (Loram, 2008). Even in more developed cites; species diversity can be achieved through implementation of parks throughout. Other results have shown that

Image 007

there has been a high penetration of birds, bats, and small mammals into well- greened built-up areas (Tzoulas, 2007). The green built-up areas increase the habitats in which these organisms may live. Smaller parks like this can provided qualities of living space and protection similar to those of larger parks (Tzoulas, 2007). Incorporation of these parks strategically in very developed areas can increase species diversity.

To go back to the "subtle "effect of the introduction of invasive species, this is another factor all on its own. The invasions of non-native species are most prevalent in highly human-modified places than in those places where the natural habitat has been less altered. There was a study in Bariloche, Argentina with results showing that introduced plant species rose from ten percent in rural areas outside the city to one hundred percent inside the city center (Rapoport, 1993 cited in Werner, 2011). But striving for species richness isn't always the answer. In the case here, the high species richness is all due to introduced, non-native plants. This becomes a problem when these introduced plants are of the aggressive, invasive species like the barberry that has infested areas throughout the U.S. introducing species can be beneficial in cases where soils are poor. Native plants might not grow in such soils that have been altered so much whereas other plants being not native and not invasive can thrive and create a nice environment.

These non-native plants also bring about other problems. The organisms of a region tend to together and can live off of each other. Changing the native plants can have an effect on the native insects that would inhabit such an ecosystem. This change can then lead to a change in predators such as birds that prey on certain insects. To bring in alien species can open Pandora 's Box, which is what has happened in the past unintentionally.

Invasion is a large problem, but many species disappearances from theSe patches can be due to other factors (Werner, 2011). Two of these factors are habitat change and species relaxation (Werner, 2011). Habitat change occurs rapidly and species have to move to an environment suitable for their needs. On the other hand, species relaxation is the process of slow disappearance of a species due to isolation as well as decreased size of the habitat in which they are (Werner, 2011).

One of the largest and maybe one of the most looked over features of the urban environment would be the soils (Byrne, 2007). Soils in urbanized ecosystems provide a number of critical ecosystem services that should be conserved for both ecological and economic reasons (Wall, 2004 cited in Byrne, 2007). Data needs to be collected and analyzed about the ecology of the urban soils so that other people, like designers, have the correct information to guide them in what they do; in our case, what plants would be suitable (Kremen 2005 cited in Byrne, 2007). Also has influence on major aspects like road development and the development of structures. This is one of the major challenges for urban ecologists.

How these factors urban ecology effect people are significant also. Epidemiology is

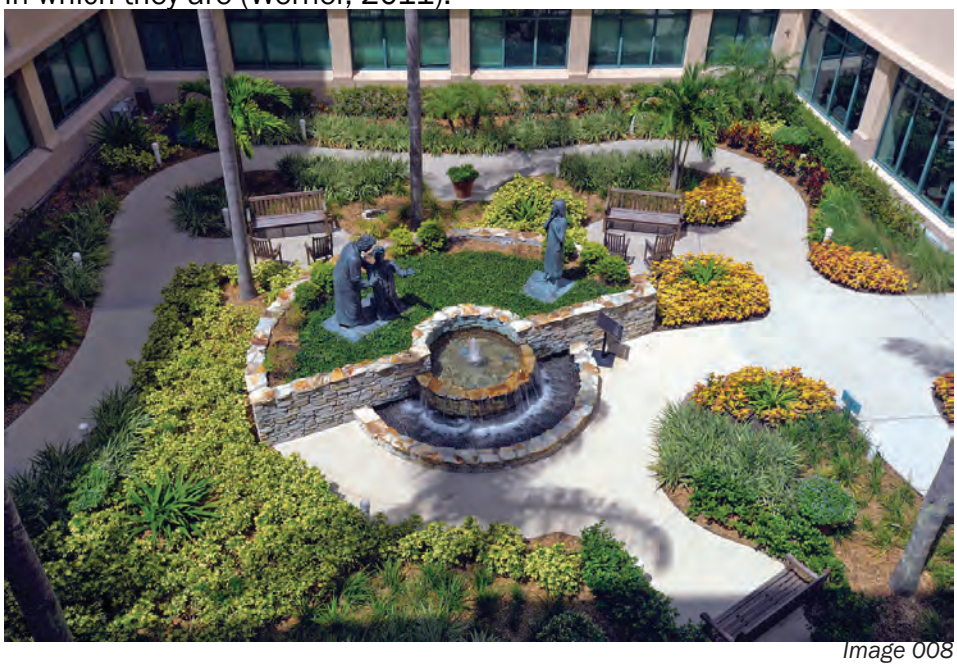

Image 008

Image 009

the study of patterns, causes, and effects of health conditions in populations. This study has provided much evidence for this to be true. May it be longevity of senior citizens through green space or raise in the well-being of an urbanite in a densely populated city. A study conducted by de Vries uses people who are in a primary care facility. Of the people who were chosen for the study, those who went to the park regularly reported that they had better perceived health, got more activity, and were able to relax faster(Tzoulas, 2007).

From studies like this one, many factors were found that could be contributors to the increased health benefits. These are that green areas can remediate air pollution and the urban heat island effect, and may get people to go outside and be more active more often. Booth, Humpel, and Pikora all have supporting evidence that proximity of green space to areas in a neighborhood have a direct correlation on how much activity people in the neighborhood would get (Tzoulas, 2007).

Kim and Kaplan (2004) also explain how the elements contain within that green space effect how people feel. They have recorded that interactions between and with the community as well as individuals in the community have increase and become stronger when more natural elements and open space are part of the green space (Tzoulas, 2007). Also, there was a positive correlation to neighborhoods and the species richness and abundance (Hartig, 2006). Individuals were most affected by vegetation cover, but it need to have the sense of order and be maintained (Hartig, 2006).If a place is overgrown and unkempt, anxiety will grow of crime and will have a negative effect and the community (Tzoulas, 2007).

Many surveys also show that green space is better for life. From surveys, it is found that many people use and choose

Image 010

green spaces to go away and regulate their feelings, whether it is stressed, sad or even happy. These green spaces are usually set in neighborhood areas where the setting take a more natural form. Some surveys in other countries even found that over 50 percent of people would prefer natural areas. Going to an area changes people's moods. It can take your mind off stress from work and help relax from a previous argument (Tzoulas, 2007).

People have favorite places, and these places provide them with emotional release which is also known as restorative experiences, such as what was said before like forgetting worries or clearing thoughts. Natural favorite places are the leading area that take away people negative feeling and increase their positive feelings. These studies by Korpela and Ylen have also show that people with sickness or depression would most likely choose the natural places, places dominated by vegetation, rather than place of sport, commercial, or community activity (Tzoulas, 2007).

Through the understanding of urban ecology and its deep meaning within the ties of the landscape to the sociological factors of our own lives, we see that the habitats that which we create and in which we live affect us very much. But to create a sense of place with a positive impact on the community and its inhabitants, the knowledge of how ecology and the urban setting in area affect one another are crucial. Integrating this knowledge of the processes into design can, in fact, bring beneficial factors into densely populated urban areas.

Photo Creds.....

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4 Special Research Topics

4.6 Shopping Centers as Public Green Spaces

John Ireland

What makes a "public space"? What makes a "green space"? And what is it when the two are combined into one? When I asked myself these questions some I found answers easily, others I couldn't quite find a concrete definition or description for. Being that these are places that I design every day and being a huge part of the current project I am working on it was a necessity for me to be able to understand these them inside and out; and furthermore what role do they play in shopping centers.

I started with the most broad of the topics; Public Space. Wikipedia defines a public space as a social space such as a town square that is open and accessible to all, regardless of gender, race, ethnicity, age or socio-economic level. This definition was sufficient for me; a public space is one that anyone can go to without discrimination. There is no standards for who is allowed in and out. If a place does not allow people who wear funny looking hats then the space is no longer public but private; there are rules for who is allowed to occupy it.

While public space was easy to define "green space" was a whole different beast. Dictionary.com defines it as a plot of undeveloped land separating or surrounding areas of intensive residential or industrial use that is maintained for recreational enjoyment. The oxford dictionary stated that it is an area of grass, trees or other vegetation set apart for recreational or aesthetic purposes in an otherwise urban environment. Merriam Webster responded that it is a community space consisting of land rather than buildings. After checking a few other sources I still had not found a definition that truly satisfied either me or any of my fellow classmates. Each of the definitions only had parts of what a green space really is. Because of this we decided to create our own definition that we felt truly defined what a green space is. The result that we ended with was that a green space is a place or area that provides an experience between people and the elements of nature. This covered all of the aspects that are included in a green space without shutting any possible characteristics out.

By combining the two definitions that we agreed upon we came up with a definition for a public green space; a place or area that is open and accessible to all, regardless of gender, race, ethnicity, age or socioeconomic level and provides an experience between its visitors and the elements of nature. It's a place where you can see people of all different walks of life gathering in a public setting surrounded by specimens found in the natural world. More discussion about these terms can found in Justin Acal's article found in chapter 4 of this booklet.

A subject that really sparks my interest is public green space within shopping centers. Shopping centers are something that much of the population in urban and suburban areas visit on a regular basis, if not daily. That being, shopping centers are a very important destination point. The problem with shopping centers though is they are just that, shopping centers and nothing else. Seldomly there is a space within or around that integrates the surrounding community if it even has a surrounding community. These places are also often

Image 1

very claustrophobic. There isn't any room to breath or relax. Many times shopping centers can be very mundane. There is not really anything going on besides the commercial establishments residing there. Another major thing that the majority of people never realize is how inefficient they are, in respect to energy, shopping centers currently are.

One of the most major problems, in my opinion, with shopping centers in our current world is they are not part of the community. The reason for this is they are built on the outskirts of suburban and urban areas and surrounded by a sea of parking lots. This in itself discourages from any business or residential growth within the immediate area of the shopping center, there isn't any way to transition from residential into commercial. Going shopping becomes a chore in itself because it is not a place where people are it is a place where people go to. Aside teenage mall rats and a few other lingerers, the majority of mall visitors are at the mall to take care of their shopping then walk to their car immediately upon checking out. Because it is set away from the community it makes this mostly public space into something that is exclusive to car owners and people with source of transportation to the center. One cannot get on a bike or take a walk to get there. Having a car and money is necessary to get there and use the space.

Another major problem with shopping centers is the claustrophobic feeling that they give to many visitors, including myself. In their design, shopping centers are only that, places with

shops. They are built to fit the most amount of retail space. The comparison that first came to mind was that of a prison. There are long corridors arranged into wings with cells around the outside. A shopping mall consists of long corridors arranged into wings with retail stores around the perimeter. Once inside there isn't any openness or breaks from the shopping. Another aspect that causes them to feel very closed in, is there is not very much natural light. Seldom there are any windows within the center. There is a sufficient amount of light but it is provided by a large amount of fluorescent lights. This brings another point in that there isn't really much fresh air that is circulated through. The air is constantly climate controlled all of the time so the only air is being driven through ventilation systems. The combination of all of these things causes the center to feel very closed in and claustrophobic.

A third flaw in the design of shopping centers is how boring and mundane they are. Most shopping centers are filled with only retail stores with nothing really to do other than shop. Rarely there is open or green space present there. Occasionally there are a few spaces tucked in corners with a planter or two, and usually they are filled with people. The center becomes boring when people are overwhelmed with the large amount of stores with no place to take a break from it. This large amount of stores also

Image 2

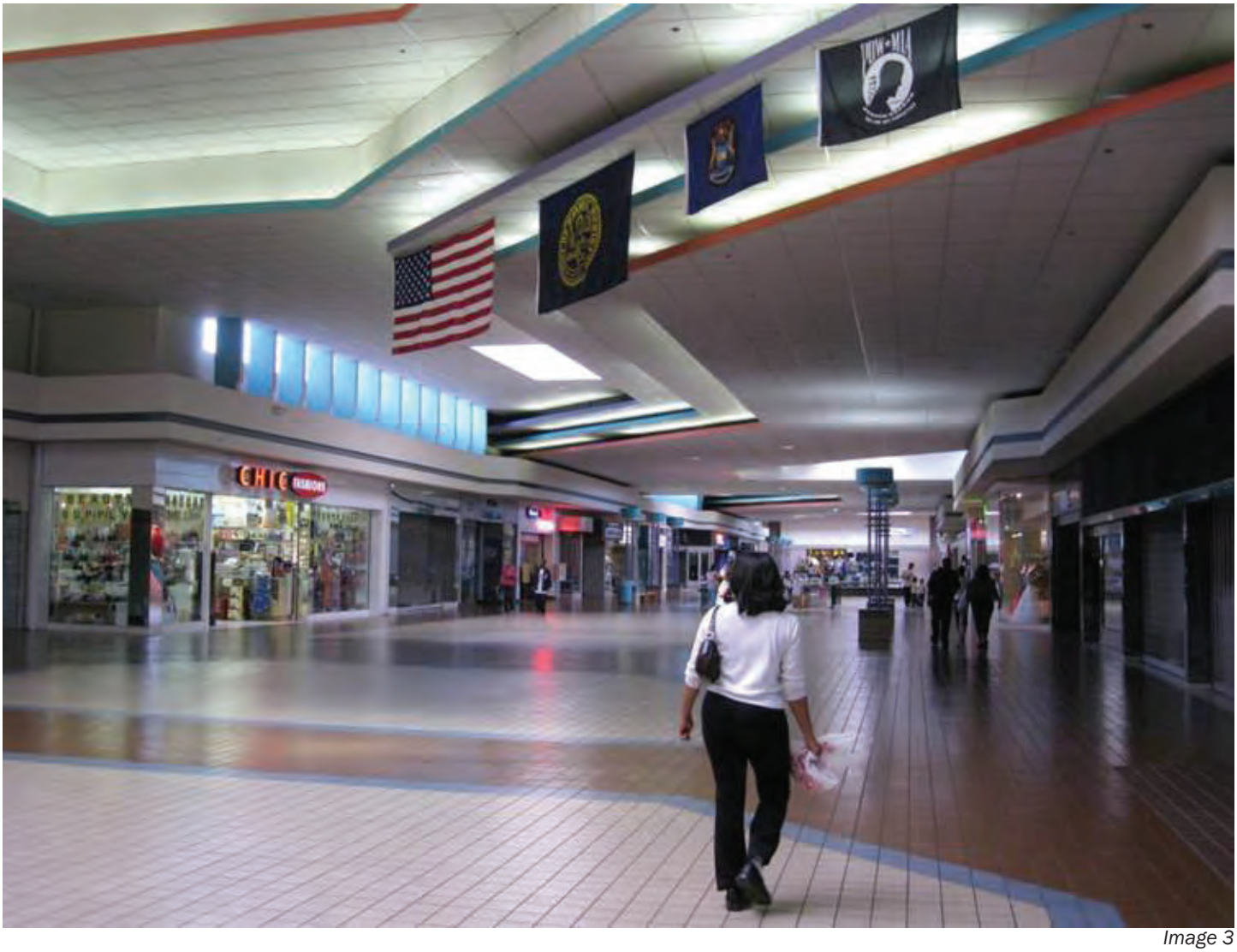

Image 3

makes the space very plain and repetitive. There are no breaks in the landscape, or lack thereof. The shopping center becomes a place where one only goes to shop then leave. This single purpose destination is very inefficient.

Another one of the major problems with shopping centers that people never really notice is how inefficient they are in the subject of energy. Shopping centers are heated in the winter and as soon as the heat is turned off the air conditioning is turned on. They rely on heavy insulation and high use of climate control to keep the consumers using the center at a comfortable temperature. They also use almost entirely artificial lighting. All stores and corridors are filled with large displays of lighting to make it sufficiently bright. Another is the source of transport that people use in order to get to the center. Almost all people that visit shopping centers travel by their personal car. It is nearly impossible to travel there by use of bike or walking. Also once you are there is only parking for cars, not bikes. All of these aspects together create a place that uses an exorbitant amount of energy due to poor design.

Shopping centers in our current world are completely broken. They do not work in a sustainable way and the problems could all be solved by designing shopping centers as public spaces rather than strictly for shopping. It would make shopping become a part of the working landscape rather than someplace twenty minutes away that people go to when they need something. By incorporating green spaces into shopping centers it turns it

Image 4

into a multi destination point for people to visit and enjoy.

The first problem that a redesign of shopping centers would resolve is to make the shopping center more of a part of the community. To do this the first thing that must be done is get rid of parking desert that surrounds shopping centers. When the footprint of parking is decreased it allows growth onto the shopping center and it stops becoming an island. Ways to do this are parking decks or underground parking, or a combination of both. This takes the vast space of parking and compacts it into a smaller space. After the shopping center becomes easier to access it allows for other sources of transportation. Adding bicycle parking would encourage people to travel there in that way instead of driving. Creating public green spaces would also meld the community with the shopping center. The shopping center becomes something else and encourages uses outside of just shopping.

A problem that creating green spaces would resolve is removing the claustrophobic feeling. Adding green spaces within shopping centers would break up the space and open it up. It would also create vegetation that has a number of different benefits. Plants have the ability to absorb toxins that are in the air and produce clean oxygen. Plants also aid in climate control. They provide shade while also absorbing heat. Open green spaces would also leave an opportunity for skylights and natural ventilation to travel through the center. One site that I found that shows this very well is “The Grove” located in Los Angeles, California. This mall is outdoors and includes a

Image 5

Image 6

Image 7

number of different green spaces throughout it. It is also one of the most popular malls in the area.

The mundaneness of shopping centers is also a problem that adding green spaces would help to resolve. Public green spaces inside of shopping centers would create something to do besides shop when at the shopping centers. It includes a second destination or even a destination in itself. They would make shopping centers more enjoyable to be in and it would no longer be a chore to go there. Green spaces within malls could break up the repetition of storefronts and are also pleasing to look at. Green spaces could make a boring, bland place into something that is ever-changing and out of the ordinary. One space that comes to mind is Red Bank, NJ. This town includes shopping, businesses, restaurants, parks, theatres, and residential apartments and homes. All of these resources are located within walking or cycling distance from the residential areas surrounding. This town is very popular and lively all throughout the week and very prosperous. Through the recent developments the population has also been growing. The area gives people a bit of everything all in one accessible place. (http://en.wikipedia.org/wiki/Red_Bank,_New_Jersey)

One major effect the green spaces inside shopping centers would have is lowering the energy costs. One thing that it does is bring natural lighting into the mall. While being a very nice and relaxing light the best thing about it is, it is free. It could also be used for additional heat much like a greenhouse. Adding green spaces would also increase the natural ventilation that enters the site. Trees, as stated before, can create shade and also absorb heat. Green roofs can also be advantageous. All of these things combined make huge differences in the energy used.

In my opinion the current state of shopping centers are

Image 8

Image 9

Image 10

a complete design flaw. The whole idea of them needs to be rethought. They are single use places that are segmented from communities. They are boring and closed in when they do not have to be. With simple design changes they can be made into great places that can be enjoyed by the public. The shopping centers with this new type of design would also leave a lot smaller of a carbon footprint. One design that I found is still in the design phase but is what I believe to be the epitome of what a shopping center should be. Designed by Spark Architects for Kuala Lumpur, it includes all of the aspects mentioned into a shopping mall. It has green spaces and is very ecologically friendly. Many designs incorporating these ideas are starting to show up around the world and have been very successful.

These aspects are all things that could be implemented in Oak Tree Road. It is a thriving town center that has much room for improvement. Right now it has no real design and has grown with no true shape. By planning the district it will make Oak Tree Road even more of a destination point and a a prototype for other shopping centers around the world.

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4 Special Research Topic

4.7 How Shade Trees Affect Quality of Life in Urban Areas

Frances Turner

Quality of life in urban areas is a popular and active discussion amongst the growing number of people who live in, plan, govern, build, influence, and shape these environments. To the individual, quality of life means good health, happiness, financial stability, and overall wellbeing. For a community or an entire city, quality of life is defined by this general wellbeing magnified to include the aforementioned needs of the individual combined with the cultural standards of numerous and diverse groups of people, a productive economy, and safe, healthy, nonabrasive environments. The presence of shade trees in urban areas positively affects quality of life for the individual and the community. These benefits arise from the human-plant evolutionary relationship, the psycho-physiological responses of people to trees, and the effects of the presence of shade trees on the environment and, thus, human health and safety. Quality of life as affected by shade trees is especially relevant at the Oak Tree Road "Little India" community in Iselin, New Jersey because the business area which has opportunity for growth and change would benefit both from the addition of new shade trees and the preservation of existing specimens.

You see them in our parks, our yards, being bought and sold, preserved and protected, twisted into sculpture, and sometimes even brought inside. The human preference for shade trees is not happenstance. Our evolutionary relationship to trees can be seen in our parks: "Researchers have found that Americans prefer park-like settings with a ground cover of grass, no tangled underbrush, and an open wide spacing of trees" (Lewis qtd. in Flagler 249). The typical park derives its basic structure from that of the African savanna, an environment from which our human ancestors originated. Those ancestors valued shade trees as resources for survival: for protection from the heat and burn of the sun, as a structure to climb and avoid predators, and as an indicator of the presence of water (Lewis qtd. in 4 Flagler 29).

The study, Development for visual preferences and natural environment (Balling and Falk qtd. in Flagler 249), examines this proclivity for the savanna as opposed to other environments by surveying people of all ages: from third graders to senior citizens. The people viewed images of many of Earth's biomes such as the rainforest, desert, temperate forest, savanna and others. After rating the biomes by visual preference, the study revealed that third through sixth graders exhibited a strong partiality for the savanna. Though this study took place in the United States, similar studies in Nigeria and India produced the same result. This innate preference for the savanna by young people, whose opinions on beauty and landscapes remain still unaffected by cultural influences, expresses the primitive connection between people, the savanna, and shade trees.

In addition to the long withstanding evolutionary relationship between human beings and trees, other factors influence people's affinity for more green in their environments. In many studies a psycho-physiological response, involving a general sense of wellbeing, reduced heart rates, and quick recovery from stress and sickness, results from views of trees and other plants. In one study, A prison environment's effect on health care service demands (Moore qtd. in Flagler 228), prisoners with views of trees and other planted areas made less sick calls than inmates with views looking on concrete walls or the prison. Similarly, patients in the hospital with windows opening onto views of trees and other plants recovered faster from gall-bladder surgery than other patients whose only view outside was that of a brick wall as observed in the study, View from a window may influence recovery from surgery (Ulrich qtd. in Flagler 228). Finally, in another study, Recovery from stress during exposure to every-day outdoor environments, (Ulrich and Simons qtd. in Flagler 228), college students were exposed to stressful scenes and images such as traffic or crowds and then shown a second set of images to aid in recovery. Those students whose second set of images featured plants recovered faster from the induced stress as was monitored by a faster reduction in heart rate as opposed to those students who did not see images of plants. The studies referenced indicate that the presence of trees in the urban environment affect people not merely because of a feel-good attitude and aesthetics. Shade trees and other plants induce a response within the human biology that produces measurable benefits to health and wellbeing.

If shade trees measurably enhance quality of life for the individual, what can they do for the community? As James Zampini puts it: "[t]heir presence improves the quality of our lives in many ways: environmentally, economically, socially, culturally, and physically through our health and wellbeing" (Zampini qtd. in Flagler 185). Zampini conducted a study, Down to Earth Benefits of People-Plant Interactions in Our Community, in which upgrades in the quality and quantity of shade trees and other plants improved quality of life within an assortment of communities of Painesville, Ohio. A beautification project, which involved extensive plantings at the waning Lake Erie College, resulted in a fifty-five percent increase in enrollment. Though the school directly benefits financially from this progress, the surrounding areas also benefit from the diversity enrichment in population and activity resultant of the attraction of more students and academic professionals.

Additionally, public areas in Painesville, Ohio underwent a rejuvenation initiative which included the replacement of diseased trees with healthy alternatives. The improvements in these public spaces attracted more outside visitors into Painesville, and this encouraged the community and local businesses to make further enhancements such as fixing the sidewalks and adding lighting. This, again, attracted more people into Painesville, and the cycle continues. Overall, the beautification project and the addition of healthy shade trees revered the economic downturn suffered by Painesville, Ohio.

A final venture in these community enhancements, Painesville Operation MAP or the Morse Avenue Project, tackles the difficulty of a crime-ridden, disorganized community with a drug problem. The installation of trees and other plants on Morse Avenue sparked the residents interests. Members of the community were encouraged to get involved. Before long, the people of Morse Avenue took an active role in the beautification of their neighborhood. They learned to work together and became a more involved, cohesive community who felt rewarded by their efforts and achievements. This less apathetic community, on the street, aware, and proud of their neighborhood resulted in a decrease of the crime that had for so long plagued the area. This success in Painesville indicates that many urban environments in need of change, can positively affect quality of life by the addition of shade trees.

A major contributing factor

in the quality of human life concerns the physical conditions of the natural environment in which we develop our urban areas, how we change those conditions, and how they affect us. With little protection from the sun, unbroken wind corridors, and temperature extremes, urban environments are notoriously harsh on human comfort. For example, the urban heat island effect results in an increased temperature within the urban area due to the abundance of hard, paved surfaces that absorb heat quickly and release it continuously even after the sun sets. Thus people in urban environments not only tolerate higher temperatures outside but must pay more for temperature regulation within their buildings. The presence of shade trees can help alleviate this problem in a number of ways. Trees naturally reduce the temperature around their canopy. They achieve this by providing shade and, thus, blocking the sun's rays and also through a process called evapotranspirtation. On hot days, a tree's leaves release water vapor into the atmosphere through evapotranspirtation. Much in the same way sweat cools the human body, evapotranspirtation cools the leaves of the tree and the air surrounding them.

As stated in the study, Shade Trees as a Demand-Side Resource (McPherson and Simpson 1), extensive plantings at the neighborhood scale have been shown to reduce air temperature by as much as ten degrees Fahrenheit. McPherson and Simpson expand on the affect of shade trees on temperature as relates to buildings' interiors. Shade trees planted near buildings diminish the solar heat gain of that structure and, thus, the need for air conditioning. Temperature regulation by trees is not limited to summertime cooling. The large canopies of shade trees act as windbreaks against cold winter winds and, used effectively, decrease wind speeds by up to fifty percent (McPherson and Simpson 9).

Sources of air and water contaminants abound in urban areas. Whether from vehicles, litter, construction, factories, or other sources, a high density of people correlates with increased threats to air and water quality. Through natural processes, many shade trees remove pollutants from the air, thus slowing the formation of fog as stated in: Cool surfaces and shade trees to reduce energy use and improve air quality in urban areas (Akabari, Pomerantz, and Taha 295). Shade trees also aid in sediment, nutrient, bacterial, and toxin removal from water thus lessening treatment costs. Also, by increasing area for infiltration, shade trees positively affect storm water management by reducing the amount and speed of surface runoff, which diminishes pumping and transport costs as determinged by: Urban forests and pollution mitigation: Analyzing ecosystem services and disservices, (Escobedo, Kroeger, and Wagner 2080). Undoubtedly, the influence of shade trees in air and water quality issues positively and economically benefits human health.

Urban areas also play a significant role in the health of our planet. The release of large amounts of carbon dioxide and other greenhouse gases into the atmosphere results in a major climate change known as global warming. This climate change affects weather intensity and frequency. Thus, more frequent storms with a greater occurrence of flooding and high intensity winds can be expected. Shade trees act as both a relief to the symptoms and the causes of global warming. Their large canopies reduce the intensity of windstorms while providing more active land cover reduces the intensity of flooding. Finally, shade trees act as a carbon sequestration agent thereby limiting the amount of carbon entering the atmosphere and further delaying the onset of global warming (Escobedo, Kroeger, and Wagner 2080).

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Every solution has its price. While shade trees have indisputable benefits to the quality of human life, they also require an initial investment to plant, maintenance costs, and can cause serious damage if they fall or are knocked down. Appropriate research is necessary to determine the most cost-effective and practical species for a given urban area. However, when it comes to quality of life, the affect of shade trees is best summed up by Allan B. Jacobs from his book, Great Streets:

"Trees can transform a street more easily than any other physical improvement. Trees can do many things for a street and city, not the least of which is the provision of oxygen, and shade for comfort. Green is a psychologically restful, agreeable color. Trees move and modulate the light. They can effectively separate pedestrians from machines. Even a few trees along the curb of a busy traffic street can have an impact [...]. Moreover, for many people trees are the most important single characteristic of a good street."(2-3)

Clearly, from the above discussion, it can be discerned that the Oak Tree Road area of Iselin, New Jersey could benefit from the addition and preservation of shade trees for both its businesses, residents, and visitors as shade trees produce and overall positive effect on quality of life as relates to health, economics, aesthetics, comfort, and more.

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4 Special Research Topics

4.8 Active Roofs

Crystal Ana Vega

The roof is the most underutilized part of any building or home most of the time. Usually it's just plain dark roofing material, vents, exhaust or any other equipment you would find on a roof. A flat roof, however, can be so much more. There are so many advances in materials that allow for a multitude of things to go atop a roof. These are great ways to use the roof of any structure. Who said that living had to stop after the last enclosed floor of a structure? Using the roof of a building has become increasing popular but is not a new practice. In some countries people can walk on the roofs of their homes and that of their neighbors and get around like that. Using roofs for the use of people can happen on any structure but is especially valuable in urban settings where space is limited and the only way to build is up. In not so crowded areas the active roof allows for more bonding amongst neighbors and residents. Therefore making the active roof advantageous in nearly all settings be they urban, suburban or any other type of area.

Some of the things you can find on roofs that provide for social interaction as well as added benefits are gardens/ green roofs, seating areas, communal areas for residents, agriculture projects and alternative energy projects just to name a few things. Each of these things does not necessarily need to exist independent of the others. Depending on the size of a roof more than one of these things can be implemented. Another factor is the strength of a roof. For some of these installations the roof may not be strong enough but in those cases there are other smaller scale things that can be done. Either way, however, the possibilities are endless when it comes to trying to use the roof of a building for human use.

The most popular use of a roof of course is the roof garden or the green roof. Green roofs contribute positively to the quality of people's lives in many ways because of the countless benefits they provide. This is especially great in urban areas where air quality and pollution are issues. A green roof also has exceptional environment benefits such as reducing energy use by way of absorbing heat and insulating the building on which it sits (source 1). They reduce air pollution and green house gas emissions because they make it possible for people to be less dependent on the air conditioner and the vegetation absorbs a lot of the harmful things that would have otherwise remained in the air (source 1). They can decrease the abuse that the roof itself takes on prolonging the life span of the roof (source 2). It also contributes to reducing storm water runoff, filtering the water from rainfall and reducing the heat island effect in urban centers (source 1). Also green roofs provide a place for not only humans but also a number of species improving the quality of life for all (source 1).

All of the benefits that the green roof or garden roof provide are life enhancing before we even factor in that people can implement, use and

Photos 1-5 (from left to right going down)

experience them on many levels and have a hand in keeping them thriving. This type of roof also allows people to have a place to feel like they are out in nature, enjoying greenery in places where otherwise there is none and interact with one another as a community. The green roof/garden is a perfect mix of green infrastructure that allows for social interaction, which contributes to people's mental and physical health. In addition to that they also hold some historical value and people have used previous implementations to start green roofs elsewhere such as the 19th century green roofs in Berlin influencing the implementation of green roofs in Britain (source 2)(photo 1). This type of roof puts forth so many positive benefits and allows people to use their roofs as another living space where they can come together with others (Photos 12—15).

Another great use of a rooftop is communal areas. Some busier areas, like Manhattan for example, benefit from putting things that would otherwise have to be walked to right on top of buildings. There are many building owners that add amenities to the tops of buildings. Some of these include a playground, a grilling/picnic type area, seating areas, other recreational areas and social areas (photo 2 & 3). This is a great way to use a roof especially if it makes things easier to access and safer to get to. Many schools have enclosed playgrounds on top of schools if they do not have enough surrounding space for an actual play yard. This is helpful because this ensures that children will remain safe, that there is no need to travel with children to a local park and that they will still be able to have access to an open space in which to play. Seating and social areas on a roof are always greatly beneficial because they allow people to use there roofs in order to get together and interact with one another and get the feeling of being able to do outdoorsy things without necessarily having a back yard or a personal terrace.

More extensive than a green roof is the use of a roof for agricultural projects. Rooftop farming is basically exactly what it sounds like; the definition given by FarmRoof for it is "cultivation of produce for

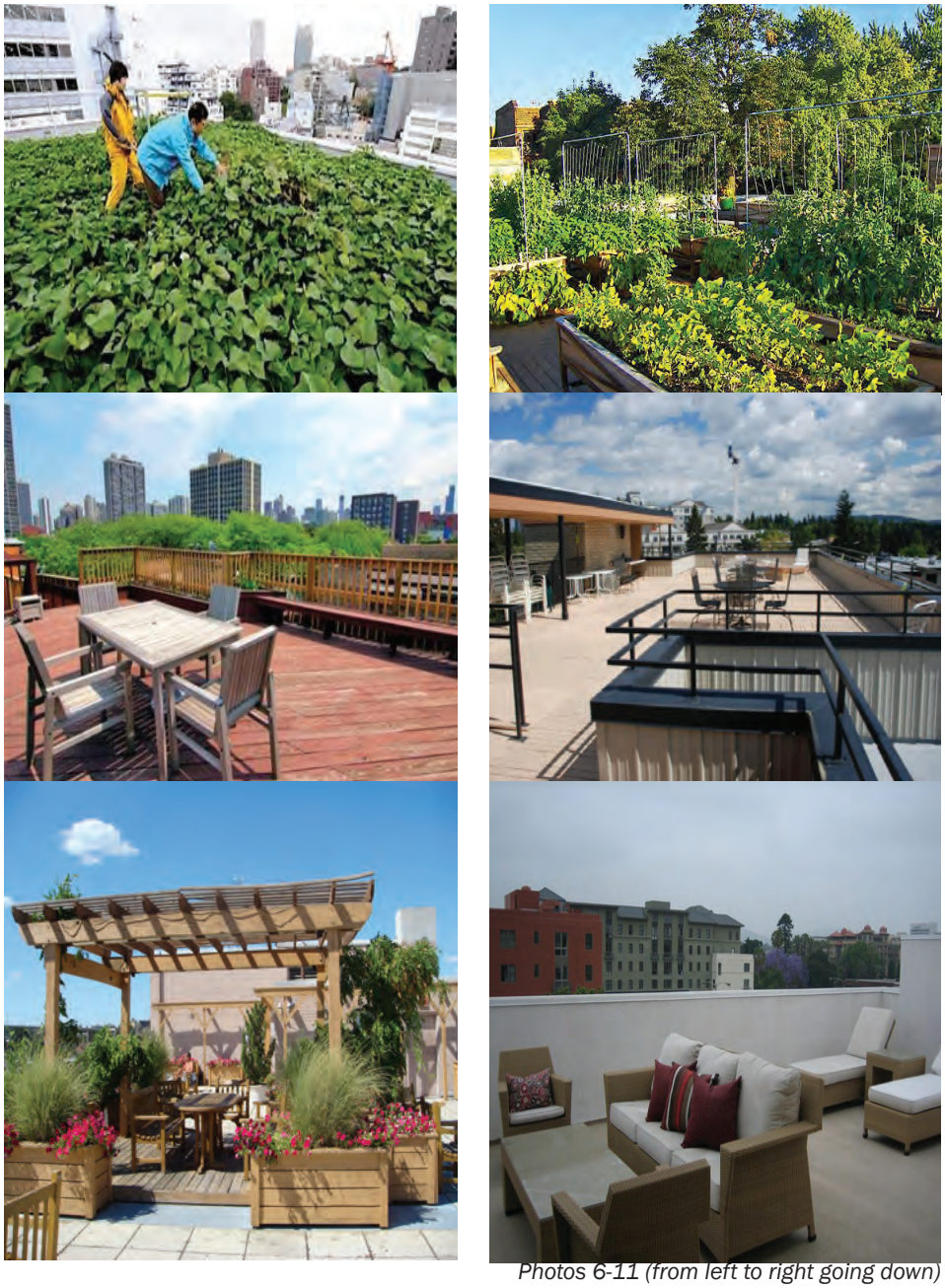
food on the roof of a building" (source 3) (photos 4—7) . Rooftop agriculture is most useful in locations where access to good produce is not readily available. However, rooftop farming is not a new idea. In fact "people have been growing things on roofs since the ziggurats of ancient Mesopotamia and the Hanging Gardens of Babylon" which means that historically this is a feasible method of growing food on roofs (source 2). The possibilities that a rooftop garden bring about are numerous and valuable to those who are able to obtain the produce being grown. The only factor that would make this type of active roof not feasible is a rooftop that wouldn't be able to support the weight of the soil, plant matter, people and other items necessary for a rooftop farm. But once this issue is solved and a rooftop farm or agriculture project can be set up then this brings about the opportunity for fresh produce grown locally (as local as your roof; doesn't get any fresher than that) and allows for social interaction amongst people in any given community. However, some precautions may need to be taken to prepare for harsh winters and irrigation needs. Some ways to take care of those types of problems are providing some sort of covering for the planted area like a green house structure or wind break and rain barrels that can be used to water the plants. There are other methods that can be used depending the type of roof and the accessibility of cover and water to start with. The things that can be grown on a roof are virtually anything, however, the "most economical, smart, and efficient…" things to grow are "culinary herbs, gourmet greens, and heirloom vegetables" (source 3). The reason being that these types of produce provide great results in terms of taste and grow time and are a good candidate for this type of system (source 3).

A roof top farm can technically be anywhere so long as the roof has the structural integrity to allow for rooftop farm project; but as previously mentioned they are found in denser areas where there is no space on the ground level for these types of ventures. There are a lot of rooftop gardens in New York City that are doing very well and are actually pretty well known. They are mostly in Brooklyn and Queens, however, a proposition for a rooftop garden is in the works for a huge rooftop farm to be put in in Hunts Point in the Bronx (source 4). The already established rooftop farms are Eagle Street Rooftop Farm (Greenpoint, Brooklyn) and Brooklyn Grange, which has one of the largest rooftop gardens in the world (various locations in Brooklyn). As far as rooftop farms around the world that are established there are HK Farm, which was inspired by Brooklyn Grange (Hong Kong), Dakakker, which is a test rooftop farm (Rotterdam), Zuid Park (Amersterdam), City Farm (Tokyo) and Lufa Farm, which does its farming inside of greenhouses atop the roof (Downtown Montreal) (source 5). These rooftop gardens success show that this is a very doable thing no matter what part of the world so long as it is structurally possible to implement this type of extensive roof system.

For the weaker roof there is still hope for a space that can be gathered in and be lively. Some buildings are just too old and not structurally sound for more extensive rooftop projects and can't even be retrofitted to allow for a greater capacity holding. In this case a simpler implementation is best to still allow for community gatherings on a smaller scale. This is the addition of light weight outdoor furniture and outdoor features such as chairs, tables, benches, shade structures, etc. This is exactly as simple as it sounds because it is the placement of elements atop the roof that make the roof lend itself to social situations or simply a place to be. In some places this is just generally know as a rooftop deck. This can even involve small planters, green walls/free standing green cells or other things of that nature. Even for a stronger roof this is still a nice option to add as an amenity to any home or building.

This is also great for buildings in high-density cities where an outdoor space on the ground level is not readily available. This system can be more intense depending on how much the roof can hold. It could have more sturdy and

elaborate furnishings, more shade structures and other elements like an outdoor kitchen or bar area that would require a sturdier roof. The possibilities are almost endless as to how unique and decorative a rooftop deck can be and how simple it can be. A roof with two chairs on it is still a gathering space but a roof with the capacity to hold a lot of people for an event or just on a day-to-day basis with different elements and a unique feel is also a gathering space. That is the gain of being able to make the roof work to ones advantage (Photos 8—11).



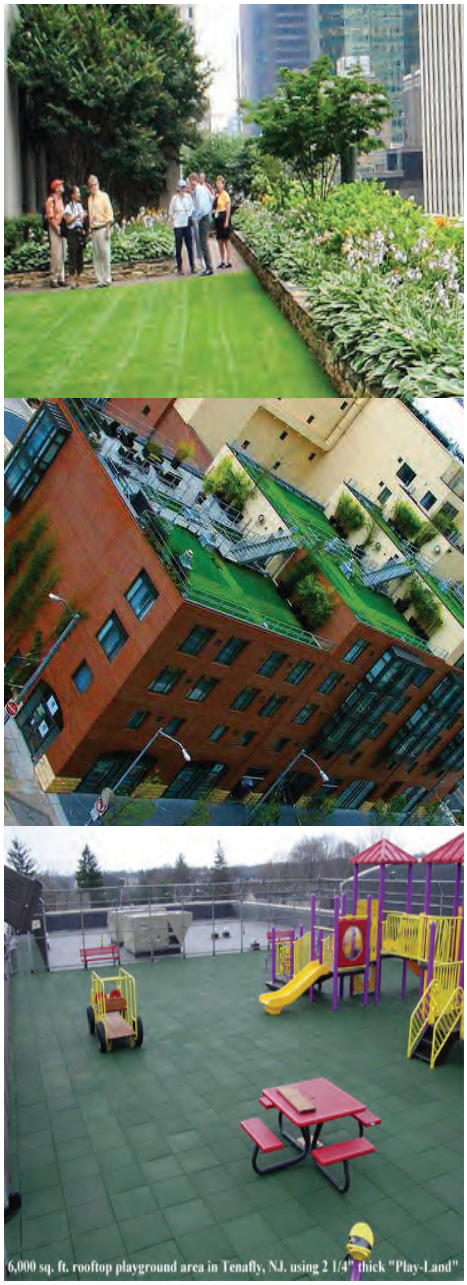
Photos 6-11 (from left to right going down)

The next type of roof is the rooftop playground. The rooftop playground is a huge benefit to the children who get to use it and the parents/adults who look after them. These are most appropriate for areas that are densely populated and where the only option is to build up. A prime example of a very popular and well know rooftop playground, on a smaller scale, is the rooftop playground by JDS Architects in Copenhagen, which is on top of a residential penthouse (source 6)(Photos 22-26). It is a playful design and provides a space where the residents can go outside and let their child play without technically leaving the comfort of their home. Another well known, and larger scale, rooftop playground is the Yerba Buena Rooftop playground in San Francisco, California (source 7). It exhibits innovative and creative play equipment as well as some of the usual things such as a large-scale xylophone and really winding slides (source 7). Another great example of a rooftop playground is Echo Park in East Harlem, which was created by way of renovating a run down building in order to give the neighborhood children a place to enjoy (source 8). These example show that a rooftop playground may be applied on smaller scales which would be on individual homes or on a larger scale being on top of a building or school (Photos 16—17).

This type of roof system allows for schools and residents blocked in by their urban surroundings to be able to still give children a safe, easily accessible place where they can go to play and simply enjoy being outside. This is especially helpful for people who do have a house

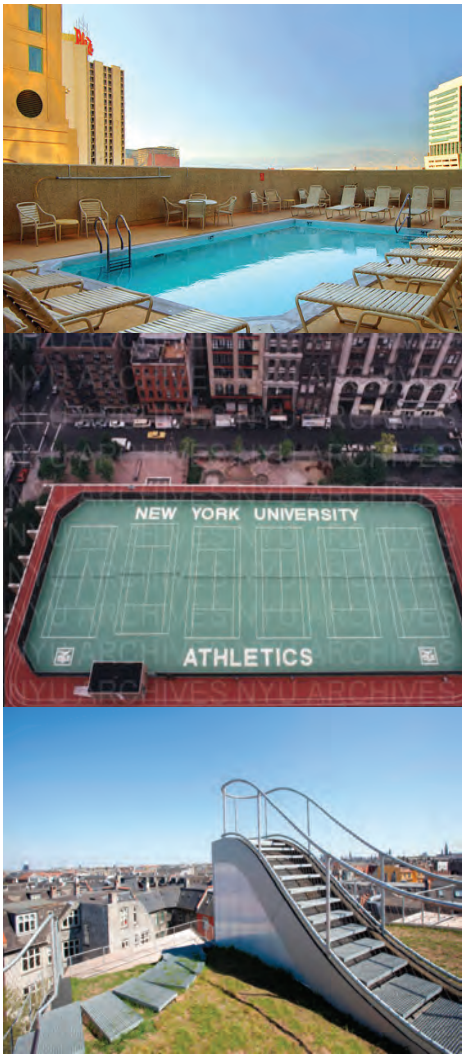
but their house is attached to other houses and they have a small back yard. Also this allows for children who don't go to school in a suburban area to still have the benefit of playing outside and not in an enclosed gym within the building. One of the drawbacks, however, is that some parents and caretakers may feel that line of sight to the children may be obscured or non-existent all together which is why children must always be supervised. There are also regulations set in place in order to ensure that these types of systems keep children safe such as the guidelines set in place by the Bureau of Early Childhood Services (source 9). They state all of the necessities that come along with a rooftop playground such as a supervisor and an evacuation processes (source 9).

The last type of active roof to be mentioned is the recreational roof. To clarify the difference between a rooftop playground and a recreational roof is that a recreational roof includes much larger equipment and layers. A recreational roof would be a roof that has a full tennis court on it or a full football field, which are clearly very large-scale facilities. This type of roof comes in handy for colleges or recreation centers that are in urban environments that do not allow for such a large amount of land to be used. Therefore the field, pool, court or which ever sports facility wanted would be placed on the roof as a alternative to having it in doors or adjacent to the building (Photos 18—21).



Photos 12-17 (from left to right going down)

These are just a few of what could be an enormous variety of roof uses. There is never a need to leave a roof unused if it is in good shape and can bear to have something implemented on it. An active roof is an asset to any structure with a roof. The versatility and usefulness of an active roof is so great that this would be, in an ideal world that is, the way every single structure would plan their roof. However, in the mean time these systems are a great way to add remarkable benefits to any new structure or a structure that can be made to withstand the weight of any of these systems. In terms of our study site around Oak Tree Road in Iselin, New Jersey, which is populated mainly



Photos 18-26 (from left to right going down)

by an Indian/Asian community the active roof, would lend itself to their generational and community oriented way of gathering and socializing. Any one of these systems mentioned would allow for the young, old and all ages in between to be able to come together as a family and as a community and enjoy each others company in a number of ways. So in planning for open space for an already established and culturally rich neighborhood of generational people the active roof seemed to be an apt application because of how it provides social spaces that allow for the coming together of all.

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4 Special Research Topics

4.9 Urban Stormwater Management

Matthew Pugliese

Urban stormwater is the surface runoff of rainwater that is increased both in quantity and speed by urbanization, or the increase of impervious surfaces. Since the future involves denser cities, this is a continuing problem all over the developed world and is a large problem here in the United States. These increase of impervious surfaces change the normal surface runoff of rain water from 10% to a shocking 55%. "Urban stormwater is estimated to be the primary source of impairment for 13% of assessed rivers, 18% of lakes, and 32 percent of estuaries, significant numbers given that urban areas only cover 3% of the land mass of the US".(The National Research Council) While the problems caused by urban stormwater are large, most of the population is not aware of the issue. Urban stormwater can cause a lot of problems with its surroundings, but this paper will concentrate on the extreme impacts it has on urban streams and how to prevent/fix them.

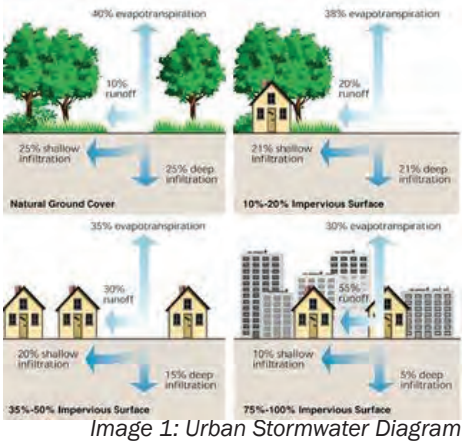

Image 1: Urban Stormwater Diagram

Image 2: Urban Stormwater Diagram

The impacts on urban streams by urban stormwater can be classified into four categories, changes to stream hydrology, stream habitat degradation, declining water quality, and loss of aquatic diversity. Changes to stream hydrology is a big problem and not only effects the stream itself but the surroundings as well. Urban streams are in extreme danger during storms, since urban watersheds produce greater amounts of stormwater runoff due to the large amount of impervious surfaces, overflow to the streams can cause detrimental flash flooding to large natural and residential areas. While the streams attempt to empty, they are forced to channel the excess water flow from flooded areas that contain large debris which can lead to erosion. Since these storms bring large amounts of runoff very quickly, streams that don't flood can have low water levels abruptly after the storm. The low water levels are caused by the lack of groundwater recharge that occurs. Like most of the impacts on these urban streams the low water levels can eventually lead to other serious environmental issues.

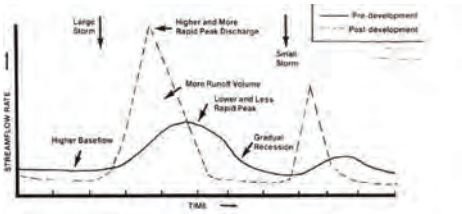

Image 3: Urban Stormwater Flow Rates

Another impact category is stream habitat degradation, one that makes large changes to the physical structure of the stream and its surroundings. One major stream degradation is the widening of the streams channel due to natural causes or human impact. "The cross-section of the current channel can be two to 10 times large than the pre-development channel, although the full adjustment process may take many decades to complete". (Tom Schueler) This change in cross-section is due to the large amounts of storm water flow and the speeds that they travel at. The stormwater also carries with it large amounts of sediment that cause alternating cycles of sediment deposition and erosion. The erosion to the stream can either widen or deepen the stream cross-section. By making the stream bed deeper

Image 4: Urban Stream Cross-section Deepen

Image 5: Urban Stream Cross-section Widen

it effects the groundwater level and changes the material on the bottom of the stream to more and more stones with less soil. In contrast to the streams cross-section becoming deeper the stream can also become wider which greatly effects the surrounding plant life that support the streams edge as shown in image 5. With these wider cross-sections, the normal stream level becomes low and becomes an impact on stream hydrology as discussed earlier. Pools and ripples that existed are either changed or completely eliminated. With the degradation to the streams habitat, increasing temperatures are common because of less shade and the surrounding increased impervious area which can become a large problem down the road. The degradation of stream habitats can clearly be seen in image 6, which compares an urban stream to a more preferred stream.

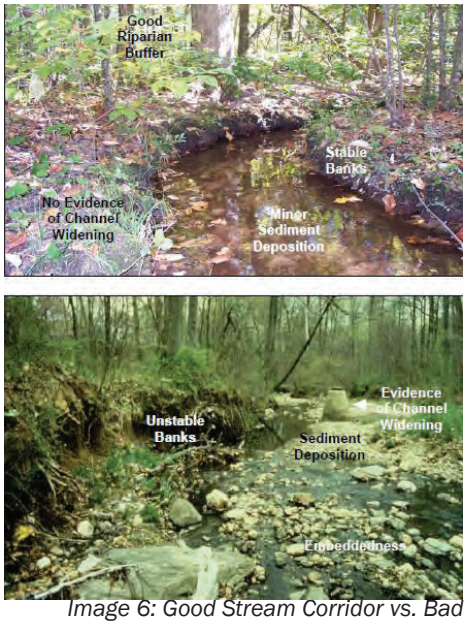

Image 6: Good Stream Corridor vs. Bad

Just about every pollutant that is deposited from the atmosphere or generated in a subwatershed (includes car oils, gases, other fluids, and other non car related pollutants such as factory wastes) at one point enters our urban streams declining the water quality locally as well as the water quality further downstream. All of the oil spotted parking lots are rinsed by rainwater and enter directly into our streams on a normal basis. Besides fluid pollutants that are carried into the streams, large and small trash is also carried by the stormwater effecting the water quality here. The decline

Image 7: Major Pollutants Found in Urban Stromwater Runoff

Image 8: Car Pollutants

in water quality are not always caused by bad pollutants like car oils, trash and factory wastes. Eutrophication is a common occurrence in urban streams and is defined by the Merriam-Webster dictionary as "the process by which a body of water becomes enriched in dissolved nutrients (as phosphates) that stimulate the growth of aquatic plant life usually resulting in the depletion of dissolved oxygen". (Merriam-Webster) Levels of phosphorus and nitrogen can be as much as six times higher in urban streams making it extremely hard to reverse with these high numbers. Other things like bacterial contamination, aquatic life toxicity, and sediment contamination also effect the water quality of these urban streams.

The last impact category is the loss of aquatic diversity. This is pretty self explanatory and just shows how urban stormwater also effects what is directly living in the streams water. All of the impacts listed above in some way come down to effecting the living aquatic diversity of the stream. Such as removal of existing water pools and other water environments. The streams fish are greatly effected by this as well as aquatic insects. The decrease in aquatic insects can lead to less pollination of certain species that depend on that insect.

Aquatic Diversity Indicator	ICM Stream Classification		
	Impacted	Non-Supporting	Urban Drainage
Aquatic Insect Diversity [a]	fair to good	poor	very poor
EPT Taxa [b]	40 to 70%	20 to 50%	0 to 20%
Fish Diversity [c]	fair to good	poor	very poor
Trout or Salmon [d]	limited potential	temporary use only	no potential
Riparian Plant Diversity	stressed, with reduced native plant diversity	simplified community with many exotic species	isolated remnants; dominated by exotics

Image 9: Aquatic Diversity Chart

When learning about these large impacts on our urban streams by urban stormwater, one always asks the question, how can we prevent these problems? Preventing these problems are never easy and at times can not be done. To start anywhere one must begin to alert the public. Nothing will ever be done about the impacts of urban stormwater unless the public speaks up and wants changes. After alerting the public, these problems can then either be prevented at the source or the impacts on the streams themselves can be fixed or repaired to handle the stormwater. Beginning at the source is a good start point and normally involves applications that can help prevent the impacts of urban stormwater.

I will first introduce some devices that can be applied directly at the source of urban stormwater and normally help prevent or control these high flows. These devices used can range from very expensive and large to small and cheap but effective. These larger and more expensive devices normally consist on some mechanism that helps filter the water rather then just using the water's flow. Some options for these more expensive devices are the FloGard Dual-Vortex Hydrodynamic Separator and The Perk Filter - Media Filtration device. Both of these devices are sold by and designed by the company Kristar which has been a leader in the stormwater management industry since 1993. The FloGard Dual-Vortex Hydrodynamic Separator provides and enhanced gravity separation of suspended stormwater pollutants in a confined configuration leaving either heavy pollutants at the bottom or

Image 10: FloGard Dual-Vortex Hydrodynamic Separator

lighter pollutants floating at the top. The unit does this by using a tangential flow pattern that is augmented by a highly circuitous flow path and can capture up to 80% of the pollutants. The heavy pollutants that are forced to the bottom collect in a storage unit that is isolated from the fluid outlet while the light pollutants like oil float on the top waiting for the next cleanout. The system has an overflow weir that stops any collected pollutants from reentering the system if the unit is full.

Image 11: The Perk Filter-Media Filtration Device

The Perk Filter - Media Filtration device also uses a pretty complicated system. While the FloGard uses an approach that seperates the pollutants from the water with gravity and directional water flow, the Perk Filter collects pollutants a different way.
The Perk Filter uses specially designed media filters that can be placed in the device that are chosen for specific pollutants. Forcing the water flow into the system these specially designed media filters capture the pollutants as they go threw them. The device can take many forms such as catch basins, vaults, and manholes. Both of these devices have the same operation of maintenance that really depend on your location. For example, such areas that have a definite rainy season, the device should be cleaned out prior to and after the rainy season. My opinion on these devices is that they should be used more for structures such as large buildings and parking garages due to the semi high costs, the power needed to run it, and the maintenance to make sure it keeps running efficiently.

Other devices out there do not need to be so costly and large. For these such devices we again can look at the company Kristar who also designs smaller and more cost friendly devices.

Image 12: Nettech Gross Pollutant trap

The Nettech Gross Pollutant Trap is pretty plain and simple with a touch of science. The Nettech is basically a large net that can be fitted to any size or situation, the real strength of the Nettech comes from the UV stabilized polyethylene net that is used to ultimately catch all stormwater debris. While the Nettech does capture alot of solids its down side is that fluids like motor oil flow right threw along with the water. A big positive for this device is that it right out in the open and is very visable making it a very good educational tool to both show the public how problems are being fixed and the bulk material that is flowing to our natural streams.

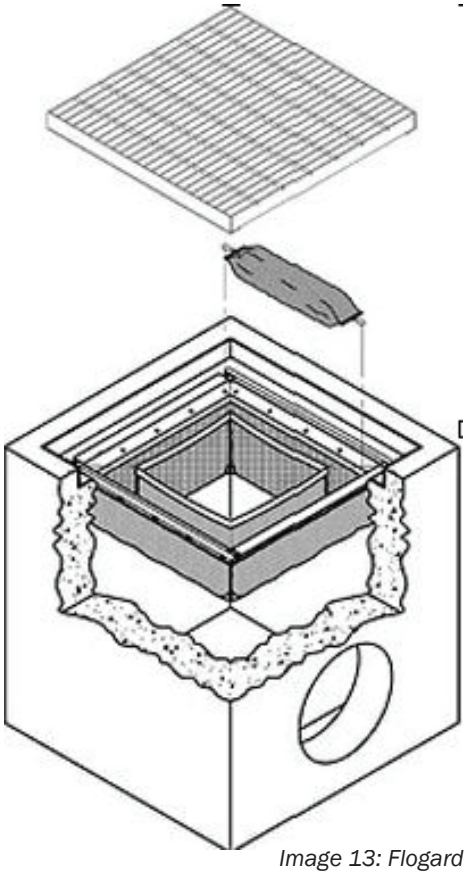

Image 13: Flogard

The FloGard and the SwaleGard Pre-Filter are one in the same but are applied for different locations. Both of these devices are designed to collect silt, debris, and petroleum hydrocarbons in the same way. These devices both use durable

Image 14: SwaleGard

geotextile fabrics as a filter medium and are easily replaced for maintenance. Both feature a built-in over flow bypass which allows the device to still work on the amount of water allowable to the system while bypassing the excess. While the excess water is untreated (only during storms that produce extreme amounts of water that can not all be handled by the device) this device ensures that it will still clean what it can handle. The difference between the two devices is that the SwaleGard is a smaller device and treats stormwater before entering a naturally planted stormwater controller and the FloGard is used to clean water before entering the existing sewer system.

Image 15: Porous Asphalt

Image 16: Porous Concrete

Along with devices being used at the source of urban stormwater, materials and landscape applications can be applied to reduce runoff and increase groundwater recharge. With our knowledge of different porous materials and landscape water applications already pretty high, I will touch up on this section only listing a few of what I believe work the best to solve urban stormwater problems. While most list porous asphalt

Image 17: Concrete Pavers

and porous concrete the same, I rank these two materials differently. Porous asphalt has much smaller gaps between the aggregate making it less porous than porous concrete. While porous asphalt is used a lot in parking situations, I believe porous concrete should be used in these areas as well as pedestrian paths. Another great porous material is pavers, which can come in a variety of shapes and made out of a variety of materials ranging from plastics to concrete. The material that makes up the pavers themselves are not the porous part but rather the gaps that are placed in between the pavers. The gaps placed between the pavers create areas for the surface water to directly infiltrate but are also what make this material application more time consuming. While these materials create a pervious surface it really depends on the material under them that determine if the porosity level will be high or low. With compacted urban soils below the surface it is hard to have water infiltrate threw the pervious material on top. Materials such as structural soils work great in these situations. “Structural soils are engineered to meet compaction

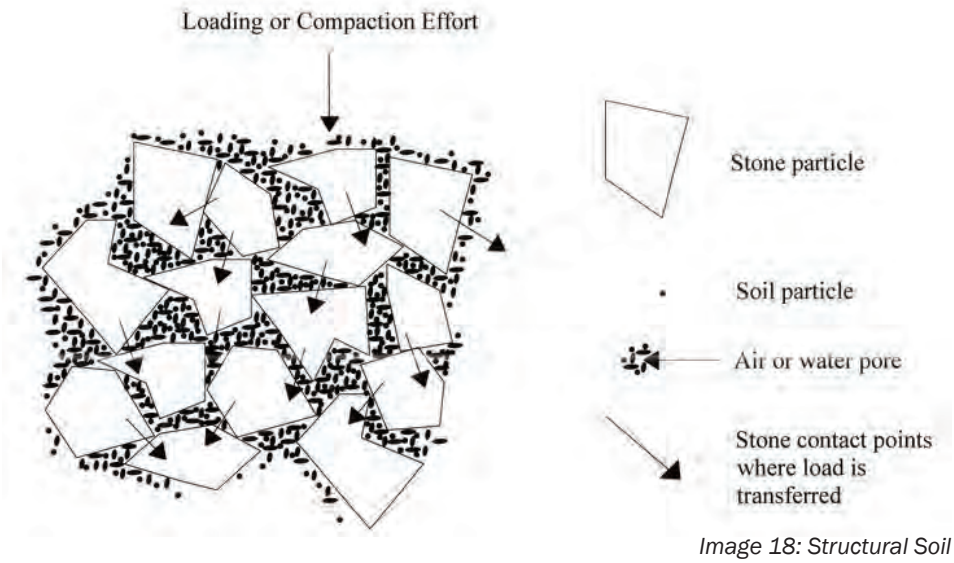

Image 18: Structural Soil

requirements for parking lots, roads, and other paved surfaces and, at the same time, allow tree root penetration under the pavement". (Day, S.D, and S.B. Dickinson) These structural soils create growing room for tree roots as well as allowing for great water penetration.

While there are plenty of landscape applications that can help control stormwater, like detention/retention basins, rain swales, and roof gardens, they normally require a amount of space that is not easily accessible in the urban environment. One application that creates results that these larger ones do, does it all directly in the compact urban setting. (Insert Image 19) The Freno Rain Garden is my favorite urban landscape application since it adds green to our cities, and helps control stormwater. The Freno is made of precast concrete modules, that can be arranged differently to form a specific wanted shape. These precase modules make the build process quick and able to be completed in a day or less. The design can be added to the sidewalk into the street or placed directly into the sidewalk. (Insert Image 20)

Image 19: Freno Rain Garden

Image 20: Freno Rain Garden

While all prevention applications are extremely important and help solve the large problem of urban stormwater, it is also important to fix the damage done to urban streams and help them deal with large storm flows. Even if problems at the source are fixed, applications to the actual streams are still a must because lots of damage have already been done to these areas. Just as before there are many different applications but I will list ones I believe work the best in different situations. Boulder revetment is a very strong urban stream repair and consists of a series of boulders placed in varying configurations along an eroding stream bank to prevent erosion at the toe. This revetment protects vulnerable stream banks in situations where softer bioengineering are not practical. This practice is one of the more complex and time consuming, but the results are a very strong repair. Maintenance for boulder revetment involves a few checks

Image 21: Boulder Revetment

Image 22: Imbricated Rip-Rap

after large storms to make sure the stones are still in the correct place just as you would do for any patio installation. In a case where strong stream repair is needed but the stream banks are very steep, imbricated rip-rap is a ideal solution. Like boulder revetment, this application creates a strong toe protection in high velocity areas. Imbricated rip-rap is one of the only solutions besides a solid wall for areas that are not possible to shape a stable angle. A brush mattress is another application used in confined spaces but rather than using hard/heavy material, it uses soft bioengineering. It consists of a layer of dormant cutting of a woody species placed directly

Image 23: Brush Mattress

Image 24: Soil Lifts

on stream banks and secured by wire and stakes. This fix is time consuming but can be a great way to get local kids active in urban stream repair. Areas where there are heavy water flows and space to work with are perfect conditions for soil lifts. Soil lifts are successive layers of soil wrapped or encapsulated within erosion control fabric. This method is a great solution and provides new habitats along the stream for plants to grow. The last urban stream repair I will list is one of my favorites because it is simple and a great way for kids to have fun while being effective in urban stormwater management. While in need of an instructor, children can place rocks in various different arrangements in the stream to redirect flow. This redirected flow, if done right, can control where the strong flows are. When you redirect this stronger flow towards the middle, it puts less stress on the stream bank and stops the toe erosion.

The list of applications that can be done goes on forever and I tried to pick the ones I thought were most helpful and suitable for the urban environment. While the devices, materials, and styles help to prevent impacts and stream revetments help fix the impacts, I believe it all begins with educating the public. The township sometimes will hesitate to act without the public requesting it. Public outreach programs and educating the children is the best way to start fixing urban stormwater problems. That being said, after the public is notified I believe it is very important to spread out your applications. Concentrating all your recourses in one spot can help but may not be effective as balancing your recourses and finding a middle ground between preventing the problem and fixing its impacts.

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Images Work Cited Page

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Image 2 - “Changes in Stream Hydro”, PDF-An Integrated Framework to Restore Small Urban Watersheds

Image 3 - “Urban Stream Flow Rate”, PDF- An Integrated Framework to Restore Small Urban Watersheds

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Image 5 - “Wide Stream Erosion”, PDF-An Integrated Framework to Restore Small Urban Watersheds

Image 6 - “Urban Stream Comparison”, PDF-An Integrated Framework to Restore Small Urban Watersheds

Image 7 - “Pollutants found in Urban Stormwater”, PDF- An Integrated Framework to Restore Small Urban Watersheds

Image 8 - “Runoff Pollutants”, http://www.clemson.edu/public/carolinaclear/surveys.html

Image 9 - “Urban Aquatic Diversity”, PDF- An Integrated Framework to Restore Small Urban Watersheds

Image 10 - “FloGard Dual Vortex Hydrodynamic Separator”, http://www.kristar.com/

Image 11 - “The Perk Filter”, http://www.kristar.com/

Image 12 - “Nettech Gross Pollutant Trap”, http://www.kristar.com/

Image 13 - “FloGard”, http://www.kristar.com/

Image 14 - “SwaleGard”, http://www.kristar.com/

Image 15 - “Porous Asphalt”, http://hosted-p0.vresp.com/311549/3e44fc1be0/ARCHIVE

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Image 20 - “Freno Rain Garden”, http://www.hokproductdesign.com/products/freno-rain-garden/

Image 21 - “Boulder Revetment”, PDF-Urban Stream Repair Practices

Image 22 - “Imbricated Rip-Rap”, PDF-Urban Stream Repair Practices

Image 23 - “Brush Mattress”, PDF-Urban Stream Repair Practices

Image 24 - “Soil Lifts”, PDF-Urban Stream Repair Practices

4. Special Research Topics

4.10 Indian Urban Design

Janine St Jacques

If one were to think of some of the most successful urban planning projects—those rich with thriving business, a sense of camaraderie amongst the community, and a landscape that is delightful to explore—chances are there was thought given to the way the space was shaped and developed. Amsterdam in the Netherlands may come to mind with its 17th century design based on the semi-circular canals resulting in one of the most bicycle-friendly cities in the world. Philadelphia is another example with its grid pattern allowing a variety of street widths and dedicated green spaces for the public. In developing these designed spaces, a variety of factors are heavily influential such as technical limitations, determined usage, aesthetics, and politics. The culture of the people who have a hand in designing that space tends to have a strong bearing on the aforementioned factors. Why is that?

Political, philosophical, and religious ideologies, with the addition of scientific advancements and the openness of a society to embrace them, essentially define culture. It is this culmination of a collective intellect that defines what is perceived as valuable. As the purpose of the fall senior Landscape Architecture studio was to explore options to reconcile a desire to expand business while supporting the residents in a potential transit village, the primary purpose of this paper is to explore how culture has affected the current urban planning and future planning options of the Oak Tree Road community. One way to gain insight on that is to take a look at the historical context of urban planning in the country where many of the residents immigrated from-- India. Additionally, this paper seeks to address a the following questions. How have cities developed in India and how does that affect current planning trends in India? In addition to that, are planning trends in India even relevant to Indian communities in the United States, particularly the one on Oak Tree Road?

In order to explore these questions, it is beneficial to understand a brief overview of the Indian history. One of the most ancient 'urban' civilizations was established in the northwestern area of India,

Fig1: Harappa
Credit: http://www.xtimeline.com/__UserPic_Large/8043/ELT20080406192038378 3823.JPG

Fig2: Ancient Nomads may have looked similar
Credit: http://static.guim.co.uk/sys-images/Guardian/Pix/pictures/2012/8/17/1345224306596/Niger-Nomads-Herdsmen-Tua-015.jpg

Fig3: Grand Anicut Dam
Credit: http://media.photobucket.com/image/recent/Raghu55/KumbakonamTanjavur2010/Misc-Photos520.jpg

now Pakistan, during the Bronze Age, 3300-1300 BCE (Rai). This area was known as Harappa [Fig1]. From this vibrant city trade was established and with it came the exchange of not only goods but ideas as well. From the beginning, India was not a completely isolated territory. As time advanced and India moved into the Iron Age, 1200-272 BCE, the famous Hindu texts known as the Vedas were written. It was around this time that the caste system was developed. By formally establishing titles and roles, people were essentially categorized. This structure influenced both the politics of the time and the structure of villages (Rai). According to the Rig Veda, the semi-nomadic lifestyle was the norm [Fig2]. This meant that there was still a central point where people would plant their crops but they would also travel distances in search of food or grazing land for their animals. The exchange of ideas occurred not only in the central cities but also amongst these nomads.

Following the Iron Age, under a series of sixteen different monarchies known as the Maurya Dynasty, Buddhism began to truly establish itself. Ashoka the Great, who left perhaps one of the most well-known legacies in Indian history, was a particularly potent supporter (Bauer). Prior to his conversion to Buddhism, he had expanded his empire further than any previous ruler had, expanding his circle of influence in a series of wars. His time spend reflecting on the mass amounts of death the wars had caused led him to Buddhism. It was his philosophy that the religion could create a cultural basis for harmony both socially and politically. It was in this period that urban wealth in Indian cities grew and long-lasting monasteries were built. Additionally, during this time in the second century AD, the Grand Anicut dam was built in southern India, becoming one of the oldest water-diverting structures in the world [Fig3]. The construction of the dam shows an evident interest and concern with having water-related infrastructure, particularly to benefit agriculture. Currently, the dam still stands and is kept in great working condition. This proves to be a testament to the advanced engineering that was occurring during the Maurya Dynasty.

Through the ages, India saw the development of different and innovative architectural

Fig4: Monastary
Credit: http://tinyurl.com/cn7ngyb

Fig5: British Influence
Credit: http://cms.boloji.com/articlephotos/Indian%20Architecture%20Colonial%20India4.jpg

techniques in its cities often to suit the needs of the ruling emperor. For instance, there were several notable expansions of social programs and hospitals under different emperors. The presence of different religions such as Jainism, Sikhism, and Islam, as well as the previously mentioned Hinduism and Buddhism, also worked their way into the tapestry of cities in the form of monasteries, temples, and other religious structures [Fig4]. It was finally during the Colonial period, 1857-1947, that India was strongly influenced by British architecture [Fig5]. Government buildings, roads, and the railway system were built during this time to reflect British culture. It was a form of dominance and assertion that their culture was the one that ruled. Naturally, while the colonized people resisted the influence of the British, the connection was made and persists to this day. Post-independence saw the vast migration of people from villages to the industrialized cities, which is actually a consistent trend amongst developing nations (Gast). Globalization and growing competition with developed countries in the global market further spurred this movement.

A critical point to note is that throughout Indian history, through the variety of religious and political influences, the structure of villages has generally remained the same. Indian villages, according to the Census of India, are defined as settlements of fewer than five thousand people. Their primarily focus is and has been on agriculture. The general structure of the villages is fairly similar across the nation. There is typically a central nucleus where houses are concentrated and fields, for subsistence and profit, are in easy walking distance (Anon.).

Since independence from England in 1947, Indian cities have encountered several different issues. One of the biggest problems in the development of post-colonial cities is a struggle with identity. There is the conflict with attempting to remain loyal and in touch with the nation's "true" heritage and embracing pieces of the culture that forcibly asserted itself. The "true" cultural heritage remains complex though. As stated earlier in the paper, India from the beginning was not an isolated nation. Extensive trade with neighboring Asian and Mediterranean populations allowed the transfer of ideas, religions, technologies, foods, and much more. All those components affected the overall Indian culture and its constant evolution. Perhaps the most notable difference was damage to national pride that came with being conquered. India, a nation that had been so innovative and powerful, had actually fallen

Fig6: British Influence
Credit: http://photo.outlookindia.com/images/gallery/20100122/delhi_ito_1950_20100201.jpg

Fig7: British Influence
Credit: http://s.ngm.com/2007/05/dharavi-mumbai-slum/img/dharavi-industry-615.jpg

to the hands of a relatively small European Island. And in the wake of independence, many reminders of that period remained, such as the infrastructure and subtle cultural notions that had been adopted. Leaders, such as the well-known Mahatma Ghandi, during that critical time of new post-colonialism, spoke of an India that "lived in villages" (Bergen). Unfortunately, the India that lived in villages was already becoming a thing of the past. The influence of British, colonialism around the world, and rapidly evolving technology created a trajectory towards global expansion.

During the late 1950s, there was a movement by the Delhi Development Authority to analyze and check the unplanned growth of sprawling residential communities [Fig6]. They had proposed reforming and regulating industries, "decentralization into districts," (Roy) an increase in public transportation, and the maintenance of a green belt to protect the ecological balance. This idealistic plan was typical of the time and unfortunately fell victim to a booming population. Development expanded into the green belt, areas that were supposed to remain on the fringes of the city became encompassed, and, most importantly, infrastructure such as roadways and housing could not keep up. This sad reality has continued into modern-day India despite different initiatives from cities to establish and maintain "modern" cities. Because of the lag between population expansion and new infrastructure, there are continually increasing numbers of impoverished inhabitants that live in so-called slums or shantytowns that lack access to clean water, plumbing, or electricity. In fact, it is estimated that "60 percent of the population" (Roy) resides in housing that is deemed 'unfit' [Fig7].

Slums have also been a reoccurring issue. Different decades addressed the issue differently. In the 1970s and 1980s, major cities issued 'no slum cities' declarations. Essentially city officials forcibly rehomed, resettled, and attempted to rehabilitate slum dwellers (Berrebi). These programs were largely unsuccessful. One factor working against the cities is that those who were resettled left a void for new emigrants from the rural villages to fill. One of the earlier progressive actions for slums occurred in 1972, when the 'Environment Improvement of Urban Slums' committee made it a goal to provide cleaning drinking water and sanitization to urban slums in Indian cities. The program even continued into the 1990s seeing the addition of access to public toilets to further improve sanitization.

To return to the original questions, current trends in

Indian urban planning include a strong focus on urban sanitization, as slums remain a problem to this day. Current plans also include ensuring that infrastructure keeps up with and/or remains ahead of the booming population of cities and particularly in the towns surrounding major cities. Another trend includes trends for housing urban impoverished. Finally, environmental sustainability, like most modern civilizations, happens to be an important element in planning. Most interestingly, while all these trends are specific to India, the appearance of most proposed designs are strikingly similar to what one would find in America or England.

So how can one apply all this information to Oak Tree Road in Iselin, New Jersey? The answer is a complex one. India saw a long varied history with a multitude of different influences from exposure to other civilizations, to an array of religions, to the agendas of different emperors, rulers, and leaders. The Oak Tree Road community inherits all that and carries with it the memory of difficult living conditions that spurred many to seek a better life in America. The culture of the residents melds into American framework. Luckily, culture is not a static thing and is constantly changing. Many of the most critical issues pertaining to Indian cities such as extreme poverty and lack of sanitation do not even directly apply to this community. While there is a range of socio-economic conditions, there is no noticeable homelessness in the area and the current infrastructure can more than handle the residents where sanitation is concerned. However, other issues such as proper infrastructure planning for population expansion, affordable housing, and ways to be conscientious of the environmental sustainability in urbanized areas certainly apply here. They are all lessons that can be learned from India and expanded on.

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4 Special Research Topic

4.11 South Asian Sustainable Architecture

Maria Torres

To begin understanding the art of Indian Architecture one must first grasp the cultural and religious derivatives, which are fundamental to India's identity as a country. In itself one must also value how the architectural character varies in diverse compositions as a whole. To begin, three main religious components of the early 3rd centuries that give rise to Buddhist characteristics are Chaityas, Viharas and Stupas. These elements are relevant to religious practices, and meditating. Another factor influencing Indian architecture is the impact of Islamic ruling during the 15th to the 18th Century. However, with the discovery of the new world, Indian culture also thrives in rich colonial architectural qualities that express gothic, Romanesque and baroque characteristics from countries such as Portugual, French and British. All of these main cultural factors speak for the diversity that India has to offer. How do we as designers cultivate multiple factors that speak Indian culture through a wide range of structures? As designers we must appropriately merge the idea of expressing culture through contemporary design without displaying the wrong message. With this said a more contemporary outlook at India's structural trend leans towards achieving sustainability. I will observe and critique different sustainable initiatives from within India and analyze how these structures reflect upon the culture itself. These examples will vary and tell us how to move forward with structural design intentions not only to preserve the Indian culture but also deliver a sense of functional aesthetic quality. Finally, as emerging designers there is a need to understand initiatives that will make involve community input to represent their cultural in design. Some initiatives may involve temporary design solutions to inspire and awake community integration on long-term project goals.

To begin, there are some main factors that influence India's architecture today. Although the characteristics vary from city to city, some of the fundamental structures express past religious practices. For example, "The stupa is an element from the early 273 BC used to remember a holy person, commonly used for meditation...meanwhile chaityas are carved structures usually to commemorate a dead person, but also to hold large number of people for prayer"(Gupte, Mehrotra,

Shetty, 61). Meanwhile with the Islamic movement during the 16th century, the architecture varied in space and scale. Also, another component added by Islamic focus on detail such as precious stones, carvings and gold. Common identifiable characteristics are also, round domes, open courtyards, and high pillars. Moving on to the 18th century India is influenced by a colonial style of architecture. For example, " Some of the utilitarian buildings demonstrate power rather then religion or meditation...this trend of architecture combined Hindu-Islamic and western styles...

Figure 1.

Figure 2.

Figure3.

churches, rail-stations and government buildings now show the combination of these three styles"(Cultural India).

See Figure1-Chaityas,See Figure2-Viharas,See Figure3-Stupas,See Figure4-Taj Majal,See Figure5- Panch Mahal,See Figure6-Taj Majal,See Figure7-Bombay University,See Figure8-Madras High Court

Despite India's historical architecture, the drive towards LEED sustainability has pushed forward more contemporary design initiatives. In the following examples there are two designs to compare from. According to the U.S. Green Building Council, "LEED stands for Leadership Energy and Environmental Design. This organization is transforming the way environments are design, built and constructed". To become LEED certified, buildings and neighborhoods must follow a point system, and must be maintained under LEED communities throughout the world. The benefits of having a LEED certified building or community consists of the long term energy savings, water harvesting and using recyclable material. There are different rankings for being LEED certified, depending on the amount of reused elements used throughout a project. For example, "The Godrej Green Business Center a project by Karan Grover in Hyderabad, India ...was awarded the first LEED Platinum by the USBGC in 2003."(Asia Business Council). But what makes it so successful? According to the council, " It controls water through rain harvesting reducing 35% of water consumption... Fresh air is drawn inside the building through wind towers, and the overall project was built using recycled materials from within 500ft of the site"(Asia Business Council). At a quick glance one might appreciate how this building completes the LEED standards and how it meets the sustainable requirements. However, in response to the cultural factors, the Godrej project, it does not respond any cultural context. The minimal reference to historical elements is found in the use of open courtyards and scale of space, in response to Islamic influences. Although this structure was the first in the country to receive a LEED award, it loses its cultural value by achieving something

else. It is important as designers to not just paint elements green, but to also be aware on context, culture and most importantly to their relationships in design. In the following case, another sustainable example is portrayed, however it is more sensitive to context and it successfully responds to significant architectural history.

See Fig9 Godrej Business Center,See Fig10 Godrej Business Center

In Lakdah, India, sustainable architecture takes another approach. The Druk White Lotus School is a " Primary and secondary school founded in 1992...known as one of the top ten projects in India for successfully integrating traditional materials into a sustainable design" (Basic Initiatives). One of the unique characteristics of this structure is its location; it sits within the high altitudes of the Himalayan Mountains, belonging to a mountainous community. It overall composition of architecture blends a simple design aesthetic but also complements to the surrounding context through the similar use of tradition material. "It's a model for building technology and model appropriate modernization"(e2 Design). This school also consists of similar Islamic architectural techniques such as high pillars, and open courtyards. What also makes this project very successful is the integration of the building progress and its relationship to the community. For example, " In the summer of 2009 the school installed a greenhouse along with a new irrigation system" (Ladakh summer blog). Although this example does receive first place in the USBGC standards it speaks the language of culture and tradition belonging to a culture. It is unique in that in integrates the community, but most importantly it is successful because it merges simple design with basic traditional elements.

See Fig11 Druk Lotus Himalyan School,See Fig12 Druk Lotus Himalyan School,See Fig13 Druk Lotus Himalyan School,See Fig14 Druk Lotus fountain plan,See Fig15 Druk Lotus fountain sketch,See Fig16 Druk Lotus fountain rendering

From the early historical elements that drive cultural awareness forward, often times it is best to represent culture in simple methods. For the Oak tree road project some ways to initiate response to culture is by taking those elements of Indian tradition and merging them so softly, the way Arup and Associates understood the Druk Lotus School. It takes awareness and understanding of tradition in order to respond to culture appropriately. Achieving rankings in sustainability is great for points and medals, but it should also express the traditional elements that identify a region. Small detail elements like round domes, pillars, courtyards and even material should not be exaggerated in designs applied to Oak Tree Road. In the beginning we learn about the different influences that drive Indian architecture from religious to western types of styles. For this reason, one cannot replicate a Taj Mahal or a temple within Iselin because the Indian community members can vary from the any region within India. Instead, the other option is to follow similar methods such as the Druk Lotus School, which contains local material, speaks for a small community but also modestly displays elements of traditional architecture. varied in space and scale. Also, another component added by Islamic focus on detail such as precious stones, carvings and gold. Common identifiable characteristics are also, round domes, open courtyards, and high pillars. Moving on to the 18th century India is influenced by a colonial style of architecture. For example, " Some of the utilitarian buildings demonstrate power rather then religion or meditation...this trend of architecture combined Hindu-Islamic and western styles...churches, rail-stations and government buildings now show the combination of these three styles"(Cultural India).

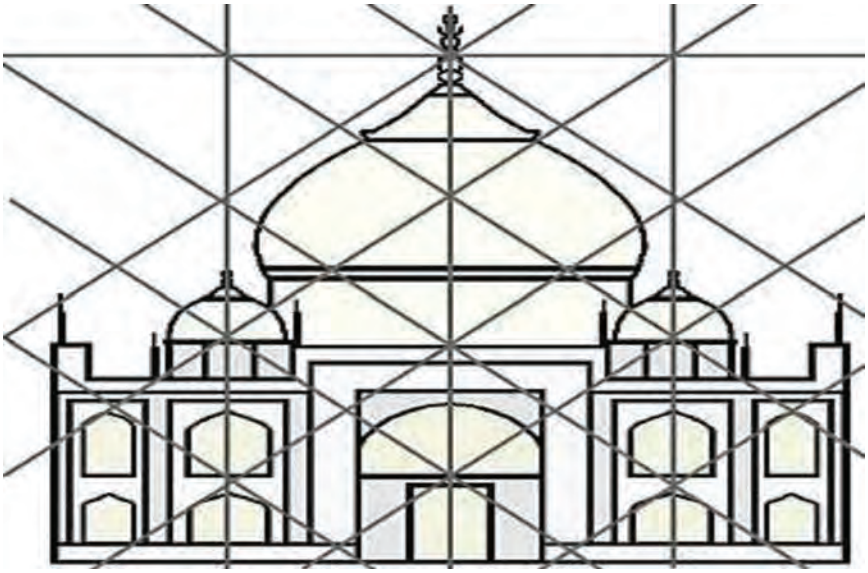

Figure 4

Figure 5

Figure 6

Figure 7.

Figure 8.

Figure9.

Figure 10.

Figure 11.

Figure 12.

Figure 13.

Figure 14.

Figure 15.

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4.1 Special Research Topics

4.12 Indian Parks

Ben Granovsky

figure 1: Ambedkar Memorial, Lucknow

Irish playwright George Bernard Shaw writes of India, "The Indian way of life provides the vision of the natural, real way of life. We veil ourselves with unnatural masks. On the face of India are the tender expressions which carry the mark of the Creator's hand." This paper is on the subject of Indian parks and begins with a background of India's environmental conditions and historic influences on park and garden design. It then goes into further detail by examining four parks, varying in type and scale from a regional level to a local level. It attempts to describe parks and their uses, while keeping in mind the social, cultural and environmental issues and opportunities facing India today. This paper's explorations into Indian parks, by beginning to uncover what makes an Indian park unique and distinct, serve as valuable lessons in the design of a park in the Indian dominated neighborhood of Iselin, New Jersey, a park that should reflect the truly unique Indian culture present in Iselin.

According to the Koppen Climate Classification System, India's climate mainly consists of warm desert, warm semi-arid, tropical savanna, humid subtropical, and temperate continental in the northwest, northwest and south central, west coast, north and central, respectively (Peel 1639). India has four seasons: Summer or pre-monsoon, monsoon, post-monsoon and winter. These last from April to June, June to September, October to December, and December to April, respectively (India Meteorological Department). India's geography includes five physiographic regions: Northern Mountains, Northern Plains, the Peninsular Plateau, Coastal Plains and Islands (India Meteorological Department).

Many parks in India are deeply connected with the country's history, and often hold within them cultural objects such as temples, mosques, forts, tombs, statues and monuments. In many cases, such a creation is the main draw, and the surrounding gardens are secondary, as in the case of India's most famous structure, the Taj Mahal. In some cases, the use of statues and monuments in Indian parks are all too common (Sinha) (figure 1). Historically, Mughal Empire gardens, a garden style derived from Islamic gardens, have been created in places all over the country. Due to the dry climate, especially in the northwest (in non-monsoon months), the Mughal kings' desire to have water and greenery in their palaces was a luxury (personal interview). Such royal gardens that were historically private have been opened to the public in recent decades, and are enjoyed by many people who like to relax, enjoy nature, and appreciate historic architecture

and gardens (figure 2).

India today has a unique relationship between its rich history, diverse but firmly held traditions and rapid urbanization and modernization, to the extent that the latest generation of Indians may be more familiar with a technology park than a traditional park. India is also notorious for pollution, and faces many environmental challenges, especially in cities. However, there are initiatives for needed improvement in urban forestry (Chaudhry). Some Indian cities such as Delhi have shown signs of increase of urban greenery (Chaudhry). "Urban green spaces are the most effective means of removing atmospheric pollution in big cities." (Chaudhry). In the last ten years, Delhi has increased its canopy coverage from 30 square kilometers to 300 square kilometers, which encompasses about 20% of the city's area (Chaudhry). Gandhinagar, the capital of the state of Gujarat, was established after Indian Independence in 1947 and has urban greenery integrated into its Master Plan, and in 2005 had a canopy coverage of 57% of the total city area (Chaudhry). Bangalore is known as the Garden City of India due to its roughly 700 parks. Chaudhry points out that educating the Indian citizenry about the ecosystem services and the benefits of urban green spaces is essential because public knowledge of these benefits is limited. This education needs to span not only practitioners and scientists, but political leaders and the general public as well (Chaudhry, Bagra, and Singh). Overall, the country has made perceivable efforts towards environmentally sustainable urban living, but much more needs to be implemented to keep pace with India's urban densification.

figure 2: Mughal Gardens, Delhi

Lodi Gardens is a 90-acre park in India's capital city, Delhi, created in 1936. At the time of creation it was named Lady Willingdon Park, after the wife of the Governor-General of India who designed the gardens. The gardens were created around existing historic structures, namely the tomb of Mohammed Shah, built in 1444, the tomb of Sikander Lodi, built in 1517, and Sheesh Gumbad and Bara Gumbad, two historic structures built in the 15th century. After Indian independence in 1947, Lodi Gardens was given its current name. In 1968, the park was renovated by architect Joseph Allen Stein and landscape architect Garrett Eckbo (Lodi Garden). The park "blends the ancient past with the more recent colonial present." (Nayar). It is a popular destination for local residents and tourists to go walking, jogging, practice yoga or have a picnic (The Times of India). Despite the park's well-known architecture, it has approximately 7,000 trees of 200 species, and includes a butterfly conservatory, herbal garden, lily pond and rose garden. The park attracts more than 50 species of birds as well (The Times of India). The park's historic tombs and mosques are under the protection of the Archaeological Survey of India (figure 3).

INTACH, the Indian National Trust for Art and Culture Heritage along with the city of Delhi and other partners

figure 3: Lodi Gardens

figure 4: Lodi Gardens

organizes a heritage walk in many culturally significant places in the city including Lodi Gardens. This park is an urban oasis in noisy, crowded and polluted Delhi, and one whose natural elements work in concert with the built elements, to provide people with an enjoyable experience and increase people's awareness about the value of nature (figure 4).

Jumping scales and contexts, the discussion of Indian parks cannot exclude its National Parks that are quite different from their urban counterparts yet equally significant in Indian culture. Also created in 1936 is Jim Corbett National Park, India's first National Park. Originally named Hailey National Park, it was renamed Ramganga National Park in 1954, and the following year was again renamed as Jim Corbett National Park, after British tiger hunter-turned-conservationist. This park, described as "the land of the Roar, Trumpet and Song", is known for its historic significance to the Indian National Parks and its diverse flora and fauna, including the rare Bengal Tiger. It is also the first of nine sites in India under Project Tiger, a nationwide Tiger preservation initiative that began in 1973 (Corbett Tiger Reserve). The biodiversity of the park is partly due to its location in the foothills of the Central Himalayas, with a large variety of habitats supporting upland Himalayan species and lowland species found throughout the Indian subcontinent. (Corbett Tiger Reserve). There are approximately 500 species of plants in the park, 600 species of birds, and a number of mammal species including tiger, leopard, elephant, and various deer and monkey species (Jim Corbett National Park). The park attracts approximately 70,000 visitors each year, with significant increases in visitation in recent years (Jim Corbett National Park). Many of the challenges of the park are issues related to human presence- both tourists and people in nearby villages. Tourist vehicles travelling through

the park increase soil compaction and cause reduced soil moisture and plant species (Tiwari et al. 309). Wood taken from the forests for fuel causes stress on the ecosystem as well (Tiwari et al. 309). Villages occasionally depend on timber from inside the park; some timber harvesting for these purposes is allowed, however there are additional issues because of the close proximity of the villages to the park, specifically cattle being killed by tigers and leopards, and villagers retaliating (Corbett Tiger Reserve). Poaching is a concern throughout national parks in India. Although poaching has decreased with the beginning of Project Tiger in 1973, the overall tiger population in India over the last century has decreased from 20,000-40,000 to approximately 2,000, and since the beginning of Project Tiger, populations have not managed to increase (Tilson et al.). Despite concerns about human impacts on the park's ecosystem, since the early 1990's the park has encouraged and promoted ecotourism, with training courses for nature guides (Tilson et al.). National Parks in general often have the challenge of striking the right balance of human presence because they strive to bring people to nature, unlike urban parks which bring nature to people. Without enough visitors the park will not exist, yet the more people come, the higher the risk of damage to the ecosystem.

A unique example of bringing nature to people is the city of Chandigarh. It is the newest planned city after Indian Independence, created to replace Lahore, the former capital of Punjab which became part of Pakistan, as the new capital. The city's Master Plan comprehensively integrates urban greenery, and has a 35% area coverage of trees, making it one of India's greenest cities (Chaudhry). The city plan was designed by Le Corbusier, and was Indian Prime Minister Jawaharlal Nehru's "dream city" (Rediff News). Chandigarh, also called The City Beautiful, is known for its architecture, urban design, gardens, and for having the highest per capita income of any Indian city (Chandigarh). In 2010 it was designated as India's cleanest city (Rediff News). Despite Chandigarh's positive environmental, social and economic achievements, it has experienced decline since its early days of architectural and urban fame: The concrete facades of Le Corbusier designed buildings are not well maintained and have experienced significant weathering, and they have accumulated stains and have turned black (Sharma 42). The land use policies have been ineffective in maintaining the city's original planned capacity and quality of life; the city now has 30% of its population living in sub-standard housing (Sharma 42). The city currently is subject to familiar issues related to retail activity: due to flawed land use policies which have not permitted residential use near retail and commercial use, the shopping centers become empty by 9pm, and lack a vibrant nightlife. "It's obvious that the planners failed to recognize benefit of mixed land use which has been traditional format for animated and lively environments in our cities." (Sharma 43).

figure 5: Leisure Valley, Chandigarh

One of the most well known parks in this city is Leisure Valley, an 8 km-long linear park stretching northeast to southwest from the center of the city out towards the edge (figure 5). Intentionally planned and preserved by Le Corbusier, Leisure Valley was created on either side of a seasonal rivulet, and contains a series of smaller parks and gardens, similar to the Emerald Necklace in

Boston, designed by American landscape architect Frederick Law Olmsted. It includes Rajendra Park, Bougainvillea Garden, Rose garden, Shanti Kunj, Bamboo Valley, Children Traffic Park, Hibiscus Garden and Fragrance Garden (Leisure Valley). Rajendra Park was designed by Le Corbusier in 1954 and is a 400 acre area popular for "long walks, learning to drive and horse riding." (Leisure Valley). Bougainvillea Garden is a 20 acre garden created in 1976 containing many varieties of bougainvillea, an ornamental flowering vine (Leisure Valley). The rose garden, named after Dr. Zakir Hussain, India's 3rd president, was created in 1967 and is the largest rose garden in Asia, with at least 17,000 plants of 1,600 varieties (Leisure Valley) (figure 6). Leisure Valley is a prime example of an Indian park in a planned city.

figure 6: Rose Garden in Leisure Valley, Chandigarh

Another remarkable park in Chandigarh, close to Leisure Valley but not within its boundaries, is the Rock Garden. Author Leslie Umberger writes in her book Sublime Spaces and Visionary Worlds: Built Environments of Vernacular Artists:

India is a land of contrasts. Anyone encountering the city of Chandigarh and its adjoining city of immortal beings known as the "Rock Garden" would certainly agree. The story of the man who made the Rock Garden, Nek Chand Saini, is also a story of contrasts. Working as a government official by day and covert artist-collector by night, Nek Chand…built the scores of sculptural works that make up the Rock Garden in a forbidden zone that has since become Chandigarh's alter ego.

Begun in 1957, the garden is completely constructed out of recycled materials that Chand gathered from demolition sites containing the remains of the old villages that were torn down in order to make way for Chandigarh after Independence (Umberger 319). He took old concrete,

figure 7: Nek Chand Rock Garden

figure 8: Nek Chand Rock Garden

figure 9: Nek Chand Rock Garden

stone, ceramic tiles and various objects and created hundreds of sculptures (figures 8-11). Chand carefully arranged the variation in the individual spaces of the garden, "creating a dynamic visual and physical sensibility. Disjointed and varied, the Garden is never entirely visible from any one point, and each space varies in color, scale, and subject."

(Umberger 331) (figure 7). The Rock Garden in some ways is the antithesis of Le Corbusier's vision of a homogeneous modernist city grounded in the grid system, and one which placed a priority on citizen enlightenment to city planning over the "whims of individuals". (Umberger 320). Interestingly, both Chand and Le Corbusier used concrete, but the latter almost exclusively as external façade and the former as inner support material for his sculptures (Umberger 331). The ideology, design intent and character of Chandigarh and its Rock Garden may differ, but it is undeniable that they both arose from a desire to represent an inner self (figure 12).

The Rock Garden of Chandigarh is a truly unique example of not just an Indian park but any park found anywhere. It resists, and answers Le Corbusier's urban form of Chandigarh, yet embraces the vernacular materials and by doing so creates a bold and rebellious yet gentle bridge between cultures and values. It fuses the elements that make up India's contrasts; contrasts between religions and castes, between the monsoon and the dry season, between buildings and gardens. These types of contrasts are also seen in the culture of Iselin, such as contrasts between new immigrants and second generation Indian-Americans, or Indian businesses and the surrounding neighborhood. The Iselin community is in need of a park for its people, and if parks in India are indicative in any way of Indian culture, they reflect the incredible cultural diversity and reinforce the need for its preservation, because all parks, and cultures, are both bound and threatened by the passage of time.

figure 10: Nek Chand Rock Garden

figure 11: Nek Chand Rock Garden

figure 12: Le Corbusier's Open Hand Sculpture, Chandigarh

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IMAGES

Image 001: Ambedkar imageDetail?format=plain&-source=http://abcnews.go.com/images/International/cf066310f-3964983b100aec12753e38c

Image 002: Mughal Gardens, Delhi. http://www.delhitravel.org/wp-content/uploads/2011/06/Mughal-Garden-Delhi-Picture-1.jpg

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Image 005: Leisure Valley, Chandigarh. http://www.journeymart.com/de/india/chandigarh/chandigarh/leisure-valley.aspx

Image 006: Rose Garden in Leisure Valley, Chandigarh. http://commons.wikimedia.org/wiki/File:Rose_Garden_Chandigarh_Inida_(2).JPG

Image 007: Rock Garden. http://www.flickr.com/photos/igb/3195800999/sizes/l/in/photostream/

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Image 012: Chandigarh, Le Corbusier's Open Hand Sculpture. http://www.flickr.com/photos/diametrik/354985255/sizes/l/in/photostream/

4 Special Research Topics

4.13 Community Outreach in Landscape Architecture Process

Chantae Moore
Russell Sewekow

Iselin, NJ is an extremely diverse community. People from all over the township, region and country visit the site on a day to day basis, whether it is a resident, passer-by, business owner, shopper, employee, or visitor. As a landscape architect it is important to pay close attention to each of these user groups and, in best case scenario, provide amenities and programming to each. In Iselin many of these user groups have various wants and needs, as well as issues with the way their landscape is working for them now. Each group has separate motives based on what they value as a part of the community which causes conflict in designing a landscape that provides for everyone. In order to better understand what each group would respond positively to in our class's designs, we have compiled information that has aided and guided our process of design.

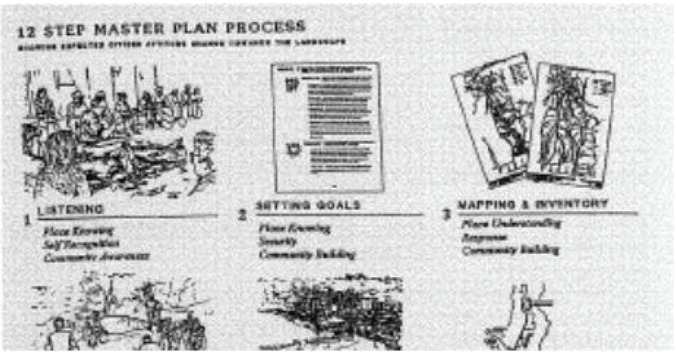
In the profession of landscape architecture, as well as architecture and planning, the general process of professionally contracting projects and designs is clearly laid out and strict procedure. The firm or independent designer is commonly given the task of putting form to a preconceived solution that has been developed by a client, whether it is a company or individual person (Francis, 1999) Problems arise with this common approach to environmental design process due to the effectiveness of its representation of the various "clients" that are affected by the actions taken by decision makers and designers. Generally throughout the world, there exists a demographic that has little control of the environment in which they inhabit. For these people, outside of their immediate private property or rented property, they have no say in how the landscape is developed or treated; they are merely just subject to it (Hester, 1990). It can be argued that the less powerful people have less to no say in larger scale decisions, and that people of more power shall have a louder voice throughout the design conception, process and completion. However, it is an extremely valid debate to say that such dictatorial methods are not only morally incorrect, but also negative the success of the project, in terms of providing functions and services correctly to the people who use the space, building, landscape, etc. (Sanoff, 2000). The major distinction between purely institutionalized design and sensitive community design is equivalent to that of exclusionary and conservative principles versus socially and ecologically just principles behind the design (Francis, 1999).
In order to curb this common injustice in contemporary practice, various participatory techniques have been developed that allow all factors (user-groups) of the equation (project/environment/community) to contribute in various decisions making. The purpose of this

M. Pugliese, 2012

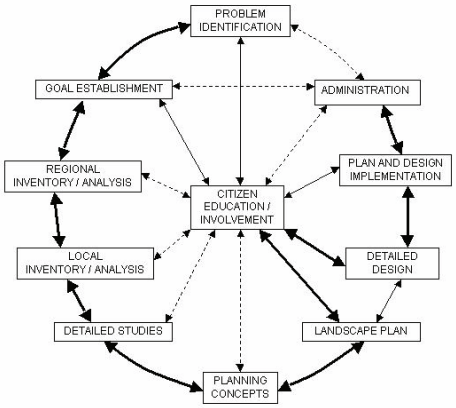
article will be to address the topic of community participation throughout the process of building and planning public space, including a background on the subject, an analysis of the positive and negative aspects of it; as well as a look at our senior landscape architecture design studio's use of participatory methods, including an analysis of its effectiveness.

The topics described by the first paragraph outline the issues and or goals of a practice that has come to be called *Community Design*. Originating out of the advocacy planning movement of the 1960's (Francis, 1999), Community design can be defined as those professional designers that create everyday environments, close to home, and places that locals may spend most of or a good amount of their time at (Hester, 1990). Another important definition to settle is that of community. A book by Nick Wates defines a community as "a group of people sharing common interests and living within a geographically defined area" (Wates, 2000), pointing to various users and user groups interacting socially within a given area. It is important to recognize community design as an "umbrella term" that covers a wide variety of practices that recognize common issues. These practices of community design include community architecture/ landscape architecture and social architecture/landscape architecture as well as sociology (Sanoff, 2000). The origin of this way of practicing environmental design was a gradual awareness of socially and economically detrimental effects can arise through the "mismanagement of the physical environment" (Sanoff, 2000). The importance of such a movement to the progress of society towards a better designed environment is that it pushes towards looking in-depth at what approaches to design and planning are most effective at producing socially sound outcomes.

The positive aspects of community design are numerous when it has been utilized in correct ways, offering extremely viable results and input, opposed to skewed or lacking information.



*The beginning of **Randy Hesters** master plan process, 1st step - LISTENING*



FREDERICK STEINER'S ECOLOGICAL PLANNING MODEL

Benefits may include but are not limited to enhancing the sense of a community, enhancing the sense of a place, provides education, activates previously unheard voices in a community and brings about new leaders, all contributing to working towards the ultimate goal of ecological justice (Hester).

Participatory design allows for bottom-to-top action to take place opposed to top-to-bottom, creating a grassroots democracy, permitting user-groups even with little power to voice their issues and possibly draw attention to an issue (Hester, 1990). This initial drawing together of people from the same geographically area to discuss problems and ideas for solutions can really strengthen a group of people (Hester, 1990) Such opportunities as these allows for people to meet strangers living fairly close to one another, a situation that oddly enough may have never came about previously. People of communities then can create bonds by exchanging values and ideas that as people each can learn to respect variable opinions (Hester, 1990). Ultimately the opportunity for people to initiate a relationship through participatory design holds a special opportunity for a community to strengthen itself.

In participatory design, the social and societal inventory of a neighborhood is far more in tune and on point to actuality then one that is simply observed and assumed upon, such as in our studio, therefore better decisions can be made in sync with what the community brings to attention (Wates, 2000). Homogenous and uncharacterized landscapes fall to rich places that cater to unique uses or form desired by user-groups of the site, avoiding an “environmental anomie,” or feeling of placelessness (Hester, 1999). Participatory designs prove to be worthwhile in creating more appropriate results at the end of the process, generally bringing more cohesion between what is needed and wanted and the outcome (Wates, 2000).

Participation throughout the design process of public spaces, encourages educational experiences mutually for the community members and professionals alike. The community is able to inform the professionals about their own town, opening eyes to things that may not have been noticed with an outside eye (Wates, 2000). On the other side of this perk lies the professional teachings of the values inherent in a landscape architect, including raising general environmental awareness as well as stewardship (Hester, 1990).

Participatory design is democratic design, and withholds the democratic credibility of a governing system (Wates, 2000).

The concept of participatory design in the United States is inherent and instinctual based on our democratic government the country had been founded upon (Hester). The first and second of the Bill of Rights allows for such public participation unlike many governments that suppress such activity, the United States was meant to thrive on, by keeping all parties and people involved, everyone is a decision maker and therefore the all powers are checked and balanced (Hester). This ideal vision our forefathers had regarding public participation was important and powerful, yet it doesn't seem it is still alive today, however in such a political profession as landscape architecture it is preferable. Landscape architects as well as other community designers shall work towards ecological justice, allowing all people of a community to be represented in the design of their neighborhood and public spaces (Hester, 1990).

Business Community Outreach Meeting in Iselin, NJ restaurant. Image Credit - M. Torres, 2012

There are many ways a professional design can engage community groups in a design, countless methods and ideas have been developed in the past, and more can be thought of. To just hit the tip of the iceberg, methods may include questionnaires, interviews, public forums and hearings, community design centers, charettes, games, diagraming, and design reviews (Wates, 2000). In our studio we were lucky enough to prepare and conduct interviews with business leaders from the area, as well as representatives of the township. The best community based design plan for community involvement will utilize not just one of these methods (Wates, 2000), but approach the problem from multiple angles to receive the widest variety of responses representing each user-group. The common factor in all of these techniques is communication, exchanging of ideas and values on various topics. As can be seen in a number of stepped processes, such as Randolph Hester's as well as Fredrich Steiner's model, the participation process is the beginning and end to a community design, and communicating throughout the entire overall process. Right from the beginning of a project,

Image Credit - Randy Hester

it is important to address issues and goals for a site, which will be different for practically every person, however common problems and goals may be found (Hester 2000). Further communications on a project between designer and user-groups will benefit the design by keeping people on board with what the project is proposing, and if they steer away from creating a positive space, they are quickly checked and balanced by a community user-group.

A questionnaire can be a great way to pull information out of people, while also creating and organized and detailed record or the results, thereby offering a generalized assessment of the values of certain groups (Wates, 2000) Questionnaires and surveys, however, can be somewhat tricky. Wording and formatting questions is of the utmost importance, things must be written in such ways that they result in powerful and useful information. Therefore many professionals will suggest hiring an outside expert to work with you to achieve your goals for the survey (Steiner, 2008).

Questionnaires offer organization and legibility of opinions and thoughts; however they are depersonalized in the fact that no vocal conversation is really even necessary. This can be argued to have negative aspect on the results, such as bias in the way it was written with no opportunity for reprise, as well as a missing humanistic factor that can't be learned about a site without actually speaking to local, such as in finding a "sacred space" (Hester, 1982). More face to face time between the community and professionals can only improve where the design ends up. Such techniques are the interviews, forums and charettes, all of which encourage a high level of participation and can really raise the excitement of a project; by putting the problems out on the table and thinking of how to solve them can enable people to see a change for the better in sight (Hester, 1990)

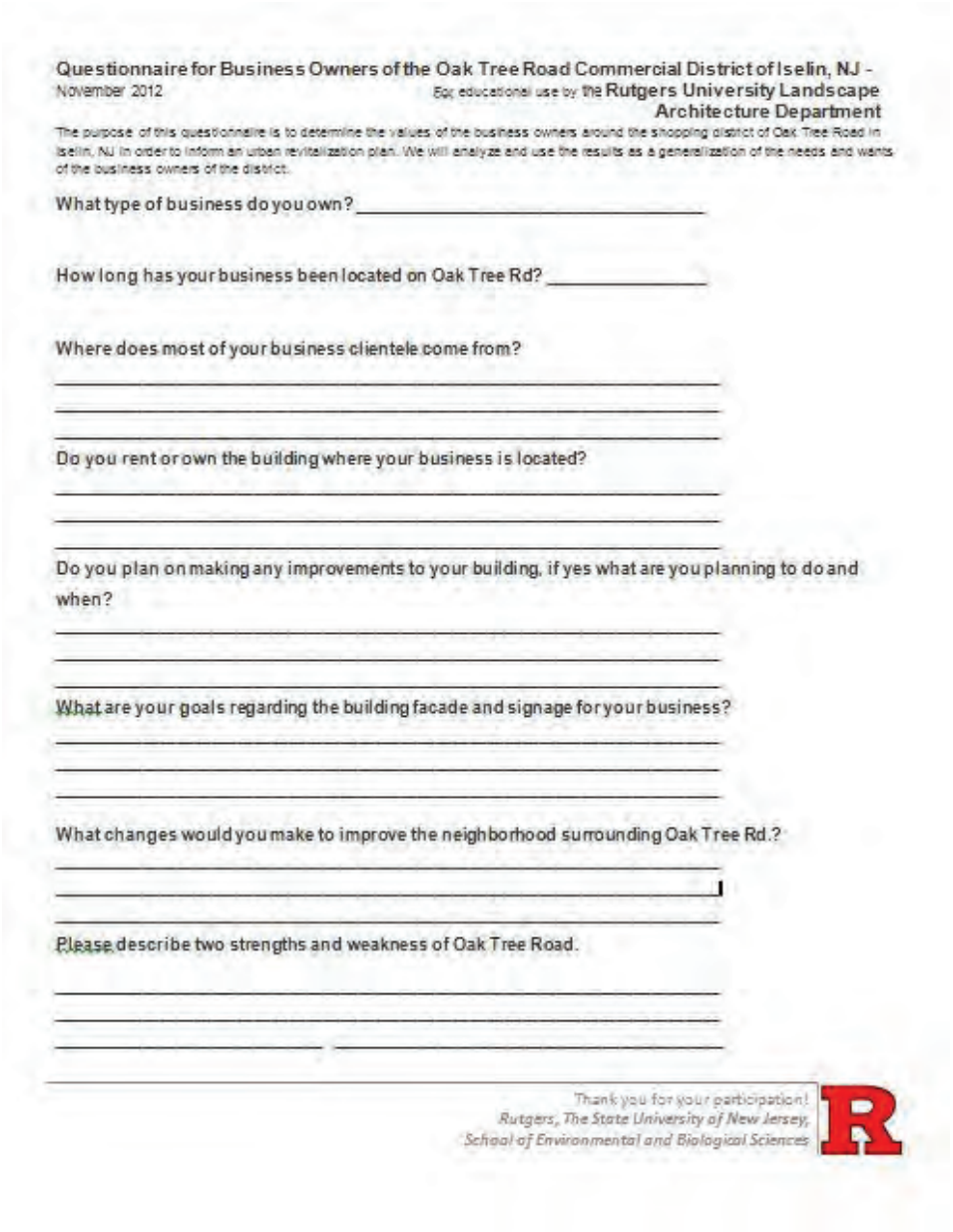
Students of landscape architecture are taught a number of ways of thinking and responding to different problems.

Whether it is how to align a path, or how to revitalize a slum, we pay close attention to the values of the clientele. Therefore the bias of the client's values may hinder the thought process of visionary thought that could lead to better and more comprehensive outcomes (Francis, 1999). While in school, opposed to real world professional practice, students are able and often encouraged to think as a visionary, coming up with best possible solutions for specific problems, opposed to merely putting form to a preconceived solution by the client, offering a window of opportunity to academia to contribute efforts to the community design movement.

" The traditional culture of professional practice can be characterized as client serving, rather than vision making..."

-Mark Francis, Proactive Practice 1999

There is no real client that is going to pay students for work, so the word client can be redefined to better represent a community. As Randolph T. Hester states, the client is almost always diverse, a "broad spectrum of people" (Hester 1990). In the educational research of communities through design studios, the entire community can be the client, including all of its various constituents, opposed to a single. This of course could lead to fresh ideas and a broadened vision for a place or community.



Questionnaire for Business Owners of the Oak Tree Road Commercial District of Iselin, NJ -
November 2012 — For educational use by the **Rutgers University Landscape Architecture Department**

The purpose of this questionnaire is to determine the values of the business owners around the shopping district of Oak Tree Road in Iselin, NJ in order to inform an urban revitalization plan. We will analyze and use the results as a generalization of the needs and wants of the business owners of the district.

What type of business do you own? _____

How long has your business been located on Oak Tree Rd? _____

Where does most of your business clientele come from?

_____
_____
_____

Do you rent or own the building where your business is located?

_____
_____
_____

Do you plan on making any improvements to your building, if yes what are you planning to do and when?

_____
_____
_____

What are your goals regarding the building facade and signage for your business?

_____
_____
_____

What changes would you make to improve the neighborhood surrounding Oak Tree Rd.?

_____
_____
_____

Please describe two strengths and weakness of Oak Tree Road.

_____
_____
_____ _____

_____

Thank you for your participation!
Rutgers, The State University of New Jersey,
School of Environmental and Biological Sciences

1st draft Questionnaire - Chantae Moore & Russell Sewekow

This type of educational design studio is commonly called a service based design coming from an activist university, where the work being done is benefit a group of people without payment or other incentive, just the vision of ecological justice (Francis, 2000),

The area of focus for our senior was the Oak Tree Rd. neighborhood of Iselin in Woodbridge Twp. Despite falling prey to the 1980's trend of "Main Street" abandonment, the district experienced a large population influx of South Asian Indians in the Early 1990's. Located in the heart of New Jersey this sub-urban downtown serves as a cultural and commercial

hub for the regions South Asian population, reinvigorating this once neglected area. Within our primary position as designers of this place, we needed to first identify what we saw as current issues and future goals for the neighborhood, but also acting advocates and acknowledging what the local community leaders saw as important.

The resulting list included topics such as; retaining the cultural authenticity and identity of the current users, allowing for better vehicular and pedestrian accessibility and circulation, increasing the sites overall ecological sustainability, as well as creating more open space for social interaction. Developing these abstract ideas into concrete actions still required the assistance of a very important and influential user, the business owner. Our studio's second site visit on September 18, allowed us this opportunity. Employing our initial list of objectives for Oak Tree Road, the class compiled a list of questions that would help to identify the issues and desires for this segment of the population.

Urban Spice, a local restaurant just off Oak Tree Rd, accommodated the group; comprised of our studio class, Woodbridge Township Council Members and business owner. Although conversational the number of board members present for the discussion deemed it an official meeting of the Oak Tree Road Special Improvement District.

The common concern brought up by both business owners and township officials was regarding the shortage of parking throughout the area, so much so that it was the prime reason of allowing Oak Tree Road its designation as a Special Improvement District. Business owners were reluctant to move parking from along Oak Tree Rd. One business owner in particular noted that because many of his clients arrived by car, less cars circulating along Oak Tree Road was synonymous with less business. A proposal by the Township to shut down the streets, specifically for the celebration of festivals, was opposed by 70% of the business owners surveyed. The township officials recognizing the added stress on infrastructure by increased vehicular traffic, was bothersome not only to the safety, ease of circulation, but also to adjacent residential home owners.

Although Oak Tree Road is located in walking distance to Metro Park Train Station, a major hub along the North East Corridor, all at the meeting acknowledged its limited connectivity with the downtown area. Most of the owners agreed that although many of their clients come from all over the East Coast, most find it more convenient to travel by car. A major reason the group determined as to why the train was underutilized was the limited pedestrian accessibility to the station. Impediments to pedestrian circulation were

not just a problem for reaching the train station but also within the neighborhood. In aims of increasing the safe circulation for pedestrians, about 10 years ago the township added center turn lanes to calm dangerous intersections. In order to do this the sidewalks were narrowed from 14' to their current width which ranges along the entire length of the corridor. Within the neighborhood adjacent to Oak Tree, changes to ordinances and homeowner property esthetics, attribute to the fragmented and disjointed sidewalk circulation.

When asked questions regarding the use of recreational space within the area, the local business owner representatives had mixed response s. Although Kennedy Park is within walking distance to Oak Tree Rd, only a few of the owners mentioned using the park for leisure. They reasoned that range of seasons in addition their busy lifestyles prevented them from visiting the park.

In all, the meeting with this group of community stakeholder's, enlightened our class into what these users would want in a development plan for the Oak Tree Road neighborhood. Both the township officials and business owners repeatedly emphasized the need for more parking infrastructure, a problem that needed to be addressed in order for continued success of this thriving commercial center.

After reviewing the feedback given to us by the business owners, each individual group focused on proposing solutions to the problems raised in the meeting as well as the aforementioned goals developed within our design groups. As informative as the meeting with the local business owners was this relatively one dimensional single interpretation of the neighborhood was not varied enough to reflect the views of the entire user population.

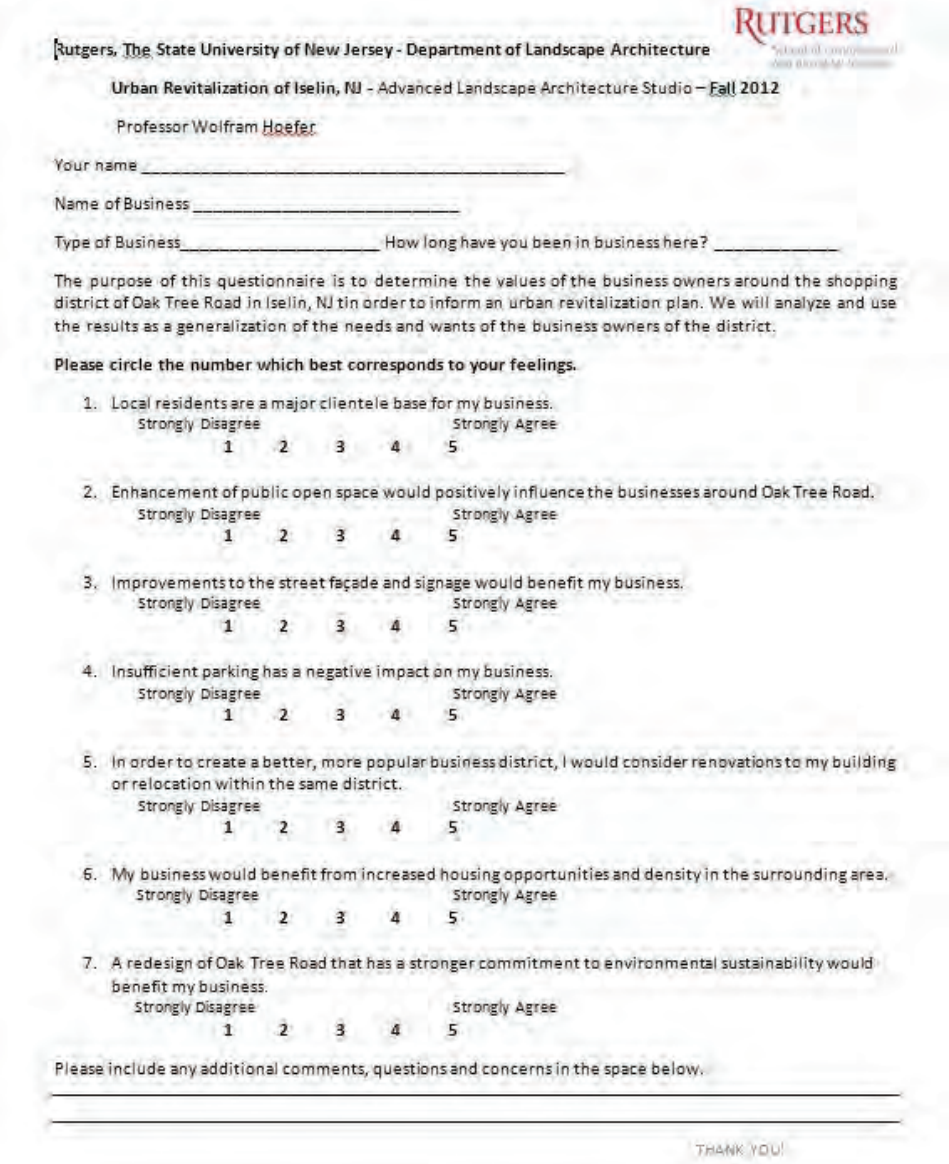
In order to reach a broader audience, as suggested at the meeting, a short questionnaire was developed in order to attain a broader and more inclusive view from the community. Initially designed to distribute to clients of some of the businesses along Oak Tree, the questionnaire was later revised to address other businesses within the district.

The decision to limit our interactions to just the community leaders, proved detrimental to obtaining a realistic outlook on the communities desires for our projects design.

"The sampling should be so carefully chosen that through it the researcher is able to see all the characteristics of the total population in the same relationship that he would see them where they actually to inspect the totality of the population..."

Practical Research:Planning and Design.Paul D. Leedy.1980

Responses to a questionnaire from such a limited user group would ultimately be found bias, representative only of what is most important to those asked; as was the issue of parking for businesses. A more effective use of community participation would have been necessary to truly understand the dynamics at work for the districts users, visitors, business owners and government officials. A structured plan that involved a more diverse user group could have brought to our attention issues that may have been overlooked by us as designers or have little impact on the area's businesses. More interactions and communication with the community members would also have allowed for periodical checkpoints, which would have provided allowed for feedback from those individuals who would be using the site for reasons unrelated to their vocation. As mentioned at the forest of the article, successful community outreach must be all inclusive of the potential users in order to attain realistic data that will in return inform a design that represents the true sense of the place.



Rutgers, The State University of New Jersey - Department of Landscape Architecture

RUTGERS

Urban Revitalization of Iselin, NJ - Advanced Landscape Architecture Studio – Fall 2012

Professor Wolfram Hoefer

Your name _____

Name of Business _____

Type of Business_____ How long have you been in business here? _____

The purpose of this questionnaire is to determine the values of the business owners around the shopping district of Oak Tree Road in Iselin, NJ tin order to inform an urban revitalization plan. We will analyze and use the results as a generalization of the needs and wants of the business owners of the district.

Please circle the number which best corresponds to your feelings.

1. Local residents are a major clientele base for my business.
   Strongly Disagree 1 2 3 4 5 Strongly Agree
2. Enhancement of public open space would positively influence the businesses around Oak Tree Road.
   Strongly Disagree 1 2 3 4 5 Strongly Agree
3. Improvements to the street façade and signage would benefit my business.
   Strongly Disagree 1 2 3 4 5 Strongly Agree
4. Insufficient parking has a negative impact on my business.
   Strongly Disagree 1 2 3 4 5 Strongly Agree
5. In order to create a better, more popular business district, I would consider renovations to my building or relocation within the same district.
   Strongly Disagree 1 2 3 4 5 Strongly Agree
6. My business would benefit from increased housing opportunities and density in the surrounding area.
   Strongly Disagree 1 2 3 4 5 Strongly Agree
7. A redesign of Oak Tree Road that has a stronger commitment to environmental sustainability would benefit my business.
   Strongly Disagree 1 2 3 4 5 Strongly Agree

Please include any additional comments, questions and concerns in the space below.

_____

_____

THANK YOU!

2nd draft Questionnaire - Chantae Moore & Russell Sewekow

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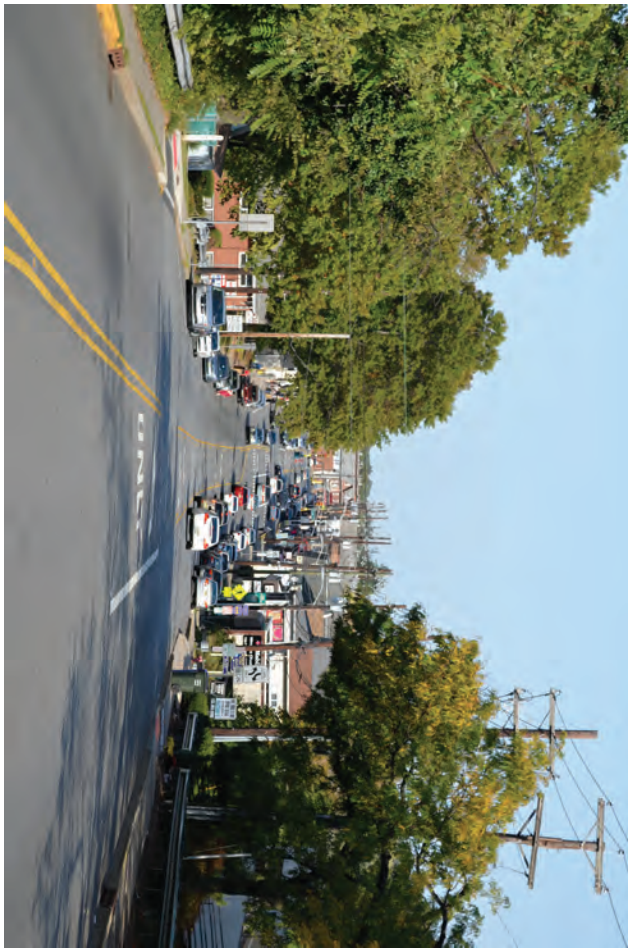
5. Design




1422 COOPER TOWERS


PHONE CARDS
PHONE CARDS


OAK TREE RD
HILLCREST AV

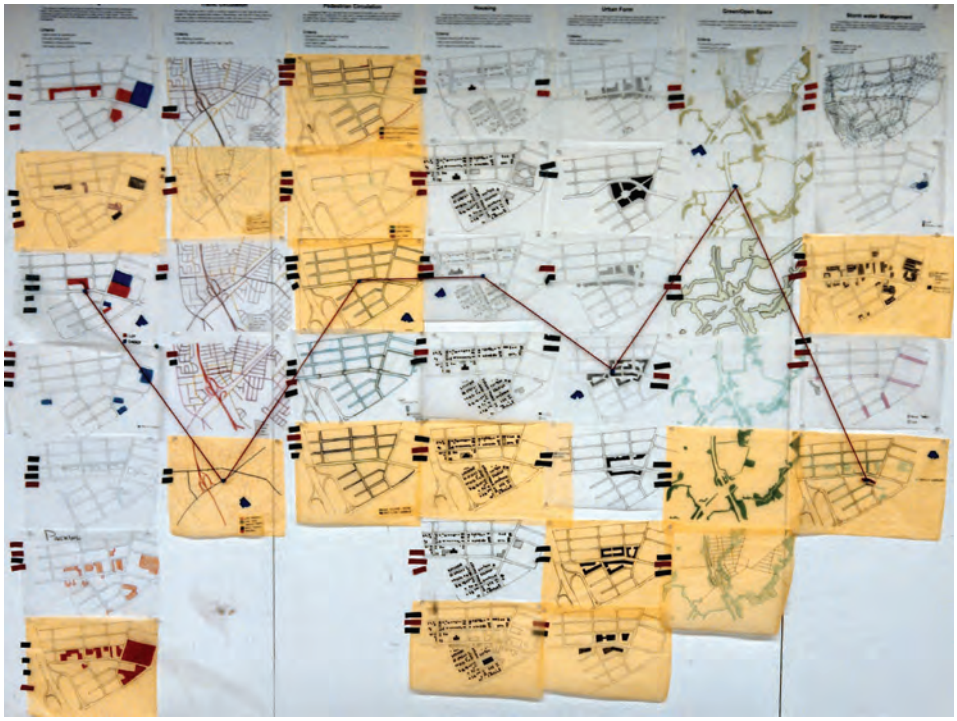
5.1 Oak Tree Road: Green, Business, Community

5.1.1 Morphological Box

Justin Acal
Derrek Cowell
Frances Turner
Janine StJacques

Morphological Box

The first step to developing the initial design was to take a look at what criteria our group found to be important to improving the Oak Tree Road community. We came up with seven issues that we thought were necessary to find a solution to. These issues are parking, pedestrian circulation, storm water management, urban form, housing, green/open space, and traffic circulation. After finding the issue, we came up with a problem statement for each one and criteria we would follow to come up with the best possible option. Here are the problem statements and criteria for each issue.



Photos by Derrek Cowell

Parking

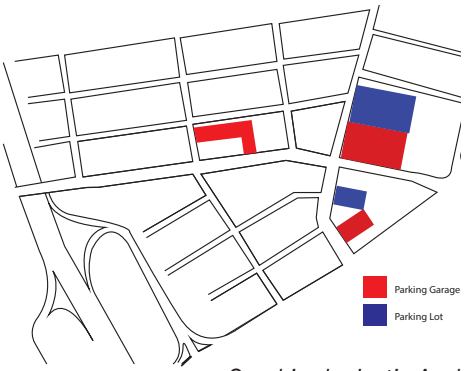
The amount of parking spots doesn't meet the needs for the booming businesses in Iselin. The primary concern of the business owners is the number of spaces for their customers to park as well as having spots for them close to their shops. The primary concern of the customers is the distance, accessibility, and safety from parking lots to the businesses. We need to focus on safe routes for pedestrians for the parking lots, enough parking spots for shoppers and business owners, parking in close proximity to businesses, and we want to decrease parking footprint in order to fix this issue.

Pedestrian Circulation

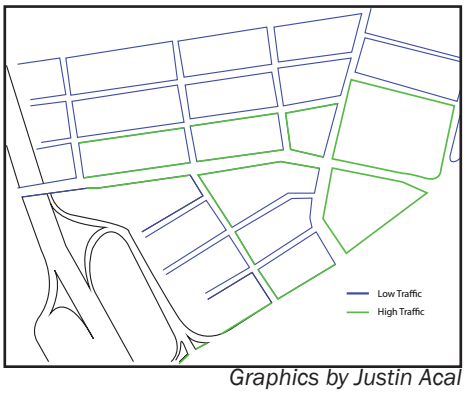
Throughout Iselin you will notice the inconsistent connection and terrible conditions of the sidewalks. For a pedestrian this puts them in dangerous situations and puts limitations on where they can go. Pedestrians' safety, comfort, and access throughout the site are a problem due to these conditions of the sidewalks. To make this better we looked at making a better circulation flow down Oak Tree Rd and connection to train station. We also want to limit desire paths and make sure they have a purpose. Broken, narrow, and inconsistent sidewalks hindered easy walkability, particularly for people walking in groups.

Storm Water Management

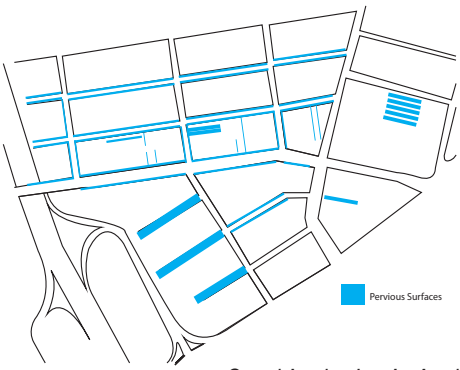
Storm water management proved to be another issue as there was an excess of impervious pavement and little to no measures to address the runoff produced as a result. The drainage of Iselin runs down Oak Tree Rd towards route 27 and collects at the intersection. Existing storm water management practices are inadequate to accommodate the high volume of runoff and there is no filtering system for the pollution entering the stream corridor. If we can limit runoff off the site, reuse storm runoff, and purify storm runoff this would be an excellent solution.



Graphics by Justin Acal



Graphics by Justin Acal



Graphics by Justin Acal

Urban Form

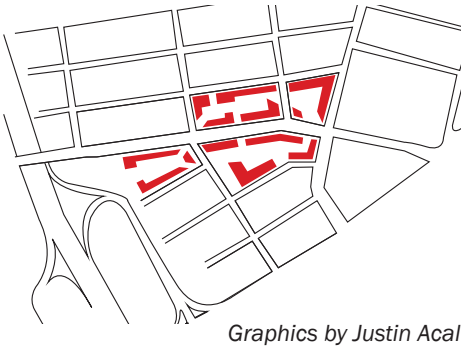
The urban form of Iselin is having all of the businesses along both sides of Oak Tree Rd stretching the shops the length of this busy road with minimal sidewalk space for pedestrians. The businesses are placed close to the street and have useless voids in between majority of these shops. Visually, businesses were disjointed by varying heights of buildings, setbacks, and facades. In order to create a visually pleasing community, our group felt that reworking the urban form would be necessary by decrease businesses footprint and pushing the businesses of Oak Tree Road.

Housing

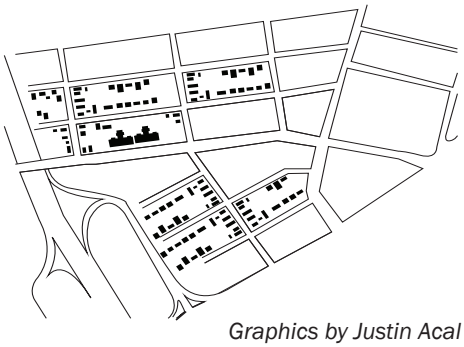
There are eager friends and family members of the Iselin residents who are trying to live in Iselin but are put on waiting lists because of the lack of housing. Business owners would like more housing in the area as long as they don't sacrifice space for their shops. There is a high demand for housing and an insufficient supply in Iselin. Many rental houses in the southwest quadrant of the project space were run-down and are in need of a redesign. We want to increase housing with little footprint and add more affordable housing without creeping into the commercial zone.

Green/Open Space

Looking at Iselin's current conditions there are no parks, stream corridors, or natural habitat in the immediate area. The distance, accessibility, and lack of existing green spaces on or near the site are insufficient for quality of life. If we can connect green habitats or increasing park spaces and green surface area it would give a strong environmental aspect. Another key factor was to keep all of the existing trees that aren't invasive.



Graphics by Justin Acal



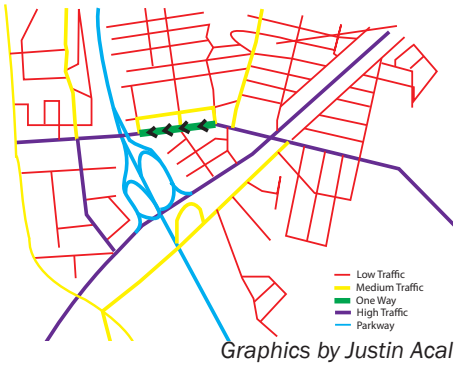
Graphics by Justin Acal

Graphics by Justin Acal

Traffic Circulation

The existing vehicular traffic in Iselin is creating congestion on Oak Tree Rd due to the number of motorists traveling from Edison to Woodbridge. Oak Tree Rd is being used as a major artery which is affecting the surrounding roads and areas by inconveniencing the residents and daily commuters and limits easy access to the businesses. We don't want to affect the resident's circulation in to process of diverting some traffic away from Oak Tree Rd and widening the roads.

There were four to seven possible solutions generated for each major issue. Our group then analyzed those solutions using our criteria for each one. Going through each alternative we gave it a check or minus and picked the one that seemed to best rectify the situation.



Graphics by Justin Acal

5.1 Oak Tree Road: Green, Business, Community

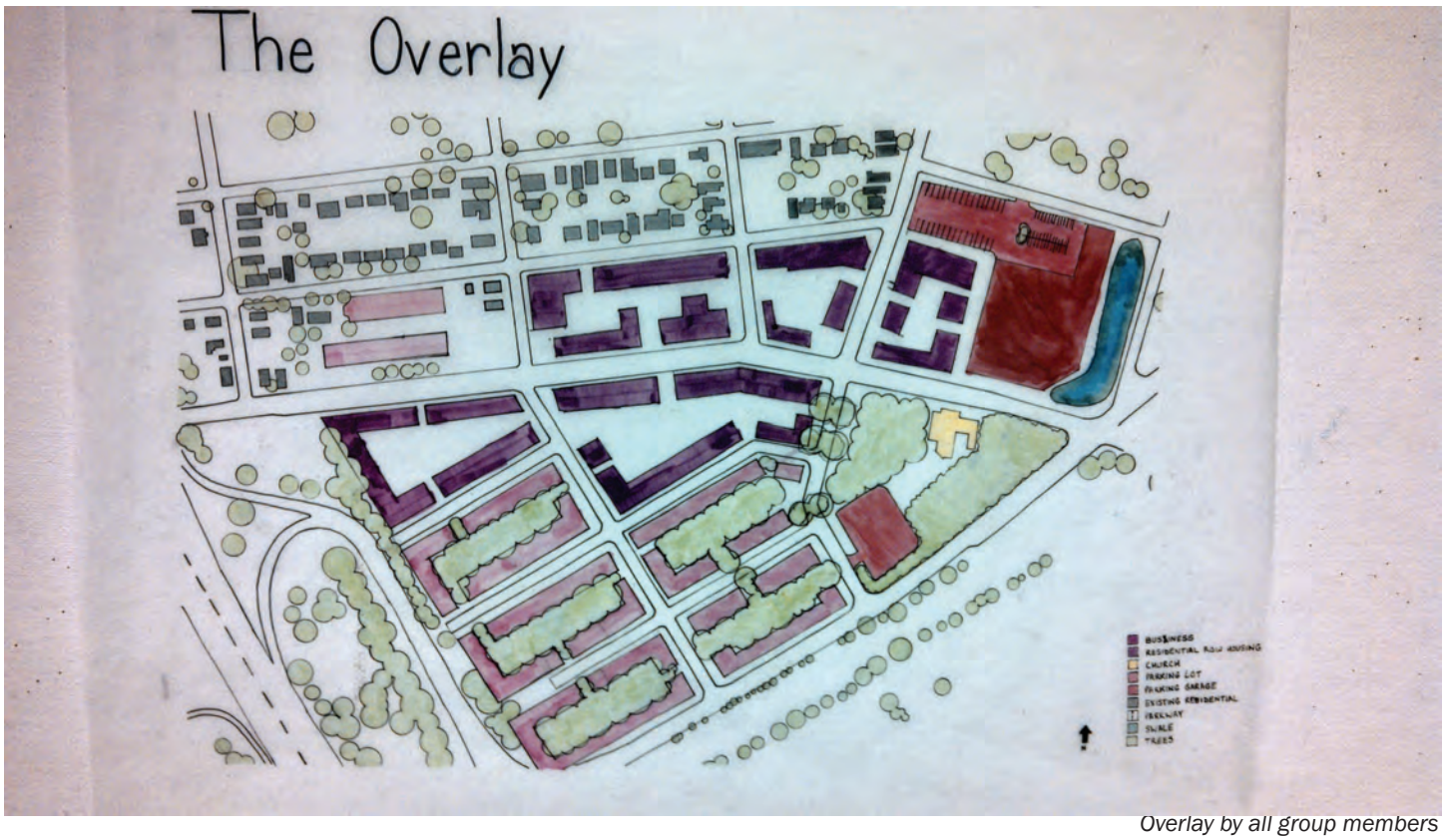
5.1.2 Midterm

Justin Acal
Derrek Cowell
Frances Turner
Janine StJacques

The First Iteration

The midterm design was the combination of best design options that suited the criteria. Not all of the options fit perfect so some changes were made to create a functional overlay. The largest guiding principle for the design became keeping existing trees. The layout for nearly every building took the existing trees into account. This resulted in a reinvisioned housing community to the south consisting of affordable three-story townhouses within easy walking or bicycling distance to the train station. The backyards of these townhouses were open greens that the residences could gather in. There was also an addition of 4 buildings with a similar setup to Cooper Tower, providing affordable apartments and increasing the amount of housing available in the area.

The business district was also reworked into an oval shape that would contain two stories of businesses with fairly uniform facades. It opened to a pedestrian plaza in the center that would allow shoppers to meet up and enjoy a semi-outdoor shopping experience. In that space, they could sit, talk, and potentially

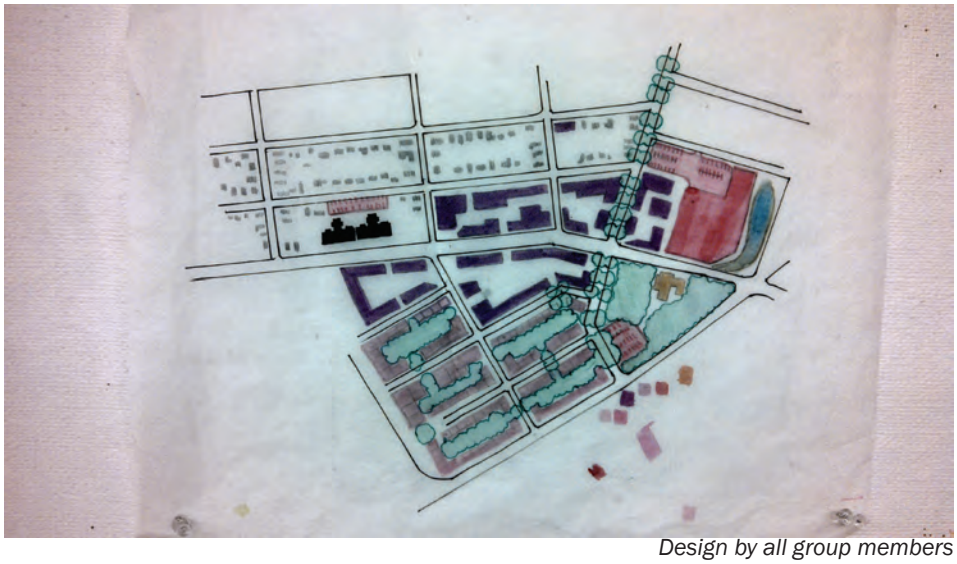


Overlay by all group members

Sections done by Derrek Cowell and Justin Acal

the business district which was intended to help the flow of traffic but ended up breaking the space up into two awkward parts with the outer ring lacking connectivity. This created a dangerous situation for pedestrians trying to cross this forever flowing loop of vehicles around the businesses. Also the shape of the businesses left difficult angles and hard to occupy spaces. The transition from the

enjoy a nice lunch. A water feature would be added in the center to break up the large amount of concrete along with trees planted on a grid system. A park was added to the south to provide open space for the community as well as a bridge that crossed Rt. 27 to make walking to the train safer, easier and more enjoyable. A parking garage and large parking lot was put in on the corner of Oak Tree Road and Middlesex Ave to accommodate all the shoppers on the weekends.



Design by all group members

This initial design was a great starting point, but there were several concerns that needed to be addressed. The one-way loop around the central part of

business district to the residential areas was inconsistent and didn't connect well. The form of the buildings did not 'speak the same language' and there was a lack of transition in crossing from one area to the other. The park to the south also seemed disconnected and just placed there. It needed to have a purpose and become a destination pedestrians wanted to come to. Our model was a good visual guide to the spaces that were created and helped to fix some building locations.

Model by all group members

Design by all group members

Graphic By Justin Acal

Model by all group members

5.1 Oak Tree Road: Green, Business, Community

5.1.3 Final Design

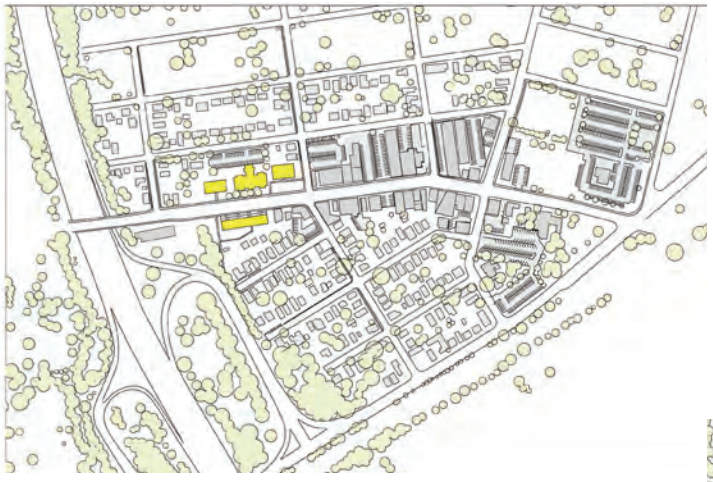
Justin Acal
Derrek Cowell
Frances Turner
Janine St Jacques

In reworking the final design, critical areas were divided and examined in detail by members of the group. The four critical areas that were addressed were the business district, the residential transition to the south of the business district, the Cooper Towers area, and the park with its pedestrian bridge. Each member focused on how a user would experience the space and how the space relates to the plan as a whole. This was another point where the initial criteria was important as it guided the analysis and design process. Overall, however, the most important elements for the project proved to be maintaining existing trees, increasing green space, increasing housing, increasing business, improving the connection to the Metro Park Train Station, and maintaining substantial parking.

One of the most drastic changes from the midterm design includes completely reworking the urban form of the business district. Gone is the oval, and instead is a rectilinear design that relates well to the surrounding forms.

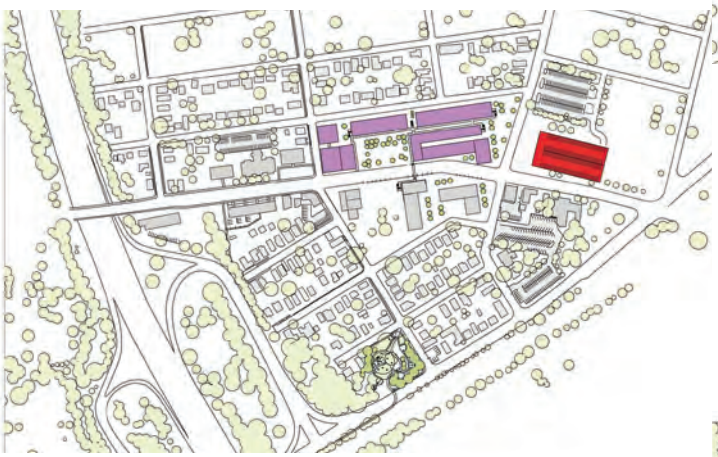
Final Plan

The plan was also broken down into phases to create a realistic series of steps towards implementing the final product.



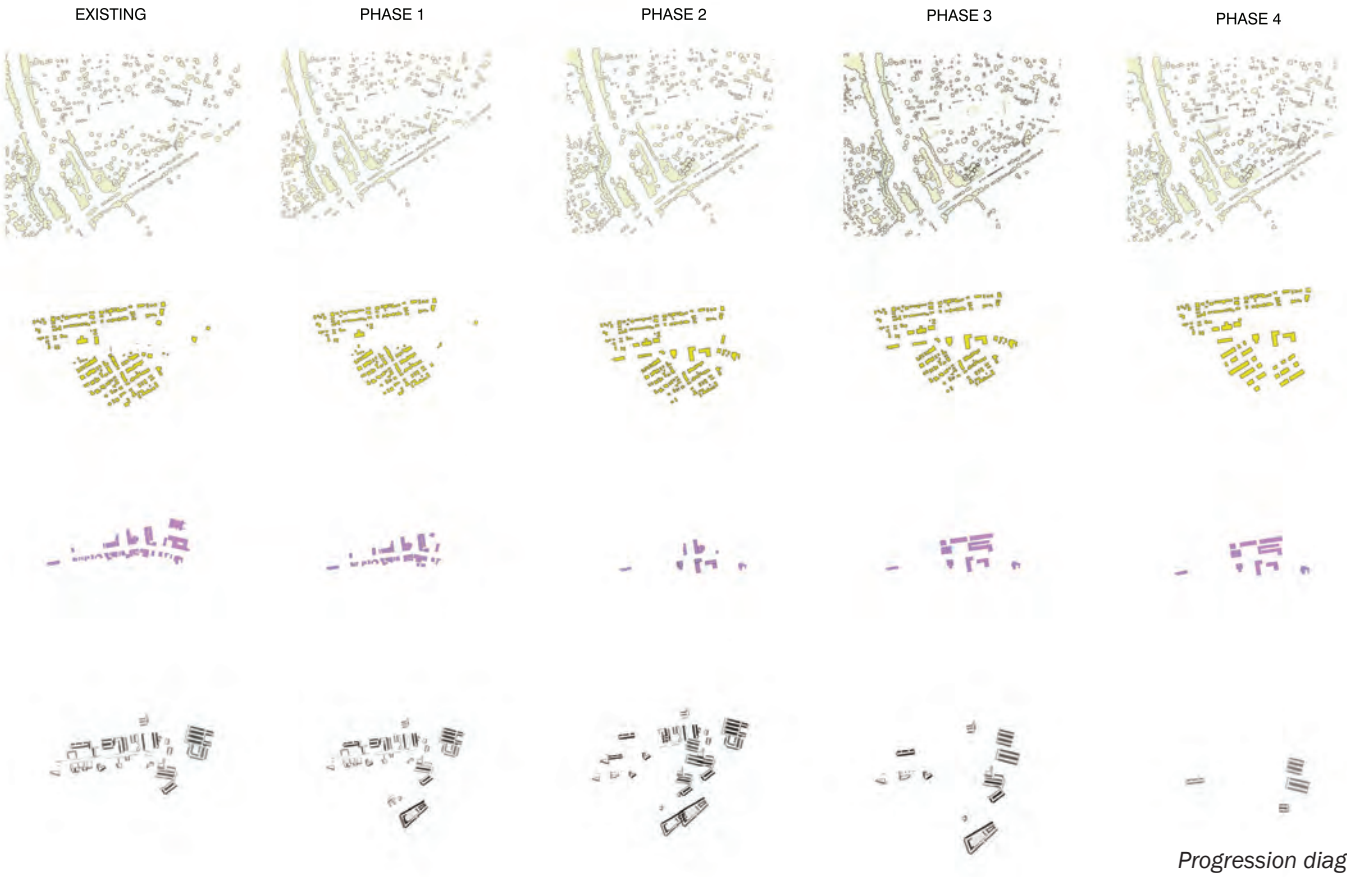
Phase 1

Phase 2

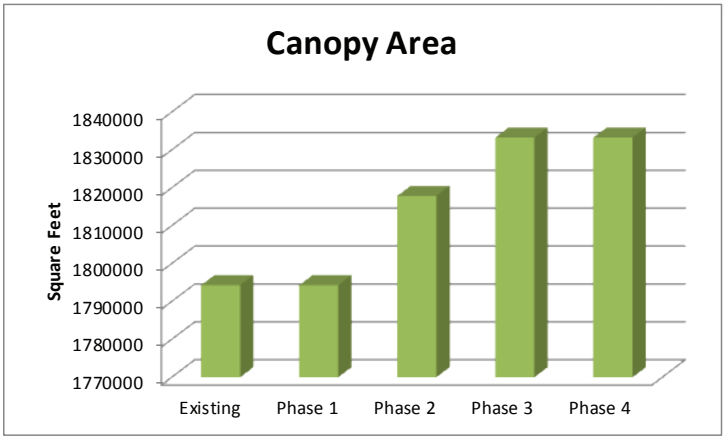


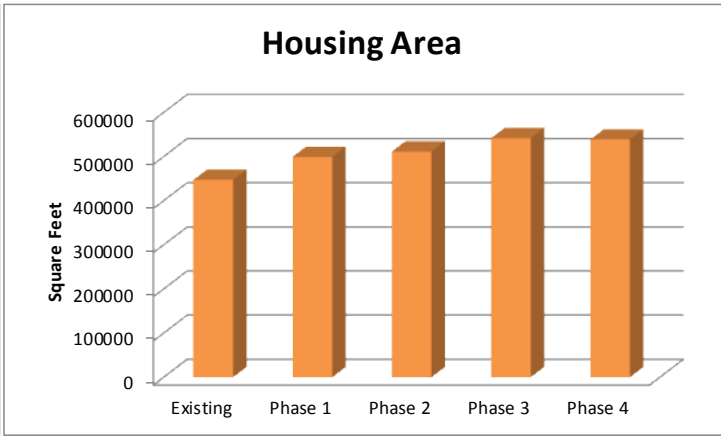
Phase 3

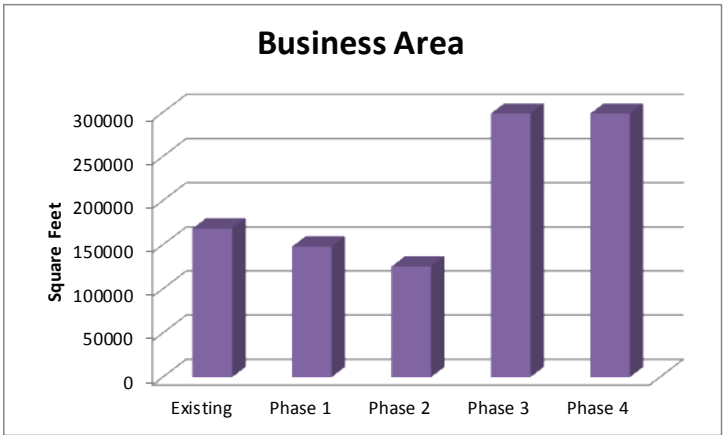
Phase 4

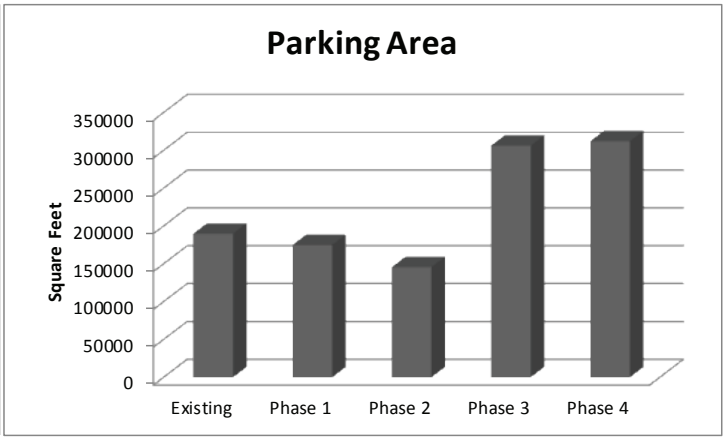


Progression diagrams





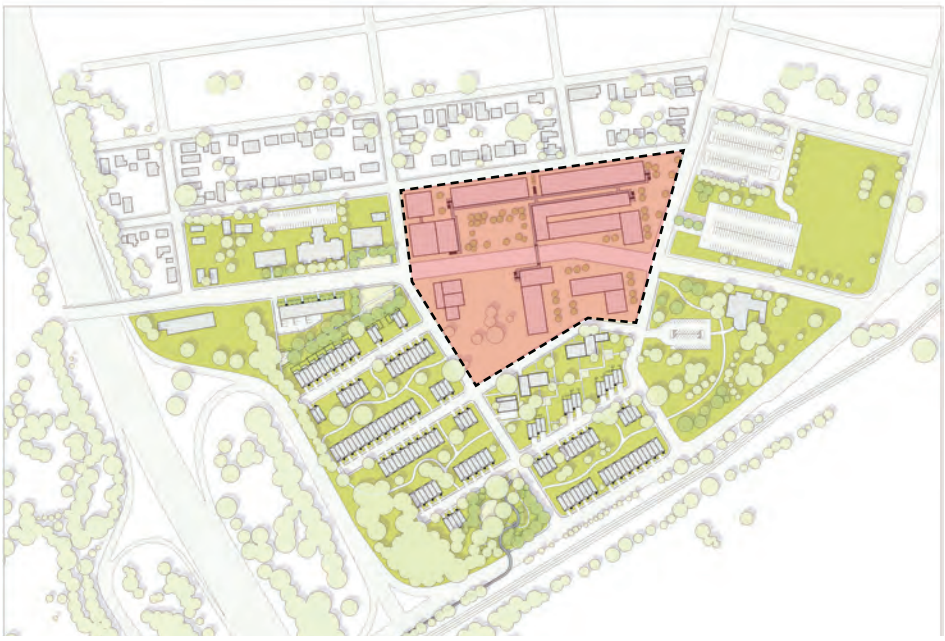




5.1 Oak Tree Road: Green, Business, Community

5.1.3.1 Business

Derrek Cowell



With over 160,000sqft of prime shopping real estate, the new business district in Iselin, NJ will have people talking about it from far and wide. This area is nestled in the middle of a residential community filled with a verity of housing options that include single family/ multi family size homes, row housing, subsidized housing, and apartments. Only a ten minute walk to the metropark train station that connects Iselin to major cities from Boston to Washington D.C. making it the newest hotspot to live.

The business district consists of many features starting with the two story glass faced shops. The idea behind the front of the shops being glass is so business owners can light up bright signs and advertisements giving the area a time square feel. The shopping avenue is a stretch of shops on both sides of a 28ft path leading you from the parking deck to the plaza. Walking down this avenue the light pours out of the shops and into the corridor as banners stretch overhead expressing heritage and culture.

Existing

Phase 1

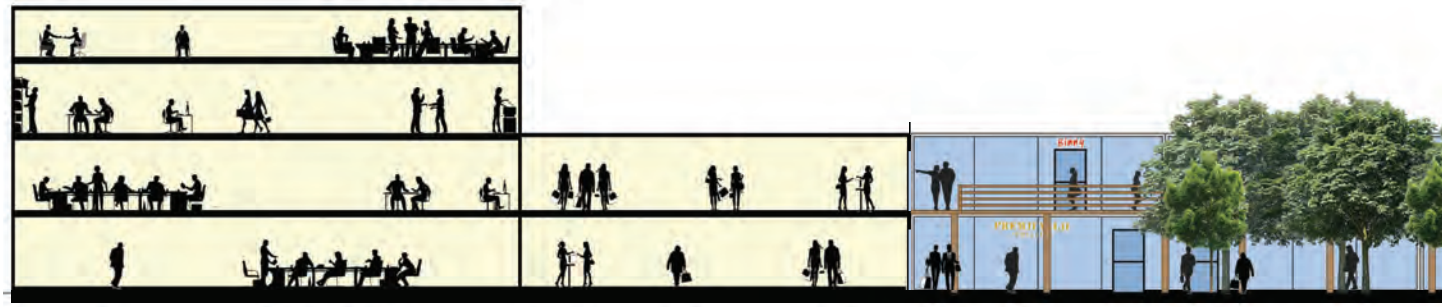
Phase 2

Phase 3

Phase 4

At the end of the shopping avenue it opens up into a 33,000sqft plaza that is made up of twenty two native trees varying in size. Throughout the plaza there are benches and other seating options for shoppers to rest their feet and take in the experience. As they sit in the plaza they look around at all the lights and signage they will also notice the 8ft catwalk on the second story connecting all the shops. The catwalk travels down the shopping avenue and into the plaza. It also crosses over Oak Tree Road that takes you to a restaurant on the roof overlooking the plaza and shops from across the street.

On the north side of Oak Tree Road there are three buildings set aside for offices and other small practices. The building on the corner of Oak Tree Road and Correja Ave is a four story office building that has a sleek glass look. Connected by a glass bridge, there is a five story building directly behind it with the same look.



Traveling down Oak Tree Road towards Rt27 you will see another four story building with shops on the first floor and offices on the top three floors. This building sits on the corner of Oak Tree Road and Middlesex Ave. These taller office buildings not only offer more revenue to Iselin but it also frames the business district.

Across from the plaza crossing over Oak Tree Road you will enter into a more natural space with six exciting trees. Grass mounds about 2ft-3ft high break up the concrete creating paths and seating areas for shoppers to experience. All the shops on this side of the business district are on the first floor with apartments on top of them. These apartments are important because residents who live there will buy locally and possibly work in the shops on street level keeping this a sustainable site. The second floor restaurant can also be reached from the street level on this side of Oak Tree Road in addition to the bridge over the road.

People will come from all over to shop here and enjoy their time so much they will want to keep coming back. Overall this business district is a place not only to shop but also a place to gather and live. With affordable housing options close to the train station and a thriving business district, Iselin is the new place to live for people of all ages.

D. Cowell

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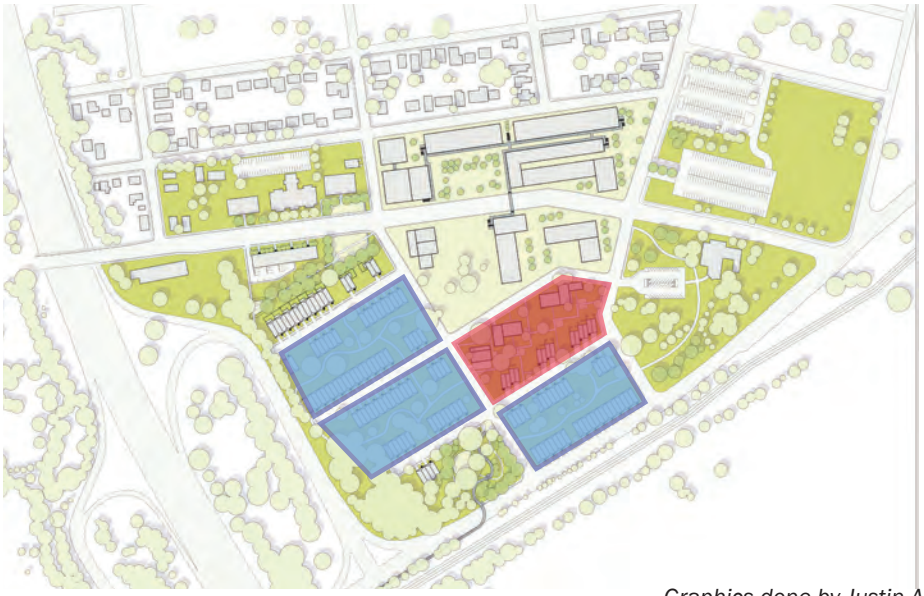
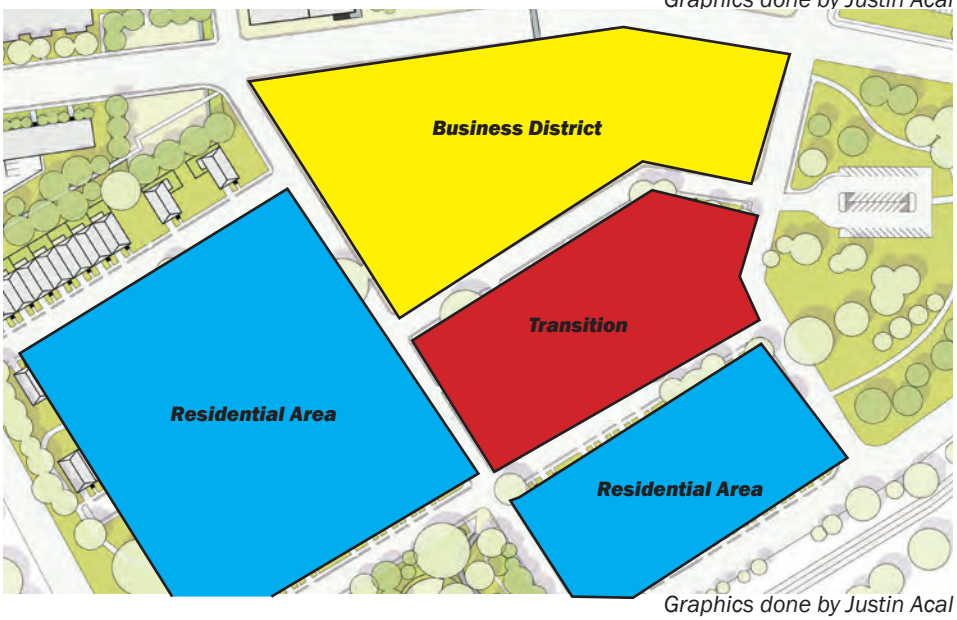
5.1 Oak Tree Road: Green, Business, Community

5.1.3.2 Residential Living

Justin Acal



Graphics done by Justin Acal

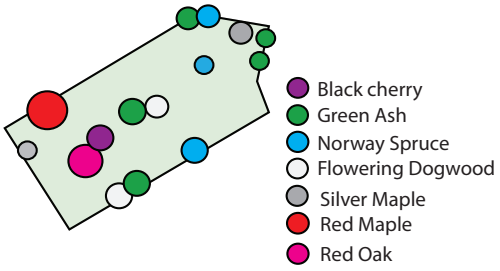


Graphics done by Justin Acal

After looking into areas of Iselin that were future possibilities for expansion, we realized the best space for future housing were the blocks surrounding the business district on the south side. The blocks marked in blue on the upper right map were the blocks we felt best to redesign as a connected community while also keeping green space in mind. The blocks would be connected through a source of paths and green spaces which would be accessible to all including the customers who have come to shop down Oak Tree Rd.

A big task that arose was the transition between the business district and the residential area. The block marked in red on the lower right map indicates the most important block that helps this transition. If the site was to be successful it must have a good flow from residential to business. This is what tried to accomplish in my site design. A design that would be welcoming to a visitor that wants to get away from the shopping hassle for a minute and that gives privacy to the residents while supporting the aspects of a bonding community.

One effect that would drive my design would be my groups' decision to save the existing trees in our area. By taking this into account I saw the block completely differently. As shown on the top of the next page the block began to show some interesting potential community spaces. For example, towards the middle left of the block shows two existing trees, one is a 50' red oak and the other is a 30' black cherry, both of which will provide exactly shade coverage for a gathering space. While the area to the right of that has no trees for a good amount of feet, this in turn be a perfect space for an open lawn.



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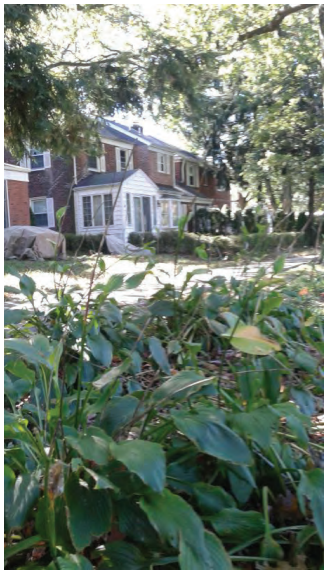


Photos taken of the Radburn Community in NJ by Justin Acal

After defining some spaces with the existing trees, I then needed more inspiration to further my design. It didn't take long before I remembered that New Jersey has a great planned community space that my partners and I visited with my professor. It was the neighborhood of Radburn, New Jersey, a planned community where the houses are oriented towards the central green space. They put the use of cars last. The green space is connected through a series of paths that at one point travel under a road. Each house still has property and privacy to themselves in the green space, but it is open to the community as well.

My idea was to integrate an idea like the Radburn community into a balanced design that pays respect both to the central green space and the business driven oak tree rd. My first objective would be to place the apartment buildings and townhouses on a specific angle that would lead visitors and residents into the green space from the business district and vice versa. This is important to do because by shielding the green space from the plazas recently created along Oak Tree Rd. you wouldn't feel invited or wouldn't even realize the space was there for use. By opening up gaps and lanes between the houses and buildings it created a space viewable from Oak Tree Rd.

In my site design there are five different types of living options. There are three 3 floor apartment buildings. Each of these buildings are raised up higher to accommodate parking for the residents underneath them. The buildings are placed towards the side of the block with the business district. It is important to have these buildings there to add a denser look to the business district. The next option for living is the two floor apartment buildings which are located on either side of the taller apartments. These residents can also park under the raised buildings. These apartments have more space inside which make them a tad more expensive. There is also an option for people who like to be right above the action. For these people there are two floors of apartments located on top of the businesses on the two buildings across from the transition block.

The final two options for living arrangements are the townhouses. There are two different styles that a person can

Section through a block with townhouses only

Elevation looking south from Harding Ave.

Graphics done by Justin Acal

live in, one which is a one family house and the second which is a two – family house. The smaller one family houses are located on the same transition block with the apartment buildings, with larger one family houses scattered along the other blocks. The two-family townhouses are located throughout the residential blocks. All of these townhouses can accommodate their residents with parking garages on the first floor of the house.

The idea of parking was used a lot by the business owners when we asked what they would like to see in our designs. This is a big reason why I tried to accommodate parking for all residents at their homes so none of the business parking was taken up by the residents. The use of the entire parking garage should be used for the businesses only.

5.1 Oak Tree Road: Green, Business, Community

5.1.3.3 Cooper Housing Plaza

Janine St Jacques

Cooper Towers provides 75 subsidized apartments that are particularly for popular amongst newly immigrated members of the community. According to the book Suburban Sahibs by S. Mitra Kalita, it is an icon that is so well known that people in India are even aware of it. One goal of the project was to expand the amount of affordable housing in the area and to provide a housing 'gradient' from subsidized to upgraded apartments/studios and finally to more exclusive townhouses.

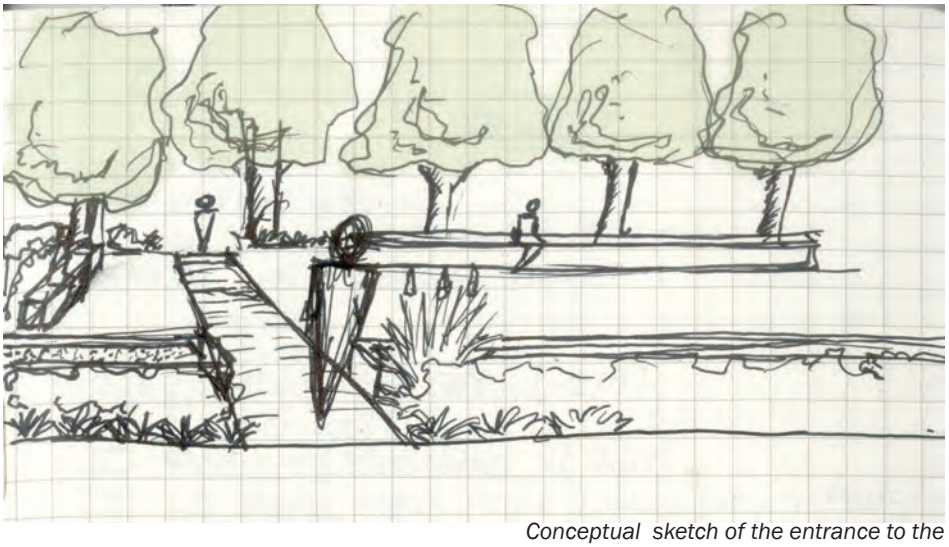
To the east of the Cooper Housing area is a transition zone between the residences and the business district. In order to provide a union between the two areas, two plazas were a constructed on either side of Oak Tree Road with a traditional Moghul Garden-inspired water feature. This area not only acts as a two fairly continuous gathering spaces for the community but also as a gateway to and from the business district.

The design features a pleasant walk beneath the tree canopy from the southern plaza between the Cooper 4 and the north-most townhouses. One notable feature of the walkway is that it cuts slightly into the topography helping to create an unobtrusive separation between the back yards of both Cooper 4 and the townhouses, helping to curb people from wandering off the paths. It connects to a node where one can sit and rest for a moment if they choose. If one continues south from this node, the walkway follows the existing tree line in the direction of the community park and the MetroPark Train Station.

The northern portion of the gateway plazas is purposely designed to somewhat reflect the southern portion with a large open space and plenty of seating beneath the trees. Its smaller scale and the positioning in front of the Cooper 3 allows it to become more of a meeting space for the residents right there. In contrast, the southern plaza is larger and is not directly linked to any specific housing. In a way, it is more neutral ground. Additionally, because the two visually and spatially connect, if an event was to be held and Oak Tree Road were to be temporarily closed down to traffic, the two plazas could be united and turned into a festival space easily.

Elevation of a Cooper 4 entrance

The facade of Cooper 4 would be modern, yet would still relate to the original iconic brick on Cooper. Unlike the original Cooper, Cooper 2 and Cooper 3, Cooper 4 divides the apartments into 4 groups with a main entrance for each, to give a more private feeling. Each unit contains 2 studios on the bottom floor and 4 apartments. Each residence has an entrance off of a central hallway. Additionally, there is private parking available behind the building and the possibility of on-street parking.



Conceptual sketch of the entrance to the southern plaza

The benches and water feature are constructed from limestone blocks which compliment the paving in the plazas, as well as the corten steel retaining wall in the pathway.

Plantings of oaks, maples, and American hornbeam give fall interest and shade in the summer, while providing habitat for songbirds. Additional plantings surrounding the plazas include a theme of white-blooming shrubs such as ‘Annabelle’ hydrangeas and ‘Snowbelle’ mock oranges to play off of the limestone accents and grasses for multi-season interest and texture.

Section from southern plaza, down the walkway, to the node with the back of Cooper 4 in view

5.1 Oak Tree Road: Green, Business, Community

5.1.3.4 Pocket Park

Frances Turner

The design of the pocket park within the “Little India” community near Oak Tree Road in Iselin, New Jersey, met four goals: preserve existing on-site trees, connect pedestrians from the surrounding residential and business districts to the MetroPark Train Station safely, create areas for respite and relaxation with elements linked to Asian Indian culture, and provide a play area for children.

According to existing conditions the walk from the Oak Tree Road area to MetroPark Station lacks sidewalks and involves crossing multiple lanes of high-speed traffic without a crosswalk or signal. The

pedestrian bridge solves this problem by maintaining an ADA accessible slope, eventually reaching sixteen feet in height, crossing Route 27 from above, then gradually sloping down and meeting a pathway that connects to MetroPark Train Station. The orientation of the bridge in a northeast-southwest direction creates a visual axis from the business district to MetroPark that mimics the relationship between commuters and visitors with the businesses by establishing the businesses as a destination. Additionally, two sets of stairs enclosed in colorful glass panels (one at a central point in the park where the bridge crosses the ground-level path, and another at the Route 27 sidewalk) provide additional access points on the bridge both for the convenience of people who chose not to use the main entrance and the safety of people who may need to exit the bridge at a nearer location.

The bridge doubles as a canopy walk, weaving in and out of the trees both existing and proposed (all existing were preserved save one invasive Norway Maple). In doing so the bridge becomes a major experiential feature of the pocket park that celebrates the trees by taking on an organic, curving form responsive to tree location.

At ground-level, the park consists of twisting paths through dense plantings that open up to grassy nodes of various sizes meant to feature miniature sculpture gardens, seating, gathering, and picnic areas. Each node contains one or more sculptures related to Asian Indian culture. Subjects include elephants, peacocks, deities, and water features. A node will also incorporate a seating area. Some seating areas allow only one occupant while others encourage small groups or picnic areas. The nodes which are isolated by dense plantings provide areas for respite and relaxation.

Section A-A

Section A-B

Overall, the pocket park provides safe access between the Oak Tree Road area and MetroPark Train Station, supplies a unique experience through the canopy walk, twisting paths and nodes isolated with dense plantings, accommodates rents and children who need a place to play, residents and visitors looking for respite from the outside world, families and friends desirous of a picnic area or place for recreation, all while engaging nature through the preservation of the existing trees, and celebrating the Asian Indian culture through color and art.

The largest node features a fan-shaped play area for children and picnic tables forparents and guardians to watch from. The sandy play area includes two swing sets, a slide, foot-powered spinners, and transparent, multi-colored panels to run through, jump over, and explore. The colors of the panels, which are derived from the colors of peacock feathers, match those that enclose the stairs to the bridge. This creates a visual consistency between these two elements of the park.

5.2 Oak Tree Road: Urban Visions

5.2.1 Morphological Box

Alexandra Bolinder-Gibsand
Ben Granovsky
Crystal Vega

After the Inventory and Analysis phase of our project was complete, the class moved on to testing designs, which began with the use of an important and informative tool, the morphological box. The morphological box is a set of ideas that are organized into categories that were determined after analyzing the major issues found in Iselin. Our group developed the following categories: Stormwater, Streetscape, Housing, Public Open Space, Sidewalks, Parking and Vehicular Traffic, as focus areas for the initial stages of design. Each category has a problem statement, and contains 4-6 varying solutions including the status quo as one of them. For example, one of the Parking options takes away all parking lots and spaces in and around the immediate vicinity of Oak Tree Rd. This choice was made as a more drastic solution to the parking and congestion issues, which later informed the decision to turn

Advanced Landscape Architecture Studio Fall 2012

Oak Tree Rd. into a pedestrian street. After reexamining some of the options, final versions were made, and the options in each category were evaluated based on three criteria. The problem statements and criteria for each category are:

Parking

Problem: there is not enough parking during weekends and
busy holidays so shoppers park illegally in residential zones.
Criteria:
-Closer proximity of parking to shopping district
-Limited time parking
-Increase parking

Sidewalks

Problem: There is a lack of adequate sidewalks,
and blocks are disjointed.
Criteria:
-Unifies/creates cohesive sidewalks
-Provides sidewalks from residential areas to Oak Tree Road
-Improves pedestrian safety

Vehicular Traffic

Problem: Oak Tree Road suffers from congestion,
especially on weekends, because traffic exceeds
the capacity of the roadway. this creates dangerous
intersections for both vehicles and pedestrians.
Criteria:
-Eases congestion on OTR
-Increases vehicular safety
-Eliminate the car on OTR

Public Open Space

Problem: There is a lack of designated public open space
within walking distance of Oak Tree Road.
Criteria:
-Park/Open space within 0.5 mile walking distance from
oak tree road
-Improvement of habitat for wildlife
-Greenspace connectivity

Stormwater

Problem: Excess stormwater is not being filtered
according to BMP's; there is too much impervious surface.
rainwater is not being captured or reused.
Criteria:
-Reduces runoff
-Increases filtration
-Increases infiltration
-Less invasive green infrastructure (Low Impact Development)

Housing

Problem: Much like the rest of New Jersey, Iselin's
suburban sprawl hinders mixed-use, high density development
Criteria:
-Increase density
-Low impact development
-Improves compatibility between residential/commercial

Streetscape

Problem: Oak Tree Road looks like a strip mall and lacks
cohesive quality. the storefronts are over-stimulating and
the streetscape is out of scale with pedestrians.
Criteria:
-improves aesthetics, sense of place
-improves shopping experience
-Multimodal transportation

Each design option in the morphological box was evaluated as being good, neutral, or bad at satisfying each criteria for its category. Through this process, the best options were revealed, and were then connected across categories by the red string.

These selected options were then overlaid and combined into one conceptual design framework. It became evident that certain aspects of this first design iteration did not fit well together, so we went back to the morphological box and created new design options that reflected the changes derived from the first overlay, shifted the red string to include them, and created a second overlay with the updated options. What we saw was the beginning of our test design, still in a fairly raw form yet to be refined. which included preserving existing Oak Tree Rd. businesses, mixed-use, varied-density development around the existing business core, and eliminated parking with a shuttle service connecting to a large off-site parking lot as well as the Metro Park train station to accommodate for the parking location changes. We also focused on greatly enhancing the pedestrian experience with a pedestrian corridor running perpendicular to Oak Tree Rd., through the new development, connecting the business core at the northern terminus with the a safe walking path to the train station at the southern terminus.

5.2 Oak Tree Road: Urban Visions

5.2.2 Midterm

Alexandra Bolinder-Gibsand
Ben Granovsky
Crystal Vega

Based on what the morphological box showed us, after a few iterations and some refinement, our midterm concept plan for Iselin was produced (figure 1). The main aspects to take away from this test design are: It preserves existing Oak Tree Rd. businesses, it provides mixed-use, varied-density development around the existing business core, and eliminates parking, with a shuttle service connecting to a large off-site parking lot as well as the Metro Park train station to accommodate for the parking location changes (figure 2). It also focuses greatly on enhancing the pedestrian experience with a pedestrian corridor running perpendicular to Oak Tree Rd. (key 1), through the new development, connecting the business core at the northern terminus with a safe walking path to the train station at the southern terminus. This corridor is the spine that connects the existing iconic businesses

figure 1: Midterm Plan, Test Design

with proposed residential development of new homes and neighborhoods, bringing residential life and commercial life to a much better linked and more harmonious state of coexistence.

In addition to these driving factors of the design, there are other features that support them and together create an integrated test design. The proposed housing varies in density and scale: Beginning at the southern end of the pedestrian corridor, the first block contains 4 story housing (key 2). The next block moving northward contains 2 story rowhouses (key 3), and the third block contains 3 story apartments. To the north, west and north-east of Oak Tree Rd., the housing typologies range between 3 and 4 story apartment homes, one 8 story mixed-use building located just to the right of the northern end of the corridor, north of Oak Tree Rd (key 4).

The variation of the proposed housing is intended to accommodate people of varying income levels, as well as to create a variety of outdoor spaces. These outdoor spaces are organized into typologies that consist of public, semi-public, semi-private and private spaces. These variations are important in the larger context of creating a vibrant and sustainable community. The private and semi-private residential spaces are all in the interior of the block, away from the road. There are also larger public spaces that blur the line between residential and commercial, or private and public spaces. One such space is located towards the southwest edge of the neighborhood, and is an expansion of the existing stream corridor, providing a naturalistic, low-maintenance forest space (key 5). On the other end of the neighborhood is another proposed open space with significant potential of

figure 2: Phasing Diagrams, Proposed Shuttle Service

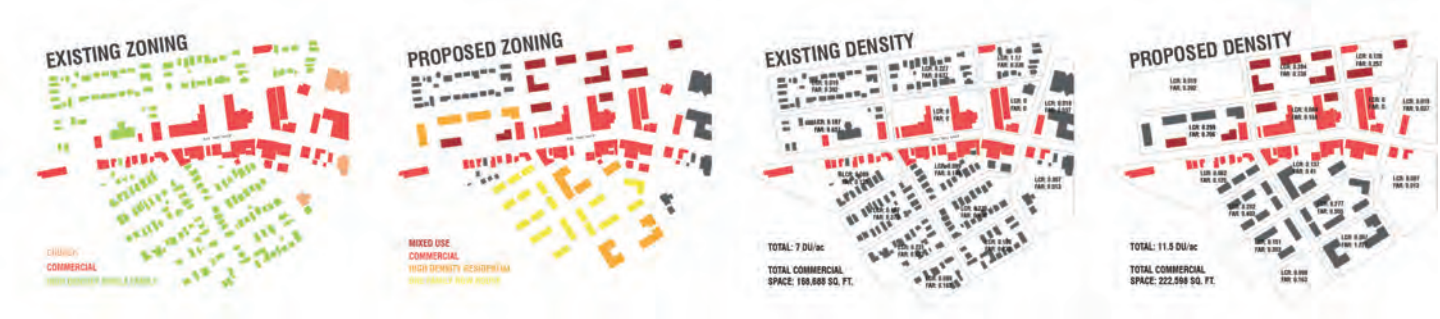


figure 3: Zoning and Density Diagrams

becoming a park (key 6), adjacent to a proposed community center (key 7). Finally, at the center of the business core, where currently parking is located, is a proposed public plaza (key 8).

Our proposed development will be implemented in phases (figure 2). Phase 1 includes the development in the blocks that contain the pedestrian spine, in order for the variation in housing typologies to be tested out. Assuming they are successful, the same typologies would be continued into Phase 2 and 3.

After our midterm review, we learned that save for the proposed shuttle service, we were headed in the right direction. The entire class along with our professor helped us determine three individual sites within our

figure 4: Route 27, Connection to Train Station

figure 6: North-South Section Through Central Plaza

figure 5: East-West Section through Central Plaza

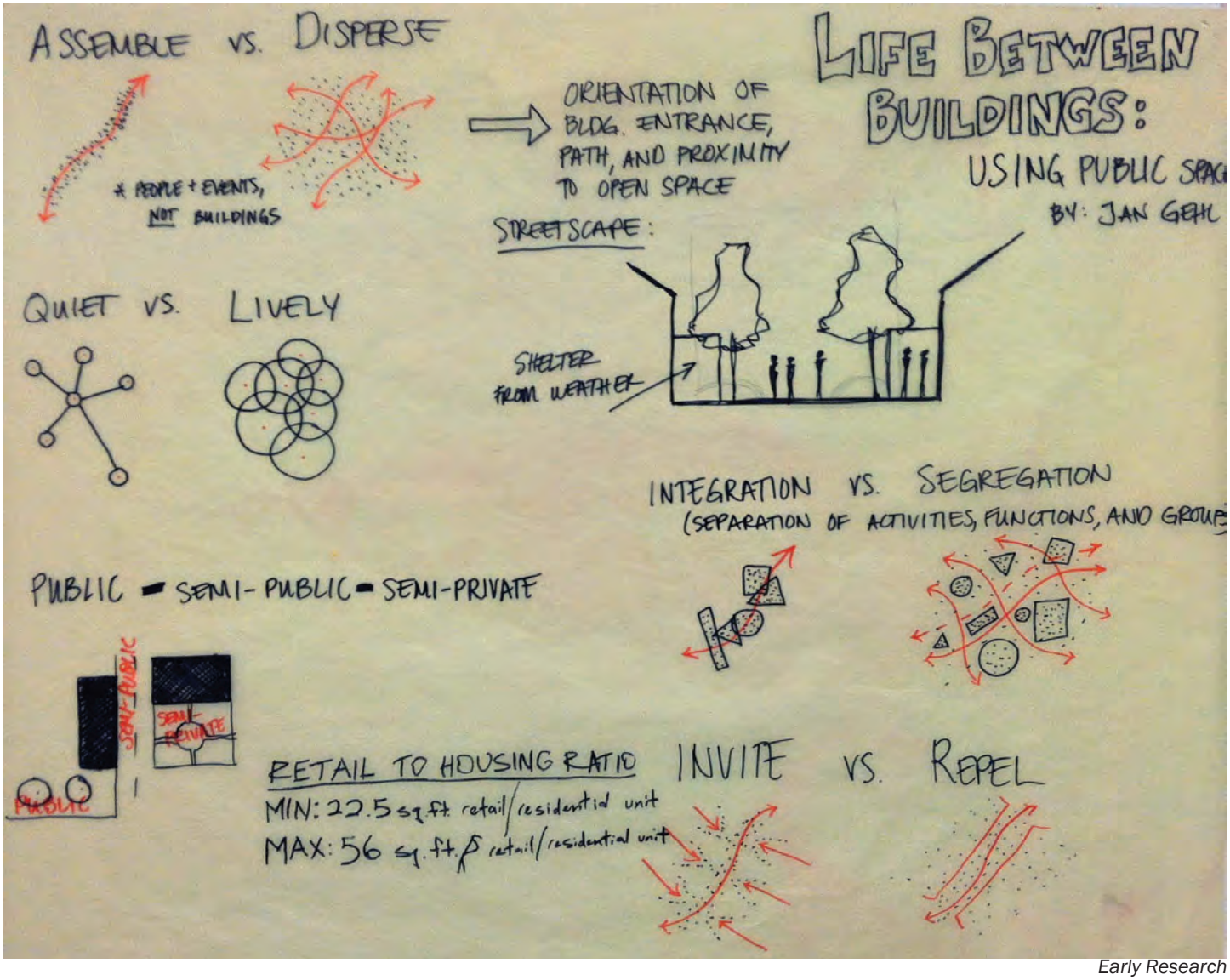
plan for further development. The first site is the central public plaza (key 8). This site is in a prime location and is a significant design challenge, that aims to accommodate the shopping activity and simultaneously create an visible and appreciable public space. The second individual site is the proposed residential development of the block in between Oak Tree Rd. and Rt. 27 (key 3). This site was chosen to represent our desired housing in closer detail, and to balance the scale of public plaza and private residential space. The third site is the space adjacent to the community center which is currently occupied by the Catholic school (key 6). This space has unique characteristics due to its location just outside of the business core, and has the potential to create an incredible entry experience for people parking in the lot to the east and heading towards Oak Tree Rd. Since it is adjacent to the proposed community center, it also has the potential to become a focal point of the community.

These three sites together aim to reflect the various aspects of our overall design. We recognize that the business activity on Oak Tree Rd. is central to any proposed designs, yet it lacks a long-lasting community to complete the picture of a well rounded, sustainable community that won't disappear with the next economic cycle or any time in the foreseeable future. Because of the nature of the Indian culture in Iselin, a new community has incredible potential to be a vibrant and exciting place to live, work and shop. It would take an already far-reaching reputation and magnify it tenfold. As things change and evolve, the future Iselin can be a prime example and a leader in unique, distinct, vibrant and sustainable communities for New Jersey and beyond.

5.2 Oak Tree Road: Urban Visions

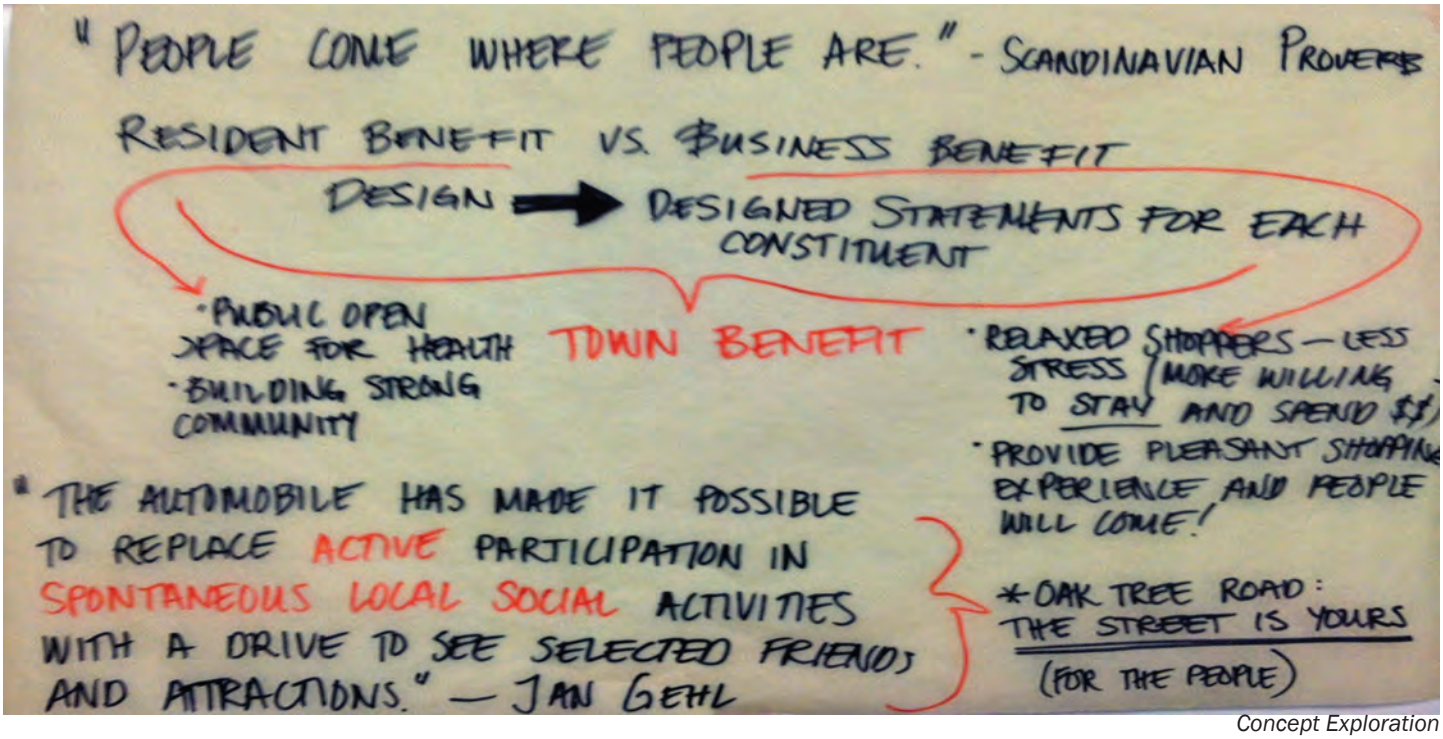
5.2.3 Final Design

Alexandra Bolinder-Gibsand
Ben Granovsky
Crystal Vega



Early Research

From above, Iselin appears to be just another suburb in New Jersey; there are small streets with single family houses separated by appropriate distances. Its location, conveniently tucked into an area guarded by the Garden State Parkway and the Metropark train station, is a gem in terms of



Concept Exploration

remote accessibility; people come from all over the east coast for Oak Tree Road shopping.

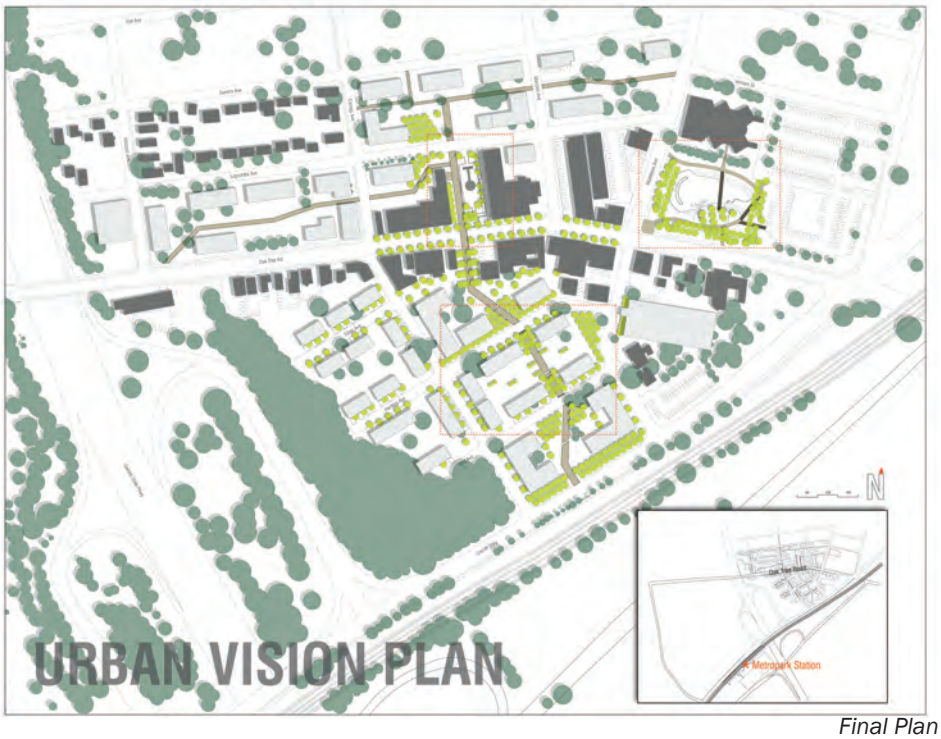
There is an abundance of shops and restaurants lining the main strip providing potential for a variety of social interactions. However, the pedestrian experience needs a major improvement. The early assessments made by site visits and the inventory and analysis provided us with useful information to develop a concept that promotes pedestrian connectivity throughout Iselin. The final design, informed by our previous research, the midterm feedback, and Life Between Buildings by Jan Gehl lead to ideas visible in the final design.

With further investigation on the ground, walking down Oak Tree Road gives the impression of walking along any thriving American main street. Upon a closer look, reading the signs allows the assumption that one has left America for a foreign place. This is Iselin; a neighborhood that has seen an Asian-Indian population burst in the last twenty years. As conditions for immigrants in America have become more favorable, people from all over the world have come to chase the American dream. Reading Suburban Sahibs, a chronicle of three immigrant families and their experiences moving to the Oak Tree Road community, we were able to learn more about the people living in Iselin. We quickly realized the importance of community, family, and friends; a unifying concept throughout the three stories.

Since Oak Tree Road's current major attraction is specialty shopping, we felt that the business district should remain in its place. We made adjustments by widening sidewalks along Oak Tree Road and increasing accessibility to the surrounding neighborhood and the train station. People in the business community worked hard to become successful, and therefore should be able to keep their store locations while updating building facades. The design contains an exploration of mixed use and density in housing configurations and the spaces created by them. There are mixed use commercial and residential buildings, row houses, and high rise apartment buildings that do not exceed four stories. We chose to keep buildings lower, to better cater to the human scale. The pedestrian promenade perpendicular to the business district connects the surrounding neighborhood with Oak Tree Road pro-

viding a safe, accessible means of travel through public open space. Our final design focused on creating civic centers throughout Iselin where people from, and outside of, the neighborhood could gather.

The final design is composed of a closer look into three distinct spaces of different scales with potential for diverse social interactions. At the heart of Oak Tree Road is a Plaza which turned two parking lots between shopping strips into a public open space for people instead. This area is designed for shopping, gathering, eating, and occasional movie screenings on the backsplash of the fountain at night. Towards the East of Oak Tree Road is the community center and park. This public space, at a much larger scale, is designed to provide the neighborhood with a park within walking distance of shopping and housing developments. The design was influenced by public parks in India; it contains a wading pool to cool off in the summer that turns into an ice-skating rink in the winter. The last design focuses on the public-semi-public-private relationship of the row housing. This housing configuration was created to encourage social interaction with neighbors while still providing private spaces for more intimate gatherings possible.



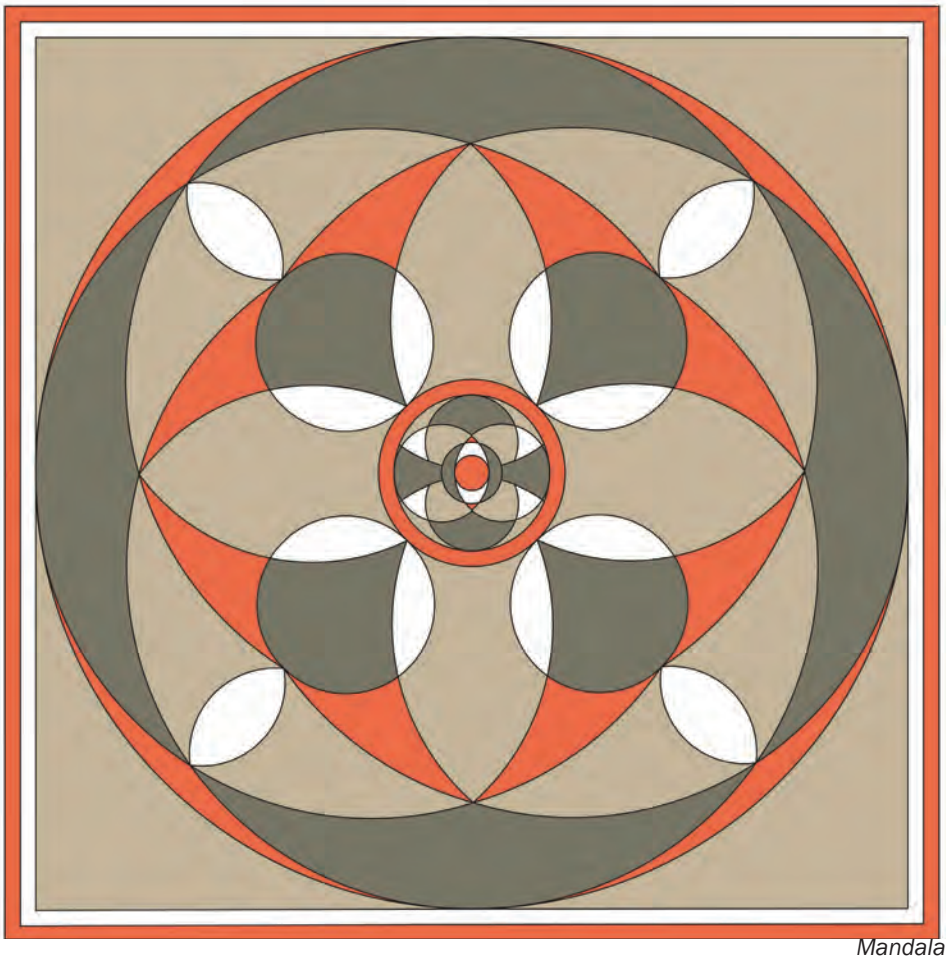
Final Plan

5.2 Oak Tree Road: Urban Visions

5.2.3.1 Oak Tree Plaza

Alexandra Bolinder-Gibsand

The idea to create a plaza out of parking is not novel, but it is a successful way to spark human interaction and activity. By redesigning two existing parking lots, the businesses and community will gain public space rather than lose parking. Throughout time, public squares and plazas have been celebrated for their ability to gather people. What has been noted by William H. Whyte is that people like to watch people, and people like to eat. A public space centrally located near the shopping district is an ideal oasis for people to unwind and stay a while. Oak Tree Plaza gives the Iselin community the ability to gather, planned or spontaneously, while found in the heart of Oak Tree Road.

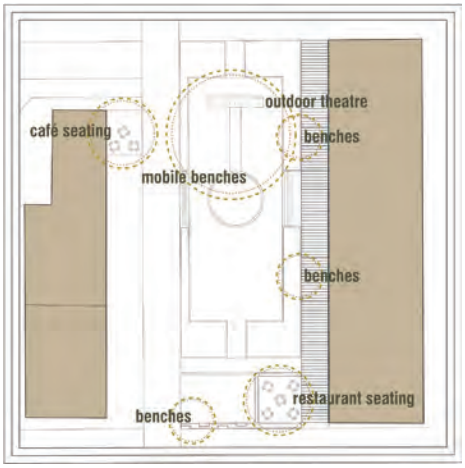


Mandala

A 2' sunken public plaza, surrounded by shopping and food at each end is the result of research regarding public space and plazas. The form was found in a mandala, meaning "circle" in Sanskrit. A mandala is often described as a square with four gateways containing a circle with a center. The idea was transcribed in the circulation allowing access to a pair of wide steps and ramps leading into the center of the plaza. After hearing more about parks in India from Ben's research, see section 4.12, the symmetric plaza design was reinforced by the landscapes discovered in the presentation. The mandala above was designed then expressed in changing paving at the center of the large public "square".

Circulation

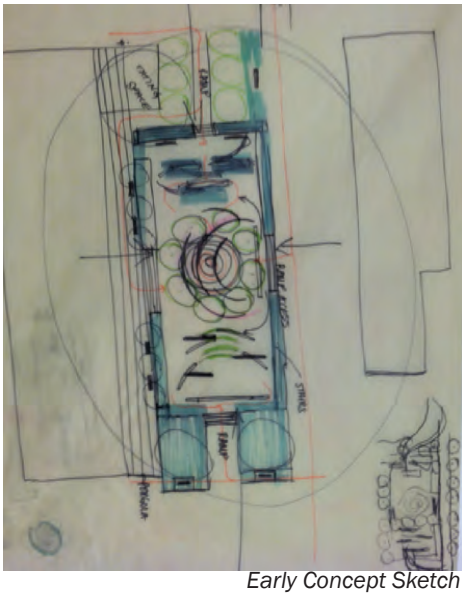
The circulation diagram shows the connections from Oak Tree Road and the pedestrian promenade as well as the surrounding neighborhood; entrances to the plaza can be found from each axis. The adjacent walls of the plaza are lined with restaurants and shops. A café occupies the North corner while a restaurant is in the South Corner next to Oak Tree Road. The architecture of the large shopping district has been extended by a simple wood pergola to provide a spatial and visual transition from indoor to outdoor rooms. On the opposing side, a row of trees and a vegetative buffer is lining the façade while still allowing natural light into the store windows.



Active Seating

Context Map showing location of design,

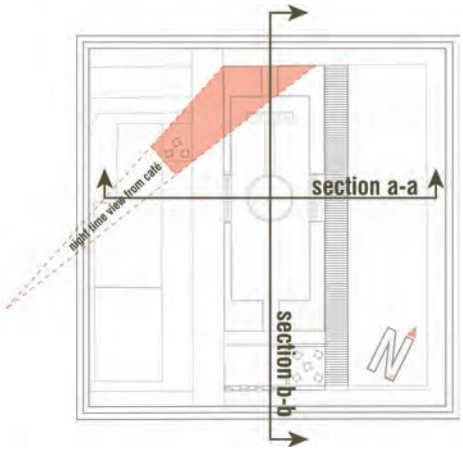
The sunken plaza has an elevation change of 2 feet, allowing users to feel slightly removed from the street and ongoing activity surrounding the space. Planted areas provide a soft edge and are low enough to allow visibility into the area. Found in each corner of the plaza is an oak, while the beds to the west contain Flowering Dogwoods. The South corner by the restaurant has been planted with River Birches to provide dappled light from the canopy and to serve as an excess for storm water flow from Oak Tree Road. The eating areas are removed from the center of the plaza, but in close proximity, so that users get a sense of participation in the events taking place within the sunken space itself. At the north end of the plaza is a fountain which doubles as a movie screen. The projector is stored in the ground at the center of the mandala and can be brought up for use. The seating in the fountain/movie area has been

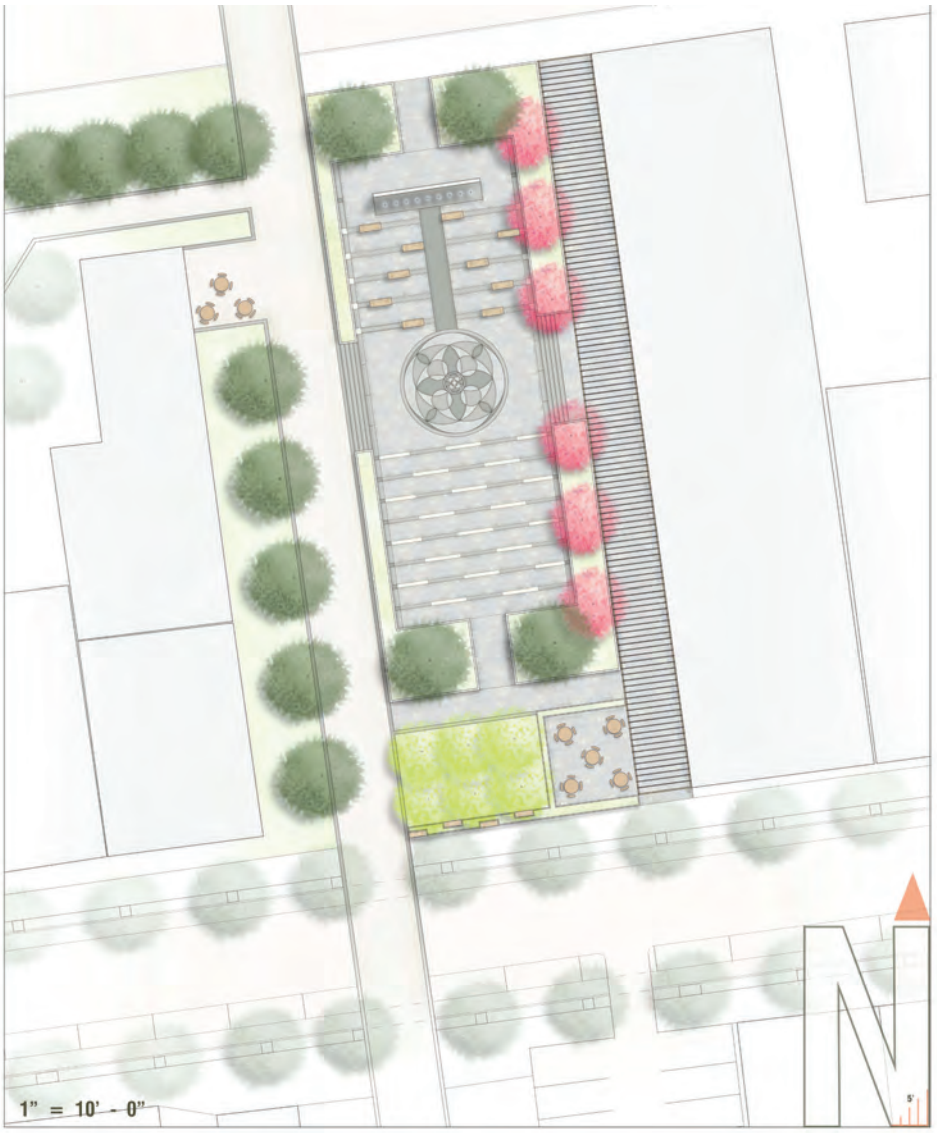


Early Concept Sketch

designed on rails and can be pushed into desired positions for small and larger groups to gather. A buffer area has been provided along the perimeter to eliminate the potential for dangerous accidents. Below the mandala the paving pattern and program changes again. The alternating stone and lighting allows the space to be lit from below for safety and activity at night. This half of the space has been left open ended to provide a flexible

area that can host markets and other activities throughout the seasons. The section elevations were taken from the middle of the plaza looking in the north and west directions.





Advanced Landscape Architecture Studio Fall 2012

5.2 Oak Tree Road: Urban Visions

5.2.3.2 Community Park

Ben Granovsky

This design began with its location between a proposed large public parking lot and Oak Tree Road, through which many people would pass on their way to experience Oak Tree Road. Because this has the potential to enhance the entry experience to Oak Tree Road, an insight into people's moods was made. The diagram in figure 1 shows, from right to left, that people's moods change from red, representing negative emotions, transitioning to green and blue, representing a positive mood change to a feeling of calm and peace. This transition is necessary because the "getting to" and "being there" experiences may differ greatly. It would be beneficial for people to be able to leave behind their negative emotions created by their potentially unpleasant driving experience, before beginning their Oak Tree Road experience. The philosophical implications of this idea beckon thoughts of ritualistic cleansing and preparation for entering a sacred place. These ideas seem appropriate because of the Indian culture in Iselin, as well as the current use of the site: a Catholic school and Church. In modern times, these ideas need not be implemented in a literal sense, but they do act is inspiration for

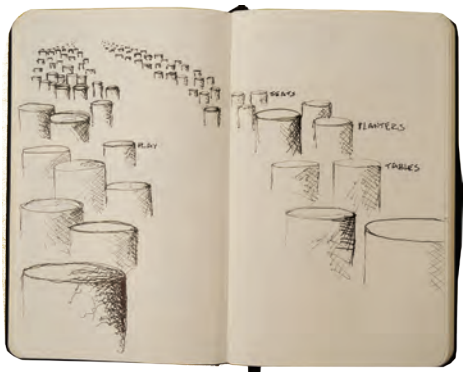


figure 2: Journal Sketch of "ballards"

figure 1: Concept/Mood Diagram

figure 3: Bamboo Sketch

the design.

The thought process shifted from this point to figuring out how to achieve these effects in a subtle way, and how to transform the conceptual mood diagram into a physical form (figure 2). Ideas about which plants to use were explored as well, with bamboo coming up as a good choice because of its versatility, architectural quality, and dense evergreen canopy (figure 3). One can see the progression from figure 2 through figure 4, which culminates in a marriage of plants and structures, paired together for their similar characteristics in such a way that the bamboo creates a sense of anticipation for someone walking through its tunnel-like path, arriving and unfolding to an open view of vertical cylinders. Additional explorations were made, including an open version of the journal sketch (figure 5), and a glass tunnel with cylinders set into it- an architectural interpretation of the bamboo-cylinder relationship. Several explorations were made of this concept (figure 6).

figure 4: Bamboo "Tunnel"

figure 5: "Ballards"

These ideas were synthesized into the first version of the site plan (figure 7). This design includes a central walkway flanked on either side by "ballards" of varying heights and diameters (figure 8), as well as a small water feature (figure 9). This water feature has shallow steps leading down to the water, and an area with very shallow water for wading and getting close to aquatic plants, creating an experience of playfulness as well as connection to nature.

After receiving comments and feedback, it was determined that the separate elements of the "ballards" and the water feature needed to work together better, and that the water feature needs to make a much bolder statement.

Again after many changes and iterations, the final site plan was created (figure 10). This version includes a much larger water feature (key 1), that in the summer is a shallow water wading pool and in winter becomes an ice skating rink,

surrounded by bamboo (figure 11). The shallow steps were kept surrounding the water feature (key 2). On the eastern edge of the water is a wooden bridge (key 3) that connects the proposed community center to the north of the park with the plaza in the park. On the other side of the bridge is a constructed wetland that collects and filtrates stormwater (key 4), crossed by two more bridges connecting to the parking lot to the east (key 5).

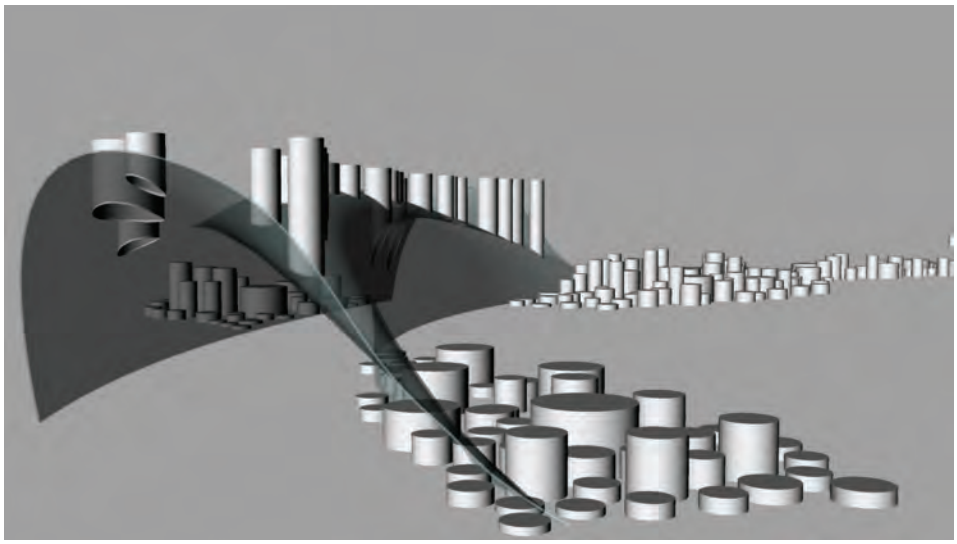


figure 6: Glass tunnel

Much of the thought behind this design originated from the arrival experience to Oak Tree Road. This is what started the design process, yet there are many other experiences that can happen in this park. People arriving to Oak Tree Road going through the park may not have time to stop, but it will make an impression on them, and they will want to stop on the way back. The park is also a central place for the local community, and accommodates local residents and visitors alike. The park takes symbolic elements of both old and new: the water and stairs leading down to it remind us of the Ganges River in India, and of the significance of water in

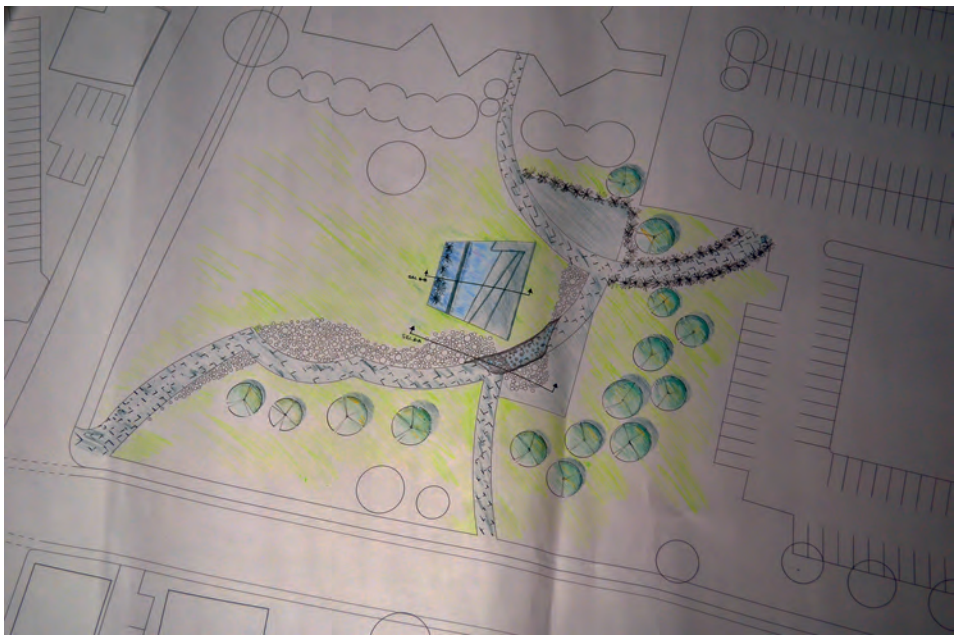


figure 7: First Version of Site Plan

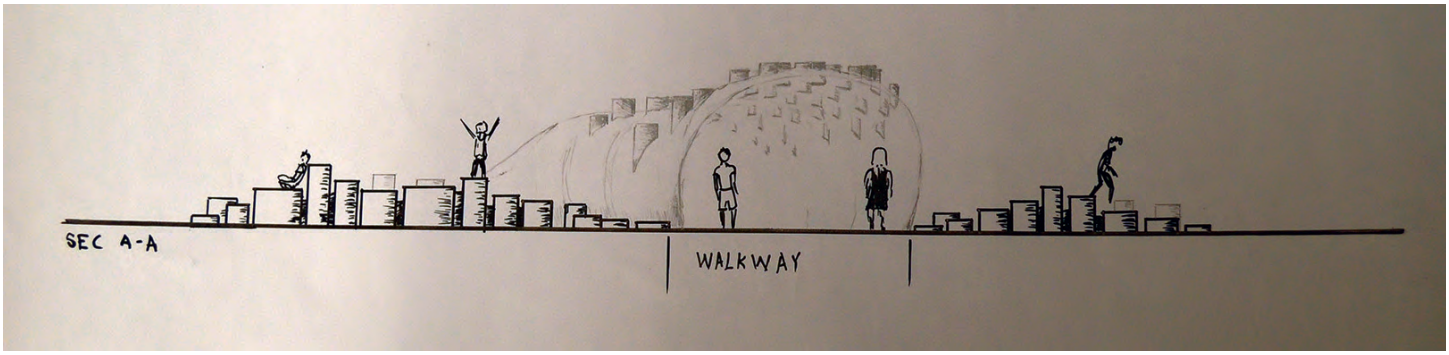


figure 8: Section of Path and "Ballards"

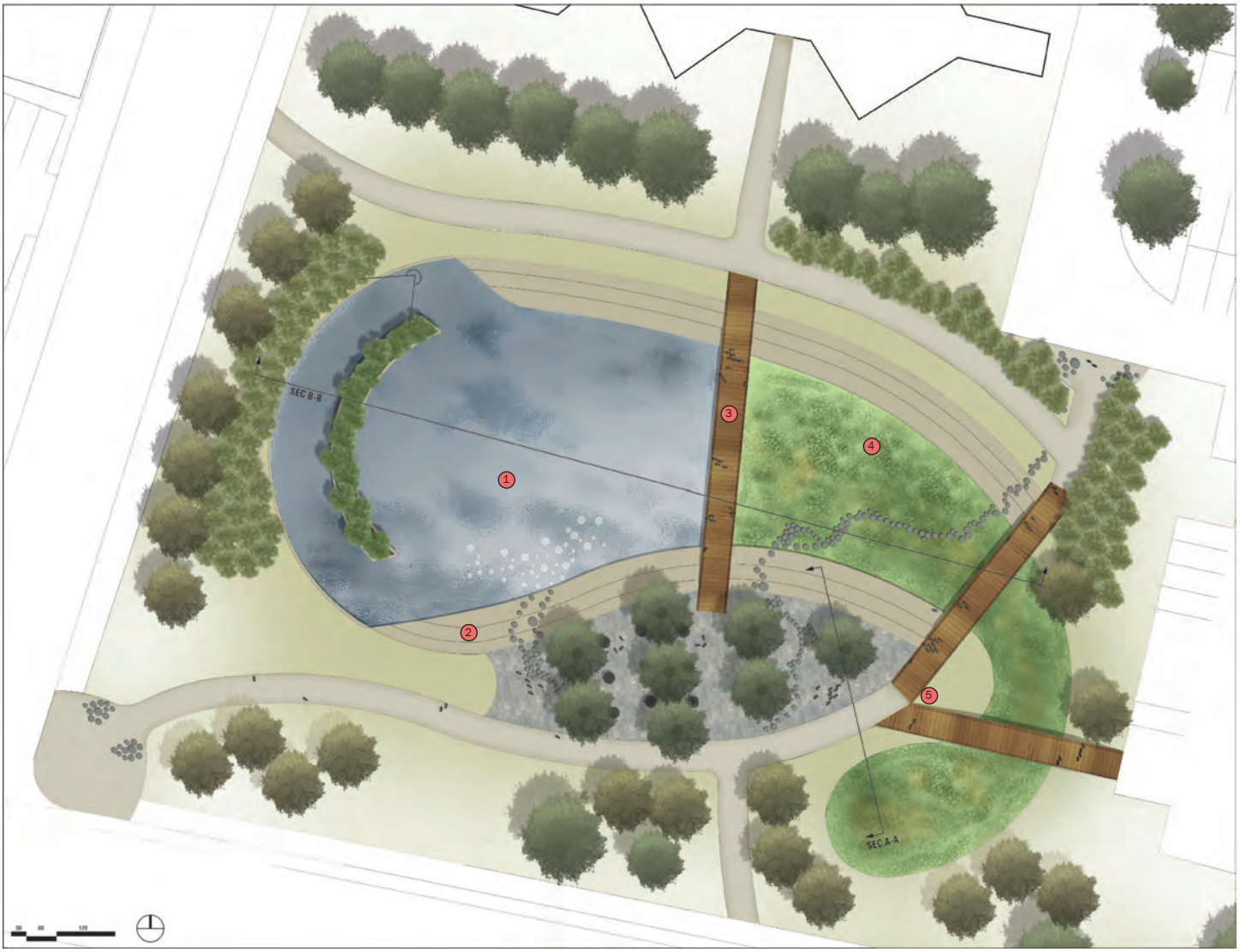


figure 10: Site Plan

Hinduism and Indian culture. The winter ice skating is a novelty, which would not be possible in most Indian parks. Another symbolic feature of water in this design is reflection. An immigrant to a new country often has his/her heart and mind in two places. When acclimating to a new life in a new country, one might be comforted by seeing their reflection in the water, because it might reassure them of who they are, and why they are here. Most importantly, they should feel welcome in this strange and foreign land. With many different types of people visiting this park, a welcome integration and acceptance into a community is made possible.

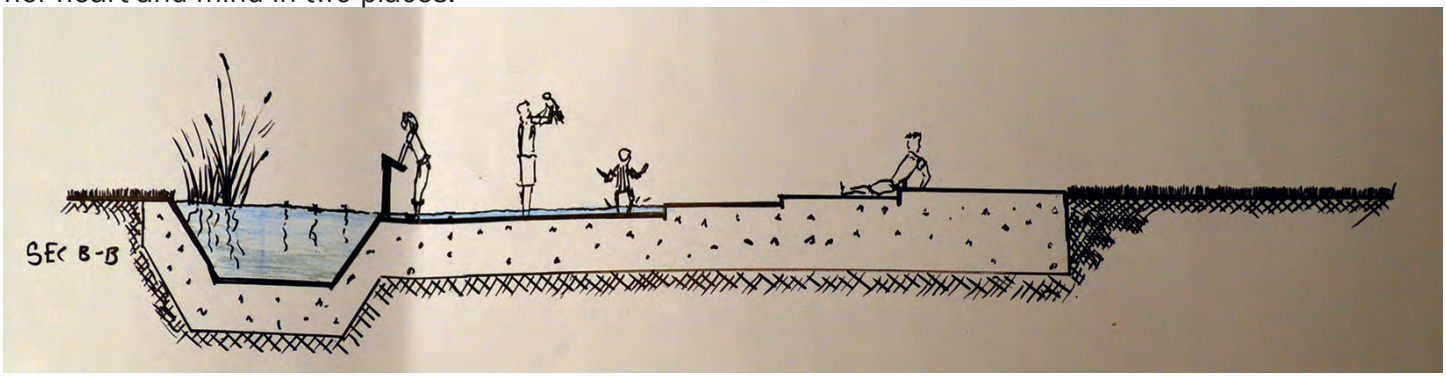


figure 9: Section of Water Feature

figure 11: Ice Skating in Winter

figure 12: Section through Plaza and Wetland

figure 13: Section through Water Feature, Bridge and Wetland

figure 14: First Sketch of Water Feature

5.2 Oak Tree Road: Urban Visions

5.2.3.3 Townhouse

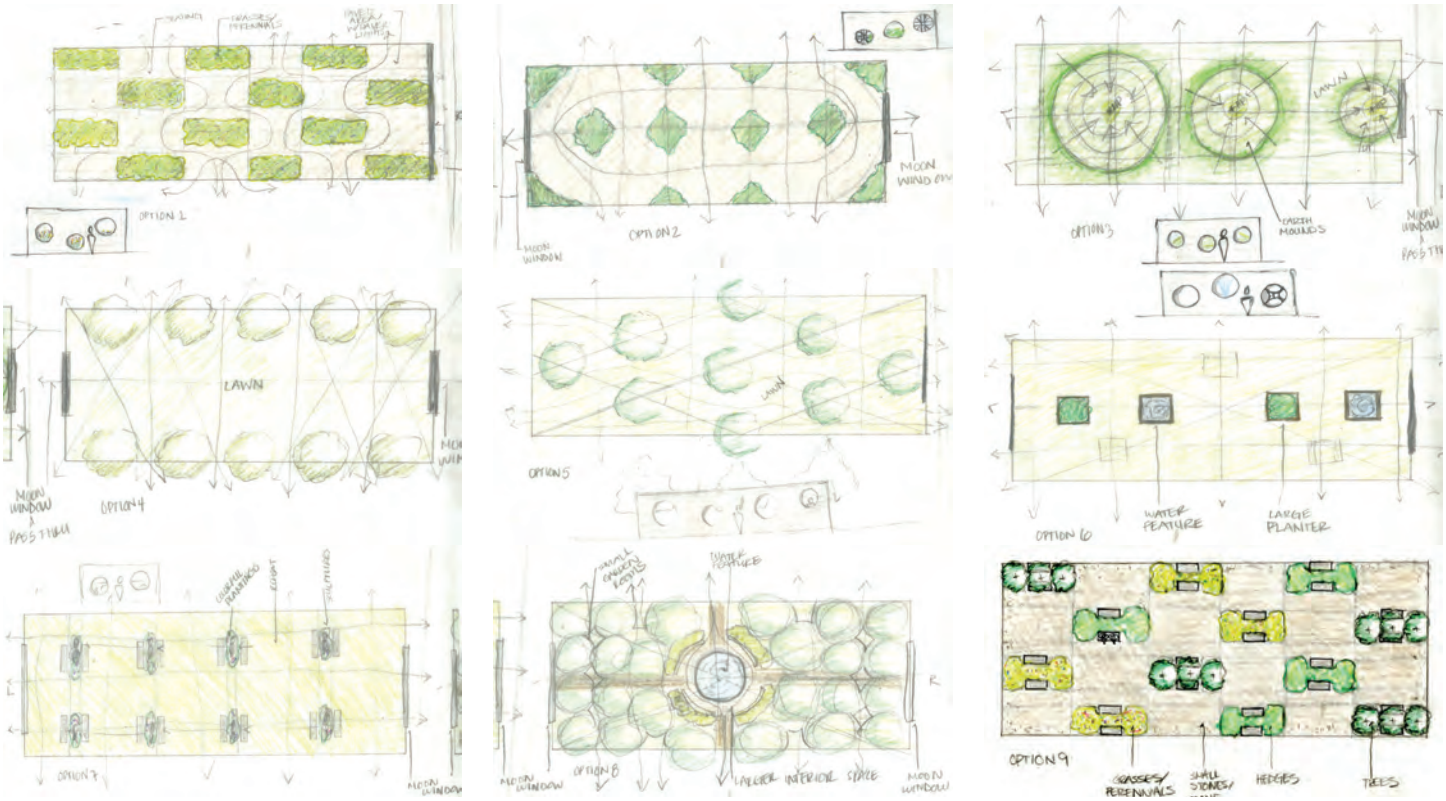
Crystal Ana Vega

This smaller portion of our overall plan is more residential and at a more human scale than most parts of the grand plan consisting of townhomes on the edges of the area with inward facing yards and an interior open space. In order to begin to designate the various areas of this portion there was a lot of research done about the difference between private, semi-public and public realms. Also there was a lot of diagraming to see how different central open spaces would be experienced and used which helped lead to a functional and enjoyable central open space. The private areas of this design are the rooftop decks that allow residents to gather above their own residences and are only accessible by the residents. The semi-public areas are the residents yards that face the interior open space and are areas that non-residents can experience while enjoying the public area that it surrounds but is still technically the resident's public property. The interior open space, which is open to the public, is made up of smaller garden room type areas and has many textures and colors by way of the colorful tall grasses, shrubs and small trees.

Other driving forces behind the design of this area were enabling the community to use the space around and above their homes to gather and come together. This area also allows for people to come into the central public area between the homes and gather amongst the residents. The importance of having many distinct gathering areas was to accommodate for not only visitors but mainly for families and neighbors to come together as privately or publicly as they wanted. This also ties into the culture of the predominant residents of this area, which consist of mainly Indian/Asian families. They are culturally a very generational and close nit community. They enjoy interacting and being close to each other mainly because of the commonalities that they share. This design helps facilitate and promote the ability to come together on a larger scale as well as come together on a more intimate scale giving the residents options as to how they wish to interact with others.

The residents get to experience the activity throughout this area on many levels. When on the roof the residents can still see down and visually be a part of the liveliness of the ground level while remaining in their own private space. Also when in their yards they can still be a part of the activity of the site since they can slightly see up to the roof and see directly out to the things going on in the public space. This element of activity virtually everywhere is not overwhelming but subtle and is a key part of the design for this area. The vibrancy of the Indian/Asian culture is only heightened when the same activity and excitement from back home can be translated into this area, perhaps on a smaller scale, but still to a certain familiar extent.

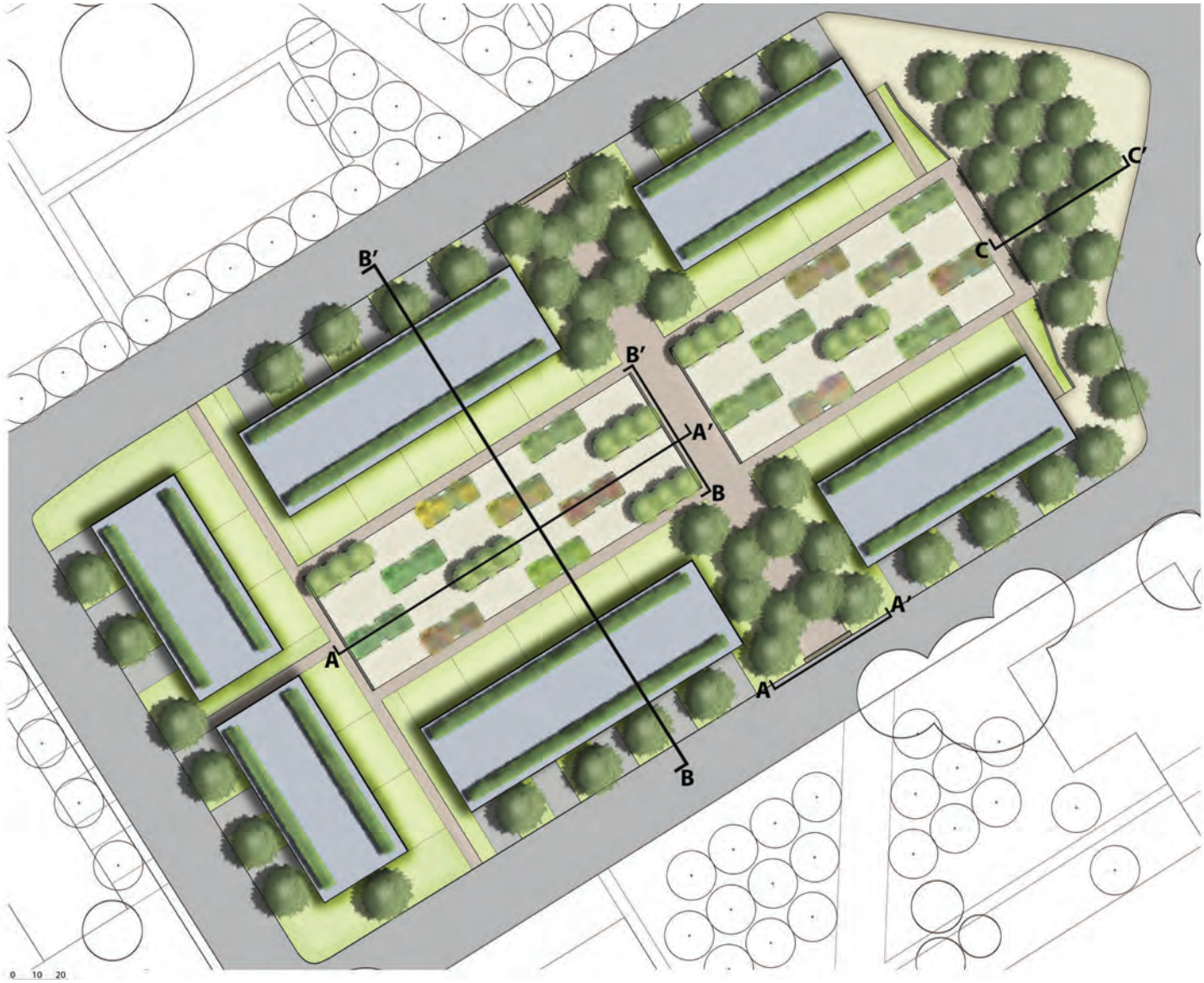
Another link to the Indian/Asian culture other than bringing in the element of community is the townhomes themselves. The townhomes in being two levels can accommodate a larger extended family, which is customary for this generational people. This way the young, old and all of those family members in between can stay together and remain an



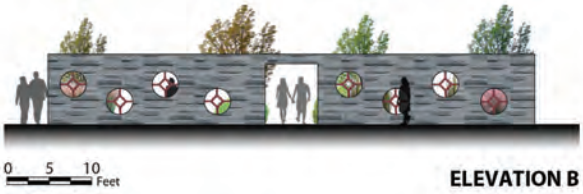
A series of option diagrams for the central openspace. Option 9 was the option used in the final design.

intact large family unit making Oak Tree Road area in Iselin, NJ feel more like home than ever. Other smaller Indian/Asian inspired elements are the moon window walls that slightly separate the interior open spaces and the gateways that are at the ends of the promenade that bring you in and out of this area from the other areas. The moon windows actually originate in Japan and are a key element to a majority of their garden spaces. They frame different key views either in the landscape or in the garden itself. The idea was to apply the same concept here where the windows frame different views in the public space and create a feeling of mystery and intrigue making you want to go into the central open space. The Indian Gate in India, which is a very popular attraction in India, inspires the entrance gateways. The gateways set up here are a very small-scale entrance marker that is designed to be familiar to the Indian/Asian community. They demarcate the difference of this area and signify a changing of local as this area is much more low density than the portions surrounding it that have higher floored buildings.

Overall this areas focus is that of strong community bonds and the integration of physically separated areas by way of lines of sight and activity levels. The family oriented and community involved atmosphere welcomes in the public while still keeping some areas for just the residents. All in all the space is meant to be inviting to all while being comforting to the Indian/Asian community living there.



ELEVATION A

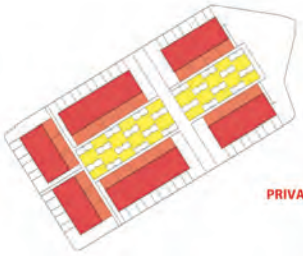


ELEVATION B

SECTION A

SECTION B

SECTION C



PUBLIC OPEN SPACE

SEMI-PUBLIC RESIDENTIAL OPEN SPACE

PRIVATE (RESIDENT ONLY) ROOFTOP OPEN SPACE

5.3 Oak Tree Road: Urban Remediation

5.3.1 Morphological Box

Josh Didriksen
Maria Torres
Daniel Rounds

Green Space

Urban Form

Prior to the design process, specific site conditions were evaluated to successfully respond to the current site issues. The morphological box is a design processing tool to create a cohesive and efficient outcome for some of the issues faced throughout Oak Tree Road, Iselin, NJ. This design tool provides a wide range of options for new opportunities that Iselin has potential for in future redevelopment. The first step is to understand the existing conditions and highlight unique qualities of the neighborhood. Some of the challenges that were observed were: Parking, Pedestrian Circulation, Vehicular Circulation, Green Space, Urban Form, Building Facades, and On Street Signage. These variables indicate specific concerns existing throughout the neighborhood. As a result, the outcome of this process guides designers to associate problems with a set of criteria.

The current parking conditions highlights how unorganized traffic circulation is on weekends, the most visited time of the week. Existing parking is inefficient and insufficient. This is problematic due to the external shoppers that visit on weekends. This current condition is dangerous for pedestrians and vehicle circulation. Some of the major factors contributing to traffic congestion are the nearby entrances to Route 27 and The Garden State Parkway, funneling cars a large amount of cars into the community.

The current site conditions demonstrate potential for enough spaces to handle weekend overflow, accessible parking amenities, and a balance between metered and public parking. Sidewalks are too narrow and utilities are place on the sidewalks on Oak Tree Road. These issues create an overall problematic pedestrian circulation. Based on these observations, the potential design criteria for Oak Tree Road unify pedestrians with the street scape using a set collection of features and utilities. It also has the potential for a fluid continuous pedestrian path system, as well as usable existing sidewalks. Over all it has complete potential for a safe pedestrian environment.

This car dominated community, builds upon the vehicular circulation issue. There are high traffic volumes especially on weekends caused by the visitor shopping cars. This causes a tension between residential car owners and visitors searching for parking units. Most of the current on street parking along Oak Tree are not time metered parking spots, congesting the vehicle circulation on the main road. Another factor contributing to vehicular circulation on the site are the current truck delivery entrances for most businesses are on this main strip of Oak Tree Road. As a result of these problems, Oak

PARKING | PEDESTRIAN CIRCULATION | VEHICLE CIRCULATION | GREEN SPACE | URBAN FORM | BUILDING FACADES | STREET SINAGE

Photo by: Maria Torres

is inaccessible and currently frames Oak Tree Road on the outside of the main neighborhood area. Iselin has no spaces for people to gather and interact. The only existing green space is neither passive nor recreational. This is problematic to the overall community health. Under these conditions Oak Tree Road promotes the potential for linkages that facilitate a network of larger green spaces. Iselin's empty lots promote high potential for developing some of the large paved surfaces into recreational pocket parks increasing the amount of green infrastructure. As a result, the overall criteria promote active and passive recreation. Existing urban form prevent people from using open space nearby shops. As a result there is a pedestrian overflow from the sidewalks into the street due to the large amounts of groups walking along the street corridor. For example the sidewalks among the main corridor are unusable for social gathering. This creates a very passive environment, limiting people to using the space available.

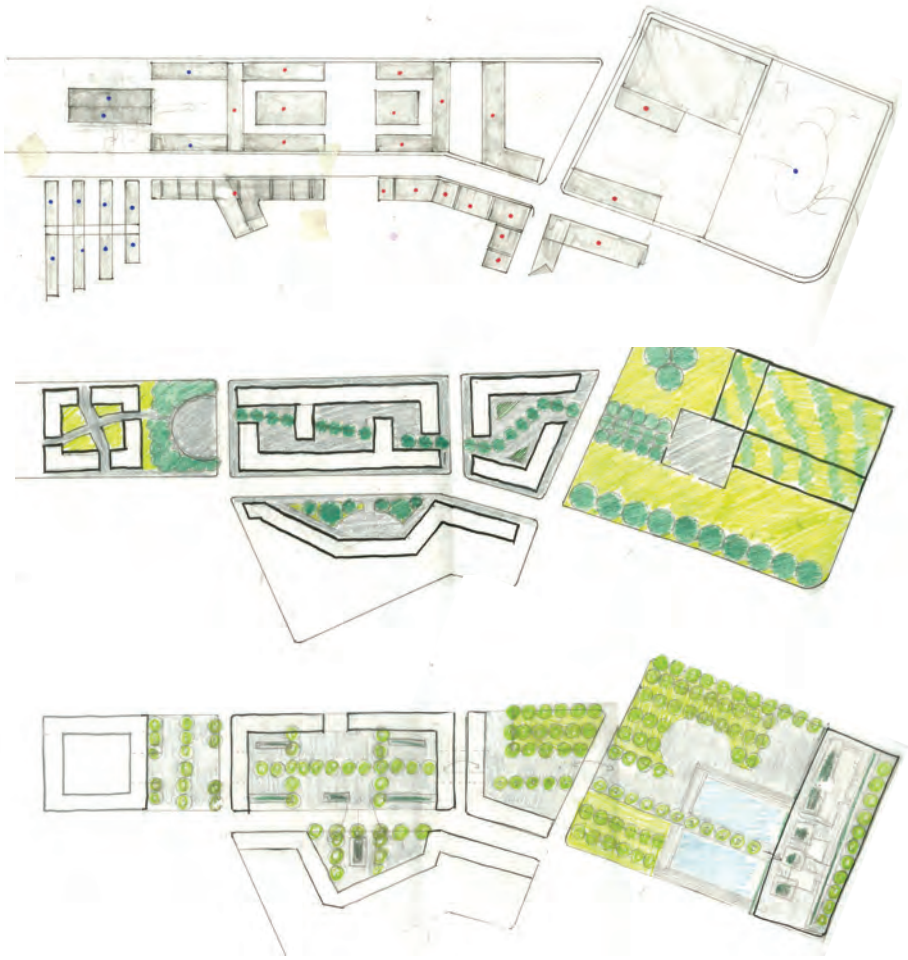
The existing spaces along the sidewalks within Oak Tree Road are interrupted by large utility poles. The sidewalks and buildings are inconsistent with space, based on width and height. This unorganized urban form demonstrates potential for spaces that unify the building density in the commercial district. It also provides potential for building forms to facilitate pedestrian gathering. There is an overall potential for reorganization of pedestrian circulation.

The aesthetic value within Oak Tree Road is unique but it is not properly represented. There is no balance or consistency in height, signage with building materials. However there is a lack of uniformity throughout the main corridor fading the commercial identity that Oak Tree Road deserves. Finally, the existing commercial structures promote potential for creative illumination and signage is proportional to form diversity throughout the commercial corridor.Existing signage is problematic because it creates confusion for visitors. Signs are also inefficiently placed, and unorganized. There is no standard or uniform size of signage is very difficult to read. This promotes criteria for potential clear and readable signage, as well as consistent forms with color, size and a clear message.

5.3 Oak Tree Road: Urban Remediation

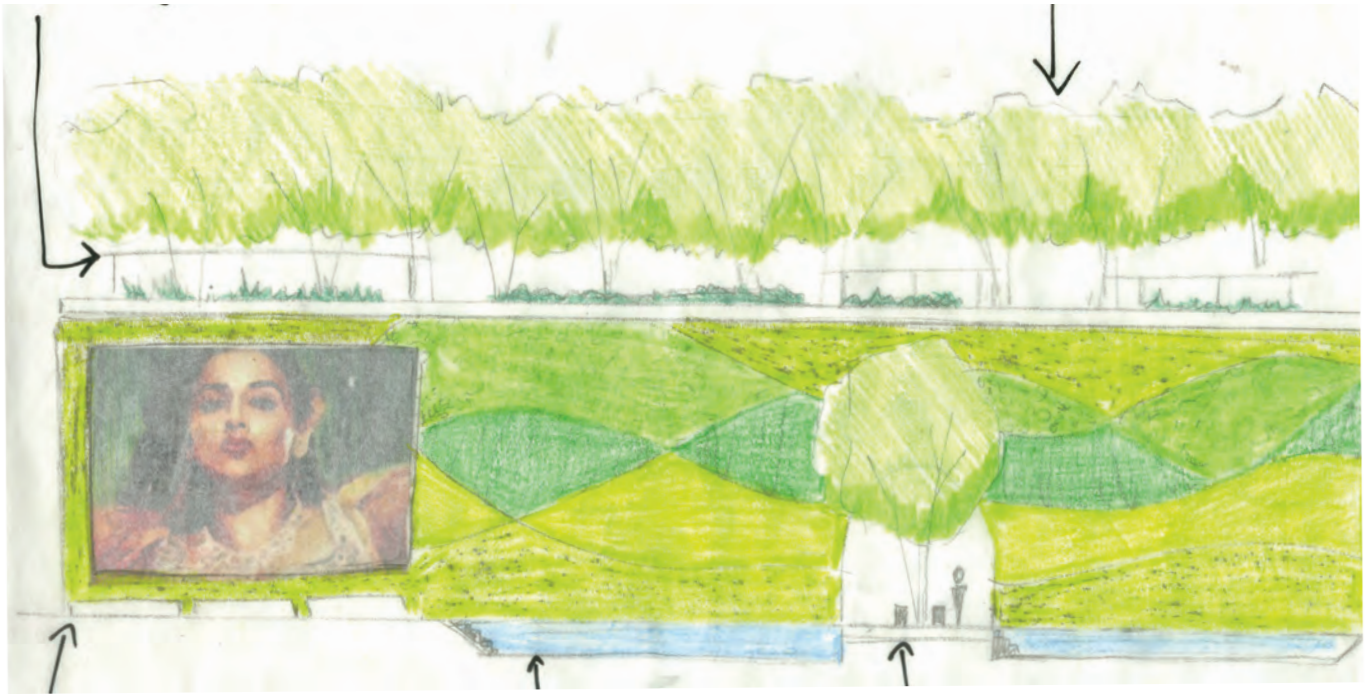
5.3.2 Midterm

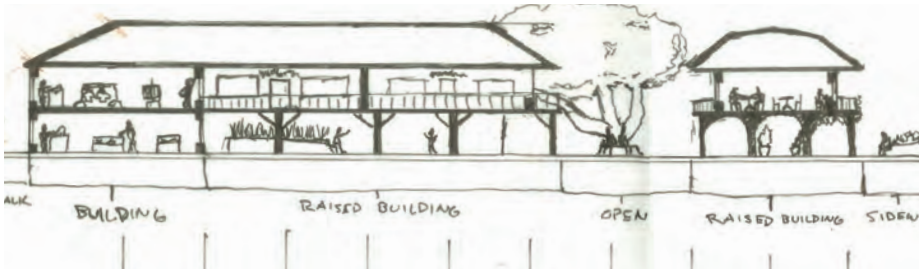
Josh Didriksen
Maria Torres
Daniel Rounds



After the morphological box was complete the strongest of its options were combined together into one conceptual diagram. This conceptual diagram combined all of the different options from the morph box into one design so there was a lot of overlap. The green space diagram was stuck on top of the urban form diagram and the circulation diagram was sandwiched between them. The group had to immediately begin shaping the concept, deciding on which morphological option to keep and which to delete in the case of overlap. Which morphological concept was strongest? Which had the most merit when one was contemplating the complex cultural and societal factors that are present at Oak Tree Road?

The group decided on a mix of urban form, pedestrian circulation and compartmentalization of different use typologies. All of the urban form options from the morph box showed a predilection towards creating forms that allowed for pedestrian penetration. The group was keen on creating a place where people could walk off the street into a square or mall type area that would allow for a large amount of pedestrian access to shopping. During the weekends when Oak Tree Road gets its largest amount of visitors the group wanted them to be able to spend the day walking around shopping, eating, and spending money instead of just taking a walk down two sides of the road. The idea of pedestrian penetration facilitates this. The Oak Tree Road shop and business owners valued their facades and signs so the group wanted to





Maria Torres 2012

preserve a large chunk of these facades and provide space for even more. By taking the form that the shop keepers really liked, which was people walking by their facades, and combining it with pedestrian penetration the group created a shopping area where one could be swept off the street into an area where they are literally surrounded by facades and shops.

The first concept also began fleshing out the overall urban form concept for the site and they quickly realized that they were compartmentalizing it. Slowly but surely a design concept began to take form that provided a shopping district, organized residential housing, apartment housing, office space and a large central green space all in close proximity to each other. This idea of compartmentalization continued to be used by the group, and because each of the different typologies where in close proximity a robust pedestrian circulation plan was put into place that linked the Metro park train station to the green space and then to every other piece of the plan. Instead of mixing up all the different typologies the plan created a situation where it was beneficial to walk. Walking to the shopping area, and then dropping the kids off at the park, and then seeing your neighbors as you walk home is not only possible but encouraged through the design and because of this the urban form also creates tight knit communities.

By the time the midterm rolled around the urban design concept had evolved into a full-fledged urban from design. The group had taken the pedestrian focus and married it with the middle green space to create a large promenade type space

that allowed for access to both the large green space and shops at the same time. This promenade also connected to the pedestrian access to Metro park station and the apartments. The design facilitated pedestrian circulation while still providing a large parking lot and parking garage within walking distance from the residences and the commercial core. The theme of pedestrian penetration was also focused and evolved into the inclusion of buildings that traded their first floor facades for stilts. These stilted buildings allowed for pedestrian access to the shopping area at any point along the road. The buildings made the pedestrian feel enclosed when they were in the shopping area but allowed for easy exit or entrance no matter where they were. The midterm boards included a fully rendered urban form design and two sections that illustrated exactly how the stilted buildings worked in the context of the shopping area. Two rendering s rounded out the ensemble, showing exactly how it would feel to occupy the shopping area and green space.

Section B-B

Section A-A

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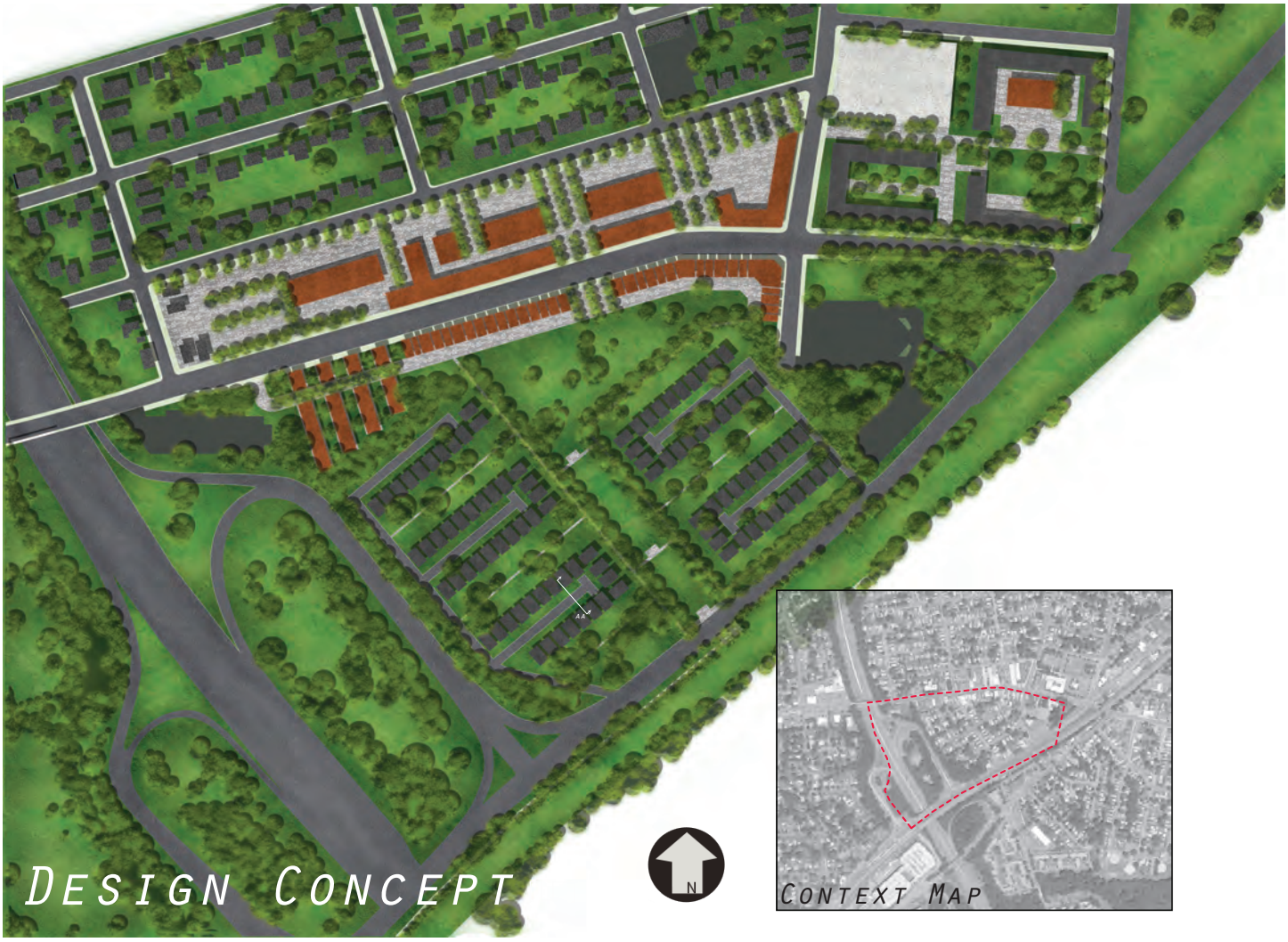

DESIGN CONCEPT
N
CONTEXT MAP

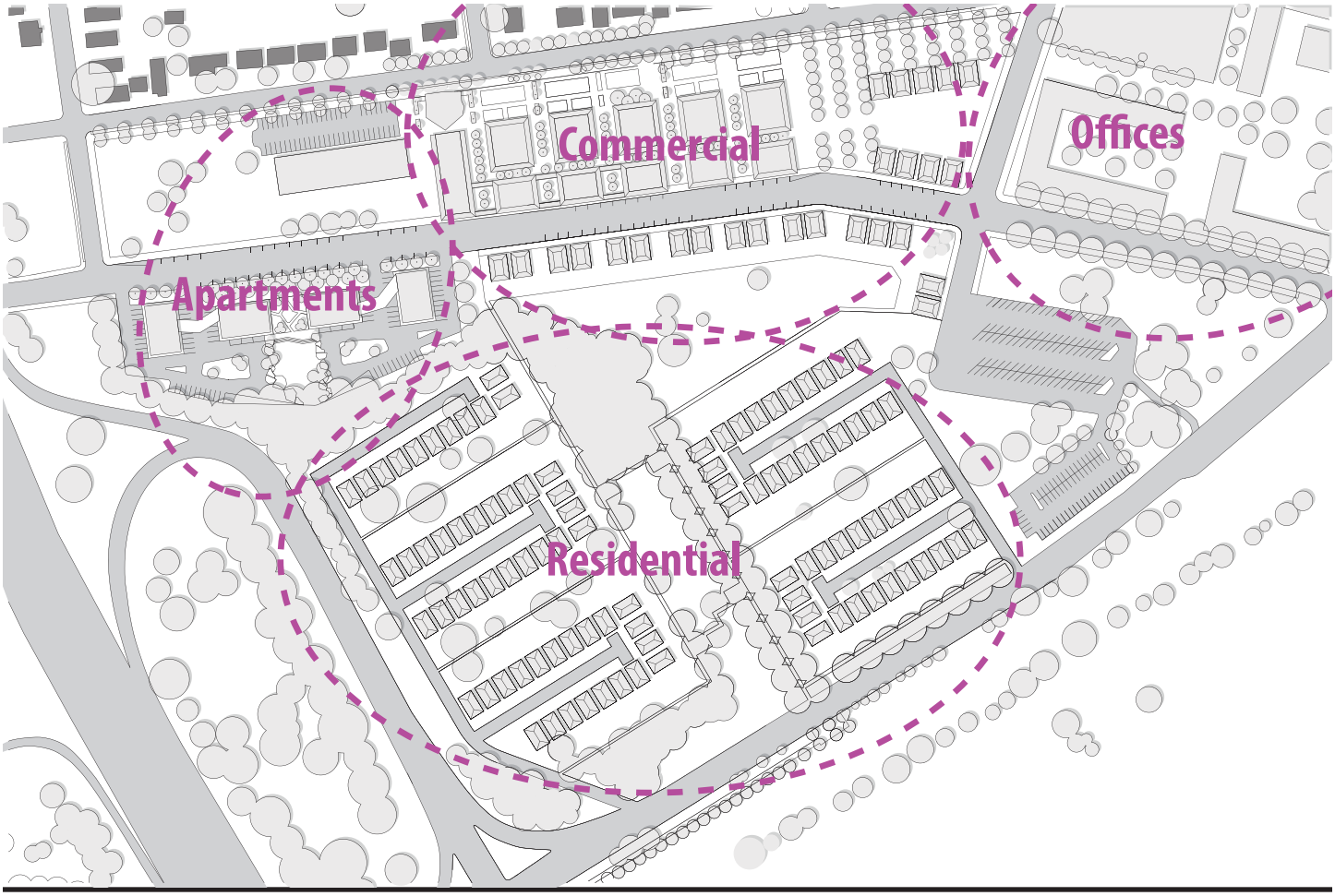
5.3 Oak Tree Road: Urban Remediation

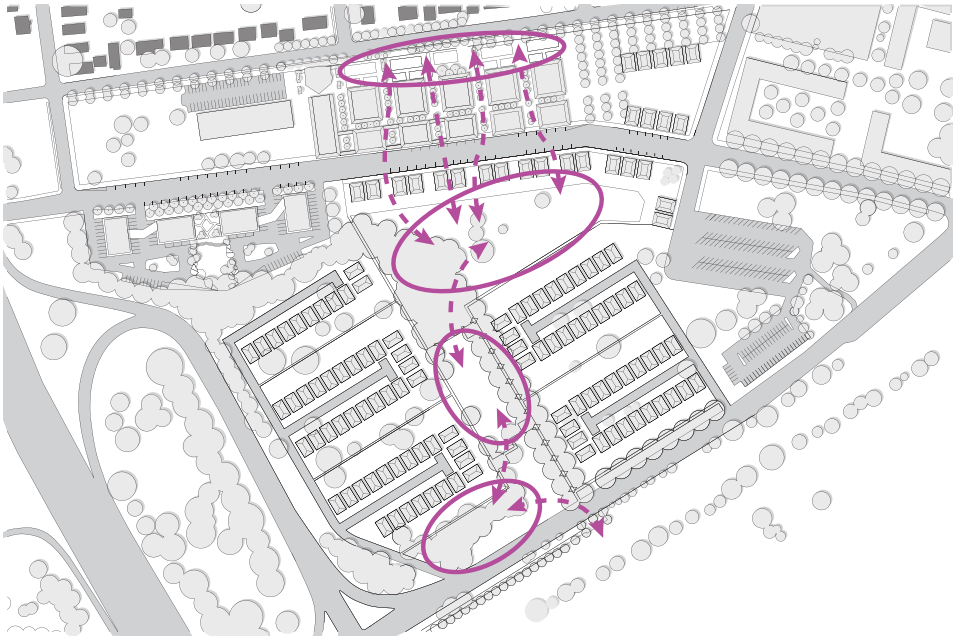
5.3.3 Final Design

Josh Didriksen
Daniel Rounds
Maria Torres

After the research of our special topics and with the feedback that we had received from the midterm, there were some important changes that we had done as too better meet our goals for the site. Carefully reviewing all the new information that had been given to us, we narrowed it down and really concentrated on three different sections. These sections are the commercial core, residential rehabilitation, and the connection between the green space and the community.

The commercial core has gone through a second major transformation, but while keeping particular elements of the previous design. This new development retains the same principles of the last, with a whole new form. In the previous design,





the structures were put up on stilts to facilitate permeability of shoppers into the plaza from Oak Tree Road. This then leaves only the second floor for shops and somewhat isolates them from the area. In the newly proposed design, the buildings are broken apart and spread evenly while still contain the catwalk that provides access from building to build. The stilts are replaced by shops which will provide even more business square feet. Separating the buildings and spacing them out really defines the spaces created by the building and creates a positive shopping environment that is not overwhelming and is planted to promote better moods for shopping.

Incorporated into the commercial core are areas of different activities, such as a movie wall, playgrounds, and decorative gardens. These elements are used to not just bring in shoppers, but a wider range of people. The attraction of different group of people will be beneficial to the area because while hanging out and watching their kids play or if they want a movie snack, they can stop into the market and pick something up. The proposed design aims to increase the inflow of people while increasing number of businesses. Both together will increase the economy of the area greatly.

The next area to be concentrated on is the residential rehabilitation, and this is done in two ways. The first to be touched upon was the high-density residential buildings. This newly proposed design really concentrates on making the high-density development a desirable place to be. It creates a sense of community within itself without separating it from the community as a whole. Through careful design of the structures and a central courtyard, the residents of the buildings have a private place to be away from the commercial core, while still having easy and safe access to it.

The second residential re-

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URBAN DESIGN CONCEPT

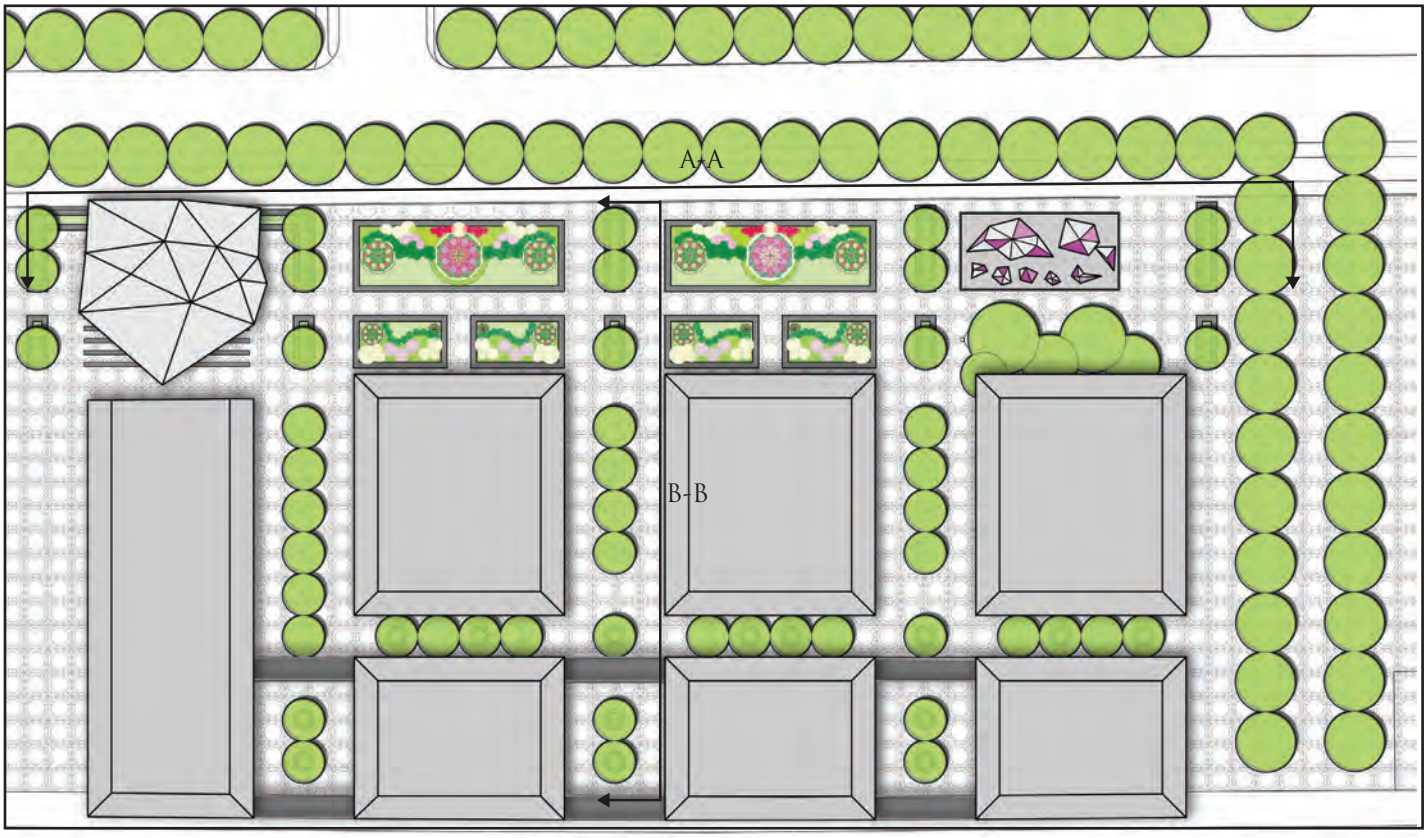
is the tie between the public and private experience. In this case the public will be the residents, the visitors, and the commuters. The private is the experience within the properties of the residences. The community green is the connection between so many elements and is designed to meet facilitate those connection. It provides the main connection from the Metro Park train station to the commercial core of Iselin. The alley is the main path connecting the two, providing shade in the hot summer months the along the way. The large field area in the middle provides a common space for residents of the area to get together.

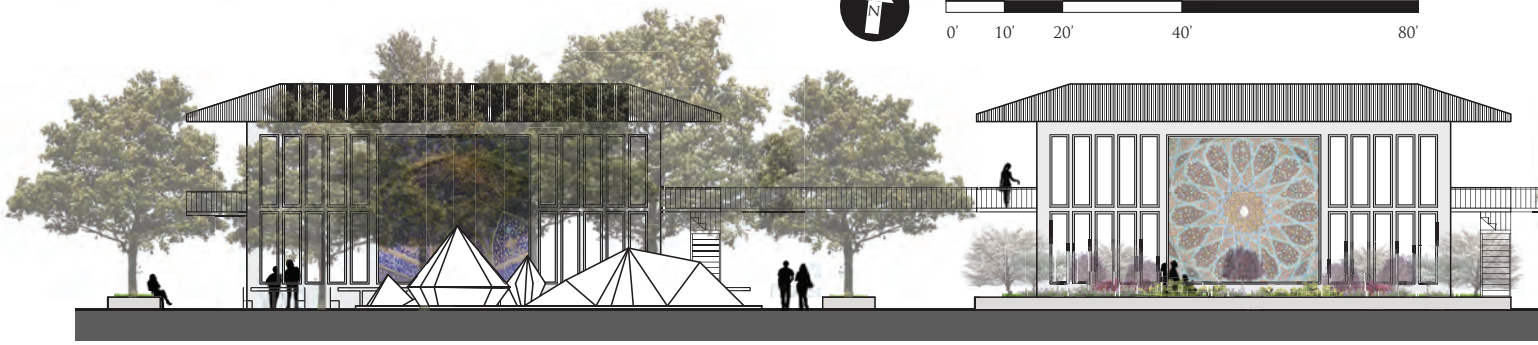
It does not only provide connections with people, but with nature. What is different from last design is that it keeps the large massing of tree and extends them out into the green space. This provides more habitats for different species and improves the ecology of the area greatly. This area will be accessible to the people with a path system that runs throughout. This path system will be raised walkways because another use for the area is that it is a retention zone for the water runoff from the surrounding park and residence areas. This is to prevent further runoff of the site making it more sustainable.

5.3 Oak Tree Road: Urban Remediation

5.3.3.1 The Commercial Core

Josh Didriksen



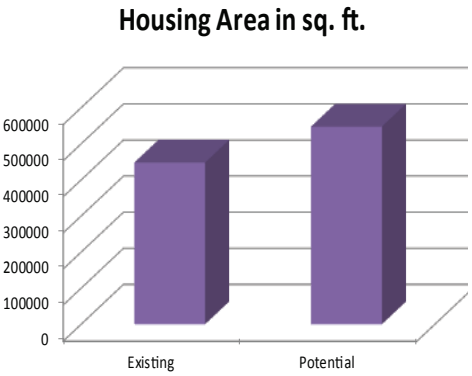


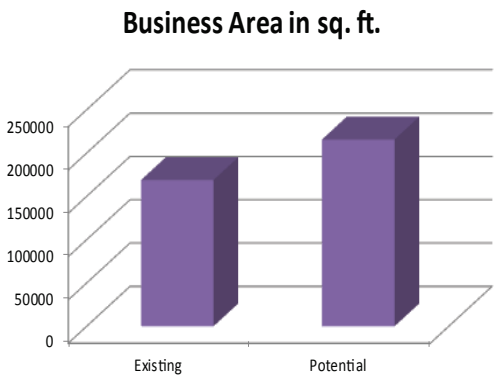
Section A-A

The urban from design and the feedback from the mid-term presentation informed the design decisions that were made on the commercial core. The shop owners and business men of Oak Tree Road all wanted extra parking and extra business space. While parking was addressed elsewhere, the commercial core increased commercial density almost one and a half times. The redesigned commercial core keeps the classic Oak Tree Road configuration on the side of the street bordering the new green space. However, on the other side of the street the small dilapidated shops are transformed into six large shopping spaces, with two levels of shops per building. This allows the passer by the opportunity to see double the facades and signs while walking or driving by. The two level system imposed on the commercial core is created using a system of second level catwalks. The catwalks allow for double the amount of business that would usually be allowable within the sites footprint.

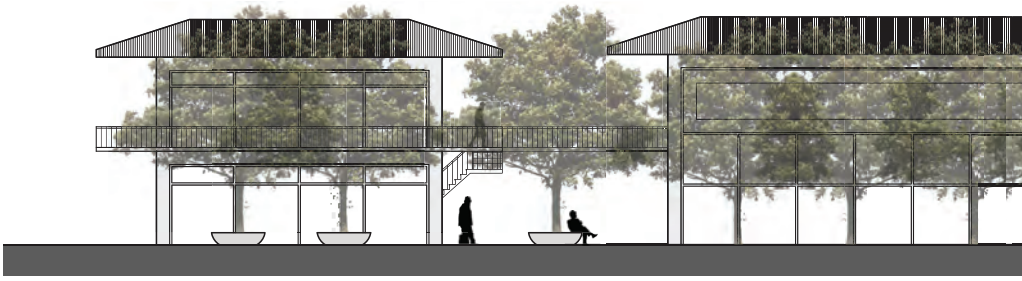
The wide spaces in-between the buildings allow for trees to be planted and their canopy, combined with the catwalks creates a safe and enclosed feeling on the ground floor. Seating is provided right off the sidewalk by circular benches that allow a 360 degree view of the shops that create three small squares. The squares draw people off the sidewalk and into the core. As one travels down the large alleys created by the buildings even more business, facades and signs become visible, drawing people down into the space. All the way to the left, under the longest building, the ground floor has been removed and replaced with a large empty space that can be used for gatherings or for flea markets and bazars on the weekends. This space, combined with the food vendors that could operate out of the business spaces adjacent to it would create a festive, culturally sensitive, and lucrative situation on both weekdays and weekends.

As people are drawn through the three long spaces right off the street they are allowed to either continue up to the second level for more shopping or use the gathering space, gardens, and playground that create the border in-between the residential street and the shopping corridors. The sides of the buildings that face the residential streets, instead of



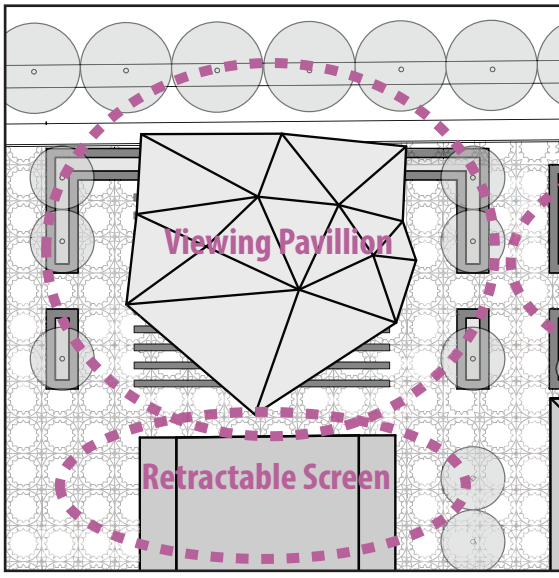


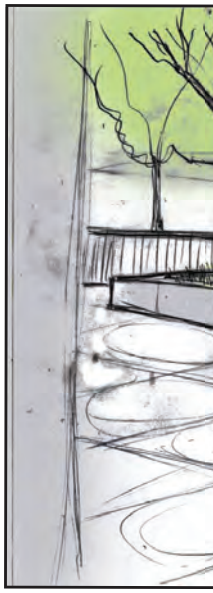
more business contain mural space for local artists, and the one facing the new pavilion space also can function as a movie screen, creating another weekend attraction that could benefit shops that operate inside the core. The pavilion space is created by a large angular structure that provides shade and pleases the eye through juxtaposition of its geometries and the geometries of its surroundings. The playground on the far side of the site and the pavilion are the two elements in the design with triangular, faceted geometry and they clash in a pleasing way with the gridded commercial spaces and circular paving and garden elements. The paving design is based on a mandala; a culturally significant symbol hat has been paired down and simplified to almost an abstract form, giving just a hint of cultural relevance that blends into the overall aesthetic of the site. The gardens in the middle of the border incorporate elements from the commercial spaces and the paving in the form of the steel mandala ground cover gardens and straight geometries borrowed from the commercial space. The playground in the top right of the site provides places to sit in shade on the seat walls and picnic tables, while watching kids play in the uniquely designed playground. In order to fit with the geometry of the pavilion the playground is a collection of gem like faceted structures that contain classic playground equipment. The shapes of the structures allow for fun and the

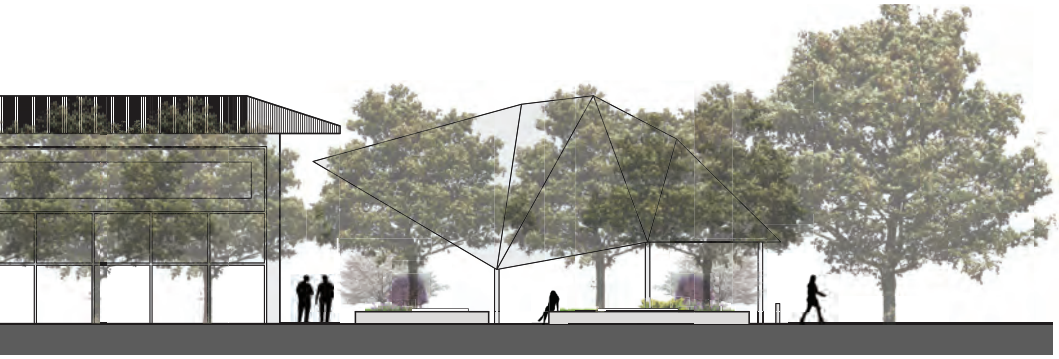


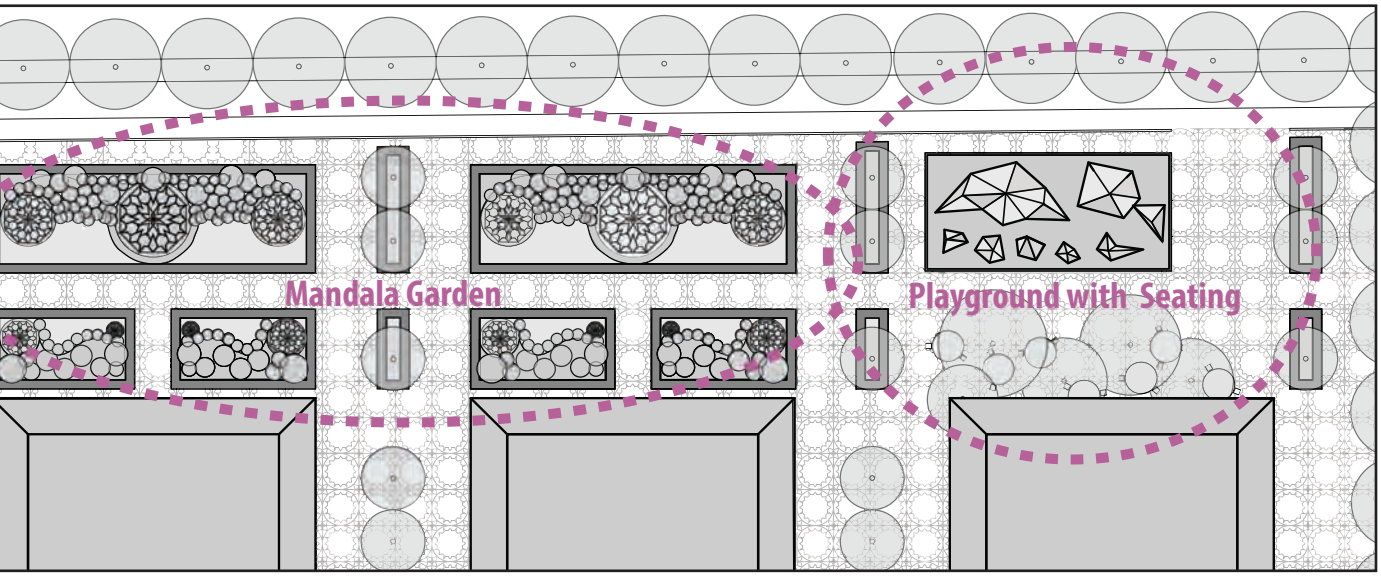
Section B-B

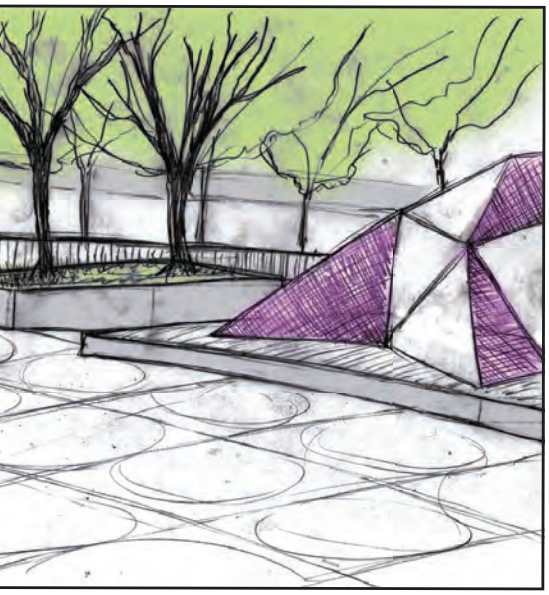
opportunity for imaginary play. Certain faces on the gems are transparent providing discerning parents the opportunity to keep track of their kids. By providing space for shoppers to gather, places for them to shop, and places for community gatherings, the commercial core creates a better Oak Tree Road, by strengthening it economically and providing spaces to create a tighter knit community.

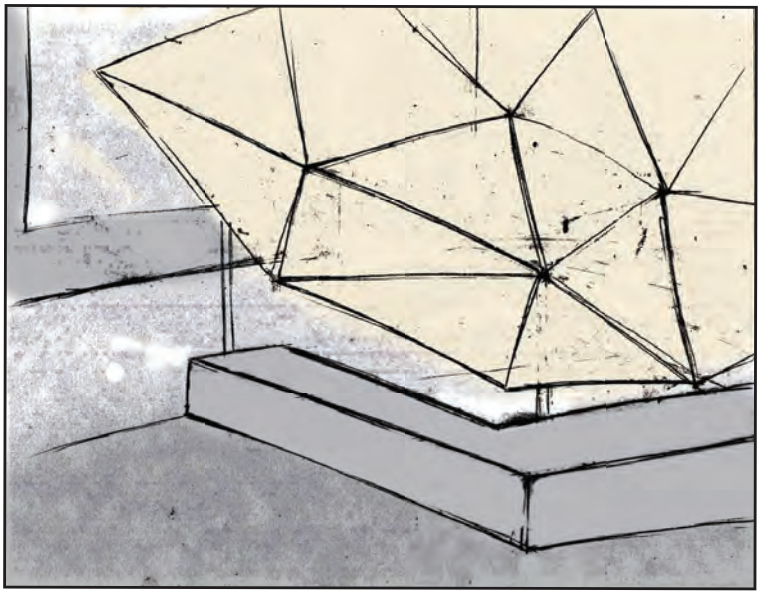







Mandala Garden
Playground with Seating

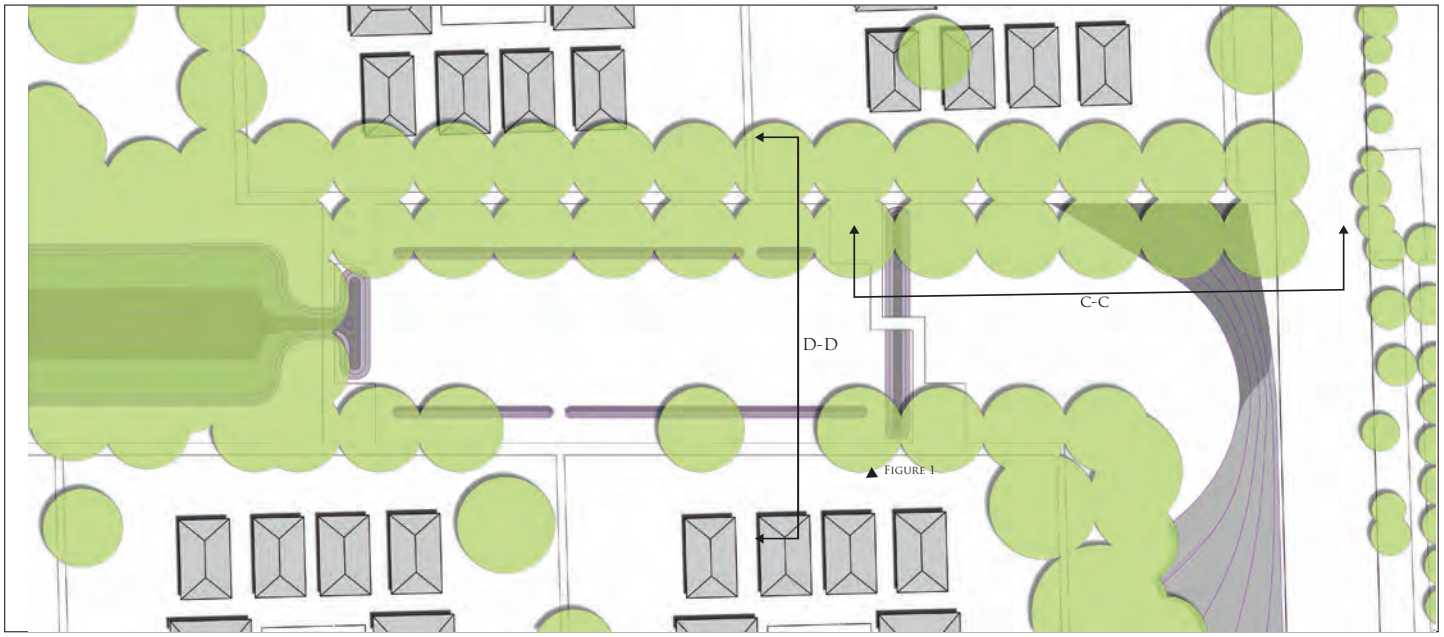




5.3 Oak Tree Road: Uraban Remediation

5.3.3.2 Residential Community

Daniel Rounds



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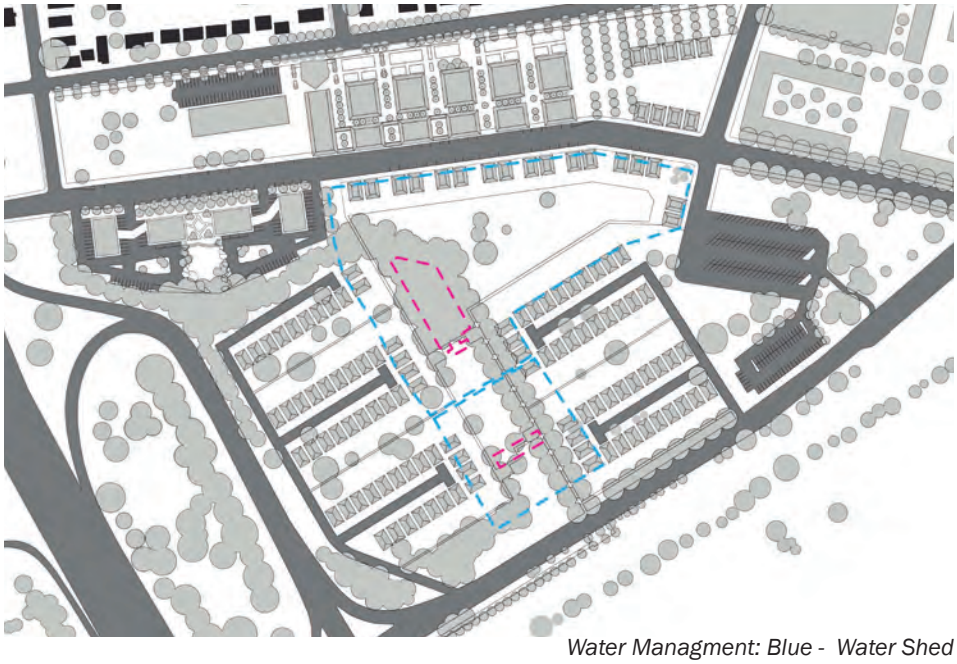
Iselin contains little to no usable green space which is a major problem when you look at how many people live there and use the area. This design proposal would fix that problem, as well as other problems in the site. A current problem that this addresses is the connection to the train station. This creates a connection that allows people to walk safely to the site to make the connection between this major public transportation source and the major commercial hot spots of the Indian culture in the U.S.

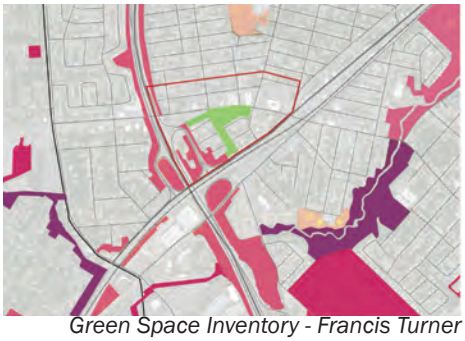


Water Managment: Blue - Water Shed
Magenta - Water Retention Zone

The through the manipulation of landform, the site gets many different uses. The area is designed to be a community green space for the residential area while being the connection between the public and private experiences. The green space in the middle is contains berms surrounding with alleys to create a defined space that would be ideal for people to set up games, like soccer or cricket. Surrounding this space is a path system that provides the many different connections. These connections include the connection between the train station and the commercial core, connection for commuters to the train station, and the connection between the residents of the area. Along this path, there are gathering areas to be use by both residents and visitors for a nice area to stop and breath. The contours do not only define space though. In area, landform is depressed for water management techniques. The water from the green space area and part of the residential area will all be managed within the site boundaries and will prevent runoff to the rest of the site.

The residential designs are design for the proposed houses. These will include different elements depending on the wants of the clients. There would be a

Section D-D



Green Space Inventory - Francis Turner

framework for the elements of the design. What this entails is that there will be different elements, such as an outside gathering area, a place for plantings, etc. within these elements, there will be different options; ex: for the outside gathering area there will be options of a stone patio, wooden deck, and other options.

The design to the left would most likely be used for a five person family with a dog. It provides the elements that they would need. This design provides a bluestone patio with an outdoor bar and grill where the family can grill and prepare food for barbeques or dinner and sit around the table. In the bottom corner, there is a dog pen where they can let the dog go to the bathroom to prevent brown spots on their lawn and it is easily accessible in the winter months. Just beyond the patio is an open lawn setting, fenced in, surrounded by a buffer of varying plants to create a soft and visually stimulating edge to the property. In the space, the kids can play and run around with the dog while the parents feel alright knowing that that the kids are in view and cannot wander off. The parents can even sit out in the yard next to the small water feature to watch their children and listening the calming sound of water. From the outside, you would be greeted by the ornamental grasses to soften the hard edge of the four ft. flagstone wall the separates the property from the community green. This wall would be set back 3' so as not to feel like it is encroaching on people passing by on their daily walk.

The center design would be the ideal design for middle-aged retired couple whose children have already moved out. It is a very relaxing property with different tiers of the deck for different uses. Walking out from the house to the upper tier, you will find a nice table set with wine and cheese all ready for the residents to have another couple for a nice conversation. On the next tier down to the left, there are two chaise lounges set, backed by the nice soft needles of a lacebark pine, so they can lounge there on a sunny day after a long work week to just unwind. On the third, bottom tier, there is a nice bench seat where they can surround a fire pit when it gets cold out. For their own leisure, there is a vegetable garden which would provide a relaxing activity and a nice source of fresh tomatoes when they want to have the occasional homemade bruschetta. All this while preserving their privacy by planting and arborvitae hedge along the sides of the property with a planted berm on the front side to close of the community green from the residential area.

The third design facilitates a more open plan and is less contained. From the house, you walk out onto a level, grass area. This area is about two ft. higher than the rest of the property because it was bordered by large stones that was then fill up to the level of the exterior door to provide a

smooth transition from inside to outside. Between the landscape stones and lower grass and shrub plantings, this design gives the property a very natural and open feeling. It welcomes the observation from inside the property to the outside community and from the community to the inside of the property. This design is more oriented towards clients that are not particularly private and like interaction between people and the community.

Along the path system of the community green, there are four separate areas to sit and relax. Whether it is for a runner to stop and stretch after their warm up jog, or the residents of the community to just sit and enjoy the view, it is a relaxing place to spend time. Wrapped around the tree, there is bench seating that provides a quick seat for passer. This is planted in the middle by tall grasses to provide a backing to the seat while providing privacy to from the other side. On the outer edge, there is a planted area with stones that have been specifically picked for seating. Surrounding the stones are various flowering shrubs and grasses to provide a desirable place to view the green.

Section C-C

5.3 Oak Tree Road: Urban Remediation

5.3.3.3 Residential Rehabilitation

Maria Torres

The community in Oak Tree Road currently consists of a suburban settlement made up of a large amount of two story housing units. The height of these units increases the amount of sprawl. Sprawl isolates individuals by making resident's car dependent throughout the neighborhood. According to the housing inventory, the overall residential and commercial corridor in Oak Tree Road is in need of housing rehabilitation due to the age of buildings.

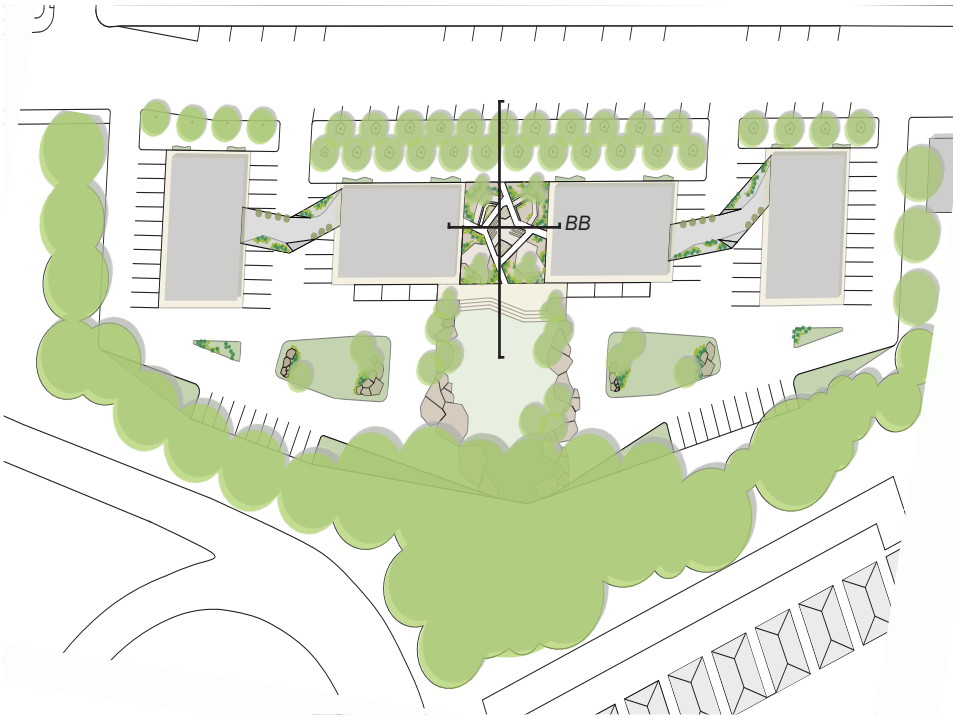
Most of the units are over fifty years old. As a result, the housing buildings are suitable for renovation for the future design. Current housing units create an isolated transition from an individual's car to their home preventing people from interacting and establishing a comfortable active community relationship.

This creates an insufficient neighborhood community. To promote sustainability within Oak Tree Road, the design intent takes the initiative of increasing the amount of housing density, community interaction, and providing ownership of recreational space for residents of the current housing facilities.

To begin with the housing renovation at the end of Oak Tree Road complements the transition from a commercial corridor to a residential district by the presence of vegetation and planters from the street to the housing units. This set back and implementation of planters and trees improve the street corridor. Implementing trees along Oak Tree Road not only enhances the health qualities of the area, but it also aesthetically enhances the area, identifying it as a transition from one commercial zone to a residential zone. Increasing the amount of sidewalk space also enhances the safety within the area encouraging pedestrians to enjoy sidewalks. Due to the amount of housing units assigned for each residence there was a need for parking units for families within the new site. This was the biggest challenge of the initial site design process.

In order to solve the parking problem issue, the final design outcome needed to decrease the amount of apartment units to maintain a balance of parking spots in relation to the number of apartments. The final parking solution concludes of two parking spots per family unit and on street visitor parking. The total housing facility consists of a total of eighty four parking units, to accommodate fourteen units hosting two to three family housing apartments. This was the most affordable parking option for Iselin. Other parking methods were brainstormed during the design phase; however this was the best option, maintaining proper control over vehicle circulation throughout the site and also allowing residents to park near their housing facility.

One of the best elements of this design is that parking is split to two sections, creating a middle buffer, which is usable by the people of the apartment complexes. The mid area created by the two parking lots increases



the amount of useable green space throughout the site. Each apartment building is three stories, two of which consist of a terrace interconnecting one unit to the next. The terraces on the second floor to accommodate interaction for residents, but also to create a community atmosphere, while keeping pedestrians on a second level crossing, for safety purposes caused by the under level parking. These new structures accommodate the initiative to increase density and reduce the dependability of cars.

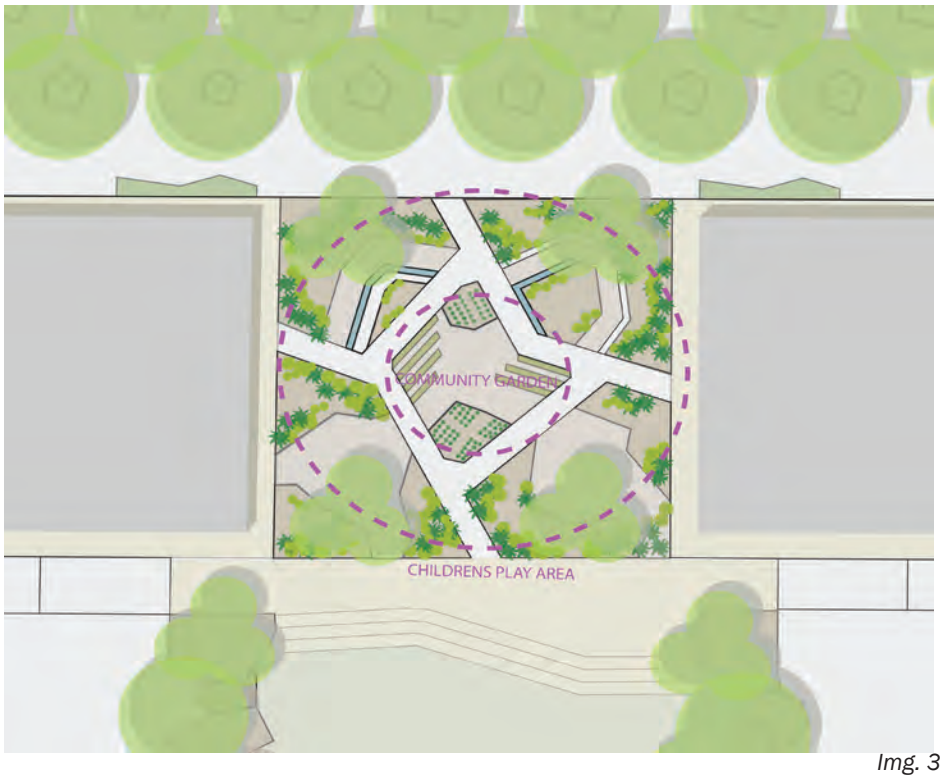
The amount of parking and building structures implemented in this design are balanced by pockets of vegetation throughout the site to relieve the amount of impervious coverage created as an outcome of the redesign. As a result bio retention basins are integrated as part of the parking lot design to increase the amount of water infiltration throughout the residential site.

Within the two middle buildings a community

courtyard is integrated to build community relationships among the residents. With this space residents have the commodity of using planter boxes and trellises grow vegetables or herbs for traditional cooking. This courtyard also accommodates children with a naturalistic play area composed of rocks to mimic nature.

These pockets of integrated rock features, and native vegetation improve the housing quality, from any other area in Iselin. The children's garden play area is small enough for parents to keep a guard on their kids, but also for parents to use this area for gardening. This accommodation of two interactions establishes a stronger relationship within the neighbors of this housing complex.

This garden successfully provides residents with an interactive communal space, allowing residents to enjoy and appreciate their main center space. This main community courtyard is not only an interactive element for the residents; it is also a transitional corridor which brings individuals to a much larger green open area. This pocket of larger space is important because it can host large numbers of people for specific ethnic events. This is also a safe area for residents to rely on without having to be disturbed by vehicle traffic.



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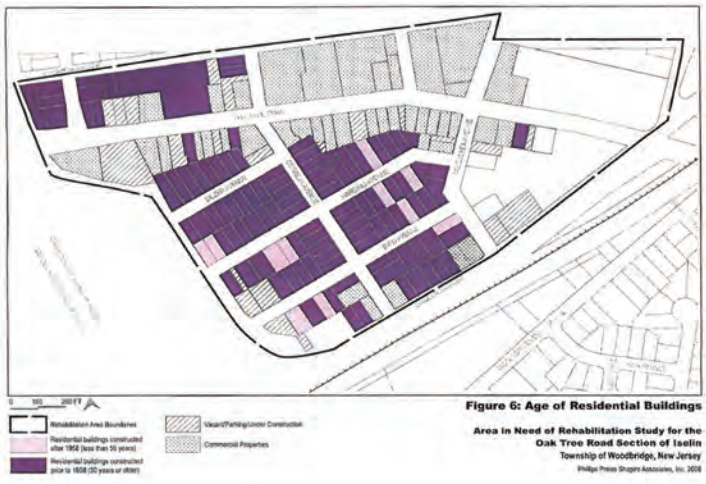


Img.4

This area is screened by the naturalistic rock elements and vegetation which screen the view of cars. This green space is framed by new mix forest vegetation screening residents from the apartments to the people from residences. The overall changes in this site keep residents safe, active and connected. The overall composition of this new housing rehabilitation is eloquently divided into three different segments which create great pedestrian transitions from the streetscape to a private area.

This transition is important because it creates healthy community interactions which improve housing conditions for the families in Oak Tree Road.

This garden successfully provides residents with an interactive communal space, allowing residents to enjoy and appreciate their main center space.

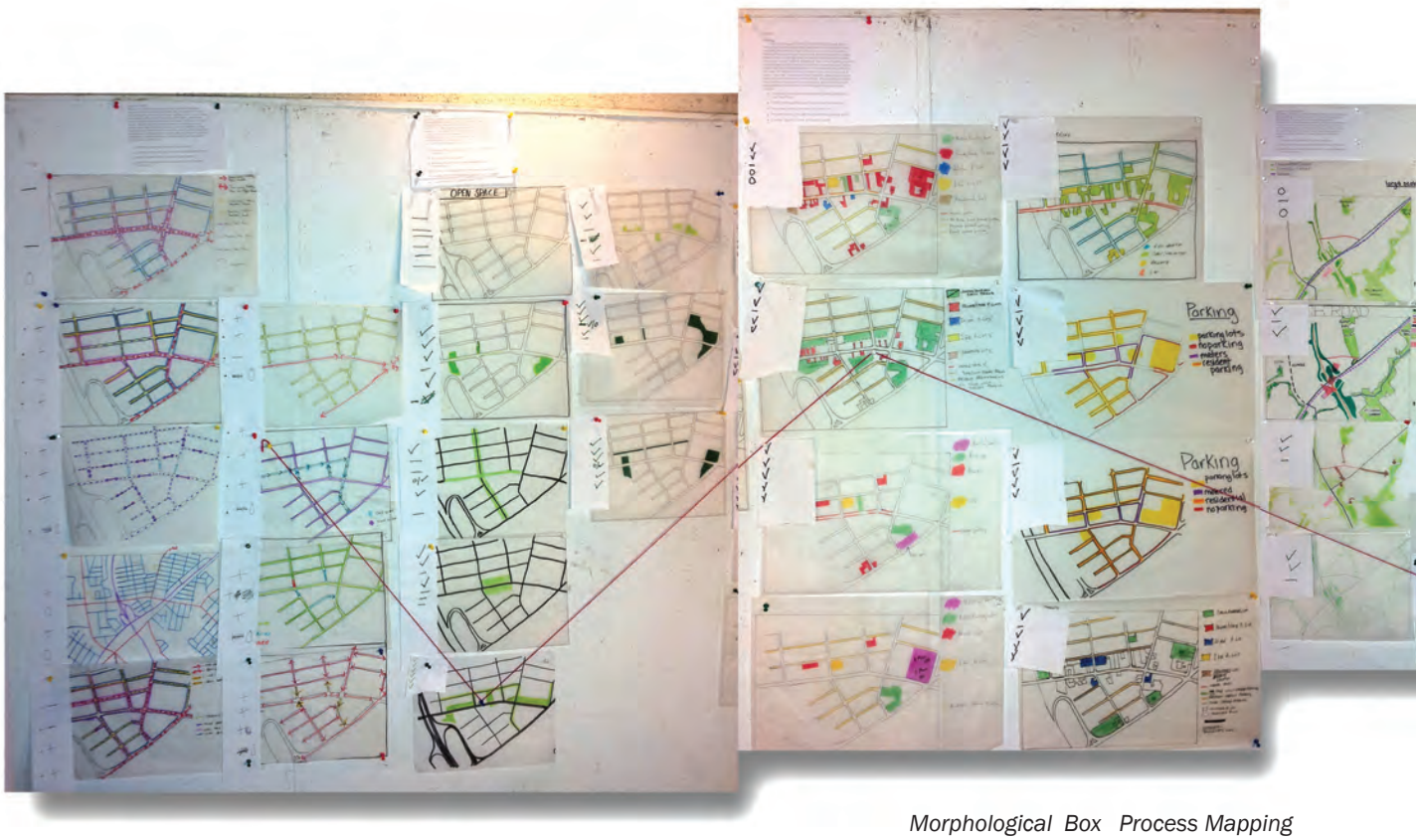
This main community courtyard is not only an interactive element for the residents; it is also a transitional corridor which brings individuals to a much larger green open area. This pocket of larger space is important because it can host large numbers of people for specific ethnic events.

This is also a safe area for residents to rely on without having to be disturbed by vehicle traffic. This area is screened by the naturalistic rock elements and vegetation which screen the view of cars. This green space is framed by new mix forest vegetation screening residents from the apartments to the people from residences.

5.4 Oak Tree Road Urban Revitalization Plan

5.4.1 Morphological Box & Design Process

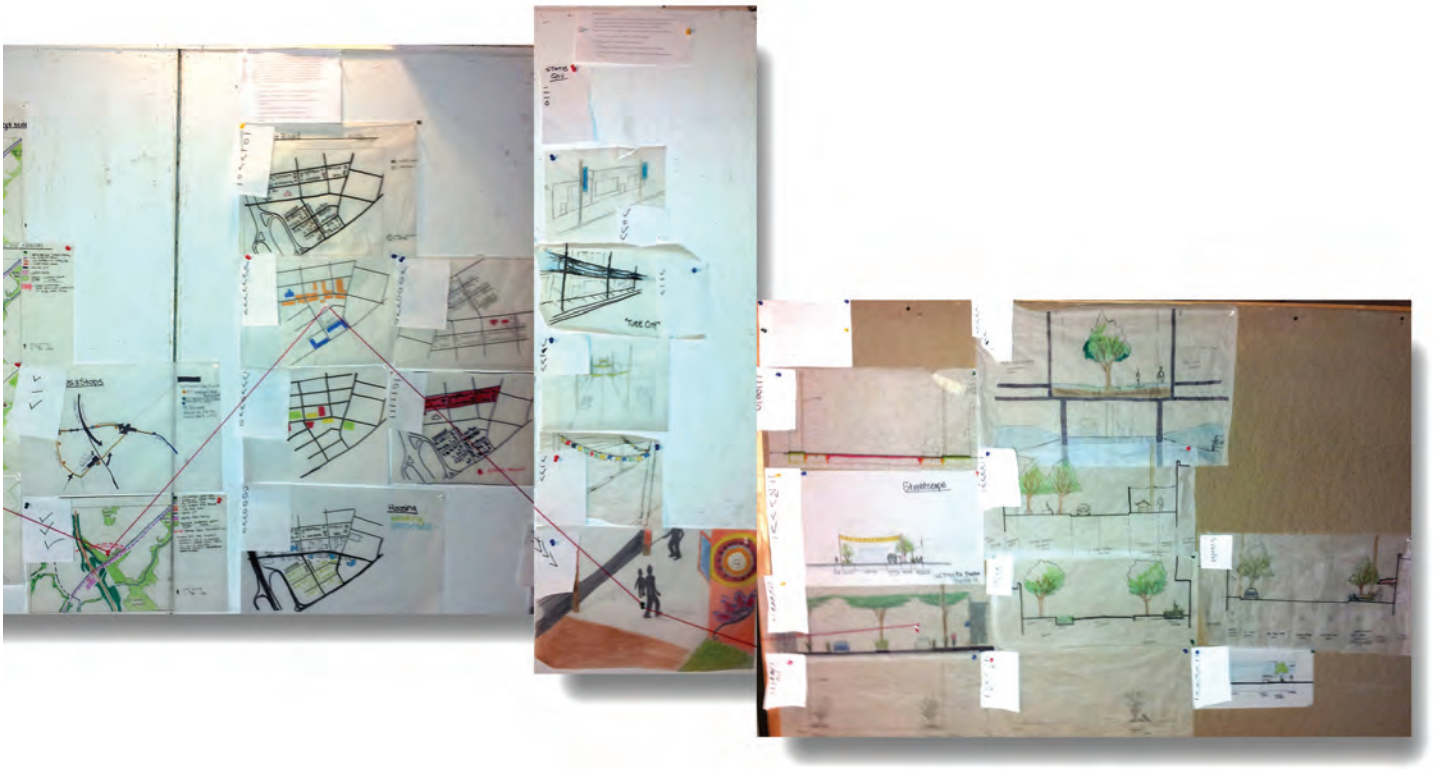
Chantae Moore
John Ireland
Matt Pugliese
Russell Sewekow



Morphological Box Process Mapping

While taking on the challenge of designing a large scale landscape project, many factors are observed and studied to better understand the issues and opportunities of the site. Extensive amounts of information, all playing roles in the problem solving, makes visualizing solutions difficult. In order to create a "methodological relationship between survey, analysis and design decisions," the morphological box is applied with our preconcieved values for the site.

M. Pugliese, 2012



Parking

As a vital aspect to the success of the business district within Iselin, vehicular parking has taken over all space that was left after development. However, according to some, there is still an insufficient amount of spots available for large crowds that acclimate over the weekends and during other shopping events. Positive aspects of the current parking system include free public parking availability as well as spots free of time limits. These aspects prove to be extremely important to the users, as well as business owners in the area, because of Iselin's "day trip "experience that helps to draw large crowds from all over the eastern United States, these positive aspects must be maintained and/or enhanced, while shuffling and reorganizing the parking in a sustainable and functional manner

Criteria

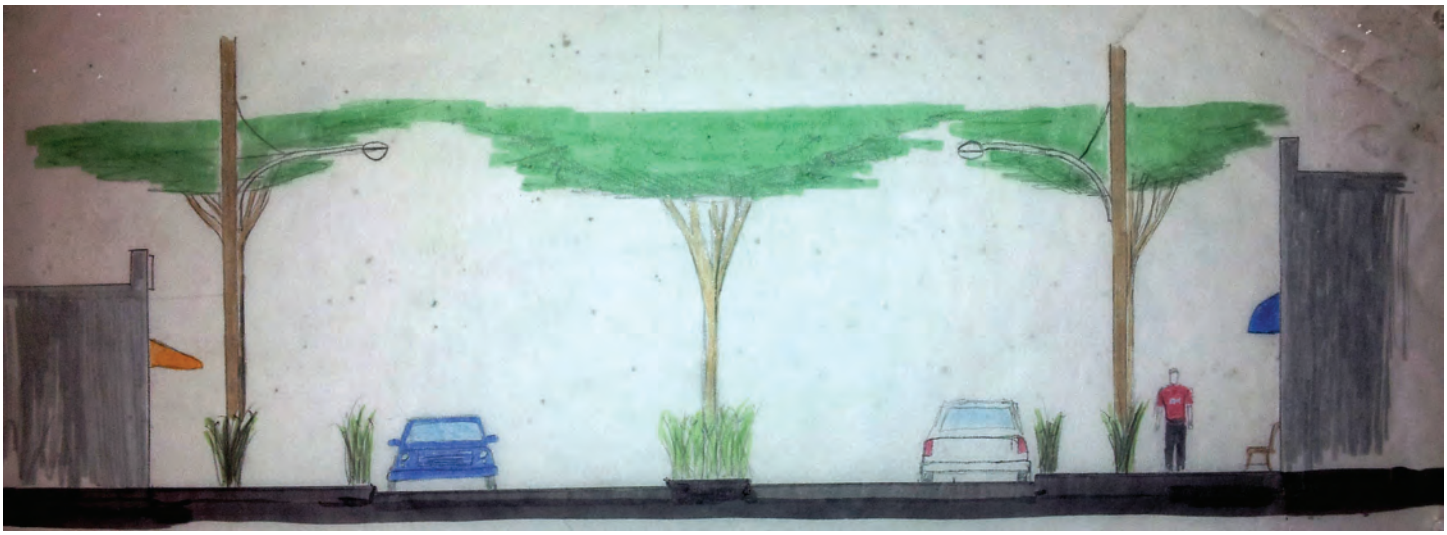
- Customer parking should be within walking distance of Oak Tree Road
- Clearly distinguishes public and residential parking
- Decreases parking footprint of current lots
- Provides equal or longer time for limited parking spots
- Provides equal or more total public spots

Streetscape

The current condition of the streetscape on and around Oak Tree Road is insufficient for the use it receives. Due to a road widening about 10 years ago, the sidewalks were diminished to a mere 7' wide. The outdoor "open-air mall" that this street has become is not served correctly by this minimal amount of space for shoppers and walkers. Although bikers are not typically popular in this area, cycling would be the best form of transportation for sustainably traveling short distances within the neighborhood, and therefore amenities should be available. Through the reorganization of space and circulation, the streets should blend walking, cycling, driving and servicing in cohesion so they do not interfere with each other.

Criteria

- Allows for bicycle parking
- Allows for bicycle lanes
- Creates an organized sidewalk sequence
- Increases amount of vegetation
- Provides more seating
- Creates sense of enclosure
- Improves storm water management techniques

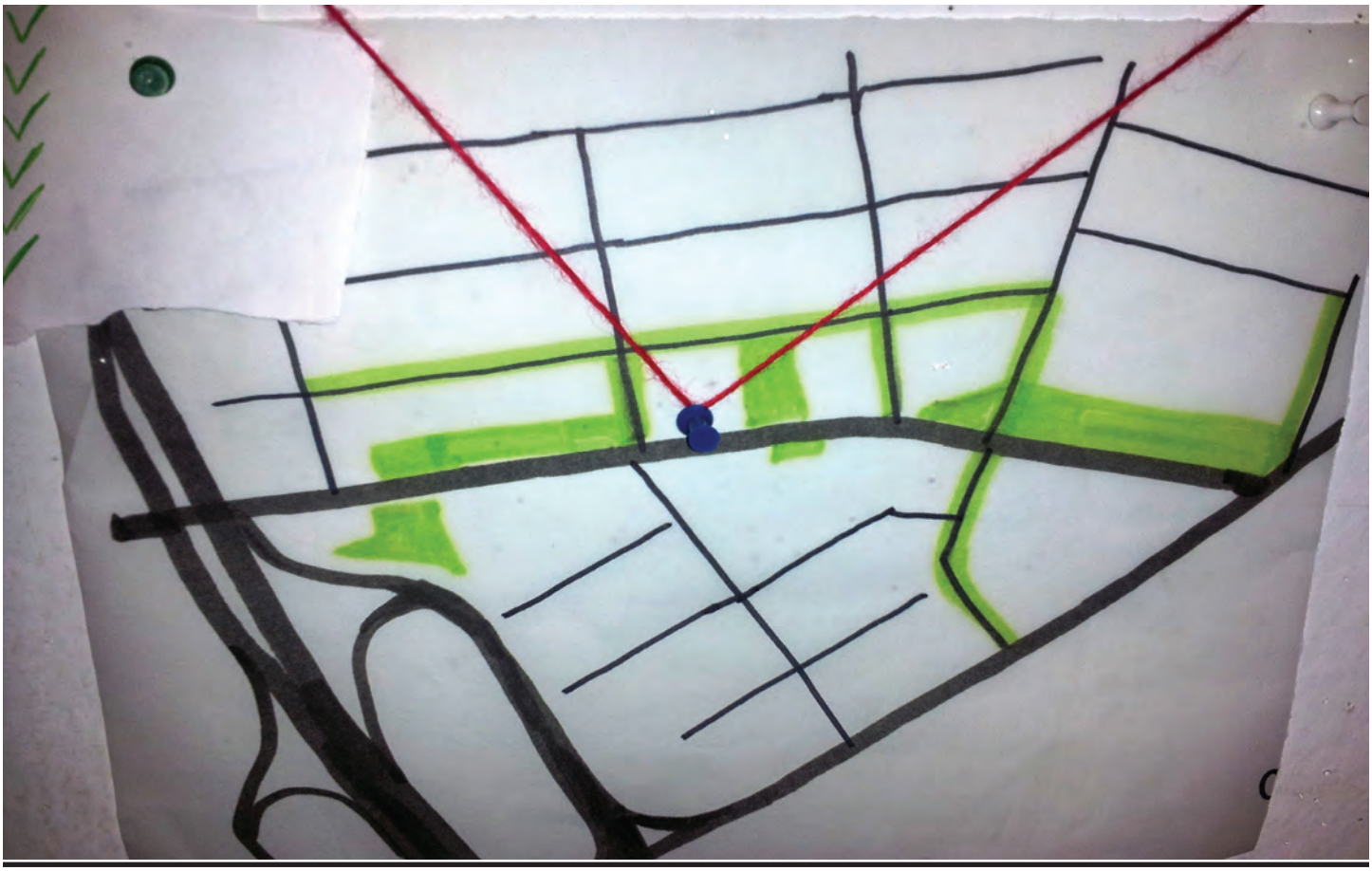


Open Space

Currently, based on building and human densities in the area, not enough open public space is provided in Iselin. The only public space available within the site is streets crowded with cars, and an offsite park is a couple minutes' drive away. The residents of the area, as well as temporary users, could use public open space in a variety of ways, ultimately improving both individual and communal health. Due to the pattern in which this place has developed, no space has been allowed for this use and little green space remains.

Criteria

- Located within walking distance of Oak Tree Rd. (10-15 min walk)
- Creates more open space
- Utilizes underused areas or real estate listings for development
- Connects on a large scale to other green open space
- Provides ample and accessible green space for residents
- Creates hierarchy of scales for green spaces

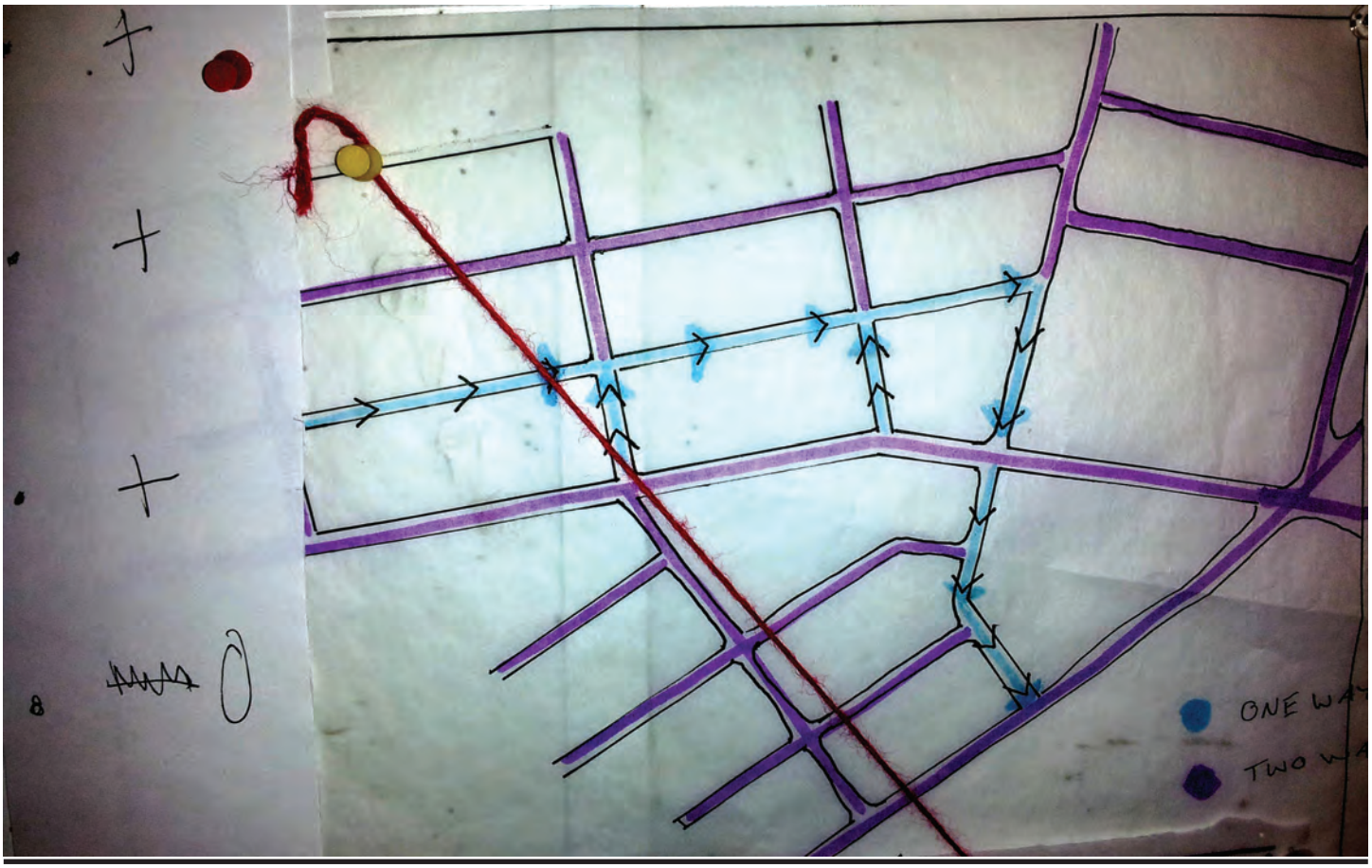


Vehicular Traffic

This section of Iselin is marked by high volumes of people maneuvering the streets and sidewalks. The separate levels of circulation are not clearly defined, resulting in an unsafe, easily congested environment. Too often in this area, pedestrians wander off the given path and cross streets mid-block at their leisure. Pedestrians and vehicles need a clear trajectory to avoid clash. High amounts of cars are all too familiar on Oak Tree Road and should be minimized to enhance the pedestrian experience. Deliveries and service trucks are forced to use front entrances to stores, creating a challenge for all other parties, and should be rethought.

Criteria

- Minimizes pedestrian and vehicular conflict
- Creates better vehicular circulation on residential roads
- Reduces street traffic volume on Oak Tree Rd.
- Separates delivery and service vehicles from regular traffic flow

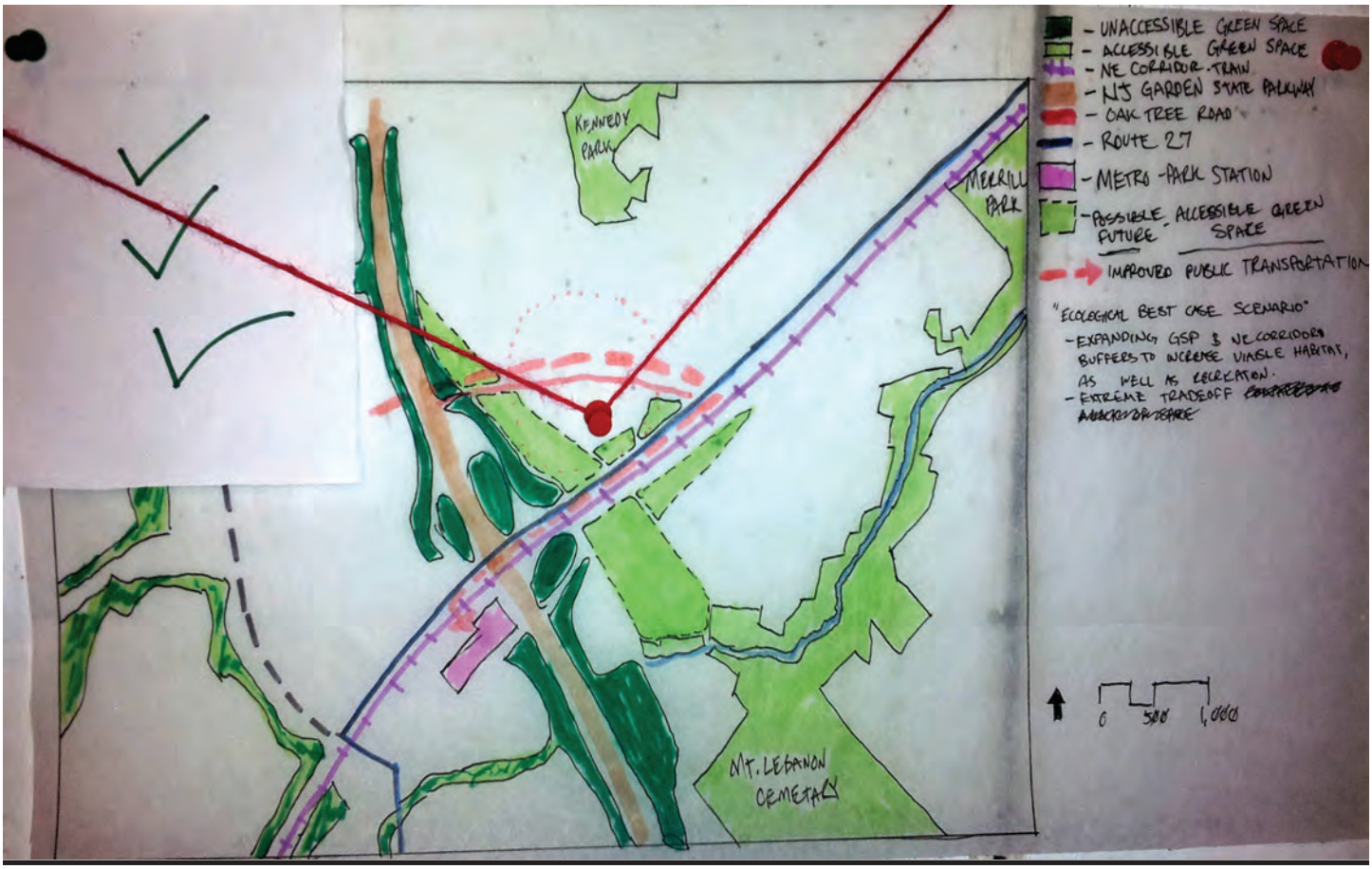


Large Scale Connections

The district of Iselin, NJ, in Woodbridge Township has vital ties to its surroundings that has allowed for its current success and development. Because of its extreme transportation connections to major highways within a mile and an extremely major train station right across the street, Iselin is one of the most accessible places in the United States. However, it may be questioned that this place has not been developed in a way to allow the utilization of these assets in an effective manner.

Criteria

- Increases accessibility to important resources
- Improves the ecological/ environmental value of the site
- Better connects Oak Tree Road District and neighborhood to its surroundings



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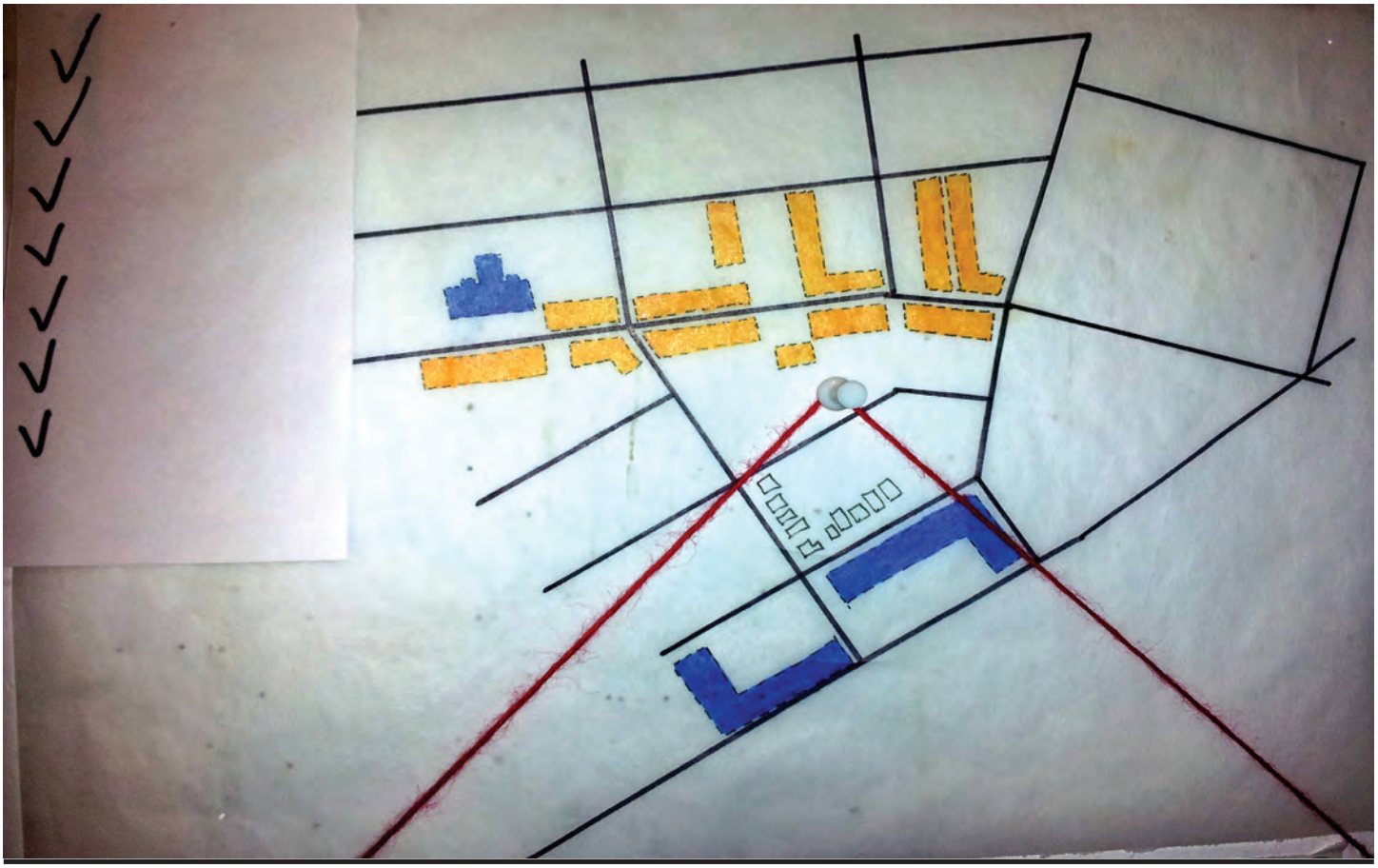
Housing

Current conditions include small single family homes, each with a decent size 50'x100' lot, as well as two apartment buildings. The problems that arise from this condition are typical ones, such as suburban sprawl, but also more site specific problems, such as lack of multi-family homes. As a result of the rich Asian Indian culture, a high demand has been put on multi-family homes because of a cultural value of sharing a home with multiple generations of a family. Furthermore, housing units must have certain amenities, such as supermarket etc., within a walking distance, which does not currently exist.

Criteria

- Promotes growth
- promotes sustainability - improves walking distances
- Creates a diversity of housing opportunities
- Allows for a sense of ownership and individualism for residents
- Within walking distance to Oak Tree Road
- Close to proximity to public transportation
- Allows for positive interaction between residents and visitors



Street Decor

Currently Oak Tree Rd. is visually disjointed. Obtrusive telephone poles and wires line the road and create visual impediments. Existing street furniture is sparse and in poor condition. Placement of such objects in various locations breaks the flow

Criteria

- Enhances visual qualities of streetscape
- Compliments building architecture
- Creates visual interest while minimizing invasiveness
- Decrease the visual impact of street poles and telephone wires

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5.4 Oak Tree Road Urban Revitalization Plan

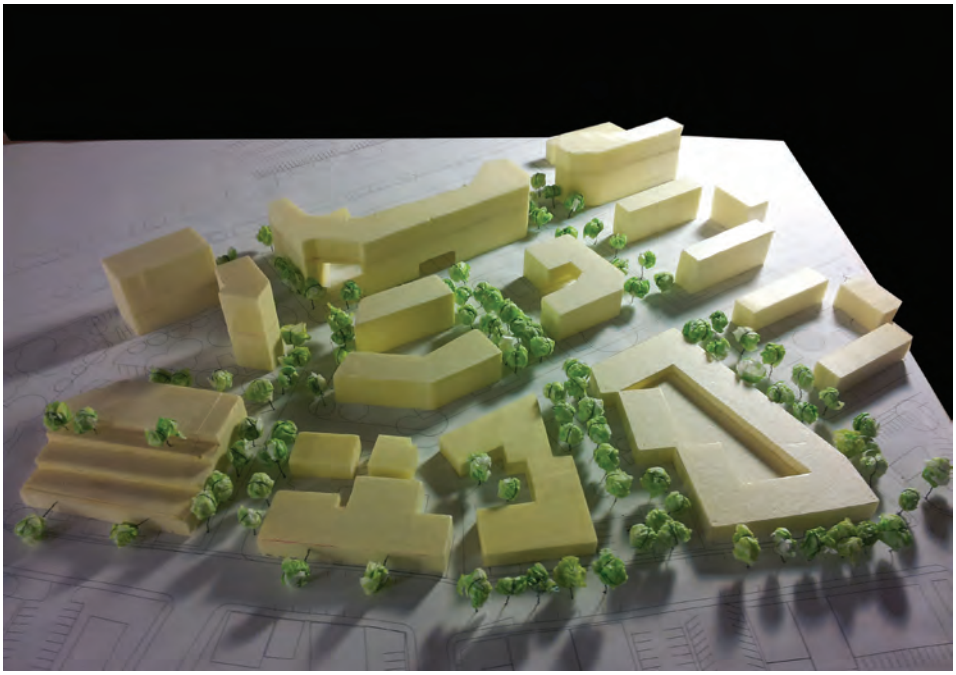
5.4.2 Midterm Urban Design Concept

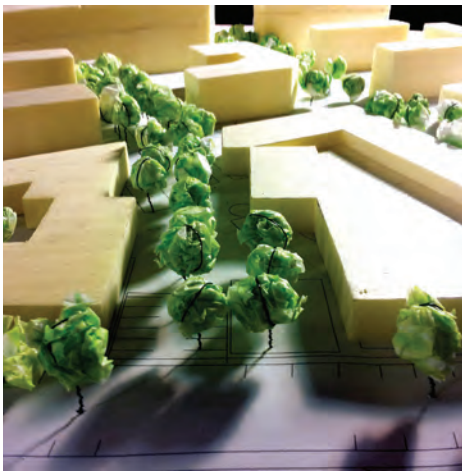
Chantae Moore
John Ireland
Matt Pugliese
Russell Sewekow

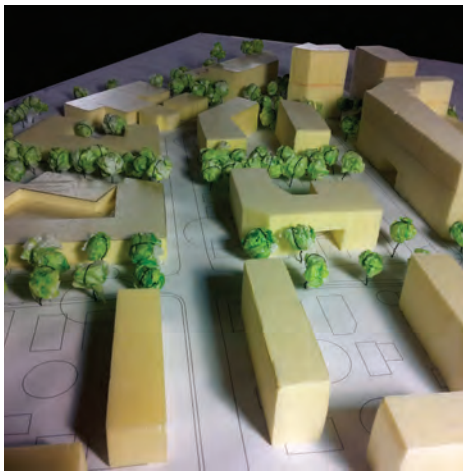
The morphological box excersize was an extremely important tool for helping to visualize design solutions for specific issues around Oak Tree Road. By looking a one issue at a time, it was simple to decide which type of solutions would be best and most efficient. However, each issue needed to be tackled in a single cohesive design.

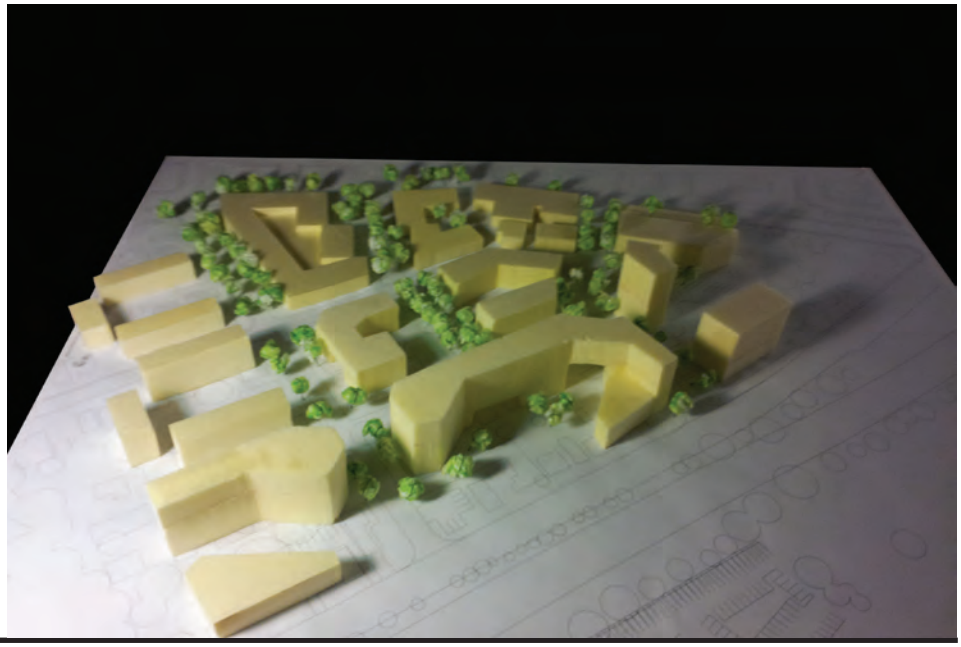
By simply overlaying each selected option on top of each other we could see which worked well together and which need to be reworked. In order to incorporate all aspects addressed, we had to make critical decisions having to do with which issues we felt were more or less important than the other. By going through this process of incorporation graphically on trace paper, we were able to quickly go through options, seeing which worked the best. This process also was important to our development of phased development plans. The first time around, our approach was a bit shy, hinting at large scale interventions, and increased as we proceeded designing.

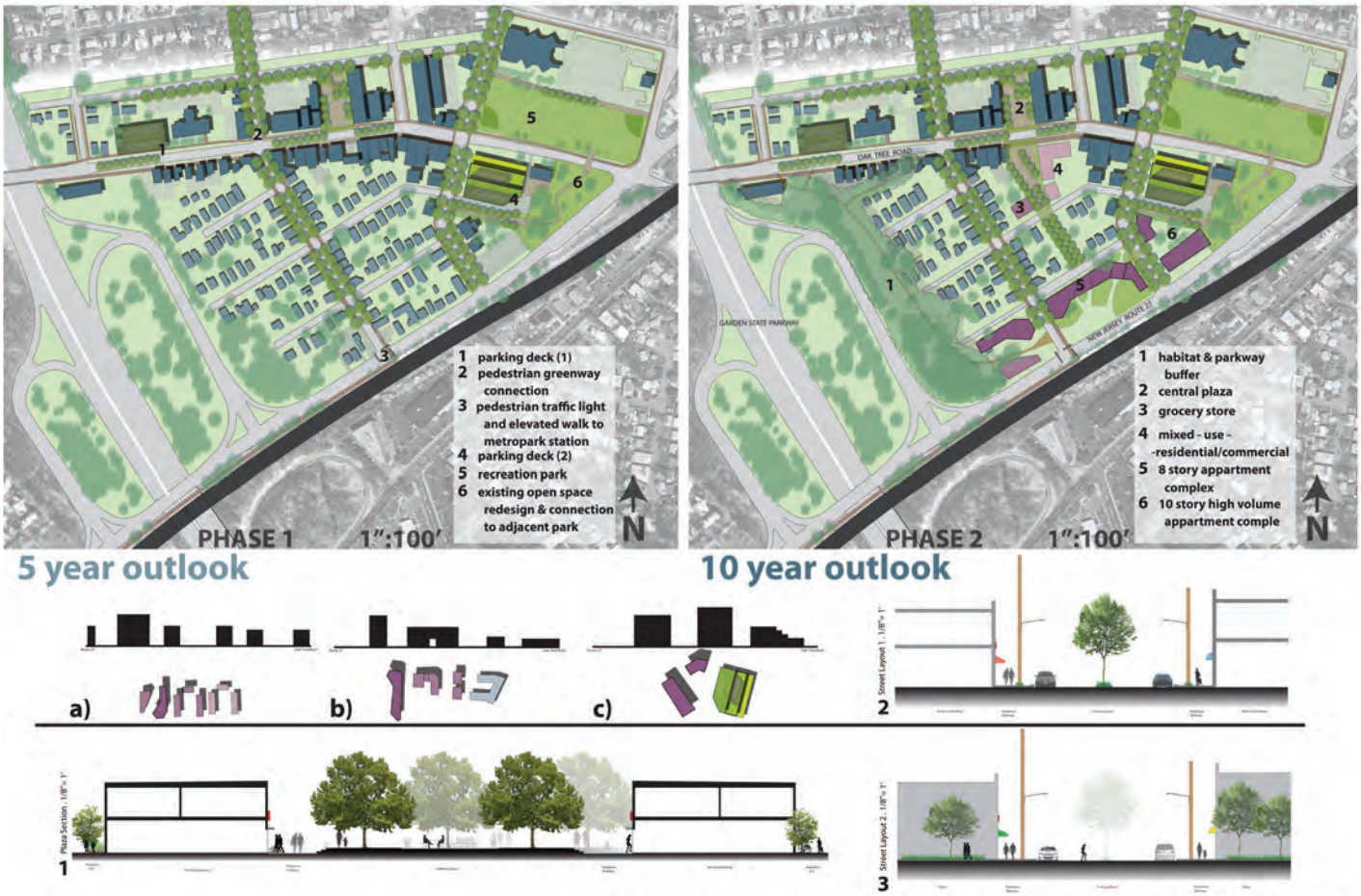
From trace, we moved to study models to better understand the building footprints we were designing. The process of moving and evolving building masses was a critical point in coming up with our final midterm presentation.











JOHN IRELAND, CHANTAE MOORE, MATTHEW PUGLIESE, RUSSELL SEWEKOW

As a group, we have come to understand and acknowledge the challenges and opportunities that the area around Oak Tree Road withholds. Here in Iselin, NJ, people are deeply connected to the greater region they are a part of. The small community has close relations to the surrounding communities within Woodbridge Township, as well as the neighboring municipality of Edison. The existing public transportation amenities connect the people even farther with reach to other surrounding municipalities, as well as major cities within one of the most important metropolitan areas in the world, stretching from Washington D.C. all the way to Boston.

Through careful studying of the site, and extensive analyzing of the issues around it, we thought the best approach to revitalizing this area would be to capitalize on the inherent opportunity that the location of the site alone holds, while tackling the issues head on with intensive and large scale improvements. Metropark station, although intensely disconnected by two major highways from the heart of our design, it serves as the centerpiece of our design. Its close proximity the neighborhood of Iselin makes for an amazing opportunity to transform the residential area into a modern and sustainable transit oriented development.

The driving forces of the design approach are the close proximity to the train station and the goal of increasing the population density to maximize the use of new connections to distinctive amenities that are not available in any other neighborhood. The thriving commercial district that has recently, in the past decade and a half or so, sprung up is celebrated and strengthened by the design, offering an expansion of clientele and new ways to experience the culturally rich specialty shopping district. Interventions were done intelligently to include ecologically thoughtful gestures including forest restoration and expansion buffering the major highways.

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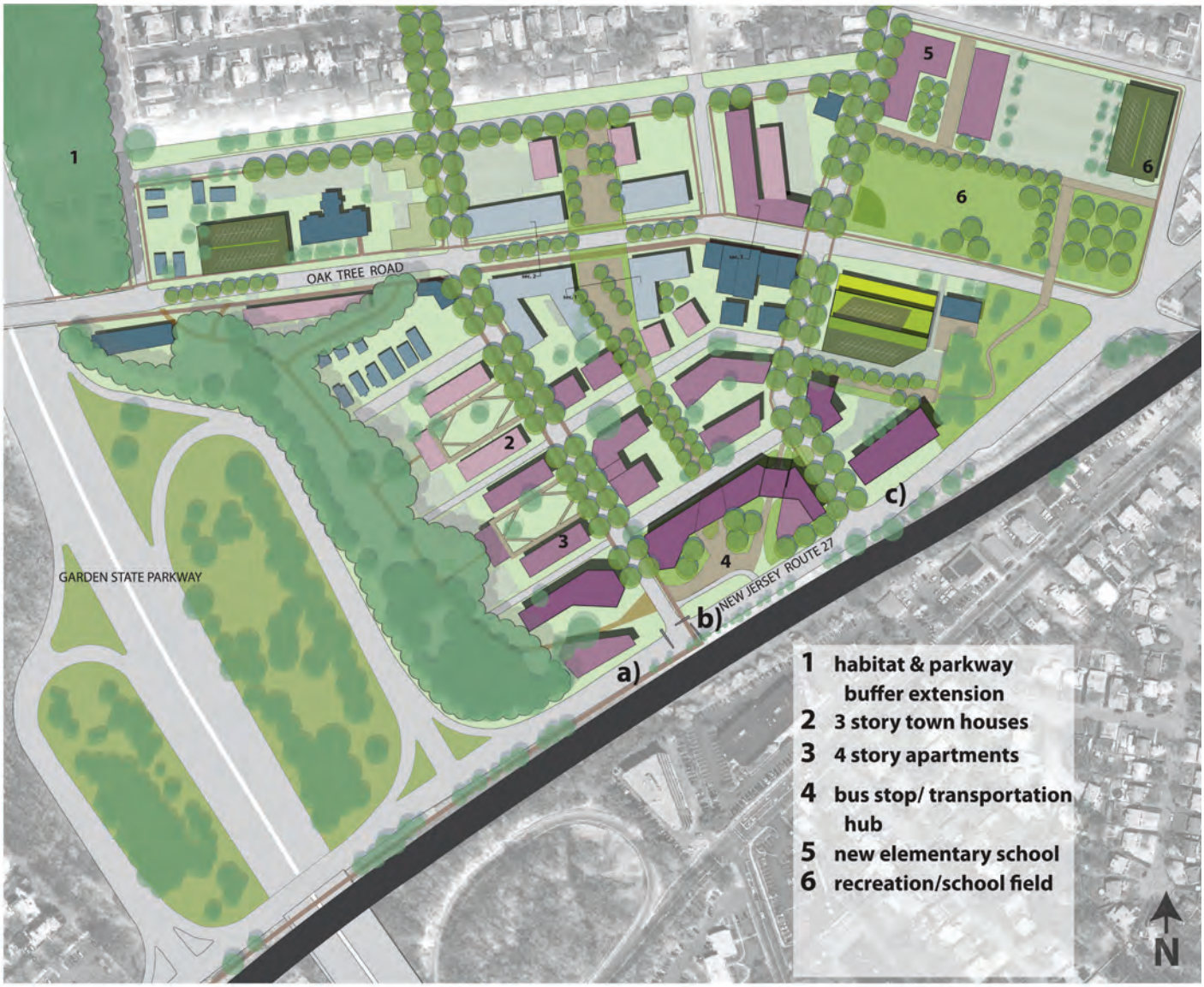


PHASE 3 **25 year outlook** **1":60'**

5.4 Oak Tree Road Urban Revitalization Plan

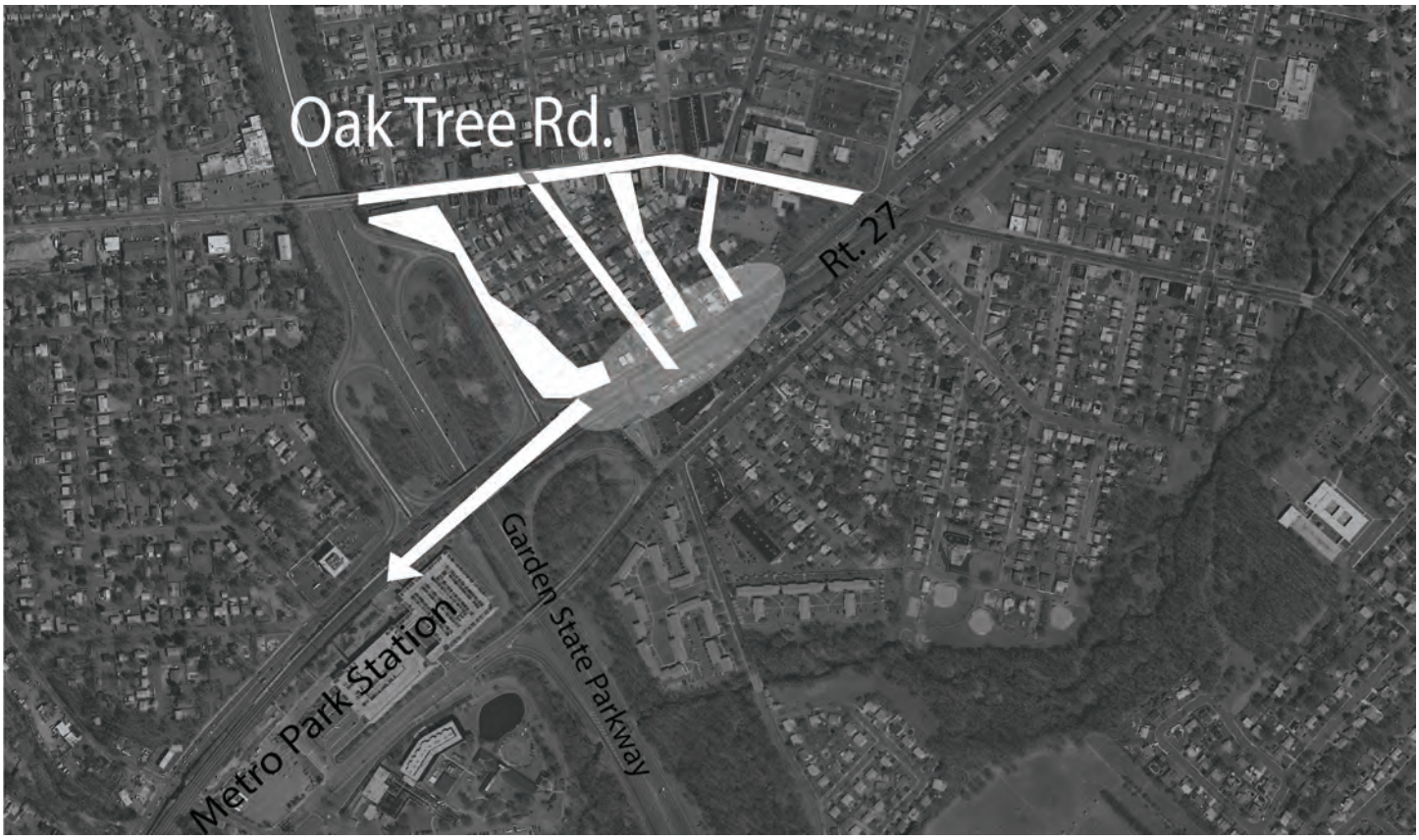
5.4.3 Final Urban Design Concept

Chantae Moore
John Ireland
Matt Pugliese
Russell Sewekow

The next step in our design was to concentrate thinking on a smaller scale within the site of our urban design concept.

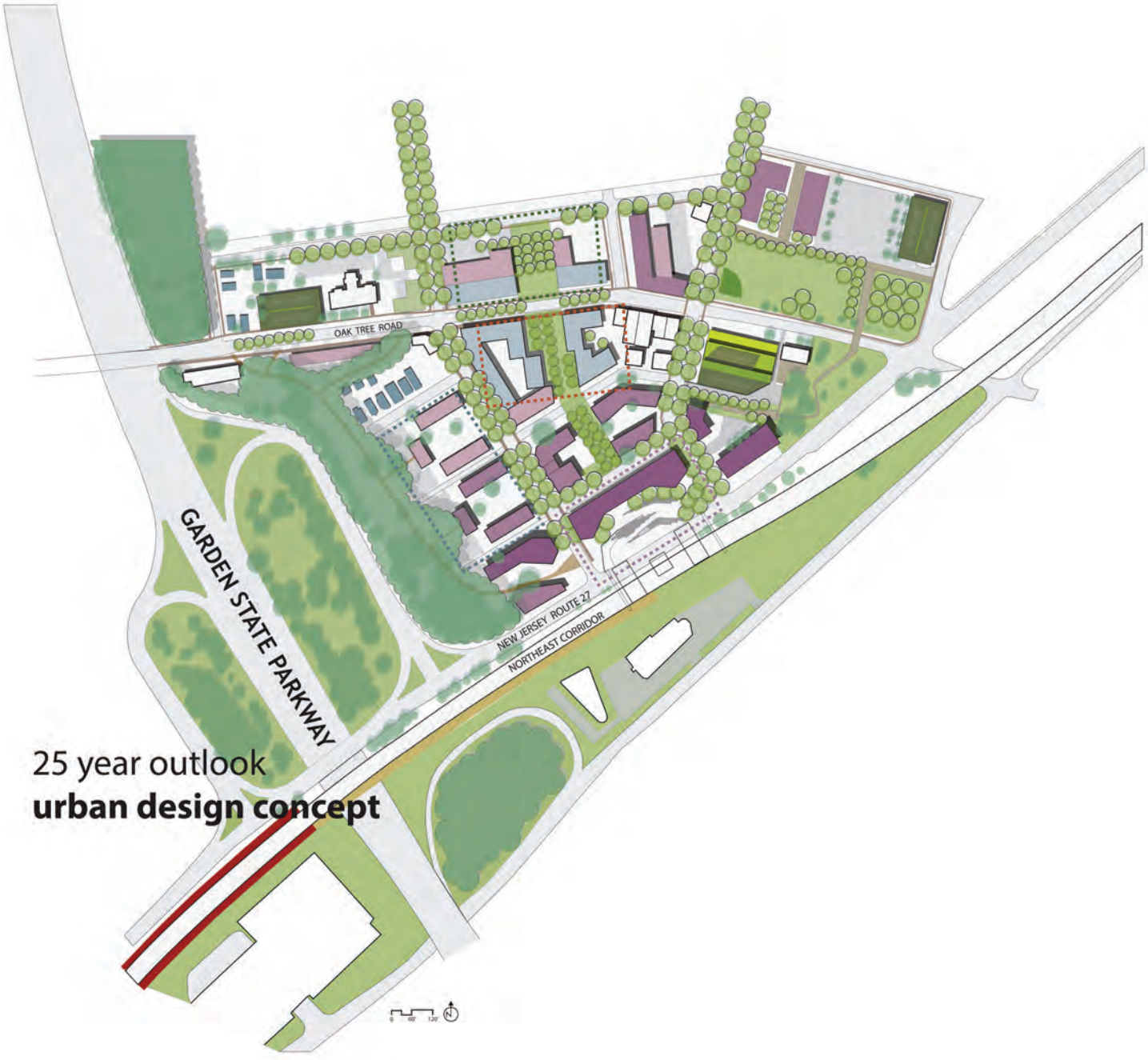
Each of the four sites that were chosen helped to further our larger scale concept in extremely positive way. The site design scale helped to realize specific issues that could just not be addressed at the larger scale. The greatest improvements to our design included making stronger gestures toward the connection of the neighborhood and the Metrostation, as well as perfecting building footprints and other urban forms. We were also able to think strategically about how the aesthetics of the site could come together cohesively, utilizing these sites as models for others within the neighborhood.

However, for the most part, the general concepts that had been developed for our midterm presentation have carried out through the end of the design development. The most compelling concept has been to concentrate pedestrian movement on site towards the train station, as well as offering large scale housing opportunities right at the transit hub we have created.



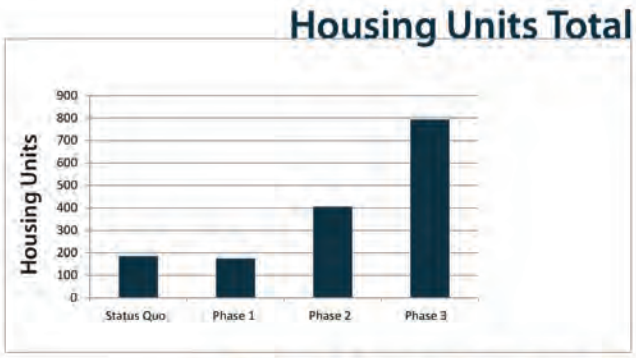
In the first phase of the large scale urban design, surface lot parking is able to be significantly lowered with the introduction of parking decks on the outskirts of the neighborhood. By doing so we found opportunity of introducting a new park where the old school and parking lot used to be. There are also a large amount of street tree plantings and revitalizing of the streets-capes, redesigned to include the pedestrian and cyclist into the circulation throughout the town.

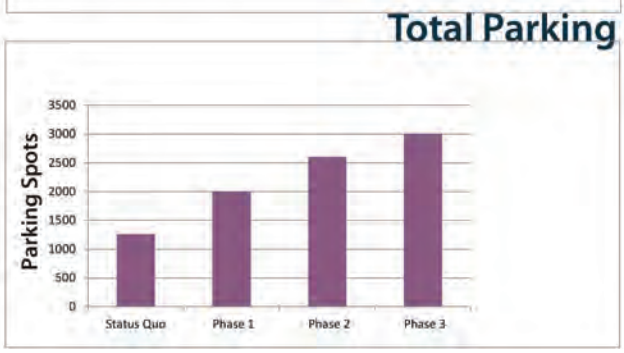
In the second phase of the design, the forest expansion and restoration are to begin, with this a new pedestrian connection to our transit hub is introduced, not to mention the beginning of the transit hub with the addition of 5+ story appartment buildings and a new bus stop at the southern most block of the neighborhood. Some buildings are retrofitted and improved, while some are completely new multi-use buildings.

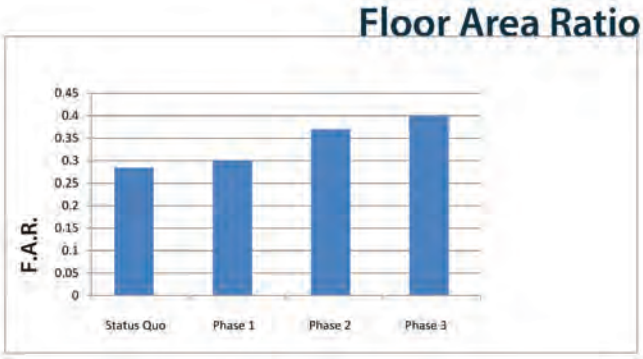


The final phase of the design includes the complete transformation of the neighborhood south of Oak Tree road into high density residential. With large appartments closest to route 27 and smaller scale town houses as they approach the Oak Tree Road shopping district.

Design Metrics



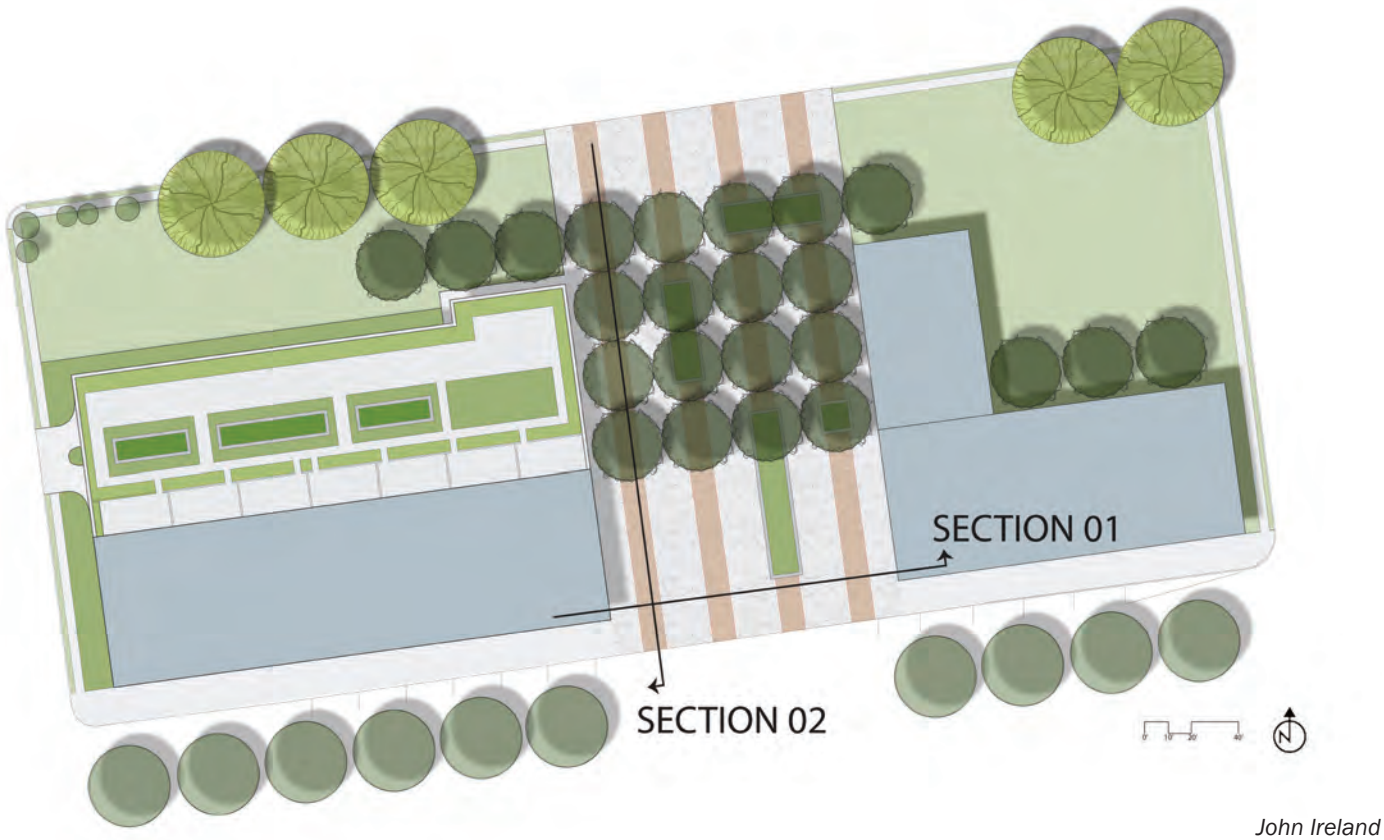




5.4 Urban Revitalization Plan

5.4.3.1 Terminus

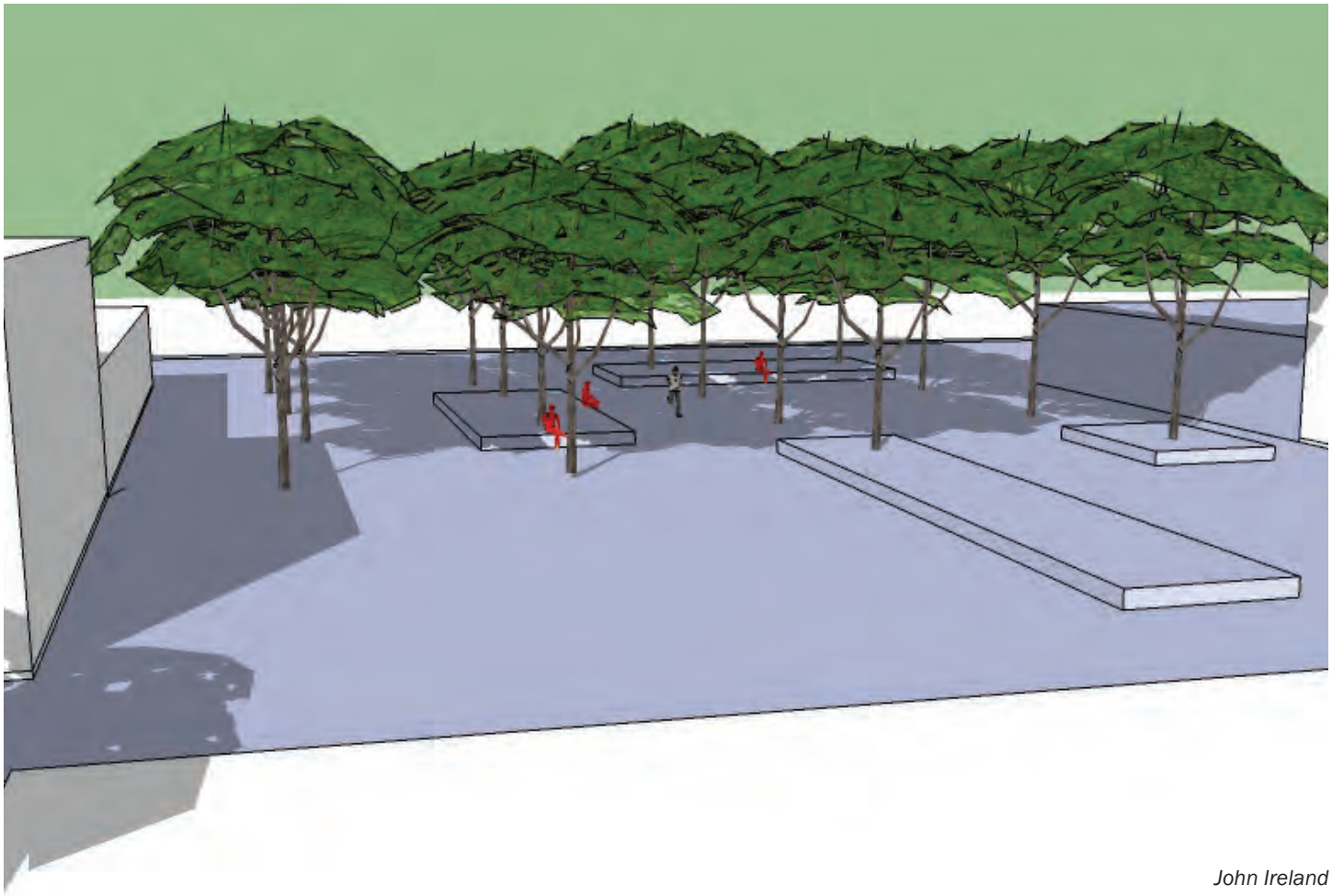
John Ireland



John Ireland

The site that I chose to design is located at the terminus of the business district. It is bordered on two sides by multi use buildings and the other two sides are Oak Tree Road and residential houses. This site is important because it marks the end of the business area and the start of the residential area. These characteristics leave a wide variety of opportunities for the plaza and surrounding area. It needed to be a space for both the businesses and residents. There needed to be space for people to gather while also allowing for a high amount of foot traffic.

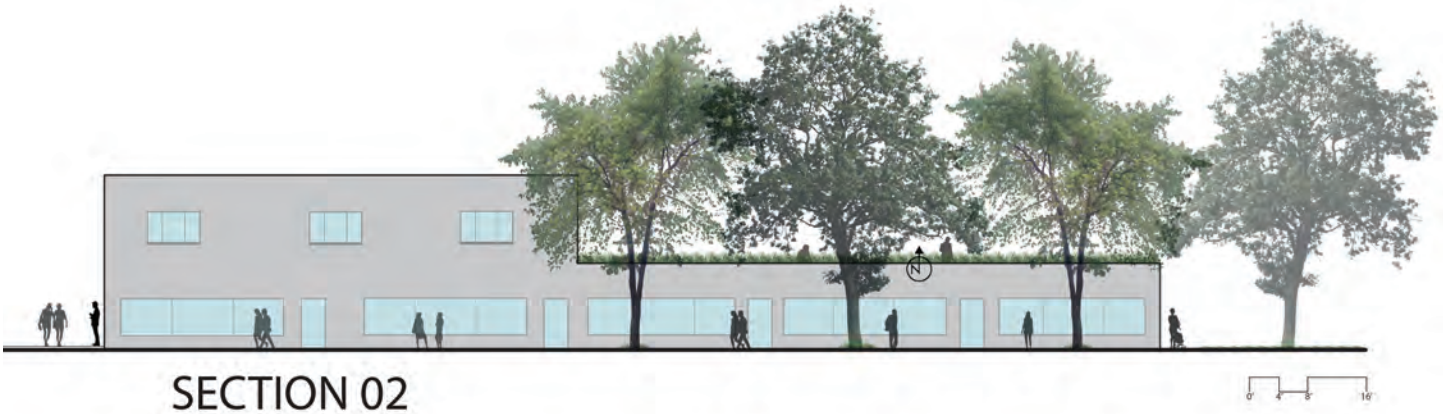
For the plaza area, to create a sense of space I created a bosque of trees. This created a canopy, somewhat of a ceiling to close in the space. The trees also shade to the plaza and absorb heat. The fashion in which they are planted also help to guide people through the site and add a termination point to the promenade and entire procession through the Oak Tree Road district. To accentuate the spaces within the plaza I also included a number of planters placed in a way of which they serve as both seating and a green area. The grasses help to soften the edges and overall look of the plaza. The planters create more defined areas within the plaza to help guide visitors throughout. There are also tree grates that run through the entire plaza matching the plaza directly to the south. They help to collect water runoff as well as connect the specific site in a cohesive manner to the larger scale of the design. They also have traditional Indian patterns in them that reflect some of the ethnic background of the district. Having this area leaves many opportunities for future uses. The plaza could be used for nearby stores to have displays, street vendors could take advantage of the high traffic volume, as well as have a space available for holding festivals or events.



John Ireland

SECTION 01

John Ireland



SECTION 02

John Ireland

Plaza Perspective; John Ireland

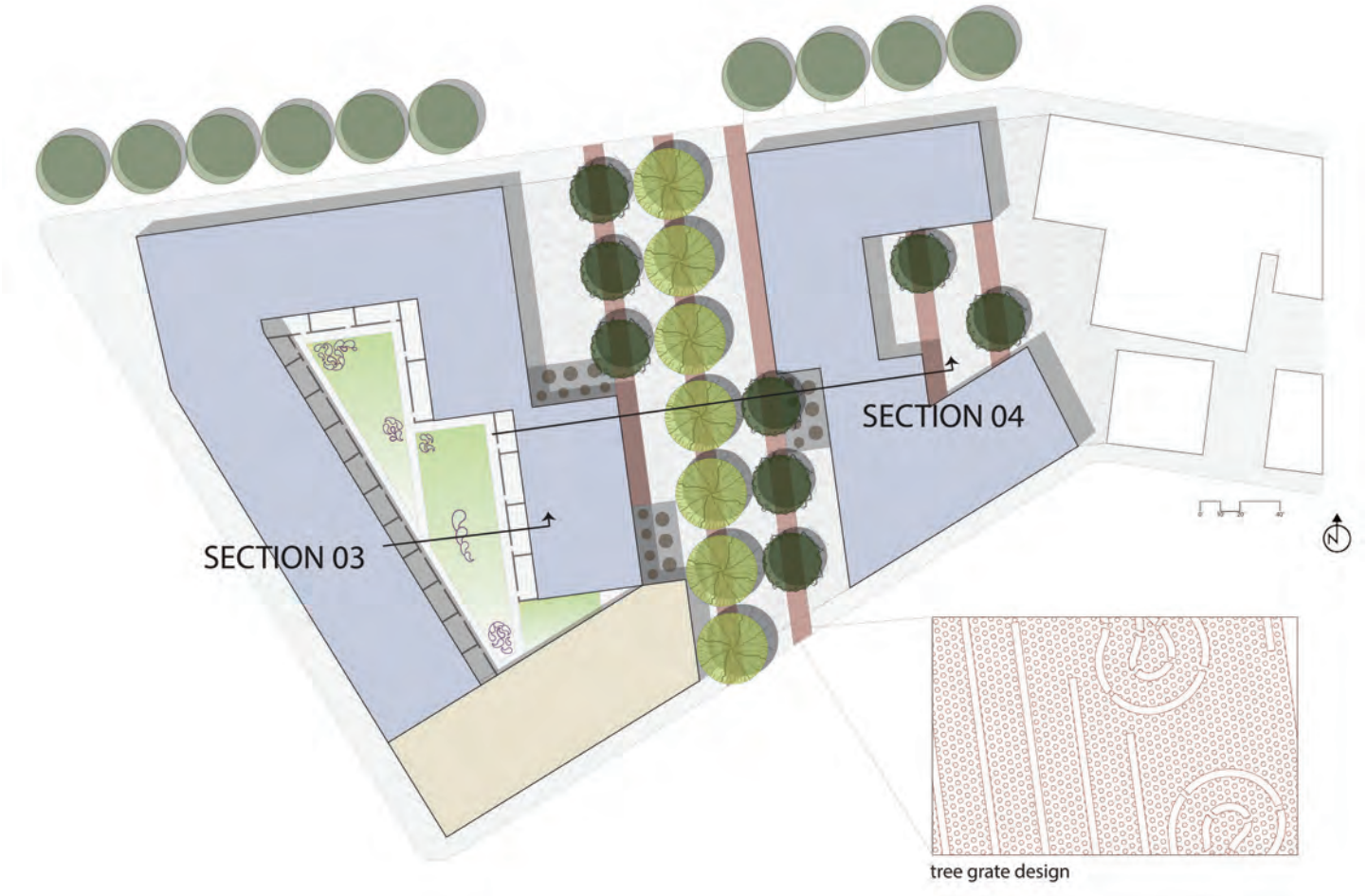
I have also created a semi-private outdoor space for the residents living in the upper level of the multi-use buildings. The rooftops of the buildings on the north side have been turned into a green space. The space is split into multiple private areas on for each apartment as well as one large area that is open to all residents of the apartments. It allows for the people living there to overlook the surrounding area while also feeling a sense of privacy because they are set apart from the main businesses and public area.

All of the elements used in this design could be implemented throughout the larger scale schematic design and any further development that may occur. Using parts of the designs at other sites within the district can add a cohesiveness and sense of space in a large scale setting. Things such as using the same type of tree grate or creating spaces with groupings of shade trees would add an identity to the large scale design.

5.4 Urban Revitalization Plan

5.4.3.2 Shopping Promenade

Matthew Pugliese



Shopping Promenade Perspective

The site design area for the shopping promenade is located in the courtyard south of Oak Tree Road. Nestled in the center of our large greenway precession, it plays a key role in changing the main direction from north west to north east. This transition area is important in changing the direction of the pedestrian while not bringing to much attention to it. The promenade created a base point for our overall plan before going north into our precession terminus or south threw residents to our transit hub.

While designing this area it was important to always think about the large pedestrian flow that would be going through the site. In order to move people through the site smoothly while redirecting them it was necessary to rework the surrounding building's footprint. Creating the correct footprint allowed the buildings to redirect the pedestrian naturally.

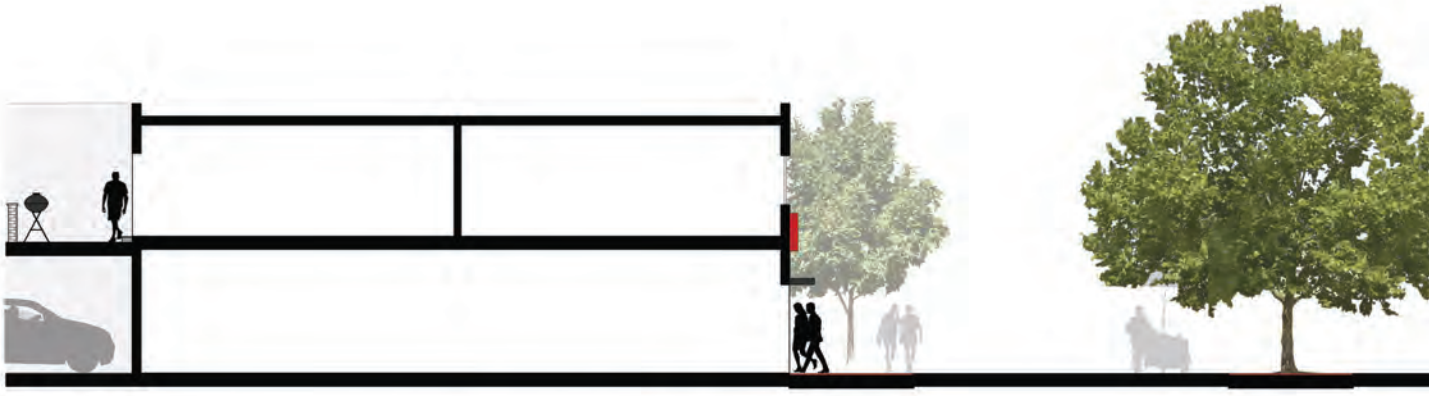
The design intent for the shopping promenade needed to accommodate for the large pedestrian traffic while integrating design within the site. The approach taken to accomplish this was to use a variety of trees and tree grates to create space while not affecting the user's path. The trees selected were London Plane and Red Maples, which give the site a beautiful red and yellow color in the fall connecting to the Asian Indian culture. To integrate more culture into the site design research was done on Asian Indian hand painting. After research and conversation with Asian Indian friends, I found that paisley design was very popular. To integrate this into the site, three tree grates with this paisley designs cut into them were placed north to south along the entire promenade.

Surrounding the shopping promenade are multi-use buildings with commercial use on the ground level and resident housing above. The west side building has a grocery store with a ground level parking garage. The top of

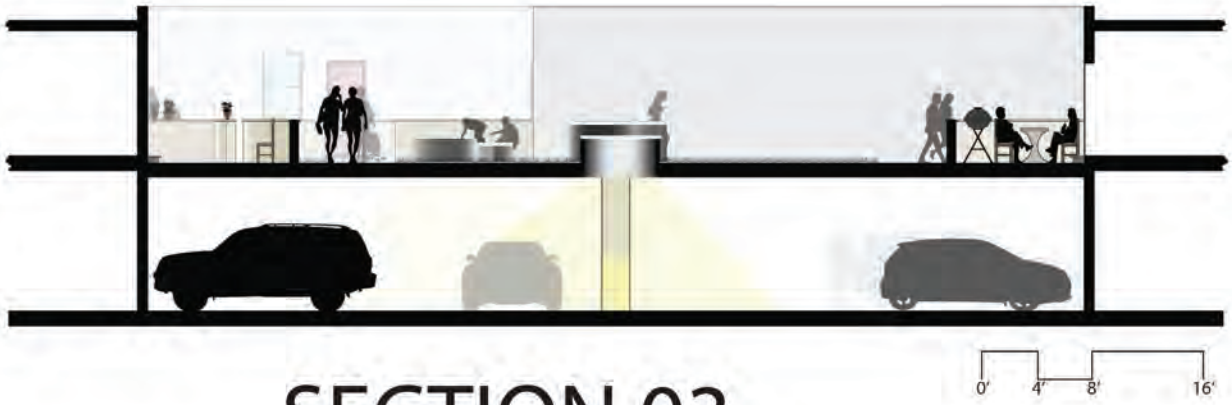
http://www.123rf.com/photo_8262383_paisley-design-isolated-on-white-background-in-vector-format-very-easy-to-edit-individual-objects.html

the parking garage is used to create personal space for the upper level residents as well as communal space. In order to bring light down into the dark parking garage, paisley design light holes are used. These light holes are paisley shaped and cut threw to the garage level with thick glass on top. The light holes are extruded from the ground level at different heights allowing children to climb on them and enjoy the view down to the garage while cars come in and out. These light holes along with the paisley tree grates can be utilized throughout the larger site design to help create uniformity.

http://www.tattoopins.com/484/indian-hand-painting-henna-tattoo-design



SECTION 04



SECTION 03

5.4 Urban Revitalization Plan

5.4.3.3 Residential and Courtyard Design

Chantae Moore

My individual design for our group's urban revitalization plan, focused on designing two townhouse clusters situated just south west of Oak Tree Road. Before beginning to design these areas, I first needed to evaluate the neighborhood encompassing Oak Tree and determine what improvements could be made to improve both the design and function of the sites.

Studying the site through visits as well as inventory and analysis mapping, revealed certain short comings of the site that if properly addressed would enhance the communal experience for not only residents but all users of the area. One of the most prominent of these areas was the lack of community open space. Such spaces, provide areas for social interaction, as well as is in the cases of green spaces, a place to enjoy the outdoors. Another facet of the community that was considered, involved looking at the different residence styles and typologies of the neighborhood. The housing inventory map in Chapter 2.5 of this report, found that many of the residents in the homes south of Oak Tree Road where renters with an average of a 2 person family; implicating, a minute but recognizable difference in the lifestyles of residents occupying these areas.

A class visit to the planned community of Radburn,NJ, offered experiential reference into the exemplary design the community. Designed with a large network of interconnected green spaces, traffic corridors are secondary to the preservation of connectivity and function. At the conclusion of my pre-design analysis, I was convinced that our groups decision to include this type of residence, medium density housing groups, in our revitalization plan was not only well informed but crucial to increasing both the social and contextual richness of the neighborhood.

Case Study Site Visit taken by C. Moore, 2012

My design concept for the proposed residences allow for a distinctive residences centered on a shared community space. Adjacency to a lively mixed-use commercial area, provides convenience and accessibility to shops and restaurants. Each individual residence has designated personal parking, both behind their homes and in a garage located on the ground floor of each unit. Professionally designed private garden areas in the “front” of the homes, provide individualism of the residences. These gardens frame each of the distinctive courtyard designs. The courtyard design follows the central axis of the area emphasized by an alle of flowering trees and plantings. The second more elaborate design, framed of a series of circles that transform within the site designating various architectural features. The prominent feature in this garden is a structure, with a colored tiled-glass roof, creating a shared multifunctional outdoor room for residences of the complex.

Section through courtyards

Site Pan

5.4 Urban Revitalization Plan

5.4.3.4 Transit Hub

Russell Sewekow

The site of this design was chosen from the large scale urban design concept to experiment and better understand the most appropriate ways to connect Iselin to Metropark Station. The block lies between Bird Ave. and Route 27 and between Correja Ave. and Middlesex Ave. This block is closest in vicinity to the train station and was chosen previously as the best opportunity for a transit hub. This site also serves as a grand entrance to the neighborhood and the beginning of a procession that leads to the specialty commercial district.

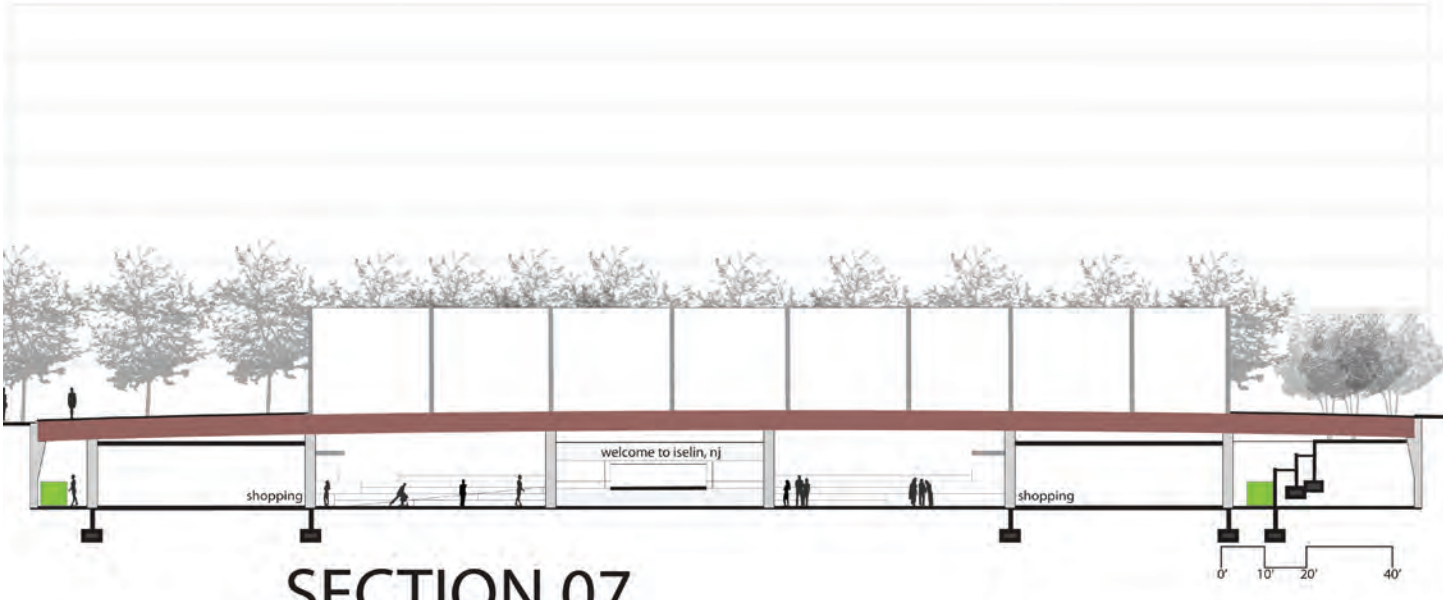
The constraints of the site are extensive. Between it and the train station lays two major highways and a 60'+ major railroad corridor. The best case scenario for this transition was defined as a lackadaisical walk with no interferences between the neighborhood and the station.

The problem then seemed clear that the pedestrian circulation had to go directly across Route 27 and the Northeast Corridor and then directed straightly towards the station on a pedestrian designated walk past the parkway ramp and across a bridge over the Garden State Parkway. By doing so a walk to the train station from Iselin would be possible in around 4 – 5 minutes. From here the design question was to go over or under the 2 major corridors that separate the two. The pros and cons were weighed of both. Going above meant an extremely large ramp leading to a bridge that would have to go 60' above grade to get over top of the electrical wires above the train tracks. In the end this con outweighed all the pros of a bridge and all of the cons of an underpass so the decision was made to create a tunnel that would make the connection.

The next question was how to go about directing a heavy flow of traffic through a tunnel diving at least 15' below grade in a relaxed manner and then back up. In order to do this I decided that this must be a large scale intervention and would have to include programming in this tunnel to keep activity safe and observed below the underpass. In the end, the dark tunnel had turned into a large scale sunken plaza that celebrated the transition from existing to proposed grade. A large scale ramp diving 20' wraps around a switchback that is incorporated into an amphitheater that could site over 300 people. A large scale apartment building climbing 8 stories high separates the plaza from Oak Tree Road, however, a cut through is incorporated into the building allowing people to cross through mid-block.

Inside the underpass lays 3 buildings including 10 news stores and a welcome center. The noise and view nuisances are tackled by a 30’ wall that doubles as surface to project movies to, utilizing the amphitheater. Beyond the underpass is a smooth transition that leads you to a bridge taking you directly to Metro Park and Metro Park Station.

SECTION 06



SECTION 07


0'
10'
20'
40'