



Residential Retrofitting: Creating a Sustainable Future for Suburbia

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Introduction

In the last several years, the issue of residential retrofitting our existing suburban residential neighborhoods has become relatively prominent. During the past century we have developed a pattern of suburban sprawl that is built upon consumption of natural resources, which has increasingly become less sustainable. Our goal of this paper is to identify policies or programs that could aid in encouraging the retrofitting of suburban residential neighborhoods.

For the sake of this report, we will be looking at two sides of retrofitting. The first is the sustainability side. This deals with the insatiable consumption that goes along with our current development policies. There are many facets within the sustainability segment of the argument such as the environmental side. For instance, the emission of greenhouse gases from the auto-centric commuter patterns, pollution created by coal power plants used to provide energy to large tracts of single-family

houses, or the large amounts of discarded buildings materials being dumped in landfills from our largely disposable developments. Current development patterns aren't economically sustainable either. Largely dispersed residential development does not take advantage of economies of scale that more dense urban areas can. Providing public services such as fire and police get more and more expensive per capita the more dispersed a jurisdiction becomes. The same goes for infrastructure like water, sewer, and road networks.

The other side of the argument for retrofitting is the livability that could be provided. This has the tendency to be a relatively contentious issue. Many times people take offense when they feel they are being told how their neighborhood should look and function. It is not the intention of this paper to dictate what type of neighborhood or housing dwelling people must live in, but to assess where we are at and how we can provide alternatives to our current

system. This addresses livability issues such as providing walkable streets, connectivity, and access to alternative modes of transportation.

While the structure of our neighborhoods is beginning to receive more attention that it may have in the past, it is hardly a new issue. We have been developing sprawling suburban neighborhoods for over a hundred years, and for nearly as long, there have been opponents to this type of development. From Jane Jacobs seminal work “The Life and Death of Great American Cities” in the 1960’s to current works by Anders Duaney and the New Urbanists or more ecological based works by Richard Register, the theoretical side of planning doesn’t lack alternatives to the current development patterns. But due to a high-reward, low risk development environment for the creation of typical suburban communities, little has changed. Currently there appears to be more of a push in the entire industry towards a newer more intelligent growth pattern that uses our resources more responsibly. But what do we do

with our current suburban developments that currently consume large amounts of resources and account for nearly seventy five percent of residential development in the United States (Dunham-Jones & Williamson, *Retrofitting Suburbia: Urban Design Solutions for Redesigning Suburbs*, 2009).

So why is there a need for the retrofitting of our existing suburban residential neighborhoods? This is the question that cuts to the core of why we are doing this paper. We will also assert once again that, while we are not stating that this is the correct form of development for everyone, but we do believe it would provide a greater number of alternative means of living.

Due to the pressing issue of global climate change and current air quality issues in urban and suburban areas all over the country, we need to address our current automobile dependency. This is not meant to be anti-automotive; we believe they have their place in our communities, but we seek to provide other

options for people. By giving people greater choices such as walkable streets and alternative modes of transportation, automobile dependency can be decreased and reduce the harmful effects this may have on our society.

The social effects of our current suburban development patterns have also been deemed to have negative effects on society. This is a topic that has been brought to the greater public's attention by Sociologist Robert Putnam in his book, "Bowling Alone." In this book, Putnam describes effects of our new suburban lives that range from self-isolation to decreasing quality of life and leisure times due to increasing commutes. The social consequences of the current dominant suburban spatial structure are very far reaching and would be very difficult to overstate (Putnam, 2000).

Research Question and Purpose:

What planning policies can be enacted to encourage the retrofitting of post World War II suburban residential neighborhoods? We will analyze policies enacted by local residents, municipal planning agencies, and federal and regional governments in North America to convert sprawling single-family suburban neighborhoods into more dense sustainable communities and what degree of success they have had. These analyses will be done through research and case studies where factors such as population growth, housing values, occupancy rates, and density will be analyzed. Its purpose is to present a set of recommendations that could be used in the future as we start to reassess and convert our dispersed suburban residential communities.



An example of retrofit plans from Duane Plater-Zyberk & Company

A Background on US Suburban

Residential Development:

In order to understand how we can go about retrofitting these neighborhoods, a base knowledge of how these types of neighborhoods came about, is necessary. The following is a plethora of materials that are available about how our country has transformed into the urban and suburban landscape we currently see around us. In this section we will:

- Give a history of residential development
- Describe the effects of the current physical development patterns
- Provide in-depth analysis of current housing stock
- List the types of retrofitted suburban business districts
- Explain current policies being used for residential retrofitting

By providing this information will give a necessary background to begin to understand the depth of this issue and formulate ideas of

how to progress in a suburban landscape dominated by dispersed residential development, separation of uses, energy consumption, and dependence on the automobile.

Current Residential Conventions

Our current model for our residential developments originated from several places. One could easily date them back to the Garden Cities in England developed by Ebenezer Howard or earlier (Fishman, 1987). That said, in this paper I am going to place the most importance on the post-World War II housing boom. A combination of factors – “postwar housing shortage, government financing, and a belief in efficiency of production” – led to this housing boom in the US (Chow, 2005). The model that was used for this proliferation was Levittown, NY.

For the last sixty years these developments have evolved into what we see as our current landscape. Because much of the retrofitting of

suburban residential neighborhoods relates to augmenting their design, I think an explanation of the current design is necessary. Many of these neighborhoods developed standards for roads that were far too wide in order to allow for emergency vehicle access. This can lead to cars speeding and a decrease of safety for pedestrians. These neighborhoods also promote a “functional classification system” for streets. Consequentially this funnels traffic onto only a select few roads and creates more traffic congestion (Kulash, 2001). Another consequence of this is that it isolates the residential neighborhood. Because there are only a few entrances and exits, it loses its connectivity to surrounding residential and commercial communities. In all, there are an amazing amount of ordinances that help do maintain the current direction of isolated suburban residential development.

Effects of Residential Development Patterns

It has become somewhat conventional knowledge that sprawl is bad (at least in

planning circles), but why is this? We believe the most important effect of suburban residential development patterns is their dependency on automobiles. Because of how decentralized they are, they have created a situation where effectively any alternate form of transportation has been made unfeasible. In a world of cheap unlimited energy supplies that create no threat to our environment, this could work, but that is not the case. With the threat of global climate change, and health problems caused by both lack of exercise due to time spent in the car commuting as well as air and water pollution we incur everyday, there are negative externalities that until recently, have not been accounted for.

There are also a myriad of other social effects that are caused by our current residential development patterns. Because of how spread out and isolated these neighborhoods are, commute times continue to increase as congestion increases. This means less leisure time for the residents. Filtering of these areas has also become a concern. As more people

choose to live around others of similar socioeconomic status, there is less exposure of differing ideas and cultures (Saunders, 2005).

Another emerging issue in recent years has to do with the phenomenon of gated communities. In “Duck Tape Nation: Land Use, the Fear Factor, and the New Unilateralism” by Andrew Ross, he discusses the ethnographies of residents who live in these high-end suburban gated communities. He notes a change in philosophy of these suburban inhabitants into what he calls a “risk society (Ross, 2005).” In this risk society live a paranoid segment of people who only feel comfortable at home in familiar areas. It exemplifies the isolation that has spread throughout many of these areas. This leads to less social interaction. Known benefits of social interaction, such as knowledge spillovers, could potentially decrease to a point where we could witness our productivity as a nation decrease.

Current Housing Stock

According to Ellen Dunham-Jones, seventy-five percent of all new development in the last thirty years has been in suburban settings (Saunders, 2005). She also states that fifty percent of our population lives in this type of settlement. This creates a situation where you can no longer simply rebuild all of these communities. We need to incorporate them in our future residential development plans, and find a way to make them sustainable.

New Urbanism

New Urbanism has been at the forefront of the retrofit movement. In an article written by Ellen Dunham-Jones, she describes many retrofits of suburban areas (Dunham-Jones, 2003). While the New Urbanist movement gets quite a bit of criticism (sometimes it is deserved), it should also be given praise for advancing the ideas of more dense pedestrian friendly development. The ideals of the movement are very important, but there are versions that don’t live up to these ideals but have been marketed to the public as New Urbanist and tend to hurt the movement.

While I do praise New Urbanism in many aspects of their work, I don't necessarily believe that it is the only direction. Problems lay with the how stringent the design regulations of the movement are. Peter Hall talks of the limitations of New Urbanism in his article "Retro Urbanism: On the Once and Future TOD." He states that its problems are that it is trying too hard to be old. "Nostalgic architecture encapsulates a vision of a society that was, or seemed, more secure grounded in fixed and share values. Such visions may, or course, be false." With this statement he calls for a type of development that "transcends all development." Look at the past and incorporate the elements that have worked and apply them. Such elements can be transit oriented development, certain setbacks, street trees, or something that may be completely new way of thinking. I believe this is the way to think about retrofitting our current build environment in order to be sustainable (Hall, 2005).

Suburban Business Districts

Much of the work done in retrofitting suburban communities has been done with suburban business districts. These tend to be generally easier than their residential counterparts. As discussed earlier, many new urbanist retrofits have been done to single story retail strips and larger regional malls. These have been effective at creating walkable mixed-use areas where there was originally only a single-use automobile dependent area (Saunders, 2005). These are also tied very closely to the surrounding residential areas and thus very important to the topic at hand.

In a presentation done by Ellen Dunham-Jones she describes many different suburban retrofits that have been deemed successful in creating more dense pedestrian friendly mixed-use areas. In the paper I will be looking at these and how they affect their surrounding residential neighborhoods. One of the case study areas will be a former dead strip mall in Cape Cod,

MA. Other examples of this are former malls like Mizner Park in Boca Raton, FL, and Belmar in Lakewood, CO; former office parks such as University Town Center in Hyattsville, MD or Westwood Station, a former industrial park in Westwood, MA.

In this presentation, she has also listed a number of factors that are driving these suburban retrofits. They include: “aging, out-of-date properties, often in first-ring suburbs, changing economic identity of the suburbs and desire for distinction, changing demographic and markets, etc.” According to Dunham-Jones, the benefits of creating these suburban nodes include: “reduced Vehicle Miles Traveled, spatial integration of cars people, and buildings, and the creation of public space (Dunham-Jones, *Retrofitting Suburbia*, 2007).”

Residential Retrofits

While sustainability tends to be a vague term that is attached to nearly everything today, it is essentially why we need to figure out a way to

retrofit our current residential neighborhoods. In our research we have found a few examples of developments that have undergone this type of large scale retrofitting. One of these is called Metro West in Vienna, VA. Here they transformed a residential subdivision with 65 homes into a Transit Oriented Development (TOD) with 2,500 residences (Dunham-Jones, *Retrofitting Suburbia*, 2007). Another example of this, except at more of a governmental policy level, is in Richmond, BC. As a suburb of Vancouver they decided to set up policies and programs that allowed for future growth to be directed towards currently developed areas.

More and more, we are seeing communities address the need for the retrofitting of existing housing stock instead of just moving development to new areas. We foresee this trend of increasing value placed on accessibility, to continue to rise. Because the neighborhoods that currently tend to have the greatest accessibility are the older ones, we are also expecting a continued interest in retrofitting.

Cities Over Time

We believe it is essential to discuss the natural evolution of cities over time. As Paul Lukez states in his book *Suburban Transformations*, “Traditionally, urban form has evolved over time, in cycles that were as much generational as epochal... It was over time that each settlement sought to find the proper form that fit its use. (Lukez, 2007)” What we forget when assessing our current suburban landscape, is that it is a static view of these structures. We are already starting to see changes in policy and habits to where we are redeveloping our existing neighborhoods. Communities have the ability to change their built environment to adapt to their needs, however, this takes time.

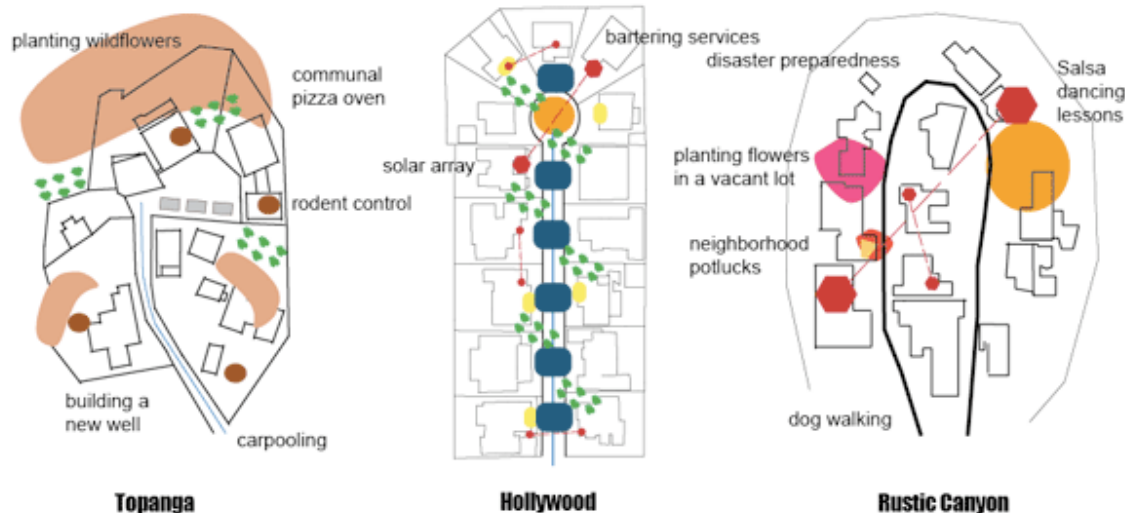
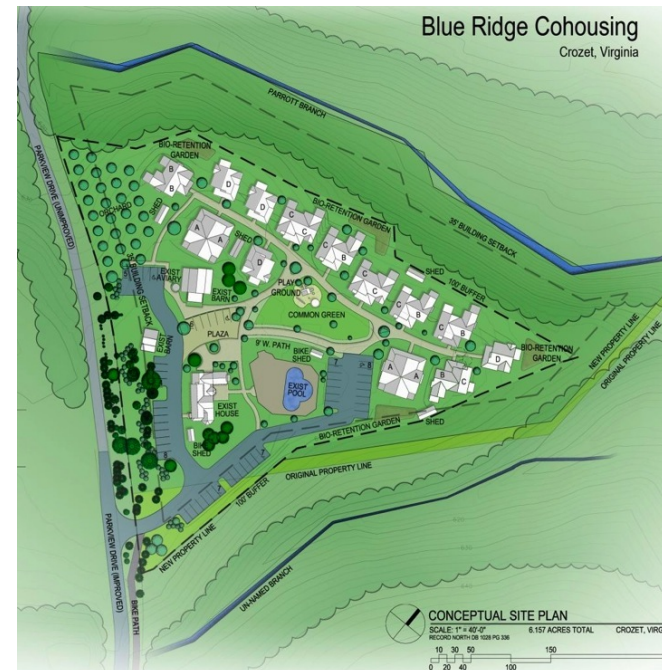
For the last fifty years we have developed an environment that has lacked a cultural identity. As we start to redevelop our suburban neighborhoods, we have an opportunity change the environment to fit our future and current needs. A good example of this is Levittown. As

one of the first of our suburban neighborhoods, it can be described as the commodification of a community. However, this community has adapted over time to the uses of its residents. Where this was once a sterile post WWII development, its residents have grown with the communities to bring in needed commercial areas, and change the soul of the neighborhood to become something that reflects them.

Policies Being Used for Retrofitting

Currently there are quite a large amount of policies that are being used to retrofit our existing housing stock. These range from municipalities to local non-profits to private for-profit companies. These also vary in their scale. Many of these work on a very small scale such as house by house, while others operate within very large areas such as the structure of entire neighborhoods. While discussing these we will move from smaller programs such as co-housing organizations to larger ones like changing zoning ordinances to induce a certain type of development.

Throughout the country, many small-scale solutions to the problems created by the proliferation of low-density suburban neighborhoods, are being solved by local grassroots organizations. In the article “What Will Save the Suburbs?” by Allison Arieff, in the January 11, 2009 issue of the New York Times, she describes local efforts to deal with the increasingly large stock of suburban housing that does not meet the consumers needs. The current mortgage crisis and the deluge of foreclosures are only exacerbating this problem of large stock of vacant new suburban housing. What Arieff does well in this article is to show how local communities are adapting to their current situations



In the upper right corner is a plan for the Blue Ridge Cohousing development. It has a layout very similar to current suburban developments.

Directly above are prototypes for retrofitting existing cul-de-sacs for communes. Source: www.wannastartacommune.com

and finding solutions (Arieff, 2009). A key point we look at in this paper is to view the city as something that evolves over time. The following policies are great examples of this.

Cohousing communities are one of the programs that were discussed in the New York Times article. They showed an overview of several programs in the country that provide examples of suburban neighborhoods that have transformed themselves into a more sustainable way of living. The first they talked about was the N Street Cohousing community in Davis, California. This is a community that has changed over time from a typical suburban community to a communal living neighborhood. Since 1982 when the first two houses were joined, the community has grown to 50 adults and 14 kids (N Street Cohousing, 2009). Much of this has been done with the help from the municipal planners of Davis. In these areas they have torn down the fences between their houses, and relaxed the regulations. Rezoned as a planned development, the community was

free to take advantage of relaxed setbacks, create community gardens and facilities, or build granny flats behind their houses. It is communities like this that epitomize grassroots efforts of people changing their environment around them to be more suitable to their lifestyles.

Another example of Cohousing is the Blue Ridge Cohousing community in Crozet, Virginia, just outside of Charlottesville (Blue Ridge Cohousing, 2009). While they are creating a new community built around a 1890s farmhouse, one can imagine a typical suburban development being transformed into something similar. Throughout the development there are subdivided houses that have common greens, community gardens, and other shared facilities.

While these two are examples of communities that have worked together to create cohousing developments, there are also electronic sources that are trying to connect people in order to create these places. The website

www.wannastartacommune.com has created an place for people to come and learn about co-housing, get in touch with others who are similar minded, and connect people who would otherwise have difficulty meeting. The centerpiece of this site, are its pilot projects they have started in the last six months located in Los Angeles. In these projects they have created what they call communes out of cul-de-sac's. It is an innovative way of adapting to a built environment that may not presently meet the communities needs.

There are also other locally based recycling programs that are sprouting up all over the country. These programs are deconstructing existing buildings and housing, and salvaging the materials to be re-used. A very prominent example of this is the Buffalo ReUse program in Buffalo, New York (Buffalo ReUse, 2009). In a city that has been shrinking for decades and is currently half the size it once was, they are left with the problem of a large amount of vacant unused housing structures. This is where a

company like Buffalo ReUse can be useful to a community in order to use current housing stock materials to reconstruct more sustainable residential communities.

Another program that has been relatively prominent is the Planet Reuse organization. This is a web community that has created a forum for architects, designers, contractors, and material reclaimers to connect to one another in order to find and reuse building materials. This is something that will allow people who normally wouldn't be able to connect to each other, to connect.

There are several things that governments are doing in order to facilitate the change within these suburban residential neighborhoods. They range from smaller things like a change of local regulations that restrict retrofitting to a complete overhaul of zoning ordinances, to a change in federal policies that involve retrofitting. With this top down approach, the goal is to make it easier to for retrofitting to

happen and thus kick-start this type of development.

As stated in “Suburban Retrofitting” by Ellen Dunham-Jones and June Williamson, “many regulations invite revision – zoning codes that segregate by use, comprehensive plans that place a priority on single-family housing, parking regulations that require off-street parking of at least one space per dwelling unit, and street standards calling for overly wide streets (Dunham-Jones & Williamson, *Retrofitting Suburbia: Urban Design Solutions for Redesigning Suburbs*, 2009).” This is very important as it shows the “low-hanging” fruit that municipalities can utilize and make significant strides with.

It is also important for municipalities to revisit their building codes to see what kinds of development they encourage. A change in the building codes to allow for different types of buildings that promote the values of a community is essential. Currently specific

density, heights and setbacks limit the types of buildings that can be erected in suburban areas. By revising these rules we will allow for more diverse types of housing stock and allow for neighborhoods to differentiate themselves. A problem that can arise with a change in building codes is with fragmentation among municipalities. As with many of these policies, this needs to be enacted at a regional scale so there are not problems with leapfrogging and builders just spilling over to a nearby city or township that has different building codes.

We had talked about New Urbanism earlier, which is a movement that supports what is called Form Based Codes. In many parts of the country, these codes have been adopted both in place of current zoning regulations and along side them. While much of these codes are geared towards shaping new development, a good amount of it deals with redevelopment and possible retrofitting (Parolek, Parolek, & Crawford, 2009). In this paper we acknowledge the difficulties that come along with

redeveloping suburban neighborhoods and this is a main reason why form based codes don't directly address this. They do however give guidelines for how new buildings will be sited and the creation of new streets. This is likely to break the trend of ho-hum suburban residential development. Some examples cities that have used form based code to retrofit neighborhoods for more dense walkable neighborhoods include Apollo Beach, Florida and Laurel Bay, South Carolina (Dunham-Jones & Williamson, *Retrofitting Suburbia: Urban Design Solutions for Redesigning Suburbs*, 2009).

In Apollo Beach, a code was created to allow for neighborhoods, which were made up almost entirely of single story ranch houses with large lots and setbacks, to evolve into new type of community. These new codes promoted additions to houses that would create shaded courtyards. These additions would be built in the front yard instead of the back, helping to remedy the problem of large setbacks from the streets and sidewalks. Overall, it was an

innovative plan that helped to transform these typical suburban residential neighborhoods.

The retrofitting that was slated to occur in Parris Island, South Carolina was a different kind from that in Apollo Beach. While they also changed to a form based code, this was more of a structural change of the transportation network. This is a major obstacle for retrofitting of suburban neighborhoods. Because the layout of the houses and the roads within are so intrinsically entwined, it is difficult to make changes. This is especially true because single-family housing tends to be individually owned, and thus very difficult to make changes to an entire neighborhood. This problem was averted in Laurel Bay because it was a housing for a nearby military base where two-thirds of the residents are renters. What they did here was demolish 300 of the original 1,100 houses to allow for a new central main street and a denser core. By adding this area, it effectively increased walkability, and interactions of the residents (Dunham-Jones 2008).

Case Studies

Port Royal, South Carolina

Background of the Community

While enjoying quite the long history dating all the way back to the early 16th century, Port Royal has been a relatively small town for a long time. After being deserted several times, the town really started to grow during the late 19th century. During this time a downtown commercial district was built with many businesses and a new residential district was built. It was also around this time that nearby Parris Island became a navy yard. This helped Port Royal to grow even more.

All this changed when in 1893 when the town was hit by a disastrous hurricane then followed by a yellow fever epidemic. This led to the town noticing significant disinvestment as most rail and port traffic moved to Charleston. The town

remained nearly abandoned up until 1959 when the South Carolina State Ports Authority declared Port Royal an active port and dredged the turning basin to create transit sheds and berthing space.

In spite of the new port coming to town, they continued to experience slow growth. In 1960 the census had the town population listed at 793 people. This grew to 2,866 in 1970, not much less than the population of 3,500 people in 2000. In 1995, the development team of Dover, Kohl & Associates developed form based code for the town to encourage infill and redevelopment. This plan was subsequently adopted (City of Port Royal, 2009). This population has since doubled to 9,188 by 2004.

Description of the Plan

Anticipating a growth boom in this area, partly due to an increasing retirement population, but also due to the increase of people buying second homes, the residents of Port Royal

wanted to create a plan that would incorporate the town's new growth as well as preserve its historic character. The main goal of this plan was to "Grow more, but grow more of what Port Royal is (Dover, Kohl & Partners)." What they meant by this was that their efforts would be directed towards redevelopment of new buildings and the creation of infill buildings that are consistent with the existing character of the town.

In order to do this, they conducted several meetings with town citizens, staff and other stakeholders in order to make sure the plan was compatible with their vision. From that they developed a master plan that allowed the town to grow and improve on its current structure.

According to Dover, Kohl & Partners, the most important elements of the plan are that:

1. The traditional neighborhood structure of the public realm should be reinforced with each new building and each preservation effort;

2. The mix of land uses should be primarily market-driven, and convenient distribution of daily needs within walking distance should be fostered;
3. Streets are for people, not just for cars, and dependence on and dominance of the automobile should be reduced;
4. A diverse range of household incomes should be encouraged with dignified forms of both affordable and market-rate housing



Master plan for Port Royal, SC Source: www.portroyalsc.org

5. The two sides of the Town, divided by Ribault Road, should be spatially and psychologically rejoined; and
6. Connection to the surrounding natural environment should be maximized, with public access to the waterfronts and clear access to the marshes.

Map of Location



Demographic Analysis

We believe it is necessary to take a look at the demographic make-ups of these town as well as population trends in order to get an idea for why these plans may have been successful or not.

The make up Port Royal is interesting because nine years ago, when the last census was done, it as primarily made up of people who were either stationed at the nearby navy base or people who were somewhat connected to it. This is apparent by looking at the demographic statistics. The median age in Port Royal is only 29.9 compared to the rest of the country which is 35.3 (U.S. Census, 2009). A majority of housing units in the municipality were renter-occupied which is usually a 2:3 ratio of owner occupied in the rest of the country. The median household income was also much below the national levels; \$36,599 compared to \$41,994 for the US.

None of this is very surprising for a city that is located near a naval base. What is interesting though, is the population growth that has occurred over the past eight years. Below is a chart of the population over the past several years.

	1990	2000	2007
Population	2,985	3,950	10,212

As you can see, the population has nearly tripled from 2000 to 2007. This is very intensive growth, and we can expect a dramatic change to those demographic statistics from the 2000 Census. We believe that it can be expected that much of the population growth has been in retired citizens, and people buying second homes. We expect the the all of the statistics that were below the national average to move back towards the US medians. This would included an increase in median household income, more owner-occupied units, and an increase to the median age. It is however encouraging that they were able to anticipate the growth and get this plan implemented before

it happened. This is something that cannot be said about other high growth areas in the country.

Analysis of Effectiveness

Because Port Royal was able to foresee the large amounts of growth coming to their area, they were able to develop a plan that was proactive and took advantage of the money being spent there. This has been a very effective plan at doing what it set out to do. It has been successful in promoting the redevelopment of existing residential neighborhoods, even the ones developed at the edges. They have also been effective at improving the walkability of streets and curbing sprawl at the edges.

On the other hand, there have been some drawbacks. The plan for Port Royal didn't have a very strong affordable housing segment, and it shows. Partially due Port Royal marketing itself as a community for retirees and vacationers,

there is very little affordable housing that has been created by this plan. Overall, this is a relatively effective plan for a spread out smaller community dealing with large amounts of growth.

Brookside Apartments – Atlanta, GA

As you drive around suburban areas in nearly every metro area, one will see that the dominant form of multi-family housing are garden apartment complexes. Usually singularly owned and located near transit corridors, these have great potential for redevelopment.

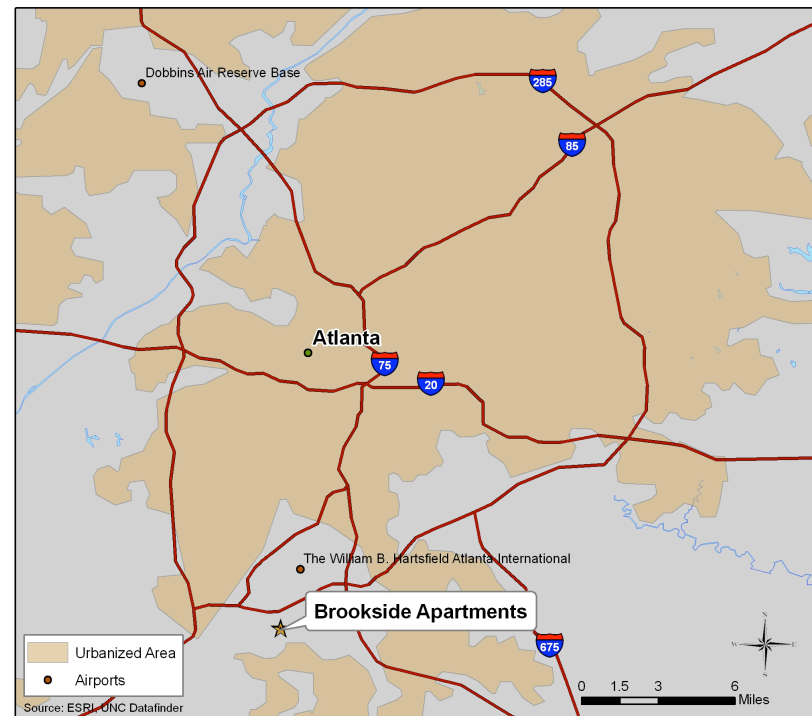
Background of the Community

The Brookside Apartments were originally developed on the south side of Atlanta in the 1970's as the Windjammer Apartments (Dunham-Jones & Williamson, *Retrofitting Suburbia: Urban Design Solutions for Redesigning Suburbs*, 2009). The apartments were located very close to the Hartsfield-Jackson Airport as housing for pilots and flight-attendants who worked nearby. By the 1990's, after years of disrepair, the apartments found themselves as being rundown and in need of repair.

Description of the Plan

In 2005, funded by a \$14 million bond for affordable housing, plans were made to rehab the apartments with new amenities, two and three bedroom units for families, and rebuilt family spaces (Dunham-Jones & Williamson, *Retrofitting Suburbia: Urban Design Solutions for Redesigning Suburbs*, 2009).

Map of Location



Demographic Analysis

The most important aspect of this development is that it was originally workforce housing before they decided to redevelop the apartment complex (Dunham-Jones & Williamson, *Retrofitting Suburbia: Urban Design Solutions for Redesigning Suburbs*, 2009). When they decided to redevelop the complex they decided that they were going to retrofit them in order to fill a need that wasn't currently being met, affordable three and four bedroom family units. Today there is a diverse mix of families living there paying affordable rents.

Analysis of Effectiveness

This has been a very effective redevelopment of a Garden Apartment, one that is very similar to many throughout the country. It has become a common occurrence for a developer to build this type of "disposable" housing complex. Cheaply made apartment complexes with which the renter does minimal upkeep over the years. Eventually these places become rundown over the years. There is a great amount of potential

in similar developments all over due to it being one hundred percent rental properties, so there are limited acquisition troubles such as the ones you would find in redeveloping owner-occupied spaces. They also tend to be near major transportation and commercial nodes. With the correct coordination with surrounding areas, these can turn into successful suburban activity nodes.

The reason for the success of Brookside Apartments rests primarily on its location. Due to its vicinity to several major highways, the Hartsfield-Jackson Airport, several convenience and shopping facilities, as well as a nearby public transit station, there was already pent up demand for the new units. They also spent a good amount of time researching their consumer. They expanded the units, which were originally one and two bedrooms, to be three and four bedroom units. They also added several communal facilities for families. By renovating this place to make it more family-oriented, they were providing affordable housing

in an area near downtown Atlanta for families where this is normally very hard to find. Overall, this is a very effective redevelopment of a site, which has the potential to be replicated in other areas.

Mashpee Commons – Cape Cod, MA

Background of the Community

Mashpee, Massachusetts does not have a common background to many of the other areas in the Cape Cod region. Up until the 1960s there was very little development in this area. In 1968, there was a strip development called The New Seabury Shopping Center, was created at the convergence of Route 28, Route 151, and Great Neck Roads. This development, which consisted of a supermarket, pharmacy, and other convenience oriented business, served the nearby residents whom mainly worked in the fishing industry and at the nearby Massachusetts Military Reservation (Dunham-Jones & Williamson, *Retrofitting Suburbia: Urban Design Solutions for Redesigning Suburbs*, 2009).

In the mid-1980's there were plans created to expand the New Seabury Shopping Center to meet new demand being created by an influx on wealthy moving to Cape Cod. Due to the

rampant strip development that had occurred during the previous few decades there had also been a strong anti-development sentiment in the area, which was against this expansion. Wisely, the developers of the area decided to try an alternative scheme, that would create a denser urban core that would act as a well-needed town center in the area. While the plan was originally met with skepticism, once the community leaders and residents had the plan presented to them, the slowly sweetened up to the idea of Mashpee Commons.

Description of the Plan

The master plan for Mashpee Commons was developed by Duane Plater-Zyberk & Company. It has been constructed in several phases beginning in 1986, 1988, and most recently in 2002. Currently it has 460,000SF of commercial and 482 residential units permitted on a 140 acre site (60% preserved as open space). They also had several charrettes throughout the years that allowed them to adjust

their plan to meet the needs of the residents. The primary strategies that were used in the development of the Mashpee Plan are the following:

- Demolition and rebuilding of a neighborhood strip center in order to build a mixed-use town center.
- Parallel planning of compact residential neighborhood in adjacent areas that will plug into the commercial core to create a highly connected, walkable village center.
- Densification of a useful new node in an emerging transit network, a contribution to the retrofit of a region where seasonal traffic is heavy and many seniors become homebound when they can no longer drive (Dunham-Jones & Williamson,

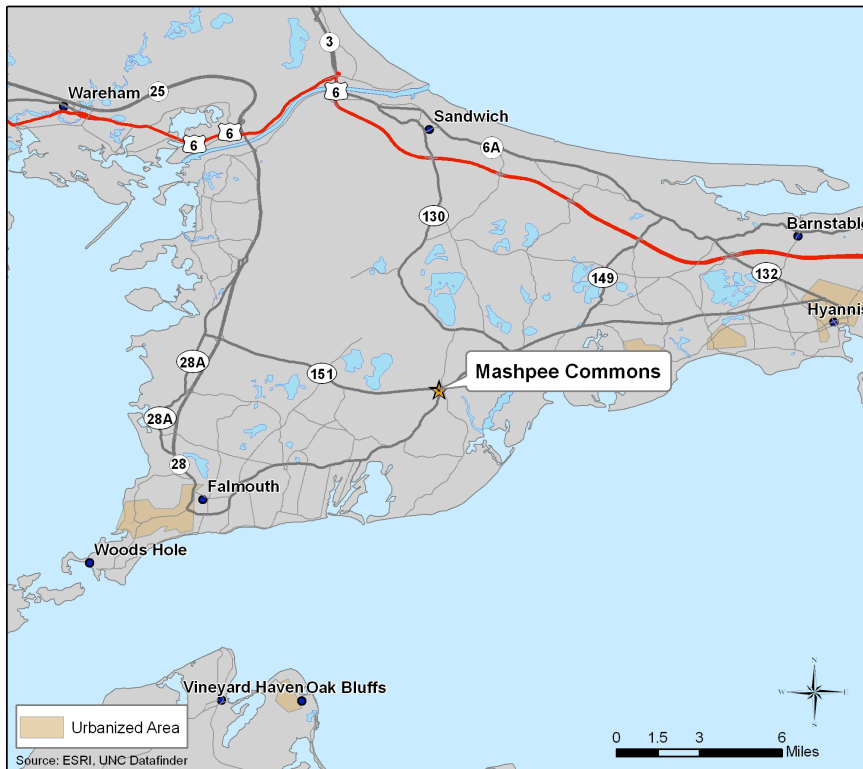
Retrofitting Suburbia: Urban Design Solutions for Redesigning Suburbs, 2009).

For this time period, this was a very different way of thinking through development as a whole, and especially re-development. Most new development at this time was single use, and on Greenfield sites. What Mashpee Commons did was show a different way of



Early master plan for Mashpee Commons Source: www.dpz.com

Map of Location



development that was being underused. The idea of walkable communities, a mixture of uses, and more dense development in relatively rural areas was very radical for the time.

Demographic Analysis

Like Port Royal, Mashpee has experienced a great deal of growth recently. Their population has doubled in the last twenty years, which is the time period when Mashpee Commons has been developed. Below are the population figures from 1990 to 2007(U.S. Census, 2009).

	1990	2000	2007
Population	7884	12946	14261

Even though Mashpee has experienced a great deal of growth like Port Royal, that is really where the comparisons end. Most of the growth that has occurred here has been due to people building retirement homes and vacation homes (i.e. second homes). Compared to the nation average of 35.3 Mashpee has a median age of 40.6 years old, a stark contrast to Port Royal. Another telling statistic is owner-occupied and rental-occupied stats. 81.4% of housing units are owner occupied, however, only 63.1% of those are listed as occupied. This is due to

many of the houses being people's second homes.

While there were provisions in the Mashpee Commons redevelopment plan for affordable housing units, Mashpee housing prices average \$268,900 still remains well above the national average of \$119,600.

Analysis of Effectiveness

Mashpee Commons has been a very effective redevelopment scheme. It has taken a typical strip mall, with a sea of parking surrounding it and turned it into a community hub. A project that has been phased over the past twenty years, it has grown at a pace that has been harmonious with the community. Within the development there is a balance between chain and local retailers, a library, post office, multi-family and single-family housing, and high-end as well as affordable housing (something that is rare in Cape Cod).

While Cape Cod is not a typical area due to its residents (some year round and a large amount of seasonal residents), we believe this can act as a model for how do use a run-down isolated strip mall to create a dense suburban core. This new development at Mashpee Commons has become the town center for an area with a traditionally dispersed population. Overall, we believe this is very effective development hat has helped give an identity to a neighborhood that previously did not have one.

Recommendations for communities interested in retrofitting

Through our research and analysis of communities throughout the United States and their programs they are using to aid in the retrofitting of newer dispersed residential communities, we have noted some policies that appear to have been successful. The following are our list of recommendations for communities to consider:

Change policies to allow for changes to current residential neighborhoods to be made more easily

Changes in design regulations to be more friendly towards different types of development could be very beneficial.

Examples of this would be allowing for increased densities for redevelopment or to include auxiliary units on the lots (i.e. granny flats). Other changes that could be beneficial would be changes in setback

regulations to allow for additions to be built in front of the houses like in the Apollo Beach, Florida case, or for the city to provide aid to reconnect cul-de-sacs in failing neighborhoods.

Provide education and outreach programs for neighborhoods interested in retrofitting

A municipally run education program to inform the public about potential opportunities in retrofitting neighborhoods could be beneficial. These programs would provide assistance on how to reorganize home owners association's charters to be more friendly to change, provide information on how to develop cul-de-sac communes like we introduced earlier, give examples of successful neighborhoods that have allowed subdividing of large single-family homes to encourage this type of re-development. The idea here is to make the information about alternatives available to the public in order to spur the retrofitting of the neighborhoods.

Create community directed re-use programs

We recognize that all structures will not be able to be retrofitted or renovated and that sometimes demolition is the best option for a certain structure. This is where re-use program come into place. Either developing a locally based program similar to Planet Reuse or working with local interests to develop a non-profit similar to Buffalo Reuse in larger areas, we can make best use of the materials in these unneeded buildings.

Programs like this have been very successful all over the country and are beneficial for many several reasons. One, it reduces materials going into the landfill and thus reducing methane emissions that contribute greatly to climate change. Second, this is all local labor that is being used to deconstruct the buildings and sell the materials. That money goes directly back into the local economy and not to a

large corporation that is located elsewhere in the country or overseas. Finally, it reduces our consumption of resources. With less need for materials, there would be less logging for wood, less energy used to transport it from its source, less energy used to form the molding or to use on metal components. So far an underused program in our country, but one that could have sweeping effects.

Target re-development of Suburban Business Districts and strip malls

Among our case studies we described a development in Cape Cod, Massachusetts that originated as a suburban strip mall, and was redeveloped as dense commercial and residential center. This one development transformed an area with no discernible center into a place with a recognizable town core. What was once a place that was dependent on the automobile, people are now able to walk, bike, or take public transit if they please. While this paper is not about

policies for the redevelopment of suburban business districts, we believe it would be a great mistake to ignore its effect on residential redevelopment and retrofiting.

By encouraging the redevelopment of these run down and sometimes-vacant strip malls, we can create new commercial nodes that can act as a center of gravity for suburban neighborhoods. Creating policies that would encourage this can use these³³ as a generator of change within the nearby neighborhoods. An example of this would be tax incentives to make the project equally as financially feasible as a similar greenfield project. These policies should also be connected ones that encourage possible redevelopment of the neighborhoods and connectivity to the nearby commercial nodes.

Conclusion

So where do the suburbs go from here? We think that, the combination of the current economic situation, a need to find less energy intensive ways of living, and impending effects of climate change will force a change in our future development patterns. As this paper is being written, a record number of houses are vacant due to home foreclosures from the mortgage crisis and it appears they will be vacant for the foreseeable future. The large amounts of unused housing that is both auto dependent, and in many cases poorly constructed. In addition to the houses that are currently vacant, there are also large amounts of subdivisions all over the country that are aging and starting to fall into disrepair.

While the situation currently looks somewhat grim, it affords us an opportunity to take these spaces and mold them into something that will meet current needs, but also be one that doesn't compromise the needs of future generations.

Currently most of the retrofitting that is occurring in our country is being done by New Urbanist development firms through master-plans that utilize Form Based Zoning. While we admire the work being done by them, we also believe much more can be done beyond this.

In order for progress to be made at creating new sustainable residential neighborhoods out of many of these suburbs, we are going to need both small scale grassroots efforts as well as large scale federal policy changes. If we work to remove the current barriers facing redevelopment and retrofitting like where money for transportation goes, then we can finally make some real progress in this area. For a market to truly embrace something, it needs to know it has the backing from the government.

We are very confident that the retrofitting of our suburbs has the ability to be done, though the swiftness at which this happens depends on a coordination of many forces.

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