Friendship Village

Exploring the Critical Economic Development and Urban Design Link for Sustainable Development

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Program in City and Regional Planning

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Executive Summary

Friendship Village is being developed as a master-planned community in south Fulton County. It sits on 2,000 acres approximately 21 miles from downtown Atlanta, and 16 miles from Hartsfield-Jackson Atlanta International Airport. At present the site is an undeveloped "greenfield," but at build-out the projected population for Friendship Village will be approximately 12,000-15,000. The development will include residential (including townhomes, condominiums, and apartments as well as single-family homes), commercial (both office space and retail), and civic uses such as a charter school, churches, and parks.

In the fall of 2008, Georgia Tech's City and Regional Planning and Architecture programs undertook complementary studio courses to assist Minerva Properties LLP, the developer of Friendship Village, in their planning. The work of the studios focused on the critical link between economic development and urban design for the village center in which the commercial development and community facilities will be located. The joint studio project was based on the idea of "triple bottom line" sustainability: considering sustainability in environmental, economic, and social terms. This conception of sustainability informed the group's research and the formulation of three different potential designs. Further, the joint studio was based on the idea that the urban design framework should strategically accommodate development and redevelopment over time, while economic development strategies should look beyond the short term and market-driven strategies to integrated and self-renewing processes of investment, job, and business creation. To maximize their impact, both urban design and economic development must reflect the idea that use is temporary and change is inevitable.

In terms of **environmental** sustainability, the group placed the greatest emphasis on landscape and habitat preservation, "carbon footprint" and pollution reduction, stormwater management, and waste management. The consideration of **economic** sustainability focused on entrepreneurship and the long-term viability of retail, which will occupy the bulk of Friendship Village's commercial development. **Social** sustainability was mainly considered in terms of social inclusion and creating community. The design principles embodying the three different aspects of sustainability are summarized in Table 1, below.

Environmental Sustainability:

- Minimize land disturbance, especially that of ecologically sensitive land.
- Preserve and enhance natural site features.
- Emphasize accessibility, not mobility, to reduce carbon footprint.
- Encourage development patterns to maximize efficient use of infrastructure.

Economic Sustainability:

- Maximize visibility of retail activity, particularly anchors.
- Design varying lot sizes to accommodate a range of business types and sizes.
- Position denser housing within walking distance of retail.
- Phase development with sensitivity to demand.

Social Sustainability:

- Include "universal design," in which the needs of all potential users, not just the able-bodied, are taken into account.
- Create a "town green."
    - Provide life-cycle housing options.
    - Regard civic uses as anchors and potential attractants rather than necessities or tax drains.
    - Promote walkability and bikeability.
    - Approach design as a vehicle for sustainability.

Table 1: Key Design Principles Reflecting Environmental, Economic, and Social Sustainability

The group's recommendations were informed by the study of 13 historical cases of planned developments in four different American metropolitan areas (Chicago; Atlanta; Washington, D.C.; and Kansas City) and one long-standing town, Newnan, Georgia. Some

developments have remained successful; others started out promisingly and then deteriorated; still others have rebounded. The group came away with an appreciation for how much design can influence the future trajectory of a development, including whether the urban design structure can accommodate changing uses and whether residential and retail needs can continue to be met as the community demographics change over time. The group also concentrated on five areas in which Friendship Village could be innovative in its pursuit of sustainability: attracting sustainable retail; encouraging "green" business networks; maintaining affordable housing; designing an environmentally aware school; and introducing "green" health care to south Fulton County.

On December 3, 2008, the group presented three different potential designs for Friendship Village to Minerva and interested members of the community surrounding Friendship Village. One design was based on a traditional "town center" model; one emphasized the natural resources of the site; and one focused on stormwater management. While all three differ in their arrangement of lots, blocks, and streets, all three embrace the principles of sustainability previously agreed upon and detailed by the group.

The studio's recommendations for the development of Friendship Village can be summarized in five principles:

- **flexibility** in design of block structure and buildings;
- emphasizing **walkability**;
- promoting the community's **investment in the natural environment**;
- aiming for **diversity in retail**;
- and **evaluating new development holistically**, with emphasis on all three aspects of sustainability, environmental, economic, and social.

Introduction

In the fall of 2008, Georgia Tech's City and Regional Planning and Architecture programs undertook complementary studio courses to assist Minerva Properties LLP, the developer of Friendship Village, in their planning. The work of the studios focused on the critical link between economic development and urban design for the village center in which the commercial development and community facilities will be located. The joint studio project was based on the idea of "triple bottom line" sustainability: considering sustainability in environmental, economic, and social terms. This conception of sustainability informed the group's research and the formulation of three different potential designs. Further, the joint studio was based on the idea that the urban design framework should strategically accommodate development and redevelopment over time, while economic development strategies should look beyond the short term and market-driven strategies to integrated and self-renewing processes of investment, job, and business creation. To maximize their impact, both urban design and economic development must reflect the idea that use is temporary and change is inevitable. The studio was led by Professor Nancey Green Leigh, FAICP, and Associate Professor Richard Dagenhart, and John Skach, AIA, AICP, senior associate at the planning and design firm Urban Collage.

Friendship Village is planned as a potential mixed-use development with both commercial and residential components. The studio project began with the City and Regional Planning students engaged in an intense effort to gather information about similar developments in history and ended with the planning and architecture students creating new potential plans for the design and formation of Friendship Village that incorporated economic development goals. The students' areas of interest included urban design, environmental planning, economic development, housing, and transportation. On December 3, 2008, the studio presented its findings and suggestions to representatives of Minerva and the community surrounding Friendship Village, as well as observers interested in planning and urban design.

This report presents the summary of the studio work. It includes three potential designs for Friendship Village, as well as the historical analysis and research informing those designs.

The key goal of the studio was to present potential paths for the development of Friendship Village that would not only create an attractive place to live and work, but ensure long-term social, environmental, and economic sustainability.

The report is organized as follows. The first section provides an introduction to the Friendship Village site and development concerns unique to the site, as well as an overview of the principles of sustainability that guided the studio's considerations. Next is a summary of 13 case studies of prior developments in different parts of the United States, to see how principles of urban design and economic development then influenced the long-term sustainability of these projects. Then follows a series of specific investigations of economic development and planning which the studio considered particularly relevant to Friendship Village's future: sustainable commerce, "green" business networks, affordable housing, sustainable schools, and green health care. Then the three potential designs are described. One focuses on a "town center" centralized plan; one concentrates on the issue of stormwater management; and one emphasizes the area's natural advantages. Close attention was paid to the lots, blocks and street design so that uses could change over time and adapt to a flexible design framework. The case studies are described in detail in a separate report.

Friendship Village and Surrounding Area[1]

Friendship Village has been envisioned as a master-planned community in south Fulton County, approximately 21 miles from downtown Atlanta and 16 miles from Hartsfield-Jackson Atlanta International Airport. The total area is approximately 2,000 acres, some of which is in unincorporated Fulton County and some of which lies within the boundary of the city of Chattahoochee Hill Country. At present the site is an undeveloped "greenfield" in a largely rural area, though the road on its southern border, South Fulton Parkway, is seeing increasing amounts of traffic as metropolitan Atlanta grows in population. Figure 1 shows a plan for Friendship Village superimposed over a 2004 aerial photo of the site.

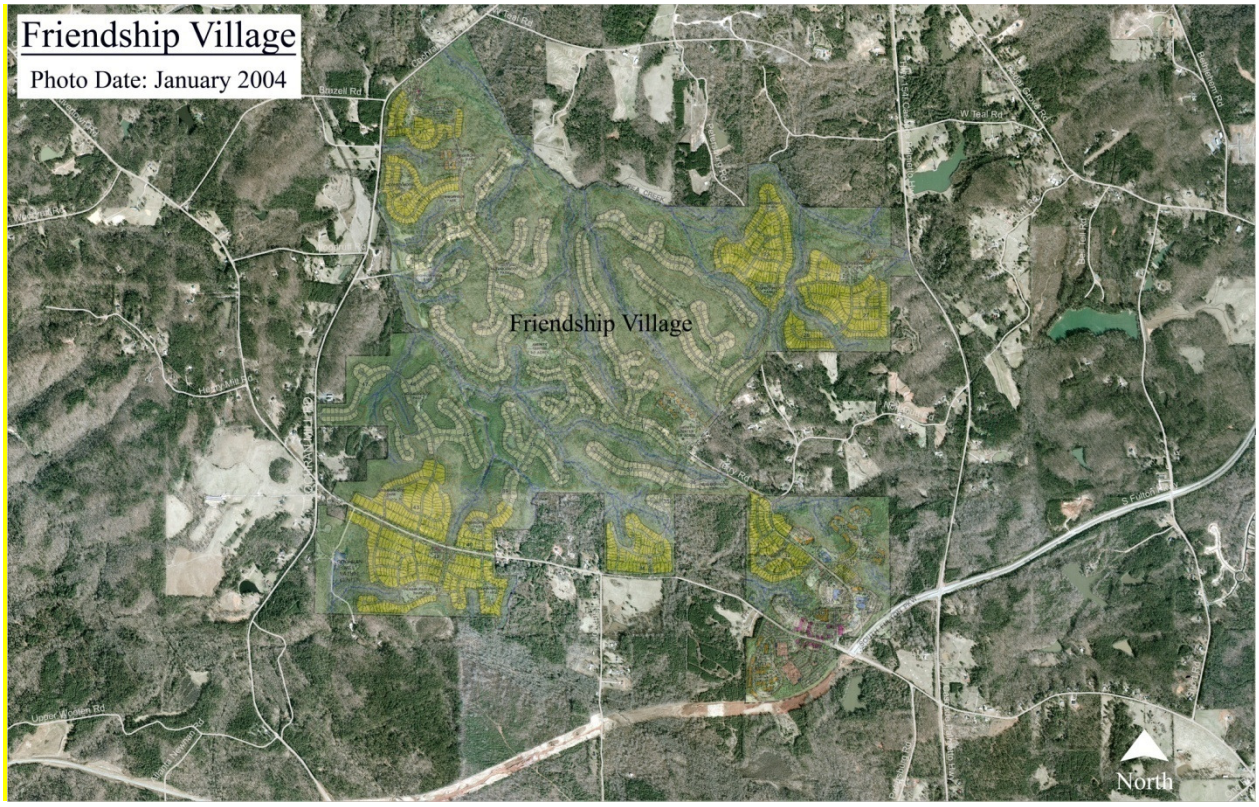

Figure 1: Site of Friendship Village (Courtesy Minerva Properties)

1 The information in this section was largely provided through conversations with Stacy Patton of Minerva, Steve Koppelman of the Chattahoochee Hill Country Alliance, and Ken Bleakly of Bleakly Advisory Group in August 2008.

At build-out the projected population for Friendship Village will be approximately 12,000–15,000. Some 860 acres of the site have been designated for residential development, while 60% of the site (approximately 1,200 acres) will be developed as community green space. The village plan as developed by Minerva includes 116,500 square feet of community facilities and nearly 994,000 square feet of commercial development. The Village will include some 5,500 residential units (the majority of which will be single-family homes), but will also include townhomes, condominiums, and apartments. Prices for single-family homes were estimated in the fall of 2008 at between $240,000 and $375,000. The plan calls for some condominiums and apartments to be located above retail. By Minerva's internal estimates, total build-out would be achieved in about 20 years.

Minerva has owned the land for more than 20 years, but recently began moving ahead on development in response to the projected growth in south Fulton County and Chattahoochee Hill Country. The city, which incorporated in 2007, is expected to show strong population growth over the next two decades. Its position relatively close to Hartsfield Airport makes it attractive to business and commuters, while the abundance of undeveloped land could be appealing to potential residents looking for an alternative to the sprawl that dominates most of the metropolitan Atlanta area. Minerva representatives have expressed the hope of anticipating this demand, rather than reacting to it, and responding by providing future residents with livable, sustainable communities. Friendship Village is expected to be one of three similar villages.

Chattahoochee Hill Country is a currently a largely rural area with a relatively stable population; 95% of city residents own land, and families often have several generations' worth of history in the area. There is very little multi-family housing and residential development can be described as very low-density. An exception is Serenbe, a mixed-use, environmentally focused community on 900 acres. Serenbe's commercial development includes small specialty stores and restaurants, an equestrian stable, and an inn. Chattahoochee Hill Country's consumers are generally underserved in terms of retail, which creates an opportunity for the commercial development at Friendship Village.

A fiscal analysis of Friendship Village prepared in March 2007 (Bleakly Advisory Group, 2007) estimated that when completed, the Village would provide $2.4 billion in new construction value and 1,909 permanent jobs, with a total annual payroll of $67.8 million. Average annual retail sales were estimated at $103 million, with about half of that ($54.4 million) by new residents. The total fiscal surplus to Fulton County was estimated at $65.5 million over the time span from 2009 to 2028. However, this analysis was performed before the 2008 increase in gas prices or the subsequent credit crunch. It is possible that given economic assumptions in line with more recent events, both retail sales and the total fiscal surplus would be lower.

Even before the beginning of the global economic downturn in the fall of 2008, Minerva faced several major challenges in developing the site. One is the terrain, which is hilly and expensive to develop. In particular, designing to create an inclusive community could mean making costly and environmentally damaging modifications to grade. A second challenge is balancing the addition of retail with the construction and advertisement of housing—the "retail versus rooftops" challenge. As many developers know, it is both difficult to attract new commercial tenants without nearby residents and to convince residents to move without sufficient commercial development nearby. This is an especially thorny development issue for those developments in which walkability is prized as an amenity, as attracting non-residents to shop at local retail will require ensuring adequate parking. Finally, Minerva faces the challenge of building a sustainable development in an area with historically low population density, in a metropolitan area where higher densities in single-family housing are traditionally regarded as a flaw, not a virtue.

Understanding the difficulties ahead, Minerva was receptive to supporting a studio effort for developing new ideas in designing a sustainable community—one that would take into account the need to ensure the project's long-term fiscal viability as well as minimize harmful environmental impacts, preserve the valued rural character of Chattahoochee Hill Country, and create an inclusive, self-sustaining community. What follows are the guiding principles of sustainability the group adopted over the course of the semester, as informed by research.

A Framework for Sustainability

After discussing the appropriate way to define "sustainability" in regards to Friendship Village, the studio group eventually decided to emphasize three different areas: environmental, economic, and social sustainability. This approach to sustainability has gained popularity in recent years and is sometimes referred to as the "triple bottom line" or the "three-legged stool." As Newman and Kenworthy (1999) put it in *Sustainability and Cities:*

> The concept of sustainability has emerged from a global political process that has tried to bring together, simultaneously, the most powerful needs of our time: (1) the need for economic development to overcome poverty; (2) the need for environmental protection of air, water, soil, and biodiversity, upon which we all ultimately depend; and (3) the need for social justice and cultural diversity to enable local communities to express their values in solving these issues. Thus.. when we refer to sustainability, we mean simply achievement of global environmental gains along with any economic or social development. (page 4)

As with the global, so with the local: if Friendship Village, in its planning and development, can achieve a balance of environmental protection, economic viability, and social inclusion, its long-term prospects will be significantly more favorable. Part of the studio's work, which will be presented later, showed how neglecting one or more legs of the three-legged stool harmed the potential long-term viability of similar residential/commercial developments in the past. But it is now worth considering the three legs of the stool in greater detail.

Environmental Sustainability

Environmental sustainability goals for Friendship Village include the preservation of landscape and habitat, a reduction in carbon footprints, stormwater, and waste management. Research was gathered from a variety of sources including the U.S. Green Building Council, South Face and Earth Craft Communities, and the Atlanta Regional Commission in order to state recommendations that will protect and enhance the ecological integrity of the Chattahoochee Hill Country. The environmental research and analysis was a contributing factor to each of the three design scenarios. The recommendations can be broken down into categories: landscape and habitat preservation; reduction of the "carbon footprint" and of forms of pollution; stormwater management; and waste management.

Landscape and Habitat Protection

Early on in the studio, members made a visit to the Chattahoochee Hill Country and Friendship Village site in order to gain a first-hand familiarity with the topographical framework and natural assets found in the Hill Country. The rolling hills, granite outcroppings, agricultural fields, wetlands, and hardwood forests make up the Chattahoochee Hill Country and are treasured by the residents and visitors of the community. In order to preserve the landscape, the conservation of green space and dense clustering of development will require minimal grading and land disturbance.

The steep slopes of the Hill Country, especially those slopes greater than 40%, need to be preserved in their raw, vegetated condition in order to minimize erosion and prevent sedimentation (USGBC, 2007). The U.S. Green Building Council recommends that development be limited to no more than 40% of slopes between 25%-40% (*ibid.*). Landscape disturbance should be minimized through "cluster development" to promote green space conservation and habitat protection.

Agricultural fields in the Hill Country should be protected from development in order to preserve prime and unique soils identified by the Natural Resources Conservation Service and to promote small farms and organic food production (USGBC, 2007). In cooperation with the Chattahoochee Hill Country Farmland Protection project, Friendship Village has the opportunity to continue the operation of their working farm and promote a viable market for local farmers (Chattahoochee Hill Country, 2008). Building a truly sustainable community must include support of local farms and production of local, organic food. Creating a local farmers' market is an efficient way of distributing locally produced food and reducing the need to drive to grocers for fresh produce (ARC, 2008). This provides quality farm work for the community, reduces the energy needed to import food and eliminates agricultural run-off that is polluted from large scale application of pesticides, herbicides and fungicides (The Edible Schoolyard, 2006).

Substantial stands of hardwood forests and mountain wetlands are found throughout the Friendship Village site. Preservation of these resources is necessary to protect the native habitats and maintain the ecological integrity of the Hill Country. Wetland habitats maintain rich

biological diversity to contribute to the filtration and recharge of ground water. Keeping hardwood forests and wetlands intact greatly improves the distribution of storm water and reduces the need to build new infrastructure to manage water run-off from impervious surfaces. The design guidelines for Friendship Village, including dense and clustered development, are positioned to take advantage of the ecological assets and enhance existing natural conditions.

Carbon Footprint and Pollution Reduction

The "carbon footprint" refers to the amount of carbon dioxide (CO_2) produced in the day-to-day activities that will take place in Friendship Village. Increasing concern over the potential environmental effects of CO_2 emissions has made reducing the carbon footprint of new development a high priority. In the case of Friendship Village, reducing the carbon footprint suggests designing an energy-efficient, mixed-use community that is walkable and greatly reduces reliance on automobiles. Southface and Earth Craft Communities recommend bringing the area jobs-to-housing ratio closer to 3:2 so that carbon emitted during the home-to-work commute is greatly reduced (Southface, 2008). Establishing a bicycle network and bicycle rental, parking, and storage throughout the residential and commercial developments will encourage an active lifestyle for people of all ages without increasing CO_2 emissions (USGBC). This network may be accomplished with the development of a community that provides quality employment to people living in the community within a walking or cycling distance to the jobs.

Friendship Village should have quality employment that fosters sustainable environmental operations and principles within the community framework. Among potential employment opportunities are those that may be provided through the development of an environmentally sustainable health care clinic and community school, both of which will be elaborated upon later in this report. Commercial and residential construction alike should be designed to maximize energy efficiency, which will not only reduce CO_2 emissions and the depletion of natural resources but decrease owners' and renters' long-term maintenance and use costs.

Energy-efficient homes and buildings should be designed and constructed to reduce environmental impacts from energy production and consumption (USGBC, 2007). Building

materials, plumbing, electrical, mechanical, water usage and all building and household operations should follow Energy Star recommendations and Leadership for Energy Efficiency Design (LEED) guidelines to the level most appropriate for square footage designs (ARC, 2008). At every opportunity, alternative energy sources including wind, solar and geothermal should be incorporated where feasible. Energy used for lighting may be reduced by using solar lighting sources, daylight sensors and illuminating exterior areas for safety only (ARC, 2008). The reduced lighting also prevents the threat of light pollution as the South Fulton area develops and grows. Traffic lights should be outfitted with LED lamps throughout the community (*ibid.*). Establishing an energy-efficient built environment at a scale appropriate for the pedestrian to walk and bicycle safely and efficiently provides tremendous opportunity to reduce the carbon footprint of Friendship Village residents.

Stormwater Management

Stormwater management is a critical element in the development of communities throughout the Atlanta region. Wherever possible, existing vegetation and forests should remain undisturbed to reduce the amount of surface available to move stormwater. Responsible management of stormwater is necessary to protect valuable sources of drinking water. The natural hydrology of the region should be mimicked by reducing the water runoff flow that could lead to stream channel erosion and aquatic health degradation felt by sedimentation pollution (USGBC, 2007). Non-point source pollution that flows into the rivers, lakes and streams creates high concentrations of nitrogen that produce algae blooms that in turn block sunlight from photosynthesizing aquatic vegetation. The overall chemical, physical and ecological integrity of the waterways is then compromised for an entire ecosystem.

The Atlanta Regional Commission has established several goals to manage stormwater throughout the Atlanta region in order to protect natural water sources (ARC, 2008). One of the goals is to reduce impervious surfaces and hardscaping that collects water and mixes with pollutants on the surface, then washes into tributaries and the water table (*ibid.*). This calls for a reduction in the parking footprint to no more than 20% of the total development and, where available, the use of permeable parking materials and on-street parking spaces (*ibid.*).

Green roofs can be used to slow water run-off with vegetation and permeable materials rather than conventional roofing shingles. Using green roofs provides further energy insulation for buildings and reduces solar heat accumulation that may lead to the "heat island" effect, in which heat is reflected by impermeable surfaces rather than absorbed or managed by vegetation, increasing the overall temperature (ARC, 2007).

Stormwater runoff should be properly treated before discharge. Stormwater management systems need to be designed to remove 80% of the average annual post-development total suspended solids (TSS) load and be able to meet any other additional watershed or site-specific water quality requirements (ARC, 2007). Such requirements, intended to best manage water run-off created by land development and maintain a natural, healthy hydrology system, are discussed in further detail with the presentation of the design focusing on stormwater management.

Waste Management

The proper management of a community's waste system is fundamental to achieving sustainable development. An environmentally preferable purchasing program is a way that households, businesses and civic institutions may account for the materials and life cycle of the products they purchase, sale and use (ARC, 2007). This may also encourage users to be mindful of what they use and how much is used. Implementing a recycling program before construction begins and continuing the program through development as a curbside service will lessen waste. Providing industrial grinders on construction sites is an easy way to recycle unused or discarded wood products into mulch that may be distributed on site to prevent erosion from land disturbance. Recovered resources may be directed back to the manufacturing process and diverted from landfills and incinerators (USGBC, 2007).

Composting organic scraps should be encouraged and made easy. Yard and farming debris compost will also provide a community resource to local farmers and further support the agriculture of the area. The businesses, healthcare facilities, and civic institutions can manage waste by creating less excess, using recyclable materials and reusing products when possible.

Design Principles

Based on these observations, the team made the following recommendations for incorporating environmental sustainability into the designs:

- Minimize land disturbance, especially that of ecologically sensitive land.
- Preserve and enhance natural site features.
- Emphasize accessibility, not mobility, to reduce carbon footprint.
- Encourage development patterns to maximize efficient use of infrastructure and resources.

Economic Sustainability

Of the three principles of sustainability presented here, economic sustainability is perhaps the easiest to grasp. The long-term benefits of environmental or social sustainability are much less easily quantified, with indicators currently in use, than those of economic sustainability. Moreover, a development that is economically sustainable in the long term is better equipped to make investments in environmental and social sustainability. Friendship Village can ensure its long-term economic sustainability by providing entrepreneurial opportunities, encouraging a mix of commercial uses, and promoting businesses whose practices will not be made more expensive—or altogether obsolete—as custom and regulation incorporate more concern for the environment.

Although Friendship Village will include business-to-business (B2B) commercial and professional services, the majority of its commercial activity will be concentrated in retail. Of 572,700 planned square feet of commercial development, 398,700 square feet will be dedicated to retail (Bleakly Advisory Group, 2007). Friendship Village's retail base must be strong and well-established in order to outcompete potential future shopping centers. More broadly, its retail core should be strong enough to limit the need for additional markets in the same area,

discouraging sprawl from low-end strip shopping centers. Therefore it is worth discussing in particular how to make retail sustainable in the long term.

Principles of Successful Retail

> Developing and managing retail centers remains one of the riskiest of all real estate categories. Retailers must respond to the ever-changing consumer trends and demands while constantly fending off new competition. As a result, the retail industry relies upon proven methods and techniques to minimize the risk and to earn a market rate of return on their investment. (Gibbs, 2007)

National retail development expert Robert Gibbs has identified certain guiding principles for long-term success based on the postwar history of U.S. retail development. It is important to keep the following principles in mindwhen establishing the retail programming for Friendship Village:

- Women account for 70% or more of all retail expenditures.
- Pedestrian-only retail seldom works.
- The key goal is to maximize sales per square foot.
- "Form Follows Freeway": main "anchors" (large stores) should be visible from the highway.
- Most sales occur after 5:00 p.m. As people become increasingly busy during the day, retailers are competing for customers' time.
- Customers want good, natural lighting, even surfaces, and parking in front of the store.
- Retail forecasting is critical, and opportunities for anchors are limited. In the next five years, the top expanding retailers include Wal-Mart, Kohls, Target, and Dick's Sporting Goods. In addition, Subway, Starbucks, CVS, and Rite Aid are rapidly expanding. Half of these retail leasings are made at the annual International Council of Shopping Centers (ICSC) meeting in Las Vegas.

- The desire for a neighborhood bookstore is often unrealistic; prior to the national recession that was acknowledged in 2009, there were going to be less than 220 bookstores opening nationwide in the next five years. It is likely that number has now shrunk.

- In 2005 independent retailers averaged $80 per square foot in sales, while malls averaged $275–575 per square foot in sales.

- Developers should plan for the premise that stores have five-year life spans.

- Many retailers, especially anchors, follow a "standard radius" rule of thumb: they will not open two stores in the same chain within a 5-mile radius of each other. (Starbucks, of course, is a well-known exception to this rule.)

- While many cities are writing codes limiting the size of retailers, this may not be a wise idea because an anchor is necessary to support the rest of the retail area (whether franchise or independent).

In *Sustainable Urbanism* (2007), Gibbs distinguishes between five different retail types that are also useful for determining what activity would be appropriate for Friendship Village[2]:

Corner Stores

Ranging from 1,500 to 3,000 square feet, corner stores are the smallest and most useful retail type. These stores should be located along major roads in the busiest sections of the neighborhood, and will benefit if it is located adjacent to community buildings, parks, and schools. Approximately 1,000 households are necessary to support an average corner store, but this number can be reduced if the store is located along a major road that sees car travel of at least 15,000 per day. Corner stores that sell gasoline are sustainable without adjacent homes.

2 The following analysis was drawn from a talk Robert Gibbs made by invitation to the Georgia Tech College of Architecture in October 2008.

The sales from construction trades prior to the completion of the neighborhood could effectively support a corner store .

Convenience Centers

These stores range from 10,000 to 30,000 square feet and offer goods and services that are geared toward meeting the daily needs of surrounding neighborhoods. Often, these centers are anchored by a small food market or pharmacy, and include five to eight small businesses that are 1,500 to 3,000 square feet each. This type requires about 2,000 households to be sustainable and should be located along major roads or at the primary entrance to both neighborhoods .

Neighborhood Centers

This retail type, which ranges from 60,000 to 80,000 square feet in total size, is often anchored with a supermarket, and offers a full range of goods and services to the surrounding neighborhood. In order to be sustained, these centers require approximately 6,000 to 8,000 households to be located within their catchment area (about 1-2 miles in most suburban areas). The neighborhood center is a favorite among developers because it earns a proven income stream—families will always need to purchase groceries.

Community Centers

Community Centers are larger versions of neighborhood centers (typically 250,000-350,000 square feet in size), and often include discount department stores, home improvement stores, sporting good stores, booksellers, restaurants, and supermarkets (Gibbs, Sept.2007).

Regional Centers

Regional Centers are the largest shopping center type and focus on apparel and goods typically sold in department stores. These centers often include 200,000 to 300,000 square feet of inline shops and restaurants. In total, these centers are often 900,000 to 2 million square feet in size (Gibbs, Sept.2007).

Lifestyle Centers

Lifestyle centers are the newest retail type and were created to offer shoppers open air shopping opportunities. Most retailers seek at least 75,000 households earning a minimum of $75,000 per year. These often exist as mixed use centers that offer alternatives to regular shopping mall formats (Gibbs, Sept.2007).

Design Principles

As can be gathered from this discussion, ensuring the long-term sustainability of retail can be challenging, especially in an era when stores have increasingly short lifespans. Consumer behavior is also not static, but has evolved over time and will continue to adapt to different economic and social environments. Therefore the key to the economic sustainability of Friendship Village is flexibility. The studio team made the following recommendations for the designs of Friendship Village:

- Maximize visibility of retail activity, particularly anchors.
- Design varying lot sizes to accommodate a range of business types and sizes.
- Position denser housing within walking distance of retail.
- Phase development with sensitivity to demand.

Social Sustainability

At first glance, social sustainability would appear to be out of the hands of the developers of Friendship Village. After all, developers cannot control whether people like or dislike their neighbors; whether they choose to participate in community activities or stay at home; whether they prefer public or private services; and whether they regard Friendship Village as a "home" or as a convenient point from which to start a commute. But in fact there are many ways in which

the design of Friendship Village can promote social sustainability, defined broadly here as the feeling of a community that welcomes everyone willing to contribute positively to its fabric and is worth investing time and energy in over the long term.

A socially sustainable community would be a healthy community. Therefore walking and bicycling would be encouraged over car use for three reasons: it would promote physical activity; it would draw people out of their cars, increasing social contact; and it would discriminate less against those unable to drive. A socially sustainable community would allow for "aging in place," the idea that a person who moves into the community at, for example, age 30 would still find it a comfortable and supportive place to live at age 70. It would have thriving, well-maintained, and attractive "civic anchors" such as schools, parks, libraries, and public gathering spaces. It would not be dominated by a narrow range of incomes or appeal only to one specific demographic group. It would honor inclusion and eschew discrimination, celebrate the contributions of residents of all ages, and ensure safe spaces at home, at work, and in between.

Design Principles

The studio group made the following recommendations with respect to promoting social sustainability in the designs for Friendship Village:

- Include "universal design," in which the needs of all potential users, not just the able-bodied, are taken into account.
- Create a "town green."
- Provide life-cycle housing options.
- Regard civic uses as anchors and potential attractants rather than necessities or tax drains.
- Promote walkability and bikeability.
- Approach design as a vehicle for sustainability.

Summary of Historic Case Studies

The idea of long-term sustainability for a development such as Friendship Village ("sustainability" both in terms of economic viability and in terms of environmental impacts) has to be considered in a historical context. At its completion, Friendship Village will have been preceded by dozens, if not hundreds, of somewhat similar developments within the United States alone: small, bustling towns whose commercial engines changed with time and new technologies; planned utopias offered to hopeful buyers; small-scale visions of economic prosperity, harmonious residential living, or both at once. It should not be a surprise to the reader that many of these developments, whether dating back to the nineteenth century or conceived of as a post-World War II haven, have not matured in such a way as to match exactly the visions of their founders.

The studio examined 13 developments for the lessons their histories might have for Friendship Village. The primary goal of this investigation was to find, in the similarities and differences of these case studies, common observations about the potential influence of urban design and economic development on the long-term sustainability of the development project. To ensure samples in a variety of different legal and economic environments, cases were selected on the basis of age, in four different metropolitan areas. For each metropolitan area (Kansas City, Missouri; Washington, D.C.; Chicago, Illinois; and Atlanta, Georgia) three different developments were selected: one that had been conceived of prior to World War II; one where the bulk of the development occurred after World War II; and one that had been developed in the last decade, to reflect changing attitudes towards design and environmental sustainability. Table 2, below, shows 12 of the 13 cases.

Metropolitan Area	Pre-WWII	Post-WWII	1990s-2000s
Atlanta, Georgia	Avondale Estates (1924)	Dunwoody Village (1970s)	Vickery Village (2002)
Chicago, Illinois	Riverside (1868)	Park Forest (late 1940s-early 1950s)	Prairie Crossing (late 1990s)
Kansas City, Missouri	Country Club Plaza (1930s)	Prairie Village (1947)	New Longview Lee's Summit (in progress)
Washington, D.C.	Greenbelt, MD (1937)	Reston, VA (1962)	Kentlands, MD (1989-2001)

Table 2: 12 Case Studies by Era and Metropolitan Area

The thirteenth case, Newnan, Georgia, stands in contrast as an individual town in its own right with a longer history than that of the developments listed above: it was established in 1828.

What follows here is a summary of those observations that can be drawn from considering the cases together. Although each community was founded and grew in a different context, there are nevertheless common threads that might suggest lessons for future developments.

Lessons from the Case Studies

The thirteen case studies differ in their approaches to design and their economic histories. The three Washington, D.C. cases alone show how notions of "greenspace" as part of design have changed over time, as environmental considerations in the development of Kentlands produced a layout unlike that of Greenbelt sixty years earlier. The economic fortunes of the case-study communities in part depended on the time they were founded and the history of the larger metropolitan area. Avondale Estates was hit hard by the Great Depression; Greenbelt was founded as part of the New Deal. Both Dunwoody and Riverside have been able to enjoy positions as wealthy suburbs. Reston, Greenbelt, Park Forest, and Avondale Estates were all affected by the recessions of the 1970s. Downtown Newnan has recovered from multiple economic swings to become a boutique shopping destination. Newnan and the three Washington case studies have all benefited from the presence of government jobs. The newest of the case

studies, particularly Prairie Crossing, Vickery Village, and New Longview Lee's Summit, may be vulnerable to the current downturn of housing prices.

The following section nevertheless highlights some common themes that appear upon examining each of the case studies in greater detail. Not each of these themes apply to all of the case studies, but they occurred often enough to suggest that they might have some applicability to future developments such as Friendship Village. They are as follows (not necessarily in order of importance): fidelity to the developer's original design; protection from commercial competition; the potential influence of "everyday retail" and community centers; the presence of unique, locally-owned retail versus chain stores; quality of building construction; the role of parking lots in design; the importance of a public-transit connection to the larger metropolitan area; the question of block size; the presence of "life-cycle" housing; and how American race relations influenced development and demographic trends.

Fidelity to the original design. Riverside, Country Club Plaza, and Avondale Estates were all three created by three very strong personalities—Frederick Law Olmsted, J.C. Nichols, and George Willis—with particular original designs. Olmsted wanted a suburb to encourage the "harmonious cooperation of men" and his vision of the City Beautiful influenced every aspect of the design of Riverside, from the parks to the lack of right-angle intersections. The residents' commitment to Olmsted's idea of the town can be guessed from the heated arguments that broke out over flower color in the business district in 1998, over a century after Olmsted drew up initial plans. Country Club Plaza was originally Nichols's Spanish/Mediterranean-influenced vision, and the Nichols family retained oversight well into the 1980s. This meant that Nichols's original ideas for the development were maintained, for better (a balance of auto and pedestrian needs) and worse (deed covenants that left a legacy of housing discrimination). Finally, Willis saw Avondale Estates as a Tudor-style pastoral enclave on the outskirts of Atlanta—as opposed to Olmsted, who always conceived Riverside as a surburb integrated with Chicago. As in Riverside, residents of Avondale Estates have taken pride over the years in Willis's vision and worked to reinforce its design. Of the three, Riverside can be said to be the most successful, Avondale Estates the least, and Country Club Plaza somewhere in the middle.

What can account for these differences? One factor may be the timing of the three developments with respect to the advent of the automobile. Riverside was an established community before the automobile became the dominant mode of transportation; Country Club Plaza was designed to accommodate automotive traffic, but not in such a way as to make parking seemingly the focus of the design (as happened with Nichols's other project in this study, Prairie Village). But Avondale Estates was developed without accommodation of the automobile just as personal automobile use was beginning to soar locally and nationwide. This meant a lack of flexibility that made it difficult for the small city to maintain a viable commercial core. Access to public transportation may also have played a role in increasing or decreasing attractiveness: Riverside has had a rail link to Chicago since its inception, whereas Avondale Estates lost its streetcar link to Atlanta relatively early on its history and sits awkwardly between two light-rail stops.

Finally, the vision of the original developer itself seems to have had some influence on the future economic success of the development. Both Olmsted and Nichols seem to have been relatively farsighted in their planning: Olmsted foresaw the necessity of designing a suburb with the nearby city in mind, while Nichols designed for future growth and created a shopping center with the aim of attracting successful women patrons. Willis, meanwhile, does not seem to have anticipated Avondale Estates's transition from a rural to a suburban location. Both Riverside and Country Club Plaza seem to have been designed with greater flexibility in block design than was Avondale Estates.

Protection from commercial competition. At least two of the cases (Park Forest and Reston's Lake Anne Village) saw their commercial centers severely threatened, and in Reston's case closed altogether, by the arrival of nearby competing retail. Avondale Estates, in its current development efforts, faces strong competition from Decatur Square immediately to the west. Newnan's commercial core faced its biggest threat from retailers made more accessible by the opening of Interstate 85. Retail competition seems to have been less of a problem for Riverside and Dunwoody Village, while Country Club Plaza and Kentlands have been able to function as regional shopping centers. Taken together, the case studies suggest that developers should consider carefully the locations of potential competition and the forms it might take.

The importance of "everyday retail" and community centers. Many of the cases here feature what can be described as "everyday retail": those shops which nearby patrons can be counted upon to use over and over as part of their daily life, such as grocery stores, pharmacies, and post offices. Similar to such "everyday retail" in ensuring the cohesiveness of a community is the presence of shared community amenities. Prairie Village has focused on everyday-retail stores, while Kentlands attempted to address this need by subsidizing a local "corner store." Greenbelt's town center included a post office and a community center and swimming pool from the beginning. Newnan's downtown had seven "general stores" serving residents in 1911, although in 2008 "everyday retail" seems to be largely located away from Court Square. Vickery Village built a YMCA as part of its original plan. Even Dunwoody Village, which functions as more of a destination retail space than a place to which residents can walk, has a grocery store, gas stations, and the city's historic post office. Everyday retail may be less vulnerable to economic downturns than specialty retail (such as that found in Riverside, downtown Newnan, and Vickery Village), although this will be subject to the type of retail and the financial backing involved.

Local stores versus chains. Developers, planners, and residents alike often express a preference for unique, locally-owned stores, as opposed to members of nationwide chains. Some of the case studies, such as Country Club Plaza and Dunwoody Village, began with the former and moved towards the latter as they expanded their retail districts. Others, such as Prairie Village, Greenbelt, and Riverside, have allowed the presence of chains but not strongly emphasized them; and still others—Reston's Lake Anne Plaza, Prairie Crossing, Vickery Village, and Avondale Estates—have avoided or been openly hostile to chains. By contrast, Kentlands has been able to function as a regional shopping center, in part because of the presence of "big-box" retailers.

The presence of chain stores, then, would seem to depend on the potential retail reach of the community's commercial center. Those centers which are designed solely to serve the community itself can afford to limit retail to smaller stores, but if the development is to be positioned as a regional attractor, larger chains may serve as a necessary draw. It should also be

noted that some of the "everyday retail" as described above, such as grocery stores or pharmacies, may be more easily accommodated in the form of a large and familiar chain store.

Quality of building construction. Park Forest, the original "GI Town," was constructed quickly to house returning veterans, and housing quality was compromised as a result. This lack of housing quality seems to have hurt the residential attractiveness of the area after the initial residents had raised their families. Similarly, Reston faced difficulties in the 1990s when many of the buildings built in the 1960s, not designed to last more than thirty years, reached the end of their shelf life. Greenbelt's apartment complexes, especially those built in the 1970s, have not aged well. Investing initially in high-quality construction seems to have encouraged greater viability later on in the life of the project.

The ambiguous role of parking lots. Parking lots have a number of marks against them: ugliness, contribution to heat islands, discouragement of walking. (A walking tour of Dunwoody Village in mid-September—not necessarily the height of a Georgia summer—proved unpleasantly sweaty.) There seems to be a modest correlation between discouragement of parking-lot-oriented development and later economic sustainability. Riverside, Newnan, and Avondale Estates were developed before the advent of the automobile. Country Club Plaza was able to de-emphasize its parking, whereas Greenbelt and Reston deliberately designed blocks so as to push parking to the edge of residential areas. Prairie Village was patterned so that parking lots, inadvertently, became the dominant feature of each block, whereas Park Forest, Dunwoody Village, and Vickery Village are dominated by large parking lots. The newer developments—Kentlands, Prairie Crossing, and New Longview Lee's Summit—have also tried to emphasize pedestrian access rather than parking ability.

However, economic viability does not seem to have historically followed anti-parking principles. Undoubtedly, Riverside's and Newnan's dense development allowed them to attract and incorporate different commercial uses over time. Park Forest's emphasis on parking and commercial retail may have doomed it when the retail faced competition, a problem that Dunwoody Village has so far escaped. By contrast, Reston's *lack* of parking in the 1970s seems to have contributed to the decline of the commercial center, and Greenbelt declined economically

even with a pedestrian-friendly design. The spacing of Kentlands'ss commercial areas has not necessarily reduced vehicle trips. Prairie Crossing seems to have solved the problem by simply de-emphasizing commercial.

It would thus be misleading to say that de-emphasizing parking lots will enhance the value and long-term sustainability of development. If the local density is insufficient to support retail (as was true for Reston in the 1970s and may be true for Vickery Village), then easily accessible parking will be a necessity for retail to survive. A lack of large parking lots seems to be most successful when paired with relatively high-density development, as in Riverside and Newnan. Kentlands may also have more flexibility than its counterparts, as its parking lots already have utility connections and can thus be more easily converted into other uses, should the need arise.

The benefits of a public-transit connection. Two of the Chicago case studies are directly connected to Chicago by rail, with Riverside receiving the benefit of a connection; Park Forest has rail access only along its periphery. Similarly, Greenbelt's Metro stop made it more attractive as a potential bedroom community for Washington, D.C. Such highly visible public-transit access has not been available to the Kansas City case studies, Dunwoody Village, or Vickery Village, while Avondale Estates is awkwardly positioned with respect to metropolitan Atlanta's rail transit. In the case of suburban communities growing within larger metropolitan areas, access to a public transit link to the heart of the main city seems to have greatly encouraged the sustainability of residential interest over the long term.

Block size. Large block sizes seem to have inhibited walking in Greenbelt, Park Forest, Dunwoody Village, and Avondale Estates. Newnan and Riverside, developed before the advent of the automobile, seem to have been able to use smaller block sizes to their advantage, although Newnan struggled against larger retailers in the 1980s. Large block sizes can allow for different sizes of retail, but consideration should be given to the pedestrian environment, especially in terms of the housing layout and the ability of residents to travel in paths the developer might not have originally predicted—from one section of housing to another, for example.

The implications of "life-cycle" housing. Within a single community it is valuable to provide housing options so that residents can change their housing situation depending on their family or economic status. This means providing housing both at different price points and in different configurations. Greenbelt has been particularly successful at this, ensuring a stability of community even in the face of economic decline, and Reston has followed Greenbelt's lead. The same cannot be said of Park Forest, where small apartments proved difficult to rent to families; of Prairie Village, which consists solely of single-family housing; or of Avondale Estates, where renting is regarded with hostility by residents. Country Club Plaza, by contrast, is mostly a rental community. Newer developments, including New Longview Lee's Summit and Kentlands, seem more aware of the benefits of offering a variety of housing types. Ownership of housing can give residents a stake in the community; such owner-occupants contributed vocally to the shaping of Greenbelt over time. Rental housing allows the community to attract new workers and residents; the lack of rental housing has hampered Avondale Estates in this respect.

Race. Every single one of the older case studies, like most American cities, were profoundly influenced by race relations; the new ones may be as well, in different ways. Greenbelt, originally limited to white residents, saw striking racial turnover in the 1970s. Country Club Plaza's homogenity was originally enforced by deed covenants. Riverside has remained largely homogenous; Park Forest has not. Dunwoody benefited from "white flight" to Atlanta's northern suburbs. Avondale Estates is largely white, but the surrounding area—and the underfunded, underperforming public schools—are largely African-American. Vickery Village is built on the edge of a city (Cumming, Georgia) that is experiencing previously unknown levels of Latino immigration. Newnan is nearly half African-American and 59% white.

While such changes were important to the history of these cases, it is difficult to say what lessons should be drawn for developers. Park Forest, Greenbelt, and (to a lesser degree) Avondale Estates seem to have experienced the same changes as many "inner-ring" suburban developments in the 1970s: as the original (often white) community left for newer and sometimes larger housing, poorer (often African-American) residents began moving into the housing left over. Those case studies in which this phenomenon did not happen, such as

Riverside, have not seen the same amount of racial diversity. Newnan, being a county seat rather than a suburb, may have been subject to different employment patterns.

Moreover, there is a danger in reading too much into the transitions within these communities, when the transitions faced by future developments might be very different. Dunwoody, for example, saw its Asian and Latino population increase in the 2000 census; if that trend were to continue, it would be under very different circumstances than the demographic shifts experienced by Greenbelt and Park Forest. The increasing wealth, on average, of African-Americans may mean that new developments see greater racial diversity in demand from the very beginning (as Greenbelt did) rather than be dominated exclusively by middle- or upper-middle-class whites. Thankfully, the overt racial discrimination that influenced the residential makeup of several of the case studies is now illegal. Perhaps the best take-away from these cases is that developers are best served by flexibility: the community they envision when drawing up the plans may look very different from the community that settles in the new development, which in turn may differ from the next generation of residents.

Conclusions

From the discussion above it is now possible to highlight those elements that might be most likely to contribute to the long-term economic and design sustainability of a planned development:

- Allowing for some flexibility in the original design and constructions, such as providing lots that can be subdivided easily, or constructing parking lots that can be converted into other uses.

- Establishing a public-transit link to the larger metropolitan area.

- Providing different sizes and price points for housing.

- Using high-quality construction from the outset.

- Understanding the aims of the retail core and using those aims to guide the types of retail recruited to the commercial center.

- Preparing, as much as possible, for potential commercial challenges.

- Allowing for pedestrian access for "unexpected" journeys, not simply prescribed journeys such as between residential and commercial areas.

Admittedly, each development is unique and is built and populated in unique circumstances. Furthermore, any new development may face challenges not anticipated by the developers and designers of the case studies profiled here. Nevertheless, we feel that taken together, the histories of the developments discussed here do provide some lessons—and cautionary tales—for future projects.

Economic Opportunities

What follows is a specific discussion of how the principles of sustainability detailed earlier apply to Friendship Village. The opportunities the site presents allow for a great deal of creativity on the part of the developer (and future residents, employers, civic actors, and consumers) in creating a sustainable development. The team focused on five themes that could contribute to balancing the three-legged stool of sustainability:

- developing sustainable, "green" retail;
- promoting networks of "green" businesses;
- building affordable housing;
- incorporating environmental principles into a proposed charter school; and
- examining future health-care developments from the perspectives of environmental and social sustainability.

Sustainable Retail and Commercial Development

Principles of Sustainable Retail

The following five principles for sustainable retail were developed based on research and lessons learned from Robert Gibbs.

- *The framework should allow for ease in business succession through phased development.*

In the early stages of development, there will only be a few number of shops. The retail, block and street network should be set up so that, as the development grows, the retail center can grow in a smart and sustainable way. Certain developments that have done something along the

lines of this, only on a much larger scale, are the Edgewood and The Kentlands developments. Edgewood, in Atlanta, and The Kentlands, in the Maryland suburbs of D.C., have retail development in place that is built to accommodate future expansion. Underneath the large parking lots that are currently in place, there is infrastructure for new buildings which could possibly be built one day. This type of development not only plans for a future need for retail growth, it also plans for the possibility that, one day, the need for so many parking spaces may not be required, as people begin to think more about sustainability and healthy living. Driving might increasingly be replaced by walking and taking transit if it becomes a more viable option.

- *Promote a mix of franchises, chain stores, and independent retailers.*

It is important to foster independent retailers, but within this environment there must also be chain retailers and franchises. These types of shops and restaurants attract consumers to a development. Shoppers know what they want. Shoppers expect a certain price, a certain brand and a certain level of quality from their favorite chain stores. It can only be beneficial to an independent retailer to be located amongst franchises and retailers, as once shoppers stop to go into Chain "A," to buy shoes, they might stop into the independent retailer next door to check out their shoes or clothes as well. By rethinking the design of the anchor store (such as using the "anchor wrap" format to minimize the visual impression of big box retail- the big box vestibule with small stores lining each side of the anchor), or encouraging "green" techniques within anchor stores, Friendship Village can achieve sustainable results.

- *Take advantage of the standard radius clause: two member stores of the same chain cannot build a store within a 5-mile radius of each other.*

According to standard retail procedure, a retail outlet such as Chain "A," cannot be located within five miles of another Chain "A." Friendship Village should use this to its advantage and try to "soak-up" all choice retail within a 5-mile radius.

- *Retail success hinges on targeting shopping towards middle-income families.*

Too many developments target high end retailers. Aside from the fact that it is expensive to lure these types of chains to one's development; there is a significant need to fill the gap between dollar stores and high end department stores. It is important to remember that Friendship Village will house a wide range of incomes, so stores are needed that can satisfy a lot of price points, such as the current large retailers, Kohl's or TJ Maxx.

- *Include ownership and entrepreneurship opportunities for small, independent retail stores.*

Ownership in a community has been linked to a higher degree of participation in community affairs and a greater emotional investment in that community. The same is true for business ownership. As stated, it is important to have national chains and franchises, but it is also important to allow for independent business owners, such as dry cleaners, independent clothiers, and convenience stores. If given the chance to purchase and invest in a particular property, a business owner might become more invested in the community for the long term.

In Rosemary Beach, Florida, potential business owners were able to purchase small, 20 foot wide, parcels of land in the town's center. On those parcels, they were able to construct, and thus own, buildings to house their businesses. They did this either through private financing or through "sweat equity." They were able to choose from a handful of architectural designs that were in keeping with the town's character. This provided a business owner with a building of his or her own, one that would accrue equity over time, and provide a potential retirement for when he or she came to sell. This would also keep the business owner more rooted to the community and would incentivize him or her to "weather the storm," as opposed to folding, in bad economic times.

Summary

Because they are driven by unforeseen changes in the market, the creation of truly sustainable commercial and retail centers requires supportive planning and zoning and an urban design framework that allows for inevitable business succession. It is important for developers to realize the complicated nature of retail centers within TNDs, and design according to well

researched retail tactics. The above points and principles provide the best possible recommendations for achieving a viable retail space for Friendship Village.

Green Business Networks

One of the challenges facing Friendship Village is the ability to recruit, attract, and keep "green" businesses. Such business activity stands to increase in the next several years, as the incoming Obama administration has made a public commitment to funding green jobs (Change.gov, n.d.). But it is worth noting that there is currently no established standard for what makes a business "green" or sustainable, and definitions of such a business can vary greatly, as shown in these examples:

- "Green businesses operate in ways that solve, rather than cause, environmental and social problems. These businesses adopt principles, policies, and practices that improve the quality of life for their customers, their employees, communities, and the environment." (Co-op America, 2004–05)

- "A green business is recognized as an environmental leader; strengthens its bottom line through operating efficiencies; improves employee morale and the health of the workplace; and holds a marketing edge over the competition." (Green Business Program, 2007)

- "A sustainable business is one that operates in an environmentally responsible way. Its products and business processes are such that no negative environmental impact is felt as a result of their existence." (The Evergreen Group, n.d.)

As a result, Friendship Village administrators and developers will need to define their own standards for what makes a business "green" in a way that qualifies it for inclusion into the commercial center. It may be useful to develop an assessment process that measures not only the business's environmental and social outlook but its potential economic sustainability over time. Questions could include:

- Does the business have a working business plan? Is a commitment to environmental sustainability included in the plan?

- Will the business operations include such practices as recycling or reusing materials, reducing packaging, and minimizing waste?

- Does this business include environmental criteria when making purchasing decisions?

- What technologies might the business use to meet its environmental, social, and economic goals? Are those technologies sustainable over time?

The above questions are not set in stone; others could be suggested. In order to create the best criteria for encouraging green businesses, as well as learning what businesses might be available for commercial expansion, Friendship Village administrators should tap into what can informally be called "green business networks."

Green business networks are formed and joined by those businesses which seek to market themselves as making a strong commitment to environmental sustainability. Such networks can also allow for the sharing of best practices among network members and for collective action among members. The following list gives some examples of green business networks within the United States.

Business-supported business networks: Networks which are primarily supported by one particular for-profit business, or a group of for-profit businesses.

- Mission Zero is a knowledge-sharing website created and supported by Interface, a carpet producer which has made the public commitment to eliminate negative impacts on the environment from its activity by 2020. (http://missionzero.org/)

- Green Exchange is a retail and commercial space developed in a former factory north of Chicago by Baum Developers. It offers 80,000 square feet of retail space and an 8,000-square-foot "organic sky garden" on the second floor. It also hosts "GX Connects," a series of informal networking events. (http://www.greenexchange.com)

- The San Francisco-based Green Chamber of Commerce includes among its goals "strengthen[ing] the voice and political influence of businesses united to create green public policy and a sustainable economy" and "provid[ing] networking opportunities for green businesses." Its members are primarily in California, but also in Oregon and Arizona. (http://greenchamberofcommerce.net/)

Academia-supported business networks: Networks which are primarily supported by a school or other academic body.

- The *Stanford Social Innovation Review*, published by the Center for Social Innovation at Stanford University's Graduate School of Business, is dedicated to "strategies, tools, and ideas for nonprofits, foundations, and socially responsible businesses." It also hosts conferences on issues of philanthropy, social enterprise, and sustainability. (http://www.ssireview.org/)

- The Center for Responsible Business at the University of California, Berkeley's Haas School of Business was created in 2003. Its outreach efforts include lecture series, grants for the study of corporate social responsibility (CSR), and the Sustainable Products and Solutions Program, coordinated with the university's College of Chemistry. (http://www.haas.berkeley.edu/responsiblebusiness/)

- In October 2008 Babson College, a Massachusetts business school which specializes in entrepreneurship, announced that it had received a $10.8 million gift to create the Lewis Institute dedicated to social entrepreneurship. The new Institute's offerings will include a "Green Collar Venture Competition" to promote environmentally sustainable entrepreneurial ideas. (http://www3.babson.edu/Lewis/default.cfm)

Nonprofit-supported business networks: Networks which are primarily supported and/or facilitated by a not-for-profit organization.

- A Green Business Network is maintained by Co-op America, a 501(c)(3) organization founded in 1982. Potential members are screened by Co-op America's board of directors, based on four criteria, including being "socially and environmentally responsible in the way they source, manufacture, and market their products, and run their offices and factories". (http://www.coopamerica.org/greenbusiness/network.cfm)

- Georgia Organics, an Atlanta-based nonprofit dedicated to supporting and promoting the production and consumption of organic food, keeps both an "Organic Directory" of related businesses and a "Growers' Exchange" forum where members can ask questions about organic food and sustainability. (http://www.georgiaorganics.org/)

- Net Impact is a non-profit organization with chapters in more than 200 business schools; 50% of its members are U.S. students. It hosts conferences on clean tech, sustainable branding, and other issues related to green business. Emory's Goizueta Business School, Georgia Tech's College of Management, and Georgia State University all have chapters. (http://www.netimpact.org/)

Such networks can expose Friendship Village to different types of green businesses and allow decision-makers to formulate criteria for potential retailers and commercial leasers. It may be that the best way to measure the "greenness" of a small shop differs from that of a franchise from that of a manufacturer. Tapping into green business networks will also allow Friendship Village administrators to come into contact with entrepreneurs interested in sustainable business, allowing Friendship Village to attract businesses before they have settled in another location.

Workforce and Affordable Housing

Housing is one of today's most complex issues. As the gap between incomes and home prices grew in recent years, affordable housing options in many communities shrank significantly. Renters have been similarly burdened, as the demand for affordable housing increased without a simultaneous supply response (Bratt, Stone, Hartman, 2006). As urban areas grew increasingly popular, investment growth resulted in an overall increase in property values, making many urban areas unaffordable to both buyers and renters (Tilly, 2006). Affordable housing is considered a critical need. In addition, the Housing and Demographics Research Center at the University of Georgia notes that economic development is suffering because of the inadequate supply and mix of workforce housing (Workforce Housing in Georgia, 2001). If this issue is not addressed, Friendship Village will be unable to realize its full economic potential.

The creation of a sustainable, diverse community in Friendship Village, requires the integration of affordable and workforce housing into the overall fabric of the community. In the case of Friendship Village, it is critical to include a variety of housing options to not only provide affordable opportunities for those who will work within the village center, but as a way to promote a wide range of socioeconomic residents to create a sustainable, diverse, livable community. Providing housing options for all members of a community, from the clerks at the

grocery store, to policemen and women, to teachers and doctors, is integral to the creation of a sustainable community.

PolicyLink, a national research and action institute advancing economic and social equity, stresses the need to provide housing that is reliably affordable for the long term, which can result in positive externalities for a community. It reduces turnover, ensuring that a community has stable civic leaders, and allowing schools and businesses to develop and maintain a steady stream of students and clients (PolicyLink, 2008).

Defining affordable/workforce housing

Public agencies typically define affordability in terms of area median income (AMI), which is published every year by the U.S. Department of Housing and Urban Development (HUD) for every county and metropolitan area. HUD defines affordability as a household paying no more than 30 percent of its annual income on housing, which includes insurance and utility payments. HUD estimates that 12 million renter and homeowner households currently pay more than 50 percent of their annual incomes for housing, and families with one full time worker earning the minimum wage are unable to afford typical fair market rents for two bedroom dwellings anywhere in the United States (U.S. Department of Housing and Urban Development).

For the area around Friendship Village, which is included in the Atlanta-Sandy Springs-Marietta Metropolitan Statistical Area defined by the U.S. Census Bureau, income limits for affordability are defined as in Table 4, below.

	1 person	**2 person**	**3 person**	**4 person**	**5 person**	**6 person**	**7 person**	**8 person**
30 percent of median	$14,950	$17,100	$19,200	$21,350	$23,050	$24,800	$26,500	$28,200
Very low income	$24,900	$28,500	$32,050	$35,600	$38,450	$41,300	$ 44,150	$47,000
Low income	$39,850	$45,550	$51,250	$56,950	$61,500	$66,050	$70,650	$75,200

Table 3: Housing Affordability for Atlanta MSA (U.S. Department of Housing and Urban Development)

While the term "affordable housing" is often associated with negative connotations and implications, which can result in "NIMBYism" in many communities, the term "workforce housing" is relatively new and therefore less loaded, and is gaining increasing popularity. Workforce housing refers to any affordable housing type, which includes government subsidized housing programs. Housing subsidy programs typically include development subsidies to help construct or acquire affordable housing, or subsidies provided for operation to supplement the amount that residents can pay (PolicyLink, 2008).

Principles of Workforce/Affordable Housing

To fit into the overall sustainable framework of Friendship Village, this housing should be consistent with smart growth, and green building principles and practices. This report outlines four principles for workforce and affordable housing for Friendship Village to adopt. These principles seek to integrate affordable housing options into the greater community of Friendship Village, defining the area as sustainable and diverse through its wide range of incomes and housing types.

- *Mixed-Income: Provide for a range of price points in the housing stock*

Mixed income development provides an opportunity to reduce concentrations of low income households and to create more complete, sustainable communities that include individuals of all income ranges. Housing should vary in price from entry level, bungalow-style starter-homes through upper-middle class price-points. This type of development has been undertaken in several communities, including Laguna West outside of Sacramento, California.

- *Mixed-tenure: Combine rental and for sale housing to the maximum extent possible*

Not everyone has the resources necessary to purchase a condominium or house, nor does everyone want to do so. Having apartment living in the development will ensure that all types of people can enjoy Friendship Village. Also, persons who have jobs on site at retail centers may not envision themselves in a position at that location for more than a year or so, and apartment living would be perfect for persons such as these.

- *Mixed-density: Physically integrate all price points, housing types and sizes*

Large and small homes, accessory dwelling units (aka granny flats), condos and apartments and townhomes should be physically integrated within Friendship Village. This means having townhomes abutting large single family homes next to more modest starter homes, all within walking distance of a retail/commercial core that contains apartments and condominiums above the office and retail space.

- *Encourage the use of energy saving appliances and construction materials to incorporate a framework of sustainability with affordability*

Not only is encouraging the use of energy saving appliances and construction materials the environmentally responsible thing to do, it can lower the cost of utilities increasing the affordability of the home. .

In order to achieve goals of more compact, sustainable development, the range of housing types available to consumers needs to be expanded. This report offers recommendations for affordable/workforce housing options in Friendship Village that do not necessitate the use of federal housing subsidies. Included are Accessory Dwelling Units (ADUs), which include "cottage housing" options and have the potential to equip Friendship Village with the ability to realize a sustainable, mixed income, diverse community. ADUs are architecturally and spatially integrated into the community. Individuals living in ADUs are integrated into the community and not confined to an "apartment ghetto," segregated from the remaining community. The dispersion of affordable housing resulting from ADU construction occurs naturally, without government involvement.

Accessory Dwelling Units

> If 1 in every 10 of America's owner-occupied single family homes built before 1975 were to devote space to an accessory unity, 3.8 million rental units would be generated, increasing the supply of rental housing by about 10 percent. (US Department of Housing and Urban Development, 1992)

In the 1940s and 1950s, many American families rented out garage apartments or basements as a means to provide extra income to support mortgage payments or other household expenses. Backyard cottages and apartments were common features in many homes across the country. However, since that time, many communities have adopted strict residential zoning regulations, severely limiting or altogether banning these accessory dwelling units (ADUs), often as a means of "protecting" single-family neighborhoods. In recent years, perceptions and attitudes regarding ADUs are starting to change. These changes can be attributed partly to the effects of the affordable housing crisis. In addition, the shrinking in average household size has also contributed to this renewed interest. Growth management laws are also beginning to require communities to accommodate higher densities of housing. Although ADUs are not the only answer to the question of affordable housing, they should be considered as one model for achieving a greater mix of incomes, affordable housing options, and higher densities in communities (Municipal Research and Services Center of Washington, 2008).

Figure 2: Attached Accessory Dwelling Unit Above Garage (ARCH, n.d.)

As a means to reduce housing costs as well as respond to changing market demands, there have been increased pressures in urban areas to allow higher densities that make more efficient use of housing stocks and eliminate barriers that limit affordable housing options. In many states, legislation has underscored the need to look critically at local housing needs and encourage the development of more affordable housing. ADUs have emerged as a critical component of the affordable housing strategies that are being promoted in many cities. Washington State has begun to critically examine zoning regulations that limit or prohibit ADUs.

Presently, legislation mandates that ADUs be encouraged and allowed in single family zones (Municipal Research and Services Center of Washington, 2008).

The development of ADUs is becoming a popular technique for creating and encouraging low and moderate income housing options for both homeowners and renters. While homeowners benefit from the additional income that can be applied to mortgage payments or general home upkeep, renters also benefit from the availability of affordable rental options in typically expensive, single family neighborhoods. Commonly, these units exist as self-contained units within single family homes, often referred to as "mother in-law apartments," or "accessory apartments." These units often involve the renovation of a garage, basement, shed, or space within a single family dwelling. ADUs are sometimes located above a detached garage, or are a separate living space unto themselves, much like a guest house (Municipal Research and Services Center of Washington, 2008).

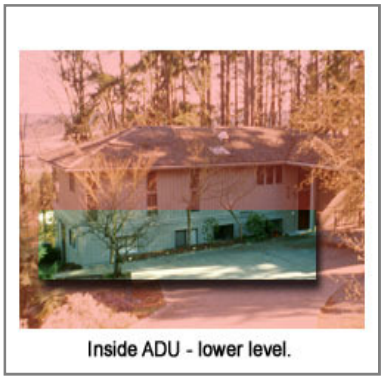

Figure 3: Inside ADU, Lower Level (ARCH, n.d.)

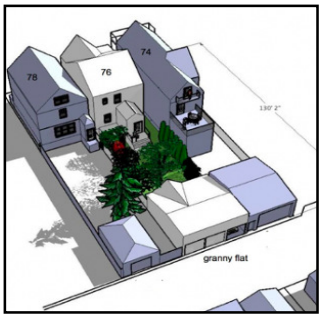

Figure 4: A "Granny Flat" (Reading Cities, n.d.)

Figure 5: ADU with Separate Entry (Gramlich Design & Planning, 2007-9)

Cottage Housing

Detached cottages, "cottage housing," or "echo homes" (elder cottage housing opportunities), are also considered Accessory Dwelling Units. While accessory cottages are permanent, echo homes are temporary and movable. Cottage housing preserves the privacy and space of a detached house in a smaller and less costly unit. They are usually built in clusters and offer an alternative to traditional housing options. Cottages provide a way to trade quantity of space for quality of space.

Figure 6: A "Tiny House" (Shafer/Tumbleweed Tiny Houses, 2007)

There is no specific definition of cottage housing and therefore it is unclear when a house ceases to be a cottage and becomes a small lot house or simply a regular house. Many cottage homes are built in clusters providing common areas as a means for neighbors to inevitably interact. A report on cottage housing developments by the Housing Partnership in Seattle describes cottage housing ranging from about 450 square feet to about 950 square feet. Typically, these homes are located within single family areas, integrated into the overall community and clustered together around a common space such as a courtyard or a walkway. The most efficient land use is achieved by clustering cottages relatively close together. The Pine Street cottages in Seattle include 10 units on about a third of an acre, clustered around a common courtyard (Housing Partnership, 2001). As a goal of design, the cottage homes should improve the overall effect of the surrounding neighborhood.

The market attractiveness of cottages and very small houses is described as an impediment to their development. However, in recent years, as housing becomes increasingly expensive, cottage homes are gaining popularity. This housing type is favored by single people who may have the option of purchasing a condominium or an older house but instead opt for cottages for their low maintenance requirements. However, cottages can work well for couples, parents, or seniors (Housing Partnership, 2001).

Cottages offer affordable options for residents in a wide range of prices and are geared towards what potential buyers in the area might be willing to pay. The Housing Partnership describes a cluster of eight cottages on a third of an acre costing about $130,000 per cottage. In a higher end neighborhood these could be more expensive. In deciding what price points to aim

for, developers should look at alternatives for prospective buyers. Cottages sit at a place in the market between small homes and condominiums. In order to be attractive, cottage homes should emphasize their low maintenance advantages and their community building opportunities (Housing Partnership, 2001).

Mixed-Use Development: Condominiums and Apartments

Along with accessory dwelling units and cottage housing, Friendship Village should incorporate workforce housing into its mixed-use development. Moderately priced condominiums and apartments should be included above street-level offices and retail. Mixing residential and commercial uses is one of the key ingredients to building a walkable, sustainable and urban environment. Below is an example of mixed use development neighborhoods, with condo/apartment housing above retail/office.

Figure 7: Mixed-Use Development in Arlington, VA (Coalition for Smarter Growth, n.d.)

Summary

To emphasize its focus on sustainability, it is critical that Friendship Village provide a variety of housing options to its residents. This includes a range of price points, rental and for sale housing, as well as the physical integration of these types into the community's design. This will enable Friendship Village to realize its potential as a truly sustainable community for residents of all incomes.

Sustainable Schools

The plans for Friendship Village currently include a charter school. The school could serve both the residents of Friendship Village and children with underserved education needs elsewhere in Chattahoochee Hill Country. Minerva's estimates indicate that a minimum of 300 students would be necessary for a charter school; 400 students would be an ideal student population. According to the fiscal impact analysis prepared by Bleakly Advisory Group in 2007, the school would cover approximately 31,000 square feet and cost $10 million to build (Bleakly Advisory Group, 2007).

As discussed previously, Friendship Village's mission to provide a sustainable urban framework is threefold, involving the environment, the economy, and the community. A school's role in meeting this mission is sometimes overlooked. Schools are the cornerstone of every community. The school can become the paradigm of sustainability and environmental stewardship which should be exemplified in every aspect, from the building design, the school site, and its curriculum.

Back to the Basics: Reconnecting Schools to Communities

The siting of schools away from the neighborhood center has been an increasing trend. Zoning requirements and concerns over the safety of the school campus have increased the amount of area required for schools, thus raising the chances that a school will be built at greater distance from the neighborhood it serves. Parents are then required to drive the children to and from school, which negatively impacts the environment and students' health (Yang, Johnson, Sayaka, Parker, & Schlossberg, 2008). Concerns over children's safety also make it more likely that parents will drive children to school rather than allow the children to walk unsupervised. In 1969, nearly half of all school children walked or bicycled to and from school, and approximately 87% of those lived within a mile of their school (Carlson & Marin, 2005). Currently, fewer than 15% of school children use an active mode of transportation. Incorporating the school within the town center can increase the likelihood of schoolchildren walking or bicycling to school.

Increasing the rate at which children use active modes of travel, such as walking, has become the center of many programs and policies at the federal, state, and local levels. In the studies on what factors impact travel choice to school, the most commonly cited determinants are home-school proximity and environmental support for walking or biking. Whether children walk or bike to school is affected not only by distance, but also elements of the built environment, such as presence of -sidewalks, major road intersections, and street connectivity (Yang, Johnson, Sayaka, Parker, & Schlossberg, 2008).

From 1968 to 2001, the number of schools decreased by about 1,000, while the number of students increased by over 2 million (Department of Health and Human Services, 2007). As a result, there are fewer students living within one mile of their school. Hence schools are located further from where children live, thus impacting children's ability to walk or bike to school.

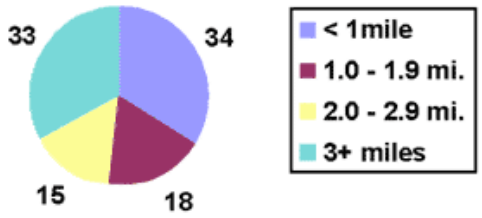

Figure 8: Distance to School for Youth 5–18 Years of Age, 1969 (Centers for Disease Control and Prevention, 2007)

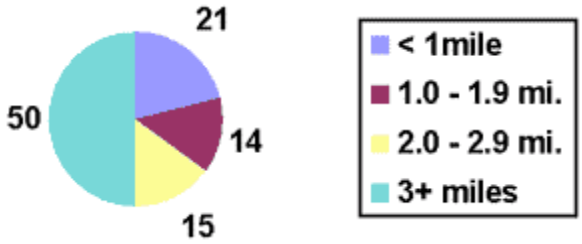

Figure 9: Distance to School for Youth 5–18 Years of Age, 2001 (Centers for Disease Control and Prevention, 2007)

Figures 8 and 9, above, illustrate that a smaller percentage of children live within two miles of their school. This can possibly account for the decline in active transportation to school (Department of Health and Human Services, 2007). However, children living less than two miles away still, by and large, do not walk to school.

Providing an environment that fosters active modes of transportation can have multiple positive impacts:

1) it increases the level of daily physical activity of children;

2) it increases the -likelihood that children and adults will walk or bike for other short distance trips;

3) it improves neighborhood safety;

4) it decreases the number of cars traveling through the neighborhood;

5) it decreases congestion at the pickup/drop-off points at school; and

6) it fosters interaction of neighborhood residents (Department of Health and Human Services, 2007) .

Incorporating schools in the town center encourages walkabilty and reduces the dependency on the automobile, thereby reducing automobile carbon emission, and would help lower Friendship Village's carbon footprint.

Building Green

To further enhance the idea of a sustainable community, Friendship Village's charter school should be "green" as well as walkable. Building a green charter school in Friendship Village will increase efficiency and have a positive impact on the environment and student health.

According to the U.S. Green Building Council, a green school is a "building or facility that creates a healthy environment that is conducive to learning while saving energy, resources, and money" (Build Green Schools, 2008). Green schools are energy efficient and can save on operational costs, foster learning and protect student health. Promoting green design and

construction can have a large impact on student health, test scores, teacher retention, school operational costs and the environment.

The LEED Schools Rating system recognizes that primary and secondary schools require unique design and construction,. The system provides a comprehensive tool for schools that want to build green with results that can be measured- (Build Green Schools, 2008). LEED for Schools addresses classroom acoustics, master planning, mold prevention and also environmental site assessment.

LEED for Schools is measured on a point system basis (Build Green Schools, 2008). A school can earn a maximum of 79 points. To become certified, a school must earn between 29-36 points; silver certification, 37-43 points; gold certification, 44-57 points; and platinum certification, 58-79 points. There are six categories in which a school can obtain points:

- sustainable sites (maximum of 16 points);
- water efficiency (maximum of 7 points);
- energy and atmosphere (maximum of 17 points);
- materials and resources (maximum of 13 points);
- indoor environmental quality (maximum of 20 points); and
- innovation and design process (maximum of 6 points).

There are two requirements that all schools must meet in the *sustainable sites* category. One is to reduce the pollution from construction activities by controlling soil erosion, waterway sedimentation, and airborne dust generation (USGBC, 2007). The second requirement is to assess whether there is environmental contamination. If there is contamination it should be remediated.

Under the *energy and atmosphere* category, schools must meet three requirements. One, the schools energy-related systems must be installed, calibrated and performed according to the

project's requirements. The benefits to the school can include "reduced energy use, lower operating costs, reduced contractor callbacks, better building documentation, improved occupant productivity, and verification that the systems perform in accordance with the owner's project requirements" (USGBC, 2007). The second requirement is that schools must establish a minimum level of energy efficiency for the building and systems (Build Green Schools, 2008). Thirdly, there should be no use of chlorofluorocarbon (CFC)-based refrigerants in the new base building's HVAC & R systems (USGBC, 2007). If an existing base building is using HVAC equipment, there must be a CFC phase-out conversion prior to the completion of the project; this requirement reduces ozone depletion.

The *materials and resource* categoryrequires that schools reduce the waste that is placed into landfills (USGBC, 2007). Non-hazardous materials such as paper, cardboard, glass, plastics, and metals should be recycled.

Indoor environmental quality is the last requirement category for green schools to meet (USGBC, 2007). This includes a minimum level of indoor-air quality, a ban on indoor smoking, and outside designated smoking areas at least 25 feet from entries, outdoor air intakes, and windows. Lastly, schools must design classrooms and other learning spaces to meet the reverberation time requirements in order to provide classrooms that are quiet so that teachers and students can communicate effectively.

Benefits to Building Green Schools

Green schools have a financial and environmental benefit. In addition, it provides health benefits to all that occupy the facility. A report published by Capital E states that investments made in green technology "significantly reduce the life-cycle costs of operating school buildings… These advantages include a reduction of water pollution, improved environmental quality, and increased productivity of learning in an improved school environment" (Kats, 2006).

The Capital E report evaluates 30 green schools in ten states that were built between 2001 and 2006. The data compares the cost of building a conventional school building to a green school building. The national school construction costs of building green schools are about $150

per square foot (Kats, 2006). The higher construction costs often discourage communities from building green schools. However, four green schools in Georgia, Massachusetts, and Oregon showed that the cost of building a green school cost no more than building a school with conventional designs. Typically green schools -cost about 1% to 2% more with an average green premium[3] of 1.7%. Though there are higher upfront costs, schools that adopt LEED School certification realize cost savings via reduced costs in HVAC systems or in reduced code compliance costs. Increased water retention through the building of green roofs or greywater systems can also reduce or avoid capital costs of water retention systems that are required by water code.

Green schools use 33% less energy than conventionally designed schools (Kats, 2006). Green design makes use of more efficient lighting, greater use of day lighting and sensors, more efficient heating and cooling systems and has a better insulated building. Woodward Academy in College Park, Georgia, has seen a 31% energy savings and a 23% water savings in the classroom.

Reducing electricity and gas translates into lower emissions of pollutants that are detrimental to the environment, to property, and to human health. Green schools could possibly reduce nitrogen oxide by 1,200 pounds per school; sulfur dioxide, by 1,300 pounds; and a 150 pound reduction in course particular matter. The savings from emissions reduction is about $0.53 per square foot (Kats, 2006).

Water and wastewater reduction has direct benefits to schools that choose green. Of the 30 schools surveyed, the average water use reduction was 32%. The benefits realized are a decrease in pollution and a reduction in infrastructure costs to deliver, to transport, and to treat water (Kats, 2006).

3 The "green premium" is the initial extra cost to build a green building compared to a conventional building. Typically cost premiums result from more expensive materials, more efficient mechanical systems, better designs, modeling and integration, and other high-performance material.

Many studies have linked health and productivity with building design, such as indoor air quality (Kats, 2006). In buildings that have incorporated indoor air quality there has been less absenteeism, reduced symptoms of illness, and increased productivity, relative to buildings that do not have the same features. Seventeen distinct studies have shown that better building designs correlate to increase productivity and well-being of the tenants.

Green Gardens & Edible Food Yards

> Ecological education—the way of the future—will require the reintegration of experience into education, because experience is an indispensable ingredient of good thinking. One way to do this is to use the campus as a laboratory for the study of its own food, energy, materials, water and waste flows. Research on the ecological impacts of a specific institution reduces the abstractness of complex issues to manageable dimensions and does so on a scale that lends itself to finding solutions—an antidote to the despair felt by students who understand problems but are powerless to effect change. (Orr, 1999)

Figure 10: "Garden of Possibilities," Carthay Elementary, Los Angeles (Green Technology Magazine, 2008)

Creating a sustainable school environment goes beyond building physical facilities to meet LEED standards to influencing the curriculum. But while communities and school officials more aware of their impact on the environment have latched on to more sound ecological practices through school building design, many school officials are unsure about how to best incorporate sustainability into the curriculum (Adkins, 2003). There have been numerous programs that teach children about how to be environmental stewards, but there are very few programs with a coordinated, integrated, multigenerational approach to sustainable education. The school can act as a vehicle to educate the entire community about sustainable practices.

Green gardening is a program that uses the school site to teach students about sustainable practices. Green gardens are replacing asphalt pavements with crops that can be harvested for lunchrooms. Such gardens are being used as a teaching mechanism for subjects such as math, science, and ecology (Crane, 2006). Educators in California that have implemented green gardens as a part of their curriculum believe that subjects from math, science, language arts, and history can all be taught from the garden. They go on to say that gardens "are also a place to learn the 'intangibles' that the public expects schools to teach such as the value of hard work, teamwork, and diligence." School gardens become a ready-made classroom for teaching students about environmental stewardship.

A variety of gardens can be incorporated into the school site. There are nutritional gardens, where food is grown and eaten; literacy gardens outside of school libraries and classrooms, providing a pleasant environment in which students can read or study; aesthetic ornamental gardens; and native gardens that teach about the history and conservation of plants native to the area (Crane, 2006).

The Edible Schoolyard is a not-for-profit cooking and gardening program located on the campus of Martin Luther King Junior Middle School in Berkeley, California (The Edible Schoolyards, 2006). The mission of the program is to create and sustain an organic garden and landscape that can be incorporated into the school's curriculum and lunch program. The program involves students at all levels of harvesting the garden, along with preparing, serving and eating the food. Edible Schoolyards encourages the awareness and appreciation of the

transformative values of nourishment, community, and stewardship of land. The program synchronizes the classroom, garden, and the kitchen to form a holistic educational experience. "Lessons taught in the classroom are enriched by hands-on garden and kitchen activities, while concepts that arise in the kitchen and garden are meaningfully discussed in the classroom" (The Edible Schoolyards, 2006).

School gardens and edible schoolyards promote learning at every grade level. Studies have indicated that experimental learning leads to significantly higher gains in science achievement, as opposed to simply learning in the traditional classroom environment (Crane, 2006). School gardens and edible schoolyards also teach children about nutrition and healthy food choices in a practical way. In addition to teaching students about the environment, the -- produce harvested from the gardens can be sold to the community, thus strengthening the link between the school and the larger community. Finally, green gardens and edible schoolyards help to beautify the school site while providing a curriculum that teaches children and the larger community about sustainability and environmental stewardship.

Green Chemistry

A new approach to green education is "green chemistry," a preemptive strategy to reduce and/or eliminate the use of hazardous substances. The science of green chemistry addresses pollution prevention at a molecular level (Green Chemistry Initiative Science Advisory Panel, 2008).

Green chemistry concepts are usually taught on the college level. However, California is pushing to have green chemistry be taught in primary and secondary schools (Green Chemistry Initiative Science Advisory Panel, 2008). This innovative curriculum can attract students to science by positioning chemistry as a tool to meet environmental and health challenges. The American Chemistry Society and the Environmental Protection Society are currently developing material on the primary and secondary level to teach students about green chemistry. Incorporating this cutting-edge program into the curriculum could help Friendship Village develop a future workforce for a sustainable economy and society.

Joint-Use Model

The school can also promote sustainability principles and its presence as a community hub by providing intergenerational services (Chung, 2002). Joint-use of school facilities is an effective solution for communities where land is scarce or where a community wants to preserve the natural habitat. The joint-use model also makes economic sense for Friendship Village because it can pool limited resources to provide a number of services in one site.

Schools that offer intergenerational joint uses give residents an affinity to the school that they might not otherwise have. The joint-use model provides benefits to all in the community and gives residents a vested interest in the neighborhood school (Chung, 2002).

Summary

Friendship Village's charter school should serve as a civic anchor for the community, while simultaneously acting as a vehicle to teach the children and the community about sustainability and environmental stewardship. The school will be intimately linked to the community and thus is ideally positioned to provide the framework for sustainable development. As a development that will shape the neighborhood's physical fabric and the character of the community, it should be the paradigm of sustainable practices.

Green Health Care

One specialized area of green commerce that should be addressed separately is that of health care. Friendship Village's plans to date include the possibility of a health-care facility of some sort—a hospital, urgent-care center, or wellness center—on the premises. This would be advantageous not only to residents of Friendship Village but to nearby residents of Chattahoochee Hill Country, who are frequently required to travel long distances for health care. Because health care plays such a vital role in the well-being of a community, and because it presents a particular set of challenges in terms of sustainability, the possibility of "green" health care needs to be explored in further detail.

First of all, any health-care initiative should be looked at not solely in environmental terms, but also in social and economic terms of sustainability. A health-care facility can serve as a junior anchor for commercial development, attracting both residents and visitors to Friendship Village. Moreover, health-care facilities tend to attract related businesses, as can be seen by witnessing the clusters of doctors' offices and diagnostic centers attached to Northside Hospital in north Fulton County and Piedmont Hospital in Atlanta. One of the case studies examined for this report, Dunwoody Village, has been successful as a retail center for more than 30 years in part because of the presence of doctors' offices located not far from both Northside and a clinic maintained by Emory University.

Finally, a health-care facility can serve as a potential amenity and attractor to would-be residents. One example of a community that has used nearby health-care services as an attractor is Craig Ranch, a master-planned community outside Dallas, Texas, that features a town center, a trolley whose route runs throughout the development, and a golf course (Craig Ranch, n.d.). Craig Ranch also features an onsite clinic and aerobics center overseen by Dr. Kenneth H. Cooper. The community has plans to add CooperLife, a health-focused development that would include on-call physician service and the possibility of nutritious meals delivered to residents (Cooper Aerobics Center, 2008). Houses in Craig Ranch are priced between $350,000 and $2 million (Craig Ranch, n.d.). It is thus possible to integrate health services into the community such that health care becomes a social enhancer as well as an economic one.

Meanwhile, the environmental issues of health-care provision must be addressed if Friendship Village continues to emphasize sustainability. Issues particular to health-care facilities include the disposal of hazardous waste and the need to take safety precautions that can preclude the reuse of materials. However, recent years has seen a boom in "green health care" efforts, in which health-care facilities and providers take steps to incorporate environmental sustainability into health-care practices. For example, in 2006 the Green Guide, published by *National Geographic* Magazine, included Emory University's Winship Cancer Institute as one of its Top 10 Green Hospitals (Weller, 2006). Even more promisingly, a market has sprung up to meet the new demand for environmentally sustainable health-care provisions.

The primary areas in which environmental sustainability is being addressed in the health-care industry are:

- **Facility design**. The first LEED-certified hospital received the certification in early 2004 (*Interior Design*, 2004). Hospitals cited for excellence in green building include the Children's Hospital of Pittsburgh; Concord Hospital in Concord, New Hampshire; and Mercy Suburban Hospital in Norristown, PA (Weller, 2006). In 2007 the *Boston Globe* reported that five major hospitals, including the Dana-Farber Cancer Institute and Massachusetts General Hospital, were planning environmentally friendly building expansions (Rowland, 2007). The interest in hospitals in environmentally friendly design is matched by a rise in architects and designers hoping to land those building contracts.

- **Waste minimization and disposal.** This includes reducing the use of harmful chemicals such as mercury, polyvinyl chloride (PVC), and latex. Health Care Without Harm, an international coalition of organizations interested in reducing the harmful environmental impacts of health-care provision, argues that hospitals are responsible for 4–5% of the total amount of mercury, a neurotoxin, in wastewater (Health Care Without Harm, 2002). Waste disposal also includes finding alternatives to incineration, which can emit toxins into the air.

- **Healthy foods.** Hospitals such as Good Shepherd Medical Center in Portland, Oregon (Skidmore, 2006), and Swedish Covenant Hospital in Chicago, Illinois (PRNewswire, 2006), now serve organic food both to patients and in hospital cafeterias. Some hospitals have taken to growing their own food or starting compost facilities on-site (Skidmore, 2006).

- **Environmentally friendly cleaning products.** New York-Presbyterian Hospital instituted a "green cleaning" program in June 2008 (New York-Presbyterian Hospital, 2008). At CleanMed 2008, a leading conference for green health-care initiatives, in Pittsburgh in May, exhibitors included manufacturers of reusable

sharp containers, hydrogen-peroxide-based cleaning products, and biodegradable patient products such as bedpans and urinals (CleanMed, 2008).

- **Environmentally preferable purchasing (EPP).** While EPP is not limited to hospitals, it can, if successfully applied, allow a hospital to incorporate sustainability into all purchasing decisions, making a commitment to sustainability from before the time the product even enters the building. As an example of how EPP is gaining popularity among health-care providers, CleanMed had 40 different for-profit exhibitors on site during its 2008 conference (CleanMed, 2008).

To be sure, environmental sustainability can be a challenge for a major health-care provider. It requires commitment along the entire administrative chain, especially if the health-care facility is within a larger network. It can mean additional costs at a time when many health-care providers are struggling to provide care for the uninsured and underinsured. And unlike with other retailers, it can be a difficult tool to use in branding, as patients will frequently worry about quality of care first and environmental impacts second.

Friendship Village's administrators, then, can accept the role of facilitator and supporter in encouraging a health-care facility to be as "green" as the rest of the site. Such encouragement can take the form of design (making sure the health-care facility is accessible on foot as well as by car, and within easy access of healthy dining options); of networking (connecting the health-care facility with EPP sources); and of marketing (including the health-care facility as part of the larger message of Friendship Village as a sustainable place). Both Friendship Village and its health-care partner will benefit if the commitment to sustainability and wellness is perceived by visitors and residents as part of a seamless whole.

It is also worth noting that Friendship Village's simultaneous commitment to green building and to on-site health care allows for a business opportunity in the form of EPP sources. New businesses catering to sustainably-minded health-care providers could profit from being located in a community devoted to sustainability and near a health-care facility. As the market for health-care provision is unlikely to shrink in the coming decade, Friendship Village's

administrators might do well to encourage those businesses related to health care, especially those businesses that meet the “green” criteria, to seek out commercial space within the Village.

Urban Design Proposals for the Village Center

The studio's case study and sustainable development research was followed by an urban design research process exploring three design strategies for the Friendship Village Center. Each proposal investigates a specific approach to sustainable development for Friendship Village Center. One proposal is based on transforming the elements of a traditional Georgia small town—focusing on adapting a gridiron of blocks and streets to the landscape at Friendship Village. The traditional structure of small towns in Georgia—such as Newnan—and across America are clearly one sustainable urban design strategy for contemporary development. The second proposal focuses on the rural landscape of the Chattahoochee Hill Country. It aims to preserve, enhance and re-create the aesthetic and experiential qualities of rural roads, meadows and hardwood forests, streams and granite outcroppings. Sustainable development in this proposal is based on learning from the rural landscape and incorporating its features into the village center. The third proposal is based on stormwater management strategies as a sustainable urban design framework, where stormwater management techniques are incorporated into each land parcel and each street. This is an opposite approach to conventional stormwater management that is based on retention ponds in residential areas or underground cisterns in commercial areas.

All three proposal learn an important lesson from all of the case studies: an urban design structure of small blocks and interconnected network of streets provides a sustainable framework for development by accommodating change in uses and buildings over time; by achieving connectivity for walking, biking or driving promoting social cohesion; and by enabling a fine grain of diversity—of uses, buildings and people.

The designs are summarized here, followed by illustrations first presented on December 3, 2008, by the urban-design team. Those interested in obtaining more information are encouraged to contact Associate Professor Richard Dagenhart or the students, whose names and email addresses are given with the appropriate design.

Traditional Town Center for Friendship Village

By Joe Collums (tcollums3@gatech.edu) and Binh Duong (dt_binh@gatech.edu)

Translating a traditional Georgia town plan to Friendship Village is similar to a surveyor laying out a town plat a hundred or more years ago. The problem is how to fit a gridiron of small blocks and a dense network of streets to an existing landscape. This proposal used the original plat of Newnan, Georgia as a source, but many different towns could have been equally useful beginning points. In fact, the design group looked at several small town plans to learn lessons from some of the other great small towns of Georgia, including Athens and others.

The site has several constraints and possibilities. Maximizing accessibility from Rivertown Road and maintaining visibility from South Fulton Parkway are key design issues for any future retial development. Other site constraints are the steep topography in some locations, the existing hardwood forest that should be protected, and the streambeds and floodplains. The first design response was to apply the Newnan town plan to the site and to experiment with several site layout possibilities, testing the grid to the site constraints. By simultaneously shifting the grid to align it with South Fulton Parkway and Rivertown Road and varying the block dimensions to accommodate the topography with reasonable street gradients, the final plan creates a workable framework of individual blocks for future development, connected by a dense network of walkable streets. This plan was tested by grading the streets and intersections to the existing topography to demonstrate that it would be possible to build. Importantly, the steep slopes, hardwood forests and streambeds are preserved, creating a public park for the Village Center. The Village Center fronts this park on three sides of the park, to create a sort of 'central park'. On the east side is another steep topographic and forested area, organized for minimal development - rural retreats, camping houses, etc.

The retail center is located immediately off South Fulton Parkway, ensuring good visibility and retail accessibility. The retail shops surround the Town Square, which functions as a market square facing and visible from the Parkway. These shops are joined to blocks of high-density residential of as much as four to five storied-apartments and condos. Extending from the

center is medium and low density residential. A proposed school f is located to serve both the Village Center and the surrounding Chattanoochee Hill Country. It is also anticipated that a future medical research campus would occur at the west side of the Village Center to ensure both accessibility from Rivertown Road and visibility from South Fulton Parkway.

An 80-foot right-of-way boulevard forms a central spine for the whole development and is the main connecting route to the rest of Friendship Village. Rivertown Road's right-of-way, as it traverses the center, is enlarged to 100 ft to accommodate four car lanes and two parallel on-street parking lanes plus wide sidewalks with street trees and furnishings. All inner roads are closely modeled after the traditional town streets in Newnan, Georgia in terms of right-of-way width and design treatments. Another road category is the 60-foot promenade-street bordering the park, designed with two car lanes, one side of parallel street parking and a bike lane.

The typical block dimensions are subdivided at 240 feet by 240 feet, allowing for varying typological solutions and building sizes. Density on the typical block can vary from 12 single family detached houses to 140 units of high-density apartments or condos.

It is envisioned that the first phase of development will occur for the l block of retail shops and apartments fronting South Fulton Parkway overlooking the market square. As development continues, the second phase of development will expand to the block of retail shops facing the market square across Rivertown Road, backed up by a large supermarket. . Subsequent developments will gradually furnish the Town Center with retail shops, residential units, parking and necessary infrastructures. Residential developments will go hand in hand with provision of public amenities like daycare facility, district school, and churches. With flexibility of block development incorporated within the subdivision plan, another group of retail shops along Rivertown Road can potentially be converted into a retail junior anchor. It is also anticipated that once Friendship Village's population reaches a threshold, Lowes or Ace Hardware or another major home-improvement retailer can locate in a designated block facing South Fulton Parkway at the lower part of the plan.

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Traditional Town Center

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Traditional Town Center

GA TOWN

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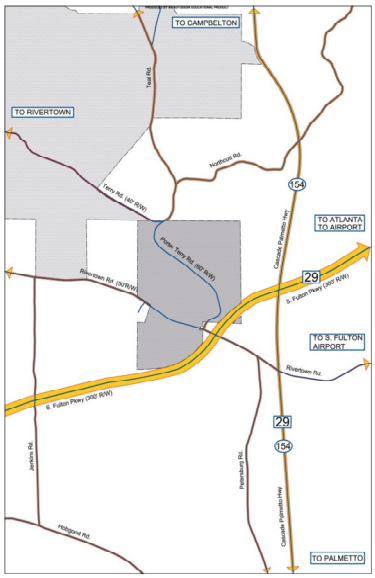
REGIONAL SITUATION
SPATIAL LOCATION



GA TOWN

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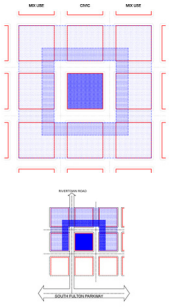
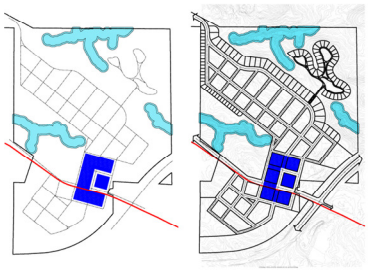
TRANSFORMATION
SITE DEVELOPMENT





GA TOWN *PROJECT DEVELOPMENT*

SUBDIVISION

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LAND USE PLAN

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GA TOWN *PROJECT DEVELOPMENT*

ILLUSTRATIVE PLAN

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THE CHC FRIENDSHIP VILLAGE ILLUSTRATIVE PLAN

GA TOWN *PROJECT DEVELOPMENT*

BLOCK STUDY

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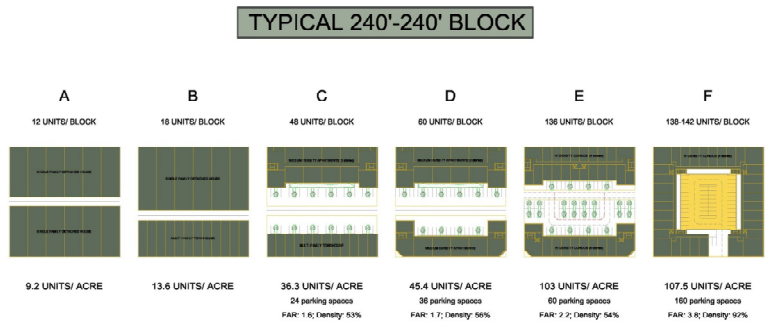

THE CHC FRIENDSHIP VILLAGE TYPICAL BLOCK PLAN

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BLOCK STUDY

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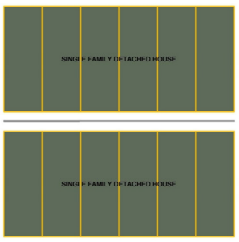
A

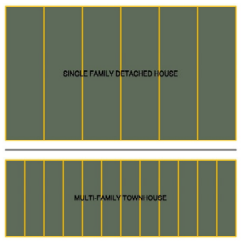
12 UNITS/ BLOCK



9.2 UNITS/ ACRE

B

18 UNITS/ BLOCK



13.6 UNITS/ ACRE

THE CHC FRIENDSHIP VILLAGE — OPTIONS A, B BLOCK PLAN

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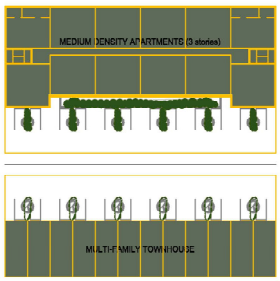
C

48 UNITS/ BLOCK



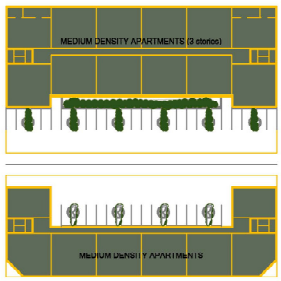
36.3 UNITS/ ACRE

24 parking spaces

FAR: 1.6; Density: 53%

D

60 UNITS/ BLOCK



45.4 UNITS/ ACRE

36 parking spaces

FAR: 1.7; Density: 56%

THE CHC FRIENDSHIP VILLAGE — OPTIONS C,D BLOCK PLAN

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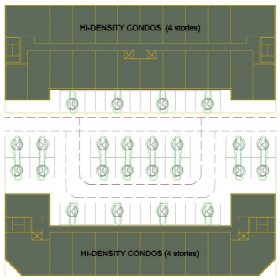
GA TOWN PROJECT DEVELOPMENT

E

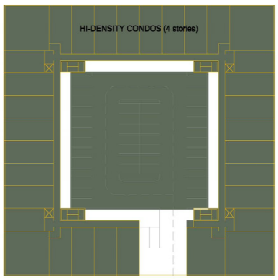
136 UNITS/ BLOCK



103 UNITS/ ACRE
60 parking spaces
FAR: 2.2; Density: 54%

F

138-142 UNITS/ BLOCK



107.5 UNITS/ ACRE
160 parking spaces
FAR: 3.8; Density: 92%

THE CHC FRIENDSHIP VILLAGE — OPTIONS E, F BLOCK PLAN

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GA TOWN PROJECT DEVELOPMENT

STREET SECTIONS

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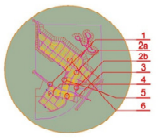
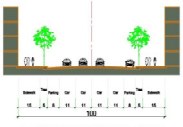
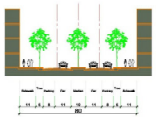
STREET SECTION SCHEDULE



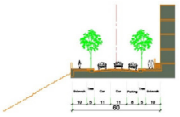

1 - RIVERTOWN ROAD - 100ft

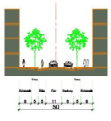

2a - MAIN ROAD - 80ft


2b - MAIN ROAD - 80ft


3 - BOULEVARD - 80ft


4 - INNER STREET - 70ft


5 - PARK PROMENADE - 60ft


6 - SERVICE STREET - 50ft

THE CHC FRIENDSHIP VILLAGE — STREET SECTION

The Village Center as a Rural Landscape

By Aria Finkelstein (aria@gatech.edu), Maria Kovacheva (mkovacheva3@gatech.edu), and Nathan Lawrence (lawrence.nathan@gatech.edu)

The rural beauty and biodiversity of the Chattahoochee Hill Country and the Friendship Village site form the foundations for this proposal. Three of these landscape features were paramount. First were the agricultural fields—the meadows—that once dotted the Chattahoochee Hill Country. These meadows are disappearing rapidly, overtaken by pine forests. Second was the hardwood forest, steep ravines and streambeds, which occurred historically together, because of the difficulty of farming or grazing on these areas. These are well preserved and should be protected both for aesthetic and ecological reasons. Third are the existing rural roads, characterized by fencerows, swales instead of curb and gutters, and narrow profiles, making travel experiences about the landscape instead of just getting from one place to another.

The design proposal has four main parts. First are the locations of "meadows"—grasslands cleared of existing pine trees—acting as park spaces. Second is the re-design of Rivertown Road as landscaped street, with a wide median for a farmers market, meeting places, community gardens or other things. The broad median would be a linear park, effectively being a town green. This would be the Friendship Village Main Street, operating as main streets in small rural towns, but upgraded for contemporary development. One feature would be small individual lot sales for individuals to build their own shops, perhaps live above or rent office space to others. This is a way to weave local ownership and business with the franchise businesses that are required for successful retail development. Third is the preservation of the ravines, streams, and hardwood forests as additional park space for the community. Finally, fourth are the streets (actually rural roads) that form the blocks for future development.

Rivertown Road is the location for most retail development, with the initial strip of shops at a key location near the parkway, followed eventually by a supermarket on Rivertown Road also nearest the Parkway. The supermarket would be lined with small shops to keep the retail scale appropriate for Rivertown Road. The Rivertown Road focus allows maximum flexibility

for developing retail—in small sections or larger increments as the market develops. The linear arrangement also maximizes the ability of future residents to walk to the town center. This is an arrangement that is much like neighborhood commercial corridors built originally in the street car era, like North Highland Avenue in Atlanta or Little 5 Points or many others.

Just as the town center plan is flexible for future retail development, the same is true for churches, schools and health care facilities. Rivertown Road is a Main Street: it can accommodate all of these things, including housing, as demand creates. And, importantly, all streets lead to Main Street—so that those who drive or walk or bike are passing retail shops as they go about their daily lives in Friendship Village.

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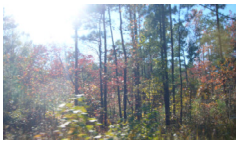
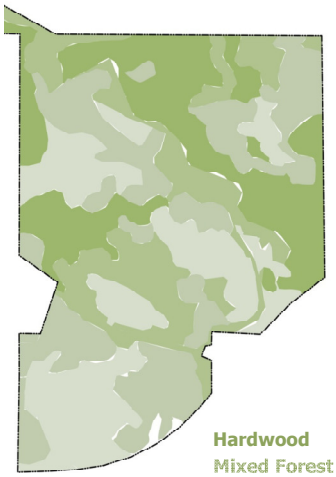
Vegetation





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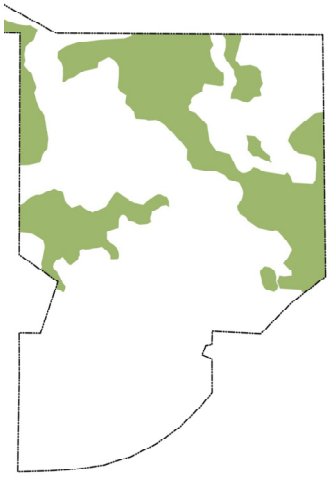
Hardwood



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Rural Roads

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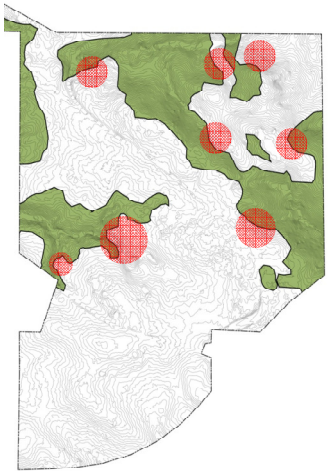
Steep Slopes



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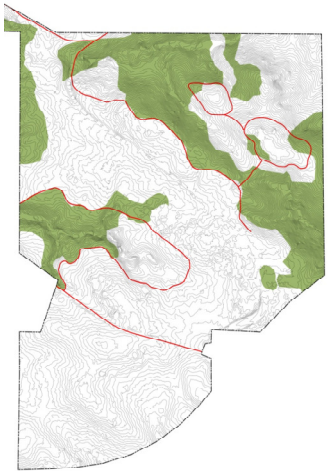
Rivertown Road and Boundary Streets



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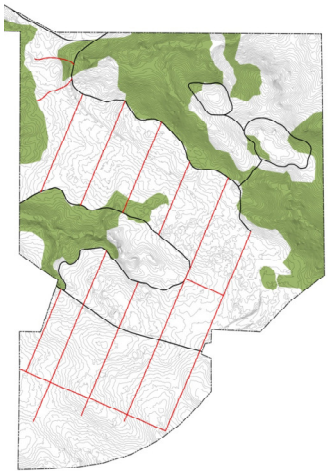
Connector Streets



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Blocks

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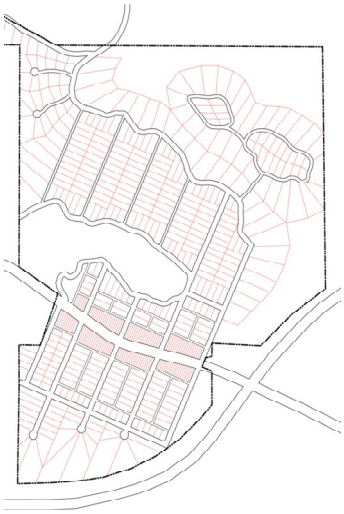
Lots



Subdivision

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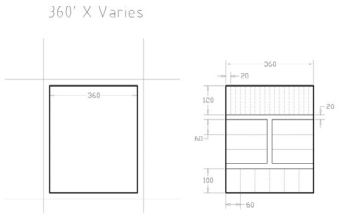
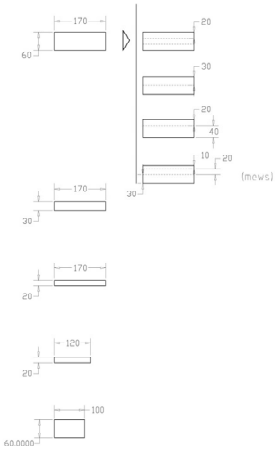
Blocks

Typical Block



Typical Lots



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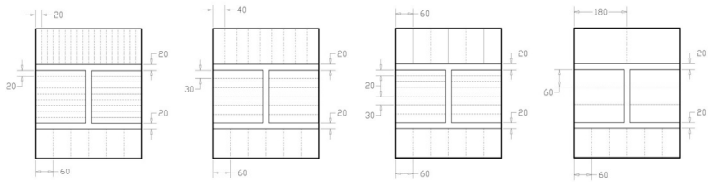
Blocks

Block Subdivision Variations



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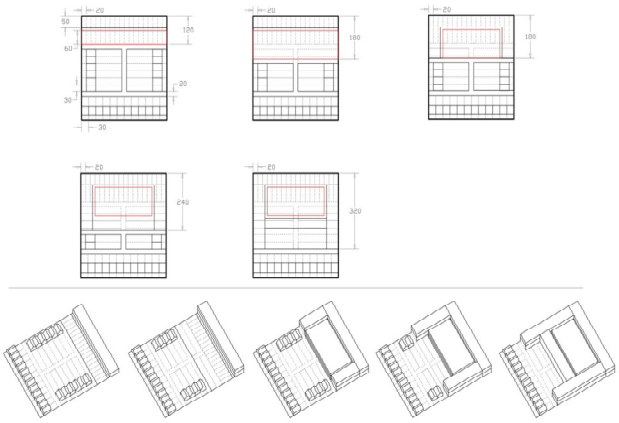
Blocks

Parking Options Within Typical Block



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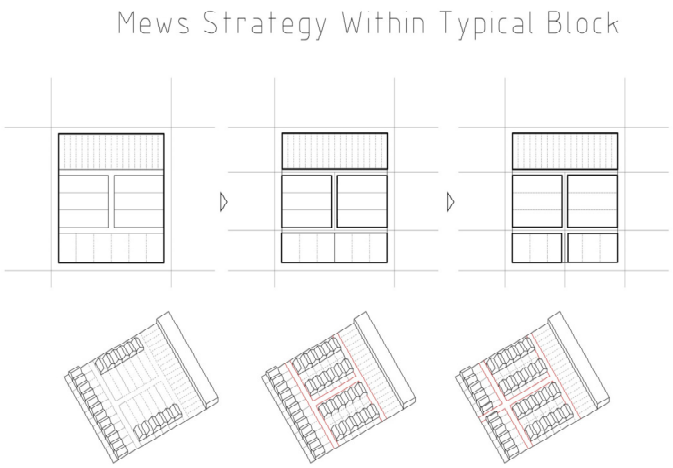
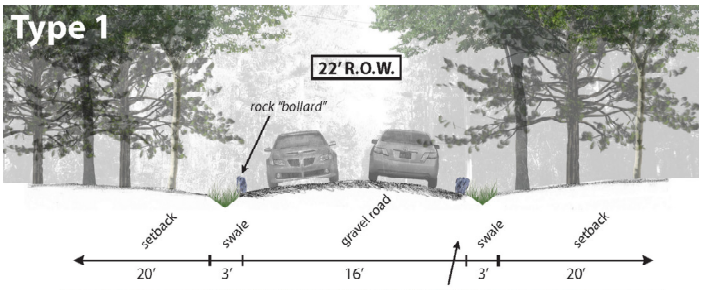
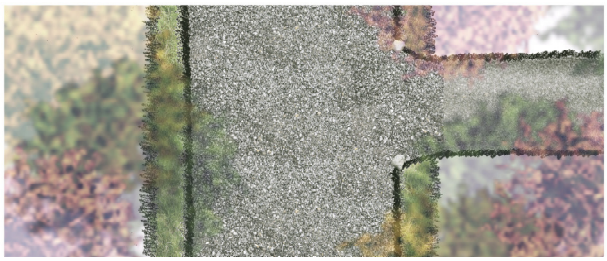
Blocks



Rural Connector Streets





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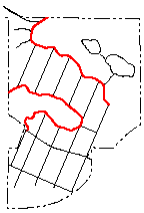

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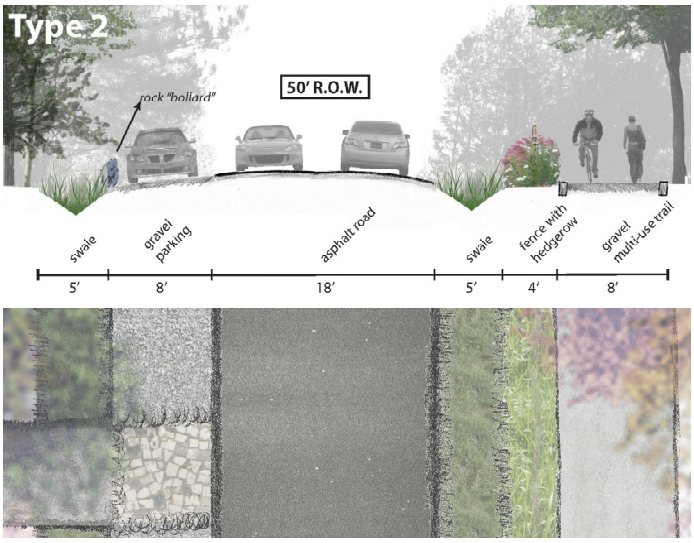
Boundary Streets



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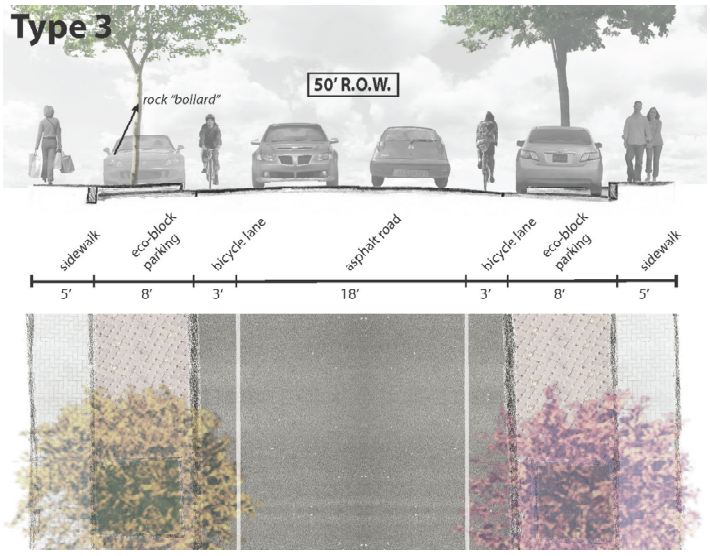
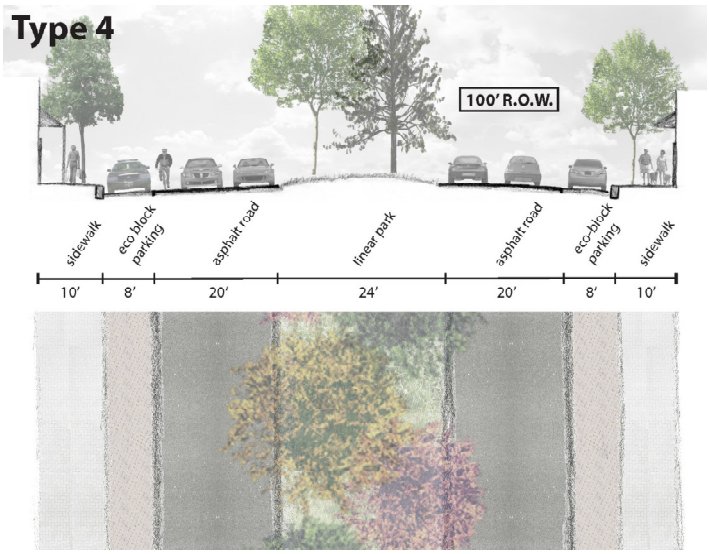
Urban Connector Streets



Rivertown Road



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Rivertown Road

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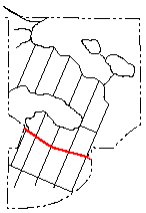

Street Types

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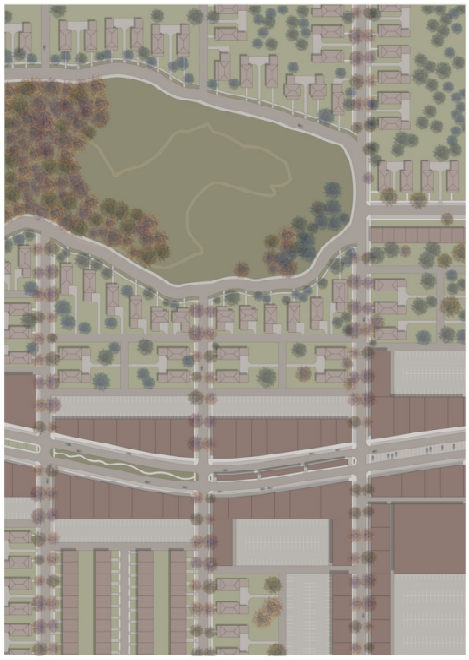
Illustrative Plan



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Program	Required Parking	On-Street Parking	Surface Parking	Parking Decks
Retail	1195 sp.			
Anchor Big Box – 40 000sf	160 sp.		160 sp.	
Junior Anchor–20 000 sf	80 sp.		80 sp.	
Liner Shops – 47 600 sf	192 sp.		144sp.	
Rivertown Road Strip Retail – 190 600sf	763 sp.		259sp.	29sp.
Office	266 sp.			
Above Retail – 133 000 sf	266 sp.		132 sp.	134sp.
Residential	163			
Residential (Above Retail) – 81 600 sf	163 sp			163sp
Total	1636	525sp.	794sp.	325

Parking Calculations

Friendship Park

Stormwater Management Design

By Philip Blaiklock (pblaiklock3@gatech.edu), Cassie Branum (gth634a@mail.gatech.edu), and David Caimbeul (dcaimbeul@gatech.edu)

This proposal is based on two primary strategies. First is to focus on stormwater management as the primary design framework, recognizing that normally stormwater management is a substantial infrastructure cost with few visual, social or environmental benefits to a new development. Second is to create a design framework that enables change to occur over time, in terms of land uses, density, building type, etc. In addition, the design framework is situated to connect to Rivertown Road and the South Fulton Parkway to enable retail development. And, it is situated to protect existing hardwood forests, streams, floodplains and wetlands.

The primary stormwater effort is focused on the east of Rivertown Road. The primary action is to create a traditional lot, block, street subdivision framework organized as small drainage basins (hydrologic units). Thus, each block becomes a mini-watershed, with streets on either side on "ridges" and a rear property line easement being a "valley". The aim is to have all stormwater managed within each block by placing a small checkdam at each rear property line. A stormwater analyisis (using the Rational Method) demonstrated that these checkdams would need to be only one foot high to detain a 20 year storm. The streets on either side of the block are designed to manage their own stormwater by using swales on either side, again with checkdams, to manage all stormwater within the street right of way. These checkdams would be incorperated with driveway culverts, a common feature in rural landscapes.

To the west of Rivertown Road, stormwater management is simple, with stormwater draining on street and parking surfaces—cleansed as possible with surface vegetation—and flowing to the required buffer along the South Fulton Parkway and utilizing an existing drainage pipe under the Parkway to an retention area to the South. This area west of the Parkway is the proper location for major retail, medical facilities and other uses that require large surface parking lots. Rivertown Road and the attached town green is the center of retail development.

The design of the town center then becomes a process of sequencing and placing future development at the most advantageous location within the subdivision plan. In the first part of the sequence, a series of owner occupied businesses on small parcels would go into the block directly across from the town green, probably including a small convenience store. Also at this time, the town green could be planted in a grid structured peach orchard, as a nod to the history of the area. The second action becomes the development of a large supermarket and its corresponding parking on an adjacent block. With that in place, the next development to occur would be the areas binding the rest of the town green, all of which would be developed on small parcels with owner occupied businesses that could slowly develop over time. With these pieces in place, a school could then be incorporated next, adjacent to the outdoor classroom/theater on the northern edge of Rivertown Road. Finally, to complete the town center, the rest of the blocks along Rivertown Road could be developed as necessary, including any junior anchors. The village center then would be a combination of the small shops around the town green and the larger commercial establishments along Rivertown Road, anchored by a supermarket on the south and the proposed charter school to the north. Residential development would begin on the adjacent blocks.

friendship village center

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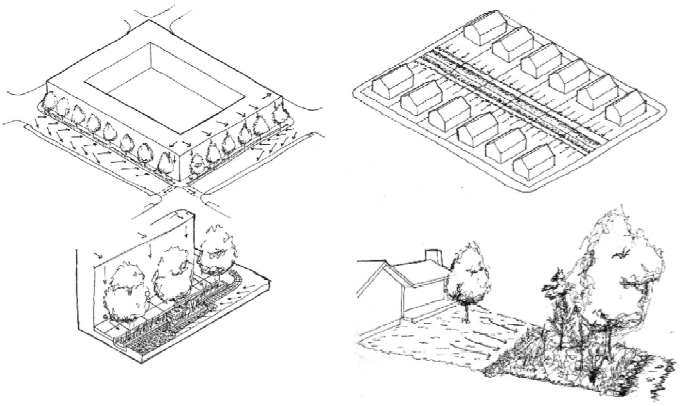
Management Strategies



External Management
Channels

Internal Management
Drainage Basins

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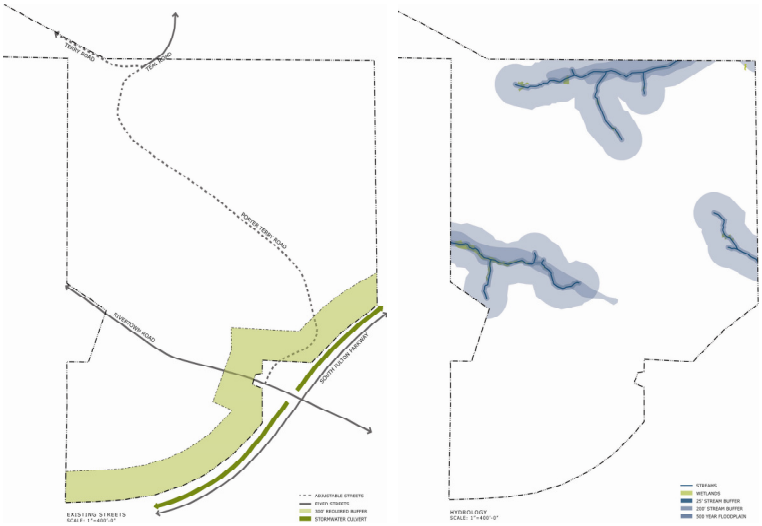
Site Conditions



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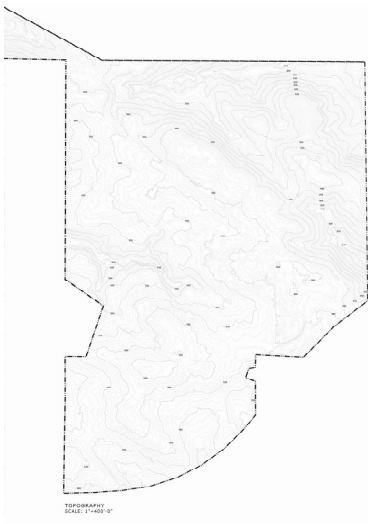

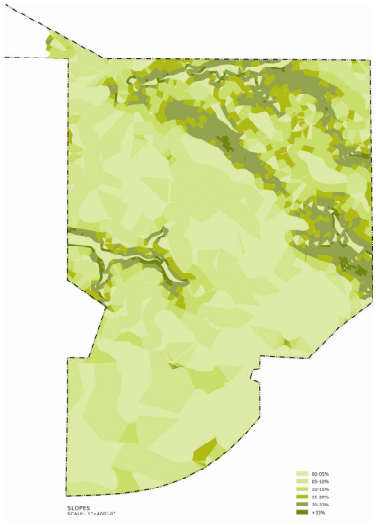

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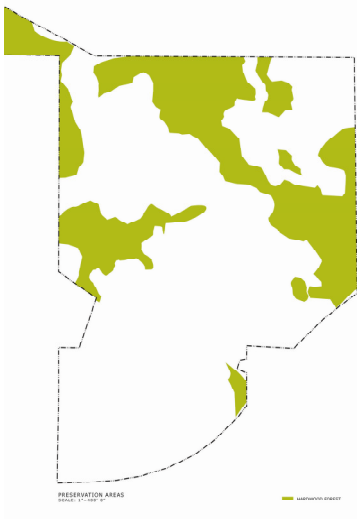
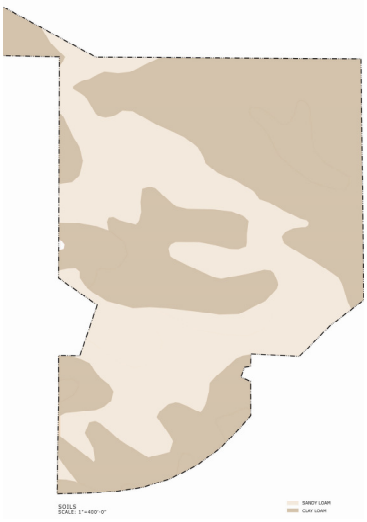
Site Conditions





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Site Conditions

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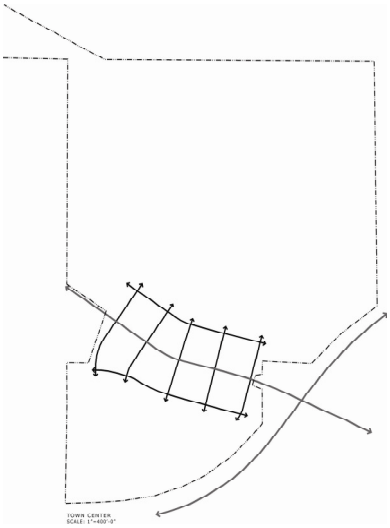
Subdivision



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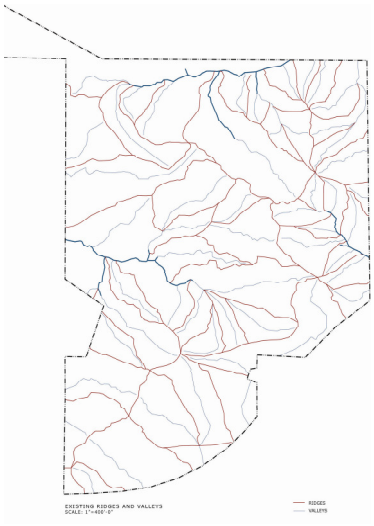
Subdivision



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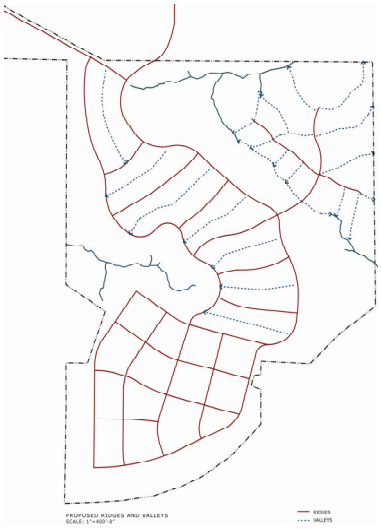

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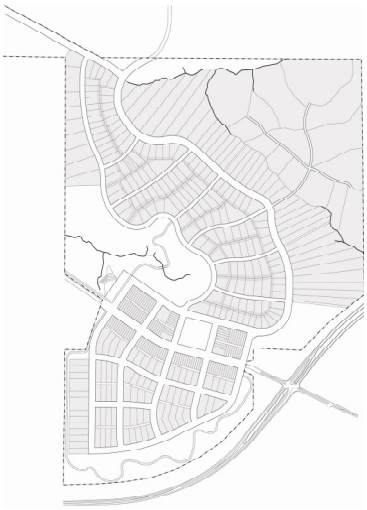

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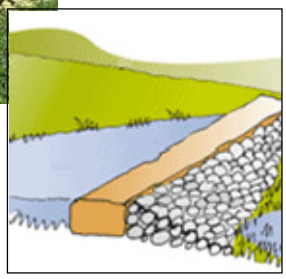
Stormwater Management



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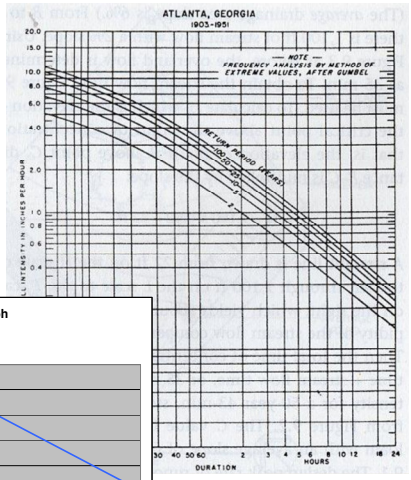
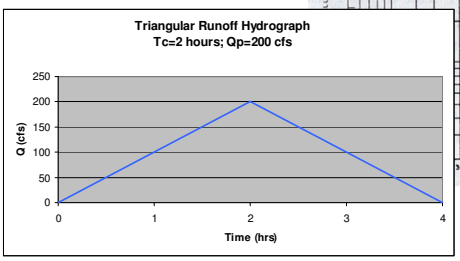
Stormwater Management





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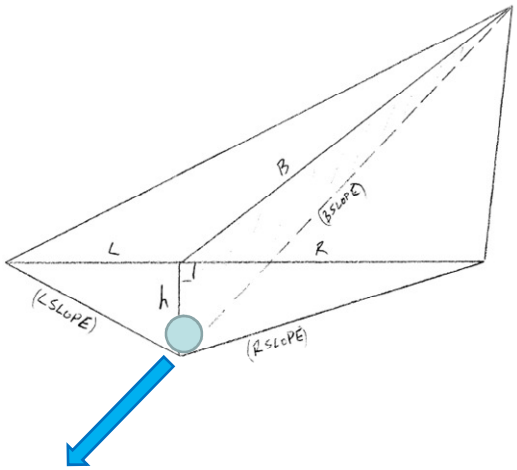
Stormwater Management



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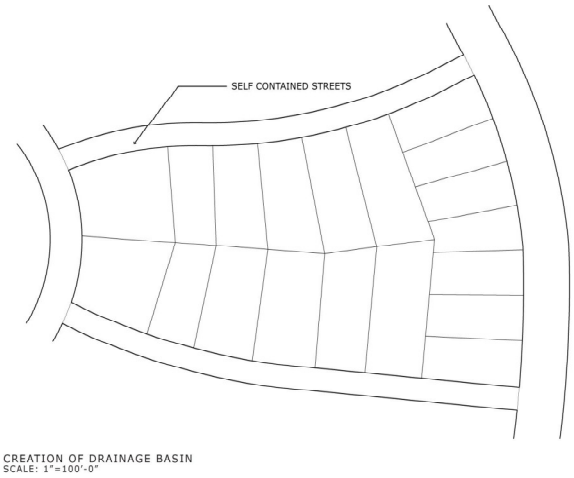
Stormwater Management



CREATION OF DRAINAGE BASIN
SCALE: 1"=100'-0"

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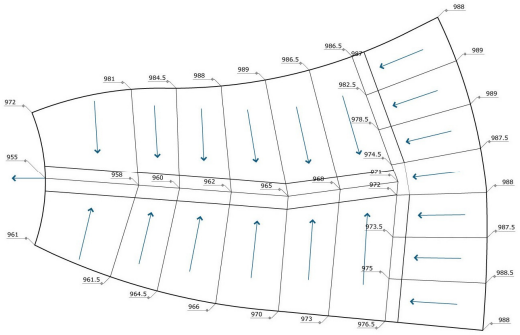
Stormwater Management



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Stormwater Management

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Stormwater Management

TOTAL RUN OFF PRE-DEVELOPMENT 38,009
TOTAL RUN OFF POST-DEVELOPMENT 36,982

WATER QUANTITIES
SCALE: 1"=100'-0"

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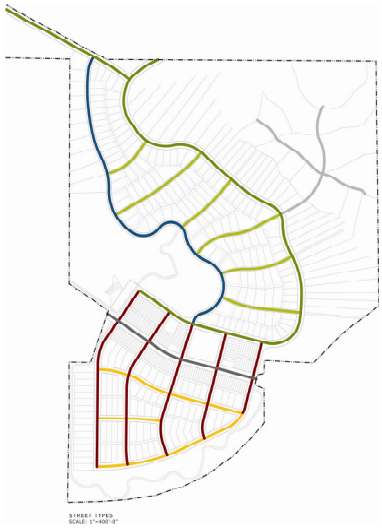
Streets



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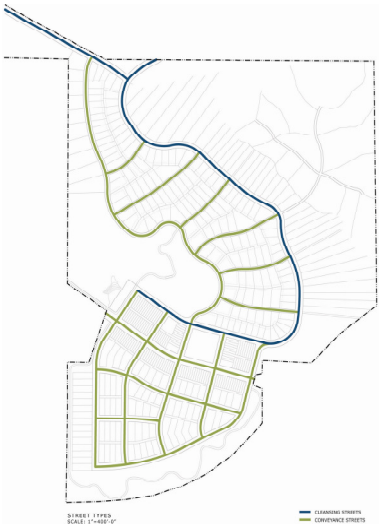
Streets



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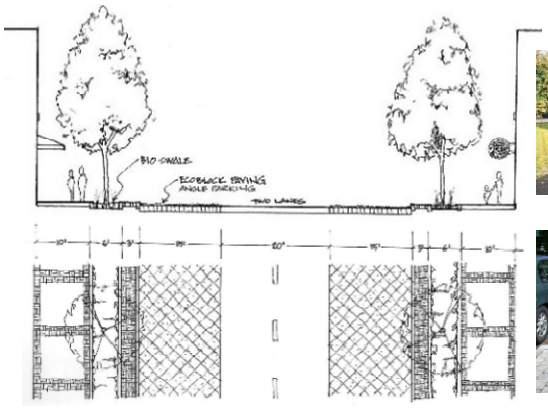
Rivertown Road



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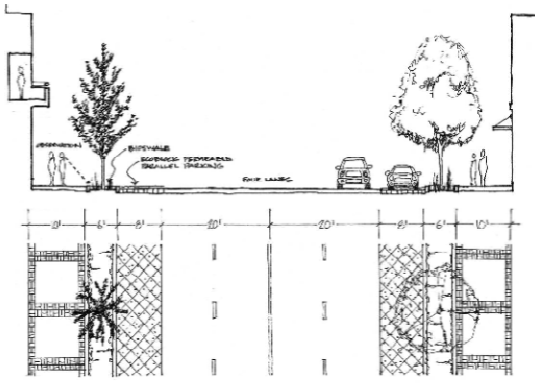
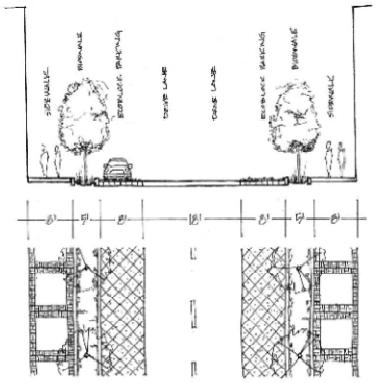
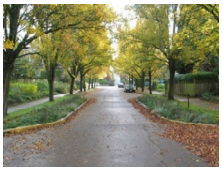
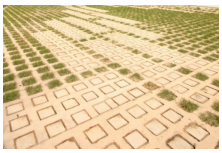
Rivertown Road



Transfer Street







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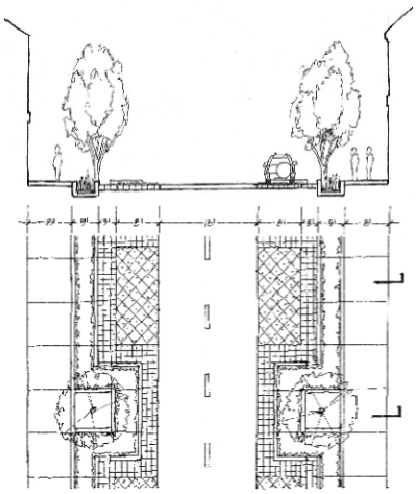
Meandering Street



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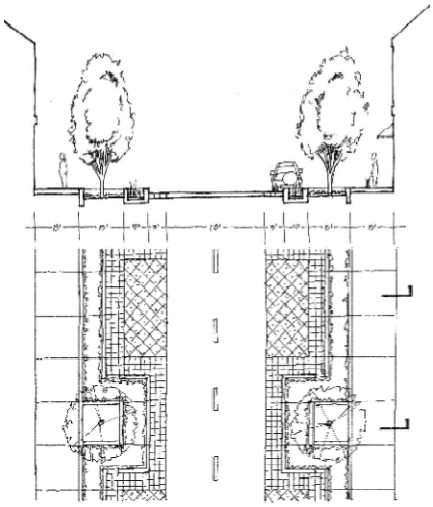
Meandering Street



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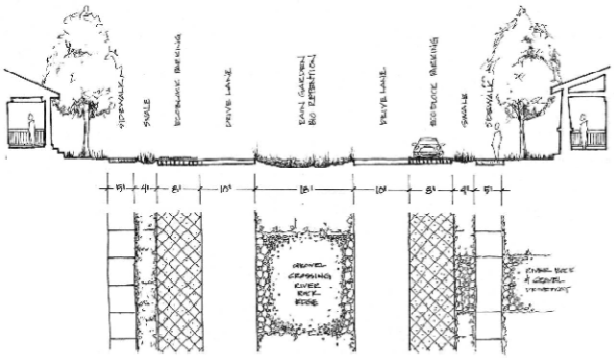
Rain Garden Street



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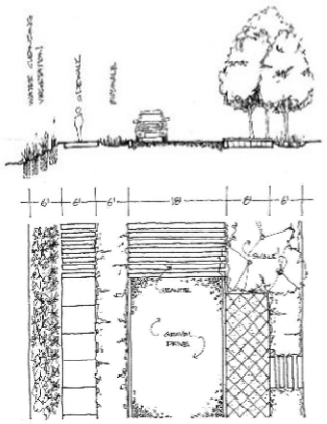
Bridge Street



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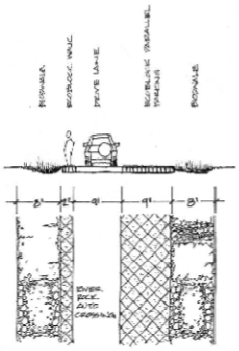
Residential Street



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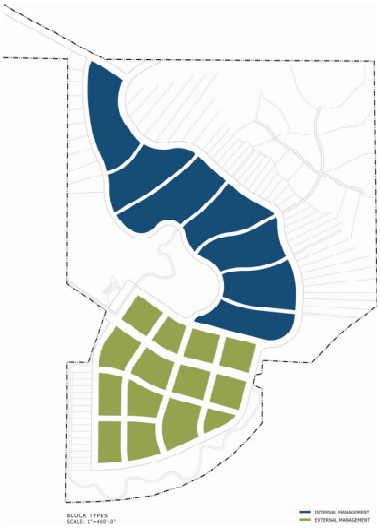
Blocks



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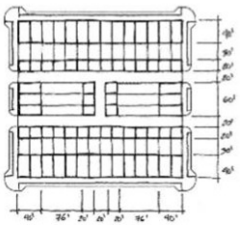
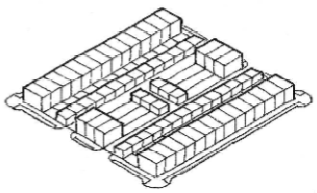
Blocks





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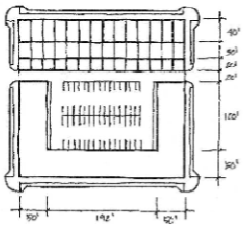

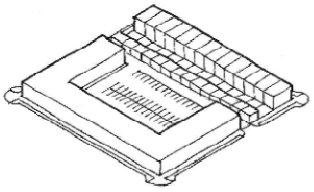

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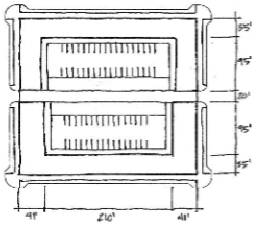

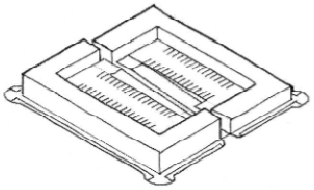

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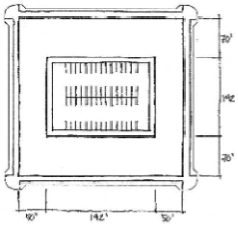

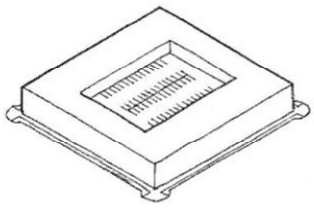

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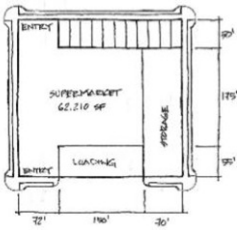
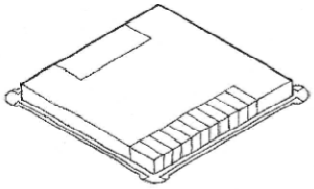
Blocks





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Illustrative Plan

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Phasing

Covered Bike Bridge

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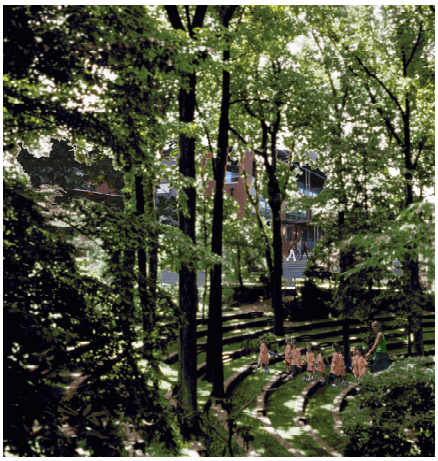
Outdoor Theatre



Peach Orchard

Conclusions

This studio project began with the goal of envisioning a development for the Friendship Village site that would be sustainable in the long term, in its environmental, economic, and social impacts. Minerva envisions a site that will provide an attractive place to live, work, play and go to school for newcomers to the Chattahoochee Hill Country and south Fulton County. A well-planned Friendship Village will benefit not only Minerva and the residents, employees, and visitors of the development, but the surrounding area, by providing long-term retail support and encouraging relatively compact, and environmentally sensitive development. It can serve as a model for other development in the Hill country, in Georgia and the rest of the country.

The studio pursued two different approaches to the central problem of developing for sustainability. One track researched older developments throughout American history and potential ways of combining different aspects of sustainability, such as encouraging green business or finding ways to emphasize environmental learning at a local school. The other, taking general principles of good design and sustainability into account, created three different potential designs for Friendship Village, one based on a traditional "town center," one emphasizing local natural resources, and one concentrating on innovatively solving the problem of stormwater management. While different studio members emphasized different approaches to sustainability, at the close of this process they were able to agree on several important principles that should influence the future development of Friendship Village, regardless of the eventual details of the design or retail or housing mix.

The first of these principles is **flexibility**. Long before the first bit of concrete is poured, Friendship Village should be envisioned as a place where buildings can have multiple uses over time. Recall that many stores can be expected to have a "shelf life" of five years or less, and that a development can be devastated if a major anchor tenant leaves and nothing can be done with the empty shell left behind. Anticipating changes in building use will help ensure minimal waste, inefficiency, and difficulties in attracting new tenants over time.

Evaluators of potential designs and plans for Friendship Village might be well served to ask themselves the following questions:

- Does the urban design structure enable or facilitate changing uses?
- Does the urban design structure facilitate changes in the buildings themselves over time?
- Do the buildings facilitate changing uses?
- Do buildings allow for changes in urban design structure?
- Can buildings be retrofitted?
- Does the urban design structure accommodate changes in the mode of transportation?
- Does the urban design structure allow for the mixing of uses?

A second principle is **walkability**. There are multiple benefits to emphasizing walking over car use: encouraging public health; reducing local air pollution and CO2 emissions; allowing for people without cars to participate in the community. Walking trails, unlike parking lots, can also be designed to accommodate other modes of transport: bicycles, small scooters, golf carts. This is not to say that Friendship Village should have *no* parking lots; adequate parking will be necessary for the health of local retail. But an emphasis on walkability may lead to more creative parking solutions.

A third principle is **investment in the local environment**. The rural landscape and the biodiversity of Chattahoochee Hill Country can be a tremendous amenity for Friendship Village—if developers, residents, and consumers alike treat it as such. Investing in the local environment goes beyond simply conforming to energy-efficient building standards or marking out borders for greenspace. It would include incorporating an understanding of the local environment into the civic sphere, whether through education, daily practices (such as encouraging composting), or the creation and maintenance of public spaces. It would also include evaluating new uses, such as a school, a church, a new shop, or a hospital, through an

environmental lens as well as economic and social lenses. Environmental stewardship in Friendship Village will be most successful if it can be incorporated into, and reinforce, a sense of community.

A fourth principle is **diversity of commercial uses**. For a cozy community such as the potential Friendship Village, it can be tempting to imagine the "small town" approach to retail, with every store unique and locally owned. Serenbe has adopted such an approach, as has Vickery Village north of Atlanta. However, collected evidence suggests that such an approach, while charming in the short term, is not economically viable in the long term for a local economy the size of Friendship Village. It will be wiser to plan for a mix of entrepreneurial opportunities and recognizable chains, of large, medium-sized, and small stores, of all-purpose and specialty shops. Again, flexibility in planning and design will be key: a "big box" will not be nearly as risky if it can be designed such that it can later be broken down into several smaller uses.

The fifth, and most overarching, principle is that of **holistic evaluation of new development**. As Friendship Village progresses from idea to thriving community, at each step along the way all three types of sustainability—environmental, economic, and social—need to be considered. Thus a single-family house should be evaluated not only in terms of the existing and future real-estate market but in terms of the potential carbon footprint and waste of its users, and its contribution to the greater social fabric. (To put it more prosaically, a single-family house with an accessory dwelling unit may attract a greater variety of potential buyers than one without.) Greenspace should be evaluated not just as an environmental necessity but as an economic and social amenity. Potential commercial tenants should be evaluated in terms of their environmental footprint and their place in the general social fabric as well as their economic viability. Such three-cornered consideration—the "triple bottom line" in action—is not easy; companies often have a hard enough time with one bottom line, let alone three. Yet the research presented here suggests strongly that this initial investment in time, energy, and thoughtfulness will pay off handsomely, ensuring that Friendship Village will not only sell units but function as a healthy, sustainable, enviable community that demonstrates how to build a sustainable future.

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