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Building a More Sustainable Atlanta:
An urban design review of multi-family development along the Atlanta
BeltLine

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An Applied Research Paper
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Purpose

The Atlanta BeltLine is a significant infrastructure project designed to enhance sustainable development within the City of Atlanta. Based on goals established by City Council in the enabling legislation, the Atlanta BeltLine Inc. and the Tax Allocation District Advisory Committee developed a decision support tool to evaluate the Atlanta BeltLine's progress in meeting these goals, with a particular focus on public investments.

At the same time, while the Atlanta BeltLine has catalyzed considerable private development, it is unclear as to whether the sustainability goals that motivated the BeltLine's development have effectively been incorporated into private development patterns.

To clarify the impact of private development, the following study evaluates the urban design features of multi-family residential development along the Atlanta BeltLine based on the criteria set by the community, regulated by the government, but implemented by private development. It seeks to determine the extent to which private development efforts have capitalized on and reinforced the sustainability of the neighborhoods adjacent to the Atlanta BeltLine.

Introduction

The Atlanta BeltLine is a sustainable redevelopment project that will provide a network of public parks, multi-use trails and transit along a historic 22-mile railroad corridor circling downtown and connecting many neighborhoods directly to each other. It will accomplish this by converting underused and abandoned railway corridors in the city into a continuous system of transit, pedestrian pathways and green space.

Atlanta exists because of the railroad, as the city was the transfer point of three rails lines that facilitated trade between the Atlantic Ocean and the Mississippi River in the early to mid-19th century. Rail companies built "belt lines" to bypass the congested rail traffic downtown. As the town grew from the nucleus centered around Five Points downtown, it began to encroach on these corridors, which were originally located on the outskirts of town. These rail lines facilitated industry in Atlanta which used rail freight to transport their goods to and from the city, and throughout the surrounding region. In the mid-twentieth century, the construction of the interstate highway system and corresponding suburbanization of Atlanta led to the abandonment of many of these railways for cheaper warehousing near more strategic interstate lines. However, the corridors remain.

In 1999, Ryan Gravel – a dual degree master's student in City and Regional Planning and Architecture at Georgia Tech – wrote a thesis proposing to repurpose these rail corridors into a 22-mile, neighborhood-friendly light rail transit system that would connect to the MARTA system of heavy rail transit at four locations. The proposed streetcar "BeltLine" would provide a way to travel throughout the urban core while promoting more walkable, connected communities. As his proposal gained grass roots support, other components were added, including multi-use trails, parks, affordable housing, and public art. After years of public dialogue, the Atlanta BeltLine Redevelopment Plan was approved at the end of 2005 by city council and supported by Mayor Shirley Franklin who saw the potential for this project to catalyze development in the city. The Atlanta BeltLine Inc. (ABI) was created as an arm of the Atlanta Development Authority, now known as Invest Atlanta. Friends of the Atlanta BeltLine,

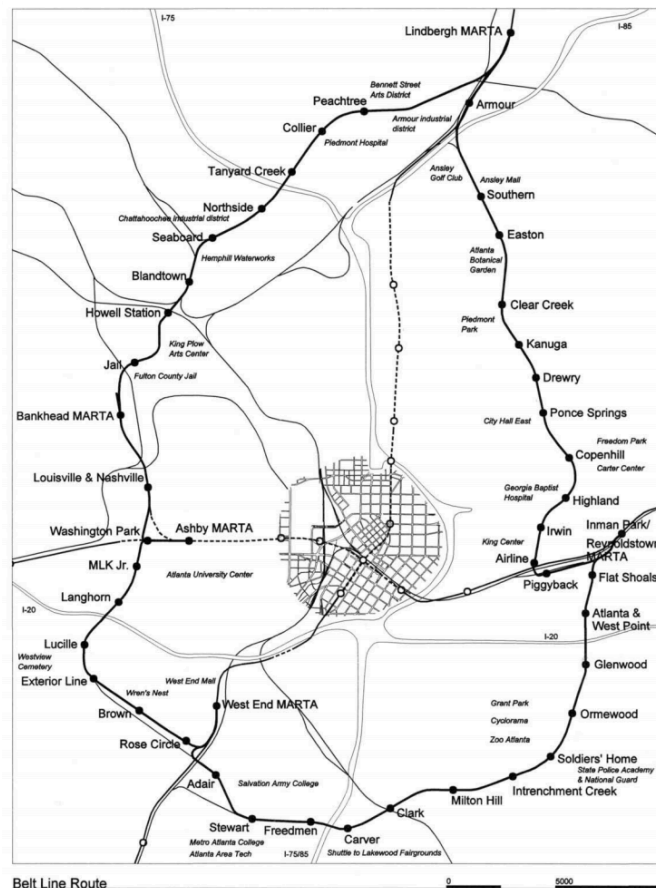
a group that formed from the initial public engagement process, restructured and rebranded as the Atlanta BeltLine Partnership (ABP), to support the city and ABI. through philanthropy and outreach, but also to serve as a voice of the community that worked for years to turn Gravel’s initial thought into a comprehensive vision for the city. Finally, the legislation also created the Tax Allocation District Advisory Council (TADAC) to provide guidance as to public investments.

Background

This network of historic rail lines charts a great backbone for a new transit and trail system to connect forty-five neighborhoods and increase mobility around the city. By doing so, the project acts as a spark for new growth of commercial, residential, and retail development and it provides a way for the city to address some of its challenges such as traffic congestion, population growth, public health, and the inequitable commercial investment in different parts of the city.

With this development, the Atlanta BeltLine offers an opportunity to transform Atlanta neighborhoods in ways that significantly enhance the sustainability of the city. Sustainability has shifted in today’s lexicon to primarily refer to only environmental or ecology stewardship, but the other two tenets of sustainability are equally important when considering urban development: economic and social. The three core areas of sustainability, environmental, economic, and social, are incorporated into the Atlanta BeltLine project. These values were set by the community and should be the driving force behind decisions made by ABI, ABP, and the private development that happens in neighborhoods surrounding the 22-mile corridor. However, there is growing concern that the profit driven goals of private development are overtaking the community goals of sustainability. This tension cannot be overlooked as “private developers, private contractors, private consultants, and private finance are the agents that actually build stuff, even in the case of government-initiated infrastructure and building projects” (Dobbins, 2009) Concerns about the BeltLine within neighboring communities about developments have grown as abandoned lots, unused industrial space and single family homes are converted into considerably more dense developments. Are the private sector developers proposing new residential and commercial places that meet the goals and values of the community?

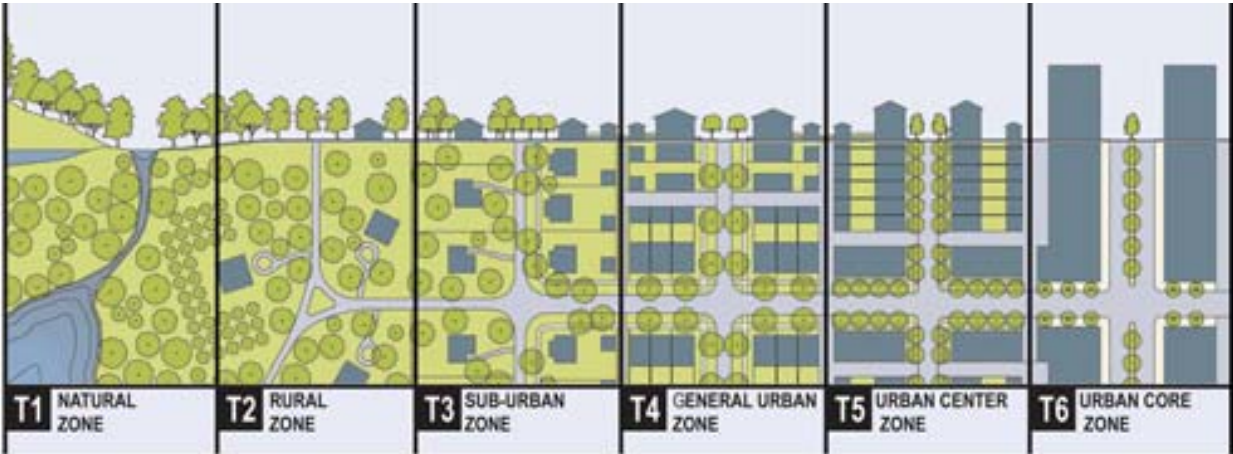
Figure 1: Initial Belt Line Route Proposal



Source: Ryan Gravel, 1999

One way to envision development and its impact on the community is the concept of transects, developed by Duany, Plater-Zyberk. Transects, “a new contribution to the vocabulary of zoning regulation”, create a hierarchy and helps conceptualize development activity by

Figure 2: Rural to Urban Transect Zones



Source: <https://transect.org/transect.html>

density, use, and street type. (Dobbins, 2009) The majority of the BeltLine corridor would be considered General Urban Zone or greater (T-4 to T-6), although there are very suburban style areas (T-3) in other subareas along the BeltLine. It’s important for new development to be scaled appropriately to integrate into the surrounding development pattern. A large multi-family development of 300 plus units and five stories (T-6) does not belong directly next to detached single family homes (T-3). This challenge will become more apparent as land in the BeltLine corridor is purchased and property speculation accelerates.

Although Subareas 4 & 5 are mostly made up of abandoned industrial land along the rail corridor, the residential areas of Cabbagetown and Reynoldstown in subarea 5 resemble a more suburban style. The residents of these single-family homes have raised concerns when BeltLine corridor adjacent properties have been proposed as multi-family complexes greater than 4 stories. For example, a development in the Reynoldstown neighborhood rejected a rezoning proposal for one such development at 930 Mauldin during the neighborhood and NPU rezoning process.

To truly accomplish the sustainable goals of the Atlanta BeltLine Inc., private development needs to support the values set by the community via the subarea master plans. To codify this and support the Atlanta BeltLine in their decision making, these values of sustainability should be reflected in its urban design. Although recent development catalyzed by the BeltLine has included mix of uses, multi-family development has been dominant; therefore, the concept of sustainability will be analyzed in a context of multi-family development.

Research Question

Do new multi-family developments along the Atlanta BeltLine reinforce and enhance the sustainability efforts of the Atlanta BeltLine?

Decision Support Tool Criteria as it relates to Sustainability

The Decision Support Tool was created by the Center for Quality Growth and Regional Development in accordance with the Atlanta city ordinance 05-O-1733 that created the Tax Allocation District.

“The (TAD) Advisory Committee shall be responsible for developing and implementing a "decision making support tool" designed to measure the impact of the BeltLine project and ensure accountability for effective and equitable implementation of the project. By way of description only, the "decision making support tool" should address such factors as balanced development, poverty reduction, income, educational achievement, land use, historic preservation, density, growth, park usage, trail usage, water quality, traffic, sewer capacity, community involvement/civic engagement, retail growth, health measures, cultural considerations, and environmental impacts”(Creating the BeltLine and TAD, 2005)

Upon creation of the Decision Support Tool, these 18 variables of concern needed to be reviewed, as it had been six years since the legislation was enacted and over those six years, the financial environment had changed drastically with the housing crash and recession of the late 2000s. The DST team “revisited the visions and goals of the BeltLine” by “reviewing the current body of plans, activities, decisions and dialogue related to the BeltLine to determine how the DST strategy and approach needed to be refined”. (Elliott & Ross, 2012). The DST includes three levels of analysis, which led to the creation of the seven criteria in collaboration with TADAC, ABI, and other stakeholders, created out of an initial list of over a hundred potential variables. Approximate cost for obtaining the data and calculating the variables was also considered in deciding the variables. These criteria were whittled down to seven to include: Accessibility, Healthy/Active Living, Economic Vibrancy, Greenspace and Environment, Sustainable Housing and Community Design, Diverse Built Environment and Vibrant Tax Base, and Social & Environmental Equity (Elliott & Ross, 2012).

Accessibility

Accessibility is supported by the following four indicators: Street Connectivity, Prevalence of sidewalk network, Uncongested roads (Level of Service= C or better), Travel speed via transit. Accessibility is defined as the “ability to reach desired goods, services, activities and destinations.” (Litman, 2003). All four indicators reveal quantifiable ways of how well people can get to places, whether it is in general based on the street network connectivity, or dependent on your mode of travel, represented by prevalence of sidewalk network for walking, uncongested roads for driving by car, and travel speed via transit for taking transit.

In general street network connectivity is improved by more roads that connect to one place to another to allow more direct travel. This relates to sustainability as the greater the street connectivity, the more routes or ways of arriving are present. This allows for resiliency and the option of choosing another one there is something preventing one from taking the original route. This is important for the economic aspect of sustainability

Under the umbrella of accessibility, prevalence of sidewalk network supports walking as a mode of transportation and legitimizes it in an age where cars still rule. There’s a respectability to a neighborhood with sidewalks that must not be overlooked. This is important because as long as one is able to walk, or roll in a wheel chair, the sidewalk provides an

opportunity for one to get somewhere, increasing their accessibility. It also helps as it is the least carbon emitting form of all transportation modes. This is important for the social and environmental aspect of sustainability.

Uncongested roads provide freedom to drive to a location within a dedicated or planned timeframe. Although driving a car is one of the least environmentally sustainable transportation modes, an uncongested road is better for emissions than a car idling in gridlock. In this case, the environmental aspects cancel each other out and therefore this indicator is important for the economic aspect of sustainability.

Travel Speed via transit is a metric that incorporates using a sustainable mode of transportation in all aspects, it is more environmentally friendly than driving alone and it is the most efficient use of space on the street network, with buses being able to carry up to 55 people and trains much more. It is also on average more reliable than driving alone, depending on the transit networks and the use of dedicated right of way. Lastly, there is a social aspect to transit travel, where it is more accessible to people on the lower economic spectrum and there is potential for social interaction on a bus or train ride, especially compared to the isolation of driving alone. Travel Speed wins the triple crown of sustainability; environmental, economic, and social.

Healthy/Active Living

Healthy/Active Living is supported by the following four indicators: Walkability, Physical activity, Safety (few crimes), and Proximity to healthy food. Healthy/Active Living is defined as taking care of your daily needs in a non-sedentary way, with a good balanced nutrition. All four indicators reveal quantifiable ways to support an overall healthy/active lifestyle, whether it is a walkability score that is a measure of your network density to certain amenities for daily chores, a distance to large park space that is meant for active physical activity as a proxy for physical activity, safety as a measure of few crimes, and network distance to healthy food option stores such as grocery stores and markets, but not convenience stores.

The walkability metric mimics the popular walkability score by measuring the network distance to certain amenities that one would choose to walk, such as restaurants, grocery stores, etc. It relates to sustainability because it supports an environmentally sustainable mode of transportation, it shows economic vibrancy due to the number of amenities in close proximity and it is socially sustainable as it gets people interacting with one another to walk for accomplishing their chores and does not purposefully exclude people on all income spectrums. Walkability scores can sometimes correlate to affordability, potentially excluding people on the lowest income spectrum, but this metric is covered elsewhere. Overall, it's another three-time sustainability winner.

Physical activity is measured by access to large parks (greater than 100,000 square feet) but only because it is a proxy for the likelihood of someone to exercise. Humans need to exercise to keep their body functioning properly, especially as age starts to become a factor. This is an economic sustainable factor as healthy people are more productive in the workforce since they don't miss as much work due to illness and social sustainable factor as a healthy person is less dependent on others to survive. Both factors are prevalent in the current political conversation of Health Care costs.

A measure of crime rate is a way to ensure healthy living for both one's physical and mental state. Avoidance of bodily harm is obviously one way to stay healthy, but less obvious is the mental strain on one who crosses crime. A safe environment to live yields healthier minds and bodies. The sustainability factor here is social, because one's social well-being and ability to contribute productively to society.

Proximity to healthy food is measured by network distance to a supermarket or meat/fish market, indicating access to fresh, nutritious food for a balanced diet. A person that eats according to the healthy food pyramid and gets their food from either a supermarket or other market, is more likely to eat fruits and veggies and some animal based products from sustainable sources as there are more local and fresh options at these stores than convenience stores or fast food restaurants. This factor is both environmental and economically sustainable as local food is a very environmentally sustainable lifestyle choice, and a close grocery store is a sign of economic vibrancy in the area.

Economic Vibrancy

Economic Vibrancy is supported by the following four indicators: Income, Employment, Retail and Industrial activities, and Educational achievement. Economic vibrancy is a sign of an abundance of healthy exchanges of money, especially in the western society dominated by capitalism. All four indicators reveal quantifiable ways to support economic vibrancy, from income as a sign of personal financial well-being, employment as a means to get paid for labor or knowledge, retail and industrial activities as a physical space for such transactions to take place, and educational achievement as a sign of investment in oneself and the potential to cash that in.

Income is measured as weighted average of median household income, an indicator of how much one can spend or borrow with the ability to pay one's lender back. This is an economic and social sustainability factor as a steady flow of cash shows a health to the markets and social because it supports the needs of the individual to buy what their necessities.

Employment is an indicator of the total number of jobs, the means to get paid and earn an income, so it is similar to income, but instead of a measure of how much and quality of the spending power, it is a measure of how many people have spending power. It is economic and social sustainability.

Retail and Industrial activities measures the number of permits and establishments, indicating the employment factor but from the supply side. The number of businesses of a region or area is a factor of economic and social sustainability as there is job creation which helps the economy and tax base, but also helps provide a living wage (hopefully) to another individual.

Lastly, educational achievement measures the percent of residents who graduated from high school and the percent of residents who graduated with a bachelor's degree. This indicates economic vibrancy via an investment in one's self worth and the potential to earn an income or obtain a job. This is both an economic and social sustainability measure as investment in improving one's self is good for society and for one's financial self.

Greenspace and Environment

Greenspace and Environment is supported by the following four indicators: Access to greenspace and trails, % of canopy cover, Environmental sustainable design, and Water Quality. The presence of greenspace and environment is defined as allowing the natural environment

blossom and thrive in an increasing urban society. All four indicators reveal quantifiable ways to support greenspace and environment in cities, as access to greenspace and trails measures the number people with access to nature, % of canopy cover to reduce urban heat index and provide fresh O₂, Environmental sustainable design to ensure our buildings are constructed and contributing to renewable energy sources, and water quality to ensure pollutants aren't contaminating our life source.

Access to Greenspace and trails measures the percent of population within ¼ mile of a park and the number of park acres per 1,000 residents. This reveals the opportunity for human interaction with nature which is a relationship that transcends race color and creed. Our very need to be with nature is a major tenant of the greatest works of philosophy and literature, from the Garden of Eden to On Walden Pond. From a planning perspective, Benton MacKaye's advocacy for the Appalachian Trail and Frederick Law Olmstead's adamant insistence of human's need of respite from the city lay the foundation for the keeping the natural world as untouched yet accessible as possible This measure relates to a pure environmental sustainability aspect.

Percentage of tree canopy cover is less whimsical than just communing with nature, but quantifiable into how much of the ground contains leaves, which in turn cools the earth and cleans the air. It is another pure environmental sustainability aspect.

Environmental Sustainable Design incorporates the built environment into the conversation for greenspace and environment due to the realities of our industrialized society. This is another environmental sustainability aspect, but it also incorporates economic sustainability as buildings are very much in the world of the global economy and subject to market forces.

Water Quality measures the amount of pollutants in the water as well as the amount of pervious surface, allowing for rain water to reach water tables more naturally than through street run off. It is a pure environmental sustainability aspect.

Sustainable Housing and Community Design

Sustainable Housing and Community Design is supported by the following four indicators: Housing Choice, Health of the Housing Market, Affordability, and Density. Sustainable Housing and Community Design is defined as the built environments ability to house the whole of society and the spatial spread of this housing. All four indicators reveal quantifiable ways to support sustainable housing and community design as housing choice allows for society to have options when it comes to where one lays their head, health of the housing market to show the commodification of this market is thriving, affordability shows that the common man can pay one's way to have a bed, and density to show the efficiency of space in our growing urban world

Housing Choice measured with an entropy measure of three separate densities (low medium and high) that correspond with size of housing units. This reveals the diversity of housing options and their importance to provide a range to people who have varying tastes and preferences. This is an economic and social sustainability aspect, since it is important for financial redundancy to have many options, and social sustainability to show that a human's preference matters.

Health of the Housing Market measures vacancy rates, occupancy rates, and home permits per acre. This reveals the importance placed on the supply of residences and how it relates to the current demand. It is an economic sustainability aspect due to the importance of supply to meet demand, where the margins are where money is created and lost. It is also a social sustainability aspect since the social issues of drug addiction and crime are social challenges that are often best confronted in a housing first policy to help those in need and prevent perpetual homelessness. The social sustainability is fragile and can large issues like homelessness can burden a society at all echelons of the income spectrum.

Affordability relates is the inverse of median income dedicated to housing and reveals the potential struggles that someone may encounter when living housing poor. This is an economic and social sustainability aspect due to the impact on markets when people have less spending money due to putting more of a percentage towards rent or mortgage and property taxes. This lack of spending money impacts the social sustainability as personal interactions are strained in times of economic strife.

Density is measured as a population density per acre, revealing how spread out people live. This is a pure social sustainability measure as the interaction amongst one another and support services, either formal or informal are typically more accessible in more dense environments.

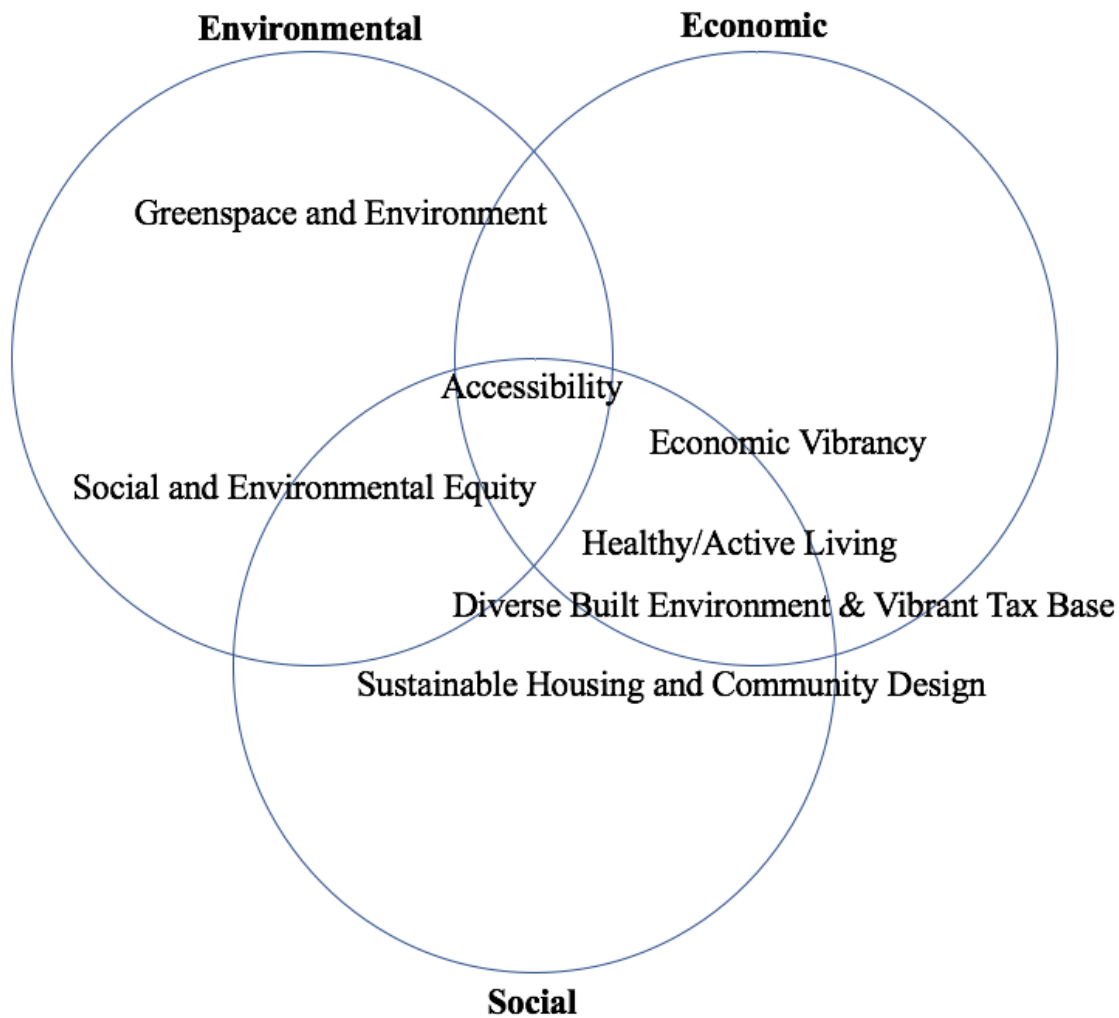
Diverse Built Environment & Vibrant Tax Base

Diverse Built Environment & Vibrant Tax Base is supported by the following four indicators: Tax Base, Art and Historic Preservation, Land Use Mix, and Compatibility with subarea plans. Diverse built environment and vibrant tax base is defined as a healthy urban fabric of land uses that support one another and provide redundancies through the ebbs and flows of economic uncertain times. All four indicators reveal quantifiable ways to support diverse built environment and vibrant tax base, with tax base covering the health of all property value, art and historic preservation maintaining cultural and historical relevancy in the spatial world, land use mix ensuring a healthy balance of types uses, and compatibility with subarea plan to ensure that the private sector is matching the goals of the community. The sustainability aspect of mostly a mixture of economic sustainability, by providing options and redundancies, and social sustainability to support planning efforts that build trust and long term faith in the system if the plan is followed.

Social and Environmental Equity

Social and Environmental Equity is supported by the following four indicators: Minority and vulnerable populations, Historic expenditures by ABI, Environmental quality, and Civic engagement. Social and Environmental Equity is defined by the awareness that “most American metropolitan areas suffer from geographic disparities of race, income, housing, affordability, employment opportunities, and environmental safety.” (Elliott & Ross, 2012) All four indicators reveal quantifiable ways to support social and environmental equity by identifying the location of minority and vulnerable populations as to be aware of geographic disparity, use that knowledge of their location to ensure ABI expenditures are equitable, Environmental Quality shows the importance of nature as our sacred life-source, and civic engagement where the democratic voice allows all to participate and discuss and dream of a better community.

Figure 3: Decision Support Tool Criteria on the Sustainability Spectrum



Methodology

The study will analyze new, multi-family developments located adjacent to the BeltLine for their consistency with the sustainability goals of the BeltLine redevelopment process. BeltLine Decision Support Tool (DST). These criteria include: Accessibility, Healthy/Active Living, Economic Vibrancy, Greenspace and Environment, Sustainable Housing and Community Design, Diverse Built Environment and Vibrant Tax Base, and Social & Environmental Equity

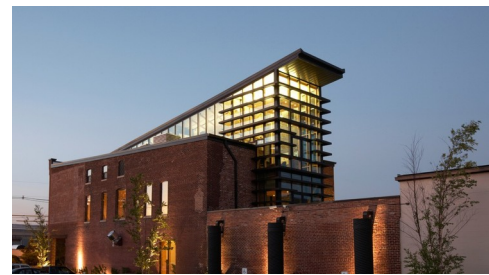
Evaluation of the BeltLine organizations' ability to meet the goals set out by the community is integral in ensuring accountability of the project. The indicators used within the DST are designed to evaluate the impact of investments on the system as a whole and are not calibrated to evaluate individual private developments. "The private sector approaches city building on a project-by-project basis. Any sense of the values or possibilities of the larger context is incidental at best and immaterial at worst" (Dobbins, 2009). To evaluate the private sector's impact on public goals, therefore, new indicators appropriate to smaller scales are needed.

Since recent development has primarily consisted of large multi-family apartment complexes, projects that include multifamily development of 20 units or greater will be examined in this report. Developments of this size and greater have a larger impact on the relatively lower density of the existing neighborhoods and thus come under more scrutiny by neighborhood and NPU zoning and land use committees. In accordance with the current trend of in-town residential growth, recent construction of these large complexes often occurs on former industrial sites directly adjacent to the BeltLine corridor or other large parcels located within adjacent neighborhoods. In an analysis of all multi-family development within the BeltLine corridor study area, less than 10% of multi-family developments were built between 1970 and the late 1990s. This coincides with the period of growth in Atlanta characterized by suburban sprawl. More recently, in-town development has increased, with the BeltLine project acting as a catalyst.

Urban Design Styles

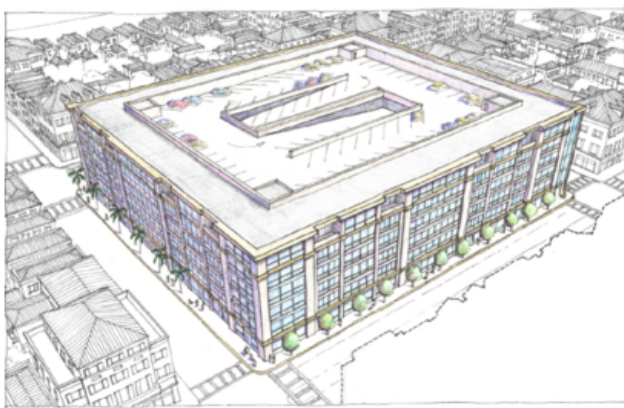
Multi-family developments constructed in-town can be characterized by their urban design elements and historical attributes and sorted into four distinct categories: historical adaptive re-use, new build “Texas-Donut” style apartments, new build townhomes, and a combination of these inspired by new urbanism. Interest in adapting historic buildings has been popular along the BeltLine corridor as many unique industrial buildings, such as the Fulton Cotton Lofts and Studioplex, were purchased and re-purposed. This occurred primarily in the 1990s and was the first wave of in-town multi-family redevelopment.

Figure 4: Adaptive Re-use design style example (The Green Building in Louisville, KY)



Source: <http://www.archdaily.com/783283/20-creative-adaptive-reuse-projects>

Figure 5: Texas Donut example

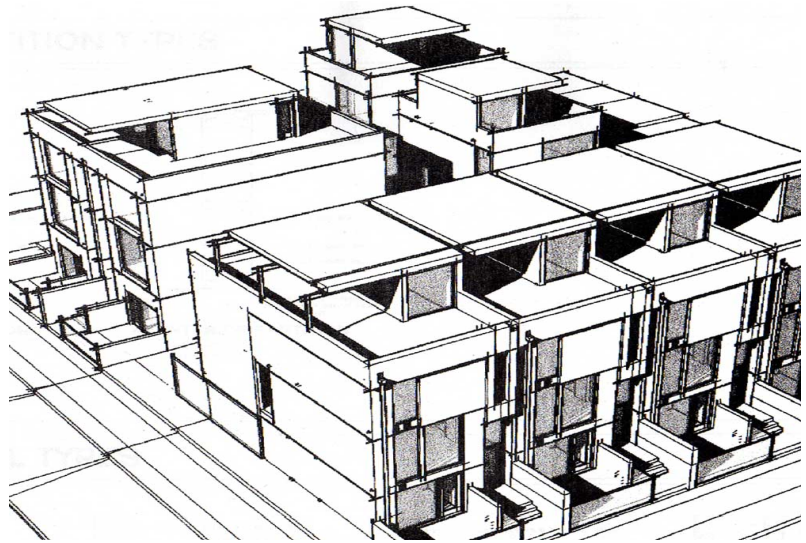


Source: <http://www.civicconservation.org/casestudy/>

Shortly thereafter in the 2000s, new build apartments started to gain popularity as the choice of developers as the markets shifted to allow for purchasing of abandoned buildings and vacant lots. Many of these were in the style of a concrete parking garage structure surrounded by wood-framed apartments, concealing the parking deck. These were nicknamed “Texas Donut” apartments due to its popularity in the 2000s-housing boom in Texas and their shape.

After the recession of 2008, a more recent swell of development of modern or traditional townhomes has occurred likely due to the demand of this “missing middle” style of development, the ability to put together a few small parcels of land to build, and the high reward for the developer by selling them at a hefty price. See Figure for

Figure 6: Townhome example



Source: <https://denverinfill.com/blog/2006/08/hines-project-moves-forward.html>

Lastly, some developers have succeeded in building developments that contain a combination of any of the three above styles. These developments may have been influenced by the new urbanist movement, of which Glenwood Park is a great example in the Atlanta area.

All developments will be reviewed according to their styles to determine a pattern within them of good sustainable design.

Study Area

The study area will consist of subareas 4 and 5 of the BeltLine Master Plan. These were selected because they have experienced the most intense redevelopment since the BeltLine was initiated.

Table 1: Sub-area, NPU, and Neighborhood boundaries of the 27 developments under review

Sub-area	NPU	Neighborhood
4	NPU-W	Grant Park Ormewood Park
4	NPU-N	Cabbagetown Reynoldstown
5	NPU-N	Inman Park Poncey Highland
5	NPU-M	Old Fourth Ward

Subarea 4 consists of the neighborhoods of Grant Park, Ormewood Park, North Ormewood Park, Glenwood Park, Reynoldstown, Cabbagetown, Edgewood, and Capitol Gateway. These neighborhoods are bounded by the CSX rail lines to the north and Berne Street to the south. Subarea 5 consists of the neighborhoods of Old Fourth Ward,

Sweet Auburn, Inman Park, Candler Park, and Poncey Highland. These neighborhoods are bounded by the CSX rail lines to the south and Ponce de Leon Avenue to the north.

The two study areas are located within multiple Neighborhood Planning Units (NPUs). In subarea 4, NPU-W covers the southernmost neighborhoods while NPU-N covers the northernmost neighborhoods. Edgewood neighborhood on the northeast corner of the subarea is included in NPU-O and the Capitol Gateway neighborhood on the northwest corner of the

subarea is included in NPU-V. In subarea 5, NPU-N covers the neighborhoods east of the BeltLine corridor, while NPU-M covers the neighborhood west of the BeltLine corridor.

Multi-family Residential Developments Reviewed

After an initial identification of all multi-family developments within the two subareas, A total of twenty-seven developments were chosen within the study area for comparison of urban design features and styles, with the goal of discovering best practices for sustainable development. It was important to identify and analyze developments of each style and evenly distributed by subarea, NPU, and neighborhood. Developments with larger lot sizes were identified initially, and when gaps emerged in either the style or location, other developments were added to create the final list of developments.

Table 2: Urban Design Styles of Multi-family development

	Historical Adaptive Re-Use	New Build 4+1 Apartments aka “Texas Donut”	New Build Townhomes	New Urbanism / Combination
Timeframe	Post-1990	Post- 2000	Post-2010	Varied
# of Developments	5	12	3	7

The developments are alphabetically listed below, with the corresponding map ID number listed in parentheses.

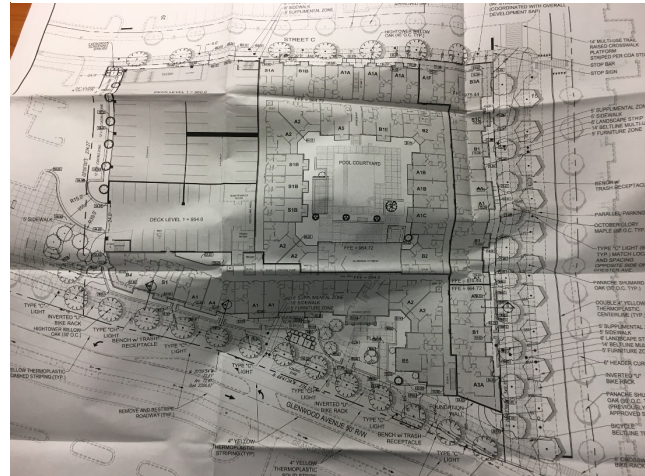
608 Ralph McGill (8) is currently in construction on the 2.44-acre lot on the northeast corner of Ralph McGill Boulevard and Glen Iris Drive in Old Fourth Ward. This development is solely multi-family residential building with 211 units in the Texas Donut Style.

675 N Highland (3) was recently completed on the 2.82-acre lot on the southwest corner of North Highland Avenue and Blue Ridge Avenue in Poncey Highland. This development replaced the multi-purpose facilities of the Druid Hills Baptist Church, the previous owner of the land. The sale of this sub-divided property ensured that the church had enough money to preserve the historic sanctuary. It is a multi-family residential building with 165 units in the Texas Donut Style with approximately 30,000 square feet of ground floor retail

755 North (2) was completed in 2014 on the 2.71-acre lot on the southwest corner of North Avenue and Somerset Terrace in Poncey Highland. It is adjacent to the BeltLine Eastside Trail. This development replaced multiple single story industrial buildings and a private skate park with a multi-family residential building with 223 units in the Texas Donut Style.

Alexan at Glenwood (25) was recently completed on the 20-acre 800 Glenwood site on the southeast corner of Chester Avenue and Glenwood Avenue in Grant Park. The 800 Glenwood site was developed by Fuqua properties amongst controversy because of the concern of his suburban style of development and the potential of a big box retailer to be included in the project. The site design was a result of an arduous process that lead to few compromised by the developer. The site incorporates various styles of design, with the 216-unit multi-family apartment complex resembling a Texas donut design, however its parking lot is not surrounded by apartments, but rather obtrusively sitting on the north-west corner of the building.

Figure 7: Alexan at Glenwood



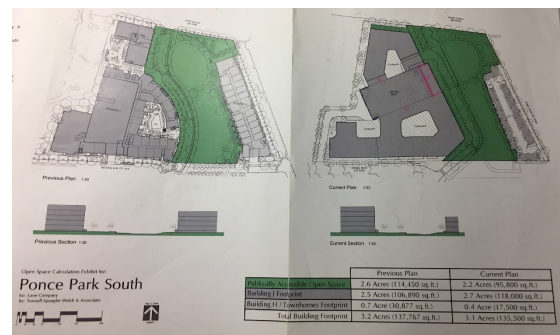
Source: City of Atlanta

Alexan on Krog (17) was completed in 2015 on the 2.79-acre on the southeast corner of Edgewood Avenue and Krog Street in Inman Park. It is adjacent to the BeltLine Eastside Trail Extension that is currently under construction. It is a multi-family residential building with 222 units in the Texas Donut Style.

AMLI Old Fourth Ward (5) was built in 2008 on the 5.11-acre lot east of Glen Iris Drive and bordered by Morgan Street to the North and Dallas Street to the South and East in Old Fourth Ward. It is adjacent to the Historic Fourth Ward Park although it was built prior to the construction of the park. It is a multi-family residential building with 337 units in the Texas Donut Style.

AMLI Ponce Park (4) was built in 2014 on the 7.86 acres of city owned property on the south side of North Avenue in Old Fourth Ward. Over 26% of the property was designated for the northern section of Historic Fourth Ward Park. Figure 5 shows the multiple options to integrate the multi-family building into the park as proposed by AMLI Ponce Park. Townhome units are proposed in this photo alongside the eastern edge of the park, but were never built. Therefore, it is solely a multi-family residential building with 305 units in the Texas Donut Style.

Figure 8: AMLI Ponce Park Options



Source: City of Atlanta

Bass Lofts (13) is a 1998 adaptive re-use of a 1920s-high school building on the 6.98-acre lot on Euclid Avenue and Washita Avenue in Inman Park next to the Little Five Points Business District. It is purely a multi-family residential building with 133 units.

Block Lofts (7) was completed in 2005 on the 6.16-acre lot on the southeast lot of Ralph McGill Boulevard and Ensley Street in Old Fourth Ward. It is adjacent to the BeltLine Eastside Trail. It is a gated multi-family residential building with 315 units in the Texas Donut Style.

Enso (26) was completed in 2012 on the 4.44-acre lot on the southwest corner of Bill Kennedy Way and Faith Avenue in Grant Park. It is directly across from Glenwood Park and adjacent to the future BeltLine Southside trail. It is a multi-family residential building with 325 units and 18,500 square feet of ground floor retail along Bill Kennedy Way in the Texas Donut Style.

Freedom Height Lofts (6) was completed in 2001 on the 5.89-acre lot on the southwest corner of Ralph McGill Boulevard and Freedom Parkway in Poncey Highland. It is a condominium complex with 185 units and adjacent to the BeltLine Eastside trail in a combination style of one adaptive re-use building and new construction mid-rise building.

Fulton Cotton Lofts (20) is a 1997 adaptive re-use of a 19th century cotton mill on a 12.35-acre lot on Boulevard and Carroll Street in Cabbagetown. It is a mixture of condominiums and apartments closed off to the surrounding area by fences and a few entry and exit gates.

Glenwood Park (27) was designed developed in 2003 as a walkable new urbanist development on the 27-acre lot of a former concrete plant on the corner of Glenwood Ave and Bill Kennedy Way in Ormewood Park. The development was designed as a neighborhood that included mixed uses, diversity of housing (single family homes, townhomes, and condominiums), and greenspace.

Highland Steel (11) was completed in 2007 on the 5.65-acre lot between Highland Avenue and the BeltLine Corridor in Inman Park. The parcel of land contained a historical building on the western edge that was repurposed into a 5,000-square foot restaurant and the rest of the single-story warehouse buildings were demolished and new roads were built to encircle two apartment buildings, one with a parking garage in the middle, a Texas Donut, and with apartments surrounding a parking lot. There is a total of 239 units, and ground floor retail along Highland Avenue.

Highland Walk (14) was completed in 2004 on the 7.28-acre lot between Highland Avenue, Sampson Street, and the BeltLine Corridor in Old Fourth Ward. It consists of two separate apartment buildings that each surround a parking deck, classifying this development as Texas Donut urban design style. There is a walking path between the two buildings, but it is gated and not open to the public. There are a few commercial uses on the ground floor along Highland Avenue, but only on the westernmost building. There is a total of 350 units included in the development.

Inman Quarter (12) was completed in 2014 on the 3.27-acre lot between Highland Avenue and Lake Avenue, along Elizabeth Street in Inman Park. It replaced some small one-story warehouse style buildings, that were occupied by an improv theater, restaurant, or small arts stores. The redevelopment is primarily a Texas Donut with a separate single story restaurant on the corner of Highland Avenue and Elizabeth Street, to meet the scale of the other buildings on the corner. This creates a public plaza behind the

Figure 9: Inman Quarter Plaza



Source: Personal Photo

restaurant. There are 200 residential units with 39,000 square feet of commercial space, lining Elizabeth Street and Highland Avenue.

JW Highland Park Townhomes (10) is a townhome development on the 4.86-acre lot between Highland Avenue and East Avenue, on the western edge of the BeltLine corridor in Inman Park. The newly added streets connect Highland Avenue and East Avenue to provide access to large single family townhomes, with most fronting the BeltLine Eastside trail. The homes were first built in 2012 with the final phases of townhomes to be complete in 2017.

Madison Yards (24) is a development project yet to break ground, planned for the 17.5 acre Leggett and Platt warehouse lot on the southeast corner of Memorial Drive and Bill Kennedy Way. The site incorporates various styles of design, with two multi-family apartment complexes on the southern edge of the lot, both resembling a Texas donut design with large parking garages with 350 units. The commercial properties combine for 158,000 square feet within the site to include single story buildings along the edges of Bill Kennedy and Memorial Drive, a grocery store with a two-story parking deck, a movie theater with a four-story parking deck, and an 60,000-square foot office building. Upon completion, the Atlanta BeltLine Southside trail will border the western border of the site.

Milltown Lofts (21) is a 2003 adaptive re-use development on the 7.3-acre lot bounded by Wylie Street on the north, Chester Avenue on the east, Marcus Street on the south and Pearl Street on the west in Reynoldstown. This development repurposed a small warehouse building into twenty condominiums on the southern parcel between Field Street, a through street, and Marcus Street and twenty-four single family townhomes that surround them. On the northern parcel between Wylie Street and Field Street, the developer constructed a gated parcel of new two and three story lofts split between twelve buildings surrounding a pool and pool house. There is a total of 128 units included in this development

Moda Reynoldstown (19) is a townhome new development on the 2.8-acre lot on Weatherby Street in Reynoldstown. This development is new construction of 45 townhomes and 20 condominium flats with a small internal street grid and a shared pool.

Nextran / Modera Mill Creek Residential (22) is a planned new Texas Donut development with ground floor retail on the 8.5-acre lot on the northeast corner of Memorial Drive and Pearl Street in Reynoldstown. The proposed 320 multi-family unit apartment complex will be complemented by 30,000 square feet of ground floor commercial space. It has yet to begin construction as of spring 2017.

Parmalot Site / Atlanta Dairies (23) is a redevelopment on the 9.78-acre lot on the southeast corner of Memorial Drive and Pearl Street in Reynoldstown. It will include a refurbishment of the old Atlanta Dairies building into a mixed-use entertainment development with 83,800 square feet of commercial space for shops and a music venue, as well as multi-family residential buildings with 320 units. The urban design is a combination of repurposed buildings and Texas donut style apartments. Demolition of architecturally insignificant buildings started in the winter of 2016.

Station R (18) was completed in winter 2017 on the 4.4-acre lot on the entire block of Moreland Avenue between Seaboard Avenue and Wade Street in Reynoldstown. Located directly across the street from the Edgewood Shopping district and one block east of the Inman

Park/Reynoldstown MARTA station, it replaced many boarded up single family homes with 285 units in a Texas Donut style apartment complex with 16,000 square feet of ground floor retail.

Studioplex (16) is a 2008 adaptive re-use development on the 6.15-acre lot on the southeast corner of Auburn Avenue and Airline Avenue in Old Fourth Ward. The repurposing of a 1920s-industrial building created 130 loft units for either residential or commercial purposes. Further investigation revealed advertisement of 90,000 square feet of commercial space.

The Brickworks (15) is a townhome and condominium complex development built in 2002 on the 2.32-acre lot tucked between Lake Avenue and two other properties along the Atlanta BeltLine corridor in Inman Park. Although the development does not have access to Atlanta BeltLine, it brought 50 units into a previously unused parcel of land, adding density that would soon be needed in the corridor.

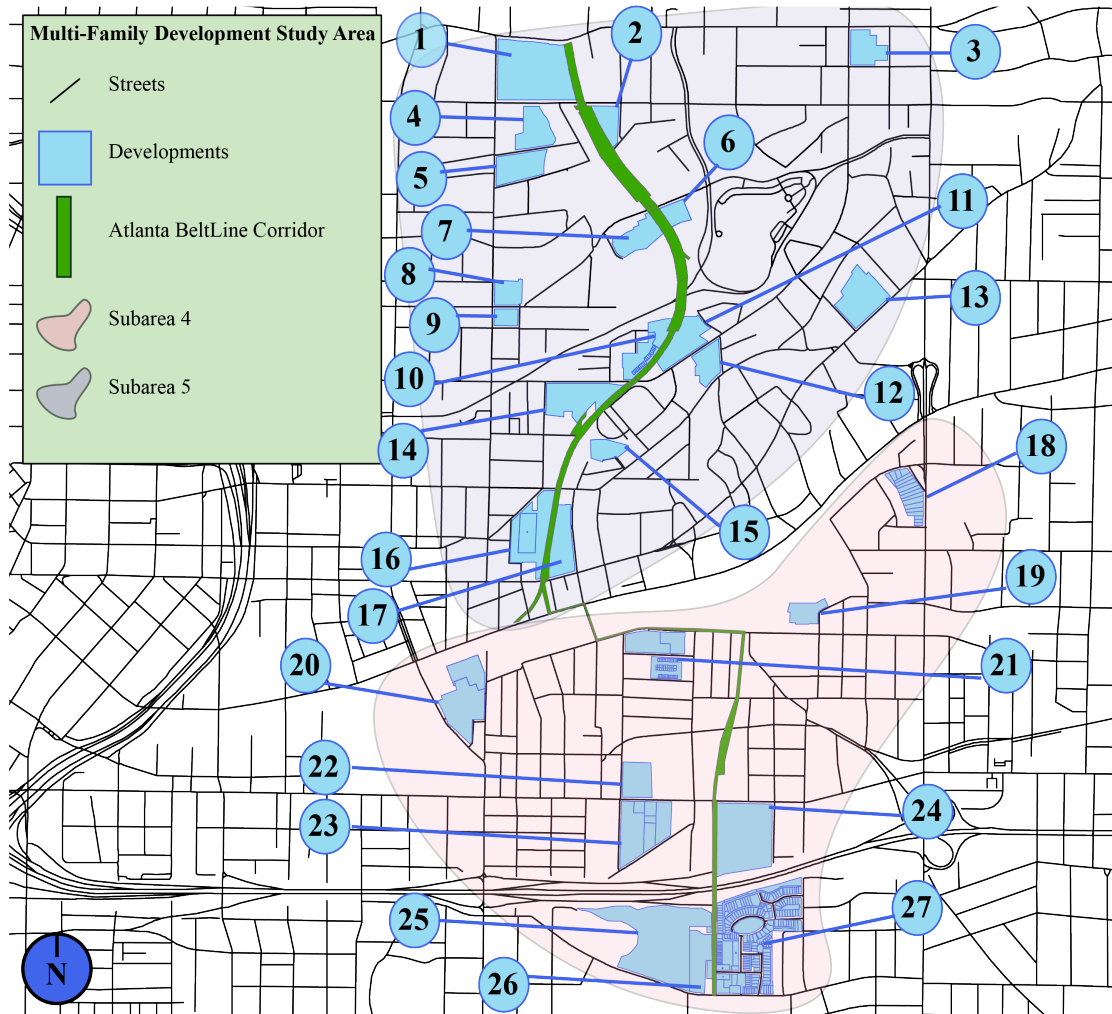
The Flats at Ponce City Market (1) is the residential component of the adaptive re-use of the old Sears and Roebuck Building that sits on the 15.9-acre lot on the entire block bounded by Ponce De Leon Avenue to the north, the BeltLine Corridor to the east, North Avenue to the south, and Glen Iris Drive to the west in Old Fourth Ward. The massive building was split into retail, office and residential uses, providing a truly mixed-use living experience to the residents in the 25 units split between the East and West wings of the building.

The Square JW Homes (9) is a townhome development under construction on the 1.55-acre lot on the southeast corner of Ralph McGill Boulevard and Glen Iris Drive in Old Fourth Ward. The six-townhome development is replacing the Creomulsion company building that was identified by the community as worthy of preservation in the BeltLine subarea 5 master plan.

Table 3: Multi-Family Development Map Legend

Map #	Development Name	Year	Style	Map #	Development Name	Year	Style
1	The Flats at Ponce City Market	2015	Adaptive Re-Use	15	The Brickworks	2002	Townhomes
2	755 North	2014	Texas Donut	16	Studioplex	2008	Adaptive Re-Use
3	675 N Highland	2016	Texas Donut	17	Alexan on Krog	2015	Texas Donut
4	AMLI Ponce Park	2014	Texas Donut	18	Station R	2016	Texas Donut
5	AMLI Old Fourth Ward	2008	Texas Donut	19	Moda Reynoldstown	2017	Townhomes
6	Freedom Height Lofts	2001	Various	20	Fulton Cotton Lofts	1997	Adaptive Re-Use
7	Block Lofts	2005	Texas Donut	21	Milltown Lofts	2003	Adaptive Re-Use
8	608 Ralph McGill	2017	Texas Donut	22	Nexttran	2017	Texas Donut
9	The Square JW Homes	2016	Townhomes	23	Parmalot Site / Atlanta Dairies	2017	Various
10	JW Highland Park Townhomes	2014	Townhomes	24	Madison Yards	2017	Various
11	Highland Steel	2007	Various	25	Alexan at Glenwood	2016	Various
12	Inman Quarter	2014	Texas Donut	26	Enso	2012	Texas Donut
13	Bass Lofts	1998	Adaptive Re-Use	27	Glenwood Park	2003	New Urbanism
14	Highland Walk	2004	Texas Donut				

Figure 10: Multi-Family Development Study Area Map



Criteria for Evaluating Developments

The goals set out by the BeltLine Decision Support Tool (DST) provides the baseline for analysis of the developments. These primary objectives were then refined into seven criteria with four indicators each. Listed in table 4.

Table 4: Original Decision Support Tool Criteria and Indicators

Criteria (Desired Condition)	Indicator
Accessibility	Street Connectivity Prevalence of sidewalk network Uncongested roads (Level of Service= C or better) Travel speed via transit
Healthy, Active Living	Walkability Physical activity Safety (few crimes) Proximity to healthy food
Economic Vibrancy	Income Employment Retail & industrial activities Educational achievement
Greenspace & Environment	Access to greenspace & trails % canopy cover Environmental sustainable design Water quality
Sustainable Housing & Community Design	Housing choice Health of housing market Affordability Density
Diverse Built Environment & Vibrant Tax Base	Tax base Art & historic preservation Land use mix Compatibility with subarea plans
Social & Environmental Equity	Minority & special needs populations Historic expenditures by ABI Environmental quality Civic Engagement

The Decision Support Tool (DST) supports analysis of these seven criteria with four indicators each. All scores are scaled to 100 to provide an ability to compare across indicators

and criteria. However, to analyze these tools at a smaller scale, i.e. the individual private development, each indicator must be evaluated and modified to apply.

Accessibility

In the original DST, **street connectivity** is measured through metric reach, which is a network density measure that also correlates to ideal block size. The network density was calculated around an estimation point within each subarea. At an individual development scale, street connectivity and the density of the street network can be enhanced through the creation of new streets that connect with the surrounding network or with the realignment of streets to better enhance the grid. A calculation of street connectivity was analyzed by measuring the length of all new streets and calculating their relation to an ideal metric reach. “The optimum walking block size is approximately 330’ along each side, which produces a 1/16 mile by 1/16-mile grid street system. A district composed of blocks this size will generate a metric reach score of 16.” (Elliott & Ross, 2012) See Figure 8 for an example of a 1/16 mile or 330’ block grid with a perfect metric reach of 16. See Figure 9 for an example of a 1/8 mile or 660’ block grid with a metric reach of 8

Figure 11: Metric Reach = 16

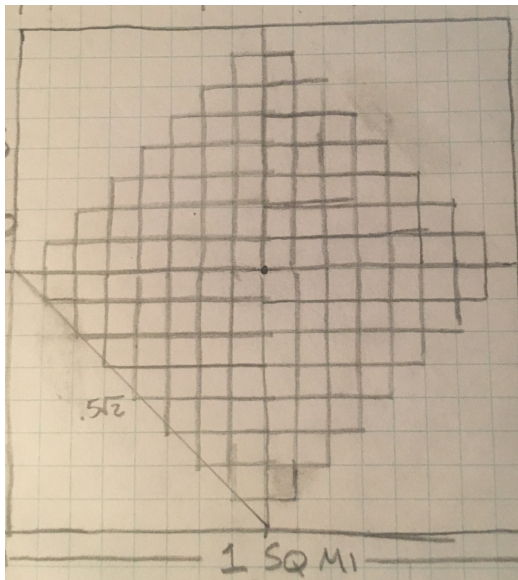
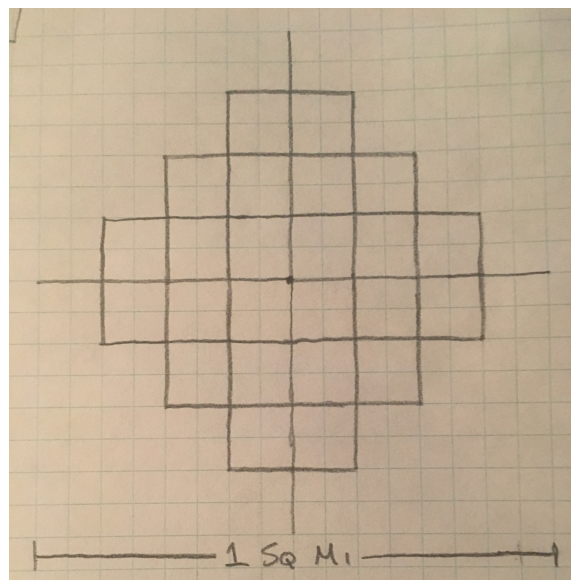


Figure 12: Metric Reach = 8



The new metric reach score was analyzed in comparison to the metric reach prior to the redevelopment of the parcel, indicating whether the development in question improved the surrounding neighborhood. To achieve this, the network distance was calculated from a center point of each development, prior to construction and upon completion. The Metric Reach percentage change, the impact of new roads on the neighborhood, was calculated by dividing the post-development metric reach by the pre-development metric reach.

$$\text{Metric Reach Change} = \frac{\text{Pre-Development Metric Reach}}{\text{Post-Development Metric Reach}}$$

Additionally, to control for lot size, the metric reach change was divided by the Net Lot Area (NLA). The results were then analyzed and are presented in the analysis section.

$$\text{Metric Reach Change (control)} = \frac{\text{Metric Reach Change}}{\text{Net Lot Area}}$$

The number of intersections created was also analyzed to highlight the importance of a connected street grid and to offset the potential of skew due to cul-de-sacs and other non-connecting streets. This skew of cul-de-sacs is represented in Figure 10, where the same 660 foot, 1/8-mile block grid from figure 9 had twenty-four 330' cul-de-sacs added to grid. This increased the metric reach from 8 to 9.5, yet did not increase connectivity. Therefore, to calculate a more robust metric for street connectivity, newly created three-way intersections were given one point and newly created four-way intersections were given two points. To illustrate the importance of three-way intersections receiving one point and four-way intersections receiving two points, figure 11 provides a comparison with figure 10. Figure 10 contains 24 cul-de-sacs and received an intersections-created score of 24 for 24 new three-way intersections. In figure 11 the same length of street (1.5 miles) was added, but as twelve 660' through streets, creating eighteen four-way intersections with an intersections-created score of 36 for 18 new four-way intersections.

Each intersections-added score was then normalized to 100 by dividing each development's intersection score by the maximum score, yielding the development with the maximum intersection score receiving a relative score of 100.

Figure 13: Metric Reach = 9.5 & Intersection Score = 24

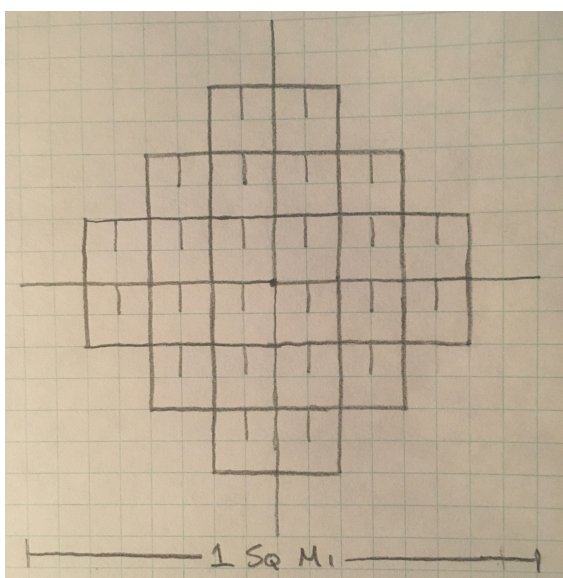
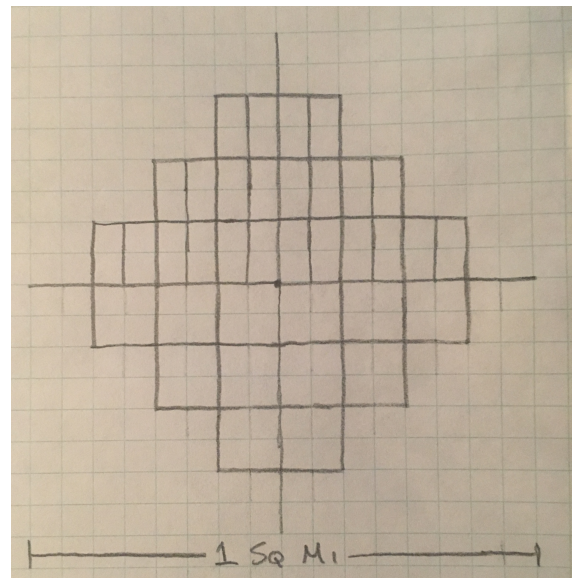


Figure 14: Metric Reach = 9.5 & Intersection Score = 36



Finally, in order to create a score out of 100, both the metric reach calculation and intersections-created score were weighted equally by multiplying the relative points for metric reach and intersections created by 50 and added together.

$$\begin{aligned}
 &\text{Relative Metric Reach} * 50 \\
 &+ \\
 &\text{Relative Intersections-Created Score} * 50 \\
 &= \\
 &\text{Street Connectivity Score}
 \end{aligned}$$

Prevalence of sidewalk network is measured in the DST as a percentage of streets with sidewalks. The individual development scale allows for a more detailed consideration of the pedestrian experience such as the width of the sidewalks, shade trees and amenities, and the quality of the pavement. Other pedestrian considerations include the spacing between crosswalks, but this is often a factor of block size, which is covered in the street connectivity indicator with metric reach and traffic control devices at intersections, which is often a decision that lies with the city public works department. Sidewalks on all sides of the road indicate a higher quality pedestrian experience, but unless developments span across the street, they will not have control over this public space. Lastly, the pedestrian experience is greatly improved when separated from the roadway by tree wells, a street furniture zone, and/or a buffer of parallel automobile parking.

Figure 15: Poor Sidewalk due to obstructions, narrow width, broken pavement



Source: <http://www.austinchronicle.com/photos/sidewalk-fail/19/>

Figure 16: Good Sidewalk due to tree buffer, ample width, good pavement quality



Source: <http://www.ce.gatech.edu/category/sidewalks>

(2007) A 100% unbroken, American Disabilities Act compliant sidewalk and ramps were graded with a 5-point deduction out of 100 for every discrepancy. A consistent 5 feet minimum street

furniture and tree planting zone between the sidewalk and car travel lanes were given a score of 100, with deductions of 5 points for interruptions into the observed pedestrian travel way and a 5-point deduction for each interruption of either a parking buffer, a tree canopy/tree buffer, or a street furniture buffer. All three factors (sidewalk width, street amenities, and pavement quality) were divided by 3 and added to one another to create a score with 100 indicating that 100% of the developments have high quality sidewalks. If sidewalks are missing along any public edge of any development, there will be a deduction of 25 points from this final score.

Uncongested roads are a macro, larger scale measurement of the volume of traffic at peak periods, called Level of Service (LOS). This indicator used by Georgia Department of Transportation (GDOT) was chosen to analyze congestion for the DST, with the LOS not to exceed 75% of the capacity of the road, LOS-C. In order to analyze congestion through urban design measures, the amount of parking within the development is the most concrete metric that affects mode choice and leads to a greater percentage of automobile trip generation. (Golob, 1989) Therefore, internal to a development, the number of parking spots per residential unit were analyzed to determine the development’s impact on road congestion. The BeltLine Overlay district indicates a parking maximum and Atlanta zoning code requires a parking minimum. Developers must work within these confines, which offer them a range of options. Meeting the lowest possible parking requirement earned a score of 75, while meeting the maximum parking earned a score of 25. A variance request to provide less parking than the minimum yielded a score closer to 100 while a variance request to exceed the maximum parking limit yielded a score of zero. To quantify this number, the ratio of actual parking to required parking will be attributed to each project. For example, if a 200-unit apartment requires a minimum of 300 parking spaces and the maximum limits it to 400 spaces. Then the 50-point spread between 25 and 75 points will be distributed between difference of the minimum and maximum, 100 spaces. A complex that builds 300 spaces would receive a 75, a complex that builds 350 spaces would receive a 50, and a complex that builds 400 spaces would receive a 25 score.

Travel speed via transit was measured for the DST by using Google Maps transit

routing to downtown from dedicated points within each sub-area. This is a measurement that is not easily attributable to the development level yet the urban design of a development could improve the quality of the transit experience by providing publicly accessible bike share hub or MARTA bus stops internal to the development. Inclusion of one of these attributes is considered an improvement on the previous condition. Also, in preparation for BeltLine Transit, the network distance between the development and a proposed BeltLine Transit stop or existing MARTA train station is within a quarter-mile walking distance of development received all 33.3 points. If the development is within a quarter-mile and half-mile walking

Figure 17: Portland Transit Oriented Development



Source: http://thecityfix.com/blog/new-report-transit-oriented-development-strategic-plan-for-portland/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+TheCityFix+TheCityFix

distance, it received half of the points (16.65). If the development is between a half-mile walking distance and three quarters of a mile walking distance it received only 5 points. Each of the three attributes (bike share, bus stop, and distance to BeltLine or MARTA rail) was given equal weight, with a maximum point value of 33.3. For instance, the inclusion of a bike share hub received 33.3 points, and a covered bus stop received 33.3 points. If there is no bus route along the public road nearest the development, then this indicator will be removed from the equation, given greater weight (50/50) to the bike share hub and distance to transit.

Healthy Active Living

In the DST, “walkability is measured as the distance from an estimation point to amenities that research indicates active walking” (Elliott & Ross, 2012). For this indicator to apply to individual developments, an analysis was conducted of the publicly accessible amenities within the development as well as those surrounding the development. Mixed use developments that include commercial amenities undoubtedly increase walkability, while developments that are purely multi-family residential create vibrancy by adding residential density near such amenities. Each amenity has a different impact on walkability and are weighted as such in the DST. The weights are listed in brackets in Table 5, with multiple numbers indicating multiple establishments of that type within the research area. They are as follows:

Table 5: Walkability Weights

Establishment	Occurrence
	[1st] [2nd] [3rd] [4th] [5th] [6th] [7th] [8th] [9th] [10th]
Grocery	[3]
Restaurant	[.75] [.45] [.25] [.25] [.225] [.225] [.225] [.225] [.2] [.2]
Shops	[.5] [.45] [.4] [.35] [.3]
Coffee Shop	[1.25] [.75]
Bank	[1]
Park	[1]
School	[1]
Bookstore	[1]
Entertainment	[1]

Source: Decision Support Tool

For example, each additional restaurant has a diminishing impact on walkability, .75 for the first one, .45 for the second, and so on. These same weights were used for the walkability analysis at a development level. The original DST includes a distance decay function to determine the spatial relationship of those amenities that are located within 1.36 miles of the development. Therefore, all amenities were analyzed based on their distance from the development. Amenities within 0.25 mile will receive 100% of full score. Beyond 0.25 miles, the distance decay function is defined as $y=1.225-0.9*\text{distance}$. Under this function, 1.36 mile is the upper bound for calculating walkability score. Amenities beyond 1.36 mile score a zero with this calculation, therefore are not considered. All amenities within the development and surrounding the development will be collected and a summation of each amenity multiplied by its weight and the distance decay function will determine its walkability. The maximum of this metric is 15. The development walkability score was calculated by dividing the above score by the maximum possible score of 15 and then multiplying by 100 to receive a percent normalized to 100.

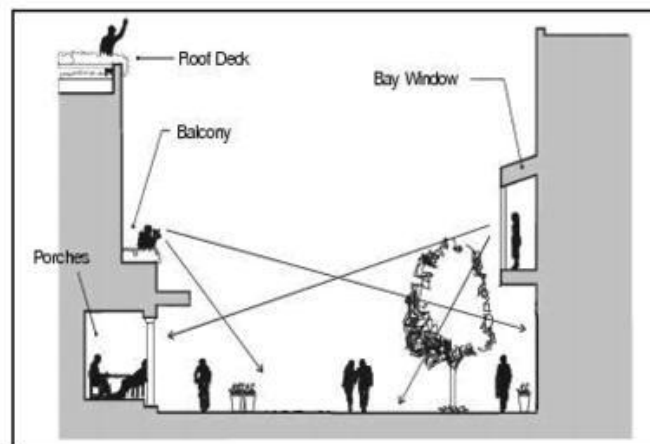
A relative measure is one that included the walkability score of the area with and without the development. The calculated change of walkability provides another understanding of each development’s impact on walkability of its surrounding area. To calculate this measure, the new amenities were removed from the equation, and a new analysis was conducted to determine the walkability of the neighborhood, as if the development did not exist.

Physical Activity does not have direct measures in the built environment so as a surrogate the DST measures physical activity based on access to major parks and trails that are designed to support such activity. Major Parks are defined as those larger than 100,000 square feet. Individual developments can increase the access to parks and trails for both their residents and the surrounding community through siting residential buildings near such amenities and by providing access trails external to their developments to the BeltLine trail. Additionally, internal pathways that improve access to the street network outside their developments have the potential to improve physical activity of the residents. Since internal street grid had already been evaluated, the creation of access trails to the Atlanta BeltLine or surrounding parks could also be evaluated. The pedestrian network distance from the access point of the residential building to the BeltLine trail or a major park (>100,000 square feet) was measured for each development.

Safety is measured in the DST as the absence of crimes and this is calculated from crime data collected from the Atlanta Police Department. However, urban design features of individual

developments are attributed to improved safety and crime statistics by providing eyes on the street, famously championed by Jane Jacobs. Therefore, to determine safety, a walk-through analysis of each development revealed the safety aspects that provide eyes on the street, such as balconies, windows, and shallow front yard set-backs and those that prevent eyes on the street, large setbacks, fences, and gates. Based on the findings, developments will be grouped into five categories: greatly improves safety, improves safety, slightly improves safety, minimally improves safety, and does not improve safety.

Figure 18: Eyes on the Street



Source: <https://bardcityblog.wordpress.com/2012/02/23/eyes-on-the-street-steven-reiman/>

Proximity to healthy food is a key component to healthy living. Therefore, the DST analysis consisted of the network distance from the sample points to small markets, groceries, or supermarkets. To analyze this on the development level, an analysis of network distance from each development to small markets, groceries, or supermarkets was conducted. It was expected that the inclusion of the grocer within the development would give these developments the highest scores, but multi-family developments that build near healthy food options are also improving healthy living for their residents. The lowest network distance, zero for developments that include a healthy food establishment, will be given a score of 100, and all other developments will be scored by a decrease of 10 points for every tenth of a mile network distance from the healthy food option.

Economic Vibrancy

Income is measured for the DST as a weighted average of median household income, percent below the poverty line, and percent below 50% of the poverty line. This data is used by the DST to determine the economic health of the residents within each subarea. However,

income data is not available on the individual development scale; therefore, this information will not be considered in the analysis at the individual development scale.

Employment is measured for the DST by the total number of jobs within each subarea collected through the marketing information tabulation Nielson service, Claritas. Since this review is focused on the urban design aspects of individual developments that include multi-family residential, this factor can only be improved if there is a mixed-use aspect of the development, bringing service oriented and potentially office jobs to the area. As a result, the developments were compared to one another based on the percentage of the lot that is dedicated to commercial, retail or office.

Retail and industrial activity is measured at a larger scale than the private development level in the DST as “the average of three variables: non-family permits per acre, number of retail establishments per 1,000 residents, and number of office and industrial establishments per 1,000 residents”(Elliott & Ross, 2012). However, individual developments can only affect this by designing and building retail and industrial establishments that integrate into the multi-family residential. Therefore, the same analysis will be used as the employment metric

Educational achievement is measured as a percent of residents who graduated from high school and the percent who graduated with a bachelor’s degree. This indicator is not scalable to the individual development and therefore will not be measured in this study.

Greenspace & Environment

Access to greenspace and trails is measured for the DST as a percent of the population that lives within ¼ mile of a park. A maximum of 16.2 /1,000 acres (the national average) was counted to prevent the scale from being distorted by subareas with very large, regional parks. To measure the individual development’s impact on access to greenspace, a percentage given to publicly accessible parks of the total land area of the development was calculated. The same ratio of 16.2 / 1,000 acres of park space was used to prevent the scale from being distorted by subareas with large lots, therefore more opportunity to build a larger park.

Tree canopy cover in the DST is measured based on percent of land area covered with tree canopy based on 2008 data. To determine tree canopy cover on the individual site, a site visit to count the number of trees is not sufficient as the developments are in various stages of build out and the tree ordinance does not require an on-site one for one replacement. Instead developers may plant trees within one mile of the NPU of the site or pay recompense into the city tree trust fund for trees not planted. (City of Atlanta Tree Protection Ordinance, n.d.) The City of Atlanta contracted researchers at the Center for Geographic Information Systems (CGIS) and the CQGRD at Georgia Tech to quantify the existing Urban Tree Canopy (UTC). The UTC is defined as the layer of leaves, branches and stems of trees that cover the ground when viewed from above. The aim of the Atlanta UTC study is to “help city decision-makers and stakeholders better understand and manage their forest resources.” (Giarrusso, 2014) Within this report, researchers created a potential planting index (PPI) to determine areas of the city that would be ideal for planting new trees. The PPI is calculated by subtracting the percentage of non-vegetative cover from the percentage of tree cover within a gridded parcel of land. This tool provides a good understanding of the potential of planting trees within these grids, assisting in evaluating the impact of development versus conservation.

Table 6: Urban Tree Canopy Potential Planting Index

PPI Value	Description
-1 to -.50	Heavily Treed (25% max potential planting area per grid cell)
-.50 to -.25	Moderately Treed (37% max potential planting area per grid cell)
-.25 to -.15	Lightly Treed (42% max potential planting area per grid cell)
-.15 to .15	Primarily non-vegetation planting (57% max potential planting area per grid cell)
.15 to .25	Minimal large scale planting area (62% max potential planting area per grid cell)
.25 to .50	Good potential for planting (74% max potential planting area per grid cell)
.50 to 1	Large areas of non-tree vegetation- large scale planting (99% max potential)

Source: Urban Tree Canopy Study, 2014

For the individual development tree canopy cover evaluation, a mixture of site visits and the 2008 UTC data was utilized. A review of site plans and a visit to the site determined the developers' level of adherence to preservation of old-growth trees and the planting of new ones on site.

Figure 19: PPI Examples



Source: Urban Tree Canopy Study, 2014

Simple adherence to the regulation does not help analyze its effectiveness. Preservation of old growth trees allow for more shade, and cooler temperatures, while new trees on site will ensure long term tree coverage for individual developments. Therefore, the metric to

analyze tree canopy cover at an individual basis was determined by a more qualitative basis.

For developments prior to 2008, site visits and UTC data determined areas that have improved its previous poor tree coverage by planting new trees, or through the natural growth of young trees to more mature, full coverage trees. For developments that occurred after 2008 within an area with a high PPI, the potential of planting trees in this area is lost due to the development. This will reveal a low score. A development with a low PPI, that includes greenspace in their design, or an ample amount of tree plantings within the streetscape and

internal to the development scored high. The tree ordinance supports the planting of trees in place of the development, but unfortunately this data was not available for analysis.

Environmental sustainable design is not captured in the DST because it is not measured on a larger area basis. However, LEED certification has been utilized to evaluate environmental sustainable design at the development level. Therefore, the LEED rating system was used to determine this criteria at the development level. LEED Platinum received a 100, Gold received a 90, Silver received an 80, Bronze received a 70. EarthCraft rated multi-family developments received a 100 score. Any development without a LEED or EarthCraft certification received a score of 0.

Water quality is measured in the DST “both by impervious surface (greater impervious surface leads to poorer quality storm water runoff) and by existing conditions found in the watersheds located in each subarea” (Elliott & Ross, 2012) While the percent pervious surface within each development can be calculated, the existing conditions found in the watersheds is difficult to contribute to individual developments. Therefore, water quality was determined on the individual development level based on the percent of pervious surface. A review of individual site plans determined pervious surface lot coverage. The percentage of pervious surface of total non-building footprint was multiplied by 100 to create the pervious service metric that best relates to water quality. Extra points were then given for storm water development, bio-retention areas, and pervious pavement.

Figure 20: Pervious Pavers in parking lot VA Hospital, Orlando, FL



Source: Personal Photo

Sustainable Housing and Community Design

Housing choice is determined in the DST by an entropy measure with three classes: percent low density (single family detached), percent mid density (single family attached & small apartment buildings) and percent high density (large apartment buildings). Since this review is at the individual development level, a deeper review of the diversity of the housing within the development was conducted. A similar entropy measure was used with the following breakdown based on style and number of bedrooms: percent low density (single family detached, all bedroom sizes), percent mid-density (single family attached, townhomes, & large apartments with 2 or more bedrooms) and percent high density (small apartments, studios and 1 bedrooms). The decision to change small apartments to high density is deliberate, because the smaller the apartment, the greater the density of units a developer can build within a development. The “entropy measure is calculated based on the sum of each class’s percent share, times the natural log of the percent, divided by the natural log of 3, and multiplied by 100. The resulting value ranges from 1 if 100% of housing is in one class to 100 if each of the three classes has an equal share of 33.3% each.” (Elliott & Ross, 2012) The entropy measures were then compared across developments.

The **health of housing market** is determined in the DST at a larger scale with the occupancy rate and residential home permits per acre. At the individual development scale, the occupancy rate can determine the health of the development, however not all developments are built out and habitable, so such a metric would be incomplete. In this case, those developments were not evaluated until after being open for six months.

Housing affordability in the DST is estimated based on the percent of median income not allocated to either home ownership or rental, which is the inverse of median income dedicated to housing. As previously discussed income data is not available at the individual development scale, so to determine housing affordability in this study, a comparison between the rental rate of multi-family development within the context of the neighborhood was conducted. Zillow, a real estate website that aggregates housing data, specifically compiles rent data via the Zillow Rent Index (ZRI). The lowest level of geography that is available for the ZRI is the neighborhood, so it is an accurate resource for a current median rental rate for the neighborhood. They also calculate and provide a specific ZRI for multi-family residential units (ZRI MF). This is used to estimate the median rental rate for all multi-family residential. However, there is no good way to calculate the median rental rate at the development level since there are multiple variables that affect the price of rent, such as length of the lease, number of bedrooms, and internal amenities and because apartment complexes keep this data close due to heavy competition. The best practice for this study was to gather the available range of price for each size of unit (studio, one-bedroom, two-bedroom, and three-bedroom) and average the costs for each. Then a weighted average was calculated based on the percentage of units at that size. This weighted average is the best estimate of monthly rental cost of the specific multi-family development. This was compared to the ZRI MF to see its impact on the neighborhood. If the weighted average is greater than the multi-family ZRI MF, the development rates are raising the price of the neighborhood multi-family units, making the area less. The percent increase above the neighborhood ZRI was subtracted from the starting score of 100. If the weighted average is less than the multi-family ZRI, then the units at this development are more affordable and receive a score above 100. To support low income families in need, some developments provide affordable homes below Area Median Income (AMI). Therefore, providing below AMI units is

factored as a bonus since it has an opportunity to soften the development’s impact on more vulnerable populations. The metric for housing affordability is separated into two equal parts, the ratio of rental rates compared to the neighborhood and the bonus points for inclusion of below AMI units. Table X breaks down the affordable housing points system.

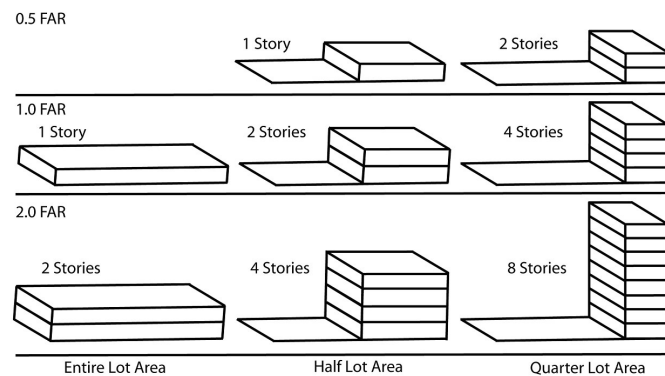
Table 7: Affordable Housing Point System

Points	Percentage of units set aside	AMI qualifying rate
50	20%	At or below 60%
40	20%	At or below 80%
30	10%	At or below 80%
20	20%	At or below 100%
10	10%	At or below 100%

For example, if a development rental average is \$1,200 and the neighborhood rental average is \$1000, the rental ratio would be 1.2. This would receive a score of 80, or 100 minus 20. If the development also provides 10% of housing at or below 100% AMI, then the total score would be 60.

Density was measured at the subarea scale by population density per acre. Density is a measure that is more applicable at the smaller, individual development scale in the form of Floor to Area Ratio (FAR). Therefore, FAR of each development will be used to determine density. The largest FAR will be given a score of 100 with a slowly graduating scale for all other developments. For example, if the densest development has an FAR of 3.0 and a score of 100, the scores of other developments will be determined by dividing their FARs by 3, then multiplied by 100. A development with an FAR of 1.0 will receive a score of 33.

Figure 21: Floor Area Ratio



Source: <https://seattleslandusecode.wordpress.com/2011/03/09/what-is-floor-area-ratio-far/>

Diverse Built Environment & Vibrant Tax Base

A **vibrant tax base** is measured by the DST directly as the total property value for all assessed acreage within the district, divided by the number of acres. This measure can be applied at the individual development scale as well, however comparison is more difficult with the changing of land uses, as the property value of developments compared to there will likely always be greater, when all else is held equal. No score can be evaluated.

The enhancement of cultural resources such as **art and historic preservation** is not easily measured at the larger scale and was not conducted for the DST, but is quite easy to determine at the individual development scale. If buildings are preserved during the process of constructing new multi-family developments and inclusion of publicly accessible art, whether as murals or sculptures can be counted as enhancements to the community. A review of historic aerial photography will be conducted to determine the historic preservation of buildings. This and the inclusion of public art were analyzed qualitatively, “as quantitative measures are unlikely to capture the essence of what is valued” (Elliott & Ross, 2012)

Land Use Mix is measured as an entropy score based on five land use classes: single family, multi-family, retail/entertainment, office/institutional/education, and industry for the DST. This measure was also conducted within the individual developments.

$$\text{Land Use Mix} = (-1) * [(b1/a) * \ln(b1/a) + (b2/a) * \ln(b2/a) + (b3/a) * \ln(b3/a) + (b4/a) * \ln(b4/a) + (b5/a) * \ln(b5/a)] / \ln(5)$$

where

a = total square feet of all land uses

b = total square feet of specific land use, and

b1 = single family residential

b2 = multi-family residential

b3 = retail, entertainment

b4 = office, institutional, education

b5 = industrial

This measure was then multiplied by 100, with resulting values ranging from 1 (all land use is in one of the land use categories only) to 100 (each of the five land use categories contains 20% of the total land uses).

Subarea plans were reviewed through professional and community judgement for the DST. The same method will be used to determine whether the subarea plans are guiding future development. Are recommended land uses and reconnections of the street grid being completed upon as an increasing larger amount of public and private dollars are spent in the community. Each development will be reviewed on a case by case basis and receive a score based on its adherence to this plan. Developments were categorized into four categorized, Good (100 points),

minor changes to the subarea plan (67 points), major changes to the subarea plan (33 points), and developments not included in the subarea plans (N/A).

Social & Environmental Equity

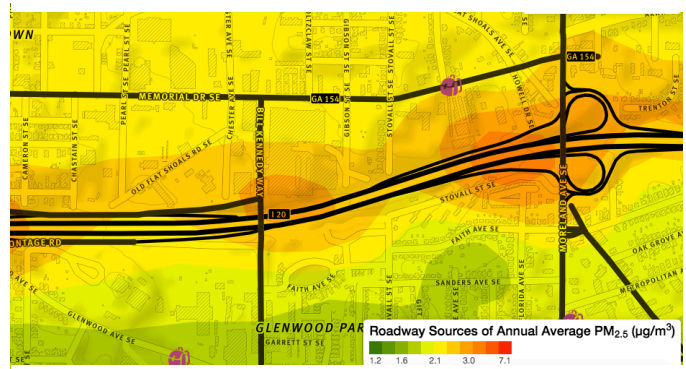
“Most American metropolitan areas, including metro Atlanta, suffer from geographic disparities of race, income, housing affordability, employment opportunities, and environmental safety. To effectively plan for the needs of **minority and vulnerable populations**, the residential location of these populations must be identified” (Elliott & Ross, 2012) The census is used in the DST to determine the percent of the population within any district that is minority, under 15 or over 60. Unfortunately, this is not a measurement that is applicable to the individual development level and has therefore not been included in this analysis.

The DST reviewed **historic expenditures** by ABI to evaluate the effectiveness of the individual purchases made by the public entity, not the private developers, and is therefore not relevant to this project.

For the DST, **environmental quality** was measured by “the presence of brownfields, air pollution hot spots and flooding” (Elliott & Ross, 2012). Individual development along the Atlanta BeltLine is likely to improve environmental quality, whether in redeveloping brownfield parcels or in providing flood infrastructure. A quick review of flood zones within Subarea 4 and Subarea 5 does not reveal any developments within the 500-year flood zone. Individual developments are not able to directly improve air pollution caused by highways, rail yards, and major streets, but the location of development was analyzed through an Atlanta Regional Commission interactive map that visualizes the roadway sources of annual average PM_{2.5}

($\mu\text{g}/\text{m}^3$) (“Roadway Sources of Annual Average Particulate,” n.d.). PM_{2.5} is particulate matter that is most harmful to a human’s lungs. Analyzing the PM_{2.5} level of multifamily developments provided a measurement of environmental air quality. There are 10 bins that separate the PM_{2.5} analysis from 1.2 to 7.1, providing a simple way to equate it to a 100-point scale. The lowest bin of 1.2 PM_{2.5}, green below, received 100 points, while 7.1 PM_{2.5} resulted in zero points. Lastly, if the site was a previous brownfield, an extra 20 points was added to the score. This will be pulled from the EPA Cleanups in my Community Map (“Cleanups in my Community,” n.d.).

Figure 22: Roadway Sources of Annual Average PM_{2.5} ($\mu\text{g}/\text{m}^3$)



retrieved from <http://atlregional.github.io/dispersion/>

Civic Engagement analysis within the DST was associated with projects therefore the same qualitative analysis was done on an individual development analysis. Unfortunately, past NPU meeting minutes are not included on the City of Atlanta Website, and although the Zoning Review Board and Board of Zoning Adjustments agendas and staff reports are available, they do not include results of the previous public input. A full review of the NPU process for each development is suggested as future study.

Table 8 shows the original DST Indicator for each of the seven criteria alongside the newly created urban design development indicator. A slight change to the metric is highlighted in bold while a strikethrough indicates no analysis was conducted as it did not apply at this level.

Table 8: Summary Criteria and their Indicators (DST and Development)

Criteria (Desired Condition)	DST Indicator	Urban Design Development Indicator
Accessibility	Street Connectivity	Street Connectivity
	Prevalence of sidewalk network	Sidewalk Quality
	Uncongested roads (LOS = C or better)	Parking
	Travel speed via transit	Transit Supportive Amenities
Healthy, Active Living	Walkability	Walkability
	Physical activity	Access to Parks & Trails
	Safety (few crimes)	Perceived Safety
	Proximity to healthy food	Proximity to healthy food
Economic Vibrancy	Income	Income
	Employment	Employment
	Retail & industrial activities	Retail & industrial activities
	Educational achievement	Educational achievement
Greenspace & Environment	Access to greenspace & trails	New Publicly Accessible Park
	% canopy cover	Tree Canopy
	Environmental sustainable design	Environmental Sustainable Design
	Water quality	Water Quality
Sustainable Housing & Community Design	Housing choice	Housing Choice
	Health of housing market	Health of Housing Market
	Affordability	Affordability
	Density	Density
Diverse Built Environment & Vibrant Tax Base	Tax base	Tax base
	Art & historic preservation	Historic Preservation & Public Art
	Land use mix	Land use mix
	Compatibility with subarea plans	Compatibility with subarea plans
Social & Environmental Equity	Minority & special needs populations	Minority & special needs populations
	Historic expenditures by ABI	Historic expenditures by ABI
	Environmental quality	Environmental quality
	Civic Engagement	Civic Engagement

Analysis

Table 9: Developments Score Color Scale

Color Scale
Best (Top 20%)
Good (Upper 20% to 40%)
Average (Middle 20%)
Poor (Lower 20% to 40%)
Worst (Bottom 20%)
N/A (Not Applicable or No Data)

Twenty-seven developments were analyzed across all seven criteria and twenty-two indicators. The results are presented below with a scoring table and description of each criteria and how its urban design style or other factors impact each indicator. Each development is listed alphabetically to allow for easy searching by the reader. Each development is scored on a scale of 0 -100 and color coded into five groups, quintiles, to show their relation to one another. Green

highlights the best developments with the scores in the top 20% of all developments analyzed. Blue highlights the next tier of developments with the scores in the top 20% to 40%. Yellow highlights the middle tier of developments with the scores in the middle 20%. Orange highlights the next tier of development with scores in the lower 20% to 40%. Red highlights the worst developments with scores in the bottom 20%. N/A indicates that the score was not applicable for this development or that the data was not available to properly analyze the development. Full results are included in the appendix.

Table 10: Accessibility

Development Name	Year	Style	Street Connectivity	Sidewalk Quality	Parking	Transit Supportive Amenities
608 Ralph McGill	2017	Texas Donut	0	N/A	56	0
675 N Highland	2016	Texas Donut	0	75	39	5
755 North	2014	Texas Donut	0	85	N/A	50
Alexan at Glenwood	2016	Various	41	87	31	33
Alexan on Krog	2015	Texas Donut	0	90	N/A	50
AMLi Old Fourth Ward	2008	Texas Donut	4	83	29	25
AMLi Ponce Park	2014	Texas Donut	12	85	36	75
Bass Lofts	1998	Adaptive Re-Use	0	72	N/A	25
Block Lofts	2005	Texas Donut	0	60	N/A	33
Enso	2012	Texas Donut	17	77	N/A	33
Freedom Height Lofts	2001	Various	0	58	N/A	33
Fulton Cotton Lofts	1997	Adaptive Re-Use	12	43	N/A	50
Glenwood Park	2003	New Urbanism	84	65	75	67
Highland Steel	2007	Various	45	82	N/A	50
Highland Walk	2004	Texas Donut	9	80	N/A	50
Inman Quarter	2014	Texas Donut	27	85	N/A	50
JW Highland Park Townhomes	2014	Townhomes	51	57	25	33
Madison Yards	2017	Various	65	N/A	39	67
Milltown Lofts	2003	Adaptive Re-Use	11	60	N/A	50
Moda Reynoldstown	2017	Townhomes	45	N/A	27	50
Nextran	2017	Texas Donut	9	N/A	29	33
Parmalot Site / Atlanta Dairies	2017	Various	13	N/A	N/A	33
Station R	2016	Texas Donut	0	100	N/A	17
Studioplex	2008	Adaptive Re-Use	0	50	N/A	50
The Brickworks	2002	Various	9	0	N/A	50
The Flats at Ponce City Market	2015	Adaptive Re-Use	12	75	75	100
The Square JW Homes	2016	Townhomes	0	N/A	N/A	17

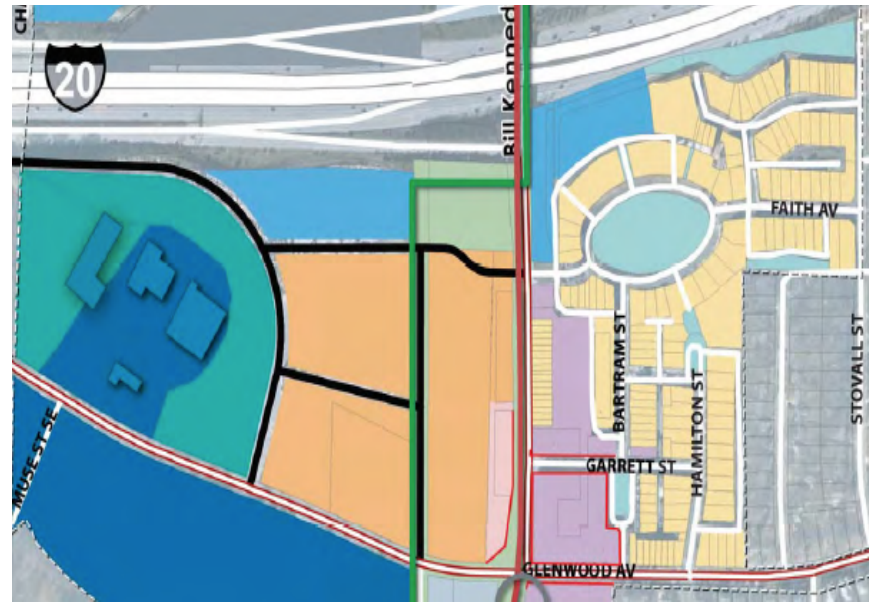
The accessibility indicators of street connectivity, sidewalk quality, parking and transit supportive amenities all relate to how people get around their neighborhoods and throughout the rest of the city. Shared public space is the responsibility of government, but individual developments can have a big impact on accessibility to it as people constantly interact in the seams between the two on a daily basis. This interaction is very visible in the sidewalks built

along the edges and internal to developments, the block size and internal street grid of a development, the amount of space devoted to cars, and the functionality of transit. The developments that scored best in the four accessibility indicators tend to follow new urbanist practices to prioritize the public streets as places for all modes and de-emphasize the car. A deeper review is provided below for each indicator.

Street Connectivity

Townhome developments and those that included a combination of styles (defined here as “Various”) fared best due to the creative use of space to provide access to smaller buildings, as in the JW Highland Park Townhomes project, or due to the creation of small neighborhoods that attempted to recreate the grid, highlighted by the high scores of Glenwood Park (figure 20) and Madison Yards. Adaptive Re-use projects did not score high even with attempts to reconnect the grid. This is due to privately controlled access to these developments as is the case of Fulton Cotton Lofts, or as parking lots that are disguised as new streets, as in Ponce City Market.

Figure 23: Final Draft Plan: Glenwood Focus (Alexan at Glenwood)



Source: Atlanta BeltLine Subarea 4 Master Plan (2011)

Figure 24: Moda Reynoldstown Site Plan



Source: <http://ownmoda.com/reynoldstown/site-plan#siteplan>

The new construction “Texas Donut” urban design style did not score high due to lack of street grids and larger block sizes. This is likely due to the strict standardization of this style to include a parking deck in the middle, with apartments wrapped along the outside. It doesn’t lend itself to creative approaches.

Lastly, did size of the development impact this metric. Common sense tells us that a small lot may not do well as there is not a lot of

room to build a road, but the sixth smallest lot, the Moda Reynoldstown development (figure 21) scored second highest in our final metric, which controlled for lot size. Before controlling for lot size, it still ranked high (top 5) as it provided an internal street grid, even designing for the potential to recreate the street grid as proposed in the subarea 5 master plan.

Sidewalk Quality

Urban Design Style has a minor correlation with Sidewalk quality, where adaptive re-use projects have lower scores than completely new construction projects. The more obvious correlation is that the age of the development determines its score, with older projects scoring lower than newer projects. This could be a combination of maintenance issues, and newer policies and other advocacy work by PEDS to ensure high quality pedestrian infrastructure.

Figure 25: Sidewalk and Patio conflict at Inman Quarter along N. Highland Avenue



Source: Personal Photo

Figure 26: Southern edge of Fulton Cotton Lofts – Corner of Reinhardt Street and Shelton Street



Source: Google Street View

The lowest scores are due to no sidewalk for the Brickworks development, missing sidewalks on one of the edge public streets of Studioplex and Fulton Cotton Lofts (see figure 23), or missing sidewalks upon entering a development, as was the case with Freedom Height Lofts. Also, some poor design or oversight led to some unique pedestrian experiences, such as the one picture in figure 22, where the patio seating blocks people walking on the street. This is no problem on a Friday morning with low foot traffic, but in the evening with bustling restaurants and high foot traffic, this poor design leads to bottle neck.

Parking

The urban design style of new urbanism and adaptive re-use score higher in providing less parking, thus leading to switches in modes of transportation. On the other hand, new construction “Texas Donut” style apartments and townhomes score low due to their dependence on the automobile. The Flats at Ponce City Market

is an interesting case study, because alongside providing just the minimum required parking, it heeded the call of duty of Donald Shoup and charged for parking. Although the attraction of all the amenities at Ponce City Market may seem like it has increased automobile traffic in the area, by providing less parking and charging for it, alternative modes of transportation become much

Figure 27: 800 Glenwood large parking lot & parking deck attached to Alexan on Glenwood



Source: atlantaintownpaper.com

Figure 28: Glenwood Park site design with small, shared parking lot for multi-family units



Source: www.glenwoodpark.com/siteplan

more attractive. Luckily Ponce City Market has great bike access points at both the Atlanta BeltLine trail corridor, the Ponce De Leon bike lane, and the Historic Fourth Ward Park. It also has as the amenity of two bus routes that pass by it every 10-15 minutes during peak hours. Conversely, AMLI Old Fourth Ward, only a seven-minute walk from these same two bus routes, along the same park, which is connected to the BeltLine trail, it still provides 507 parking spots for 337 residential units. This is a 1.45 cars per unit ratio, which doesn't sound terrible, but it could easily be reduced which would reduce the amount of single occupancy vehicle trips that come with parking.

Transit Supportive Amenities

Results of transit supportive amenities do not seem to follow any urban design style patterns. The development that promotes the alternative transportation goals of the BeltLine the best is Ponce City Market which has invested heavily on transit supportive options. Not included in the analysis is also the free shuttle for residents to use to get to quickly to the North Avenue MARTA station. The next highest scoring developments improve the neighborhood quality by either supporting the bike share system or providing bus amenities, which may encourage residents to use alternative modes of transportation.

The developments that don't contribute to the goals are not located close to transit, either bus or train, not close to the BeltLine corridor and have not created incentives such as sponsoring a bike share hub. For example, 608 Ralph McGill is almost ½ mile walk to the beltline corridor, but could have improved its score by designing a bus stop in lieu of an additional on-street parking spot at the corner of Ralph McGill and Glen Iris, along the 16-bus route into

Figure 29: AMLI Ponce Park



Source: Relay Bike Share Twitter account @RelayBikeShare

Table 11: Healthy / Active Living

Development Name	Year	Style	Walkability	Access to Parks and Trails	Perceived Safety	Proximity to Healthy Food
608 Ralph McGill	2017	Texas Donut	69	70	75	30
675 N Highland	2016	Texas Donut	97	60	100	90
755 North	2014	Texas Donut	75	90	50	90
Alexan at Glenwood	2016	Various	90	20	25	100
Alexan on Krog	2015	Texas Donut	73	100	50	30
AMLi Old Fourth Ward	2008	Texas Donut	91	90	75	80
AMLi Ponce Park	2014	Texas Donut	93	90	75	90
Bass Lofts	1998	Adaptive Re-Use	95	60	0	60
Block Lofts	2005	Texas Donut	73	100	0	50
Enso	2012	Texas Donut	90	20	50	90
Freedom Height Lofts	2001	Various	73	100	50	50
Fulton Cotton Lofts	1997	Adaptive Re-Use	77	60	0	50
Glenwood Park	2003	New Urbanism	90	20	100	90
Highland Steel	2007	Various	89	100	75	90
Highland Walk	2004	Texas Donut	80	90	50	60
Inman Quarter	2014	Texas Donut	89	60	100	100
JW Highland Park Townhomes	2014	Townhomes	75	100	75	30
Madison Yards	2017	Various	89	40	75	100
Milltown Lofts	2003	Adaptive Re-Use	62	90	25	30
Moda Reynoldstown	2017	Townhomes	80	60	50	70
Nextran	2017	Texas Donut	87	60	75	80
Parmalot Site / Atlanta Dairies	2017	Various	87	50	100	80
Station R	2016	Texas Donut	91	30	50	90
Studioplex	2008	Adaptive Re-Use	65	70	50	10
The Brickworks	2002	Various	80	60	50	60
The Flats at Ponce City Market	2015	Adaptive Re-Use	94	100	75	100
The Square JW Homes	2016	Townhomes	69	70	50	30

The ability of the Atlanta BeltLine to encourage a healthy / active lifestyle is apparent not just on the sunny, weekends where people are seen walking, jogging, biking, and rollerblading along the Eastside trail, but also in the economic growth of three grocery stores either opened or in development in subarea 4. A trail in the middle of nowhere provides an opportunity for exercise, but a trail in the heart of a growing city allows for opportunities for lifestyle changes, whether

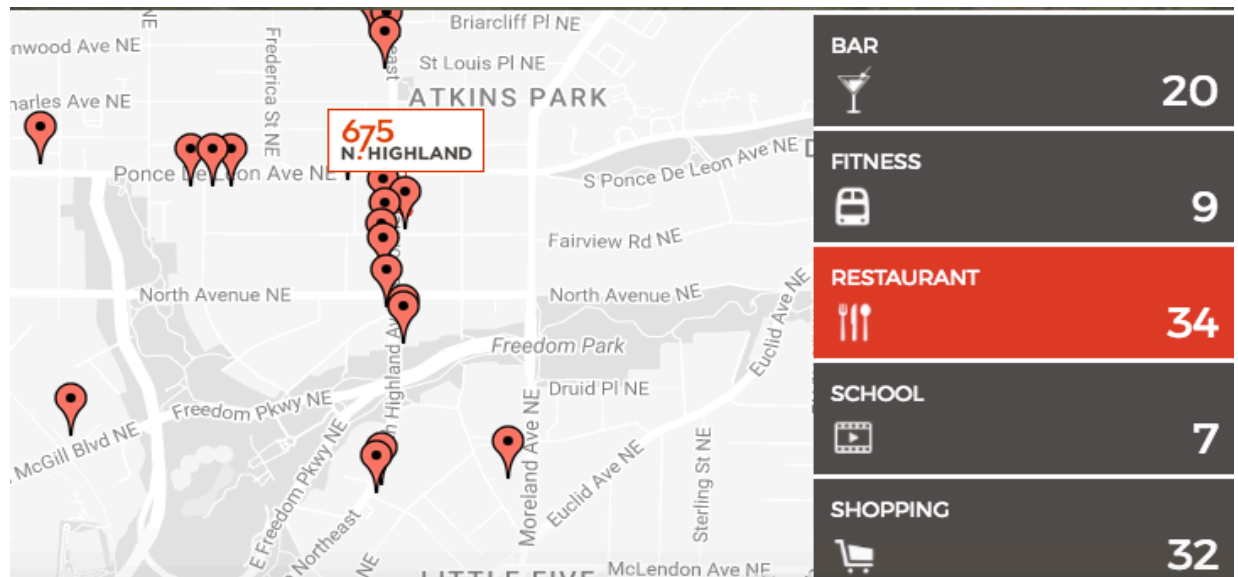
it's to bike once a week to work, to walk to the grocery store or restaurant. Building housing around such an amenity is the first step towards a healthier Atlanta, but a deeper consideration of the urban design characteristics of these buildings will provide a greater context on how development can evolve to best meet the needs of communities in areas where the trails have yet to open.

The developments that scored high in the healthy / active living indicators of walkability, access to parks and trails, perceived safety, and proximity to healthy food can be summarized as vibrant, either based on their location near trails and amenities or on the amenities that they provide internally. The lowest scoring developments are often further from the corridor, or an activity center and are solely residential developments. A deeper review is provided below for each indicator.

Walkability

The highest scores are multi-family residential units that are located in areas with existing amenities, such as Edgewood Shopping District, Poncey Highland retail area, and Little 5 Points. A comparison of the walkability with and without these developments show that Madison Yards, a large development that plans to add a bank, grocery store, and movie theater to an area that does not currently have a lot of amenities within close proximity, showed the greatest change from 81.64 to 89.49, a 7.84 percentage point increase. Some reasons for low scores are the lack of proximity to major commercial districts that typically include a grocery store, a bank, and possibly a bookstore. Some of these amenities could be provided through mixed use development, but unfortunately this was not the case for the bottom five developments, as

Figure 30: 675 N. Highland Walkability Map



Source: <http://675nhighland.com/location/>

Studioplex is the only one that has mixed use, but it didn't help its walkability because it already is in an area that has shopping retail in Irwin Street Market and Krog Street Market. Interestingly, none of the bottom 10 areas improved the walkability with the inclusion of the development, and that's because only one, Studioplex was a mixed-use development.

Access to Parks and Trails

The Urban Design Style does not affect this metric as it is more based on site location, and more specifically if it provided a direct access to the BeltLine. The Atlanta BeltLine's policy on access points to the trail are that no public funds would go towards building access points to private properties, therefore adjacent developments needed to finance paths to the corridor. Seven of the twenty-seven developments privately funded access points from their developments to the trail, all scored either a 90 or a 100. Some are more useful to the neighborhood than others, for example the JW Highland Park Townhomes built three paths and all of them connect to their publicly accessible sidewalks and street network. The Lowest scores for access to a trail or park were the developments in subarea three, because the trail is not currently funded in this area, and it does not have a public park. However, the high school campus is open to the public and is a good amenity for exercise.

Figure 31: BeltLine connection to JW Highland Park Townhomes

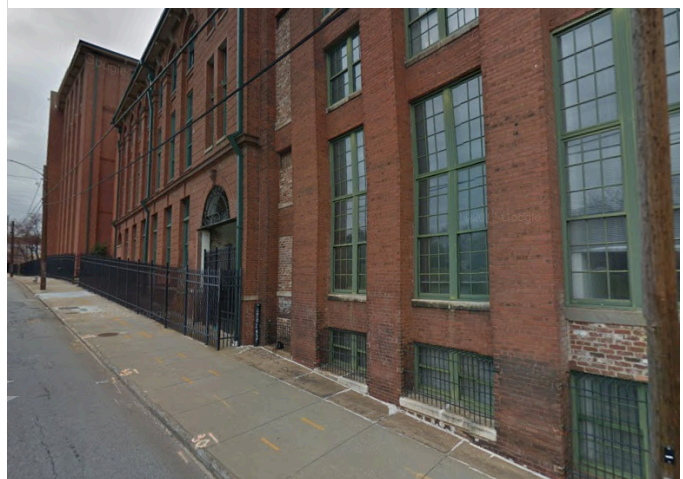


Source: Personal Photos

Perceived Safety

Urban Design Style does not determine good safety practices, but it does show the evolution of adaptive re-use quite well. Both the Fulton Cotton Lofts and Bass Lofts redevelopments kept the existing architecture and buildings, but adapted them to maximize safety of the internal residents as opposed to adapting them to improve eyes on the street and safety of those along the edges and public spaces. This may have been difficult for Bass Lofts, a former school conversion to multi-family development, but Fulton

Figure 32: Fulton Cotton Lofts at Boulevard



Source: Google Street View

Figure 33 Highland Steel active street front and street parking buffer



Source: Personal Photo

is still ideal. Ponce City Market still did not receive the top score of 100 for “greatly improves safety” because its interaction with Ponce De Leon could be improved with more active uses, and its parking lot does not feel safe due to its expanse. A private security guard that patrols the area is the biggest indicator!

The highest scoring “greatly improves safety” developments were those that provide ground floor active uses such as retail or office, short setbacks, and porches. All developments were public on almost all public facing edges, in other words, no fences or gates to keep people in or out.

Townhomes seem to consistently rank in the 50 score of improves safety because it provided eyes on the street and short setbacks, but some blank walls, and no truly active spaces. Now, not every block can have a restaurant, bodega, or laundry cleaners on the ground floor, but many of the townhome developments could improve their street interaction.

Cotton Lofts could have embraced the neighborhood better. Instead it is gate accessed, and fenced off from the rest of the Cabbagetown neighborhood. The edge of building that is adjacent to Boulevard, in the northwest corner is not active, although large windows tower over pedestrians on the street. It is not a comfortable walking experience and does not feel safe. A good contrast is Ponce City Market, where similar age of and style of building works better with interacting with the street, and welcomes more pedestrians. It is promising that in the past twenty years, the adaptive re-use of historic buildings has improved, but it

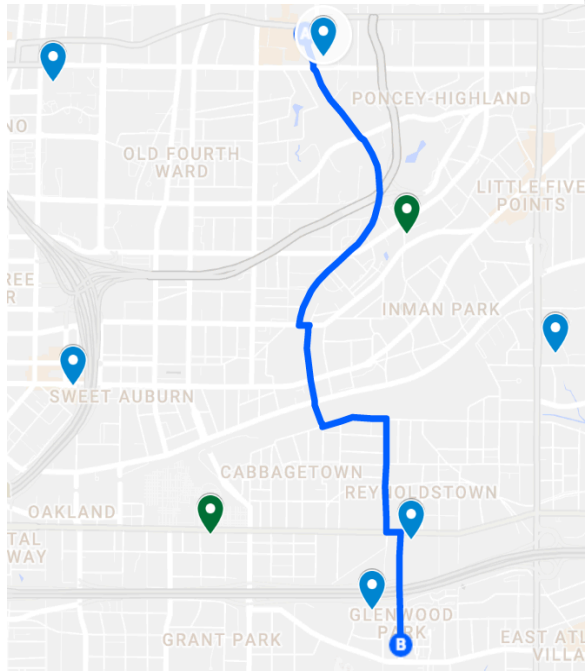
Figure 34: Glenwood Park active street front



Source: Personal Photo

Proximity to Healthy Food

Figure 35: Healthy Food Locations near study area



Site location rather than urban design style determines the scores on this metric. Most top scores were due to inclusion of a grocery store in the design, or rather, inclusion of a multi-family development in the grocery store project. This is the case of the newly opened Kroger at 800 Glenwood and the proposed grocer (likely Publix) at the Madison Yards. Sadly, these two developments are only one third of a mile away from one another, providing redundant uses to an area previously underserved by healthy food. Before the opening of the Kroger at 800 Glenwood in late 2015, this area was considered a food desert and now with the two of these developments, and the opening of Grant Park Market in late 2017, Subarea 4 will be a healthy food oasis. However low scores are located in two areas that have thrived without traditional big box development, Inman Park and Cabbagetown.

Luckily the developments in the Inman Park neighborhood have the small Savi Market for fresh fruit and necessities while the Fulton Cotton Lofts will soon have the new Grant Park Market. Both small scale grocers are presented in the figure 33 map in green.

Figure 36: Savi Intown Market – Inman Park



Source: <http://historicinmanpark.blogspot.com/2011/01/savi-urban-market-and-victory.html>

Table 12: Economic Vibrancy

Development Name	Year	Style	Employment via Retail and Industrial Activity
608 Ralph McGill	2017	Texas Donut	0
675 N Highland	2016	Texas Donut	16
755 North	2014	Texas Donut	0
Alexan at Glenwood	2016	Various	49
Alexan on Krog	2015	Texas Donut	0
AMLi Old Fourth Ward	2008	Texas Donut	0
AMLi Ponce Park	2014	Texas Donut	0
Bass Lofts	1998	Adaptive Re-Use	0
Block Lofts	2005	Texas Donut	0
Enso	2012	Texas Donut	4
Freedom Height Lofts	2001	Various	0
Fulton Cotton Lofts	1997	Adaptive Re-Use	0
Glenwood Park	2003	New Urbanism	10
Highland Steel	2007	Various	N/A
Highland Walk	2004	Texas Donut	N/A
Inman Quarter	2014	Texas Donut	N/A
JW Highland Park Townhomes	2014	Townhomes	0
Madison Yards	2017	Various	24
Milltown Lofts	2003	Adaptive Re-Use	0
Moda Reynoldstown	2017	Townhomes	0
Nexttran	2017	Texas Donut	N/A
Parmalot Site / Atlanta Dairies	2017	Various	17
Station R	2016	Texas Donut	N/A
Studioplex	2008	Adaptive Re-Use	53
The Brickworks	2002	Various	0
The Flats at Ponce City Market	2015	Adaptive Re-Use	66
The Square JW Homes	2016	Townhomes	0

Employment & Retail and Industrial Activity

Adaptive Re-Use Spaces such as Ponce City Market and Studioplex receive high scores due to their focus on mixed use. The Fuqua developments, 800 Glenwood and Madison Yards are also ranked high due to the large retail focus of the company. Some of the new construction Texas Donut style developments that add mixed use still score low as their primary purpose is to create residential units. Zero indicates no mixed-use and N/A indicates lack of data.

Table 13: Greenspace & Environment

Development Name	Year	Style	Publicly Accessible Park	Tree Canopy	Environmental Sustainable Design	Water Quality
608 Ralph McGill	2017	Texas Donut	0	80	0	6
675 N Highland	2016	Texas Donut	0	50	0	8
755 North	2014	Texas Donut	0	70	0	6
Alexan at Glenwood	2016	Various	0	60	0	19
Alexan on Krog	2015	Texas Donut	0	50	0	27
AMLi Old Fourth Ward	2008	Texas Donut	0	60	0	9
AMLi Ponce Park	2014	Texas Donut	27	90	100	74
Bass Lofts	1998	Adaptive Re-Use	0	10	0	51
Block Lofts	2005	Texas Donut	0	70	0	22
Enso	2012	Texas Donut	0	60	90	3
Freedom Height Lofts	2001	Various	0	100	0	12
Fulton Cotton Lofts	1997	Adaptive Re-Use	0	40	0	5
Glenwood Park	2003	New Urbanism	9	70	100	47
Highland Steel	2007	Various	0	0	0	12
Highland Walk	2004	Texas Donut	0	50	0	32
Inman Quarter	2014	Texas Donut	0	50	0	3
JW Highland Park Townhomes	2014	Townhomes	2	80	0	17
Madison Yards	2017	Various	0	10	0	3
Milltown Lofts	2003	Adaptive Re-Use	0	0	0	6
Moda Reynoldstown	2017	Townhomes	1	30	0	38
Nextran	2017	Texas Donut	0	20	0	N/A
Parmalot Site / Atlanta Dairies	2017	Various	0	60	0	27
Station R	2016	Texas Donut	0	60	0	3
Studioplex	2008	Adaptive Re-Use	0	100	0	100
The Brickworks	2002	Various	0	50	0	6
The Flats at Ponce City Market	2015	Adaptive Re-Use	0	80	90	9
The Square JW Homes	2016	Townhomes	0	20	0	12

The greenspace and environment indicators of the creation of publically accessible park space, tree canopy, environmental sustainable design, and water quality show that private development as a whole does not do a good job of meeting these criteria. Through the planning process of the Atlanta BeltLine, the creation of greenspace was something that the community specifically added to the original transportation plan, and the Atlanta BeltLine has been major player in implementing to date. However, this does not let developers off the hook. The bright and shining example under these criteria is AMLi Ponce Park, where the creation of the portion of

Historic Fourth Ward Park was in coordination with the city, who sold was the seller of the property. Collaboration between developers and the city is integral to provide great public assets. A deeper review is provided below for each indicator.

Creation of Publicly Accessible Park

Figure 37: Brewer Park in Glenwood Park



Source: <http://www.atlantaintown.com/atlanta-condominiums/glenwood-park-19>

Creation of a publically accessible park was rare in this sample of developments that include multi-family residential units. AMLI Ponce Park stands out as a high score due to the creation of Historic Fourth Ward Park (figure 35) in conjunction with the design and development of AMLI Ponce Park. However, AMLI Ponce Park was purchased from the city of Atlanta, who led the creation of the park in order to deal with flooding issues within the area. The AMLI Ponce Park team may have understood the importance of such an amenity, but it is unclear whether they would have given up 25% of the land

instead of using it for profit generating space. Glenwood Park’s Brewer park (figure 34) is a good example of a developer investing in greenspace, with an active playground on the east and a passive, reflection water feature space on the west. The pond / water feature also doubles as a retention pond to help mitigate flooding from storm water.

Figure 38: Historic Fourth Ward Park with AMLI Old Fourth Ward, AMLI Ponce Park, and Ponce City Market in the background (L to R)

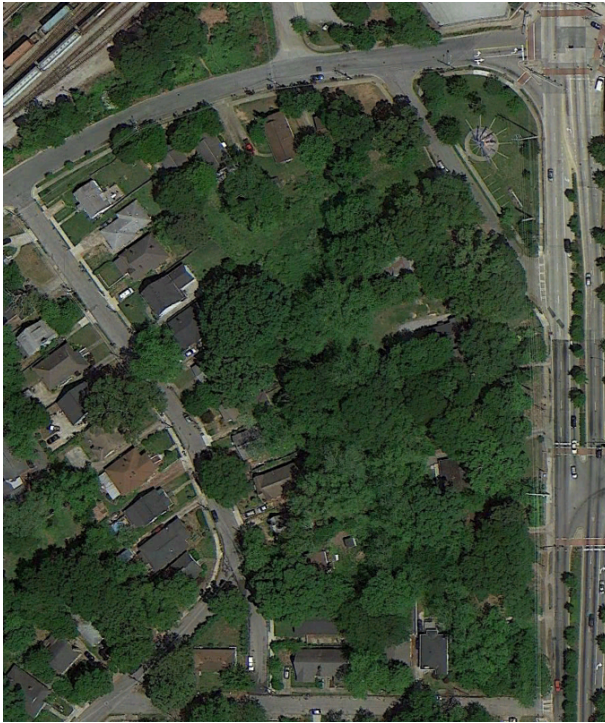


Source: Atlanta BeltLine Inc.

Tree Canopy

The Urban Design style does not determine a high score for Tree Canopy, but it can indicate a low score if due to a few factors. The determining factor seems to be the age of the development and likely then the age of the trees. The top scoring developments either had space to improve its tree canopy by planting more trees or allowing existing trees to grow into maturity. Certain adaptive re-use projects scored high due to preservation of old growth trees or preservation of green, non-vegetative areas where new trees could be planted. The lower scoring adaptive re-use developments, such as Fulton Cotton Lofts did not score well mostly due to the large parking lots. These could be improved through a re-design of their parking to includes a better coverage of trees. Newer Texas Donut developments scored low due to replacement of existing tree coverage with large developments, for example, Station R an area with 31-40% tree coverage is now an entire large block of 4-5 story multi-family development (see Figures 33 & 34). A deeper look at the tree ordinance and files from the city arborist may reveal plantings in other locations to counteract this tree canopy loss, but the loss at this specific site is permanent and troubling.

Figure 40: Station R (pre-development)



Source: Google Earth (May 2014)

Figure 39: Station R (post-development)

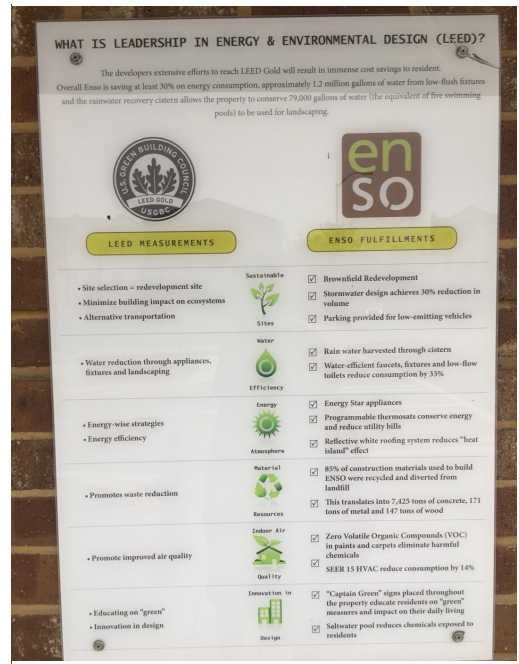


Source: Google Earth (November 2016)

Environmental Sustainable Design

Earthcraft and LEED BD+C (Building Design and Construction) certifications have been awarded to only four of the twenty-seven developments in this study. AMLI Ponce Park was awarded a LEED Platinum certification while The Flats at Ponce City Market and Enso developments were both awarded LEED Gold. Glenwood Park was awarded the Earthcraft Multi-Family certification for its seven separate multi-family development buildings.

Figure 41: Enso Apartments LEED Gold Certificate



Source: Personal Photo

Water Quality

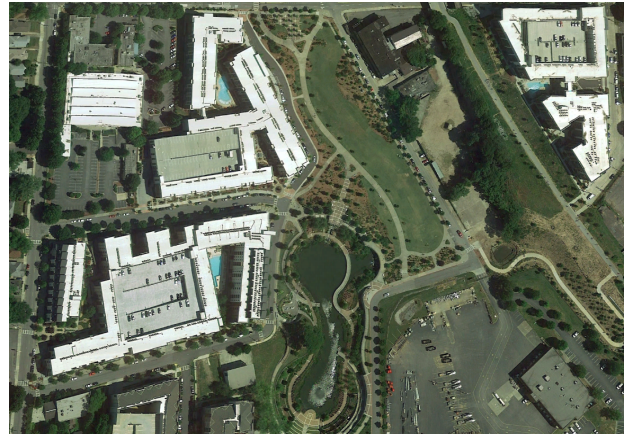
Urban Design Style does not influence water quality. The results varied, due to how much land use is dedicated to greenspace. Studioplex scored high due to tracts of land that have been preserved on the lot, primarily along the BeltLine corridor. A high score for Bass Lofts was due to its preservation of the landscape that sets the former school building from off the street. Other highlights include Glenwood Park's storm-water retention pond, AMLI Ponce Park's relinquishment of the land to create Historic Fourth Ward Park and its retention pond (figures 36 & 37), pervious pavement used for parking spots at the Atlanta Dairies site and Moda Reynoldstown, and bio-retention areas at the Atlanta Dairies area.

Figure 43: AMLI Ponce Park, AMLI O4W, Historic Fourth Ward Park (pre-development)



Source: Google Earth (June 2007)

Figure 42: AMLI Ponce Park, AMLI O4W, Historic Fourth Ward Park (post-development)



Source: Google Earth (May 2016)

Table 14: Sustainable Housing & Community Design

Development Name	Year	Style	Housing Choice	Health of Housing Market	Housing Affordability	Density
608 Ralph McGill	2017	Texas Donut	41	N/A	N/A	56
675 N Highland	2016	Texas Donut	58	N/A	49	49
755 North	2014	Texas Donut	58	95	64	67
Alexan at Glenwood	2016	Various	56	N/A	91	12
Alexan on Krog	2015	Texas Donut	N/A	68	89	N/A
AMLi Old Fourth Ward	2008	Texas Donut	63	94	57	63
AMLi Ponce Park	2014	Texas Donut	58	N/A	55	41
Bass Lofts	1998	Adaptive Re-Use	N/A	93	100	21
Block Lofts	2005	Texas Donut	N/A	97	87	54
Enso	2012	Texas Donut	N/A	95	88	100
Freedom Height Lofts	2001	Various	N/A	N/A	N/A	N/A
Fulton Cotton Lofts	1997	Adaptive Re-Use	N/A	N/A	N/A	36
Glenwood Park	2003	New Urbanism	59	N/A	N/A	18
Highland Steel	2007	Various	N/A	98	90	43
Highland Walk	2004	Texas Donut	N/A	95	69	47
Inman Quarter	2014	Texas Donut	N/A	N/A	N/A	N/A
JW Highland Park Townhomes	2014	Townhomes	0	N/A	N/A	22
Madison Yards	2017	Various	47	N/A	N/A	25
Milltown Lofts	2003	Adaptive Re-Use	61	N/A	N/A	N/A
Moda Reynoldstown	2017	Townhomes	15	N/A	N/A	37
Nextran	2017	Texas Donut	59	N/A	N/A	N/A
Parmalot Site / Atlanta Dairies	2017	Various	N/A	N/A	N/A	36
Station R	2016	Texas Donut	N/A	N/A	71	N/A
Studioplex	2008	Adaptive Re-Use	N/A	N/A	N/A	20
The Brickworks	2002	Various	56	N/A	N/A	N/A
The Flats at Ponce City Market	2015	Adaptive Re-Use	N/A	92	27	88
The Square JW Homes	2016	Townhomes	0	N/A	N/A	N/A

The analysis of sustainable housing and community design indicators of housing choice, health of the housing market, housing affordability, and density revealed a lack of easily accessible data. **The lack of**

Housing Choice

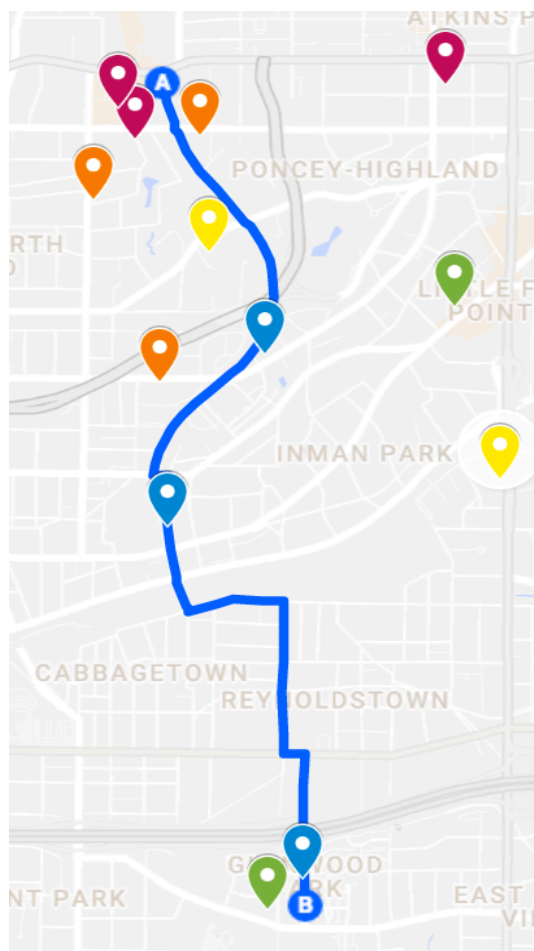
Townhomes do not do well in this indicator due to the nature of the style is purely mid-density. Both new construction Texas Donut style and new urbanist development score near top depending on the mix of low, mid, or high density units. Most Texas Donut complexes consist of studio apartments, one and two bedroom units, therefore providing some mixture. Only Glenwood Park includes low density (single family detached homes), which equate for 50% of the residential units in the development. The other 35% of units are either single family attached townhomes or 2 bedroom condos, while the remaining 15% are one bedroom condos.

Health of Housing Market

Rental rate data was collected to determine the health of the housing market. These numbers indicate Quarter 2 of 2016 apartment occupancy and show that it is healthy, with only a small sample size. The Alexan on Krog below 70% occupancy was taken after only one year after completion, and may reflect close to 90% now that another year has passed.

Housing Affordability

Figure 44: Developments by affordability score



Upon gathering individual development rental rates from their leasing websites, there were six developments that came in below the ZRI of their neighborhood. These were all the top scoring developments for this indicator. In this case, the scoring was modified and normalized to 100 with the maximum score, or the most affordable average rent receiving a 100. A score of 85.075 indicates a development with the same average rent as its neighborhood. N/A indicates a condo or townhome development, developments that have yet to start leasing due to construction, or apartment complexes that do not advertise their prices and availabilities online.

Of the developments with rental data available, the relationship that is most obvious is the location. Figure X shows the most expensive apartments in the north and east side while the most affordable are in the south, or further from the trail.

There is no relation between urban design style and housing affordability, however this analysis was limited to data available for rental units, so townhomes were not included. There is however an interesting analysis of multi-family developments and their relationships with their respective neighborhoods. The railroad tracks on the BeltLine corridor has served as a boundary between

neighborhoods for many years, but now that this boundary is being sewn together like a seam,

the developments close to one another along the BeltLine have similar rental rates. For example, AMLI O4W and AMLI Ponce Park are adjacent to one another and only .25 mile from 755 North, and they all have average rental rates of within \$45 of one another (AMLI O4W at \$1,980, AMLI Park Place at \$2,013, and 755 North at \$2,025. Their exact neighborhood is not determining their housing price, the BeltLine is. The same analysis was conducted to compare individual rental rates to an averaged median rate for each subarea, and then for an average for all 6 neighborhoods as well. The Bass Lofts still appears to be the best deal in town no matter how the line is drawn.

Density

The Urban Design Style seems to rank higher in the density factor, since most of these developments are built with the intent to maximize the use of the land. Enso Apartments, see figure 38 truly maximize their lots, by providing 4-5 stories of multi-family living, with the street front properties leased by retail uses. Developments that added green space to their site plan via single family homes or public parks, or developments that include large parking lots to accommodate big box retailers score lower in this metric. Alexan at Glenwood, figure 39, directly next door to Enso scored the lowest for this metric due to the large parking lot that supports the single-story grocery store and other retail stores. This drops the FAR to a low, suburban scale. Those with an N/A indicate that the data was not available.

Figure 45: Enso Apartments



Source: www.ensoapts.com

Figure 46: Alexan at Glenwood within 800 Glenwood Development



Official 800 Glenwood Site Plans

Table 15: Diverse Built Environment & Vibrant Tax Base

Development Name	Year	Style	Historic Preservation and Public Art	Land Use Mix	Sub-Area Plan
608 Ralph McGill	2017	Texas Donut	N/A	0	N/A
675 N Highland	2016	Texas Donut	80	27	N/A
755 North	2014	Texas Donut	70	0	N/A
Alexan at Glenwood	2016	Various	70	43	33
Alexan on Krog	2015	Texas Donut	60	0	100
AMLI Old Fourth Ward	2008	Texas Donut	60	0	N/A
AMLI Ponce Park	2014	Texas Donut	70	0	N/A
Bass Lofts	1998	Adaptive Re-Use	90	0	100
Block Lofts	2005	Texas Donut	70	0	N/A
Enso	2012	Texas Donut	70	13	33
Freedom Height Lofts	2001	Various	80	0	N/A
Fulton Cotton Lofts	1997	Adaptive Re-Use	90	0	33
Glenwood Park	2003	New Urbanism	90	14	67
Highland Steel	2007	Various	60	N/A	100
Highland Walk	2004	Texas Donut	60	N/A	N/A
Inman Quarter	2014	Texas Donut	50	N/A	100
JW Highland Park Townhomes	2014	Townhomes	N/A	0	N/A
Madison Yards	2017	Various	60	43	67
Milltown Lofts	2003	Adaptive Re-Use	70	N/A	67
Moda Reynoldstown	2017	Townhomes	70	0	67
Nextran	2017	Texas Donut	20	N/A	67
Parmalot Site / Atlanta Dairies	2017	Various	90	28	67
Station R	2016	Texas Donut	60	N/A	67
Studioplex	2008	Adaptive Re-Use	100	43	N/A
The Brickworks	2002	Various	N/A	0	100
The Flats at Ponce City Market	2015	Adaptive Re-Use	100	68	N/A
The Square JW Homes	2016	Townhomes	0	N/A	100

The diverse built environment and vibrant tax base indicators of historic preservation and public art, land use mix, and subarea plan revealed adaptive reuse developments that include mixed uses tend to score best for these criteria.

Historic Preservation & Public Art

Adaptive Re-Use developments naturally scored well in the Historic Preservation and public art indicator while the Texas Donut multi-family development style ranked poorly. This is due to the factor that this type of new construction is typically standardized and does not instill creative urban design practices that are preferred by the BeltLine communities and required to incorporate existing buildings into the site design.

Studioplex and The Flats at Ponce City Market scored highest in this category due to retaining the existing historic buildings and including murals and sculptures both visible to those viewing the development from outside and through publically accessible plazas inside the development.

Figure 47: Ponce City Market



Image Courtesy of Ponce City Market

Figure 48: “33 Oaks” along Eastside Trail and 755 North in background



Image Courtesy of Jonathan Phillips, via Curbed Atlanta

Some developments maintained medium scores due to collaborations with the BeltLine on art projects along their land, such as 755 North, where there’s an “art installation that pays homage to Trees Atlanta and its Atlanta BeltLine Arboretum program. The installation, 33 Oaks, is a collection of stainless steel leaf sculptures representing 33 species of oaks native to Georgia. These art pieces are not only nice to look at; they also serve as an educational tool for the public’s understanding of the Atlanta BeltLine Arboretum.” (“33 Oaks,” 2015).

Developments that did not score well on this indicator were the Nextran and Square JW Homes due to the removal of historic buildings that were either listed as “a place of interest for historic designation” (the Nextran Truck Center) or “identified by community for recognition and protection by the Atlanta Design Commission” (the Creomulsion Company building) (Atlanta BeltLine, Inc., 2009) (Atlanta BeltLine, Inc., 2011). Terry Kearns, a local architect, blogger, and historical preservation activist captured the January 2015 demolition of the Creomulsion Company building and highlighted some of the unique attributes of building such as “an engaged, pedimented portico”, “Elegant brickwork in broad pilasters, tall metal windows embraced by sturdy sills kissing the beefy architrave, the sills align with bands that take the eye around the corners. More like furniture than factory.”, and my favorite caption “I started looking at the details, more schoolhouse than cough-drop factory.” (Kearns, 2015)

Figure 49: Creomulsion Building on demolition day (site of The Square JW Homes)



Image courtesy of Terry Kearns, Architecture Tourist

Figure 50: Creomulsion Building Demolition in preparation for The Square JW Homes



Image courtesy of Terry Kearns, Architecture Tourist

Land Use Mix

Design style did not impact the Land Use Mix indicator. High scoring developments, such as The Flats at Ponce City Market, were mixed use that allocated a similar amount of square footage to each of the five categories of uses. However, it did not matter how many categories were included. Atlanta Dairies for example only included two categories (multi-family residential and commercial) at an almost 5 to 1 ratio. It scored better than a Glenwood Park four categories of uses included a with a split of 70% single family residential, 20% multi-family residential, 5% commercial/retail, and 5% office/institutional. The more balanced it was, the higher the score. Developments that solely provide one category received a score of 0 and N/A indicates that the data was not available.

Figure 51: Inman Village Dentist Office (Highland Steel)

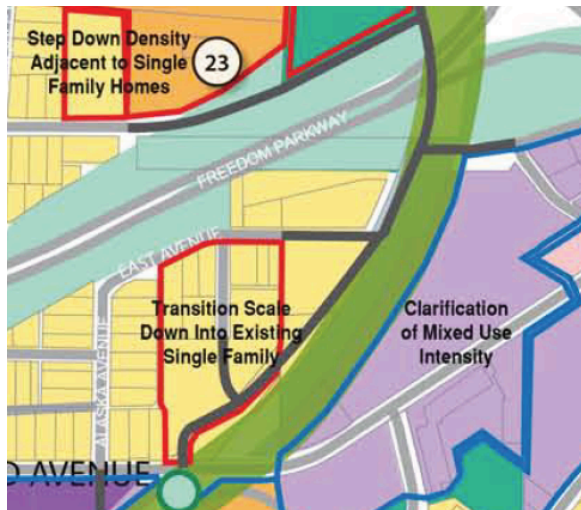


Source: Personal Photo

Compatibility with Sub-Area Plan

Results of the Sub-Area plans are measured on their adherence to the community driven plans that were conducted in 2011 for Subarea 4 and 2009 for Subarea 5. The aspects include aligning with proposed zoning, inclusion of proposed internal roads, and responding to community desires to preserve certain buildings or character. Developments that were completed before the subarea planning process and those not located with either subarea (675 N Highland and Station R) were not analyzed. The subarea plans were not correlated to the Urban design style, as there were high scores and low scores for all four categories.

Figure 53: JW Highland Park Townhome Sub-Area Plan



Atlanta BeltLine Subarea 5 Plan

A score of 67 was given for redevelopment with minor changes from the subarea plan. Many of these proposed zonings were mixed use but were built solely as residential or were built as lower density than proposed. Other examples that did not happen include the Milltown Lofts proposal to connect Marcus Street to Field Street and the Nextran redevelopment site did not build internal roads from Pearl to Chester, but it did maintain the right of way to do so in the future.

A score of 33 was given for redevelopment with major changes from the subarea plan. Opportunity for high density was lost with the development of Madison Yards and 800 Glenwood, as well as some internal streets that were built do not reconnect the street grid as proposed. Also, the Square JW Homes did not provide a mixed-use development to activate a key intersection and demolished the Creomulsion company historic building that were identified by the community for recognition and protection by the Atlanta Urban Design Commission. “According to a letter O4W Alliance president Kit Sutherland distributed earlier this year, the beef residents had with Wieland was two-fold: They preferred to see a development that a) retains the oldest buildings and b) sticks to the neighborhood's master plan, which recommends the site for mixed-uses, according to the letter”(Green, 2015) Better accountability and adherence by developers to the sub-area plans, the neighborhood master plans will yield profitable and community supported buildings. John Wieland hit a home run with his Highland Park Townhomes but struck out at the The Square.

A “Good” score of 100 was rated so high due to adherence to all aspects. Highlights include the JW Highland Park Townhomes that included the extension of East Avenue to allow for future connection of Willoughby Way to Highland Avenue, under Freedom Parkway. Also, in the redevelopment of Inman Quarter, low-density commercial was mentioned in the plan, while although it wasn’t preserved, the corner unit at N Highland Ave and Elizabeth Street was rebuilt in its likeness with an iconic 1 story restaurant space.

Figure 52: JW Highland Park Townhome Official Site Plan



Source: City of Atlanta

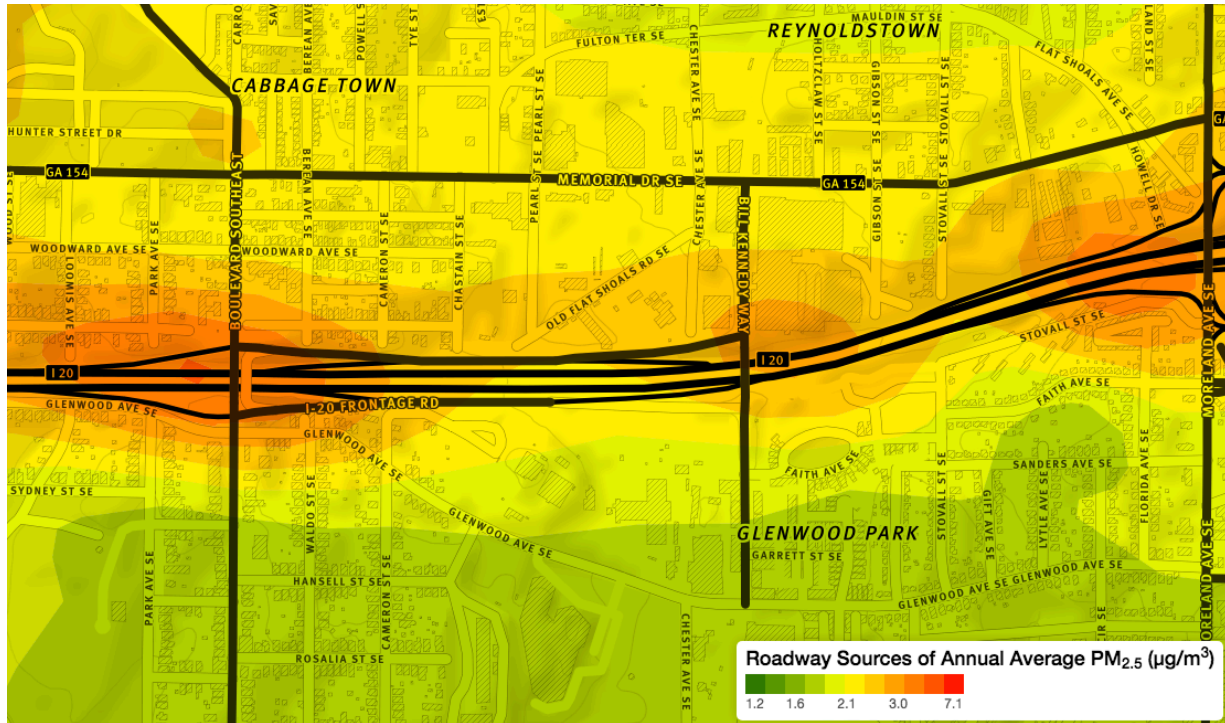
Table 16: Social & Environmental Equity

Development Name	Year	Style	Environmental Quality
608 Ralph McGill	2017	Texas Donut	60
675 N Highland	2016	Texas Donut	60
755 North	2014	Texas Donut	80
Alexan at Glenwood	2016	Various	80
Alexan on Krog	2015	Texas Donut	70
AMLI Old Fourth Ward	2008	Texas Donut	80
AMLI Ponce Park	2014	Texas Donut	80
Bass Lofts	1998	Adaptive Re-Use	60
Block Lofts	2005	Texas Donut	60
Enso	2012	Texas Donut	85
Freedom Height Lofts	2001	Various	60
Fulton Cotton Lofts	1997	Adaptive Re-Use	45
Glenwood Park	2003	New Urbanism	60
Highland Steel	2007	Various	60
Highland Walk	2004	Texas Donut	55
Inman Quarter	2014	Texas Donut	80
JW Highland Park Townhomes	2014	Townhomes	80
Madison Yards	2017	Various	60
Milltown Lofts	2003	Adaptive Re-Use	55
Moda Reynoldstown	2017	Townhomes	40
Nextran	2017	Texas Donut	50
Parmalot Site / Atlanta Dairies	2017	Various	45
Station R	2016	Texas Donut	45
Studioplex	2008	Adaptive Re-Use	50
The Brickworks	2002	Various	60
The Flats at Ponce City Market	2015	Adaptive Re-Use	80
The Square JW Homes	2016	Townhomes	55

Environmental Quality does not correlate to Urban Design Style. The brownfield cleanup in the EPA my communities map and subsequent data only revealed nine private development cleanups of the total twenty-seven, and the entire Eastside BeltLine corridor clean ups, likely funded by the publicly funded BeltLine team. Therefore, only the particulate matter map had an impact on the environmental quality of the individual developments, and this was based on its proximity to interstate highways and other highly trafficked road corridors. However, areas close to one another did not all score the same. For example, the Enso apartment complex scored the highest, due to a large amount of its property in the green bin. Glenwood Park also had many properties in the same green bin with a lower level of PM_{2.5}, but due to its adjacency to the I-20 corridor,

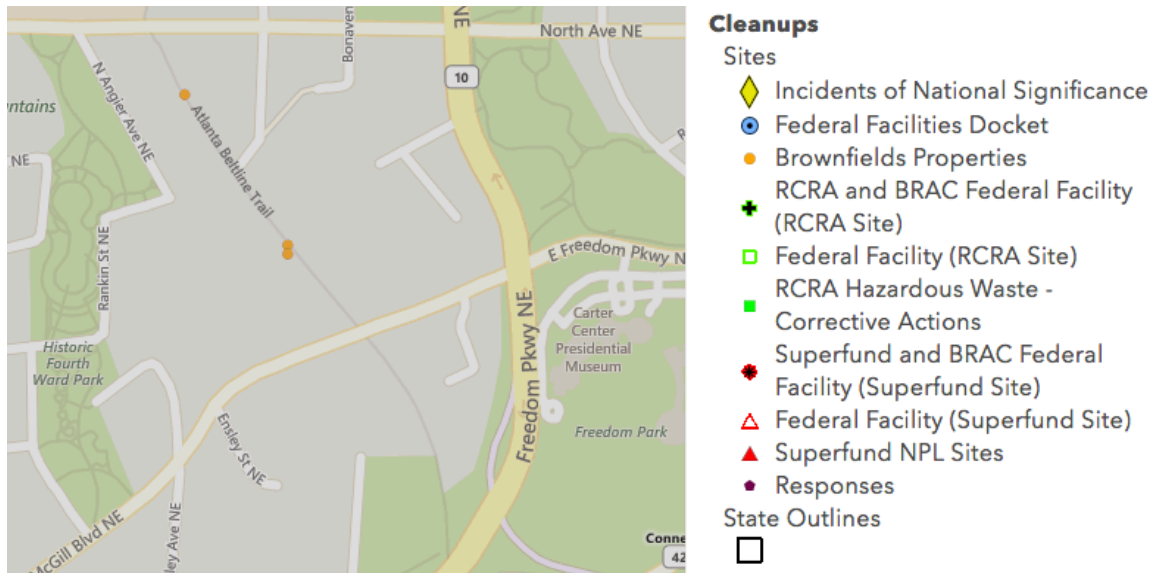
some of the development is exposed to much more PM_{2.5}, indicated by the orange bin. Therefore, it received a much lower score.

Figure 55: Southern portion of Subarea 4 Particulate Matter (PM_{2.5}) Map



Source: Atlanta Regional Commission

Figure 54: EPA Cleanups in my Community Map



Source: Environmental Protection Agency

Conclusion

Listed in Table 17 is the overall score for each development, calculated from the average scores for each indicator, revealing the overall sustainability relationship between developments within BeltLine Subarea 4 & 5. Ponce City Market scored very high, mostly due to its adaptive re-use design, heavy focus on a balanced mix of uses, and support of transit supportive amenities. Other highlights include Glenwood Park, with its New Urbanism design, which was awarded the Urban Land Institute Development of the Year in 2006 for “exemplary resourceful land use, preservation of environmental resources, creative development team management, economic market success, innovative design and planning features, fulfillment of a special societal need and overcoming difficult obstacles to development” (Jones Kendall, 2006). AMLI Ponce Park likely scored higher than its neighbor AMLI Old Fourth Ward due to the collaboration with the city of Atlanta to design the multi-family building around Historic Fourth Ward Park. Highland Steel and Inman Quarter also scored high, due their ground floor retail within an existing vibrant district that provided good access to the trails and parks of the BeltLine corridor.

Some similarities of low scoring developments include a lack of internal mixed use, no reconnection of the street grid, gated entrances, internally focused design, and site locations that are further away from the Atlanta BeltLine corridor and the amenities that have popped up around it.

Urban Design Style does necessarily impact the sustainability measures of multi-family development, but there are some best practices within each style to further conversations about private development.

Adaptive Re-Use

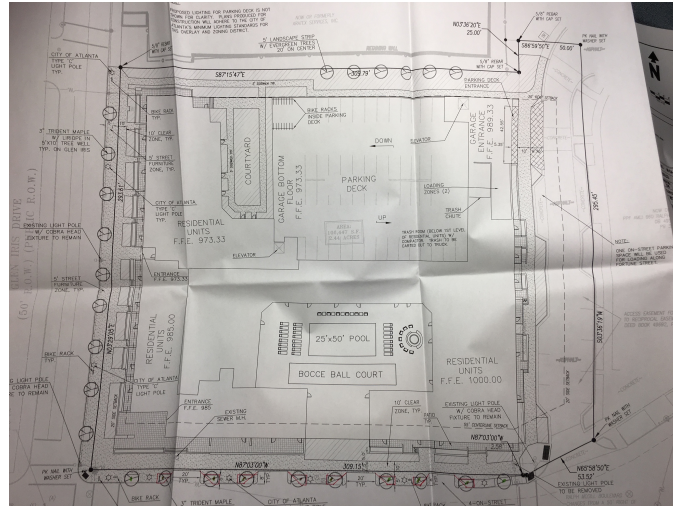
Overall, adaptive re-use buildings are not a determining factor in the meeting the sustainability goals of the Atlanta BeltLine. Those that incorporated a mixture of uses scored very well in the sustainability analysis as the goals of the BeltLine TADAC and subarea master plans call for preservation of existing buildings. Ponce City Market was rated the best development due to its inclusion of balanced mixed uses and taking advantage of its location by providing access to trails, parks, and transit amenities. However, it remained low on the affordability scale. Studioplex scored well as it maintained the tree canopy along the eastern edge of its property, and provided a good balance of uses. However not all adaptive re-use buildings followed the mixed-use path, and they did not score nearly as well. Both Milltown Lofts and Fulton Cotton Lofts scored low, due to their gated community style and the lack of all amenities in Cabbagetown, compared to the other neighborhoods. Fulton Cotton Lofts in particular is a beautiful building and a cherished cultural icon, but only the privileged few hundred that live there get to truly appreciate it as it is closed off from the rest of the community on all three sides. The north side is bound by the train tracks. A redevelopment of Fulton Cotton Lofts, focusing on opening the internal streets and providing commercial uses (office and/or retail), would greatly enhance the sustainable nature of the development.

New Construction “Texas Donut”

Texas Donut developments in general scored poorly on the sustainability scale as most were purely residential on large blocks that did not enhance the surrounding community. Shining examples of this urban design style. Was the AMLI Ponce Park, which has been highlighted many times earlier due to its support of creation of the Historic Fourth Ward Park.

Although it does not include retail, restaurant, office, or uses other than residential, it benefits from its location, with proximity to Ponce City Market and a new Kroger development. Inman Quarter also scores very well for a Texas Donut style, which is likely due to its mixed-use nature, and adherence to the subarea master plan. Better scores in Greenspace and Environment criteria and it would have likely cracked the top 3. The lowest scoring Texas Donut development was 608 Ralph McGill, which replaced a large vacant property with a purely residential structure. Although internal street grid would not have made sense as due to the size of the lot, it is near a perfect 330 foot by 330-foot lot. The construction of streets alongside the northern boundary of the development, see top corner of figure 53, would have extended Wabash Avenue across Glen Iris and provided a great street grid for walkable active uses. Instead half of this northern boundary is parking garage, making a more dangerous, and less adaptable frontage in the future upon redevelopment of the lot north of 608 Ralph McGill. Although the street was not included in the subarea plans, the mixed-use zoning recommendation was listed, so constructing a purely residential development along this prime real-estate is an example of a wasted opportunity.

Figure 56: 608 Ralph McGill

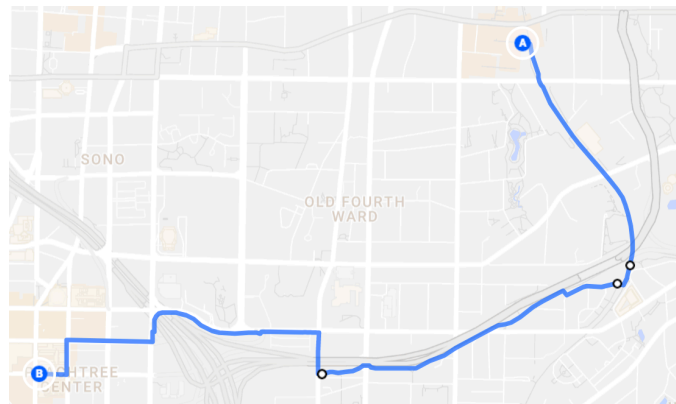


Source: City of Atlanta

New Construction Townhomes

New Construction Townhomes did not score well, due to their single use nature and locations further away from activity centers. None of the townhome developments included mixed-uses, as in work live housing units located in Glenwood Park around Brasfield Square. The JW Highland Park Townhome Project has done a great job of improving the street connectivity and providing connections to the Atlanta BeltLine Eastside trails, with three separate privately funded bridges (see figure 28) that provide bike and pedestrian activity between the townhome units and the trail. The best bridge/connection is the northernmost one as it connects the Eastside trail to East Avenue. It is a great bike connection to the Freedom Park trail when heading west towards downtown because it bypasses the large hill that was the only previous connection point between the two trails. Figure 54 shows a 2.5-mile bike route that takes advantage of this connection and uses 90% off street bike infrastructure. What a commute! This is an option because the small footprint of townhomes allows for more through streets and bike and pedestrian connections as opposed to

Figure 57: 2.5-mile bike route from Ponce City Market to Downtown



new construction Texas Donut construction. This makes Townhomes a great option as a piece of the puzzle when putting together a larger project, categorized as New Urbanism and “Various”, helping provide diversity of housing stock and increased density, compared to single family homes.

New Urbanism and “Various”

The fusion of many different styles into the category “various” was not across the board the best style, but it did provide for some high scoring developments, particularly Highland Steel, Madison Yards, and Atlanta Dairies. All three provided internal streets to decrease the block size, provided active uses along the main street fronts of these buildings, and adhered to the subarea master plans. Glenwood Park scored very well, which is not surprising as it was built with the intent of sustainability and walkable urban living as part of its mission. A mixed use walkable commercial center, multi-use Brewer park, the one car per unit requirement and the small block, connected street grid all combine to create a walkable development. Although it was difficult to highlight the direct rental costs to live directly in the community, the surrounding multi-family developments were found to be the most affordable, so with public streets, those living directly outside Glenwood Park, still benefit from its good, sustainable urban design.

Table 17: Overall Results

Development Name	Year	Style	TOTAL
608 Ralph McGill	2017	Texas Donut	28
675 N Highland	2016	Texas Donut	44
755 North	2014	Texas Donut	44
Alexan at Glenwood	2016	Various	45
Alexan on Krog	2015	Texas Donut	43
AMLI Old Fourth Ward	2008	Texas Donut	45
AMLI Ponce Park	2014	Texas Donut	56
Bass Lofts	1998	Adaptive Re-Use	46
Block Lofts	2005	Texas Donut	41
Enso	2012	Texas Donut	49
Freedom Height Lofts	2001	Various	39
Fulton Cotton Lofts	1997	Adaptive Re-Use	31
Glenwood Park	2003	New Urbanism	60
Highland Steel	2007	Various	62
Highland Walk	2004	Texas Donut	50
Inman Quarter	2014	Texas Donut	54
JW Highland Park Townhomes	2014	Townhomes	34
Madison Yards	2017	Various	46
Milltown Lofts	2003	Adaptive Re-Use	38
Moda Reynoldstown	2017	Townhomes	40
Nextran	2017	Texas Donut	44
Parmalot Site / Atlanta Dairies	2017	Various	46
Station R	2016	Texas Donut	39
Studioplex	2008	Adaptive Re-Use	46
The Brickworks	2002	Various	35
The Flats at Ponce City Market	2015	Adaptive Re-Use	68
The Square JW Homes	2016	Townhomes	27

Recommendations

The findings in this report are not meant to be set aside as a think piece, but to act towards building a better Atlanta BeltLine and a better Atlanta. Over ten years since the Atlanta BeltLine Partnership, Atlanta BeltLine Inc. and the TAD Advisory Committee were formed, the sustainable goals of the community and city are not being implemented by the private sector. Luckily, only 2.2 miles of trail have been completed within the BeltLine corridor, providing an opportunity to learn from both the best practices and the lessons learned to ensure the best development occurs in the areas soon to receive private investment. Later this year the Atlanta

BeltLine Westside trail, three more miles of trail, is set to open, and it's important for the community, the city, and private industry be ready to collectively build the neighborhood that they want. However, the private development community moves quickly, so therefore it's important for the community and city get ahead of the market. The following recommendation should serve a guide to ensure future multi-family development meets the sustainability goals of the community.

It is important that the community remain informed about the best practices of sustainable development, so that they can advocate for it during upcoming subarea plan update meetings. As development activity comes to their local NPU land use and zoning committee meetings, a well-informed community will be able to advocate for their goals for their built environment. Within this report of urban design aspects of multi-family developments, there are examples of good and bad development that community members can use as examples as they talk to developers about what type of development they want to see in their community. For example, with the redevelopment of Murphy Crossing, the old state farmers market site, community members could reference they way Ponce City Market integrates access to the trail so seamlessly as something they would want to see in the adaptive re-use of Murphy Crossing. Ponce City Market can be an overall sustainability example, Bass Lofts can be an affordability example, or Fulton Cotton Lofts can be an example of what not to do, based on the negative impacts of that gated, fenced off development.

It's not only important to know the developments and their pros and cons, but it is important for the community to have access to the data that makes sense of it all. An open data policy is a way for the Atlanta BeltLine to show transparency and ensure trust is between themselves and the community is maintained. The data in this report was not easy to collect, as there is no public, central database for the urban design data that is included in development documents. The city of Atlanta team that helped collect the data for this analysis was very helpful, but pulling development documents is time consuming and discouraging for a community member with little time to educate themselves on such matters. In preparation for an upcoming meeting about a new multi-family development, if community members wanted to find out about how many parking spots are required, they can just reference the BeltLine Overlay District Ordinance, but if they wanted to know how much parking the developer has previously built in other projects, the data is not readily available and the City of Atlanta office may not be able to help directly or on short notice. By educating the community on the best urban design practices and providing them with the decision making supportive data, the city and the Atlanta Beltline team empowers them to advocate for the community that they envision, rather than one that the developer builds without their input.

The community cannot hold developers back by themselves. They need support from the teeth that only the city can provide, if they decide to use them. The City should pass legislation that wouldn't simply suggest, but require sustainable design criteria. The BeltLine sidewalk design standards are a good example of how legislation that requires an urban design standard works. The analysis of the sidewalk quality in this report reveals all developments that were built after the passage of the BeltLine Overlay district zoning ordinance in 2007, just one development received a low ranked score, and after 2014, all developments received top scores. This shows that the ordinance works, but it is becoming out of date. The city should also update the ordinance to require more progressive measures, such as lowering the maximum parking requirement and/or removing the existing parking minimum. Most developments within the past

few years still build parking as close to the maximum as possible, even though the BeltLine is a future transit corridor. The overlay district simply suggests much less, and requires some with the parking minimum. A suggestion is not enough as developers will just default to this maximum number instead of thinking creatively about how to support alternative transportation options.

The Atlanta BeltLine and the city of Atlanta should provide incentives to developers that reduce their parking footprint and coordinate with MARTA and Relay bike share to provide residents with discounted passes. Additionally, the infrastructure must be there for residents to use, so Atlanta BeltLine Inc. and the city should work with MARTA and Relay to ensure quality transportation options are available for communities surrounding the BeltLine. The research in this report reveals developments that score low in the transit supportive amenities indicator also scored low on the parking indicator. More importantly, many of these developments are not situated directly on the BeltLine corridor, making physical connections to transit more difficult for residents, and making mental connections more difficult for developers to imagine their future residents as living less car-dependent. Small bus circulators should run along these neighborhood streets and relay bike share hubs should be installed to improve connections to the existing MARTA rail system, which will reap benefits in the future as residents will be more familiar with transit and more likely to consider a mode other than the personal vehicle for every trip. This may be difficult to directly require in the zoning ordinance, but the building permit process could require a meeting with the City of Atlanta Department of Planning, Mobility office, or points of contact to the appropriate people at MARTA. It is after all, a future transit corridor, so the city should continue to support better pedestrian, bicycle and transit supportive infrastructure.

The BeltLine Design Review Committee (DRC), which was created in 2015 to analyze and recommend good urban design practices, reviews each development in the overlay district. Results are inconclusive on whether the DRC has an impact on the quality of development since most projects that have gone through the process have yet to have completed construction. A visit to a BeltLine Design Review Committee meeting informed this report and further review of its impact would shed light on its role to ensure private development is meeting the goals of the BeltLine.

Private developers are recommended to use this report to serve as a list of best practices and avoidable slip-ups in providing multi-family development into BeltLine neighborhoods. Sustainable development along the BeltLine is integral to the strength of the communities and the financial strength of the private development community. There are many indicators and criteria to highlight as potential changes of practice, but the few suggestions are as follows:

Private developers should consider phasing out large parking decks from their plans. Consider minimizing the parking footprint on the site as it frees up funding for construction for other amenities or potentially more units. It's about changing the culture of the city from car-dependency, to one that values multi-modal options. The BeltLine is planned as a sustainable transportation corridor, so the individual car trip should not be the first option for every trip around town. Without large parking decks, more room will be freed up to allow for creative site planning with smaller buildings and an internal street grid with opportunities for street front retail, restaurant, or office space. In the short term, apartment complexes could charge fees for parking, as a monthly reminder to the resident of the potential cost savings of reducing their car ownership and storage. In the medium term, developers could consider projects such as

Highland Steel, where one building includes a parking deck, and the other does not, with a walkable street between the two. In the long term, or not so long term for the more progressive-minded, developers could ditch the parking deck altogether when the culture in Atlanta continues to follow the trends of decreasing car-dependency and the potential rise of autonomous vehicles.

Provide a mixture of uses, even if it's just a few storefronts. Active use storefronts with supportive sidewalks and supplemental zones create the walkable vibrant communities that improves the lives of everyone around by providing reasons to walk, and eyes on the street to improve safety. A mixture of residential, office, restaurant, and retail internal to the development will ensure vibrancy from dawn until midnight.

Lastly, adherence to the BeltLine Subarea plans is integral into ensuring that the community is supportive of the project. When buildings are demolished that were specifically identified for preservation in the plan, the planning process is undermined and the community loses trust in the public entities, the city, Atlanta BeltLine Inc. and Atlanta BeltLine Partnership to look out for their best interest. Adaptive Re-use development that opens itself to street fronts and provides mixed use can become a great asset to a community, and when a historical building is torn down for a single use townhome or residential complex, there is a loss of character, a lost opportunity for enhancement of the surrounding area, and a loss of trust.

In closing, as the Atlanta BeltLine continues to encourage private development along its corridor, it is important for community input on its design. The positives and negatives within the multi-family development within subareas 4 and 5 highlighted potential sustainable urban design features that could be included in future development along other subareas of the corridor, creating more unique and interesting neighborhood development. The Atlanta BeltLine is partially funded by public money; therefore, the private development that will benefit from it must reflect the community. Future updates to the subarea master plans must include best practices for sustainable urban design and the city must consider regulations that require adherence to these plans by the private development community.

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