JOBS
JUSTICE
CLIMATE

REDEVELOPMENT PROPOSALS FOR NORTH DEKALB MALL and THE GALLERY AT SOUTH DEKALB

Georgia Institute of Technology, Spring 2021
Urban Design Studio 2: ARCH 7014/6050/8903
Professor Ellen Dunham-Jones with assistants Joel Jassu and Zach Lancaster
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Photo taken at the North Dekalb Mall

Urban Design Studio 2: ARCH 7014/6050/8903, Spring 2021, Georgia Institute of Technology
Professor Ellen Dunham-Jones with Joel Jassu, Zach Lancaster, and the MicroLife Institute.

Students:
THE STUDIO

The School of Architecture at the Georgia Institute of Technology is pleased to present this studio class report with four hypothetical proposals for the possible redevelopment of both The Gallery at South Dekalb and the North Dekalb Mall. Both enclosed shopping malls are in Dekalb County, Georgia and we hope that these visions of possible alternative futures and the strategies they employ will be useful conversation starters for County citizens and leadership.

Both of these shopping malls were built in the 1960s and for various reasons, including the pandemic, are not fully occupied. Both back up to creeks that have been degraded from decades of runoff from the malls’ large parking lots. Both have been the subject of unrealized previous proposals - redevelopment into a Costco in the case of North Dekalb Mall and the larger Livable Centers Initiative plan to introduce walkable urbanism in the vicinity of The Gallery at South Dekalb. However, MARTA has prioritized upgrading bus service along Candler Road to Arterial Rapid Transit and constructing a new bus transit hub at The Gallery by 2023. Although less of a priority, MARTA also welcomed student proposals for a hub at the North Dekalb Mall. Will these transit enhancements induce substantial mixed-use re-investment in these properties? If so, how could it be designed to best serve Dekalb County residents?

The four student teams’ proposals represent their answer to that question. The teams proposed different urban frameworks to support both sites gradual evolution into varied visions of a betterconnected, transit-oriented, healthy, climate-responsive, energy efficient, jobs-rich, mixed-use neighborhood with abundant housing options for all. Respecting uncertain market conditions, one team for each property reh habited much of the mall with new community-serving uses while the other demolished and redeveloped the mall. In all cases, teams were tasked with comparing the performance of their proposal to existing conditions to demonstrate broader community benefits.

Pedagogically, the purpose of the studio class was to teach graduate students in urban design and in high performance building how to collaboratively design a resilient urban framework, subdivide land into walkable streets and buildable lots, and illustrate how the property might be built out over time – including immediate tactical urbanist interventions.

We conclude the study with recommendations for next steps, such as discussions with the mall owners, feasibility analysis, antidisplacement policies, zoning and building code changes that were beyond the scope of this class.

THE GREEN NEW DEAL FOCUS
The studio has been inspired by Commissioner Ted Terry’s successful election campaign on a Green New Deal platform. The results will be submitted to the Superstudio, a national archive of student proposals for next generation Green New Deal projects sponsored by the Landscape Architecture Foundation. Our work focused on:

JOBS
Primarily addressed in terms of improving access to jobs inside and outside the communities while building resilience with greater diversification of on-site jobs.

JUSTICE
Primarily addressed in terms of improving access to transit, healthy lifestyles and environments, and more diverse housing choices with opportunities for the accumulation of generational wealth.

CLIMATE
Forecasting of climate change impacts through 2080 Mitigation of climate change through reducing automobile dependency and carbon-based energy use. Adaptation to climate change through stormwater management and reducing urban heat island impacts.
THE FUTURE OF MALLS

Professor Ellen Dunham-Jones

Enclosed shopping malls have long been significant gathering spaces for their communities. However, the pandemic has accelerated both the number that have closed for good, and the efforts by the survivors to compete with e-commerce and each other. Today’s successful malls are evolving away from strictly retail to provide a wider range of experiences you cannot get online: more outdoor event spaces, gyms, medical care, groceries, restaurants, and entertainment. They’re further competing with the convenience of online shopping by building in more of an on-site clientele by adding offices and housing to further compete. This occurs both through demolition and redevelopment and through reinhabitation where viable.

These trends are playing out locally in Metro Atlanta.

Redevelopment:
• Phipps has already added two residential highrises to its property and is now replacing a department store with an office tower, hotel, and an upscale food hall.
• Cumberland Mall, Northpoint Mall, WestEnd Mall, and Gwinnett Place Mall have similar if not even grander mixed-use redevelopment plans in the works with more parks and plazas for gathering.

Reinhabitation:
• Meanwhile as malls downsize their retail, 1,000 workers have now reinhabited the Southlake Mall at the Chimes Call Center and 1,500 Emory Healthcare workers will soon be working out of Northlake Mall.

232 have been retrofitted, 200 more proposed to be redeveloped, rehabsited or regreened, into more sustainable places. As more die, the survivors will strengthen, but communities would be wise to plan ahead. - Retrofitting Suburbia Database
DEKALB COUNTY

HEALTH

Health statistics are maintained at the county level and do not reveal the discrepancies between the county’s northern and southern residents. By most measures, the County performs better than the US and GA average. But there is still much room for improvement.

DEKALB COUNTY

26% ADULT OBESITY
23% PHYSICALLY INACTIVE
340:1 MENTAL HEALTH PROVIDERS
42% PARK ACCESS

GEORGIA

26% ADULT OBESITY
28% PHYSICALLY INACTIVE
730:1 MENTAL HEALTH PROVIDERS
17% PARK ACCESS

UNITED STATES

32% ADULT OBESITY
20% PHYSICALLY INACTIVE
290:1 MENTAL HEALTH PROVIDERS
38% PARK ACCESS
HUMIDITY & TEMPERATURE ANALYSIS

**Average Annual Daily Dry Bulb Temperature**

- Cold winter, hot summer and comfortable shoulder seasons
- Strategies to decrease energy use in for both heating in the winter and cooling during the summer are necessary.

**Average Annual Daily Humidity**

- Humidity mostly in comfort range throughout entire year
- However, higher than average humidity discourages passive cooling strategies such as evaporative cooling without the help of other strategies

RADIATION ANALYSIS

- Sunpath diagram obtained from Dekalb County weather file.
- Radiation rose derived from the weather file.
- Yearly total radiation skydome derived from the weather file.
Urban Scale

- On hot days, more airflow can make it seem cooler, design good spaces for prevailing wind to circulate through
- Light colored flat roofs
- Long narrow building floor plans help maximize cross ventilation
- Sunny wind protected outdoor spaces can extend occupied areas in cool weather
- Light colored materials and roofs to minimize heat gain

Building Scale

- For passive solar heating face most glass towards the south and incorporate overhangs to shade during the summer.
Southwest isometric view of the North Dekalb Mall. A solar panel grid was modeled on the rooftop of the mall to simulate the solar energy potential.

Assuming a typical energy usage of 18.4kWh/sf/yr¹, it would take approximately 16,000 solar panels to fully power a 500,000 sf mall in DeKalb County.

**PV Panel Assumptions²**

- Module Dimensions (L x W): 6.6ft x 3.3ft
- Panel Efficiency: 19.5%
- Performance Ratio: 0.75
- Panel Tilt: 31.5%
- Average Price of Energy in Georgia: $0.10/kWh
- Average Emissions of CO2 in Georgia: 0.762 kgCO2/kWh

Source 1: 2012 CBES Table E6; Source 2: LG PV panel: https://www.lg.com/us/business/neon%C2%AE-2/lg-lg400n2t-j5

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**SOLAR ENERGY POTENTIAL**

- **575kWh** Energy Generated* Per Panel
- **$66** Money saved* Per Year
- **502lbs** Avoided CO2 Emissions* Per Year

*Per Panel

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Source: https://neof.ne.gov/programs/stats/inf/201.htm
CLIMATE CHANGE:
CURRENTLY - 2080

Precipitation change between TMY3 and the morphed 2080 weather files. According to the prediction model, precipitation in 2080 is expected to:

• Follow a similar trend to the current values during the winter and shoulder seasons
• Have a significant increase in precipitation during the summer period

Future developments will have to take into the account the effect of climate change in the precipitation otherwise floods during the summer may become a common occurence.

Temperature change between TMY3 and the morphed 2080 weather files. According to the prediction model, temperatures in 2080 are expected to:

• Have increased occurrence of sudden warm/cold days during the winter
• Overall higher temperatures during the summer
• Overall higher temperatures during the shoulder seasons

Buildings will have to be better prepared to endure warmer temperatures and colder winters.

Precipitation change between TMY3 and the morphed 2080 weather files. According to the prediction model, precipitation in 2080 is expected to:

• Follow a similar trend to the current values during the winter and shoulder seasons
• Have a significant increase in precipitation during the summer period

Future developments will have to take into the account the effect of climate change in the precipitation otherwise floods during the summer may become a common occurrence.
THE MALL

EMBODIED IMPACTS

- The materials that make up the existing mall buildings have embodied carbon and energy in them. The embodied impacts by building component can help to guide the approach to repurposing or demolishing the mall buildings.
- The majority of the embodied impacts in the facade come from the CMU Block layer.

BUILDING FACADE

**Gypsum Board**
- Embodied Carbon: 6.76 - 7.35 kg CO2e/SF
- Embodied Energy: 77.52 - 88.77 MJ/SF

**Cladding**
- Brick or Stucco
  - Embodied Carbon: 1.71 kg CO2e/SF
  - Embodied Energy: 22.57 MJ/SF

**CMU**
- Embodied Carbon: 4.81 kg CO2e/SF
- Embodied Energy: 50.85 MJ/SF

**Insulation**
- Low End = Fiberglass Batt Insulation
- Upper End = Extruded Polystyrene
  - Embodied Carbon: 0.05 - 0.64 kg CO2e/SF
  - Embodied Energy: 0.96 - 12.21 MJ/SF

**Gypsum Board**
- Embodied Carbon: 0.23 kg CO2e/SF
- Embodied Energy: 3.62 MJ/SF

*Source: Athena Impact Estimator for Buildings*
THE MALL

EMBODIED IMPACTS

- The materials that make up the existing mall buildings have embodied carbon and energy in them. The embodied impacts by building component can help to guide the approach to repurposing or demolishing the mall buildings.
- The embodied impacts of the building structure vary significantly by structural system type.

BUILDING SLAB

Concrete

Embodied Carbon 3.34 kg CO2e/SF
Embodied Energy 23.99 MJ/SF
Life Cycle Stage A

BUILDING ROOF

Built-up Asphalt Roof
Insulation
Vapor Barrier over Plywood

Embodied Carbon 1.62 kg CO2e/SF
Embodied Energy 96.26 MJ/SF
Life Cycle Stage A

Source: Athena Impact Estimator for Buildings
DEKALB MALLS
IR IMAGING
- Using a thermal camera to assess the performance of the existing mall buildings reveal facade anomalies.
- There is envelope degradation, thermal bridging, and infiltration/exfiltration that must be addressed in any portions of the mall that are retained to improve the building performance and increase occupancy comfort.
DEKALB MALLS

IR IMAGING

- Using a thermal camera to assess the performance of the existing mall buildings reveal facade anomalies.
- There is envelope degradation, thermal bridging, and infiltration/exfiltration that must be addressed in any portions of the mall that are retained to improve the building performance and increase occupancy comfort.
The high-velocity runoff from both malls has harmed local ecology and contributed to flooding.

**North Dekalb Mall** drains to the Chattahoochee River and the Gulf of Mexico. Its position in the middle of the watershed implies the need to hold, slow, and treat stormwater. The site should intercept runoff from upstream in order to mitigate negative impacts further downstream.

**The Gallery at South Dekalb** drains to the Ocmulgee River and the Atlantic Ocean. Its position at the top of a local tributary implies the need for stormwater retention. Holding stormwater on-site at the top of a tributary helps to reduce the overall volume of runoff downstream.

<table>
<thead>
<tr>
<th>Mall</th>
<th>Watershed Size (Acres)</th>
<th>Impervious Surface (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Dekalb</td>
<td>19K</td>
<td>46.8</td>
</tr>
<tr>
<td>South Dekalb</td>
<td>23K</td>
<td>67.7</td>
</tr>
</tbody>
</table>
THE GALLERY AT SOUTH DEKALB
The mall opened with anchors Rich's and JCPenney. This mall faced competition from the beginning with several other malls in DeKalb County, mainly Northlake Mall, built by Rouse Co.

In 1996, the mall was sold and changed hands several times before finally landing in the hands of Thor Equities in 2003. The mall finally received a renovation a year later—new skylights, marble tiles, and all dark woods removed.

In 1996, the mall was sold and changed hands several times before finally landing in the hands of Thor Equities in 2003. The mall finally received a renovation a year later—new skylights, marble tiles, and all dark woods removed.

In 2007, Pond & Company hired for consulting in the Livable Center Initiative (LCI) draft proposal. Focus on “walkable communities” and linking transportation with land use.

Census tracts likely to be significantly impacted by project site.

DEVELOPMENT IMPACT AREA

DEKALB COUNTY

The Gallery at South DeKalb

The Gallery at South DeKalb
SOCIO-ECONOMIC DATA

- the residents in the census tracts in consideration are more reliable on public transit compared to the rest of the county
- this suggests the need for a walkable neighborhood with better access and amenities to the transit

AFFORDABILITY INDEX

- the residents in the census tracts in consideration have a lower median income compared to the rest of the county
- about 1/4th of the residents spend more than 50% of their wage on rent.
- the census tracts account to 9.4% of unemployment

**6.75%**
TRANSIT RIDERSHIP

**$157/yr**
TRANSIT COST/HOUSEHOLD

**18950**
AVERAGE HOUSEHOLD VMT

**41%**
HOUSING + TRANSPORT COST % INCOME/HOUSEHOLD

**7.13t**
ANNUAL GHG/HOUSEHOLD

**$31,431**
MEDIAN INCOME

**2,245**
JOBS

**$948**
AVERAGE RENT

**47%**
MINIMUM WAGE

**26%**
PAY 50% OR MORE TOWARDS RENT

**9.4%**
UNEMPLOYED

Source: hntindex.cnt.org
Source: ACS 2019 (5-Year Estimates), Longitudinal Employer Household Dynamics 2015
Transit Hub Objectives
1. Bus-to-bus transfer facility
2. Enhanced amenities for riders
3. Location for future BRT/LRT station
4. Multi-modal connection

Recommended Transit Hub Locations

**TRANSIT HUB WISH LIST**
- SMALL RETAIL
- COFFEE SHOP
- FARMER’S MARKET
- COMMUNITY ACTIVITY AREA
- WI-FI CONNECTIVITY
- RIDESHARE CONNECTION
- RESTROOMS
- REAL-TIME BUS ARRIVAL INFO
- INDOOR WAITING AREA
- BREEZE CARD KIOSKS
- PEDESTRIAN AMENITIES
- BUS OPERATOR LAYOVER FACILITIES

Source: South DeKalb Transit Hub Site Feasibility Study: Virtual Stakeholder Workshop - 09/02/20

Source: altransit.ga.gov, itsmarta.com

Georgia Institute of Technology // The Gallery at South DeKalb // Spring 2021
The LCI study was initiated by Commissioner Larry Johnson and was formally adopted by the DeKalb County Board of Commissioners on April 24, 2007. However, there has not yet been any redevelopment based on it.

- To promote diversity of employment and recreation and mixed-income housing
- To provide a wide range of travel modes
- Walkable Town Center Redevelopment for the Gallery at South DeKalb
- Transit-oriented zoning
EAST-WEST SECTIONS

Sections have a 2x vertical exaggeration.
Sections have a 3x vertical exaggeration.
Looking west towards the Gallery at South DeKalb from Candler Road.

Looking west from the corner of Candler Road and H. F. Shepherd Drive.

Looking south from the corner of Candler Road and H. F. Shepherd Drive.
FLOODPLAINS

While the delineated floodplain of the tributary that runs west of the site is an unlikely hazard to the mall site, its boundaries may in fact stretch farther from the stream, and the residential areas to the west and downstream to the south are more likely to suffer the consequences of possible flooding.

Source: Federal Emergency Management Agency (FEMA) GIS

Runoff and litter from the mall and parking lot tunnel directly into the creek.

Doless Creek as seen from the mall property.
The mall has persevered as a community gathering space.

Chapel Beauty, a hair boutique, is a thriving retail anchor.

The theater is a popular community asset.

Big Bear is a quaint grocery store that serves the local community.
MALL OPPORTUNITIES

The mall has a nice atrium and includes play equipment for families.

The flat and vast expanses of parking lot welcomes new development.

Community-serving uses meet the practical needs of mall patrons.

There are many mature shade trees in good health on site.
NEIGHBORHOOD OPPORTUNITIES

The large size of the mall site has potential to have a regional impact.

Centrally located in an under-served residential area.

The site is well-connected within a larger network of major roads.

Potential for TOP with existing and proposed transit hub and expansion.
MALL PROPOSALS

REDEVELOPMENT

REHABILITATION
WHAT

With the introduction of a new MARTA bus transit center, the Gallery at South DeKalb becomes a key site for transit-oriented development. The transit hub will be integrated into the high-density commercial core at the north end of the site, replete with ground-floor retail and upstairs office and living space. As one moves further south, the development transitions to lower density to match the neighborhood-scale of businesses to be preserved. While the proposed plan welcomes a new regionally-scaled market, it also respects established community amenities, like the Big Bear grocery store. These community assets provide the essential ingredients to successfully introduce a new residential neighborhood. This duality not only suggests a coexistence of the two types of development, but a mutual codependence, resulting in a rich economic milieu. Furthermore, the development introduces a grid with a slight northwest lean that reduces building heat load from solar radiation and maximizes the thermal comfort of streets. Doless Creek will also be expanded as part of a regreening strategy.

RESULTS

Located along the perimeter of the central green, the new transit hub aims to enhance the experience for public transit users and discourage the use of vehicles. By placing it near the highest concentrations of employees and residents, the convenience of its proximity will capture a significant number of commuters and reduce car emissions. Dedicated housing developments also present the opportunity for people to live near their place of employment. With a commitment to prevent displacement, the plan is designed to increase housing stock and accommodate a variety of housing types amenable to varying budgets. Affordability for both homes and businesses is built into the plan’s small lot divisions which can be aggregated for larger development. In addition to the northwestern tilt of the street grid, helping to alleviate the urban heat island effect will be the numerous shade trees planted along new streets and the 16 acre greenway that allows for the expansion and rehabilitation of Doless Creek. These greening strategies will improve the local ecology, improve biodiversity, help manage stormwater, increase carbon sequestration, and build resiliency by increasing the site’s

WHAT IF?

What if the Gallery at South DeKalb and its surrounding parking lots were regreened and redeveloped into a walkable town center that draws a new market, visitors, and residents while preserving the site’s quintessential culture of community and Panthersville’s legacy residents? What if a new transit hub could facilitate mobility and spur a wave of employment opportunities within a new bustling node of businesses? A combination of large office buildings and quaint shop frontages would welcome big and small businesses alike. What if evening strolls along tree-lined streets were illuminated and animated by various shops and restaurants? What if instead of one indoor gathering space, there was a network of outdoor spaces to host a range of people and activities while reconnecting with the natural environment? What if people are prioritized over cars and acres of asphalt are traded in for blocks of homes and greenspaces? This proposal seeks to do just that and more and serve as a model for sustainable future development guided by principles of the Green New Deal.

CONTEXTUAL ISSUES

The success of the Gallery at South DeKalb is a reflection of the community’s resilience despite the harsh environment of an auto-centric landscape. Georgia in the 1950’s and ’60’s saw the construction of highways alongside white flight. Both worked to disenfranchise communities of color. The mall site is bounded by I-20 to the north, which is often considered the dividing line between affluence to the north and disinvestment to the south. Candler Road to the east transitions between five and six lanes of traffic, a clear indication that at the area around the mall was designed for automotive mobility. However, local residents are more likely to be transit-dependent, as seen in MARTA’s greater ridership in the area. Such areas of disinvestment are also often subject to degraded and hazardous natural environments that pose health concerns to residents. Doless Creek, which runs along the site’s western boundary is classified as an impaired stream. The proposed redevelopment of the site envisions a future designed for the wellbeing of people rather than the convenience of cars; a future where the land expands its services to the community, stimulates economic prosperity,
### COMMUNITY INPUT

#### ASSETS

| Good neighborhoods and quality homes | Proximity to the airport and to Downtown Atlanta |

#### CONCERNS

| The area appears stagnant, causing concerns around decline | Worried about gentrification and displacement |
| 35+ don’t benefit much from the mall and go further out to shop | Limited healthy food options |

#### HOPES

| Greater household diversity while mitigating displacement | Higher development density on Candler Road |
| More entertainment | MARTA rail line extension into DeKalb County |
| Corporate businesses to bring jobs to the area | Safer bike infrastructure |
| Opportunities for technology growth | Mixed-use development |
## DEVELOPMENT STRATEGIES

### STORMWATER MANAGEMENT
- Improve and expand pedestrian infrastructure
- Creek expansion & restoration
- Increase green space / landscaping
- Implement green infrastructure for storm water management
- Increase pervious surfaces
- Increase canopy coverage
- Use Silva Cells to promote tree health & longevity
  - Equitable access to public space for residents & businesses
  - Equitable access to transit
  - Increase housing stock & housing diversity
  - Enhance the beauty of the place
  - Design welcoming public spaces
  - Utilize solar panels and geothermal energy
  - Provide access to nature through trail system
  - Improve visibility & access to existing businesses

### COMFORT & WELLNESS
- Install underground cisterns to retain storm water on site.
- Enhance the beauty of the place
- Design welcoming public spaces
- Utilize solar panels and geothermal energy
- Provide access to nature through trail system
- Improve visibility & access to existing businesses

### SOCIAL & ECONOMIC EQUITY
- Equitable access to public space for residents & businesses
- Equitable access to transit
- Increase housing stock & housing diversity
- Enhance the beauty of the place
- Design welcoming public spaces
- Utilize solar panels and geothermal energy
- Provide access to nature through trail system
- Improve visibility & access to existing businesses

### Additional Strategies
- Preserve mature shade trees on site to mitigate urban heat island effect and pollution.
- Subdivide land into smaller parcels to build in affordability and development flexibility.
- Improve visibility and access to small businesses.
- Preserve existing buildings - retain existing businesses or retrofit for new uses.
PRESERVING EXISTING ASSETS

1. Retain main entry from Candler Road lined with mature oak trees.
2. Preserve the south end of the mall that houses Chapel Beauty.
3. Preserve Firestone business and plan for future retrofit.
4. Preserve the Big Bear grocery store and surface parking lot.
5. Retain entry from Flat Shoals Road lined with mature oak trees.
6. Protect cemetery and adjacent hospice.
Infill construction in the southern part of the site. This phase sees the construction of a residential neighborhood, mix-use buildings, the southern part of the western park, the stormwater pond, and some office near existing anchor stores. The buildings provide an opportunity for mall retailers to begin relocating into new retail spaces on-site, across the mall, while the mall remains in operation.

The surface lot in the north portion of the site is redeveloped as a mixed-use center. The vacant Macy's building is torn down to allow space for the central green, which will serve as an amenity space for mall-goers and visitors to the new development. MARTA's bus transit hub is installed in this phase.
After several years, the rest of the mall, except for the addition housing the Chapel Beauty department store, is demolished. The remainder of the mixed-use core area and a residential neighborhood takes its place. The western greenspace is completed and the last of the new roads are paved.

A partnership is leveraged with the Department of Transportation and neighboring owners to make improvements to Candler Road. Construction of several stories on top of the existing parking decks on the eastern side of the development occurs, providing the improved Candler Road with new retail and office frontage.
PHASE 4 - CANDLER RD IMPROVEMENTS
Shifting the Grid: Reducing the Impact of Solar Radiation

To reduce the impact of direct and diffuse solar radiation on the buildings and in the public realm, the grid takes on a slightly skewed orientation. It is shifted from true north by about 22 degrees. The rationale behind the change is that the slight shift will result in less radiation received by the building facades, and, especially, less direct radiation during the summer months.

Radiation Rose: Atlanta

The diagram above is known as a radiation rose. Cumulatively, over one year, locations in Atlanta receive the most radiation from the south and southwest directions. The sun's path during the summer solstice. The sun reaches its zenith before 12 pm, still in the southeastern sky. Over the summer in Atlanta, western facades actually receive more radiation than southern ones.
Radiation Analysis

This heat map shows the result of a radiation study during the summer period from June 20th to September 22nd. Although most sun radiation over the year comes from the south and southwest, radiation levels are higher on western facades than southern facades during the summer months. In sum, it is preferable to face away from west to reduce solar heat gain in the summer.

The primary facades of the development, those fronting most primary and major streets, predominantly face east and southeast. Their orientation is closer to optimal to reduce solar radiation exposure in the summer and to minimize radiation that is reflected from the buildings, into the public realm.
REGULATORY FRAMEWORK & ILLUSTRATIVE MASTER PLAN

T5  T4  T3  PUBLIC LAND
PROPOSED LAND USE

COMMERCIAL / RETAIL

OFFICE

RESIDENTIAL

Office
Commercial / Retail
Structured Parking
Single-Family / Missing Middle Housing
Multi-Family Residential
Transit Center
The primary streets of the development pass by the Central Green-Core Area and east to west through the middle of the site, respectively. These streets will serve the largest number of visitors and residents, and see the highest levels of activity. The classification of the streets, represented in color, is not necessarily related to the streets’ width. Street widths exhibit many but minute variations. They fall into the A, B, or C types depicted in section on the opposite page.
MULTI-MODAL STREETS

The streets are designed to support more than one type of commuter. Primary streets and most major streets are provisioned with dedicated bike lanes, most of them protected behind a row of street parking. Narrower, calmer streets do not feature bike lanes, but they accommodate cyclists and other personal mobility users in the traffic lanes at no significant risk.

Primary Street
All primary streets feature bike lanes. A-Class streets are wider and tuck bike lanes behind a row of street parking.

Major Street
This street passes by the park. Designated entryways allow bikers to move from the street, into the park.

Neighborhood Streets
Neighborhood and minor streets encourage a calmer atmosphere conducive for multiple modes of mobility to share the same travel lane.
Measuring Pedestrian Connectivity

Urban Network Analyses are used to measure the relationship between origins and destinations across a network. In this case, a simple reach analysis was used, which measures which origins can access the destination(s) within a given distance of travel along the network. The smaller dots in red or blue represent the origins that have access to the destination. The red indicates origins that have access in pre-redevelopment, conditions, while the blue is associated with post-redevelopment. The transit center is depicted as an orange dot and is the only destination in each scenario.

The mall site today acts as a vacuum. Residences at the site would boost the number of potential riders who could access the transit station.

Post-Development (.5 mi)
Reachable origins are in blue. Blue points can walk to the transit hub within 0.5mi in the network.

Post Development (1 mi)
The redevelopment of the mall site has the potential to provide a significant influx of population within walking access to transit. The pedestrian bridges over the creek are another significant boon to connectivity.
TRANSIT HUB & COMMERCIAL CORE
THE CENTRAL GREEN AND MARTA TRANSIT HUB
Lot & Housing Variety

Groups of lots are reserved in the plan for residential neighborhoods that could consist of single-family homes, missing middle housing types, or a mix. The lots are narrower and shallower than the typical single-family lot, reducing the cost of land for both the developer and the future cost to the owner. Lots come in standard 40’ or 30’ wide varieties, with a depth that varies between 80-90’. The lots can accommodate a variety of housing types, and they are conveniently parked by virtue of a back alley. For-sale units in these neighborhoods will allow homeowners a more accessible path to growing equity and building long-term wealth.

The plan view to the right only shows the portion of the development where these types of lots would be platted, as well as the immediately adjacent lots envisioned for mixed-use or larger multifamily construction.

A Note on Cottage Courts

(Refer Right) Around ~1200 SF each (excluding the duplex), these cottage houses are small, not tiny, homes. This arrangement combines an area equal to three ~40 x 90’ lots. As many dwelling units per acre can be achieved with four single-household homes and a duplex, with more generous living space, as with three S-F+ADU lots.
Reducing Lot Sizes
A smaller lot equates to a lower cost of land. The minimum lot size for single-family lots in Decatur’s R-75 zones is 10,000 ft² (12,000 ft² in R-85 zones). The lots outlined in the development plan, in comparison, are only between 2,400-4,000 ft² yet still offer space for competitively-sized, comfortable homes. The lower land costs lower the overall cost of development and result in lower priced homes for sale.

Newer Homes are More Energy-Efficient
Members of disenfranchised communities are more likely to live in older homes that are less energy-efficient, resulting in an energy cost burden. As building energy standards have evolved, newer homes have become more resourceful in terms of energy savings. Providing new, affordable homes as an option allows potential residents to invest in long-term energy cost savings.

Geothermal Potential
Geothermal heat is an alternative energy source that is becoming more and more widely implemented as a way to increase home energy efficiency. In projects with horizontal spatial constraints (as in the planned lots), a vertical instead of a horizontal loop can be installed. Geothermal systems take advantage of the stable temperature beneath the Earth’s crust to supplement conventional heating and cooling systems. Real estate developments that have already made use of geothermal systems in Georgia include Trillith, in Fayetteville, and Serenbe, in Chattahoochee Hills. Additionally, a simple rain barrel stormwater harvesting system can help homeowners reduce water utility bills by providing water for non-potable uses like irrigation.
**NEIGHBORHOOD STREETS**

**Green Street Neighborhood**

The view is of the area currently behind, or in the western part, of the mall. This street is envisioned as an interceptor for stormwater as it flows toward the creek. The green infrastructure is horizontal to the general flow path.

**Managing Runoff**

The street is equipped with 8’ wide planters intended to receive stormwater runoff. These will be heavily vegetated strips with a small ponding depth. Silva cells can be used to expand the framework for tree roots to grow, and can be buried under the street or the sidewalk. Water enters the strips through the cuts in the slotted curb line.
What if the Gallery at South DeKalb and its parking lots were reinhabited to create a new neighborhood anchored by a central park and entrepreneurial-oriented incubator space?

Located at the intersection of I-20 and Candler Road, the Gallery at South DeKalb retains its status as a community center at a time when malls around the nation are declining. Even during the current pandemic, there has been a good amount of foot traffic in the mall. Despite this, business occupancy has steadily decreased, exacerbating problems of unemployment and access to jobs. Affordability in the area is also an issue, with over a quarter of residents within the surrounding census tracts spending over half of their monthly income on rent. We see the reinhabitation of the Gallery at South DeKalb as a catalyst for the creation of new small businesses, access to multimodal transit, and renewed environmental stewardship.

Short-term, the existing mall building would be reinhabited around a central park, retaining the anchor stores and parts of the body. The smaller pieces of the mall would be transformed into incubator space, which provides cheaper space that attracts smaller, more entrepreneurial-focuses businesses. The anchor stores of Chapel Beauty and Satellite Cinemas would retain their current programming, while the former Macy’s store would gradually be retrofitted to provide access to childcare, health services, and localized food production. In the long-term, the surrounding parking lots would be redeveloped into a highly walkable, mixed-use neighborhood. Linking these visions is the proposed MARTA transit hub that would provide improve public transit access to the new mall in the short-term, while connecting residents to regional job centers in the long-term.

Through improving access to jobs, providing greater mobility across the site and beyond, and adapting to a changing climate, the reinhabitation of the Gallery at South DeKalb will revitalize a beloved community center. In the end, this would connect to the past and bring cultural continuity through the retained mall, while promoting a modern, energy-efficient, mixed-use neighborhood that serves as the community hub for Panthersville.
Workers average between 30 and 39 minutes commuting to their places of work.

16.7% of residents in the area rely on public transportation to get to work.

76.9% of workers take their car to work.

Retail sector makes up nearly a quarter of all employment, supplying 600 jobs.

47% of workers earn $1,250 or less per month in the area.

Average rent is $948 per month, with nearly 60% of residents being renters.

Site

Major Job Center (20k+)

Minor Job Center (10-20k)

10-20 Minute Drive

20-30 Minute Drive

30+ Minute Drive
Reducing the Urban Heat Island (UHI) effect across the site provides an opportunity to promote environmental equality. This is important because the impacts of climate change are disproportionately impact vulnerable urban populations.  

**Input Parameters**

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<td>Grass Cover</td>
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**UHI Simulations**

Monthly Average Diurnal Temperatures


Simulation Engine: Urban Weather Generator via Ladybug Tools Dragonfly
ATTRACTING EMPLOYERS

The proximity to I-285 and I-20, in addition to various services within a 2 miles radius adds desirability that employers would want to take advantage of.

OPPORTUNITIES

Revitalize a key piece of the community through incubator businesses to create a new job hub.

Provide access to regional job centers through a new MARTA bus transit center.

Create a new retail frontage along Candler Road.

Mitigate stormwater runoff from polluting Doless Creek and the wider watershed.

Connect to the wider region via proximity to the highway.
URBAN FRAMEWORK

Making urbanism the amenity to drive job growth and overcome the disparities in local employment opportunities.

The existing site is divided into a series of highly walkable blocks that allow for increased pedestrian activity, while calming traffic through narrow driveways. A series of alleys provide parking in the rear to help keep the focus on the pedestrian experience, while allowing building frontages to come right to the property edge. Pedestrian-only areas help break up larger blocks and retain the original circulation patterns of the mall, while active frontage zones drive foot traffic towards the heart of the reinhabitation.

This framework also provides ample amounts of public greenspace. A central lawn in the heart of the former mall aims to provide a space for community gathering and activity. The area around Doless Creek provides walking trails that allows residents on both side of the creek to experience a rejuvenated natural space. In the southeast corner, a new park brings focus to the Panthersville Cemetery and the White Family Cemetery, both established in the 19th century.
REGULATORY PLAN

Leveraging the mall’s status as a community center to create a new job hub focused on local small businesses and entrepreneurial start-ups.

By utilizing the rural-to-urban transect system, a degree of flexibility in terms of density is allowed. This is in contrast to traditional zoning, which creates more segmented uses.

The T4 transect allows for multistory townhomes, smaller commercial, and detached single-family. This transect is located along the quieter western side of the development to allow for more residential development away from Candler Road.

The T5 transect allows for multifamily apartment buildings (single- and double-loaded corridor), medium size commercial, and office space. This transect focuses denser development on the Candler Road side of the rehanded mall to take advantage of the transit hub and interstate access.

The T6 transect contains the higher amount of density and is centered around the former mall. From this center, the various transects radiate outwards, bringing the focus on the rehanded mall site.
LAND USE
Creating the space to maximize job growth.

The land use strategy for the reinhabitation of the Gallery at South Dekalb mirrors much of what the regulatory plan put into place. By radiating out from the center of the mall, different uses can take advantage of specific site conditions. To the west of the mall, townhomes front the rejuvenated creek space. In the south, mixed use residential matches the conditions across Flat Shoals Road. The space between the mall and Candler Road acts as the office hub of development, taking advantage of the transit hub. The remaining space, in between the townhomes and retained mall, offers a number of live/work units specifically tailored for incubators, maker-spaces, and existing home businesses.
ILLUSTRATIVE PLAN
A vision for what the Gallery at South Dekalb could one day become.
DEALING WITH TOPOGRAPHY
EMPLOYMENT OPPORTUNITIES
1. REVITALIZING EMPLOYMENT
2. ACTIVATING CANDLER ROAD
3. REINHABITING MACY’S

MOBILITY
1. CREATING WALKABILITY
2. TRANSIT AS THE CATALYST

CLIMATE ADAPTATION
1. REDIRECTING THE FLOW
2. RAINWATER HARVESTING
3. DAYLIGHT
4. RESIDENTIAL BLOCK PERFORMANCE
REVITALIZING EMPLOYMENT

+200 RETAIL JOBS

+800 SMALL BUSINESSES

<table>
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<tr>
<th>BUILDING ACTIVITY</th>
<th>SPACE UTILIZATION/JOB (AVG.)</th>
<th>PROJECT AREA (SFT)</th>
<th>CURRENT EMPLOYMENT</th>
<th>EXPECTED EMPLOYMENT</th>
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<td>672496</td>
<td>396</td>
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<td>1470</td>
<td>880638</td>
<td></td>
<td>599</td>
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<tr>
<td>Proposed Small Business</td>
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<td>Proposed Live Work</td>
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Source: https://www.eia.gov/consumption/commercial/data/2012/bc/cfm/b2.php
**ACTIVATE CANDLER ROAD**

**REINHABITATION OF MACY’S**

- **Floor 3**: Relocate existing on-site healthcare services to the reinhabitated Macy’s building.
- **Floor 2**: Partner with nearby Georgia Regional Hospital to provide specialized services not found at the hospital.
- **Floor 1**: Provide childcare services for employees working at the various incubators such as daycare and after school programs.
- **Basement**: Urban agriculture through indoor hydroponic systems.

---

Urban agriculture through indoor hydroponic systems.

Provide childcare services for employees working at the various incubators such as daycare and after school programs.

Partner with nearby Georgia Regional Hospital to provide specialized services not found at the hospital.

Relocate existing on-site healthcare services to the reinhabitated Macy’s building.

---

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Active frontage promotes pedestrian activity that supports small, local businesses.

Expanded tree canopy provides shade for pedestrians, while increasing evapotranspiration leading to pleasant microclimates.

Bike lanes connect retail nodes to the residential areas of the reinhabitation.
CREATING WALKABILITY

Putting pedestrian movement and safety at the forefront.

IMPROVED INTERSECTIONS
Designed bulb-outs and clear crosswalks help create a more safe environment for pedestrians crossing the street.

EXPANDED SIDEWALK
A wide sidewalk allows for more distance between people and provides the opportunity for business to spill into the public realm through the use of frontage zones.

CHICANE
By chicaning the road, cars are forced to maintain alertness and slow speeds, increasing pedestrian safety.

PEDESTRIAN CUT-THROUGH
Mid-block cut-throughs create unique spaces for life to happen between the buildings, away from automobile traffic.
TRANSIT AS THE CATALYST

Creating local opportunities through coworking and retail space, and regional connections through expanded transit access.
Expanded sidewalks allow for safer pedestrian movement across the site.

Bike lanes provide multimodal transportation options.

The MARTA bus transit hub invites riders through a shaded canopy and enclosed concourse area.
REDIRECTING THE FLOW

Mitigating the amount of stormwater entering Doless Creek through a series of green alleys and street-level green infrastructure.
RAINWATER HARVESTING

DeKalb County Average Rainfall: 49.3 Inches/Year

1. Macy's          1,533,105 Gallons/Year
2. New Office Building 355,421 Gallons/Year
3. Theater Building  749,778 Gallons/Year
4. New Office Building 650,368 Gallons/Year
5. Chapel Beauty     1,757,595 Gallons/Year

Total            5,046,267 Gallons/Year

POTENTIAL FOR RAINWATER HARVESTING
5,046,267 Gallons/Year
Final Massing
Variations 06 + 09

Variation 09
Designed to be more comfortable in the Summer

Variation 06
Designed to be more comfortable in the Winter

Embodied Impacts Across all retained portions of the mall

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<tr>
<th>Embodied Carbon</th>
<th>Embodied Energy</th>
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<tr>
<td>7,273,000 kg CO2e</td>
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<th>Total</th>
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<td>1,194,000</td>
<td>23,420,000</td>
<td>76,430,000</td>
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<tr>
<td>6,080,000</td>
<td>23,420,000</td>
<td>76,430,000</td>
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See Appendix for Additional Configurations
Simulation Engine: Ladybug Tools
Spatial Daylight Autonomy
Threshold: 300 lux
Average sDA: 99.8%
ASE: 5.9% (>1,000, 250+)

Annual Glare: 5.6%

LEED v4.1 Daylight Credits:

Design Variation 06
N - 30%
E - 25%
S - 25%
W - 25%
R - 3%

Horizontal shading on the South/East/West

EUI: 81.6 kWh/m²
Cooling EUI: 11 kWh/m²
Heating EUI: 12 kWh/m²
Lighting EUI: 15 kWh/m²

EUI: 25.9 kBTU/ft²
Cooling EUI: 3 kBTU/ft²
Heating EUI: 4 kBTU/ft²
Lighting EUI: 5 kBTU/ft²

See Appendix for Additional Configurations
Simulation Engine: Ladybug Tools
RESIDENTIAL BLOCK PERFORMANCE

Retail: 55,391 sf
Multifamily: 70,256 sf
Townhouses: 51,032 sf
FAR: 1.8
Rainwater Harvesting: 1,345,480 gal/yr

Daylight Autonomy: 51%

Annual Sunlight Analysis

EUI: 99.3 kWh/m2
Cooling EUI: 17 kWh/m2
Heating EUI: 50 kWh/m2
Lighting EUI: 8 kWh/m2

EUI: 31.5 kBtu/ft2
Cooling EUI: 5 kBtu/ft2
Heating EUI: 16 kBtu/ft2
Lighting EUI: 2 kBtu/ft2

See Appendix for Additional Configurations
Simulation Engine: Ladybug Tools
The ample space the park provides helps create a central gathering space for both residents and visitors to the reinhabited mall.

A screen facing the central park allows for a variety of programming, from community movie nights to concerts.

Wide walk areas create a buffer between the park space and the road.

Low building heights create a more human-scaled environment while increasing overall density.
ROADMAP TO REHABILITATION

PHASE ONE

PHASE TWO

PHASE THREE
## RENEWABLE ENERGY

### PV Panel Assumptions

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<tr>
<td>Average Price of Energy in Georgia</td>
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<tr>
<td>Average Emissions of Energy in Georgia</td>
<td>0.762 kgCO2e/kWh</td>
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### Option One: Mall

- **Electricity Generated per Year**: 1,118,330 kWh
- **Financial Savings per Year**: $111,833
- **Avoided Carbon Emissions per Year**: 852,168 kg CO2e

### Option Two: Mall + Commercial

- **Electricity Generated per Year**: 2,873,330 kWh
- **Financial Savings per Year**: $287,333
- **Avoided Carbon Emissions per Year**: 2,189,477 kg CO2e

### Option Three: Mall + Commercial + Residential

- **Electricity Generated per Year**: 3,173,815 kWh
- **Financial Savings per Year**: $317,382
- **Avoided Carbon Emissions per Year**: 2,418,447 kg CO2e
CREATING THE NOW

1- CROSSWALK AND STREET
2- BUS SHELTER
3- CHAPEL BEAUTY
1. Explore policy solutions to allow current small businesses to remain on site.

2. Create relationships with entrepreneurs through opportunities to pitch business proposals.

3. Foster microcommerce and start up growth through dedicated incubator space.

4. Apply a Live Work zoning overlay to the existing mall site.
North DeKalb Center, the mall first opened in July 1965.

- 54 stores; original anchor stores included Atlanta-based department store Rich's, and a Woolworth dime store.

- The mall was renamed Market Square at North DeKalb at this time.

1986
- Expanded and renovated

1997
- Mervyns replaced by Uptons / Burlington

2008
- Costco proposal planned
- Hendon Properties, which bought the mall for $25 million (USD) in 2008, planned on bringing a Costco to the mall.

2014
- Plan to convert to an open-air concept
- Lennar Commercial Investors LLC, together with Sterling Organization, purchased the mall for an undisclosed amount, with plans to convert the enclosed portion to an open-air concept.

2017
- Clarkston plans to annex the mall
- Clarkston county wishes to expand its boundary by annexing North DeKalb Mall.

2018
- Costco Proposal torn down
- The project had become too expensive to proceed.
- The commissioner and residents wish to see a larger mixed-use development instead of an individual project.

2019
- Storefronts renovated for filming
- Casual Corner, Software Etc., B. Dalton Bookseller, Musicland and Gadzooks were placed.

Oct 2020
- Officially closed. Except Marshall, Burlington, AMC Theatre
- Clarkston removes the mall from annexation plan

Jan 2020
- Clarkston plans to annex the mall
- Hendon Properties, which bought the mall for $25 million (USD) in 2008, planned on bringing a Costco to the mall.

2020
- During public comments at the Clarkston City council, many speakers criticized the idea of bringing these additional areas into the city limits.

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EXISTING CONDITIONS
HISTORIC IMAGES

PAST CHARACTERISTICS
• COMMUNITY GATHERING PLACE
• AUTO-CENTRIC ACCESS
• INDOOR COMFORT

1965 NORTH DEKALB MALL OPENS

1980s

1965

GRAND OPENING
TODAY!

GREAT ATLANTA'S FINEST

STOREY'S

NORTH DEKALB
THEATRE

PHOTO: 34-01-39

GERALD'S NORTH DEKALB
MICKEY ONE
WARRIORS BATTLE
ALEXANDRA STEWART

HISTORIC IMAGES
EXISTING
ENERGY USE INTENSITY

Heating Energy - kBtu/ft²
1 JAN 1:00 - 31 DEC 23:00

Cooling Energy - kBtu/ft²
1 JAN 1:00 - 31 DEC 23:00

Average Daylight Autonomy
Average cDA
Average UDI

Energy Use Intensity - kBtu/ft²
Baseline
Current
Preferred
Problematic

Energy Use Intensity/use - kBtu/ft²
Heating
Cooling
Interior Lighting
Interior Equipment

ZeroTool

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EXISTING CONDITIONS

• MANY PARKS IN THE COMMUNITY
• ROADWAYS CAUSE DISCONNECTS
• OPPORTUNITIES TO TIE INTO REGIONAL TRAIL SYSTEM + CONNECT PARKS
LIMITED ACCESS TO AMENITIES

Roads & Topography in a highly Auto-Dependent Site

Within the 1/2 mile radius of the mall site, there are many amenities that can revitalize the property. However, the access to these amenities is very limited. The trails of Clyde Shepherd Nature Preserve, for example, is cut off from the north by the retaining wall of the mall property and Lawrenceville Highway. In addition to topographic barriers, the North Druid Hills road and Lawrenceville highway limit pedestrian access to make the site highly auto-dependent.
**AFFORDABILITY INDEX**

- **17487** population
- **7630 households**
- **1.66 autos / household**
- **$11402.33/yr transportation cost / household**
- **31.6% of total income is spent on housing**
- **45.6% H+T cost % income / household**
- **7.13t Annual GHG / household**

**VMT**

- **5.6% Transit Ridership (Workers)**
- **$138/yr transit cost / household**
- **1.87% of total households in the county**
- **7.13t Annual GHG / household**
- **31.6% of total income is spent on housing**
- **45.6% H+T cost % income / household**
- **7.13t Annual GHG / household**
Seventy-five percentage of residents in the three census tracts are one or two person households, yet almost all of the housing is single family.
• Predominantly single family residential type
• Few other types along Lawrenceville Highway

98% Single family residential of all housing footprint within 1/2 mile radius of transit
EAST-WEST SECTIONS

53’ GRADE CHANGE

62’ GRADE CHANGE

68’ GRADE CHANGE

49’ GRADE CHANGE

65’ GRADE CHANGE

Vertical axis is exaggerated 5x.
Aerial and topography data provided by Google Earth Pro.
NORTH-SOUTH SECTIONS

105’ GRADE CHANGE

95’ GRADE CHANGE

85’ GRADE CHANGE

79’ GRADE CHANGE

30’ GRADE CHANGE

Vertical axis is exaggerated 5x.

Aerial and topography data provided by Google Earth Pro.
NORTH DRUID HILLS ROAD

LAWRENCEVILLE HIGHWAY
1% annual chance of flooding (FEMA Zone AE)

Wetland

South Fork Peachtree Creek
NORTH DEKALB MALL

HISTORICAL TOPOGRAPHY

1956

1975

1993
THE NORTH DEKALB MALL REINHABITATION
Harini Patel
Jennie Lynn Rudder
Hala Alfallah
PROJECT OVERVIEW

The North Decatur community has a unique opportunity at the current North DeKalb Mall site to create a vibrant, resilient, mixed-use community where there is currently a declining asset. Located in the triangle between South Fork Peachtree Creek, Lawrenceville Highway, and North Druid Hills Road, the Mall property sits on a huge site overlooking the Clyde Shepherd Nature Preserve, well located for easy access to Decatur, Atlanta, Emory, and the CDC. What if reinvestment celebrated local identity – through hosting high school sports fields, greater non-vehicular connectivity, and adaptive re-use of the department stores? What if redevelopment expanded housing choices and transit access? And what if redevelopment addressed climate change by taking embodied and higher energy performance into account while anchoring community life around a pair of new stormwater parks?

The 1950s construction of the Mall created a thriving community nexus on its seventy-two acres. But it also paved over a critical recharge area for the creek with massive regrading, filled ephemeral streams and flattened natural slopes—all before regulations were in place to protect water quality. The construction encroached on the natural floodplain between the Mall and the Creek and installed a twenty-foot retaining wall. Now, each rain pours contaminated runoff and trash from parking lots and roads directly into South Fork Peachtree Creek, significantly contributing to decreased water quality and flash-flooding downstream. Meanwhile the flattened site itself is hot, dry, and barren.

In place of the center of the Mall, we propose a new public park system connecting North Druid Hills to South Fork Peachtree Creek. Tree-lined sidewalks and bike paths alongside the parks will extend throughout the property and beyond. This emerald necklace will connect the neighborhoods South and West of the property to and across North Druid Hills to Publix to the North, and along the Creek under Lawrenceville Highway to the East.

The Macy’s and Burlington department stores are the highest-performing buildings currently on the mall site. They will be adaptively reused to provide a sense of permanence and continuity to the redevelopment. Between them, restaurants and shops will line the parks with residential and office above. Traditional park activities like screen on the green, dog parks, community gardens, and trails will combine with emerging opportunities for indoor/outdoor workspaces, shared backyards, and rooftop recreation facilities that can serve both local schools and the neighbors who live on or near the site. Portions of the site will be set aside in permanent green easements to ensure permanent public access to the parks and trails; the remainder of the site is loosely gridded into a network of flexible, walkable, bikeable blocks. The slopes will be brought closer to their pre-development state, slowing stormwater velocity to protect our downstream neighbors while creating a dynamic urban fabric that is comfortable to traverse and interact with.

The blocks of the proposed urban framework are proportioned so that the market can dictate whether a specific block becomes community space, rental or owned residential units, office, retail, or entertainment. This flexibility creates long-term resilience.

To demonstrate feasibility, we illustrate how build out might: optimize daylighting and energy-efficient building types; emphasize active recreation with sports fields and courts to be shared by local high schools and residents; accommodate abundant housing types and price points; and provide a myriad of community services to ensure that downsizing neighbors who currently own nearby single-family homes will find options to remain in the neighborhood throughout life transitions. Later phases of development could include structuring the commercial buildings along North Druid Hills Road; these existing businesses can all be accommodated in the park-facing commercial properties that will be constructed in the earlier phases. Looking to the distant future, the fire station located to the north of North Druid Hills Road and the greenspace to its west could become an extension of the linear park system, creating a community heart for redevelopment as future generations re-envision the arterial roads that currently edge the site.
REINHABIT
NORTH DEKALB MALL

REGREEN

ABUNDANT HOUSING

CONNECT

Georgia Institute of Technology// North DeKalb Reinhabit // Spring 2021
N. DEKALB
REINHABITATION PLAN

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ACTIVATE
PARK EDGES

• GROUND-LEVEL RETAIL
• ARTIST STUDIOS
• MAKER SPACES
• RESTAURANTS
• WALK-UP BUSINESSES
PROPOSED ENERGY USE

68.14 kBTU/ft²

↓

60.60 kBTU/ft²

Energy Use Intensity/Use - kBtu/ft²

Energy Use Intensity - 60.6 kBTU/ft²

Current

Preferred

Problematic

100 90 80 70 60 50 40 30 20 10

Energy Use Intensity/Use - kBtu/ft²

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THE MACYS - CURRENT

Energy Use Intensity - 56.96 kBtu/ft²

Gross Floor Area - 268,400 ft²

Window-to-wall Ratio

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<th>W</th>
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<tr>
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Cooling

Heating

Daylight

DA 42.54%  DA 59.06%  DA 67.93%

THE MACYS - PROPOSED

Energy Use Intensity - 40.882 kBtu/ft²

Solar Radiation

Daylight

Urban Comfort Index

DA 87%  cDA 95%  UDI 63%

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REINHABITING MACY’S

The Macy’s at North DeKalb Mall becomes a memorable place as it is reinhabited for active recreational uses. The street-facing edges line with experiential retail, restaurants, and a place to rest for transit commuters. Interior spaces can be imagined in use as neighborhood health clinic for senior care or by the county schools athletic offices. The roofs are retrofitted for sports courts like station soccer, tennis, bocce etc. shared by Tucker, Druid Hills and Lakeside High Schools.
INFILTRATE SURFACE WATER
REDUCE IMPERMEABLE SURFACES
CREATE OPPORTUNITIES FOR INFILTRATION
REDUCE RUNOFF TO PEACHTREE CREEK

DAYLIGHT STREAMS
OXYGENATE WATER
HIGHLIGHT WATER SYSTEMS
ADD CURVES TO CHANNELS

SLOW RUNOFF
CREATE MEANDERING ROUTES FOR WATER
INCREASE TIME OF CONCENTRATION
IN STORM EVENTS

DEKALB STORMWATER
RE-ESTABLISH SLOPES

- REMOVE EXISTING RETAINING WALL
- REGRADE SLOPE FROM 935 FFE (SITE) DOWN TO 910 FFE (CREEK) WITH STORMWATER PARKS
88% IMPERVIOUS COVER ON CORE OF SITE

3.8M GALLONS OF RUNOFF FLOW UNFILTERED INTO SOUTH FORK PEACHTREE CREEK IN EACH 1-YR/24-HR RAIN EVENT

THAT’S ENOUGH TO FILL THE ENTIRE AMC THEATER 1’ DEEP EVERY HEAVY RAIN.
55 ACR
SITE STUDY

53% LOT COVERAGE
IMPERMEABLE SURFACES
(PAVING, ETC)

1.2” TO BE CAPTURED ON-SITE
(PER RAIN EVENT)

1.43M GALLONS OF RUNOFF
TO BE INFILTRATED ON SITE
DURING EACH SIGNIFICANT
RAIN EVENT*

*1 year/24-hour statistical rain event: 3.32” rainfall over 24-hours (2020)

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DEKALB CONNECTIVITY

**DESIGN FOR PEOPLE**
- Slope site so main paths are comfortable
- Emphasize shade and visibility
- Protect from cars

**EMBRACE TRANSIT**
- Prioritize access
- Collaborate with multiple agencies
- Celebrate transportation alternatives

**REGIONAL CONNECTIONS**
- Identify existing trails
- Create destinations
- Connect opportunities
79% FEWER CURB CUTS ON NORTH DRUID HILLS ROAD
*BEFORE: 19; AFTER: 4

CREATE A HUMAN SCALED SIDEWALK + TRAIL NETWORK

95 439 INTERSECTION DENSITY
*INTERSECTIONS PER SQUARE MILE

2.75 MILES BIKE + PEDESTRIAN TRAILS
PROPOSED THROUGHOUT THE STUDY AREA
*BEFORE: 0 MILES
WALKABLE/BIKEABLE STREETSCAPES

80' ROW 'A' STREET
6' Sidewalks, 6' Bike-lanes, parallel parking lanes and 2-way lane for car and transit (24')

50' ROW 'B' STREET
6' Sidewalks and 2-way lane shared for cars and bikes (24')

50' WOONERF
Shared for all uses: Pedestrians, bikes, slow cars, parking, seating benches

40' ROW 'C' STREET
6' Sidewalks, one sided parallel parking, one way lane for cars and bikes

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REGIONAL CONNECTIVITY

- Connect trails to regional path system along creek and power line easements
- Provide street trees and sidewalks along major roadways
- Improve MARTA stops
- Build future infrastructure to anticipate a mix of transportation options
ABUNDANT HOUSING

OFFER CHOICE IN HOUSING
NEIGHBORHOOD OF RENTERS & OWNERS
SHOP HOMES, TINY HOMES, SENIOR CARE

ACCESS TO TRANSIT
INCREASE HOUSEHOLD DENSITY WITHIN 1/2 MILE RADIUS OF TRANSIT

NEIGHBORHOOD AMENITIES
ACCESS TO DAILY CONVENIENCES WITHIN 1/2 MILE RADIUS
REPROGRAM ROOFTOPS OF MACY’S & PARKING STRUCTURES WITH ACTIVE RECREATION
NEIGHBORHOOD

Cottage Courts/ Tiny Homes
Units proposed: 22

Missing Middle:
Town-homes: 75 Units
Shop Houses: 7 Units
Units proposed: 82

Multi-Family Dwellings
Integrated senior care: 36 Units
Units proposed: 1032

Multi-Family Dwellings
Units proposed: 1032

Work Space:
525,920 SF

Active use:
281,345 SF

Opportunities
for aging in place
for active recreation

424%
population with
access to transit
within 1/2 mile radius

Population with access to transit within 1/2 mile radius: 424%

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The cottage courts at the west edge of the site are positioned between a shared bike and pedestrian street overlooking the creek and the ‘B’ street. The tiny homes provide an option to a growing demographic of single parents, seniors, or other smaller households in an area that is predominantly single family homes. The court transforms into a communal backyard for young children to play together, for informal gatherings and community bonding. The ‘B’ street (left) connects to the shared street and beyond to the neighborhoods in the west over the creek. While parents may be apprehensive of their children walking on North Druid Hills Road, 10 year old Adam meets his friends at the new neighborhood via the shared street from his house at North Druid Valley.
ACTIVE RECREATION

Soccer at Macy's Rooftop

Trails at Clyde Shepherd
Natural Preserve
### HOUSING

**Block 01**

### HOUSING - PROPOSED

**Multifamily** - 250 ft²

- 97.3 kBtu/ft²
- $0.24/ft² per month
- $60/month

**Energy Use Intensity/Use** - kBtu/ft²

- **Energy Use**
  - Heating
  - Cooling
  - Equipment
  - Lighting
  - **Values**
  
  - **Daylight**

- **Daylight Autonomy**
  - 62%
- **Continuous DA**
  - 8.80%
- **Useful Daylight Illuminance**
  - 2.72%

---

Daylight

- **Daylight**
  - **Values**

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Senior care homes mark the entrance into the Reinhabited North DeKalb Mall moving up Orion Drive. Pedestrian paths on the street connect down to the North DeKalb Mall community garden and the creek trails. The homes form a part of the abundant housing options in the project offering assisted and independent living options to the evolving senior demographic in the neighborhood. Further in are a series of roofs of the Macy’s and the parking structures for active recreation be it Pickleball, Shuffleboard, Tennis or Bocce.
NEXT STEPS

IMPROVE  STREETSCAPE 01
POTENTIAL  PROJECT PHASING 02
SOON  TACTICAL URBANISM 03
FUTURE  RECONNECTING NORTH DEKALB 04
IMPROVE STREETSCAPE

- Build missing sidewalks
- Plant street trees
- Enhance buffer
- Lawrenceville Highway
- North Druid Hills Road
- Stone Mountain Freeway (East)
- Stone Mountain Freeway (West)
**PHASE 1 (NEAR-TERM)**
- Partially demolish parking northeast of current Burlington location
- Install initial athletic field, spectator stands, and track in flat parking area
- Utilize existing surface parking for sports events
- Opportunity to infill Burlington with school and/or administration offices

**PHASE 2**
- Demolish core of existing mall
- Demolish retaining wall separating southern parking lot from Creek flood plain
- Construct lower stormwater parks to capture and treat runoff
- Build southeastern residential
- Utilize existing surface parking as-needed to accommodate new uses
- Begin reinhabitation of former Macy’s space

**PHASE 3**
- Relocate existing businesses from along North Druid Hills Road to temporary spaces in Phase 2
- Construct all stormwater and amenity parks
- Construct mixed-use buildings along North Druid Park
- Relocate MARTA stop to south of North Druid Park
- Continue adaptive reuse of former Macy’s building
- Build North Druid Hills streetscape improvements

**PHASE 4 (FULL BUILD-OUT)**
- Construct senior housing, multifamily, medical office, and retail in eastern portion of site
- Relocate existing businesses from Phase 2 to North Druid Hills locations
- Improve streetscape along Lawrenceville Highway
- Relocate high school athletic field to rooftop of parking structure in northeast
- Construct all remaining trails, parking structures (per market demand), and sidewalks
TACTICAL URBANISM

DYNAMIC NEIGHBORHOOD GATHERING SPACE
MOVIES & POPCORN UNDER THE EVENING SKY

The tactical interventions seek to engage neighbors and reinvigorate the mall site. In front of “the old Macy’s”, is a set up of a temporary plaza for Friday night movies projected on the north wall of the memorable building. The space is defined within the expanse of the parking lot with paint and AstroTurf. The intervention draws in passersby on North Druid Hills road also by testing bikeable and walkable streets. The Mall’s commercial neighbors like the AMC, Publix, Home Depot are engaged in pop-corn and snacks sales, materials donation, and parked in food trucks with the screening of older/family films in the evenings. Other times, DeKalb High Schools showcase their student artwork projected on the wall of the Macy’s.
RECONNECT NORTH DEKALB

DOWNTOWN DECATUR

DEKALB MEDICAL

SUBURBAN PLAZA

Clifton Corridor (Future)

DOWNTOWN ATLANTA

EMORY UNIVERSITY

CDC

VA

Transit Hub

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What if the North DeKalb Mall was a mixed-use, healthy, and walkable neighborhood for all? The mall was an important gathering space for DeKalb County for fifty years. Like many malls, it is no longer living up to its full potential. What if the mall property revived as a vibrant town center with parking lots transformed into green gathering spaces?

Seventy-five percent of residents in the three census tracts are one or two person households, yet almost all of the housing is single-family. This does not allow downsizing seniors to age in the community. Nor does it allow the high percentage of single-parent households to share parenting easily. We address this need by providing diverse housing and gathering spaces. At the same time, higher density housing supports a walkable, healthier, and affordable neighborhood. This contributes to health and affordability as sixty-six percent of people drive thirty to forty miles daily and spend a higher proportion of their income on travel.

The project aims to promote affordability, health, and sustainability by redeveloping the mall with outdoor gathering spaces, a healthy food forest, and a parking district. The parking district’s garages are designed to be retrofittable in the future so the community can be car-free.

In the face of climate change, we want to be a demonstration project for Dekalb County of meeting the 2030 Challenge by committing to reduce the total energy consumption of buildings by thirty percent before 2030. By optimizing building massing, orientation, design, and construction quality (higher insulation, airtightness, and fewer number of thermal bridges) this redevelopment project increases the energy efficiency without any significant addition to the initial cost of its buildings. We are also addressing sustainability and resiliency through stormwater management. The plan revives the original topography, creates retention ponds and a comfortable microclimate.
MARKET OPPORTUNITY

Seventy-five percentage of residents in the three census tracts are one or two person households, yet almost all of the housing is single family.

46.8%

There is a high proportion of single-parent households.

40.8%

There is a need to plan a neighborhood for all age groups.
Health and nutrition data are not very good but also not bad while compared with Georgia. The health data in North Dekalb shows different aspects, such as diet health and general health condition. Only the number of convenience stores with gas station is lower than Georgia.
**DESIGN STRATEGY**

- **Walkable, bikeable, healthy town center with an aim to reduce car dependency in the near future.**

- **Providing diverse housing for all age groups with access to efficient daylight, gathering space and active streetfronting retail at the ground level.**

- **Open space to encourage a space for performance, learning activities, farmer's market to promote a holistic lifestyle.**

- **Initiating commercial spaces that cater to the healthcare, startups and co-working spaces with a goal of reducing the vehicle miles travelled.**

- **Proposing a bus stop for two Marta buses that would connect the site to its vicinity.**

- **Three mixed-use structures that will be completely retrofittable in future.**
URBAN FRAMEWORK

The network of streets are planned with a special focus on the central square and the tactical crossings around it. The grid is derived from the existing Birch Road, Oak Tree Road.

Legend

======== Major Road
---------- Secondary Road
---------- Bike Lane
---------- Bike &Pedestrian Only
---------- Tactical Junction
Parking District is a multi-use structure with retail on the ground, housing/commercial on top with a central parking garage. The roof top has a potential for garden and solar panels. There are 3 parking structures that can accommodate 1800 cars and will host the shared cars and electric charging points.
The form based Regulatory Plan highlights the significant natural and civic zones.

The community garden and the food forest on the southern side welcomes people from the vicinity to participate in the events.
Overall perspective showing a dense neighborhood with high story mixed use apartment buildings, commercial and townhomes.
Imagining the neighborhood with a low density on a similar scheme. This would be an opportunity for later phasing the project vertically.
Site sections

Townhomes to Parking Garage EW
Scale 1"=150'

Urban Street to Food Forest NS
Scale 1"=150'
Major road typical section includes pedestrian, bike lane, and drive way. The green buffer helps in conveying and carrying the water to the retention ponds across the site.

Secondary road typical section includes a wider pedestrian, and drive way. Because on this type, traffic volume would be not too busy, so instead of creating another lane for bike it acts as a shared street.
Existing Public Space
Green Space: 115080 sqft
Gathering space: 664273 sqft
Total 779353 sqft

Proposed Public Space
60% Edible Landscape
(food forest, community garden)
10% Water Landscape (retention pond)
Total 1511050 sqft

9 X Existing Area
93.9%

20% Gathering Spaces (event space, market space, recreation and health, work, eat)
10% Micro Gardens in between the buildings (courtyard spaces)
FOOD COMPARISON

Existing Fast Food
total area 43860 sqft

Potential for Healthy Food points on the Site

Surrounding Community Garden

North Dekalb Mall Garden
Umurima Wa Burundi Farm
Columbia Theological Seminary Garden
Columbia Presbyterian Church Garden
Decatur's Kitchen Garden
Decatur Farmers Market
Southern Culture Artisan Foods

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Existing Parking
Ground Area: 1148494 sqft
Parking Spots: 3235
Ratio: 355 sqft/spots

Proposed Parking
Ground Area: 206884 sqft
Parking Spots: 1800
Ratio: 115 sqft/spots

Efficient Parking
GROUND PARKING AREA
decrease
↓ 56%
RETROFITTABLE GARAGE (SMALL)

A place for cars to a space for community.

Multi-purpose space-farmer’s market, performances, exhibits with natural light source.

Scale 1”=50’
**Proposed Outdoor Comfort**

We consider outdoor comfort and walkability one of the biggest selling points of our proposal. These UTCI simulations enable us to predict what would be the “feel-like temperature” of spaces located outdoors. By doing these simulations we identified problem areas and added mitigation strategies, such as trees.

- Some green spaces surrounded by buildings are generally more comfortable due to the shading that those buildings provide during the summer.

- Adding trees in open spaces that do not have immediate buildings around, such as the central square, can create more comfortable environments during the summer.
## Proposed Solar System

The estimate of energy generation, financial savings and avoided carbon emissions was calculated for two different scenarios. One where PV panels were installed only at Public Buildings (Civic Buildings & Parking Decks), and the other where PV panels were installed at Commercial and Residential Buildings.

### PV Panel Assumptions

<table>
<thead>
<tr>
<th></th>
<th>Module Dimensions (L x W)</th>
<th>Panel Efficiency</th>
<th>Performance Ratio</th>
<th>Panel Tilt</th>
<th>Average Price of Energy in Georgia</th>
<th>Average Energy CO2 Emissions in Georgia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option One: Public Buildings</td>
<td>6.6ft x 3.3ft</td>
<td>19.5%</td>
<td>0.75</td>
<td>31.5%</td>
<td>$0.10/kWh</td>
<td>0.762 kgCO2e/kWh</td>
</tr>
<tr>
<td>Option Two: Commercial + Multifamily Residential</td>
<td>6.6ft x 3.3ft</td>
<td>19.5%</td>
<td>0.75</td>
<td>31.5%</td>
<td>$0.10/kWh</td>
<td>0.762 kgCO2e/kWh</td>
</tr>
</tbody>
</table>

### Option One: Public Buildings

- **Panels**: 1356
- **Energy Generated per Year**: 779,700 kWh, 2,660,336 kBTU
- **Financial Savings per Year**: $77,970
- **Avoided Carbon Emissions per Year**: 594,131 kg CO2e

### Option Two: Commercial + Multifamily Residential

- **Panels**: 1303
- **Energy Generated per Year**: 749,225 kWh, 2,556,356 kBTU
- **Financial Savings per Year**: $74,923
- **Avoided Carbon Emissions per Year**: 570,910 kg CO2e
**ENERGY PERFORMANCE**

**Existing**
- Total Gross Area: 831,422 sf
- Site Average EUI: 68.45 kBTU/sf
- Total Energy Usage: 56,900,001 kBTU

**Proposed**
- Total Gross Area: 2,573,877 sf
- Site Average EUI: 45.85 kBTU/sf
- Total Energy Usage: 118,012,260 kBTU

**ENERGY USE INTENSITY decrease**
- 33%

**Heating Load - kBtu/ft²**

**Cooling Load - kBtu/ft²**

**Heating Energy - kBtu/ft²**

**Cooling Energy - kBtu/ft²**
Existing
The existing mall, due to the lack of apertures and the higher depth of the building, have a significant problem with the lack of natural daylight. Skylights located along the middle of the building are the only source of natural daylight but are still insufficient to make this a well daylit this building.

Proposed
Our proposal considers natural daylight fundamental, not only because of the energy efficiency, but also for the well-being of the population living within the development. All residential and commercial buildings were simulated to make sure that people occupying the space will be able to enjoy this perk.
**Existing Condition**
Total Roof Area: 73,953sf
Total Rainwater falling on the roofs: 1,840,812gallons/yr

**Proposed Water Harvesting**
Total Roof Catchment Area: 64,352sf
Harvested Rainwater: 1,601,843gallons/yr

1,601,843 gallons of water collected

**Proposed Water Reuse System**
Proposed Space Gross Area: 24,005sf
Water Usage per week: 0.623gallon/sf
Total Water Usage: 780,665gallons/yr
The site topography is graded to aid in a system of surface runoff and collection through a network of conveyance streets and retention ponds.

The major streets act as conveyance streets, have green buffer which acts as a sponge system in soaking and sending the water to the ponds.

**Legend**

- +970 to +1000
- +940 to +970
- +920 to +940
- +900
- Retention Ponds
- Conveyance Street
- Water Direction
PROJECT PHASING

PHASE 1 TACTICAL APPROACH

Before demolishing the mall it is important to attract people to our site, the community garden and make it an accessible place. Using two tactical measures would help in making the place active.

- **The community corner** is an experimental place to help people cross safely between the mall site, Publix and eating spaces.
  - Primarily acts as a waiting space with activities like free library, chairs, temporary shading.

- **The Healthy Matrix** is an approach to transform the parking lots into a community-owned space with a diverse set of activities.
  - Community participatory approach (sell your specialities)
  - Healthy Food trucks
  - Eating spaces and movie screening
  - Children play area incorporating food as a learning practice
  - Community garden on the south and Decatur Farmers’ market can set up mini markets on Sundays
PHASE 2 DEFINING THE CENTRAL SQUARE

The mall would be demolished and the parcels facing the North Druid hills would be developed first.

The street grid is derived from the two existing major streets with a focus on establishing the central square.

One of the three parking garages would be developed to serve the north portion of the site.
PHASE 3 DEVELOPING AROUND THE SQUARE

The blocks around the Central Square would be developed along with the three parking districts (followed by other blocks).

The community garden will be supported with the food forest and trail on the west and south edges.

The parking garages will be completely retrofitted in the next 60 years with an aim to achieve a complete walkable district.
A healthy environment for children to learn outdoors and at a walkable distance. Observe-Learn and Play!

The Civic building’s plaza provides an opportunity to host local food and farmer’s market. A place for temporal, pop-up events in the neighborhood.
The Art Square would be a community led initiative and would act as a platform for local artists to share their knowledge.
The section shows the activities through the Central Square and the civic building.

This street can be transformed to an only pedestrian and bike street and the events could spill on to the streets.

The Bus stop located on the northern part of the Central Square forms a plaza connecting the greens. This space can host multiple temporal events.
## OPPORTUNITY

## PROPOSAL

<table>
<thead>
<tr>
<th>Approach</th>
<th>Year 1</th>
<th>Year 10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Farming</strong></td>
<td>1. Edible plants, Herb garden</td>
<td>1. Food forest</td>
</tr>
<tr>
<td></td>
<td>2. Educational signages, events</td>
<td>2. Rooftop farms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. High tech growing systems</td>
</tr>
<tr>
<td><strong>Kitchen and processing</strong></td>
<td>1. Outdoor cooking areas (weekends)</td>
<td>1. Culinary facility (civic building)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. One of the parking garage converts to a food processing and growing facility</td>
</tr>
<tr>
<td><strong>Storage and supply</strong></td>
<td>1. Temporary shelters</td>
<td>1. Prospective food hub facilities</td>
</tr>
<tr>
<td></td>
<td>2. Central square farmer's market (on site)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Supply to the nearby food networks like Global Growers, Food well Alliance</td>
<td></td>
</tr>
<tr>
<td><strong>Temporary partners (locals)</strong></td>
<td>1. Food trucks</td>
<td>1. Street fronting healthy food stores, restaurants, green grocers</td>
</tr>
<tr>
<td></td>
<td>2. Food stalls</td>
<td></td>
</tr>
<tr>
<td><strong>Outreach initiatives</strong></td>
<td>1. Food organizations, schools, residents, county events</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Marta can propose a weekend route from the vicinity to the food forest</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Community garden tours, cooking programs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Volunteer and learning events</td>
<td></td>
</tr>
<tr>
<td><strong>Design</strong></td>
<td>1. Pergolas, tents, outdoor-movable and locally sourced furniture</td>
<td></td>
</tr>
</tbody>
</table>
FOODSCAPING
LANDSCAPE SECTION

White Pine

Bigleaf Maple

Southern Magnolia

Eastern Redbud

Ginko Tree

Pin Oak

Water Hyssop

Water Body

Trail

Water Patio
Trail Connection Map
Connecting our site to South Peachtree Creek Trail.

Trail View

Patio View

Perspectives
FINAL THOUGHTS
The student work is simply one step in starting a conversation about future plans for The Gallery at South Dekalb and the North Dekalb Mall. To continue that conversation, we propose the following recommendations to the Dekalb County:

**Engage with community members, County staff and property owners.**
- Consider sharing this document with your constituents, local nonprofit organizations, and various County departments to help them envision the potential for change and voice their interests and concerns.
- Consider sharing this document with the owners of the mall and abutting properties.
- Would they be interested in partnering on infrastructure before entering creeks rather than as a nuisance and harvested for irrigation and greywater flushing.
- Stormwater should be managed onsite to mitigate downstream flooding.
- Stormwater should be treated as an asset rather than as a nuisance and harvested for irrigation and greywater flushing.
- Stormwater should be cleansed through green infrastructure before entering creeks.
- Runoff should be mitigated through green infrastructure before entering creeks.
- Consider incentivizing use of geothermal energy.
- Consider requiring new buildings to be constructed as “solarready”.
- An increasing number of redevelopments around the country (and new developments in Metro Atlanta such as Serenbe) are installing geothermal ground source heat pump and pipe systems under streets and public spaces during depaving. This significantly reduces energy use and heating and cooling costs in adjacent buildings.

**Zoning Code Considerations**
- Dekalb County’s 2015 new mix of use-based and form-based zoning code and 2019 update are very progressive. The county’s code of ordinances includes a mapped mandatory form-based overlay district. To encourage active transportation, all new streets must include pedestrian and cycling right of ways, and follow a grid pattern, excepting topographic strictures. Solar orientation principles are encouraged for all buildings. The codes include protections for trees and urban forests.
- However, the codes have been criticized by developers for not having a coordinated development process that better enables implementation of the new codes and the sustainable urbanism they promote. Consider improvements to the development process.
- Consider rezoning the mall sites as mandatory form-based overlay districts.

**Anti-Displacement Policy Considerations**
- In 2013, walkability was estimated to add a 112% rent premium to residential, retail, and commercial properties in Metro Atlanta’s 27 regionally-significant walkable urban places. On the one hand, this shows the popularity of walkable, mixed-use and transit-oriented development. On the other hand, it also shows the potential for gentrification and displacement of lower-income, long-time residents as aging auto-oriented places are redeveloped.
- Consider area-wide anti-displacement policies for both commercial and residential tenants and owners.
- Consider inclusionary affordable housing requirements on the mall properties.
- Consider policies to increase home ownership amongst population groups with below average home ownership rates.

**Comprehensive Plan Considerations**
**ENERGY**
- According to our analysis, new construction under the County’s current building codes will not reach the goals of the 2030 Challenge or similar carbon reduction plans. In the face of climate change, consider increasing insulation requirements in the building code and use of an energy ranking system such as the Energy Star system as employed by Austin Energy in Austin, TX where redevelopments are given fixed targets to meet as a condition of rezoning.
- Consider pro-active measures to attract a like-minded developer. These might include production of a market or feasibility analysis and re-zoning.
- New forms of community ownership might be explored such as those of nonprofit Downtown Crenshaw’s proposals for the Baldwin Hills-Crenshaw Plaza mall in Los Angeles.

**WATER**
- Older properties, especially those built before the environmental laws of the early 1970s, such as the two malls studied here, routinely dumped untreated runoff and trash into nearby creeks, treating them as storm sewers. Redevelopment of these properties provide opportunities for ecological repair and public spaces during depaving. This significantly reduces energy use and heating and cooling costs in adjacent buildings.
- Consider improvements to the development process.
- Consider area-wide anti-displacement policies for both commercial and residential tenants and owners.
- Consider including affordable housing requirements on the mall properties.
- Consider policies to increase home ownership amongst population groups with below average home ownership rates.

**Recommendations**

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- However, the codes have been criticized by developers for not having a coordinated development process that better enables implementation of the new codes and the sustainable urbanism they promote. Consider improvements to the development process.
- Consider rezoning the mall sites as mandatory form-based overlay districts.

**Anti-Displacement Policy Considerations**
- In 2013, walkability was estimated to add a 112% rent premium to residential, retail, and commercial properties in Metro Atlanta’s 27 regionally-significant walkable urban places. On the one hand, this shows the popularity of walkable, mixed-use and transit-oriented development. On the other hand, it also shows the potential for gentrification and displacement of lower-income, long-time residents as aging auto-oriented places are redeveloped.
- Consider area-wide anti-displacement policies for both commercial and residential tenants and owners.
- Consider including affordable housing requirements on the mall properties.
- Consider policies to increase home ownership amongst population groups with below average home ownership rates.

**Comprehensive Plan Considerations**
**ENERGY**
- According to our analysis, new construction under the County’s current building codes will not reach the goals of the 2030 Challenge or similar carbon reduction plans. In the face of climate change, consider increasing insulation requirements in the building code and use of an energy ranking system such as the Energy Star system as employed by Austin Energy in Austin, TX where redevelopments are given fixed targets to meet as a condition of rezoning.
- Consider pro-active measures to attract a like-minded developer. These might include production of a market or feasibility analysis and re-zoning.
- New forms of community ownership might be explored such as those of nonprofit Downtown Crenshaw’s proposals for the Baldwin Hills-Crenshaw Plaza mall in Los Angeles.

**WATER**
- Older properties, especially those built before the environmental laws of the early 1970s, such as the two malls studied here, routinely dumped untreated runoff and trash into nearby creeks, treating them as storm sewers. Redevelopment of these properties provide opportunities for ecological repair and public spaces during depaving. This significantly reduces energy use and heating and cooling costs in adjacent buildings.
- Consider improvements to the development process.
- Consider area-wide anti-displacement policies for both commercial and residential tenants and owners.
- Consider including affordable housing requirements on the mall properties.
- Consider policies to increase home ownership amongst population groups with below average home ownership rates.
THE GALLERY AT SOUTH DEKALB

REINHABITATION
ENERGY USE
EXISTING CONDITIONS

Site EUI: 156 kWh/m²
Gross Floor Area: 88,515 m²

Cooling EUI
35 kWh/m²

Heating EUI
57 kWh/m²

Simulation Engine: Ladybug Tools
DAYLIGHTING
EXISTING CONDITIONS

Daylight Autonomy
14.2%

Simulation Engine: Ladybug Tools
MICRO CLIMATE
EXISTING CONDITIONS

Input Parameters
Traffic 6 w/m²
Fraction Heat Canyon 0.5
Wall Albedo varies
Roof Albedo 0.2
Total Vegetation 0.1
Tree Cover 0.05
Grass Cover 0.05

UHI Simulation
Monthly Average Diurnal Temperatures

Simulation Engine: Urban Weather Generator via Ladybug Tools Dragonfly
MALL MASSINGS

Variation 01
Retained Mall Building: 75,837 sf
New Office: 210,681 sf
Open Space: 34,107 sf

Variation 02
Retained Mall Building: 106,146 sf
New Office: 104,527 sf
Open Space: 30,099 sf

Variation 03
Retained Mall Building: 66,258 sf
New Office: 224,145 sf
Open Space: 43,772 sf

Variation 04
Retained Mall Building: 66,257 sf
New Office: 195,897 sf
Open Space: 48,060 sf

LEGEND
Retained Mall
New Office
Open Space

Simulation Engine: Ladybug Tools
MALL MASSINGS

Variation 01
Retained Mall Building: 75,837 sf
New Office: 210,681 sf
Open Space: 34,107 sf

Annual Sunlight Analysis
Summer UTCI 102°F
Winter UTCI 61°F

Annual Radiation

Summer Sunlight Analysis
July, 9am-5pm

Winter Sunlight Analysis
December 15, 9am-5pm

Retained Mall Building: 75,837 sf
New Office: 210,681 sf
Open Space: 34,107 sf

Simulation Engine: Ladybug Tools
**MALL MASSINGS**

Variation 02
- Retained Mall Building: 106,146 sf
- New Office: 104,527 sf
- Open Space: 30,099 sf

**Annual Radiation**

**Annual Sunlight Analysis**

**Summer UTCI** 102°F
- July 13, 9am-5pm

**Winter UTCI** 64°F
- December 15, 9am-5pm

**Summer Sunlight Analysis**
- July, 9am-5pm

**Winter Sunlight Analysis**
- December, 9am-5pm

Simulation Engine: Ladybug Tools
MALL MASSINGS

Variation 03
Retained Mall Building: 66,258 sf
New Office: 224,145 sf
Open Space: 43,772 sf

Annual Radiation
Variation 03
Retained Mall Building: 66,258 sf
New Office: 224,145 sf
Open Space: 43,772 sf

Annual Sunlight Analysis

Summer UTCI 100°F
July 13, 9am-5pm

Winter UTCI 60°F
December 15, 9am-5pm

Summer Sunlight Analysis
July, 9am-5pm

Winter Sunlight Analysis
December, 9am-5pm

Simulation Engine: Ladybug Tools
MALL MASSINGS

Variation 04
- Retained Mall Building: 66,257 sf
- New Office: 195,897 sf
- Open Space: 48,060 sf

Annual Sunlight Analysis
- Summer UTCI: 100°F
- Summer Sunlight Analysis: July 13, 9am-5pm
- Winter UTCI: 62°F
- Winter Sunlight Analysis: December 15, 9am-5pm

Annual Radiation

Simulation Engine: Ladybug Tools
MALL MASSINGS

Variation 05
Retained Mall Building: 33,172 sf
New Office: 112,089 sf
Open Space: 21,894 sf

Variation 06
Retained Mall Building: 54,082 sf
New Office: 57,211 sf
Open Space: 22,053 sf

Variation 07
Retained Mall Building: 33,172 sf
New Office: 93,558 sf
Open Space: 25,860 sf

Variation 08
Retained Mall Building: 58,184 sf
New Office: 0 sf
Open Space: 26,668 sf

Variation 09
Retained Mall Building: 33,086 sf
New Office: 104,527 sf
Open Space: 26,668 sf

Variation 10
Retained Mall Building: 33,086 sf
New Office: 130,659 sf
Open Space: 26,668 sf

LEGEND
- Retained Mall
- New Office
- Open Space

Simulation Engine: Ladybug Tools
MALL MASSINGS

Variation 05
Retained Mall Building: 33,172 sf
New Office: 112,089 sf
Open Space: 21,894 sf

Summer UTCI 100°F
July 13, 9am-5pm

Winter UTCI 61°F
December 15, 9am-5pm

Summer Sunlight Analysis
July, 9am-5pm

Winter Sunlight Analysis
December, 9am-5pm

Variation 06
Retained Mall Building: 54,082 sf
New Office: 57,211 sf
Open Space: 22,053 sf

Summer UTCI 100°F
July 13, 9am-5pm

Winter UTCI 63°F
December 15, 9am-5pm

Summer Sunlight Analysis
July, 9am-5pm

Winter Sunlight Analysis
December, 9am-5pm
MALL MASSINGS

Variation 07
Retained Mall Building: 33,172 sf
New Office: 93,558 sf
Open Space: 26,860 sf

Variation 08
Retained Mall Building: 58,184 sf
New Office: 0 sf
Open Space: 28,668 sf

Summer UTCI 99°F
July 13, 9am-5pm

Winter UTCI 61°F
December 15, 9am-5pm

Summer UTCI 99°F
July 13, 9am-5pm

Winter UTCI 60°F
December 15, 9am-5pm

Summer Sunlight Analysis
July, 9am-5pm

Winter Sunlight Analysis
December, 9am-5pm

Simulation Engine: Ladybug Tools
MALL MASSINGS

Variation 09
Retained Mall Building: 33,086 sf
New Office: 104,527 sf
Open Space: 26,668 sf

Variation 10
Retained Mall Building: 33,086 sf
New Office: 130,659 sf
Open Space: 26,668 sf

Summer UTCI 99°F
Winter UTCI 59°F

Summer Sunlight Analysis
Winter Sunlight Analysis

July 13, 9am-5pm
December 15, 9am-5pm

Simulation Engine: Ladybug Tools

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DAYLIGHT AVAILABILITY

Spatial Daylight Autonomy
Threshold: 300 lux
Average sDA: 22.8%
ASE: 4.8% (1,000, 250+)

Annual Glare: 4.6%

LEED v4.1 Daylight Credits:

Existing Conditions

EUI: 125.8 kWh/m²
Cooling EUI: 40 kWh/m²
Heating EUI: 16 kWh/m²
Lighting EUI: 27 kWh/m²

EUI: 39.9 kBTU/ft²
Cooling EUI: 13 kBTU/ft²
Heating EUI: 5 kBTU/ft²
Lighting EUI: 9 kBTU/ft²

Simulation Engine: ClimateStudio and Ladybug Tools

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**DAILY LIGHT AVAILABILITY**

**Spatial Daylight Autonomy**
- Threshold: 300 lux
- Average sDA: 87.0%
- ASE: 10.9% (>1,000, 250+)

**LEED v4.1 Daylight Credits:**

**Annual Glare:** 23.6%

**Views w/ disturbing glare 5% of the time:**

**Design Variation 01**
- N - 40%
- E - 30%
- S - 40%
- W - 30%

**EUI:** 122.1 kWh/m²
  - Cooling EUI: 29 kWh/m²
  - Heating EUI: 30 kWh/m²
  - Lighting EUI: 27 kWh/m²

**EUI:** 38.7 kBtu/ft²
  - Cooling EUI: 9 kBtu/ft²
  - Heating EUI: 10 kBtu/ft²
  - Lighting EUI: 9 kBtu/ft²

Simulation Engine: ClimateStudio and Ladybug Tools
Spatial Daylight Autonomy
Threshold: 300 lux
Average sDA: 61.8%
ASE: 6.6% (>1,000, 250+)

Annual Glare: 9.8%

LEED v4.1 Daylight Credits:

Design Variation 02
N - 20%
E - 20%
S - 20%
W - 20%

Spatial Daylight Autonomy
Threshold: 300 lux
Average sDA: 61.8%
ASE: 6.6% (>1,000, 250+)

Annual Glare: 9.8%

LEED v4.1 Daylight Credits:

EUI: 116.9 kWh/m²
Cooling EUI: 26 kWh/m²
Heating EUI: 28 kWh/m²
Lighting EUI: 27 kWh/m²

EUI: 37.1 kBTU/ft²
Cooling EUI: 8 kBTU/ft²
Heating EUI: 9 kBTU/ft²
Lighting EUI: 9 kBTU/ft²
**DAYLIGHT AVAILABILITY**

Spatial Daylight Autonomy
Threshold: 300 lux
Average sDA: 72.2%
ASE: 7.0% (>1,000, 250+)

LEED v4.1 Daylight Credits:

- **Views w/ disturbing glare 5% of the time**

- **Annual Glare:** 14.8%

- **Design Variation 03**
  - N - 40%
  - E - 25%
  - S - 25%
  - W - 25%
  - Horizontal shading on the South. Vertical shading on East/West.

- **LEED v4.1 Daylight Credits:**
  - **EUI:** 119.3 kWh/m²
  - **Cooling EUI:** 27 kWh/m²
  - **Heating EUI:** 29 kWh/m²
  - **Lighting EUI:** 27 kWh/m²

- **EUI:** 37.8 kBTU/ft²
  - **Cooling EUI:** 9 kBTU/ft²
  - **Heating EUI:** 9 kBTU/ft²
  - **Lighting EUI:** 9 kBTU/ft²

- **Simulation Engine:** ClimateStudio and Ladybug Tools

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DAILY LIGHT AVAILABILITY

Spatial Daylight Autonomy
Threshold: 300 lux
Average sDA: 55.8%
ASE: 7.9% (>1,000, 250+)

Annual Glare: 8.2%

LEED v4.1 Daylight Credits:

Views w/ disturbing glare 5% of the time

Design Variation 04
N - 40%
E - 30%
S - 30%
W - 30%

Horizontal shading on the South/East/West for glare control.

EUI: 81.4 kWh/m²
Cooling EUI: 11 kWh/m²
Heating EUI: 13 kWh/m²
Lighting EUI: 15 kWh/m²

EUI: 25.8 kBTU/ft²
Cooling EUI: 3 kBTU/ft²
Heating EUI: 4 kBTU/ft²
Lighting EUI: 5 kBTU/ft²

Simulation Engine: ClimateStudio and Ladybug Tools
Spatial Daylight Autonomy
Threshold: 300 lux
Average sDA: 100%
ASE: 23.9% (>1,000, 250+)

Annual Glare: 17.6%

LEED v4.1 Daylight Credits:

EUI: 84.3 kWh/m²
Cooling EUI: 13 kWh/m²
Heating EUI: 12 kWh/m²
Lighting EUI: 15 kWh/m²

EUI: 26.7 kBTU/ft²
Cooling EUI: 4 kBTU/ft²
Heating EUI: 4 kBTU/ft²
Lighting EUI: 5 kBTU/ft²

Design Variation 05
N - 30%
E - 25%
S - 25%
W - 25%
R - 5%

Horizontal shading on the South/East/West

Views w/ disturbing glare 5% of the time
EUI: 84.3 kWh/m²
Cooling EUI: 13 kWh/m²
Heating EUI: 12 kWh/m²
Lighting EUI: 15 kWh/m²

EUI: 26.7 kBTU/ft²
Cooling EUI: 4 kBTU/ft²
Heating EUI: 4 kBTU/ft²
Lighting EUI: 5 kBTU/ft²

Simulation Engine: ClimateStudio and Ladybug Tools
Spatial Daylight Autonomy
Threshold: 300 lux
Average sDA: 99.8%
ASE: 5.9% (>1,000, 250+)

Annual Glare: 5.6%

Design Variation 06
N - 30%
E - 25%
S - 25%
W - 25%
R - 3%
Horizontal shading on the South/East/West

EUI: 81.6 kWh/m²
Cooling EUI: 11 kWh/m²
Heating EUI: 12 kWh/m²
Lighting EUI: 15 kWh/m²

EUI: 25.9 kBtu/ft²
Cooling EUI: 3 kBtu/ft²
Heating EUI: 4 kBtu/ft²
Lighting EUI: 5 kBtu/ft²

Simulation Engine: ClimateStudio and Ladybug Tools
### DAYLIGHT AVAILABILITY

**Design Variation 01**
- Average sDA: 87.0%
- Annual Glare: 23.6%
- LEED Credits: 3 with glare control

**Design Variation 02**
- Average sDA: 61.8%
- Annual Glare: 9.8%
- LEED Credits: 2 with glare control

**Design Variation 03**
- Average sDA: 72.2%
- Annual Glare: 14.8%
- LEED Credits: 2 with glare control

### ENERGY END USES

**Design Variation 01**
- EUI: 122 kWh/m²
- 39 kBTU/ft²

**Design Variation 02**
- EUI: 117 kWh/m²
- 37 kBTU/ft²

**Design Variation 03**
- EUI: 119 kWh/m²
- 38 kBTU/ft²

Simulation Engine: ClimateStudio and Ladybug Tools
DAYLIGHT AVAILABILITY

Design Variation 04
Average sDA: 55.8%
Annual Glare: 8.2%
LEED Credits: 2 with glare control

Design Variation 05
Average sDA: 100%
Annual Glare: 17.6%
LEED Credits: 3 with glare control

Design Variation 06
Average sDA: 99.8%
Annual Glare: 5.6%
LEED Credits: 3

ENERGY END USES

Design Variation 04
EUI: 81.4 kWh/m²
25.8 kBTU/ft²

Design Variation 05
EUI: 84.3 kWh/m²
26.7 kBTU/ft²

Design Variation 06
EUI: 81.6 kWh/m²
25.9 kBTU/ft²

Simulation Engine: ClimateStudio and Ladybug Tools
BLOCK 01

Retail: 19,483 sf
Multifamily: 16,800 sf
Townhouses: 28,480 sf
FAR: 1.6
Rainwater Harvesting: 710,131 gal/yr
SUNLIGHT HOURS

DAYLIGHT AUTONOMY

Average Daylight Autonomy: 58.7%

Average Daylight Autonomy: 52.6%

Average Daylight Autonomy: 50.3%

Average Daylight Autonomy: 52.2%

Simulation Engine: Ladybug Tools
BLOCK 02

- Retail: 15,952 sf
- Multifamily: 40,520 sf
- Duplexes: 14,990 sf
- FAR: 1.7

Rainwater Harvesting: 584,887 gal/yr
SUNLIGHT HOURS

DAYLIGHT AUTONOMY

Average Daylight Autonomy: 70.7%

Average Daylight Autonomy: 68.8%

Average Daylight Autonomy: 69.2%

Average Daylight Autonomy: 68.9%

Simulation Engine: Ladybug Tools
**COOLING ENERGY**

- Cooling EUI: 47 kWh/m²
- Total EUI: 188 kWh/m²

---

**HEATING ENERGY**

- Heating EUI: 93 kWh/m²

---

**Selected Heating Results**

- Heating EUI: 93 kWh/m²
- Total EUI: 187 kWh/m²

---

**Simulation Engine:** Ladybug Tools
BLOCK 03

Retail: 8,724 sf
Multifamily: 77,107 sf
FAR: 2.1
Rainwater Harvesting: 567,387 gal/yr
SUNLIGHT HOURS

DAYLIGHT AUTONOMY

Average Daylight Autonomy: 67.1%

Average Daylight Autonomy: 67.6%

Average Daylight Autonomy: 71.6%

Average Daylight Autonomy: 69.7%

Simulation Engine: Ladybug Tools
COOLING ENERGY

Cooling EUI: 40 kWh/m²
Total EUI: 159 kWh/m²

Cooling EUI: 37 kWh/m²
Total EUI: 156 kWh/m²

Cooling EUI: 40 kWh/m²
Total EUI: 160 kWh/m²

Cooling EUI: 38 kWh/m²
Total EUI: 156 kWh/m²

HEATING ENERGY

Heating EUI: 76 kWh/m²

Heating EUI: 75 kWh/m²

Heating EUI: 76 kWh/m²

Heating EUI: 75 kWh/m²
BLOCK COMPARISON

Block 01
Retail: 19,483 sf
Multifamily: 16,800 sf
Townhouses: 28,480 sf
FAR: 1.6
Rainwater Harvesting: 710,131 gal/yr

Block 02
Retail: 15,952 sf
Multifamily: 40,520 sf
Duplexes: 14,990 sf
FAR: 1.7
Rainwater Harvesting: 584,887 gal/yr

Block 03
Retail: 8,724 sf
Multifamily: 77,107 sf
FAR: 2.1
Rainwater Harvesting: 567,387 gal/yr

Average Daylight Autonomy:
Block 01: 58.7%
Block 02: 70.7%
Block 03: 67.1%

Simulation Engine: Ladybug Tools
COOLING ENERGY

**Block 01**
- Cooling EUI: 45 kWh/m²
- Total EUI: 185 kWh/m²

**Block 02**
- Cooling EUI: 47 kWh/m²
- Total EUI: 188 kWh/m²

**Block 03**
- Cooling EUI: 40 kWh/m²
- Total EUI: 159 kWh/m²

HEATING ENERGY

**Block 01**
- Heating EUI: 89 kWh/m²

**Block 02**
- Heating EUI: 93 kWh/m²

**Block 03**
- Heating EUI: 76 kWh/m²

Simulation Engine: Ladybug Tools
WIND ANALYSIS

Wind Rose - Spring
1 MAR 1:00 - 31 MAY 24:00
Comfortable for 25.18% of 556 hrs

Wind Rose - Summer
1 JUN 1:00 - 31 AUG 24:00
Comfortable for 26.00% of 574 hrs

Wind Rose - Fall
1 SEP 1:00 - 30 NOV 24:00
Comfortable for 38.37% of 838 hrs

Wind Rose - Winter
1 DEC 1:00 - 28 FEB 24:00
Comfortable for 21.39% of 462 hrs

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Wind Rose - Winter
1 DEC 1:00 - 28 FEB 24:00
Comfortable for 21.39% of 462 hrs

Wind Rose - Summer
1 JUN 1:00 - 31 AUG 24:00
Comfortable for 26.00% of 574 hrs
HUMIDITY ANALYSIS

Average Monthly Humidity
1 JAN 1:00 - 31 DEC 24:00

Relative Humidity (%)

Average Daily Humidity
1 JAN 1:00 - 31 DEC 24:00
TEMPERATURE ANALYSIS

Average Monthly Dry Bulb Temperature
1 JAN 1:00 - 31 DEC 24:00

Average Daily Dry Bulb Temperature
1 JAN 1:00 - 31 DEC 24:00
EXISTING ENERGY USE AND DAYLIGHT

Energy Use Intensity - 68.14 kBtu/ft²

Baseline: 100 90 80 70 60 50 40 30 20 10
Current: 86 68.14

Energy Use Intensity/Use - kBtu/ft²

Heating: 24.57
Cooling: 9.58
Interior Lighting: 17.47
Interior Equipment: 5.34

Heating Energy - kBtu/ft²
1 JAN 1:00 - 31 DEC 23:00

Cooling Energy - kBtu/ft²
1 JAN 1:00 - 31 DEC 23:00

Average Daylight Autonomy
Average cDA
Average UDI
15.89% 25.05% 10.24%
THE MACY’S - CURRENT

Gross Floor Area - 268,400 ft²

Energy Use Intensity - 56.96 kBtu/ft²

Energy Use Intensity/Use - kBtu/ft²

Heating  Cooling  Interior Lighting  Interior Equipment

24.57  9.58  17.47  5.34

Total Heating Energy - kBtu/ft²
1 JAN 1:00 - 31 DEC 23:00

Total Cooling Energy - kBtu/ft²
1 JAN 1:00 - 31 DEC 23:00

Daylight Autonomy  3.19%
Continuous DA  8.80%
Useful Daylight Illuminance  2.72%

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EXPLORING OPTIONS

Window-to-wall Ratio

<table>
<thead>
<tr>
<th>East</th>
<th>South</th>
<th>West</th>
<th>North</th>
</tr>
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<tbody>
<tr>
<td>0.8</td>
<td>0.8</td>
<td>0.8</td>
<td>0.45</td>
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</tr>
<tr>
<td>0.30</td>
<td>0.60</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Cooling

- EUI 71.55 kBtu/ft²
- EUI 70.29 kBtu/ft²
- EUI 69.73 kBtu/ft²
- EUI 71.72 kBtu/ft²
- EUI 70. kBtu/ft²

Heating

Daylight

- DA 61.34%
- DA 55.77%
- DA 42.54%
- DA 68.10%
- DA 59.06%
EXPLORING OPTIONS

- **N.** 
  - DA 60% S. 80%
  - E. 45% W. 0%

- **W.** 
  - DA 60% S. 80%
  - E. 45% W. 0%

**EUI**
- 72.15 kBtu/ft²
- 67.93 kBtu/ft²
- 91.53 kBtu/ft²

**DA**
- 70.30%
- 67.93%
- 67.93%

THE MACY’S - PROPOSED

**Window to Wall Ratio**
- **N.** 0.60 S. 0.80
- **E.** 0.25 W. 0.25

**Energy Use Intensity/Use**
- kBtu/ft²

**Energy Use Intensity - 40.882 kBtu/ft²**
- Preferred
- Baseline
- Current
- Problematic

- January: 100
- February: 80
- March: 70
- April: 60
- May: 50
- June: 40
- July: 30
- August: 20
- September: 10

- Lighting
- Heating
- Cooling
THE MACY'S - PROPOSED

Total Heating Energy - kBtu/ft²
1 JAN 1:00 - 31 DEC 23:00

Total Cooling Energy - kBtu/ft²
1 JAN 1:00 - 31 DEC 23:00

Daylight Autonomy 97%
Continuous DA 85%
Useful Daylight Illuminance 63%

Solar Radiation

Universal Thermal Climate Index

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**ENERGY EFFICIENCY**

**Goals**
- Reduced energy bills
- Comfortable indoor environment
- Meet state GHG emission targets

According to a study done by the New Buildings Organization about energy efficiency and equity in Orenco Station in Hillsboro, Oregon; a typical code-compliant, affordable housing unit with two-bedrooms would be expected to cost $123 /month for electricity. Orenco Station residents pay about $50/month, the savings equate to a 1-2% increase of their annual income. Affordable rent and utility bills means stable housing for both tenants and owners. It also provides other non-energy benefits, such as better indoor air quality and less illness. Less missed days from work due to illness also means more wages and job stability, providing an opportunity to rise in current economic position.

Energy efficiency reduces future utility bills, maintenance costs, and tenant vacancy, making a project more valuable and ensuring long-term economic stability for multifamily buildings.

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**Types of Housing in Project**

- Single Family Housing
- Multi Family Housing

---

**Types of Single-family Homes**

Sec. 5.7.5. - Detached houses.

1. Conventional single-family detached
   A development with one (1) dwelling unit per lot of record with private yards on all four (4) sides.

2. Single-family cottage
   A development with one (1) or one and one-half (1.5) story small detached dwelling units arranged whereby cluster around a commonly shared open space and each dwelling unit is located on a separate lot with private rear, side, and front yards.

3. Urban single-family detached
   A development with single-family detached dwelling units located on small lots. Urban single-family (Urban-SF) residential buildings share similar configurations to townhouse developments; however, they are detached and may have lot lines that coincide with the building envelope, provided that a yard area is provided in the dimensions required by the zoning district.

Sec. 5.7.6. - Single-family attached buildings.

1. Single-family attached residential buildings
   Buildings in which dwelling units are attached to one another in a variety of ways, each with its own external entrance.

2. Fee simple condominiums
   Share similar configurations to townhouse developments, and they have lot lines that coincide with the building footprint.
EXPLORING HOUSING

Energy Use

Daylight - Multifamily

- 42.7 kBtu/ft²
- $0.10/ft² per month
- $75/month

Multifamily - 750 ft²

- 69.7 kBtu/ft²
- $0.17/ft² per month
- $136/month

Single Homes - 800 ft²

Cooling

Heating
**HOUSING - PROPOSED**

**Multifamily - 250 ft²**

**Energy Use**
- 97.3 kBu/ft²
- $0.24/ft² per month
- $60/month

**Energy Use Intensity - kBu/ft²**
- Current: 97.3
- Preferred: 100, 90, 80, 70, 60, 50, 40, 30, 20, 10

**Energy Use Intensity/Use - kBu/ft²**
- Heating: 45.7
- Cooling: 12.1
- Lighting Equipment: 2
- Daylight: DA 62%, cDA 79.7%, UDI 52%

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HOUSING - BLOCK 02 A

Energy Use Intensity - kBtu/ft²

Preferred

Problematic

Total Heating Energy - kBtu/ft²
1 JAN 1:00 - 31 DEC 23:00

3.2
2.85
2.57
2.29
2.01
1.73
1.45
1.17
0.88
0.61
0.32

Total Cooling Energy - kBtu/ft²
1 JAN 1:00 - 31 DEC 23:00

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Energy Use Intensity - kBtu/ft²

Preferred  
Problematic

10  9  8  7  6  5  4  3  2  1

Total Heating Energy - kBtu/ft²

1 JAN 1:00 - 31 DEC 23:00

3.2  2.85  2.57  2.29  2.01  1.73  1.45  1.17  0.88  0.61  0.32

Total Cooling Energy - kBtu/ft²

1 JAN 1:00 - 31 DEC 23:00

Housing - Block 02 B

Georgia Institute of Technology // North DeKalb Reinhabit // Spring 2021
THE NORTH DEKALB MALL
REDEVELOPMENT
SITE POTENTIAL

ACCESS

SOCIAL CONNECT

HEALTH

FOOD

MENTAL HEALTH

J O B S

EQUITY

H O U S I N G

CAR-FREE

ENERGY

SOLAR

WALKABLE DISTRICT

WELLNESS

LONELINESS

PHYSICAL HEALTH

WATER
The community corner is an experimental place to help people cross safely between the mall site, Publix and eating spaces.

- The crosswalk art would be a temporary project led by Atlanta Street Art map and will change with different themes.

- Primarily acts as a waiting space with activities like free library, chairs, temporary shading.

The parking area next to Checkers would act as a parklet in conjunction to the existing outdoor seating, and act as a waiting space with food outside.

The Healthy Matrix is an approach to transform the parking lots into a community-owned space with a diverse set of activities.

- Community participatory approach (sell your specialties)

- Healthy Food trucks - Eating spaces and movie screening

- Children play area incorporating food as a learning practice

- Community garden on the south and Decatur Farmers’ market can set up mini markets on Sundays
The community corner is an experimental place to help people cross from the mall site to the nearby Publix and eating spaces.

The crosswalk art would be a temporary project led by Atlanta Street Art map and will change with different themes. Primarily acts as a waiting space with activities like free library, chairs, temporary shading.

The parking area next to Checkers would act as a parklet in conjunction to the existing outdoor seating, and act as a waiting space with food outside.

Potential Partners
1. Neighborhood Planning Unit (NPU)
2. Public works Transportation division - Dekalb County
3. Checker's and Global Corral
4. Project for Public Spaces
5. Little Free Library
6. Atlanta Street art map
Crosswalk Art: Atlanta Street Art Map

- Neon Lights
- Parklets
- Free wifi available
- Little free library
- Fluorescent lights
- Stripe lights
- Outdoor sitting
- Outdoor sitting
Outdoor sitting
Red chairs
Food kiosks
Piano idea
Music swing
Visualizing the community food initiatives along with temporal activities like movie screening, recreational events and play spaces.

The Healthy matrix is an approach to transform the parking lots into a community-owned space with a diverse set of activities.
- Community participatory approach (sell your specialties)
- Healthy Food trucks - Eating spaces and movie screening
- Children play area incorporating food as a learning practice
- Community garden on the south and Decatur Farmers’ market can set up mini markets on Sundays

Potential Partners
1. Neighborhood Planning Unit (NPU)
2. Project for Public Spaces
3. Atlanta Street art map
4. AGLANTA
5. AMC-outdoor initiative
6. Healthy Foodtrucks
7. Decatur Farmer's Market
Fresh Produce from Community Garden
Decatur Farmer's Market
Food Trucks and Seatings
Eating Zone
Lights
Screen
Playing Zone
Harvest and Local produce
PAINTING PARKING LOTS

Decatur Farmer's Market
Food Trucks and Seatings
Fresh Produce from Community Garden
Miniature Food Forest    PLAY    PARTICIPATE

GROW YOUR VEGGIES

HARVEST

COOK

EAT

Outdoor Movie Nights

Painting Competitions

Parking Day Idea
**Number of Buildings**

- Residential: 8 buildings  
  747812 sqft
- Commercial: 2 buildings  
  271488 sqft
- Civic: 3 buildings  
  227803 sqft

**SITE RADIATION ANALYSIS**

**Increased solar energy potential**

661154 sqft of rooftop receiving maximum solar radiation, perfect for solar panel installation

**Proposed Increased Walkability**

increased outdoor comfort: 
wind control
shading
green spaces
ponds
I01: ENERGY ANALYSIS
(COOLING LOAD)

Model Parameters:

Construction set: ASHRAE 90.1 2013 | IECC 2015; Climate Zone 3; SteelFramed Building
Exterior Wall R-Value: 13.33 h-ft²-F/Btu
Exterior Roof R-Value: 26.34 h-ft²-F/Btu
Exposed Floor R-Value: 26.59 h-ft²-F/Btu
Window U-Value: 0.57 Btu/h-ft²F

Window to wall ratios:
Commercial Buildings: 0.6
Civic Buildings: 0.4 N/S & 0.15 E/W
Residential Buildings: 0.4

Building Programs: Blended Programs that may include
2013::MidriseApartment:
2013::LargeOffice:
2013::MediumOffice:
2013::Retail:

I01: ENERGY ANALYSIS
(HEATING LOAD)

Legend:
Commercial Buildings: C#; Civic Buildings: CV#; Residential Buildings: R# C2:

<table>
<thead>
<tr>
<th>Building Number</th>
<th>EUI[kWh/m²]</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>164.22</td>
</tr>
<tr>
<td>C2</td>
<td>168.55</td>
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<tr>
<td>CV1</td>
<td>171.74</td>
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<td>CV2</td>
<td>172.34</td>
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<td>R3</td>
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<td>R4</td>
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<td>R5</td>
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<tr>
<td>R7</td>
<td>171.49</td>
</tr>
<tr>
<td>R8</td>
<td>174.47</td>
</tr>
</tbody>
</table>

Site Average Energy Use Intensity
I02: ENERGY ANALYSIS
(COOLING LOAD)

Legend:
Commercial Buildings: C#; Civic Buildings: CV#; Residential Buildings: R#

Model Parameters:

**OPTIMIZED** Window to wall ratios:
- Commercial Buildings: 0.6
- Civic Buildings: 0.4 N/S & 0.15 E/W
- Residential Buildings: 0.6 N/S & 0.5 E/W

**ADDED** Vertical Fins:
- Commercial Buildings: 0.5m depth N/E & 1m S/W
- Civic Buildings: 0.5m depth
- Residential Buildings: 0.5m depth
- All buildings: 0°N/30°E/ 45°S/ 45°W

---

I02: ENERGY ANALYSIS
(HEATING LOAD)

Legend:
Commercial Buildings: C#; Civic Buildings: CV#; Residential Buildings: R#

Energy Use Intensity per Building

<table>
<thead>
<tr>
<th>Building Number</th>
<th>EUI (KWh/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>135.52</td>
</tr>
<tr>
<td>C2</td>
<td>133.15</td>
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<tr>
<td>CV1</td>
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<td>R7</td>
<td>142.4</td>
</tr>
<tr>
<td>R8</td>
<td>143.46</td>
</tr>
</tbody>
</table>

Site Average Energy Use Intensity

*Graph showing average energy use intensity across different iterations.*
**101: DAYLIGHT ANALYSIS**

Metric: Daylight Autonomy (The percentage of time that each sensor receives equal or more than 300lux)

This metric is useful to determine when a space is not meeting a certain threshold of natural daylight illuminance but it is not directly capable of indicating over-supply of sunlight, which can cause problems such as glare.

**STANDARD** windows sizes and **NO Vertical Fins**:

**Average Daylight Autonomy: 77.2%**

Higher average daylight autonomy but also higher potential to have glare problems nearby windows. While higher average daylight autonomy is not indicative of glare, having 100% daylight autonomy near windows is an indication that further glare studies needs to be performed.

**02: DAYLIGHT ANALYSIS**

**OPTIMIZED** windows and **ADDED** Vertical Fins:

**Average Daylight Autonomy: 66.9%**

Lower average daylight autonomy but also way more controlled daylighting within the building.