

# ANTICIPATING TRANSIT

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## *Embracing the Future*

*“Across the country, state and local governments are searching for ways to create vibrant communities that attract jobs, foster economic development, and are attractive places for people to live, work, and play. Increasingly, these governments are seeking more cost-effective strategies to install or maintain infrastructure, protect natural resources and the environment, and reduce greenhouse gas emissions. What many are discovering is that their own land development codes and ordinances are often getting in the way of achieving these goals.*

*Fortunately, there is interest in tackling these challenges. As the nation’s demographics change, markets shift, and interest in climate change, energy efficiency, public health, and natural resource protection expands, Americans have a real opportunity to create more environmentally sustainable communities.”*

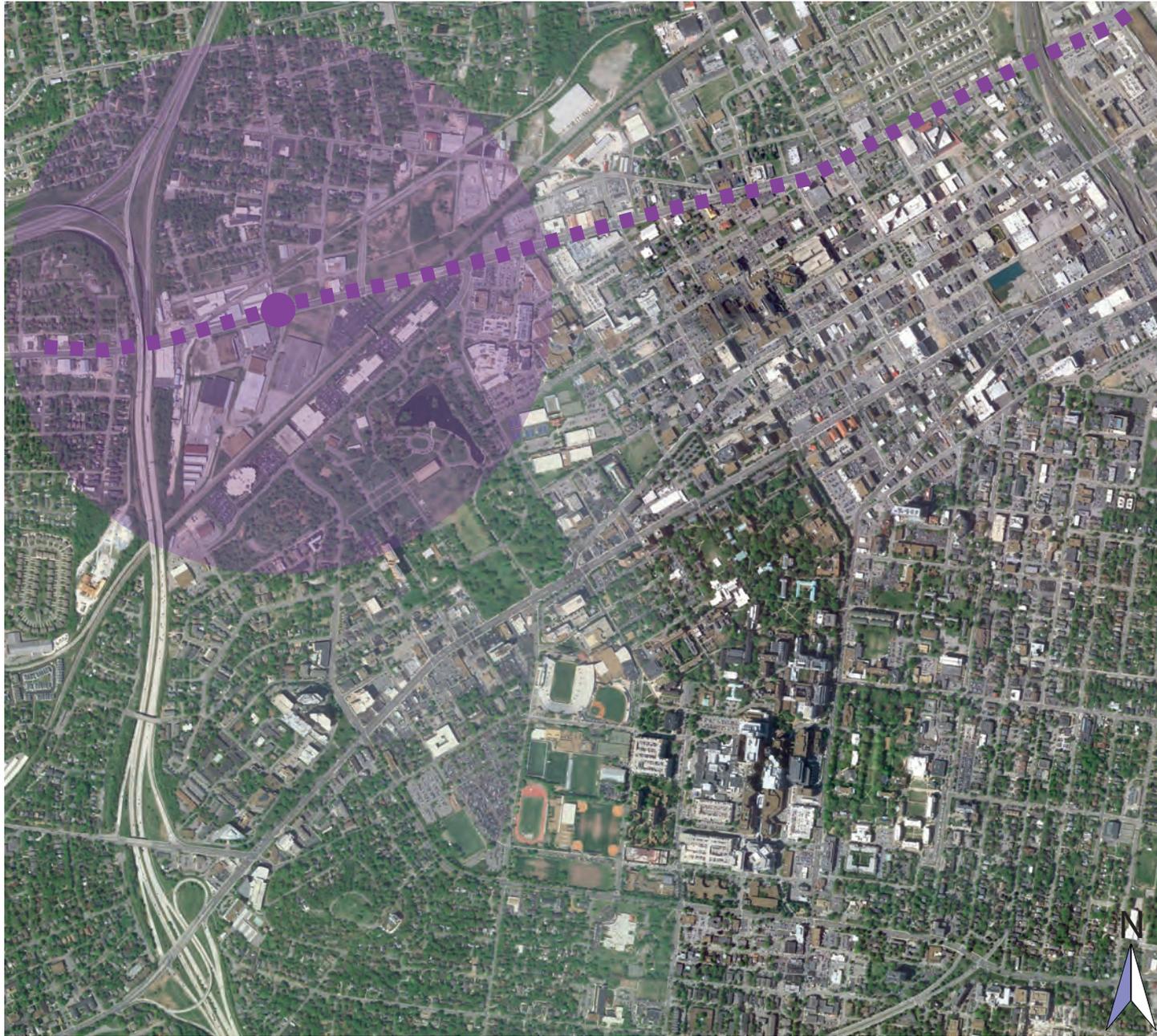
—excerpt from “Essential Smart Growth Fixes for Urban and Suburban Zoning Codes”, EPA.gov

Negative consequences can occur from employing the conventional zoning practices used by many communities. The physical separation of land uses has made our development patterns inefficient, forcing residents to drive longer distances to get to their jobs, schools, shops, and services, all of which increase traffic congestion, air pollution, and greenhouse gas emissions. Such separation can frustrate efforts to promote alternative modes of transportation and create lively, urban places. Current zoning codes, and their minimum lot sizes and widths, low floor area ratios, large setbacks, excessive off-street parking requirements, and constricting building heights, have stifled more compact development in many cities and towns. These policies impede the development of attractive, lively, and cost-efficient places.

Much of America’s modern day built environments have been designed around the internal combustion engine—automobiles. This practice has come with a wealth of consequences. The size and design of streets has been largely based on traffic capacity consideration, overlooking the integral role they play as the primary public spaces shaping neighborhoods and communities. Many communities are struggling to balance water quality protection while accommodating new growth and development. Our current, sprawling development patterns are costly and do not create sustainable

economies. Commuting into cities from the suburbs is becoming increasingly expensive, with regard to transportation costs, negative environmental impacts and time lost sitting in traffic. It is not always more affordable to live outside the city and commute into the city for work. Affordability is most closely measured by the combined cost of housing and transportation (auto ownership, insurance, parking, repairs, maintenance, fuel costs, etc.). These standard practices and resulting oversights are hampering the creation of healthy, vibrant, pedestrian-oriented communities.

Our developmental practices need to be radically altered to ensure a sustainable future—socially, economically and environmentally. Municipalities must transition from a reactive, short-term approach to growth to a proactive, visionary one. Planning for jobs, housing, education, transportation, health and leisure should work in concert to shape cities that are able to respond to 21st century population demands and simultaneously afford a high quality of life. They must in order to compete with those that do.



Proposed rapid transit stop and corresponding 1/2 mile pedestrian shed, at the intersection of Charlotte Avenue and the 28th/31st Avenue connector.  
Image source: NCDC + © 2011 Google Earth

## A Proactive Approach to Smart Growth

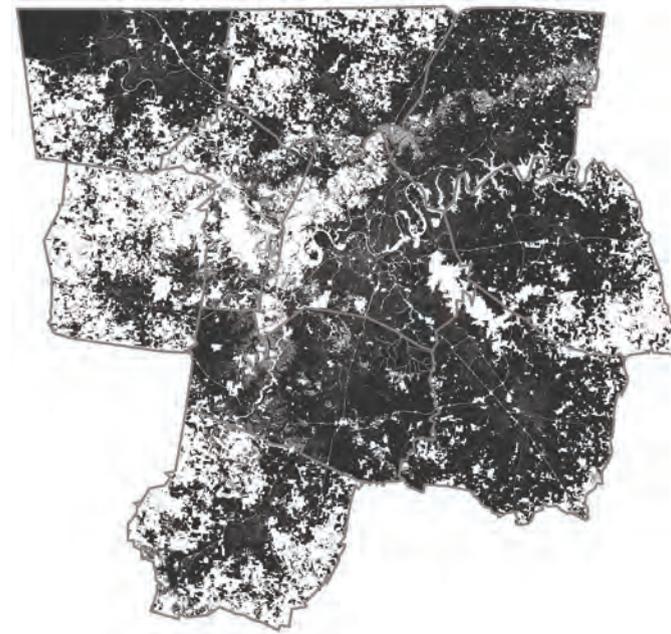
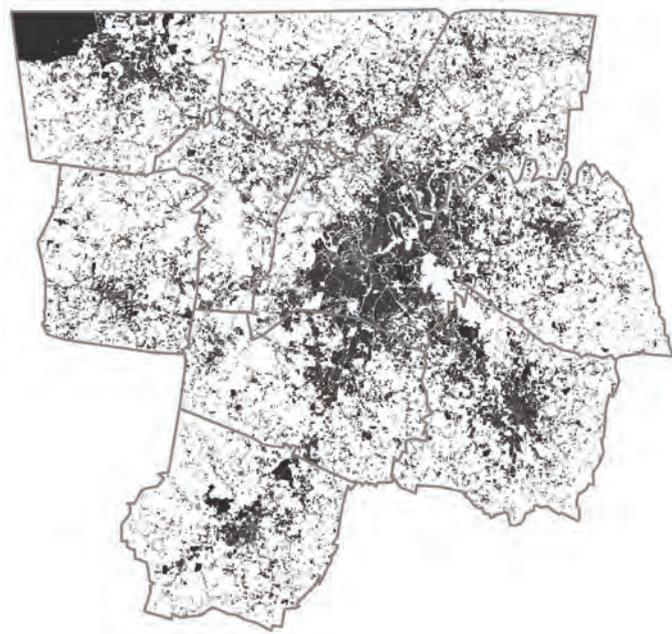
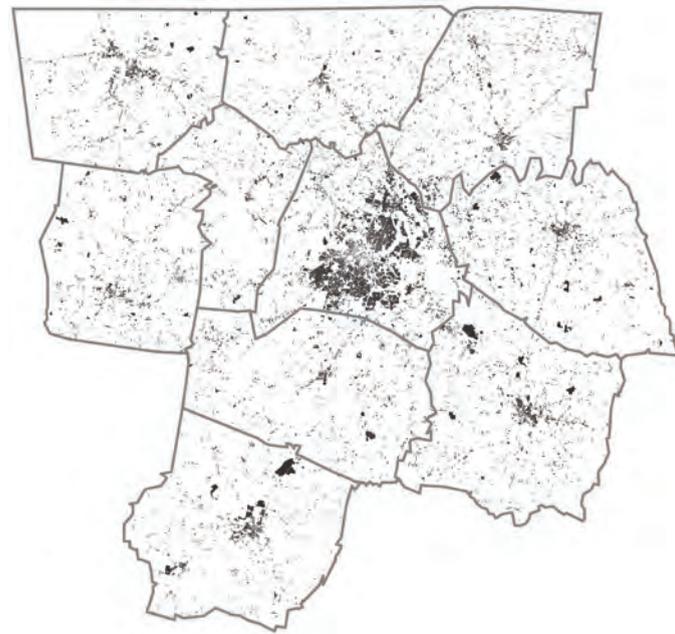
Transit-ready development (TRD) is transit-supportive development (TSD) without the transit infrastructure in place at the time of construction. Both TODs and TRDs are conceived as “transit villages”—developments designed around a ten minute walk, or half-mile walk, from a transit stop. Following *Smart Growth* guidelines, transit villages adopt, as a premise, high densities, mixed-uses (such as housing, jobs, shops, restaurants and entertainment), mixed types and prices of housing and reduced parking requirements.

Vertical mixing of uses is necessary to create a vibrant, pedestrian-oriented character. Densities are highest near transit stops and decrease in intensity as they transition to the surrounding existing uses. Adjacent, existing neighborhoods should be protected and strengthened. The intent is to produce a walkable, pedestrian-friendly environment where the design of high quality public space is prioritized. The design intent of transit villages, both TODs and TRDs, is the same. It is their relationship with transit infrastructure that distinguishes them: TRD is proactive, anticipating future transit, while TOD is reactive, responding to existing transit.

Transit villages benefit residents, transit agencies, local governments, local merchants, developers, investors, property owners, and those looking for other housing and transit options. The long-term benefits contribute to creating environmentally, socially and economically sustainable communities.

The benefits of transit villages include:

- Contribute to community character through the design of public space
- Promote healthy lifestyles—encouraging walking and biking rather than driving
- Lead to economic development through increased foot traffic for local businesses and increased municipality tax base
- Foster environmentally sustainable cities: a more efficient use of land, energy and resources, helping preserve open space and leveraging expensive investments into infrastructure more effectively
- Increase transit ridership minimizing the impacts of traffic, resulting in cleaner air and less dependence on oil
- Respond to changing demographics by giving Americans more housing options
- Offer more transportation choices: people can walk, bike and take transit as they choose

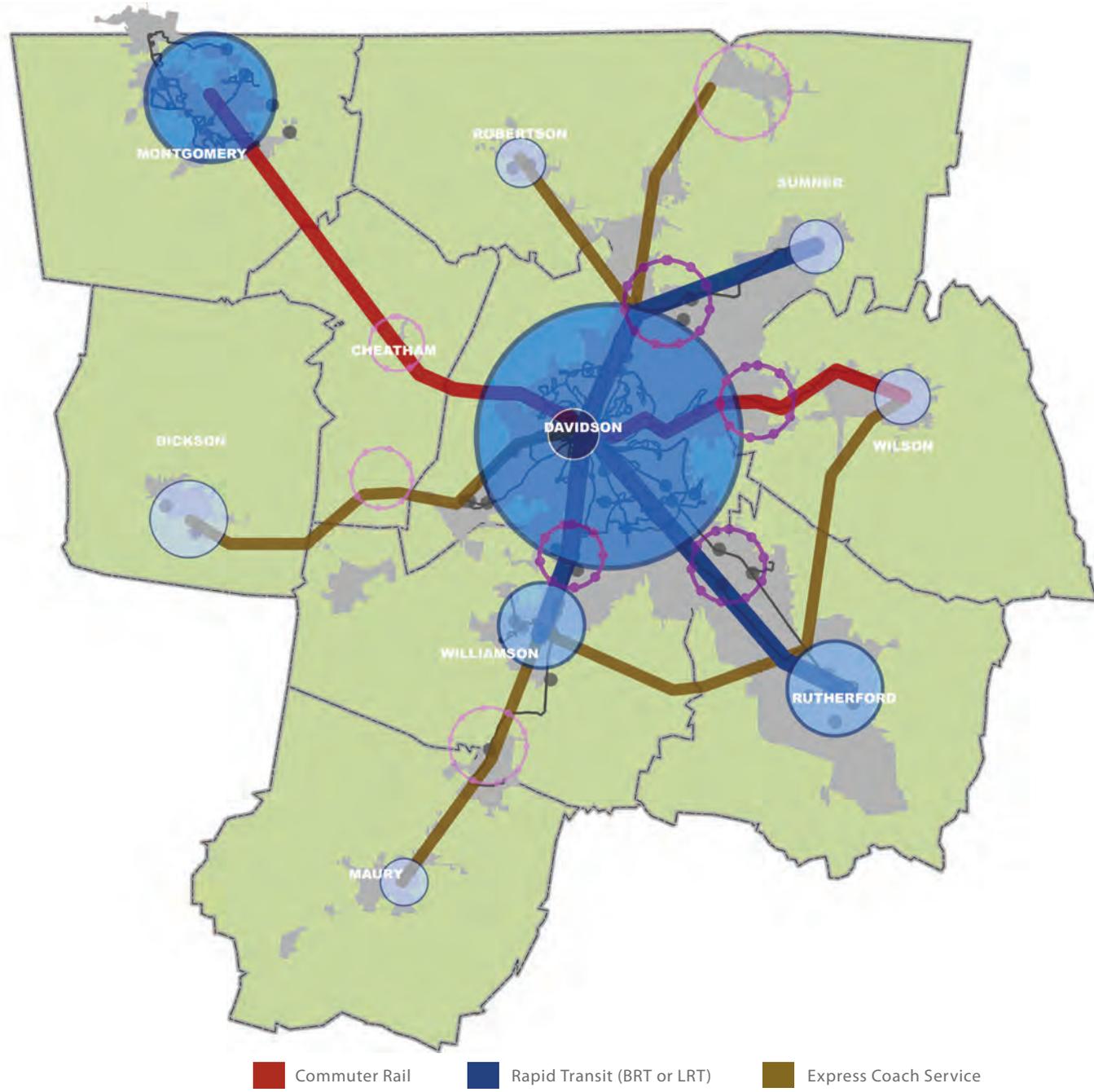


Development patterns in Middle TN: Each black dot represents a parcel containing a building. From left to right: 1965, 2008, 2035 (projected)  
Image source: Nashville Area MPO

### *Middle Tennessee's Development Patterns*

Since TN's first highway opened, Middle Tennessee's population has increased by nearly 1.2 million people. By 2035, there is expected to be approximately 1 million additional citizens across the Ten-county Middle Tennessee region. The Nashville Area MPO has prepared an all encompassing transportation plan to complement and facilitate planned growth throughout 2035. Three major transportation policy initiatives bracket these efforts:

1. **Create a Bold, New Vision for Mass Transit.**  
Greatly expand mass transit options including: rapid transit options, a larger network of busses running more frequently, expansion of regional vanpool program, and continued support for the transportation disadvantaged
2. **Support Active Transportation and the Development of Walkable Communities.**  
Improve and expand upon active transportation choices, bicycling and walking, and walkable communities; creating safe, scenic pathways connecting people to places while fostering healthy activity
3. **Preserve and Enhance Strategic Roadway Corridors.**  
Repair an aging roadway and bridge network to ensure the safety and security of the traveling public, utilizing technology to make roadways more efficient



Nashville Area MPO 2035 Transportation Plan map. Image source: Nashville Area MPO



**COMMUTER RAIL**



**LIGHT RAIL**



**BUS RAPID TRANSIT**

Top: Music City Star Commuter Rail: Image source: Chris Wage  
 Middle: MAX Light Rail vehicle, Portland, OR. Image source: Steve Morgan  
 Bottom: Bus Rapid Transit system, Mexico City, MX.  
 Image source: Wikimedia Commons user gaed

### Connecting a Region

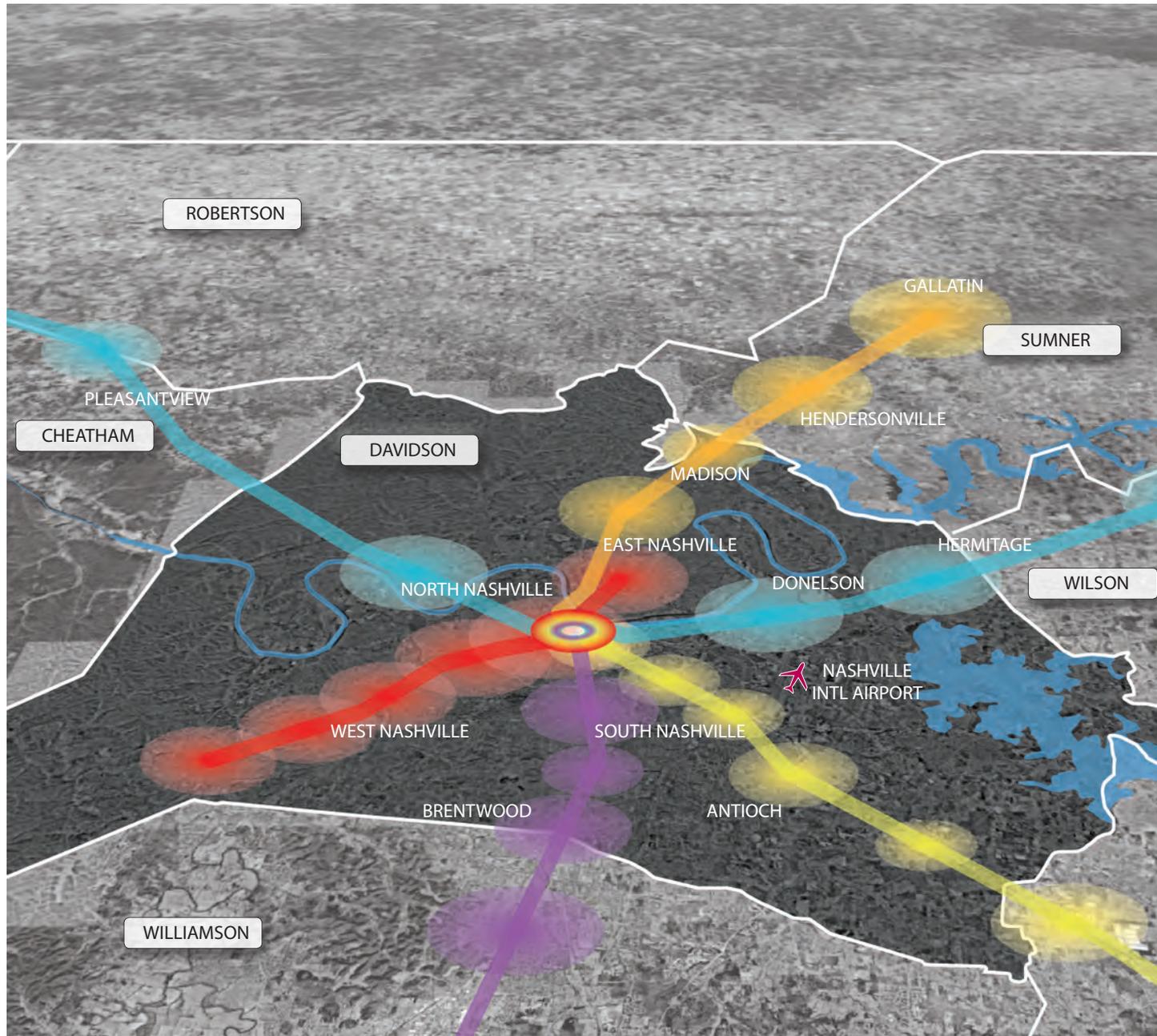
To accommodate the current and future citizens of Middle TN, a strategic mix of transit options are proposed:

The northwest corridor to Clarksville and the eastern corridor to Lebanon will utilize commuter rail. This is a passenger rail transport service that primarily operates between a city center and the middle to outer suburbs and commuter towns with less frequent schedules.

Rapid transit will serve the northeast corridor to Gallatin, the southeast corridor to Murfreesboro and the southwest corridor to Franklin. Light rail transit (LRT) or bus rapid transit (BRT) are two rapid transit options.

The remaining corridors—west to Dickson, south to Spring Hill, northwest to Springfield and northeast to Portland—will employ express coach service offering park-and-ride options to suburban communities.

Connecting our region with these effective mass transit options will spur growth and economic prosperity throughout the region mobilizing nearly 1.8 million people—connecting them to the places they live, work and play.



NCDC Visualization of the Nashville Area MPO's 2035 Transportation Plan, highlighting population and workforce densities along existing and future transit routes. Image source: NCDC

- Local Rapid Transit
- Regional Rapid Transit, Rutherford County
- Regional Rapid Transit, Williamson County
- Regional Rapid Transit, Sumner County
- Commuter Rail Transit, Wilson + Montgomery Counties



Top: Proposed recommendations for BRT service along West End Ave. Nashville, TN. Image source: Nashville MTA  
 Middle: Music City Circuit, Nashville, TN. Image source: Nashville MTA  
 Bottom: Portland Streetcar, Portland, OR. Image source: Wikimedia Commons user Cacophony

### Nashville's Strategy

Nashville is Tennessee's capitol city and the primary economic engine of Middle Tennessee. To efficiently and sustainably compete with other well connected cities, Nashville must connect its neighborhoods and urban destinations with efficient transit options. Rapid transit, circulator buses, and extensive greenways will work in unison to connect citizens and tourists alike with live-work-play destinations, fostering the redevelopment of Nashville's urban spaces into walkable mixed-use, high density environments.

The primary, radiating pikes, or "spoke" roads, will utilize rapid transit, maximizing capacity and frequency into and out of the city's center. The primary concentric streets, or "loop" roads, will employ urban circulator buses to shuttle riders from neighborhoods to rapid transit transfer stations on the spoke roads. A streetcar or bus rapid transit may act as a connective spine along the important West End corridor. Existing fixed-route bus services are to increase in frequency and bus fleet vehicles will be upgraded.

With these efficient transit options implemented, Nashville will be able to accommodate its citizens and dazzle its tourists with inviting transit alternatives.



Victoria Gardens, in Rancho Cucamonga, CA, adopts high densities with mixed-uses to offer a vibrant, “regional lifestyle center” with housing and shopping options under the pretense that a mass transit stop may make its way to the development in the future. Image source: Wikimedia Commons user Sirimiri

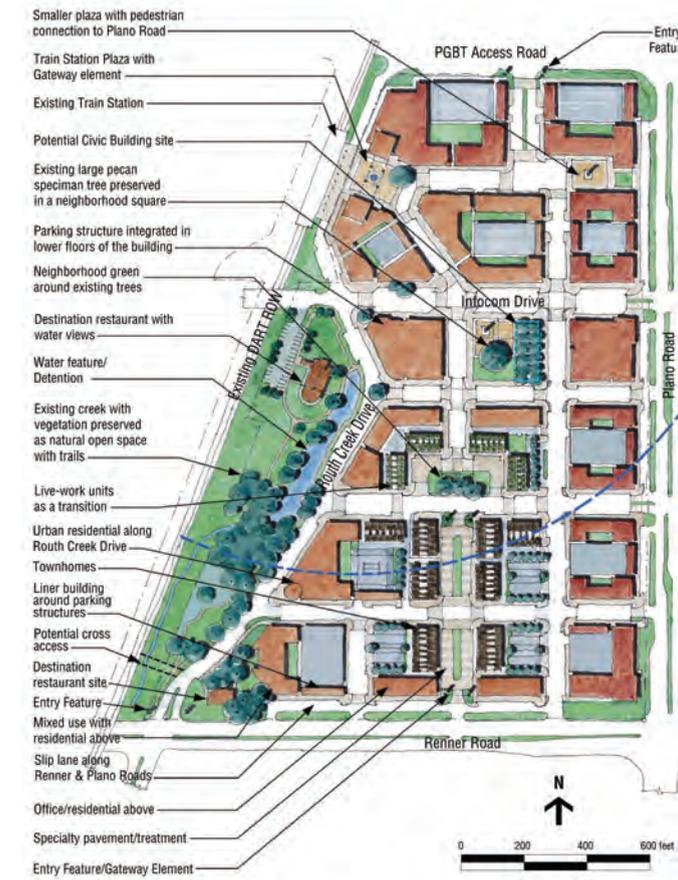
### *TRD Models*

Studying projects in peer cities should play a major role when designing and implementing transit villages. Due to the design, financial and political complexity of transit villages, it is important to learn from the successes and the failures of others. Municipalities large and small have the opportunity to learn from each other. Cities throughout the United States, and around the globe, are beginning to understand the importance of smart growth, and in turn realizing its benefits.

Several TRDs have been implemented, or are in the process of being implemented, across the nation. The following examples showcase a TRD that is on its way to becoming a regional transit village in Richardson, TX, and a former TRD that has since implemented a light rail transit line in Leander, TX. They were chosen to highlight their exemplary efforts to bring pedestrian-oriented, robust communities to their regions. They are lauded for their holistic approach to design and implementation. These transit villages are rich places to live, work and play, and they are environmentally, socially, and economically sustainable.



Rendering of Roth Creek Drive at Bush Central Station—offering a variety of live, work and entertainment options at a regional scale, near Richardson, TX. Image source: Gateway Planning Group



Top: Regional Rail Transit System. Image source: Gateway Planning Group  
Bottom: Illustrative Plan. Image source: Gateway Planning Group

### A Regional TRD Sets the Stage for Commuter Rail

Bush Central Station is located at the southeast quadrant of the intersection of Central Expressway (US 75) and the George Bush Turnpike in the Dallas-Fort Worth Metroplex. These two major regional highways, and the Dallas Area Rapid Transit (DART) Red Line running north from Dallas, converge here in Richardson, TX. An added synergy to Bush Central Station is the potential to incorporate a stop on the planned Cotton Belt commuter rail line. It is set to be one of the region's most critical transit lines, stretching sixty-seven miles from northeast Dallas to southwest Fort Worth, also connecting DFW International Airport. It will be the spine for over three hundred miles of potential regional rail transit. Implementation of the Cotton Belt at Bush Central Station is set for 2016. These transit conveniences and high-density residential, retail, office, and hotel uses, combine to offer a regional hub of activities.

A form-based smart code has been adopted for the entire 107 acres immediately adjacent to the existing DART station. A proposed Tax Increment Financing (TIF) district would use increased property, sales, and hotel occupancy taxes to invest in the necessary infrastructure and a portion of the funds could be used to help bring the Cotton Belt on board.



Specific Plan Area
  New Development
  Existing Development
  Streetscape Improvements
  Parks and Open Space

Santa Rosa Downtown Specific Plan, Santa Rosa, CA.  
 Image source: City of Santa Rosa



Top: Perspective drawing of live/work units.

Image source: City of Santa Rosa

Bottom: Perspective drawing of mixed-use development.

Image source: City of Santa Rosa

### Putting Schools on the Map

The Santa Rosa Downtown Specific Plan provides the framework for new development in anticipation of the forthcoming Sonoma–Marin Area Rail Transit. The plan’s major objectives are to enhance the distinct identity and character of the downtown area, encourage a diverse mix of uses, incorporate transit-ready development, and improve pedestrian and bike access.

Two school districts overlap the planning area: the Santa Rosa Elementary and Santa Rosa High School. Santa Rosa’s Junior College is adjacent to the planning area as well. With the city and districts planning for new schools, the additional 1,300 students anticipated over the next 20 years in the station area could be accommodated. Sonoma County Child Care Planning Commission became an important stakeholder. In addition to joint use agreements and open communication around long-term demographic projections, the plan includes as policy the integration of planning processes around school facility siting as the demand rises.

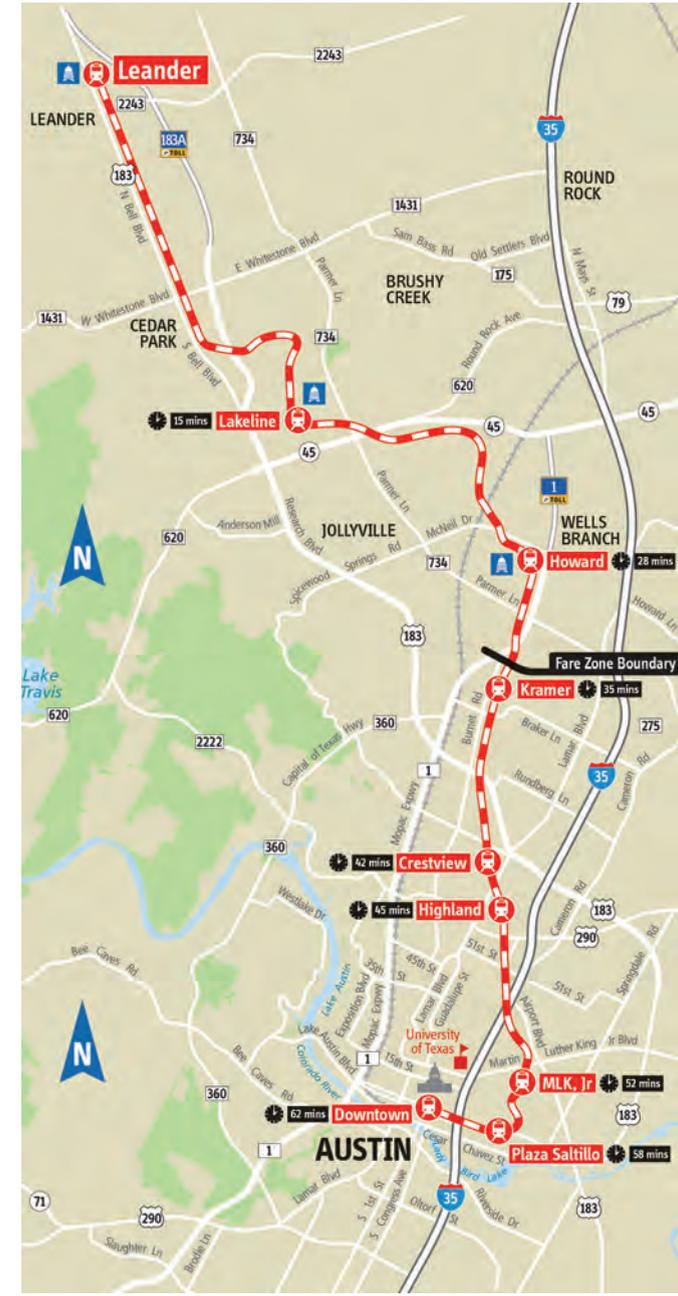
The case illustrates how long-standing relationships in medium-sized cities can facilitate positive city-school collaboration.



Illustrative Plan. Image source: Gateway Planning Group



Top: Illustrative drawing of promenade linking rail station to tollway.  
 Bottom: Illustration of mixed-use rail station.  
 Images above by Gateway Planning Group



Austin, TX area transit map highlighting the Red Line Light Rail route.  
 Image source: Gateway Planning Group

### A TRD Successfully Implements a Transit Line

Located north of Austin, TX, the Leander TRD is a mixed-use development centered around the pedestrian experience. Although initially built without transit infrastructure, the high density, pedestrian-oriented community has successfully attracted both rapid transit, via the Capital Metro Rail, express bus service; and a 600 space park-and-ride garage. The transit village includes downtown Leander in addition to the adjacent 1,700 acres of greenfield, all anchored by the transit stop. Thanks to the 2,000 acre smart code zoning ordinance, residents are able to shop for groceries, pick up laundry, eat at restaurants and enjoy entertainment without getting in their car.

TIF made this project viable by allocating increases in property and sales tax to repay initial infrastructure investments. Prior to the development, Leander's population was just over 30,000, but it is predicted to be at least 250,000 with some estimates as high as 350,000 at full build out, generating \$1 Billion in additional tax base value.

Leander is a great example of visionary smart growth with innovative financing solutions and effective zoning ordinances.

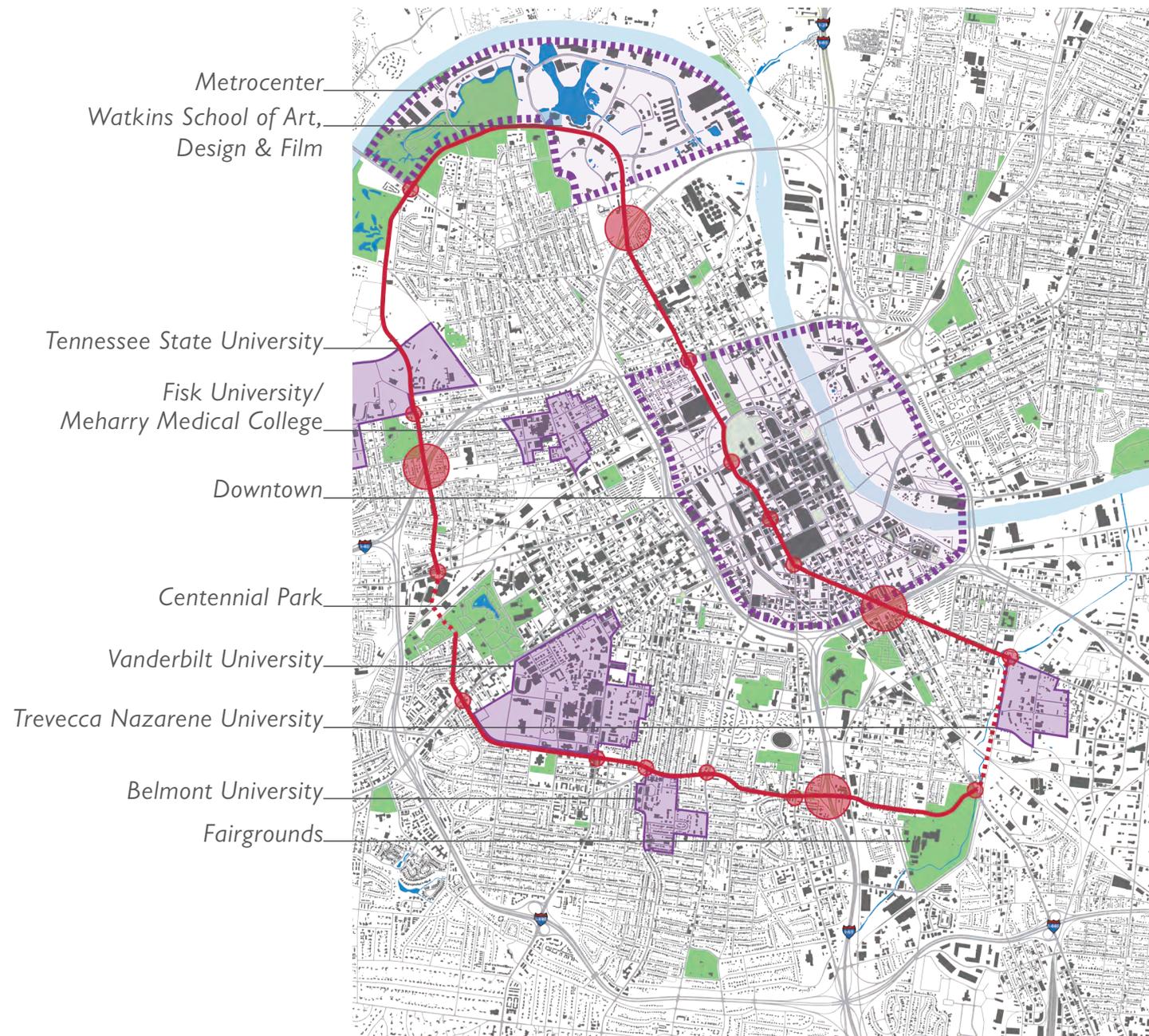
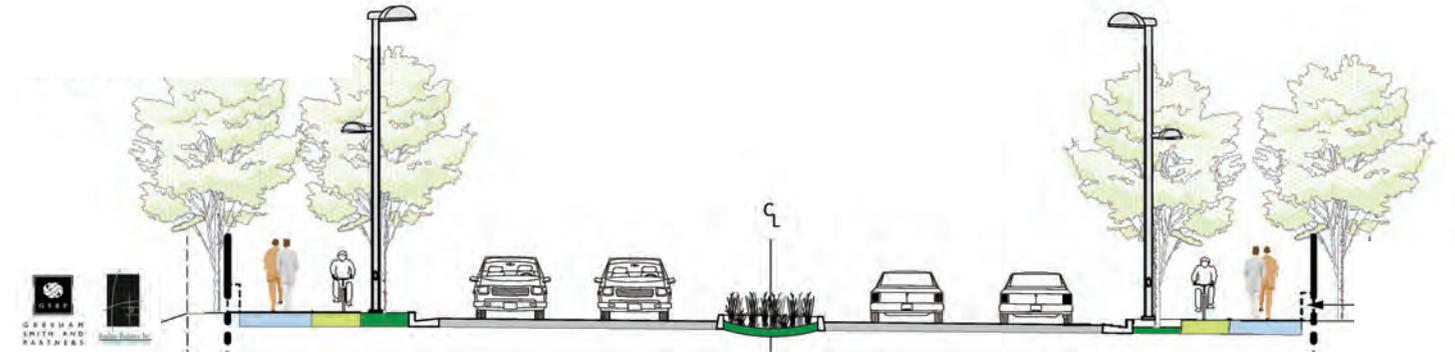


Diagram of proposed thoroughfare throughout Nashville, connecting some of the city's key places where people learn, live, work and play.



### Implementing Smart Growth

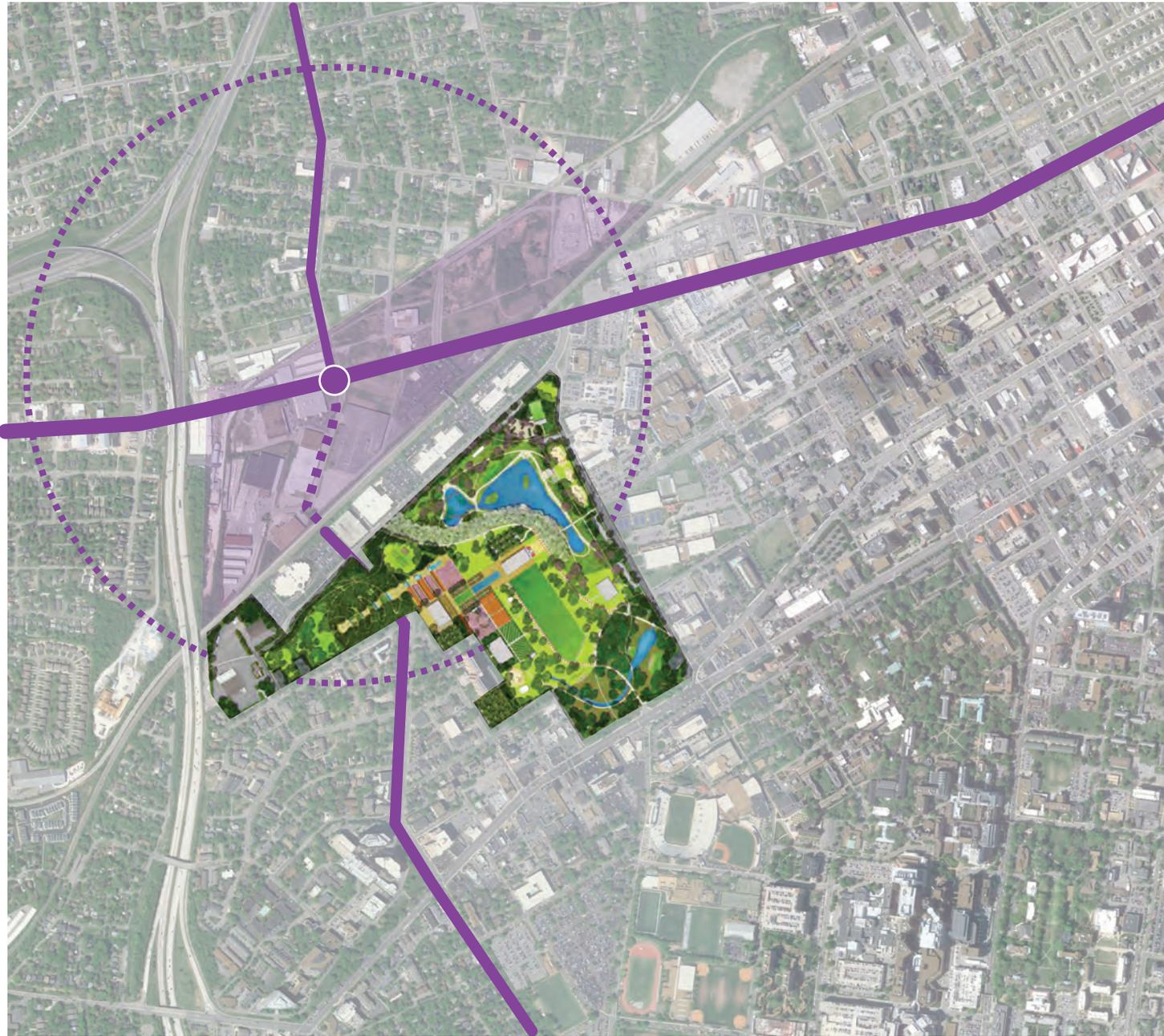
Several of Nashville's current planning, policy and construction efforts are working towards creating a new prominent corridor through an important part of Nashville's urban fabric. Referred to as "University Row" by some and "hospital row" by others, it is certain to link many of the city's key places where people learn, live, work and play. It is currently comprised of several streets—Rosa Parks Boulevard, Ed Temple Boulevard, 28th Avenue, 31st Avenue, Blakemore Avenue, and Wedgewood Avenue. The success of the corridor hinges on the construction of two new street connections. The 28th/31st Avenue connector, currently under construction, will link 28th Avenue and 31st Avenue over the CSX rail lines via a new bridge. A new boulevard segment from the Fairgrounds to Trevecca Nazarene University would complete the corridor to the east. Upon completion, the loop throughout the city will increase access to some of the city's most important educational, cultural and civic spaces and lend itself as a landmark thoroughfare.

The 28th/31st Avenue Connector will lead the way by profoundly improving north-south connectivity at the western end of the city, and open up numerous blocks for new development between downtown and west Nashville. The site for the connector lies just north of Centennial Park. Charlotte Pike traverses the site on its northern boundary. Between the site and Centennial Park lie the CSX mainline railroad tracks. The \$20 million connector bridge will be

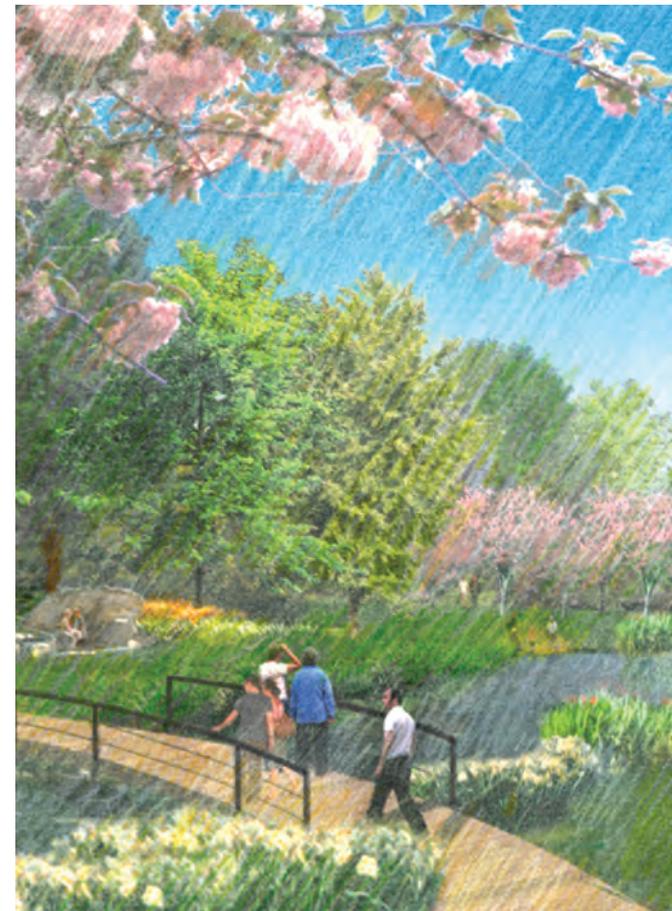
the first large-scale project to be built, from the ground up, under Nashville's Complete Streets Directive. It will have an emphasis on low-impact construction and include wide sidewalks, color-coded bike lanes, LED markers, a rain garden median (retaining water for irrigation and diverting stormwater from roadway and drains), on-street trash and recycling, bioswales, a new transit service to be part of a university run, and six new bus shelters to be designed by local artists are to be included.

This is a site very much on the radar screen of Nashville's civic leadership and citizens alike. Metro Nashville would like to see the 28th Avenue Connector site developed to benefit its property tax base. In turn, Nashvillians will have a new artery throughout the city, accommodating cyclists, pedestrians and vehicles. It is hopefully a foreshadowing of more progressive growth to come.

Above: Typical section of 28th/31st Avenue Connector; the first step in creating a continuous loop through the city's fabric. Image source: Metropolitan Government of Nashville & Davidson County, Department of Public Works, available online at <http://www.nashville.gov/pw/docs/projects/connector/DesignFeatureCloseups.pdf>; courtesy of Hawkins Partners, Inc. and Gresham Smith and Partners



Plan showing: proposed Centennial Park Masterplan and its relationship to the 28th/31st Avenue Connector site; Nashville's new connective corridor; Charlotte Pike; the rapid transit stop located at the intersection of Charlotte Pike and 28th Ave; and its 0.5 mile pedestrian shed. Image source: NCDRC + © 2011 Google Earth, Gustafson Guthrie Nichol



Renderings from Centennial Park Masterplan illustrating the future character of the area. Image source: Gustafson Guthrie Nichol

### A New Transit Village

During the Spring Semester 2011, University of Tennessee College of Architecture & Design's Associate Professor T.K. Davis led student urban design teams that were coupled with teams of advanced graduate students from the Vanderbilt University Owen School of Management Real Estate Development Program, led by Thomas McDaniel, Adjunct Professor in Real Estate Finance and Partner with Boyle Investment Co.

A recently completed revitalization master plan of Centennial Park by world-class landscape architect Kathryn Gustafson, set the stage for reinterpreting the area. The UT architecture students studied the site and developed the programming and project designs. Concurrently, the Vanderbilt teams conducted land assessments, prepared market studies, performed a stakeholder analysis, prepared an economic analysis of a portion of the proposed development as a project pro forma, outlined anticipated project absorption, and evaluated both financing capacity and project constraints.

In line with the MPO 2035 *Regional Transportation Plan*, it was assumed that Charlotte Avenue will have rapid transit. They anticipate future transit growth as a foundation for their development.



Birds Eye 3D Projection of proposed student master plan. Image source: UT CoAD



Top: Diagram highlighting street frame  
 Middle: Diagram highlighting proposed landmarks  
 Bottom: Diagram highlighting proposed districts  
 All images above by UT CoAD

### Scheme One

Scheme One—designed by Clare Borsari, Mahamadou Diarra, Matthew Hiatis, Tim Kilroy and Ruyi Shi—proposes “Centennial Plaza” to anchor development, although as open space it represents the most modest amount of public green space of all four team proposals, in reference to the proximity of Centennial Park. This project also ambitiously runs eastward along Charlotte Avenue well beyond the half-mile transit village radius, because of the opportunity for new development in this extended site.

The transit stop at the heart of the project is complemented by a corporate headquarters tower, a grocery store and retail center, a covered outdoor public market structure with a cable canopy held aloft by fixed cable masts, and extensive underground parking. A series of mid-rise, mixed-use towers atop low-rise buildings are found throughout the site to help animate the overall massing, and are intended to recall the ad hoc nature of most urban form.

*Notes from the Vanderbilt University Owen School of Management Real Estate Development*

Centennial Plaza consists of 25 acres of developable land and structures. A specific plan district is employed to modify the uses and standards currently allowed on the site.

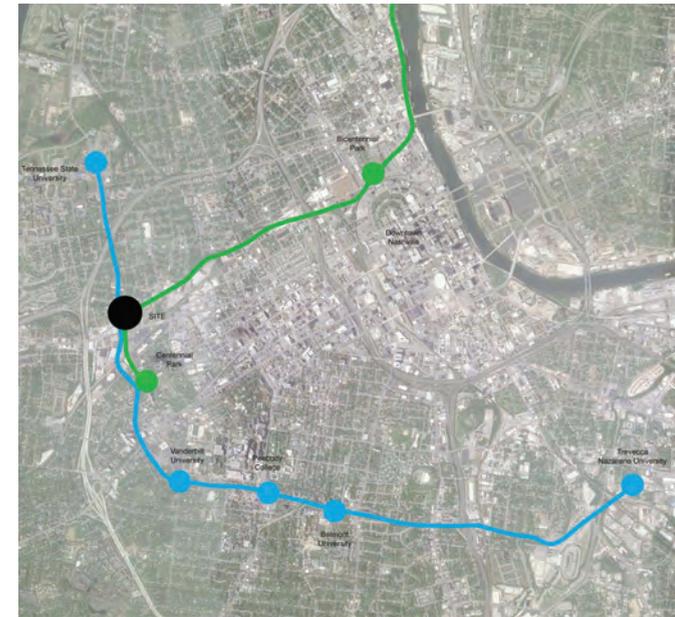


Top: Section through proposed student design  
 Bottom: Rendered perspective illustration  
 Images above by UT CoAD

Top left + right: Diagrams of student work  
 Bottom: Rendered perspective illustration  
 Images above by UT CoAD



Proposed masterplan for scheme two. Image source: UT CoAD



Top: Diagram highlighting campus loop and greenway  
 Bottom: Diagram highlighting proposed districts  
 Images above by UT CoAD

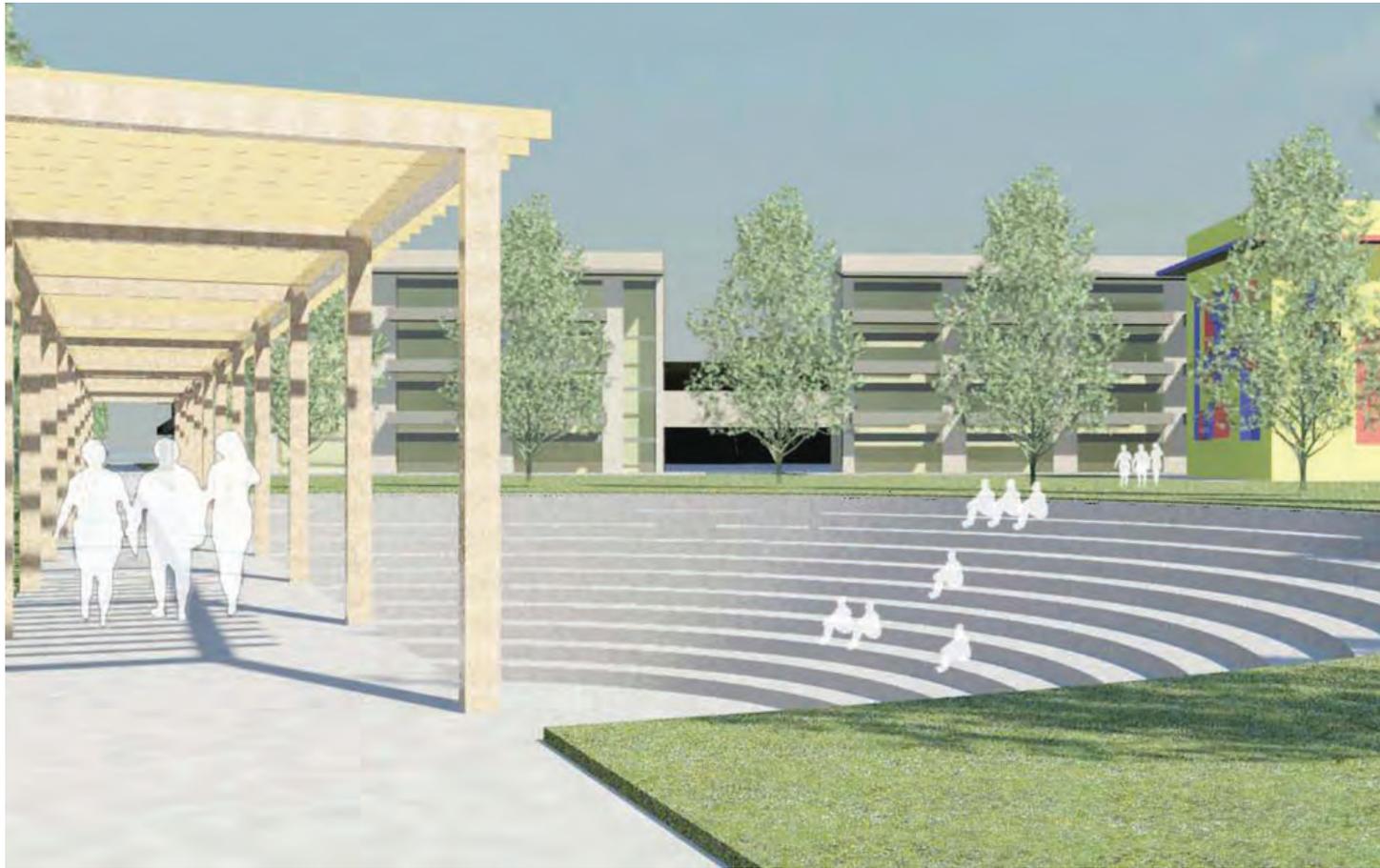
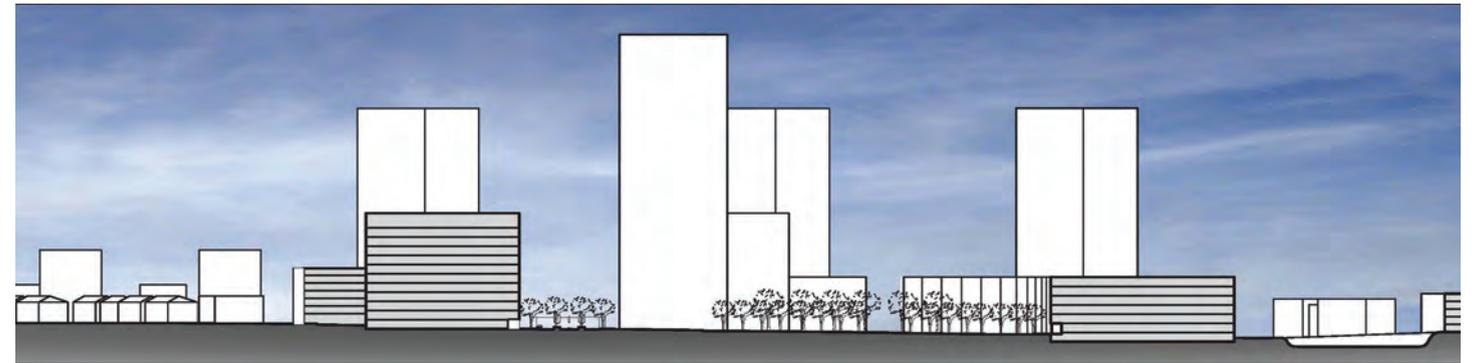
## Scheme Two

Scheme Two—designed by Casey Arthur, Sam Barringer, Nicholas Davis, Matt Garner and Billy Stogner forms a significant park space north of the railroad tracks to welcome visitors upon arrival via the 28th Avenue Connector bridge. This green space incorporates a large water feature. The southern railroad edge of the site is developed with platform buildings, which in turn sponsor vertical housing slab buildings, forming a high-rise edge to Centennial Park, providing views into the park. The remainder of the site is largely comprised of perimeter blocks with parking internalized. Overlapping this park with Charlotte Avenue is a paved four-square transit plaza, with one quadrant occupied by a corporate headquarters tower.

Additional pedestrian bridge connections over the tracks, and new tree grids in the existing HCA parking lots along Centennial Park facilitate connections to the park. Along the north edge of the site, townhouses form low-rise residential development as a transition to the residential scale of the existing neighborhood.

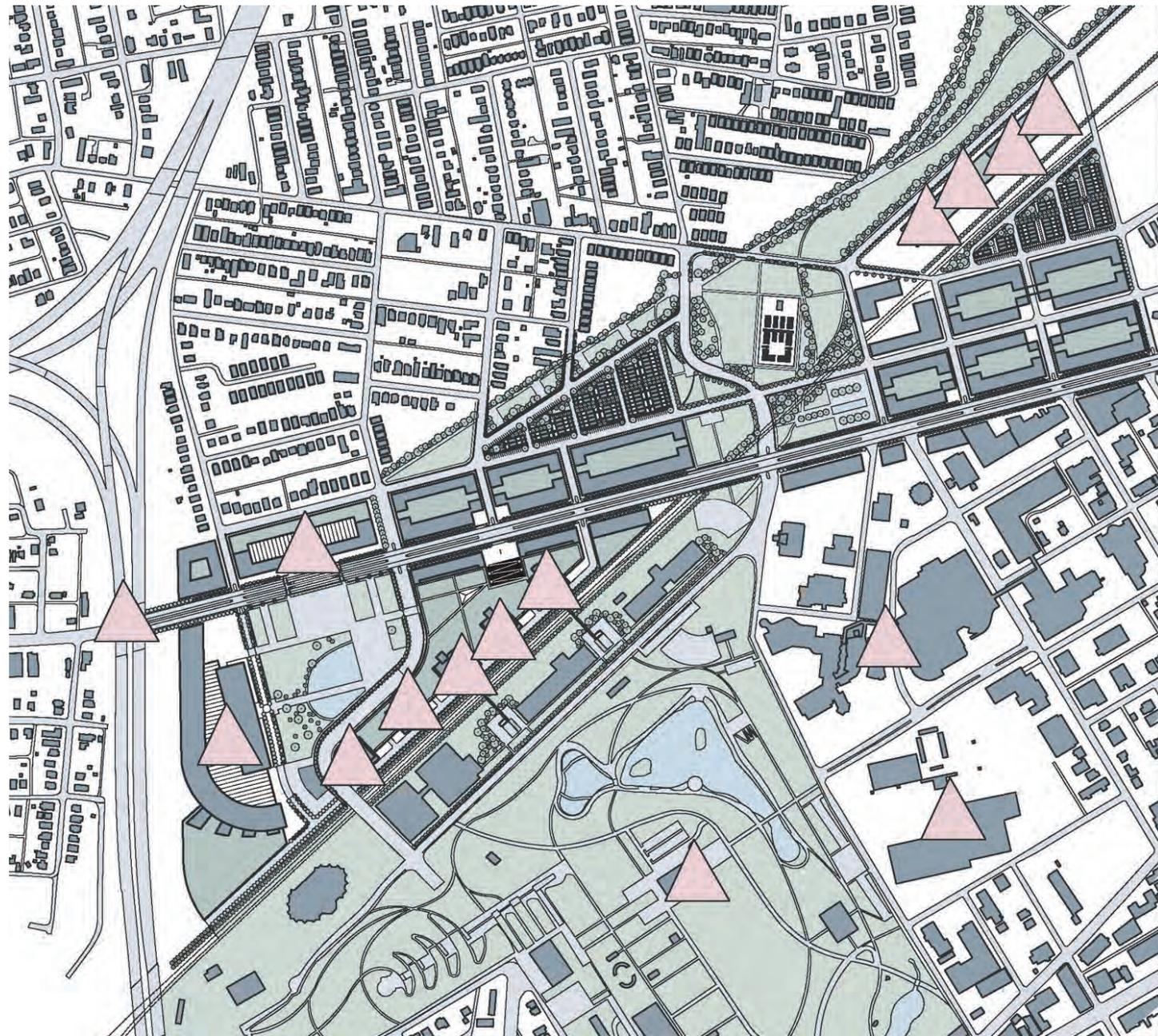
*Notes from the Vanderbilt University Owen School of Management Real Estate Development*

A specific plan district is employed to modify the uses and standards currently allowed on the site. Tax Increment Financing (TIF) capacity is valued at \$22 million, or 15.43%.

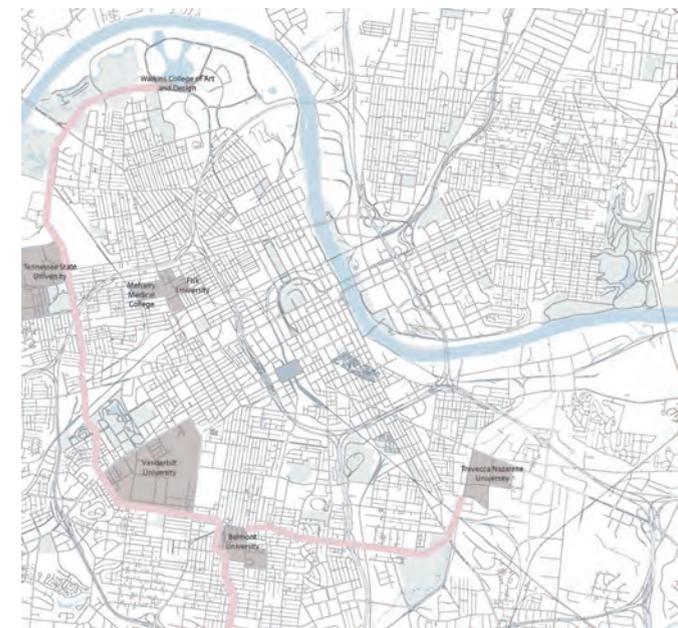
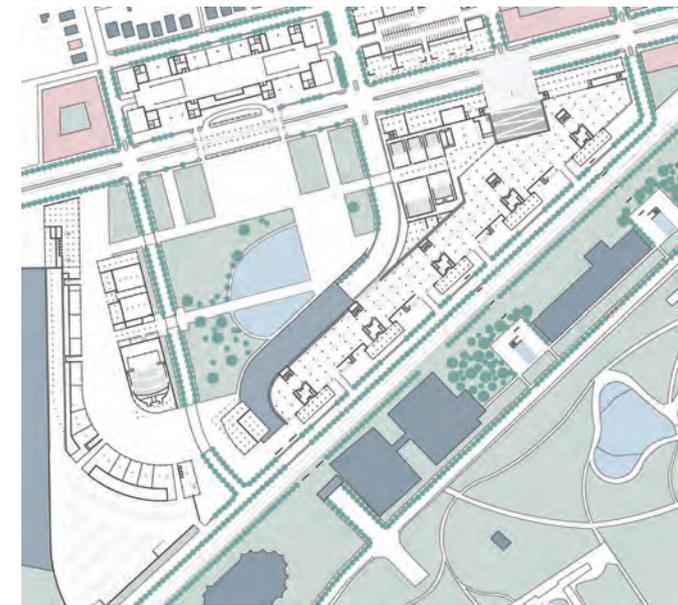


Top: Elevation along Charlotte Pike  
 Bottom: Rendering of courtyard  
 Images above by UT CoAD

Top: Site section  
 Bottom: Rendering of reflection pool  
 Images above by UT CoAD



Proposed masterplan of scheme three. Image source: UT CoAD



Top: Ground level plan  
 Bottom: Diagram highlighting "University Row"  
 Images above by UT CoAD

### Scheme Three

Scheme Three—designed by Laretta Cocke, Drew Ewing, Samantha Schneider, Andrew Walker and Alyssa Watson—creates a major green space opposite the 28th Avenue Connector bridge fronting on Charlotte Avenue, which in turn is addressed by a transit stop and a new, full-block hotel. The southwest end of the site is occupied and terminated, by a major corporate headquarter building. A large platform structure incorporating retail, cinemas, and parking, occupies much of the southern half of the site. This incorporates five high-rise office/housing towers with views in all directions, including Centennial Park, the downtown skyline and Vanderbilt campus. Lining the north side of Charlotte Avenue are perimeter blocks with internalized parking decks topped by green roof courtyards. New townhouses blend the scale of development to the existing neighborhood to the north. Additional pedestrian bridge connections over the railroad tracks are proposed. A significant greenway connection from the site to downtown Nashville is anticipated, utilizing the unused single track railroad spur running from the site to the east. Four additional mid to high-rise housing buildings are imagined at the northeast end of the site.

*Notes from the Vanderbilt University Owen School of Management Real Estate Development*

TIF financing is a viable option while serving the public interest—parking, BRT station, and access to the needed greenway and park.



Top: Hotel and office block elevation  
 Bottom: Rendering of movie theater entrance  
 Images above by UT CoAD



Top: Tower base section  
 Bottom: Rendering of proposed development along Charlotte Pike  
 Images above by UT CoAD



Rendering of proposed office building  
Image source: UT CoAD



Renderings of marketplace  
Images above by UT CoAD

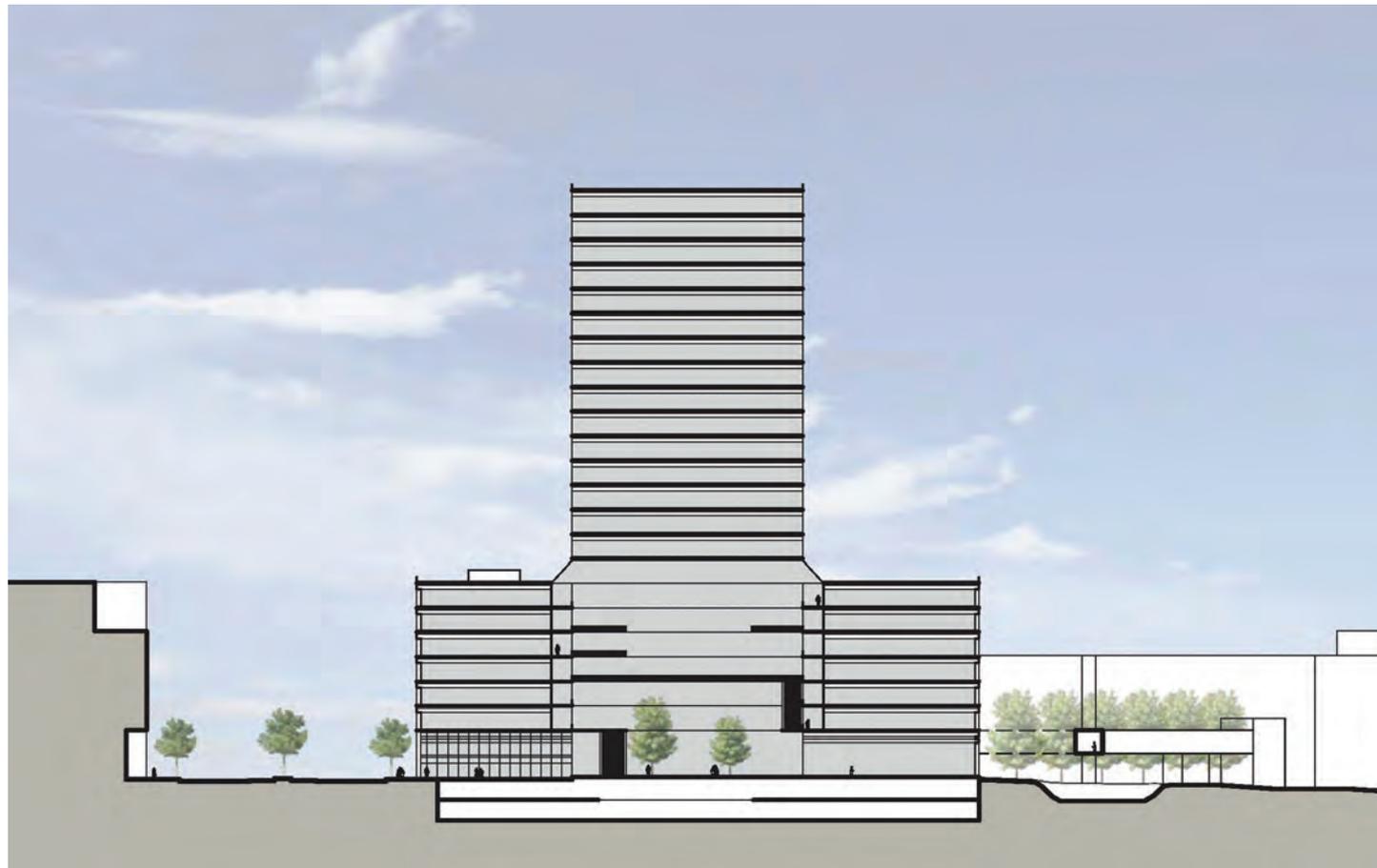
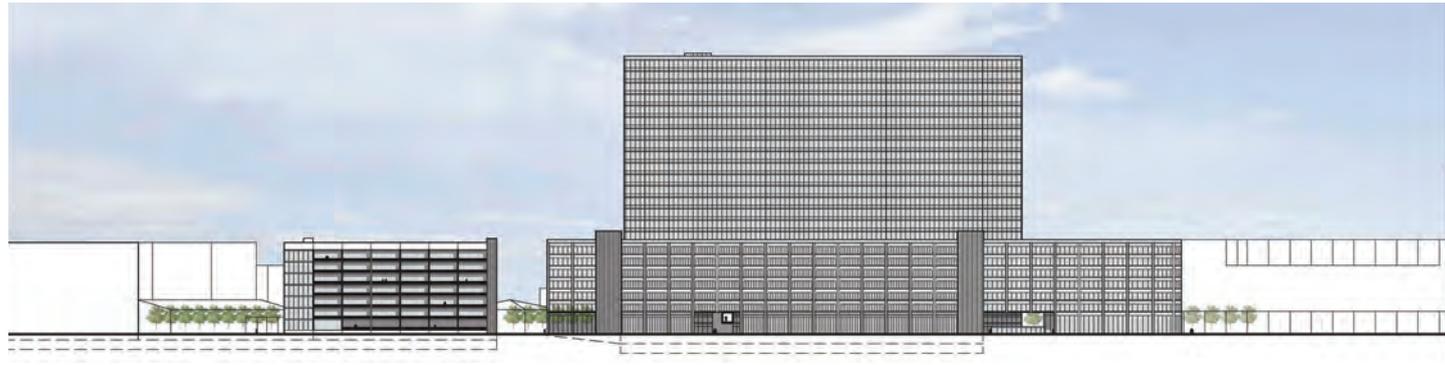
### Scheme Four

Scheme Four—designed by Konstantin Egorov, Daniel Heering, Kyle Mills, Chris Piazza and Daniel Topping—develops a nine-block long series of perimeter mixed-use buildings along Charlotte Avenue. Parking is concentrated and concealed in the center of these blocks, with a green roof constituting an elevated garden courtyard in each block.

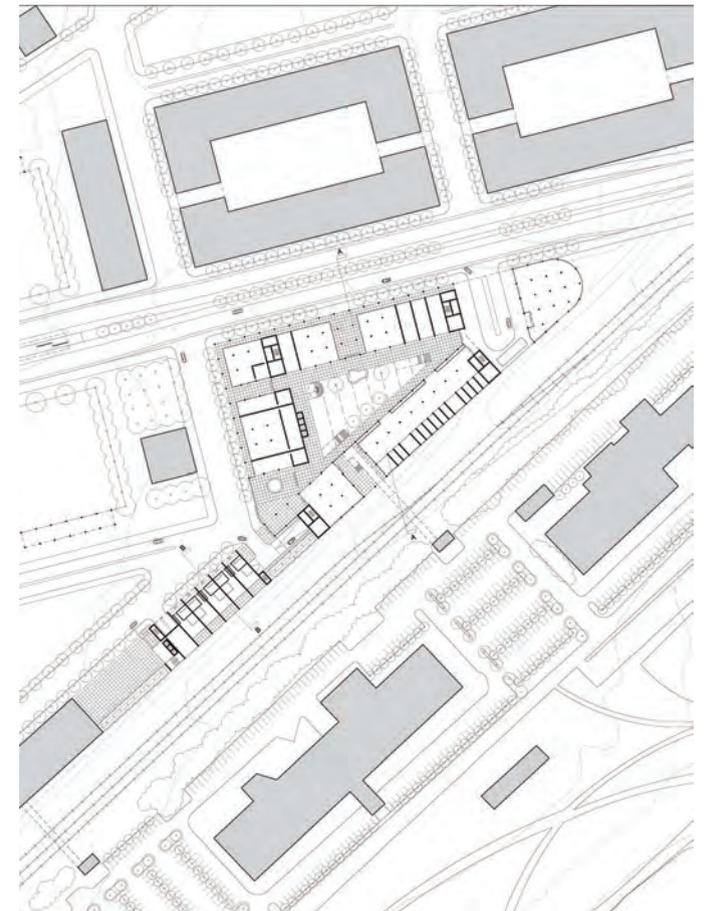
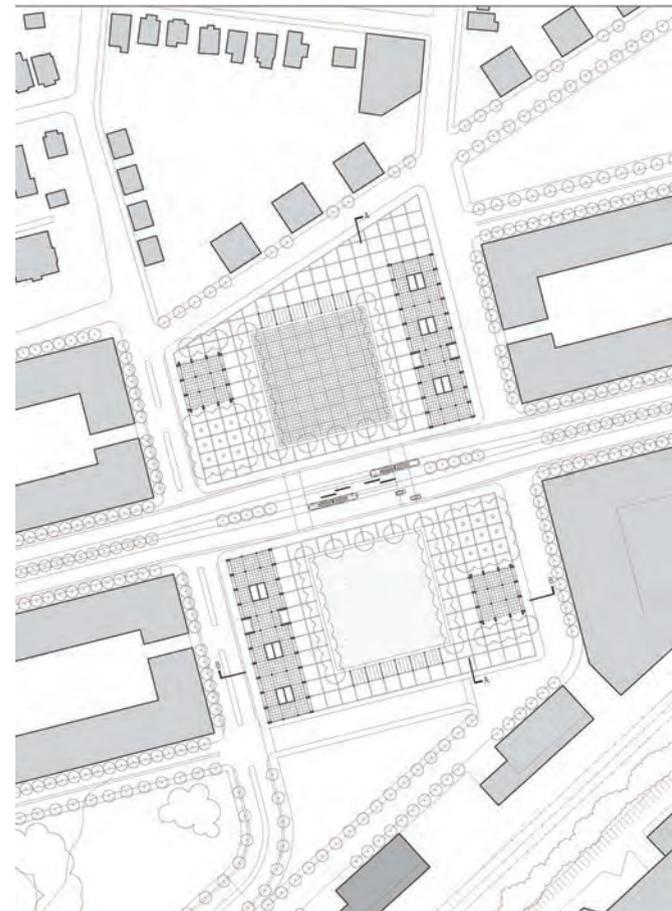
The BRT stop straddles Charlotte Avenue with public space, with both hard and green public sub-spaces activated by market buildings and community-oriented pavilions. Two funnel-like public green spaces draw pedestrians into the center from both the southeast and northwest subdistricts of the site area. A mid-rise, corporate headquarters on Charlotte Avenue points towards the downtown skyline, while offering views in all directions, including Centennial Park. The north edge of the CSX railroad tracks is lined by office buildings, and incorporates additional pedestrian bridge connections over the tracks, and trees in the existing HCA parking lots.

*Notes from the Vanderbilt University Owen School of Management Real Estate Development*

“Urban villas,” which are freestanding residential buildings of 4-6 stories, transition the scale of buildings from the existing low-rise community to the north to this new mid-rise community.



Top: South elevation drawing  
 Bottom: Section through tower  
 Images above by UT CoAD



Top: Renderings of market place  
 Bottom: Proposed building plans  
 Images above by UT CoAD



Bird's Eye View of ONECITY Development. Image source: Healthcare REIT

### *ONE CITY : An Avant-garde Healthcare Village*

The campus plan of ONECITY—designed by Healthcare REIT—consists of a 20 acre, mixed-use neighborhood, with pre-certification as a LEED Neighborhood Development and an occupancy strategy that will provide a center for activity and commerce in the healthcare and technology industries. The podium for the anticipated eight buildings will mix a variety of health and wellness retail concepts, with office and residential towers of varying heights providing character to the overall campus massing. Metro Council has approved a specific plan that includes structured parking, a FAR that allows for more than three million square feet if desired, within buildings with a maximum height of twelve stories. Public transit considerations include sites reserved for BRT, streetcar or rail. Approximately 7 acres of the site is designed as outdoor public space, including trails surrounding creeks and reservoirs that double as storm water systems.

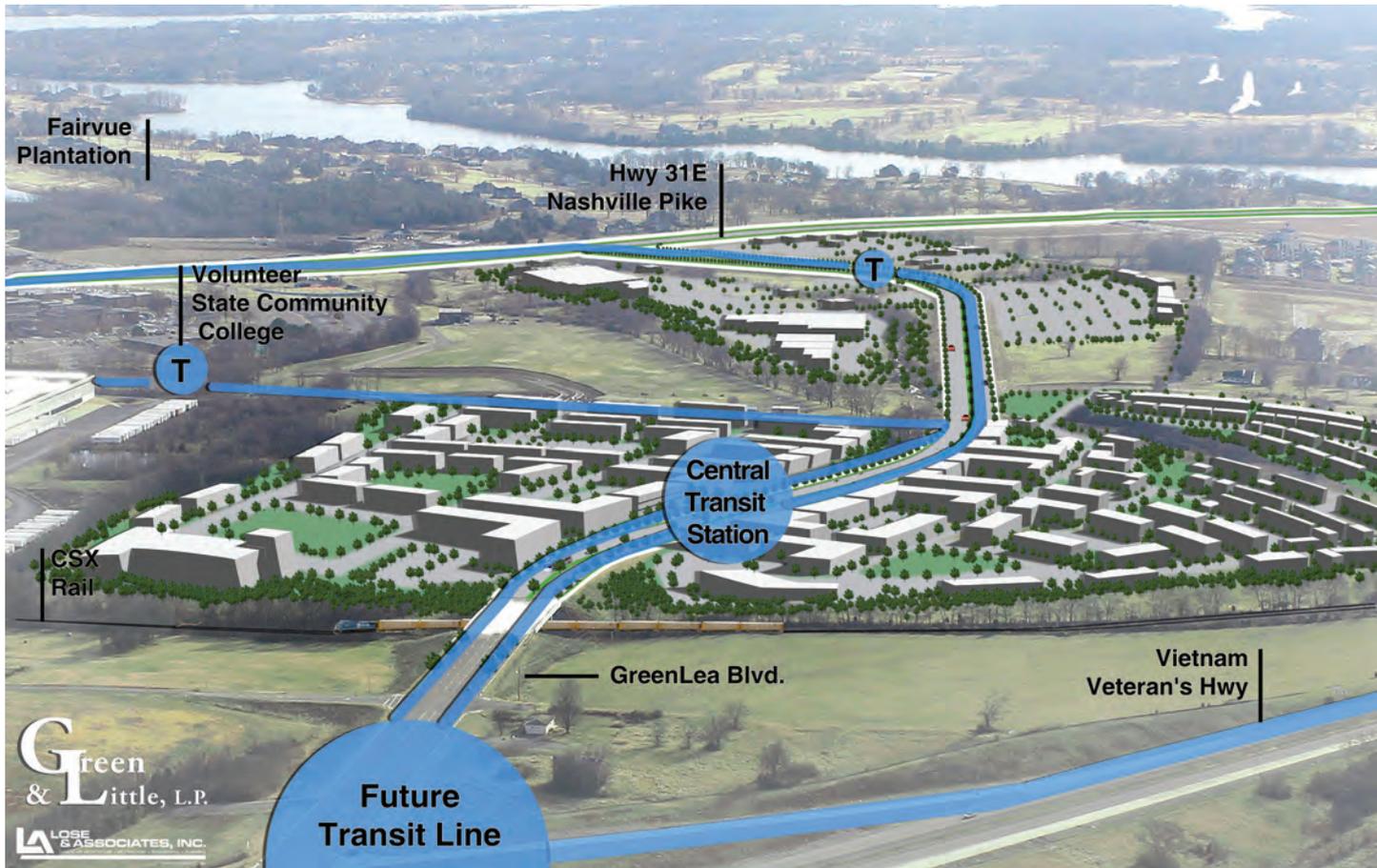
Economic development incentives are being structured based on job creation from tenants in the campus and the private development firm leading the project is looking to other federal and state programs to lower the cost of occupancy to the community of occupants.



Street level view of ONECITY Development. Image source: Healthcare REIT



Top: Rendering of ONECITY yard  
 Bottom: Rendering of ONECITY Blvd  
 Images above by: Healthcare REIT



Top: Rendering of proposed bus rapid transit stop at the heart of Greensboro North  
 Bottom: Aerial view of proposed transit-ready development in Gallatin  
 Images above by: Lose & Associates Inc.

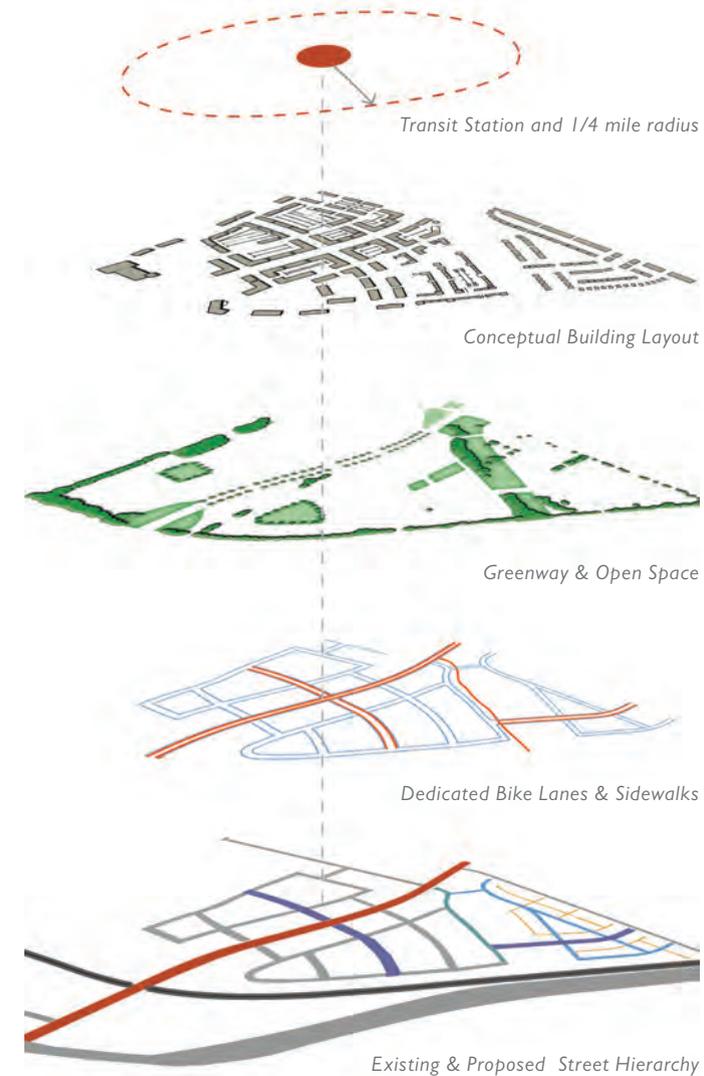


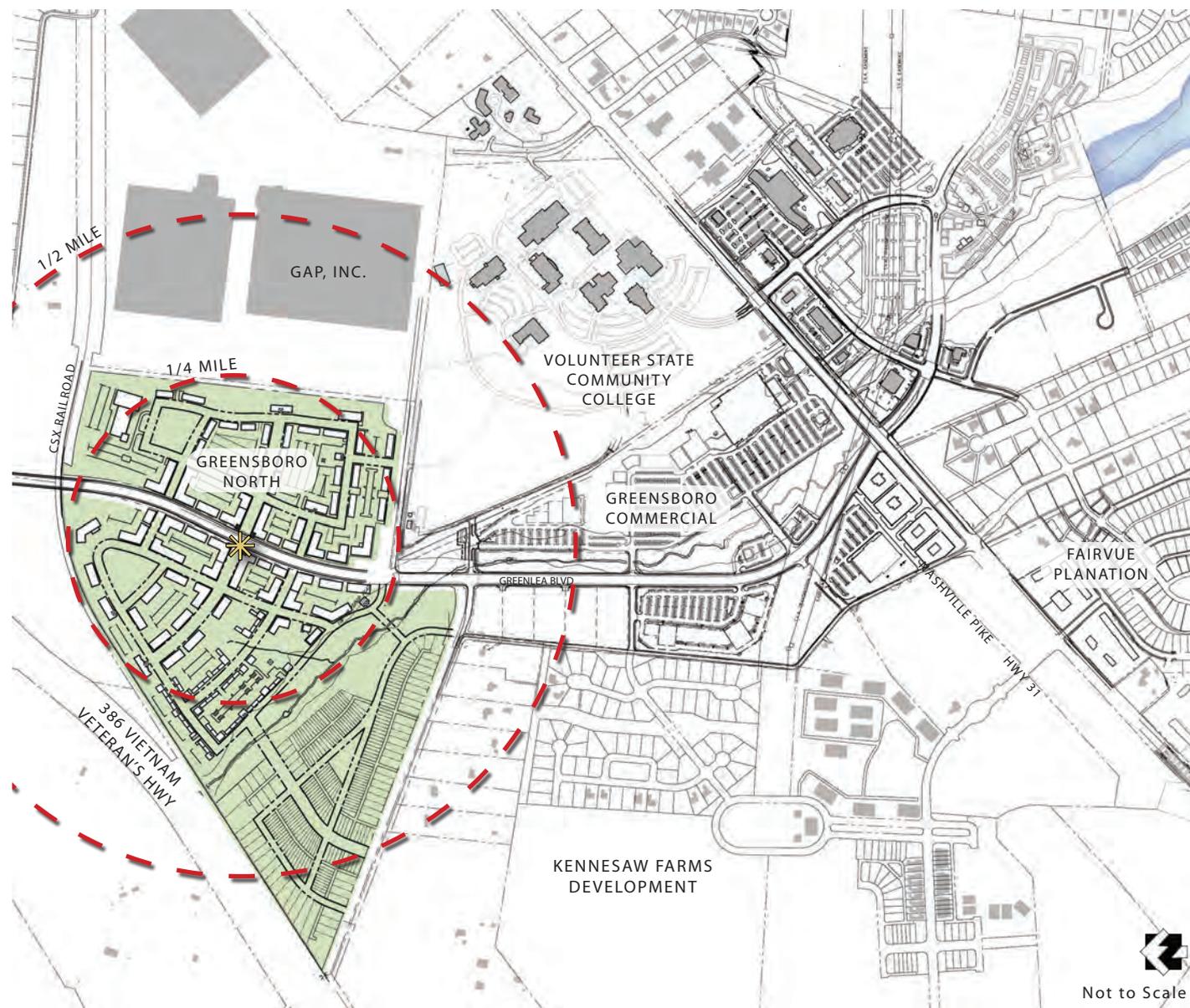
Diagram of Greensboro North. Image source: Lose & Associates Inc.

### A Robust TRD: Greensboro North

Greensboro North—designed by Lose and Associates—is envisioned as a walkable village that will capitalize on the future rapid transit line along the Northeast Corridor, from Gallatin to Downtown Nashville. The project is a TRD with the intent to foster a distinctive community with a strong sense of place. It will accommodate a vertical mix of uses including commercial, office, a variety of housing options, and open space. It will promote a compact community connected by a walkable and bikeable street network.

As the realization of adding new roadway lanes will not be sufficient for the increasing demand on interstates and highways, a need for alternative solutions grows. In response, the Greensboro North TRD provides one option. It is one of thirteen proposed stations along the Northeast Corridor transit line and it is uniquely positioned to be the central transit stop for this area due to its location near Volunteer State Community College, and its sophisticated vision that leverages its proximity to the future transit line.

Greensboro North will provide a mix of live, work and play options for students, faculty and Gallatin residents alike.

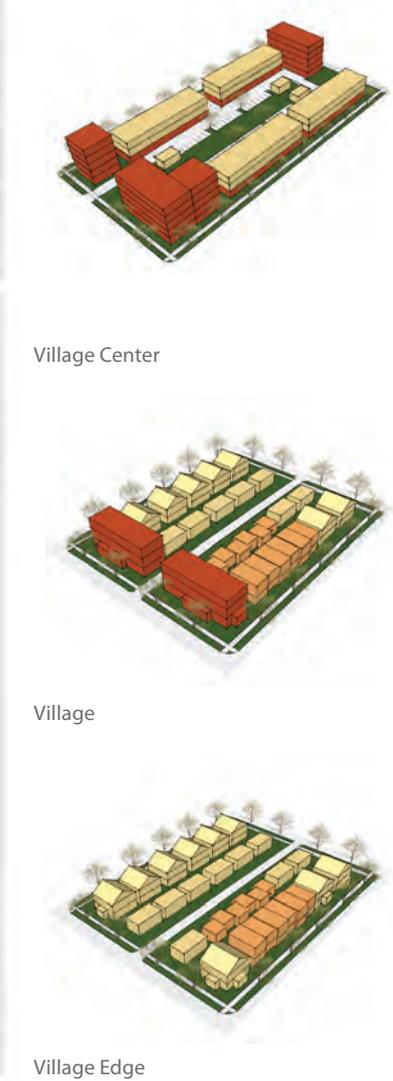


Conceptual plan drawing of Greensboro North and surrounding development  
 Images above by: Lose & Associates Inc.

■ Greensboro  
  Proposed Development  
  Existing Development



KEY	
	Central Transit Station
	Commercial/Office
	Mixed-Use
	Multi-family/Condos
	Single Family Attached
	Single Family Detached
	Community/Civic



Masterplan of Greensboro North and 3D massing diagrams.  
 Images above by: Lose & Associates Inc.



**COMPLETE STREETS**



**GREEN INFRASTRUCTURE**



**PEDESTRIAN CONNECTIONS**



**PUBLIC SPACE**



**PUBLIC ART**



**TRANSIT INFRASTRUCTURE**

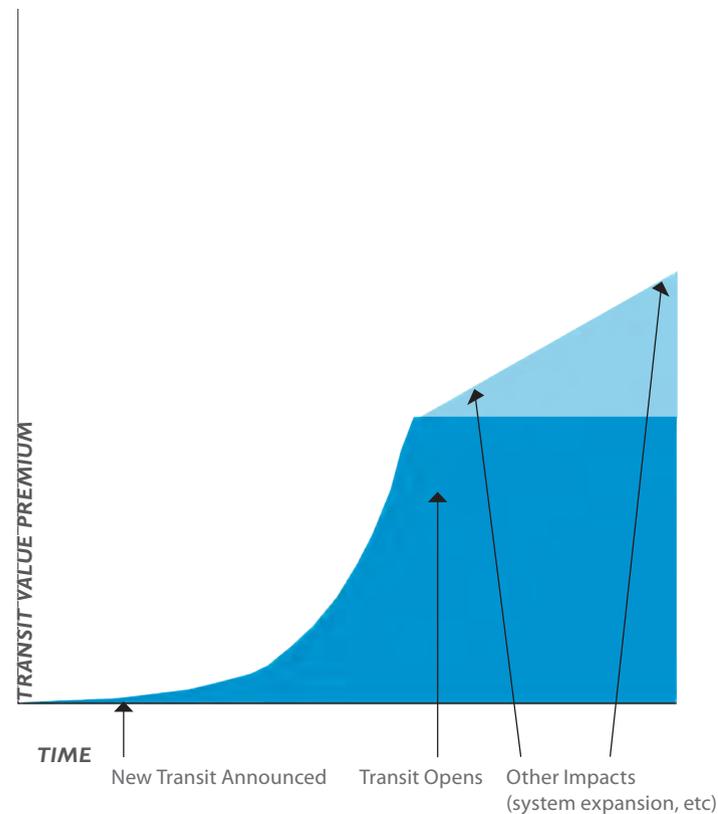


**MIXED-USE DEVELOPMENT**

*Using Thoughtful Building Blocks*

- **Complete Streets** enable efficient and safe access for all users—pedestrians, bicyclists, motorists and transit riders of all ages and abilities
- **Green Infrastructure** is the interconnected network of open spaces and natural areas—such as greenways, wetlands, parks, and forests—that naturally manages stormwater, reduces flooding risk and improves water quality
- **Public art** adds character and gives a sense of place
- **Pedestrian connections** including crosswalks, wayfinding elements, bicycle parking, greenways, and pedestrian bridges—engage the pedestrian and make walking and bicycling an efficient, safe and enjoyable mode of transportation
- **Transit infrastructure** including transit lines, transit stops and convenient, comfortable, safe and predictable transit waiting environments, are all necessary for successful transit villages
- **Public space** is well-designed flexible space, open to all and able to accommodate a variety of civic functions
- **High densities and mixed-uses** work together to provide an array of live-work-play options

Example design components of a successful transit village. All images by Sitephocus

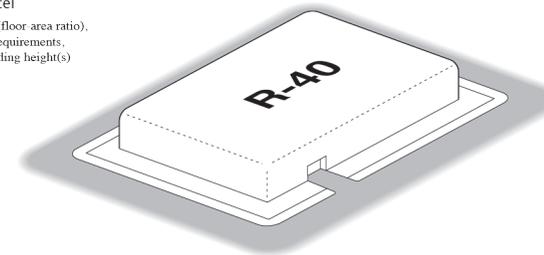


**Financial Strategies:** With the demand for transportation infrastructure steadily increasing while the funding lags far behind, complex new partnerships are necessary to raise the required capital and operating costs. A certified Community Development Financial Institution (CDFI) is one example. It delivers: needed program, policy and technical assistance support; aggregates public, CDFI and/or private capital into economic structures that share risk; and assists in identification of new monetary sources for community projects. Mixing public and private sector participation has advantages of sharing capacity, expertise, risk, and building complex relationships to achieve policy objectives.

Nationally, a growing number of transit lines and transit villages are being financed by a broad spectrum of innovative financing mechanisms that usually involve value capture strategies—repaying bonds and initial private investments as the value created by the infrastructure and developments appreciates. Examples include: property and sales taxes, real estate lease and sales revenue, fare box revenues, parking and business license fees, assessment districts such as TIFs and BID; developer fees; and negotiated investments such as developer agreements and community benefit agreements.

Graph illustrating value-capture principle  
Image source: Center for Transit-Oriented Development. <http://reconnectingamerica.org/resource-center>

How zoning defines a one-block parcel  
Density, use, FAR (floor area ratio), setbacks, parking requirements, and maximum building height(s) specified.



How form-based codes define a one-block parcel  
Street and building types (or mix of types), built to lines, number of floors, and percentage of built site frontage specified.

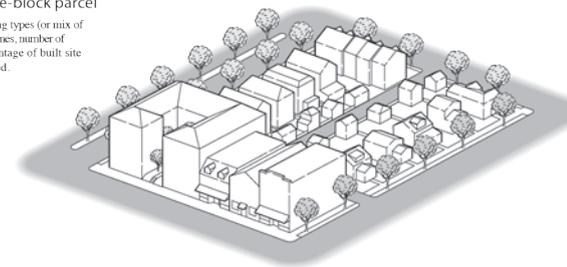


Illustration comparing typical, prescriptive zoning codes (top) versus smart growth supportive, form-based codes (bottom).  
Image source: copyright 2006 Peter Katz & Steve Price. <http://formbasedcodes.org/>

**Policy Ordinances:** Codes are the foundation upon which communities are built. They regulate where and what type of development may occur. Codes structure everything from permissible land uses, building densities, locations, and setbacks, to street widths and parking requirements. When done well, codes make it easier for a community to implement its vision and set the stage for robust communities. However, when they are out of date or do not line up with the community's vision, codes can actually keep communities from getting the development they want. For example: the standard zoning practice of the past few decades has separated residential, retail, and office uses. Today, however, this zoning stands in the way of communities that want to create vibrant, walkable neighborhoods that mix these uses and give residents the flexible transit and housing options they want.

Smart growth supportive codes are form based codes, moving away from the less supportive prescriptive codes. Urban design overlays (UDO) and specific plan districts (SP) are two examples. The specific plan district allows you to alter design standards and uses, while a urban design overlay only allows you to alter design standards.