TRANSIT STRATEGIES

TRANSIT-ORIENTED DEVELOPMENT

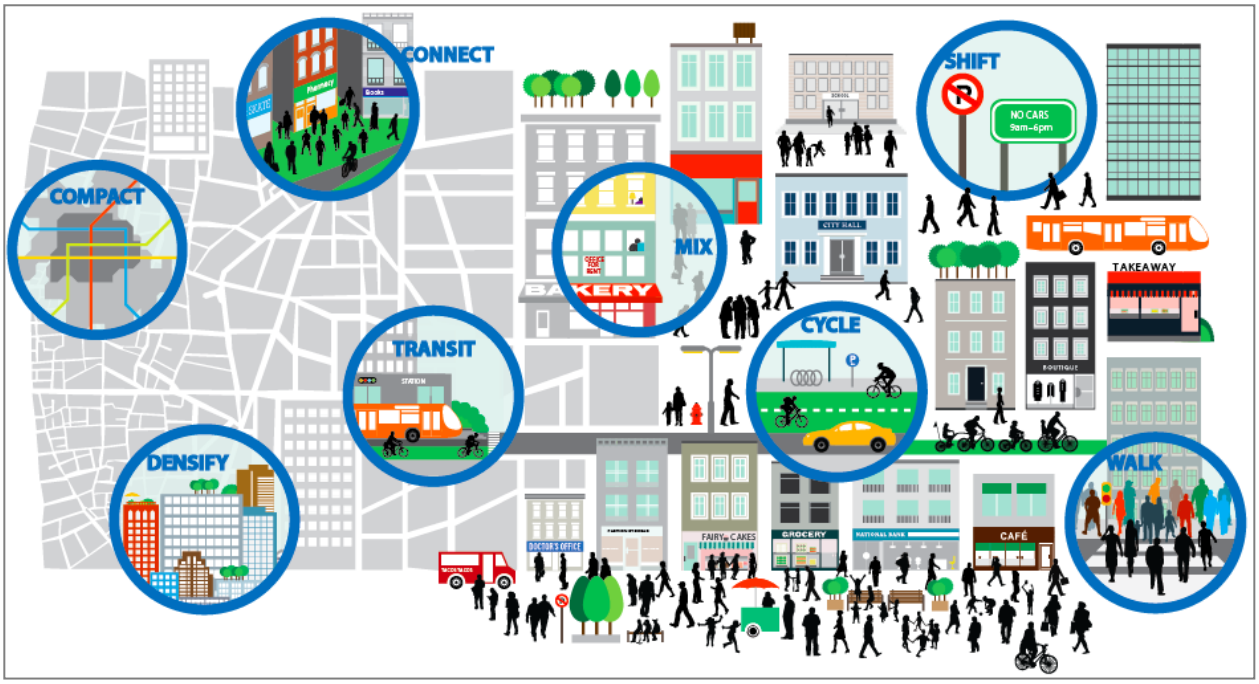
Transit demand is strongly related to development patterns and, in particular, development density. In areas with denser development and more people and employees, transit can be provided in close proximity to many people. Combined with a good pedestrian environment, transit can become very convenient and well used.

Transit-oriented development (TOD) is land development located near transit stations or stops that includes a mixture of housing, office, retail, and/or other amenities integrated into a walkable neighborhood. TOD leverages the access transit provides to regional destinations and focuses development in close proximity to those places.

At its most basic, TOD is a mixed-use community that encourages people to live near transit services and reduces their dependence on driving. The most effective TODs are located less than a half-mile (or 10 minute) walk from a transit stop or station. Beyond just development near transit, TOD is development that strives to give people choices in how they travel, minimizing the impacts of traffic and creating a sense of community and place.

The characteristics of TOD are represented in the graphic below; putting these principles into practice can help to create transit-supportive communities that integrate transportation and development. TOD features vibrant streetscapes, pedestrian-oriented buildings, and land use characteristics that make it convenient and safe to walk, bike, and use public transit.

EIGHT PRINCIPLES FOR TRANSIT-ORIENTED DEVELOPMENT



Source: Institute for Transportation & Development Policy (ITDP)

TOD BENEFITS

The primary goal of TOD in most communities is to build upon transit investments by creating development that supports transit ridership. However, TOD also provides a number of secondary benefits to transit agencies, communities located close to transit, and the larger metropolitan region. Some of the benefits of TOD include:

- More **sustainable and efficient** use of land, energy, and resources
- Increased **transit ridership** and fare revenue
- Potential for **added real estate value** created through increased or sustained property values where transit investments have occurred
- Reduced household driving and, thus, **lower regional congestion** and **transportation expenditures**
- **Improvements to air quality** and reduced greenhouse gas emissions due to fewer miles driven
- Walkable communities that accommodate **healthier and active lifestyles**
- Improved **access to jobs** and economic opportunity for low-income people and working families
- Concentrated development and activity that allows for **community reinvestment**

To achieve these benefits, development must be truly transit-oriented rather than just transit-adjacent. The differences between these two types of development are described below.

TRANSIT ORIENTED VERSUS TRANSIT ADJACENT

Transit Oriented Development	Transit Adjacent Development
• Grid street pattern	• Suburban street pattern
• Higher densities	• Lower densities
• Limited surface parking and efficient parking management	• Dominance of surface parking
• Pedestrian- and bicycle-oriented design	• Limited pedestrian and cycling access
• Mixed housing types, including multifamily	• Mainly single-family homes
• Horizontal (side-by-side) and vertical (within the same building) mixed use	• Segregated land uses
• Office and retail, particularly on main streets	• Gas stations, car dealerships, drive-through stores and other automobile-focused land uses

Source: John Renne (2009), "Measuring the Success of Transit Oriented Development," in Transit Oriented Development: Making It Happen, Carey Curtis, John Renne and Luca Bertolini (Eds.) Ashgate (www.ashgate.com), pp. 241-255.

TRANSIT-ORIENTED DEVELOPMENT (SALT LAKE CITY, UT)

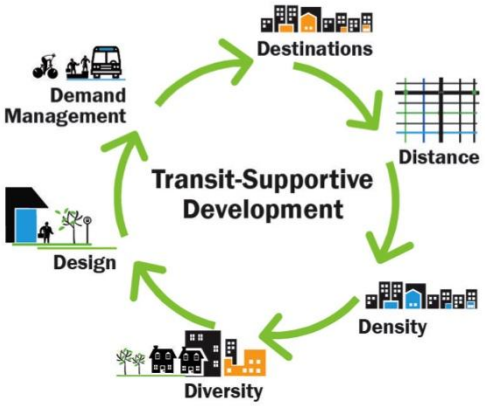
TRANSIT-ADJACENT DEVELOPMENT (TIGARD, OR)

CHARACTERISTICS OF DEVELOPMENT-ORIENTED TRANSIT

A successful transit-oriented development reinforces both the community and the transit system. There are six factors that influence transit demand—the "6 Ds"—and these are integral parts of TODs. Creating a mix of uses within a TOD promotes activity throughout the day and into the evening. This, in turn, promotes the most efficient use of the transit system: travel in both directions, throughout the day.

FACTORS INFLUENCING TRANSIT DEMAND - THE "6 DS"

6D Factor	Principle
Destinations	Align major destinations along reasonably direct corridors served by frequent transit
Distance	Provide an interconnected system of pedestrian routes so that people can conveniently access transit
Density	Concentrate higher densities close to frequent transit stops and stations and multimodal nodes
Diversity	Provide a rich mix of pedestrian-friendly uses to support street-level activity throughout the day and night
Design	Design high-quality pedestrian-friendly spaces that connect people seamlessly to transit
Demand Management	Provide attractive alternatives to driving by managing parking, providing incentives not to drive, and/or providing programs to help educate people about driving alternatives



PUTTING THE "T" IN TOD: HIGH QUALITY TRANSIT SERVICE

The type of transit that serves a transit-oriented development is less important than the service provided. TOD is often found at subway-style stations—such as those in Atlanta, Chicago, and San Francisco—where riding transit is relatively easy and convenient. But TOD is also increasingly common around other forms of transit, such as light rail, commuter rail, bus stops, and ferry terminals. The key to this growth in TOD is ensuring the development is centered on high-quality transit service.

High quality transit service is typically defined as transit that runs every 10 to 15 minutes during peak hours and at least every 20 minutes during off-peak periods, with service provided throughout the day, every day of the week. These frequencies are the level at which a person can generally expect to arrive at the transit station or stop, without knowing the schedule in advance, and only wait a few minutes for a bus or train.

STATION AND STOP DESIGN

High quality transit service found in conjunction with TOD is generally characterized by stops or stations that provide enhanced waiting areas and amenities for passengers. The transit station can function as a major stop for through service or as a transit center for several transit routes that terminate at the TOD.

The relationship between existing buildings, streets, and sidewalks to the transit station should be easy to navigate and provide direct paths. If needed, visual cues and placemaking can be used to orient people and show the way. Direct, attractive connections designed according to universally accessible design standards—without barriers or dead ends—should be provided.

MIX OF LAND USES

A range of active land uses located close to the station entrance or transit stop will promote activity within the station area. Higher intensity development (such as office or residential buildings) with active ground floor uses (such as shops or restaurants) clustered within a short walk of station entries and stops will help to promote transit ridership and create vibrant transit-oriented places. Generally, the highest density of buildings is located closest to the transit, with density stepping down farther away from the stop or station. Many places have found locating employment closest to transit provides the greatest boost to transit ridership. A general rule is that for every 100 feet from the station, the share of office workers using transit drops by about one percent.

Best Practice: Active Station Area Planning

Eastside Village, Plano, TX

Helping anchor the rebirth of downtown Plano, Eastside Village is a $17.7 million high-density mixed-use project fronting directly onto Dallas Area Rapid Transit's (DART) light rail station plaza. The 3.6-acre, 245,000-square foot project features 234 apartment units and 15,000 square feet of ground floor retail. The three- and four-story building wraps around a 351-space parking structure. Eastside Village was the first major step to achieve the city's vision to "transform downtown into a compact, mixed-use, urban center consistent with the principles of new urbanism and transit-oriented design to enhance the community's quality of life and provide a model for sustainable development within a maturing suburban city."

The City of Plano provided the leadership to make the project happen. They advocated for the station location, saw an opportunity to marry development with the DART light rail platform, assembled the site, offered it for development, leased the land to the private developer, paid for public infrastructure and streetscape improvements, increased the allowable density, and waived fees.

Source: City of Winnipeg TOD Handbook

SPECIAL TYPES OF TOD

JOINT DEVELOPMENT

Joint development is a form of TOD that is often project specific, taking place on, above, or adjacent to transit agency property. The most common joint development arrangements are ground leases and operation-cost sharing. Most often, joint development occurs at rail stations surrounded by a mix of office, commercial and institutional land uses. However, examples of public-private joint ventures can be found among bus-only systems as well, normally in the form of joint intermodal transfer and commercial-retail space at central city bus terminals. The case study to the right provides additional information about joint development in Plano, TX.

TOD CORRIDORS

Many TODs are centered around a specific station area or "node" of activity. However, TOD is increasingly being used as a viable corridor development strategy. Particularly around very high capacity transit corridors, TOD can stretch over dozens of blocks. For example:

- **Los Angeles:** The city of Los Angeles has prepared a specific plan for the Vermont/Western TOD, aimed at preserving and expanding the commercial boulevard, mid-rise housing, and civic uses in a 2.2-square mile area served by four Metro subway stations in the Hollywood-Wilshire neighborhood.
- **Houston:** The city of Houston anticipates several TODs will take form once the Main Street Corridor light rail system is completed.
- **Raleigh-Durham:** Triangle Transit Authority is planning several TODs along the axis connecting downtown Durham to downtown Raleigh. Town centers designed around rail stops are planned for the Cary, 9th Street/East Campus, and Alston Avenue stations.
- **Minneapolis:** The city and the Metropolitan Council have joined forces to prepare TOD plans for four station areas along the Hiawatha Corridor.

TOD RENDERING FOR HIAWATHA CORRIDOR'S LAKE STREET/MIDTOWN STATION (MINNEAPOLIS, MN)

Source: Corridors of Opportunity

TOD IMPLEMENTATION TOOLS

Transit-oriented develop should begin with an understanding of the types of stations or stops and land uses along transit corridors in the system. Most often, the public sector takes the primary leadership role to advance TOD and then works with the private sector to commit to specific development projects. Public leadership is needed as a station area is being developed as well as throughout the life of the project.

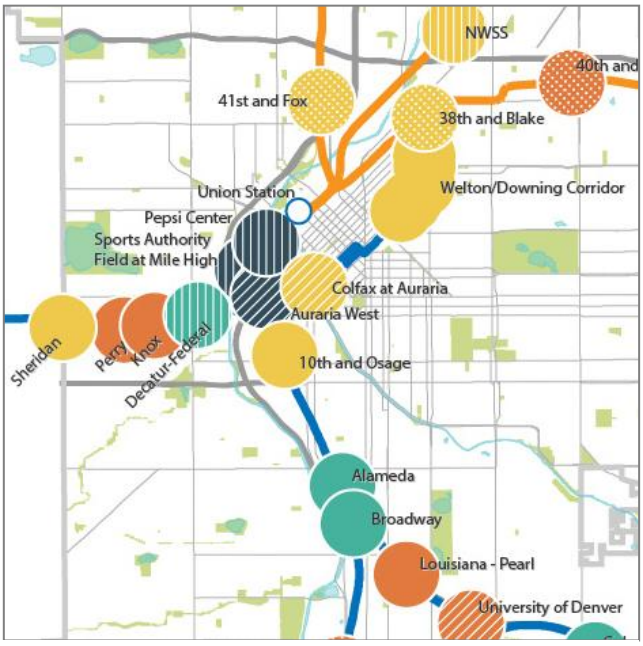
Once a vision or policy is established, transit agencies and municipalities can use a number of different strategies to implement TOD. Some of the most common are station typologies, station-area planning backed by appropriate zoning, policy incentives and regulations, TOD overlay zones, and transit real estate development departments.

STATION TYPOLOGIES

Some communities have found it helpful to identify the characteristics in their community that lead to successful TOD implementation and to proactively identify TOD-supportive station areas. Other communities have developed station typologies or different types of station/stop areas that share similar characteristics. These similarities can help planners, residents, and elected officials quickly and easily understand what to expect in terms of the character, role, and function of each place.

For example, Reconnecting America's TOD guidance suggests eight typologies for transit stations:

- **Regional Center.** Regional downtowns with primary economic and cultural activities, often characterized by a dense mix of housing and employment types, retail, and entertainment that cater to the regional market.
- **Urban Center.** A mix of residential, employment, retail, and entertainment uses, usually at slightly lower densities and intensities than in regional centers. Destinations draw residents from surrounding neighborhoods.
- **Suburban Center.** A mix of residential, employment, retail, and entertainment uses, usually at intensities similar to that found in urban centers but lower than that in regional centers
- **Transit Town Center.** Local-serving centers of economic and community activity that are less intense than either urban or suburban centers. They attract fewer residents from the rest of the region.
- **Urban Neighborhood.** Primarily high- to moderate-density residential areas mixed with local-serving retail that is well connected to regional centers and urban centers.



Denver classifies each station area into one of five context types based on characteristics commonly found in places served by rail transit. The typologies provide a snapshot of aspirational character, set expectations for development, and establish a level of magnitude for possible investments.

- **Transit Neighborhood.** Primarily residential areas that are served by rail or high frequency bus lines that connect at one location.
- **Special Use/Employment District.** A low- to moderate-density area, often focused around a major institution, university, or stadium.
- **Mixed-Use Corridor.** A focus of economic and community activity without a distinct center. These corridors are typically characterized by a mix of moderate-density buildings that house services, retail, employment, and civic or cultural uses. Many were developed along streetcar lines.

STATION-AREA PLANNING

Every station area faces unique challenges that require specially tailored strategies. Developing conceptual or specific plans for the areas around transit stations or stops is a process that lays out the basics, including zoning, design standards, parking requirements, and street connectivity that will be needed for successful TOD. Detailed station area plans help leverage the potential of TOD, particularly when there are significant development opportunities. Station plans often reflect the desired density, parking requirements, and uses of land, sometimes even before the transit is in place. For example:

- **Sacramento:** The Sacramento Area Council of Governments (SACOG) defines a Transit Priority Area as "an area within a half-mile of high quality transit: a rail stop or a bus corridor that provides or will provide at least 15-minute frequency service during peak hours by the year 2035."
- **San Diego:** The San Diego region (SCAG) defines high quality transit areas as "generally a walkable transit village or corridor, with a minimum density of 20 dwelling units/acre, within a half-mile of a well-serviced transit stop with 15-minute or less service frequency during peak commute hours."

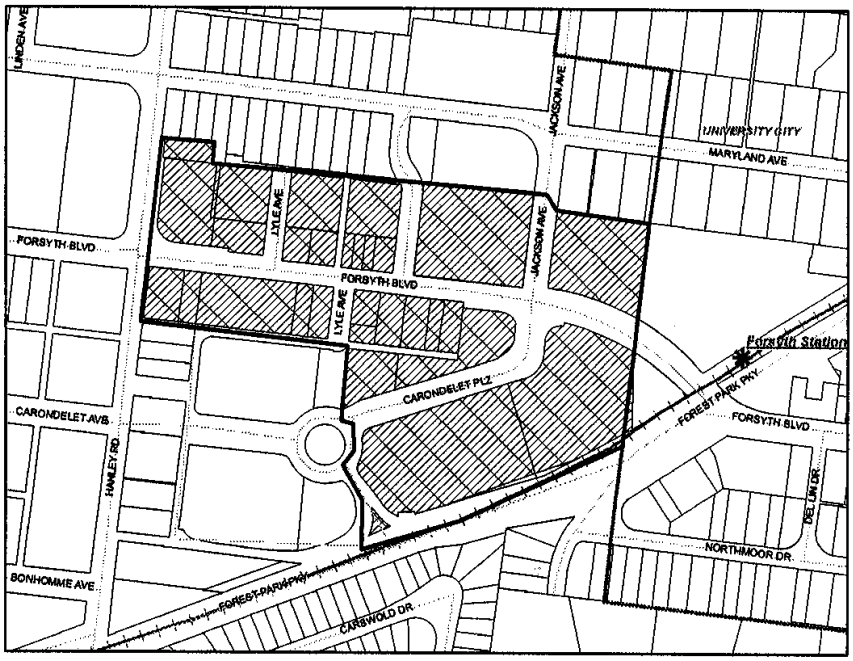
FRUITVALE STATION VILLAGE (OAKLAND, CA)

LYNX LIGHT RAIL STOP (CHARLOTTE, NC)

TOD OVERLAY ZONES

Most local governments control permissible land uses, building setbacks, parking requirements, and allowable densities through zoning. Some communities have created "TOD Overlay Zones" that modify, eliminate, or add regulations to the base zoning around transit stations or in designated TOD amenable areas. Overlays provide for effective land-use control without increasing the complexity of the regulations to promote transit-supportive developments. An overlay district can also be an effective interim tool to prevent automobile-oriented uses before station area plans can be enacted when demand for land around a station is strong. For example, the city of Seattle's interim overlay district prohibits automobile-oriented uses and lowers parking standards within a quarter-mile of proposed light rail stations to preserve future TOD opportunity areas.

TOD OVERLAY ZONE AT FORSYTH BOULEVARD STATION (CLAYTON, MO)



TRANSIT REAL ESTATE EXPERTISE

Transit agencies are vital to TOD since they control where, when, and even if rail and bus services are operated. And when it comes to joint development, transit agencies are at the front line of implementation, especially when agency-owned land and air rights are to be leased or sold. With TOD providing such benefits to transit, some large agencies have set up in-house real estate departments with dedicated staff to negotiate joint development deals and assigned planners to TOD oversight duties. Other transit agencies have part-time staff or consultants who focus on land use matters around stations and stops. Still others have staff routinely reviewing development proposals early in the process to ensure that they are supportive of transit and working with city planning departments and neighborhood groups on an ongoing basis as part of both short- and long-range transit planning.

Case Study: Rosslyn-Ballston Corridor
Arlington County, VA

The Rosslyn-Ballston Corridor is arguably the best TOD success story in the United States. Located directly across the Potomac River from Washington, D.C., Arlington County has become an increasingly popular place to live, work, and shop due in part to high-density development along the Rosslyn-Ballston corridor. Before development began, Arlington County adopted a General Land Use Plan to concentrate dense, mixed-use development. More detailed sector plans—which specify land use and zoning as well as urban design, transportation, and open space guidelines for the area a quarter-mile from each of the five stations in the corridor—ensure a distinct sense of community at each station. In addition to the countywide and station-area plans, specific enabling zoning bylaw language regarding density and setback configurations, circulation systems, and zoning classifications were changed. Developments that complied with these classifications could proceed through an expedited review process. The ability of complying developers to create TODs as-of-right was particularly important, for it meant that they could line up capital, secure loans, incur up-front costs, and phase in construction without the fear of local government "changing its mind."

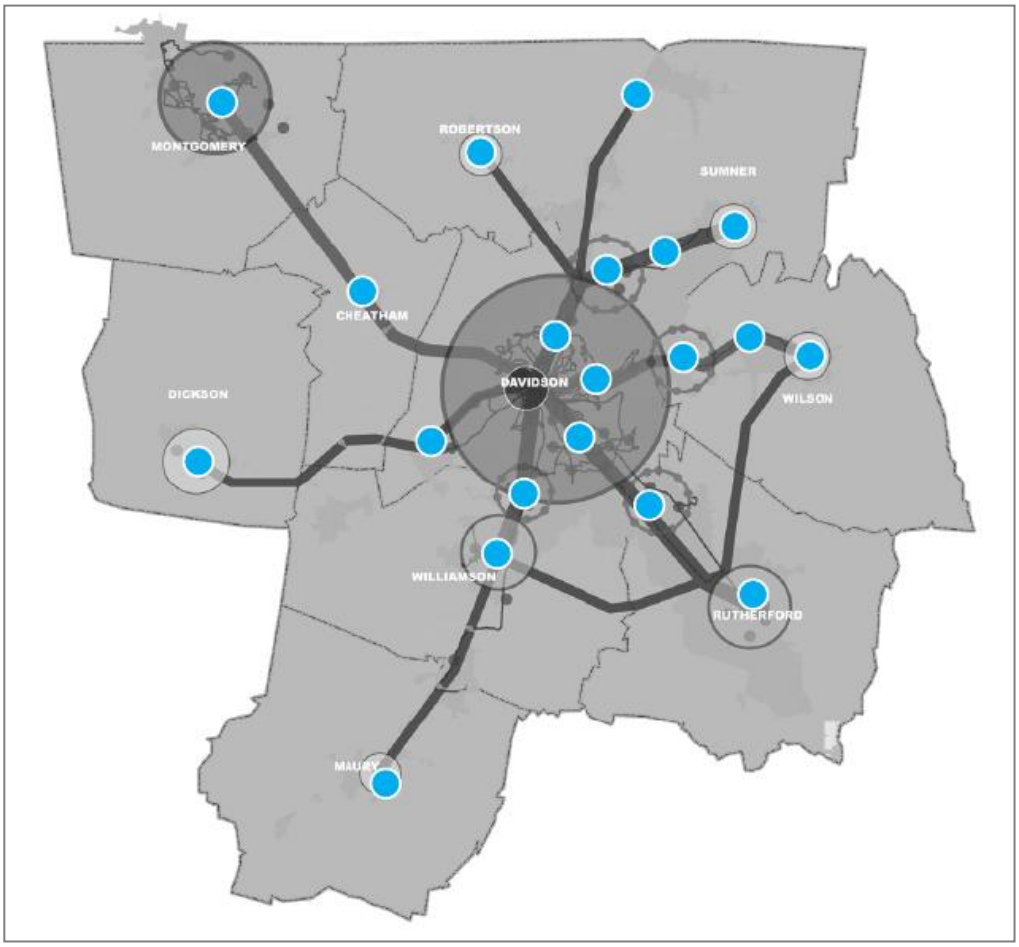
Today, the roughly two square-mile Rosslyn-Ballston Corridor has mixed-use, infill development focused at five Metro stations, and density tapers down to residential neighborhoods. As of 2004, the corridor had over 21 million square feet of office, retail, and commercial space, more than 3,000 hotel rooms, and almost 25,000 residences, creating vibrant "urban villages" where people live, shop, work, and play using transit, pedestrian walkways, bicycles, or cars. The stations along the corridor have captured 26% of the residents and 37% of the jobs on just 8% of the county's land area. The station area boasts one of the highest percentages of transit use in the Washington, D.C. region with 39% of residents commuting to work on transit.

Source: City of Winnipeg TOD Handbook

POTENTIAL TOD IN MIDDLE TENNESSEE

Planning for transit-oriented development in Middle Tennessee is not a new idea. The Nashville Area Metropolitan Planning Organization (MPO) 2035 Regional Transportation Plan identified ideal locations for TOD along existing and future high frequency transit lines. The MPO has also collaborated with the Nashville Civic Design Center and students from Vanderbilt University and the University of Tennessee to look more closely at potential TOD sites and corridors since 2009.

IDEAL TOD CORRIDORS IN MPO'S 2035 REGIONAL TRANSPORTATION PLAN



Most recently, NashvilleNext provided guidance on linking redevelopment with mass transit to build a complete community. Within the Land Use, Transportation, and Infrastructure element of the plan, policy 2.3 specifies that Nashville and Davidson County "will ensure jobs, education, and training opportunities are located close to transit service, in centers, or in high-need areas." The graphic to the right (courtesy of NashvilleNext) illustrates the relationship between density and transit, highlighting the importance of linking future development with transit service.

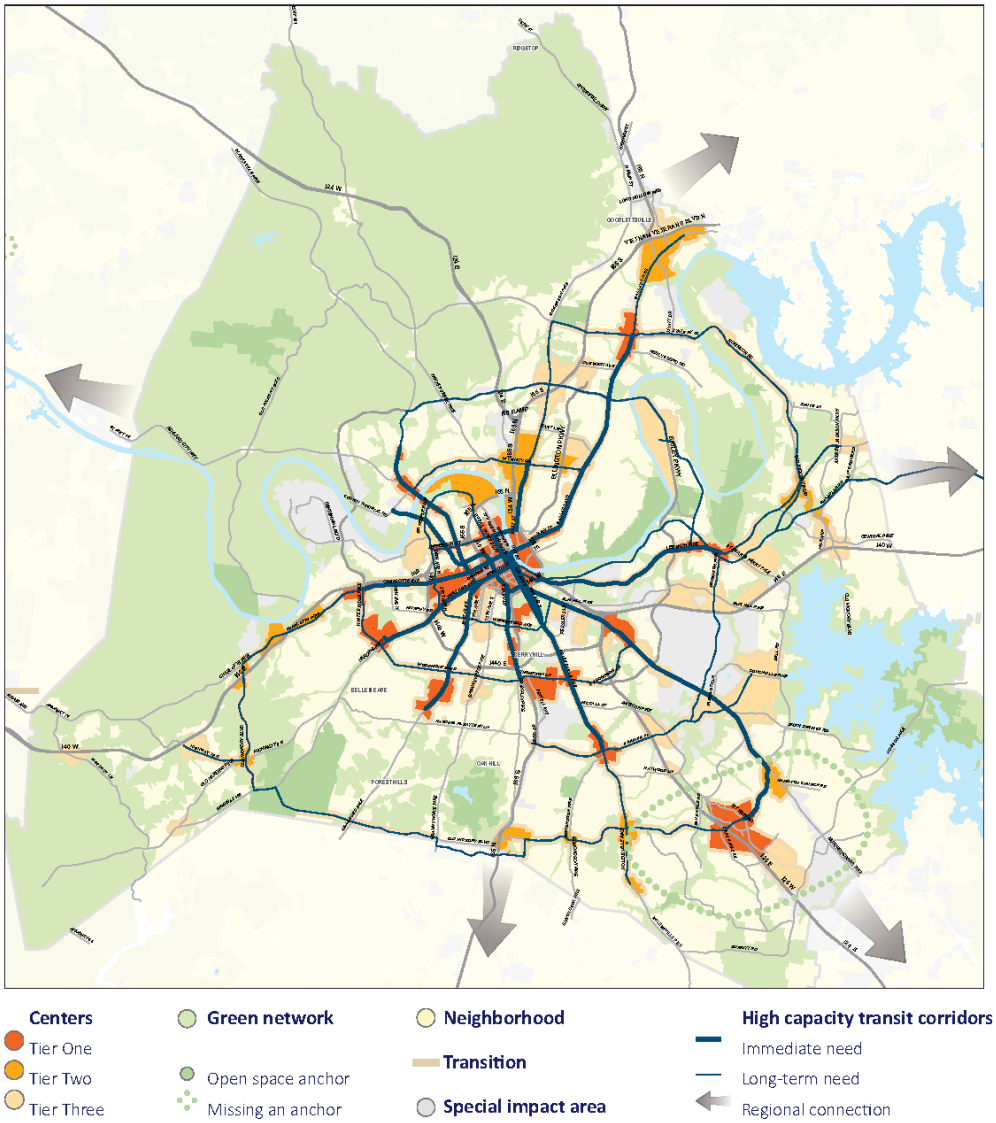
As density increases, so does support for frequent, high capacity transit service.

The NashvilleNext Growth and Preservation Concept Plan (see following page) shows this desire to link development and transit along corridors and in centers. High Capacity Transit Corridors are identified with Immediate or Long-Term Needs as thicker or narrower blue lines on the plan, respectively. These needs are anticipated based upon existing transit ridership, changes expected with more intense corridor development, and connections to Tier One Centers. It is critical to support more residential and job growth along the High Capacity Transit Corridors and to create more connections between centers.

As NashvilleNext moves into implementation, additional land use and transportation planning efforts within the identified Tier One Centers and High Capacity Transit Corridors prioritized through the Nashville MTA/RTA Strategic Plan will help to

outline a comprehensive vision and timeline for coordinated capital improvements needed to develop a successful multimodal transportation network.

NASHVILLENEXT GROWTH AND PRESERVATION CONCEPT PLAN



NORTHEAST CORRIDOR TOD

The 2011 Northeast Corridor Mobility Study, a product of the Nashville Area MPO, identified future land use scenarios that would better support the High Capacity Transit vision articulated in the plan. The report acknowledged that "existing land use patterns are, for the most part, not transit-supportive as they generally reflect a low-density, suburban pattern, with relatively few residents and businesses within walking distance of proposed transit stations." To increase the potential ridership for a new high capacity connection between Gallatin and downtown Nashville, the report cited the importance of transit-supportive development "characterized by a mix of land uses, organized in a pedestrian-friendly manner, developed at moderate to high densities." The report highlights land use concepts for proposed station areas and includes case studies of potential TOD at three typical station types.

Downtown Nashville

The opportunity for density increases and a greater intensity of uses near the Music City Station in downtown Nashville could be recognized through gradual redevelopment of existing properties. The images below illustrate the transit-supportive land use changes—including higher density uses and greater pedestrian orientation of buildings—envisioned for this area:

MUSIC CITY STATION AREA — BEFORE REDEVELOPMENT

Source: Northeast Corridor Mobility Study

MUSIC CITY STATION AREA — AFTER REDEVELOPMENT AND IMPLEMENTATION OF HIGH CAPACITY TRANSIT

Source: Northeast Corridor Mobility Study

Madison: Greyfield TOD Prototype

A greyfield TOD is a development within an existing urban area that is supported by permanent transit infrastructure such as platforms or stations for bus rapid transit (BRT) or light rail. Greenfield TODs offer an opportunity to upgrade transit service and enhance existing densities, mixed uses, or destinations that typically are found in successful TODs. The concept plan for a Madison TOD covers nearly 63 acres with space for 203,000 square feet of retail/commercial development, 108,000 square feet of office development, and 831 residential units. The image on the following page illustrates the mix of uses and the potential for infill development to support a BRT platform.

GREYFIELD TOD CONCEPT FOR MADISON

Source: Northeast Corridor Mobility Study

Hendersonville: Greenfield TOD Prototype

Greenfield TODs are planned developments built on undeveloped land. Permanent transit infrastructure, such as BRT or light rail stops and stations, are a central component of the development. Greenfield development offers a unique set of opportunities and challenges, including the need for extensive infrastructure, significant distances from other urban centers, and the reduction of open space.

The prototype TOD for Hendersonville presents an opportunity for 46 acres of development, including 195,000 square feet of retail/commercial space, 304,000 square feet of office space, and 808 residential units. The potential location is highly visible from the highway and is predicated on BRT within the highway median or a potential light rail line adjacent to the highway. The development program could include a mix of desirable uses, including a grocery store, park land, and a variety of transit options (see figure on following page).

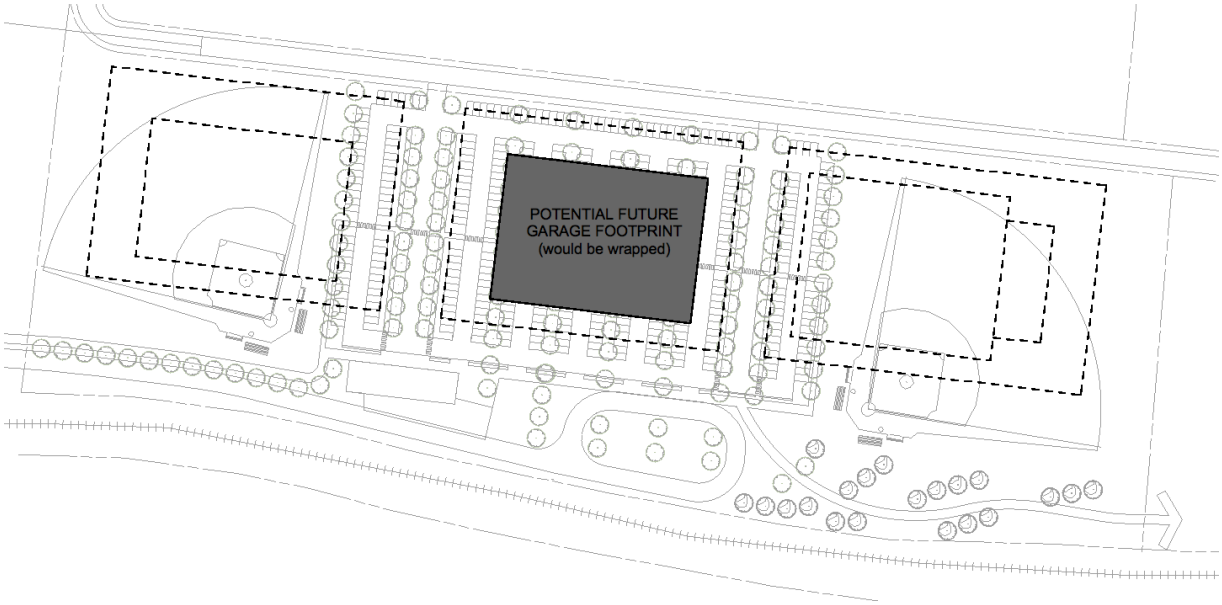
GREENFIELD TOD CONCEPT MODEL FOR HENDERSONVILLE

Source: Northeast Corridor Mobility Study

Gallatin: End-of-Line/Park-and-Ride TOD Prototype

The study envisioned a park-and-ride lot at the end of the Northeast Corridor, with a transit station for BRT or light rail and a parking lot. Because the location is proximate to a major intersection along the limited access highway, it is a likely location for future development as the area's market matures. Although the study did not envision development initially, the concept anticipates future high-density development. In the interim stage, the site could include green stormwater infrastructure, significant pedestrian and bicycle connections, and recreation facilities.

POSSIBLE EVOLUTION OF END-OF-LINE TOD CONCEPT FOR GALLATIN



Source: Northeast Corridor Mobility Study

HAMILTON SPRINGS TOD

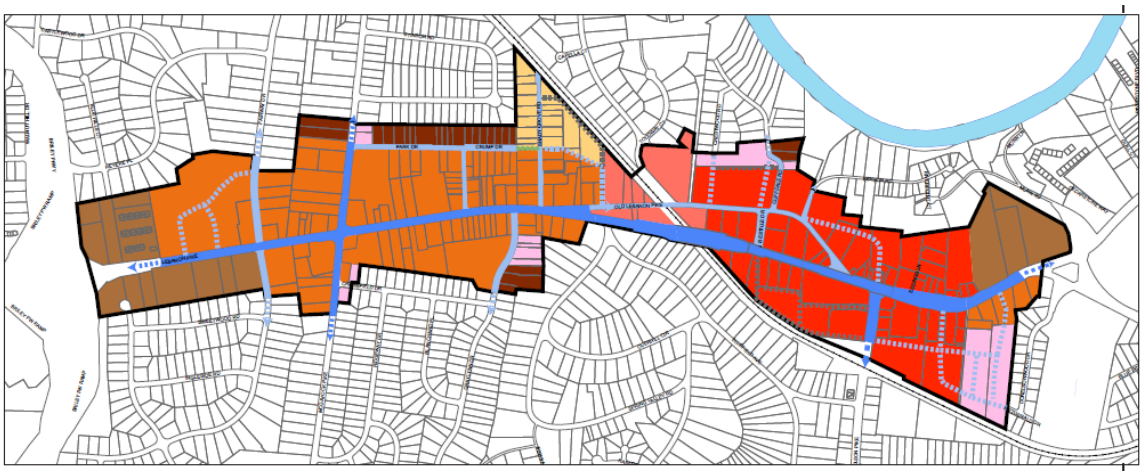
Middle Tennessee's first TOD is now planned around a new Music City Star commuter rail station in Lebanon. The new Hamilton Springs Station will be constructed between the current Martha and Lebanon stations. The proposed TOD will shape Hamilton Springs around a town square concept with 400 apartment and condominiums, office space, and ret. The project envisions "storefronts on the bottom, offices on the second floor, and condos on the top…a mixed-use community" (http://www.scrippsmedia.com/newschannel5/news/251358031.html).

PROPOSED HAMILTON SPRINGS TOD

DOWNTOWN DONELSON TOD

Work has also been underway for several years to develop "Downtown Donelson," which would be a new walkable, mixed-use center developed around the Music City Star's Donelson Station. The Planning Commission approved the Downtown Donelson Urban Design Overlay, a zoning tool that requires specific design standards for development in a designated area, in November 2009. The Urban Design Overlay (UDO) allows for development standards beyond those in the base zoning and, in this case, supports transit-oriented development. The Regulating Plan (shown on the following page) is the guiding map for implementation of the UDO. The red areas are Transit-Oriented Development zones, and the salmon-colored areas are TOD Support zones.

REGULATING PLAN FOR DOWNTOWN DONELSON URBAN DESIGN OVERLAY



SUMMARY

Moving forward, there are many opportunities for TOD in the Middle Tennessee region. With a great deal of older, suburban development in the 10 counties, there is significant redevelopment potential. As the Nashville MTA/RTA Strategic Plan proceeds and high capacity transit corridors are identified, creating specific approaches to retrofit the existing land uses to better support transit along the high capacity corridors and at key stops and stations will be a critical element of success. Seeking public-private partnerships and creative funding will be another important consideration.