Rails to Real Estate

Development Patterns along Three New Transit Lines

CTOD CENTER FOR TRANSIT-ORIENTED DEVELOPMENT

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About This Study

Rails to Real Estate was prepared by the Center for Transit-Oriented Development (CTOD). The CTOD is the only national nonprofit effort dedicated to providing best practices, research and tools to support market-based development in pedestrian-friendly communities near public transportation. We are a partnership of two national nonprofit organizations – Reconnecting America and the Center for Neighborhood Technology – and a research and consulting firm, Strategic Economics. Together, we work at the intersection of transportation planning, regional planning, climate change and sustainability, affordability, economic development, real estate and investment. Our goal is to help create neighborhoods where young and old, rich and poor, can live comfortably and prosper, with affordable and healthy lifestyle choices and ample and easy access to opportunity for all.

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Cover photo by Jeff Wood (Bland Station, Charlotte Blue Line)

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I. EXECUTIVE SUMMARY

This report documents real estate development patterns along three recently constructed light rail transit lines in the United States. This topic is important for local planning practitioners, transit agencies, community members and other stakeholders in their efforts to plan for new transit investments and foster transit-oriented development (TOD). Setting realistic expectations about the scale, timing and location of private investment along new transit lines is especially critical where new development is expected to help pay for needed transit improvements, neighborhood amenities, or other community benefits.

The three transit lines examined in this report are the **Hiawatha Line** in the Minneapolis-St. Paul region, the **Southeast Corridor** in the Denver region, and the **Blue Line** in the Charlotte region. The report examines residential and commercial development that occurred within a half-mile of stations along the three lines. Development is evaluated in the context of land use and demographic characteristics of the station areas along the lines at the beginning of the period studied. In particular, the analysis considers development patterns with regard to:

- Proximity to downtowns and other major employment centers;
- The location and extent of vacant or "underutilized" property that might offer opportunities for development or redevelopment;
- Block patterns that influence "walkability";
- Transit connectivity; and
- Household incomes.

The research is also based on interviews with local planning and transit practitioners and developers about the nature of development activity along each line, and the roles of the public and private sectors in stimulating development. While the analysis considers quantitative information, most of the findings are qualitative in nature. The report considers the relationship between certain land use characteristics and development activity, but the relationships discussed are not meant to imply causality.

The three corridors are summarized below.

The **Hiawatha Line** opened in 2004, the first in a series of major transit investments planned for the Minneapolis - St. Paul region. The corridor connects a series of important regional destinations including downtown Minneapolis, the St. Paul-Minneapolis Airport, and the Mall of America. The neighborhoods along the Hiawatha Line offered a limited number of opportunity sites for new development compared to the other transit lines considered in this report. Nevertheless, the corridor saw a tremendous amount of new development, an estimated 6.7 million square feet since the line opened. Most development is focused in and around the downtown, and is associated with long-term efforts aimed at revitalizing the downtown riverfront and warehouse district. The majority of development along the line consists of new condominiums and apartments built in the downtown and elsewhere along the line. These residential uses benefit from proximity to the new transit line because it offers easy access to several key regional destinations. The value of this accessibility will increase over time as the existing network expands to encompass additional destinations in the region.

Studies of the Hiawatha line have found that the limited connectivity between the stations and the neighborhoods to the east has hindered ridership, and the limited access by these station areas has resulted in uneven patterns of property value impacts from the new light rail. The experience of the Hiawatha line has stimulated a more proactive approach by the public sector in planning for and implementing station area infrastructure investments along the Central Corridor, the region's second light rail line, which is currently under construction.

Denver's **Southeast Corridor** opened in 2006 and travels along Interstate 25 through the City's southeast suburbs, linking the existing light rail system to a major concentration of office employment. The corridor experienced a more dispersed development pattern than the other lines studied, with development occurring at many stations along the line. Most of the Southeast corridor is suburban in character, and does not possess a pedestrian-friendly street grid with small blocks, historic buildings, a mix of land uses, or other characteristics typically associated with "TOD-friendly" neighborhoods. The new transit line also runs along a major highway, which poses some challenges for TOD. Nevertheless, the corridor experienced approximately 7.8 million square feet of new development, much consisting of larger, often phased, projects on greenfield sites. While it is not clear that the transit itself has directly stimulated new development, it has reportedly had an impact on the design of projects near stations, and may have resulted in a greater mix of uses in the station areas. Properties near transit are also reported to be in high demand, experiencing faster absorption and higher occupancy rates.

Charlotte's **Blue Line** is the most recently constructed of the three corridors, having opened in 2007. Nevertheless, the corridor experienced the most new development of the three lines studied, estimated at nearly 10 million square feet. Like the Hiawatha Line, a high proportion of this development was in downtown Charlotte (commonly referred to as "Uptown"). Additional development occurred in the South End, a historic manufacturing area that has been transitioning to a mix of residential and commercial uses over time. The transit connection between the South End and Uptown has is generally believed to have had a direct positive impact on development, with the South End offering new condos and apartments for professionals with finance-related jobs in Uptown.

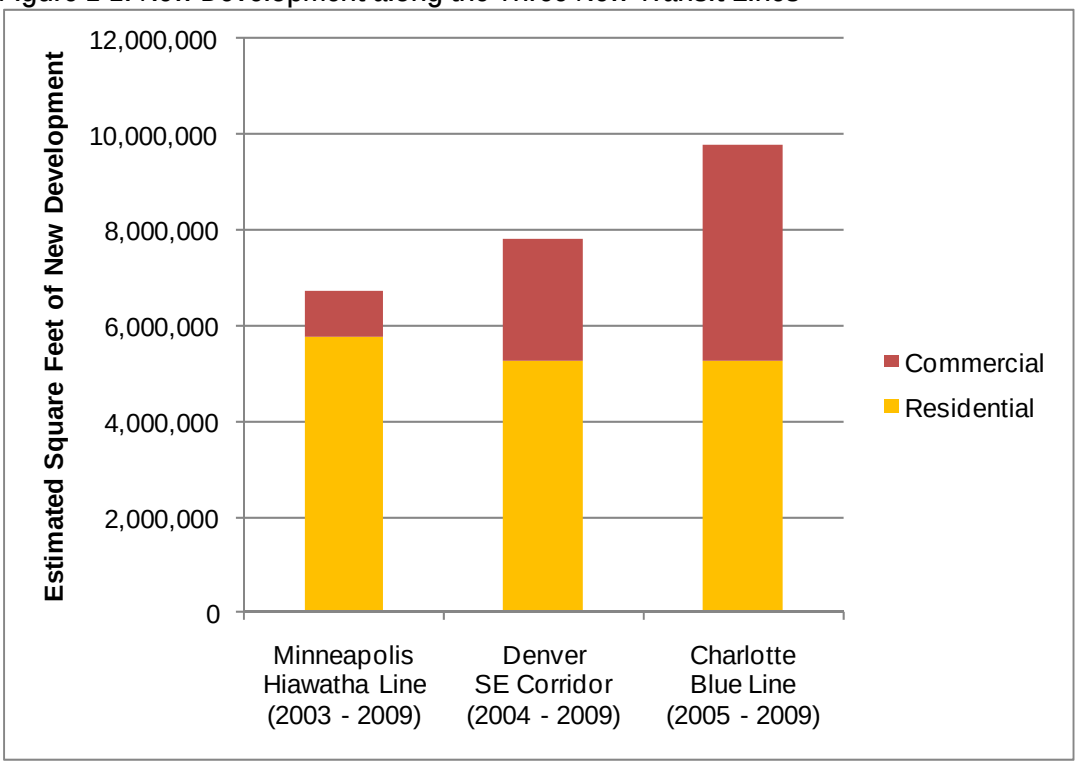
Despite a significant amount of development opportunity along other parts of the line, however, only a limited amount of development has occurred beyond the South End. The pattern of development suggests that proximity to Uptown, along with a pedestrian-friendly street grid and the historic charm of a former industrial district, are important factors influencing the location of new development. Areas further along the line will require a significant investment in pedestrian infrastructure and other neighborhood amenities to encourage the transformation of the station areas to meet their potential as mixed-use, pedestrian-friendly neighborhoods. The City of Charlotte has been very proactive in its efforts to promote TOD, and voter-approved bonds for station area infrastructure such as streets, streetscape and sidewalks have proved to be very important in encouraging transit-supportive development.

Summary of Key Findings

All three transit lines experienced a tremendous amount of new development. Each of the three corridors experienced between 6 and 10 million square feet of new development since the year before the new transit lines opened (see chart). Charlotte's Blue Line had the most development, with approximately 9.8 million square feet of new space between 2005 and 2009. The majority of development in all three corridors was housing, a reflection of national market conditions in the early-mid 2000's, which strongly favored residential development. However both the Denver and Charlotte regions experienced a significant amount of commercial development as well.

The private sector sees value in locations near transit, and this is reflected in the design and marketing of projects. Developers have made major changes to the design of projects to take advantage of the new light rail connection, and in some cases the concept of TOD may also have helped to attract capital for projects. Projects near transit are viewed as having the potential to achieve faster absorption rates, higher occupancy rates, and in some cases higher sales prices or rents. Many projects have been directly marketed as being near the light rail.

Figure 1-1: New Development along the Three New Transit Lines*



Source: CTOD, individual jurisdictions, Denver Regional Transit District. Chart includes all new development that was completed or under construction during the time period.
*** Note: Transit Line comparisons are for different periods and different lengths of time.**

Proximity to existing employment centers and downtowns appear to be important factors driving development along transit lines. Seventy-two percent of development along the Hiawatha Line was in downtown Minneapolis, and 64 percent of development along the Blue Line was in Uptown Charlotte. While the improved transit service provided by the light rail is an important amenity for these projects, the impetus for development was more strongly related to longer-term efforts to revitalize the center cities, as well as shifting market demand that favors central locations with urban amenities, shopping and entertainment. In the Denver region, meanwhile, development along the Southeast Corridor is closely tied to growth in employment along the line.

All three corridors offer significant areas of development opportunity that represent unmet potential for TOD. In the Minneapolis - St. Paul region, there are still opportunities for infill development on sites in Minneapolis, many in neighborhoods with a need for better streetscape, pedestrian connections and other "placemaking" investments. A major TOD project is also planned near the end of the line, however only a limited amount of development has occurred. In Charlotte, many of the station areas include a significant number of underutilized properties that might be redeveloped with more intensive uses, however to date most development has occurred at station areas in or near Uptown.

The pattern of recent development along the Southeast Corridor in the Denver region has been much more dispersed than along the other two corridors. Most of the development along this corridor has consisted of larger projects on major opportunity sites (which are less common near the stations along the other two corridors). Development has not focused as much on the northernmost end of the corridor, where despite closer proximity to the downtown, there are greater challenges associated with

redevelopment of older industrial uses. As discussed above, this scattered pattern of development may be related to the decentralized nature of employment along the corridor: if it is true that development is more likely to occur near existing employment centers, this could be one of the reasons that development has extended further along the line.

Early station area planning efforts can help to set expectations and ease concerns about TOD; however, prioritizing station area planning efforts is often necessary. Cities in all three regions recognized that station area planning is an important way to prepare communities for TOD. Given limited resources and staff capacity, local jurisdictions often find it necessary to prioritize stations based on market strength, community needs or other factors. In both the Denver and the Twin Cities regions, local jurisdictions were more likely to initiate station area planning processes in existing neighborhoods with fragmented development sites. In station areas with major development opportunity sites, they were more likely to rely on developer-initiated station area planning processes. In these cases, the extent to which new development reflected TOD goals depended on the perceived value to the developer as well as the extent to which the local jurisdiction was proactive in promoting TOD.

Investments in neighborhood infrastructure and amenities are critical for unlocking the potential for TOD, especially in areas where land use patterns were previously automobile dependent. To date, most development near transit has occurred in or near downtowns or other major employment centers, and on large development sites that allow for "placemaking" and where it is easier to finance needed public improvements. There are many other locations near these new transit lines with considerable potential for infill development, including commercial corridors that currently are characterized by relatively low-value, low-density, auto-oriented development patterns. Development opportunities in these kinds of places frequently consist of fragmented infill sites with multiple property owners, and many are likely to require proactive investments on the part of the public sector to enable redevelopment. Strategic investments in pedestrian connections, streetscape, and other infrastructure can assist in their transformation to more transit-friendly places where more intensive development can occur.

Public sector "value capture" strategies should acknowledge the uneven nature of development patterns near transit and the need for strategic investments. The findings of this report have implications for strategies that attempt to harness property value increases near transit to help offset the costs of transit investments, or to help finance other needed improvements along transit corridors. This report finds that development patterns along transit corridors are uneven, in part because many station areas will require proactive efforts and investment to make development possible. In formulating value capture strategies, therefore, it will be important to recognize that targeted investments will in many cases be needed to stimulate redevelopment in infill locations. Where politically feasible, a corridor-level approach to value capture may be very useful, because this can allow value created in a strong market locations to assist with needed improvements and enable development elsewhere in the corridor.

II. INTRODUCTION

The last decade saw a growing interest in fostering transit-oriented development (TOD), driven in part by a boom in public transit construction. This trend has been supported by a growing awareness that the market is shifting away from previous suburban development patterns toward more urban, "walkable" places near transit, and a growing interest by planners and others in promoting more sustainable land use patterns. Encouraging new development in infill locations with quality transit access is increasingly seen as an important component of regional strategies that aim to reduce auto use and greenhouse gas emissions, make the most of investments in transit and other infrastructure investments, preserve open space, and enhance quality of life.

Many recent planning efforts have focused on ways to maximize the value of transit investments by leveraging development around new transit stations. Cities and regions have engaged in extensive station area, corridor-level and regional efforts to plan for development near transit. And at the same time, a growing body of research highlighted the value conferred by transit to nearby properties, stimulating a growing interest in the topic of "value capture" – capturing the value conferred by transit to fund the transit itself, or other community infrastructure or amenities.

This report takes a retrospective look at development patterns along three recently-constructed light rail corridors in the United States, as a way to take stock of the current state of TOD, help to set expectations for regions and communities planning new transit systems, understand more about the potential for value capture strategies, and identify opportunities and challenges for TOD in the future. The three transit lines are:

- **The Hiawatha Line, Minneapolis-St. Paul Region, Minnesota**: Constructed in 2004, the Hiawatha Line connects downtown Minneapolis, the Minneapolis-St. Paul International Airport, Bloomington's Mall of America, as well as several other key regional destinations. This line has experienced much higher than expected ridership, and the opening of the line coincided with a significant amount of new development in downtown Minneapolis and elsewhere along the line.
- **The Southeast Corridor, Denver Region, Colorado**: The second light rail line in a major regional transit expansion, the Southeast Corridor opened in 2006. It connects central Denver to several communities to the southeast, including the Denver Technology Center, a major employment center and focus of recent job growth.
- **The Blue Line, Charlotte Region, North Carolina**: The Blue Line opened in 2007, and has already experienced a tremendous amount of new development. The light rail line travels south from central Charlotte ("Uptown") to suburban Pineville.

Figure 2-1: Summary of the Three Case Study Corridors

Region	*Minneapolis-St. Paul, MN*	*Denver, CO*	*Charlotte, NC*
Year Completed	2004	2006	2007
Number of Stations	19	14	15
Length	12.3 miles	19.1 miles	9.6 miles

Benefits of TOD

TOD is typically defined as higher-density development within walking distance of a transit station. However, it can occur at a variety of scales depending on the context, and consist of a range of land uses. For this reason, TOD is often defined in terms of its goals, which include a wide range of social, economic and environmental benefits, including:

- Improved mobility options, so people can walk and bike and take transit, and access multiple destinations in the region without a car;
- Increased transit ridership to support local and regional transit system operations and reduce traffic congestion;
- Quality neighborhoods with a rich mix of housing, shopping and transportation choices;
- Revenue generation for both the private and public sectors;
- Improved affordability for households through reduced transportation costs;
- Urban revitalization and economic development;
- Reduced infrastructure costs due to more efficient use of water systems, sewer systems and roads;
- Reduced energy consumption, greenhouse gas emissions and air pollution;
- Improved regional access to jobs; and
- Health benefits resulting from reduced auto dependence and healthier lifestyles.

The Market for TOD and the Potential for Value Capture

The real estate market is shifting to favor places that offer convenient access to entertainment, retail, services and transit. A number of studies document this shift in demand away from traditional suburban-style housing toward pedestrian-friendly places with neighborhood amenities and shopping.[1] The Center for Transit-Oriented Development (CTOD) estimated demand for an additional 15.2 million housing units near transit between 2000 and 2025, driven by changing demographics toward smaller households, more empty nesters, and fewer families with children.[2] Research also shows that certain kinds of employers also benefit from locating in higher-density employment centers with good transit access.[3]

The desirability of transit-rich locations is reflected in higher property values for central locations near transit.[4] Where market conditions allow, new rail transit provides communities with an excellent opportunity to develop TOD projects. These projects have the potential to generate a wide variety of valuable community benefits, including enhanced economic activity related to new construction, neighborhood revitalization, and higher tax receipts. They also contribute to a variety of cost savings

[1] See for example, Leinberger, Christopher B., *The Option of Urbanism*, Island Press, 2008, p. 92.
[2] *Hidden in Plain Sight*, Center for Transit-Oriented Development, September 2004.
[3] *Draft TOD and Economic Growth Working Paper*, Forthcoming, Center for Transit-Oriented Development, 2010.
[4] Value premiums observed for properties near transit range from -11 percent to 167%, depending on the real estate market, land use, distance from transit, and quality of transit service, among other factors. However, the vast majority of studies find a statistically significant positive relationship between property values and proximity to transit. See Nadine Fogarty, Nancy Eaton, et. al., *Capturing the Value of Transit*, Center for Transit-Oriented Development, November 2007. Section 2 provides a literature review of this topic.

resulting from reduced driving and more concentrated development patterns, including reduced expenditures on highways and other infrastructure, parking spaces and local utilities.
Development near transit is also important for local financing strategies that seek to capitalize on the value generated by new transit. *Capturing the Value of Transit*, a 2007 CTOD report that evaluated the potential for value capture strategies to fund transit improvements, found that the potential for "value capture" strategies is closely tied to the potential for new development. Therefore, the extent to which new development is occurring along new transit lines is of critical importance in understanding the potential for value capture.

Purpose of the Report

Communities, planners and transit agencies often find it difficult to predict where and when development is likely to occur along new transit lines. Studies of the development impacts of transit are limited, and it is difficult to isolate the role of transit from other factors that influence developer decision making. In fact, it is clear that transit alone cannot "make" a market in places where the market is otherwise weak. Regulatory changes such as zoning and parking requirements can have an impact on development potential; however the extent to which these tools can help to stimulate market activity is not well understood.

Now is an opportune time to take a retrospective look at development patterns near transit, given the slowdown in the real estate market nationally, and the amount of economic recession and depressed real estate conditions. What can we learn about where development is likely to occur, and where it is not? What kinds of interventions will be necessary to enable development near transit? Specifically, this report aims to:

- Give regions with planned or new light rail corridors a better sense of what to expect in terms of new development, based on actual experiences in regions with new transit lines.
- Test analytical methods that are used by planners to identify areas that are more likely to redevelop or that are seen as better locations for TOD, such as the location of vacant and/or "underutilized" properties, places with smaller block sizes that consequently more likely to be "walkable," places with a greater amount of transit service, and other factors.
- Offer insight about the factors influencing development patterns near transit, and how the public sector can assist in realizing the market potential for TOD.

Methodology

For each transit line studied in this report, CTOD collected information about new development along the line, beginning before the new light rail was constructed. Development data for Denver and Charlotte includes projects that were completed beginning approximately two years before the transit was completed. Because data for 2002 was not available, information about development along the Hiawatha Line in Minneapolis - St. Paul is for projects constructed beginning approximately one year before the line opened. The information about recent development was collected from local planning and transit agencies. Only development within a half-mile radius (about a 10 minute walking distance) of stations was considered.

This new development was evaluated in light of several key characteristics of the transit corridor at the beginning of the period studied. Where applicable and where data is available, maps illustrate conditions prior to the new light rail, to aid in understanding how those conditions relate to the location of subsequent development. These factors are:

- **Proximity to downtowns and major employment centers**. Many US downtowns are experiencing a renaissance, based on shifting demographics and consumer preferences that making pedestrian-friendly places with urban amenities more attractive places for investment. New transit connections provide improved access to the amenities of downtown, and added convenience for downtown workers and residents. There is also ample evidence that employment along transit lines is an important factor determining ridership, and thus may have an influence on both commercial and residential development.[5] To this end, CTOD also collected information about the location of jobs along the line, to evaluate patterns of development relative to job centers.
- **The location of vacant and "underutilized" properties**. CTOD used a standard measure to identify properties that are more likely to redevelop over the short and medium term. This is a common practice in planning studies, used as a way to identify potential development opportunities. Parcels deemed to be likely development (or redevelopment) opportunities were mapped to see how they line up with patterns of new development. Underutilized properties were defined as ones where the ratio of building value to land value was less than one, as reported by the county assessor. It should be noted that the methodology used by county assessors to value properties varies.
- **Average block sizes, as a measure of walkability**. This factor was of interest because neighborhoods with smaller block sizes tend to be more "walkable", and thus more pedestrian-friendly and urban in nature. On the other hand, larger block sizes may indicate the availability of larger development sites, which is also likely to play a role in influencing the location of new development.
- **Transit connectivity**. To the extent that new development is influenced by the presence of transit, it makes sense that places with stronger transit connections would be more desirable places for development. To that end, we used the Transit Connectivity Index (TCI), created by the Center for Neighborhood Technology (CNT), to look at how development patterns play out with regard to areas with better (or worse) transit connections. The TCI was developed by CNT as a measure of transit service. Transit service levels for the purposes of the TCI are based on the access and intensity of transit service in a given Census block group. Access is captured by a quarter mile buffer around each bus stop, a half mile buffer around each rail station, and a half mile buffer around each ferry terminal; intensity is based on the number of lines that serve the Census block group. For a given Census block group, the index accounts for the percentage of land area within walking access to a transit route and the number of lines available. It is important to note that TCI is not a descriptive or a literal definition of service, but rather a calculated prediction of transit service levels. Data is for 2007, and includes the impact of new light rail.

The data described above was supplemented by a series of interviews with local experts active in promoting TOD in each of the three regions, including developers and staff from cities and transit agencies.

[5] Barnes, Gary. The Importance of Trip Destination in Determining Transit Share. Journal of Public Transportation, Vol. 8 2005.

This report also relies heavily on previous CTOD research related to two of the three corridors studied, the Blue Line in Charlotte and the Hiawatha Line in the Minneapolis - St. Paul region. These two corridors were profiled extensively in a 2007 CTOD report, *Realizing the Potential: Expanding Housing Opportunities Near Transit*, and in a follow up report entitled *Realizing the Potential: One Year Later*.[6]

In addition to maps, the report also uses charts to illustrate patterns of development and other characteristics along each corridor. Please note that this information is provided for corridor segments, not station areas, to avoid double counting.

Limitations of the Analysis

This report employs quantitative data to evaluate the relationship between new development and land use characteristics along transit corridors; however the analysis itself is qualitative in nature. Many factors can influence the location of new development, including local market conditions, land prices, neighborhood amenities, local land use policies, and the impulses of property owners and developers. To the extent possible, these factors are taken into account and compared across the three corridors, but data limitations preclude an exhaustive analysis of all variables influencing development. Thus, while the report looks specifically at the relationship between certain land use factors and development activity, the findings are not meant to imply causality.

[6] Center for Transit-Oriented Development, *Realizing the Potential: Expanding Housing Opportunities Near Transit*, April 2007. See also Center for Transit-Oriented Development, *Realizing the Potential: One Year Later*, November 2008. Both reports are available at reconnectingamerica.org.

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III. HIAWATHA LINE

MINNEAPOLIS-ST. PAUL REGION, MINNESOTA

Introduction

Opened in 2004, the Hiawatha Line is the first in a series of major planned transit investments in the Minneapolis-St. Paul region. This first segment of light rail runs southeast from downtown Minneapolis to Bloomington, and connects a series of important regional destinations including downtown Minneapolis, the Minneapolis International Airport, and the Mall of America in Bloomington. The line is 12 miles long and includes a total of 19 stations.[7] It runs parallel to Hiawatha Avenue/State Highway 55, with 7 ½ minute headways during peak times. Ridership on the Hiawatha Line has been higher than expected, exceeding 10 million riders in 2008, more than was originally projected for 2020.

Additional major transit projects are planned for the region, including light rail, heavy commuter rail, and bus rapid transit (Figure 3-1).[8] The Northstar commuter rail line opened in 2009, stretching 40 miles northwest from downtown Minneapolis to Big Lake. A second light rail line is under construction, the Central Corridor, which will connect downtown Minneapolis, downtown St. Paul, and the University of Minnesota campus.

Land Use and Development Patterns

The Hiawatha Line connects multiple destinations, running from downtown Minneapolis past the Hubert H. Humphrey Metrodome, the Veterans Administration Medical Center, the Minneapolis-St. Paul International Airport, and retail and office centers in the City of Bloomington, including the Mall of America (see Figure 3-2). It also travels through a mix of industrial and residential neighborhoods along the way. Between the Franklin Avenue and 46th Street Stations the light rail runs along Hiawatha Avenue, a four lane arterial bordered by a combination of active industrial uses and vacant brownfield properties to the east. These uses pose significant access challenges for the residential neighborhoods further west.[9]

Proximity to Downtown and Other Employment Centers

Approximately 6.7 million square feet of development occurred along the Hiawatha line between 2003 and 2009 (see Figure 3-3). Most was concentrated near the north end of the line, with about 72 percent in downtown Minneapolis. This downtown development was in part related to longer-term efforts to revitalize the riverfront and warehouse districts. Momentum was building for new development in the downtown for some time, the result of significant revitalization efforts aimed at introducing additional housing, retail, entertainment and cultural amenities to the downtown. Changing consumer preferences favoring higher-density residential buildings in areas with urban amenities are also credited with having a major impact on recent development in and around the downtown.

[7] Note: this includes two additional stops completed in late 2009, Target Field in downtown Minneapolis, and the America Boulevard station in Bloomington. For the sake of simplicity, these two stations were not included in this analysis.

[8] Due to the large number of maps and charts, all are provided at the end of each section. Charts show data for corridor segments, not station areas, to prevent double counting.

[9] This topic, and its relation to the impact on single-family property values, is discussed in great detail in an excellent new report produced by the Center for Transportation Studies at the University of Minnesota: Edward G. Goetz, Kate Ko, et. al., *The Hiawatha Line: Impacts on Land Use and Residential Housing Value,* University of Minnesota Center for Transportation Studies, February 2010.

A few projects have also been built in Minneapolis neighborhoods outside the downtown, most notably near the Franklin Avenue, Lake Street, 38th Street and 46th Street stations. The Fort Snelling, Lindbergh Terminal and Humphrey Terminal have virtually no development opportunity sites; however the airport is a very important destination (and origin) for ridership on the line. Overall, there is a strong relationship between the location of jobs and new residential development.

Vacant and Underutilized Properties

Of the three new transit lines considered in this report, the Hiawatha line had the least vacant or underutilized property along the line.[10] As shown in Figure 3-4, most parts of the corridor had a limited number of properties classified as either vacant or underutilized, in part because of a high percentage of civic and institutional uses, including the airport. The areas with the greatest development potential were at the beginning and end of the line, in downtown Minneapolis and Bloomington. These areas also saw the greatest proportion of new development. Of the two areas, Bloomington offered the greatest extent of opportunity, but the greater strength of the downtown Minneapolis market resulted in more development at the other end of the line.

Block Sizes

Overall, there is only a limited relationship between block size and the location of new development. The station areas with the smallest block sizes are generally within the City of Minneapolis, both in the downtown and in neighborhoods along the line (see Figure 3-5). However, there were also some larger blocks in the downtown and Bloomington that offered opportunities for larger-scale development.

Transit Connectivity

The station areas with the greatest transit connectivity according to CNT's Transit Connectivity Index are in downtown Minneapolis, downtown-adjacent neighborhoods, and in Bloomington at the Mall of America stop (Figure 3-6). The stations from Lake Street to 50th Street/Minnehaha Park offer moderate connectivity. In general, areas with greater connectivity appear to have experienced more development; however this is strongly related to the fact that most of the development occurred in downtown Minneapolis.

Station Area Incomes

No clear relationship exists between the average income levels in the station areas and the location of recent development (see Figure 3-7). The areas with the highest incomes as of 2000 were the neighborhoods near the 46th Street and 50th Street/Minnehaha Park stations, and in Bloomington (80 percent or greater than the regional median). The downtown area, which saw most of the development activity, had incomes ranging from 30 to 80 percent of the median for the region in 2000; however, at this time the downtown had only a limited number of residents. Cedar-Riverside, (the station area with the lowest household incomes), experienced very little development, despite its location adjacent to the downtown; this, however, is likely attributable to the station's position adjacent to freeways on two sides, which significantly limits both station accessibility and the amount of developable land.

[10] The measure used to identify vacant and underutilized properties is defined in the Methodology section of the Introduction chapter of this report.

The Ivy, Downtown Minneapolis
The Ivy Tower project includes restoration of a historic building and development of 89 condo residential units, a 131 room hotel, retail space, 156 underground parking spaces, and skyway connections.
Source: City of Minneapolis

250 Park Avenue South, Minneapolis
Adaptive Reuse Condominium project
Near Downtown East/Metrodome Station
Source: minneapolisloftsandcondos.com

Corridor Flats Condominiums
Hi-Lake Station, Minneapolis
Source: minnesotaloftsandcondos.com

Reflections Condominiums (when under construction)
High-rise condominium project near Bloomington Central Station
Source: Metropolitan Council

Hiawatha Commons
Mixed-income rental project near Hi-Lake Station.
Source: City of Minneapolis

Development Activity

The vast majority – about 86 percent – of the new development that has occurred along the Hiawatha line has been residential. This is in large part a reflection of national market conditions in the early to mid- 2000's, which strongly favored residential development. It also makes sense that the light rail would help to promote new residential development, because the transit line offers access convenient access to multiple employment destinations. Several projects along the Hiawatha Line were marketed using the new transit line, including Franklin Station Townhomes, Corridor Flats at the Hi-Lake Station, and Bloomington Central Station.

The Minneapolis neighborhoods along the middle section of the line (from Franklin Avenue to 38th Street) benefited from a number of community-based initiatives underway prior to the construction of the line, some related to revitalization of commercial corridors, most notably Lake Street. The City has had a strong public policy focus on commercial corridor development, which was also an important impetus for development. Many of the recent development projects in these neighborhoods are affordable or mixed-income residential projects led by local non-profit organizations. While these projects were not initiated by the light rail, they arguably became stronger projects because of the improved transit connections provided by the new light rail line. However, some local developers also report that in other cases, the new light rail resulted in higher asking prices for properties near transit, which ultimately limited development activity.

The largest development opportunity site along the Hiawatha line is in Bloomington, near the Bloomington Central Station. A single property owner is in the process of redeveloping a 43-acre site formerly occupied by the Control Data Corporation, along with two adjacent properties. The property currently includes the offices of Health Partners, a national health care organization, which is partnering with the developer, McGough Companies. The project is expected to build out over 10 to 15 years, and began with a first phase consisting of two 17-story condominium towers (Reflections at Bloomington Central Station), which opened in 2006. These condominium towers took many years to sell out, but have reportedly been very popular with empty nesters and second homeowners who value the transit, including accessibility to the airport. Bloomington Central Station is ultimately planned to include a mix of housing, offices, hotel and retail, in an "urban village" setting. Much of the site currently consists of surface parking for the office tenants, and the phased redevelopment of the property will require a shift to a district-based parking strategy with a series of structured lots, as well as new streets, streetscape and a park. The project has gained a significant amount of support from the City, which has agreed to assist the project with tax increment financing. However, the development is currently on hold due to poor real estate market conditions.

A representative from McGough noted that the transit was not originally considered to be a major amenity for the project, but that after visiting a number of TOD projects across the country, the developer decided to design the project to maximize the benefit of the location near transit. He also noted that while there does not seem to be a significant price premium for the condominium units due to the location near transit, the presence of the Hiawatha Line is a key factor in their ability to sell units.

An excellent study of development impacts of the Hiawatha Line was recently completed by the Center for Transportation Studies at the University of Minneapolis.[11] The authors evaluated property value impacts, residential building permit activity, and changes in land use patterns for properties within ¼-mile of the new stations south of downtown and north of Fort Snelling. The study found that the LRT had a significant positive impact on property values, limited to the west side of the line. On the east side of the line, residential neighborhoods were cut off from the stations by major industrial uses and a four-lane arterial. The study also found that, measured by the percentage of parcels on which building

[11] Goetz, Edward G., et al. "The Hiawatha Line: Impacts on Land Use and Residential Housing Value." Minneapolis: Center for Transportation Studies, University of Minnesota, 2010.

permits were issued, there was not a significantly greater amount of development activity inside the station areas than in the surrounding neighborhoods. However, they found that the total *value* of the development activity near transit was significantly higher, suggesting that new residential projects near transit tended to be larger in scale. The authors estimate that residential property values increased by $47 million in the segment of the corridor studied.

Role of the Public Sector

The City of Minneapolis engaged in a variety of planning efforts along the Hiawatha line, as shown in Figure 3-14. In 2001, soon after the FTA approved the Full Funding Agreement for the line, a development moratorium was briefly established for neighborhoods along the line that did not already have neighborhood plans in effect. Station area plans were completed for Lake Station, 46th Street Station, and Franklin and Cedar-Riverside stations in 2001; a similar plan was completed for the 38th Street Station area in 2006 and a follow-up plan was completed for the Cedar-Riverside station area in 2008. A planning effort that encompassed several station areas in downtown Minneapolis was completed in 2003. This plan (the Downtown East-North Loop Neighborhood Master Plan) focused on development opportunities near proposed rail transit stations.

The station area plans established a vision for each station area and identified implementation needs. Planning processes were reportedly more intensive than expected, with a need to educate stakeholders who had a wide range of expectations about the impact of transit and development. The plans identified areas of change and areas of preservation, as a way to provide reassurance for neighborhood residents and business owners. Over time, the planning reportedly grew more sophisticated and the stakeholders grew more comfortable with TOD concepts. As a result, later plans in neighborhoods along the line were more likely to allow for more intensive development.

In 2004 and 2005, these station area plans were incorporated into the citywide comprehensive plan. In the meantime, the City used Pedestrian Overlay Districts to restrict auto-oriented uses and require pedestrian-oriented design features. Zoning changes began in 2006, and are still underway. While there are no examples of TOD projects that were unable to proceed due to delays, there are reportedly some cases where low-intensity, auto-oriented uses were developed on sites that would have ideally been built with more intensive uses.

As mentioned previously, the City of Minneapolis had long been engaged in efforts to redevelop its riverfront district, including significant investment in parks, improved riverfront access, and other public infrastructure. The fruits of these efforts coincided with the introduction of the light rail and a strong market for residential development in and around the downtown. The downtown has also seen a significant amount of new cultural and entertainment uses, such as the Guthrie Theater and Mill City Museum in the riverfront Mill District.

Outside of the downtown, Minneapolis had less impetus to take a proactive role in implementation because of the limited number of opportunity sites and publicly owned properties, as well as scarce resources. Development in the Minneapolis neighborhoods along the Hiawatha line was challenged in several ways, including relatively small and scattered opportunity sites, a need for improved pedestrian connections in the areas surrounding the new stations, and limited nearby neighborhood amenities such as parks or retail. Bicycle and pedestrian plans were developed for the station areas that identified the need for sidewalks, streetscape and pedestrian bridges, however there were no immediate sources of funding identified for these improvements and in most cases they are yet to be implemented.

Beyond planning efforts and assistance for affordable housing projects, Minneapolis had limited resources to devote toward pedestrian connections or other neighborhood infrastructure in the neighborhoods. City staff interviewed for this report noted that this is in part due to limitations on available public financing tools. While in theory it is possible to create an assessment district to finance

needed public infrastructure, in practice they are hard to implement due to a lack of support by property owners.

In Bloomington, the City has shown a great deal of support for the Bloomington Central Station project, and is working closely with the developer to assist with financing needed improvements. Because most of the development opportunity is under single ownership, the city did not initiate a station area planning process. The scale of this project means that it will likely be easier to finance public improvements. For example, the limited number of property owners means that it would be easier to implement an assessment district to pay for improvements.

As the region moves forward with the Central Corridor -- the next phase of light rail which will connect downtown Minneapolis to downtown St. Paul -- there is widespread acknowledgement by the two cities and other public agencies that it will be important to find ways to be more proactive and coordinated about public investments along the line. To that end, leadership from the Cities, Counties, the regional planning agency and the state housing finance agency have formed a working group to develop a Central Corridor TOD Investment Framework. This framework will consist of a comprehensive, multi-jurisdictional set of strategies to leverage public investment to attract, shape, and accelerate appropriate TOD investment throughout the Central Corridor. The group is in the process of summarizing key investments necessary to fulfill the visions contained in local community-based plans, and creating a framework for funding strategies and prioritization of specific investments along the Central Corridor.

Key Findings

- **The introduction of the light rail coincided with a strong real estate market and a surge of development activity in the downtown.** Other parts of the line saw less development, in part due to limited development sites and high land price expectations on the part of existing property owners.
- **Most development occurred in areas that had long been the focus of public sector efforts to promote infill development**. The light rail was one of many factors influencing development activity, including changing consumer preferences favoring downtown locations, a strong residential real estate market, and longstanding efforts to revitalize the Minneapolis riverfront area. Similarly, development near the Lake Street and 38th Street stations was influenced by ongoing efforts to revitalize commercial corridors that run through these neighborhoods.
- **The nature of development opportunity sites was a critical factor influencing the type of development that occurred near stations**. Larger sites in high-profile locations in downtown Minneapolis and in Bloomington attracted national and regional developers interested in building larger-scale projects. Smaller infill properties in Minneapolis neighborhoods were developed mostly by local developers and community development corporations (CDCs). Many of these projects included affordable housing, and were an extension of neighborhood-level planning and community efforts.

- **The presence of physical barriers near station areas, combined with an incremental approach to station area improvements and limitations on infrastructure financing tools, resulted in missed opportunities to integrate stations with surrounding neighborhoods.** Public sector investments in neighborhoods are organized around specific development projects, which mean that there is often not a clear path to implementation of neighborhood improvements needed to facilitate access from nearby neighborhoods to the stations. Because many of the stations only had small, fragmented development sites, there was no opportunity to make strategic neighborhood-level improvements. This issue is compounded by limitations on financing tools. Tax increment financing is usually tied to a specific (and substantial) development projects, and assessment districts require a vote of property owners. Nevertheless, the experience along the Hiawatha line has catalyzed a much more proactive, strategic and collaborative approach by public agencies planning for the Central Corridor, the second light rail line that began construction in 2010.

Figure 3-1: Existing and Planned Transit Investments in the Minneapolis - St. Paul Region

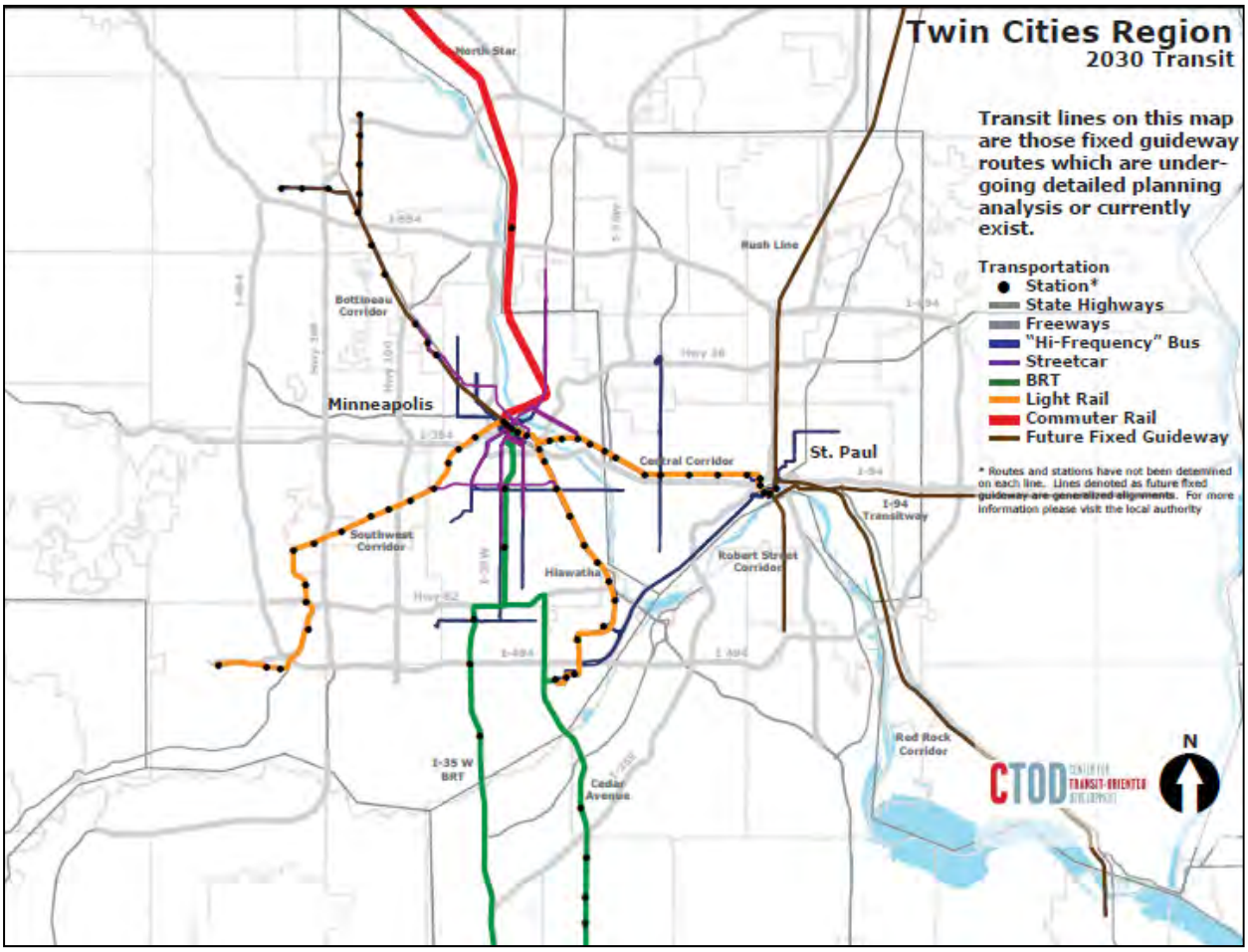
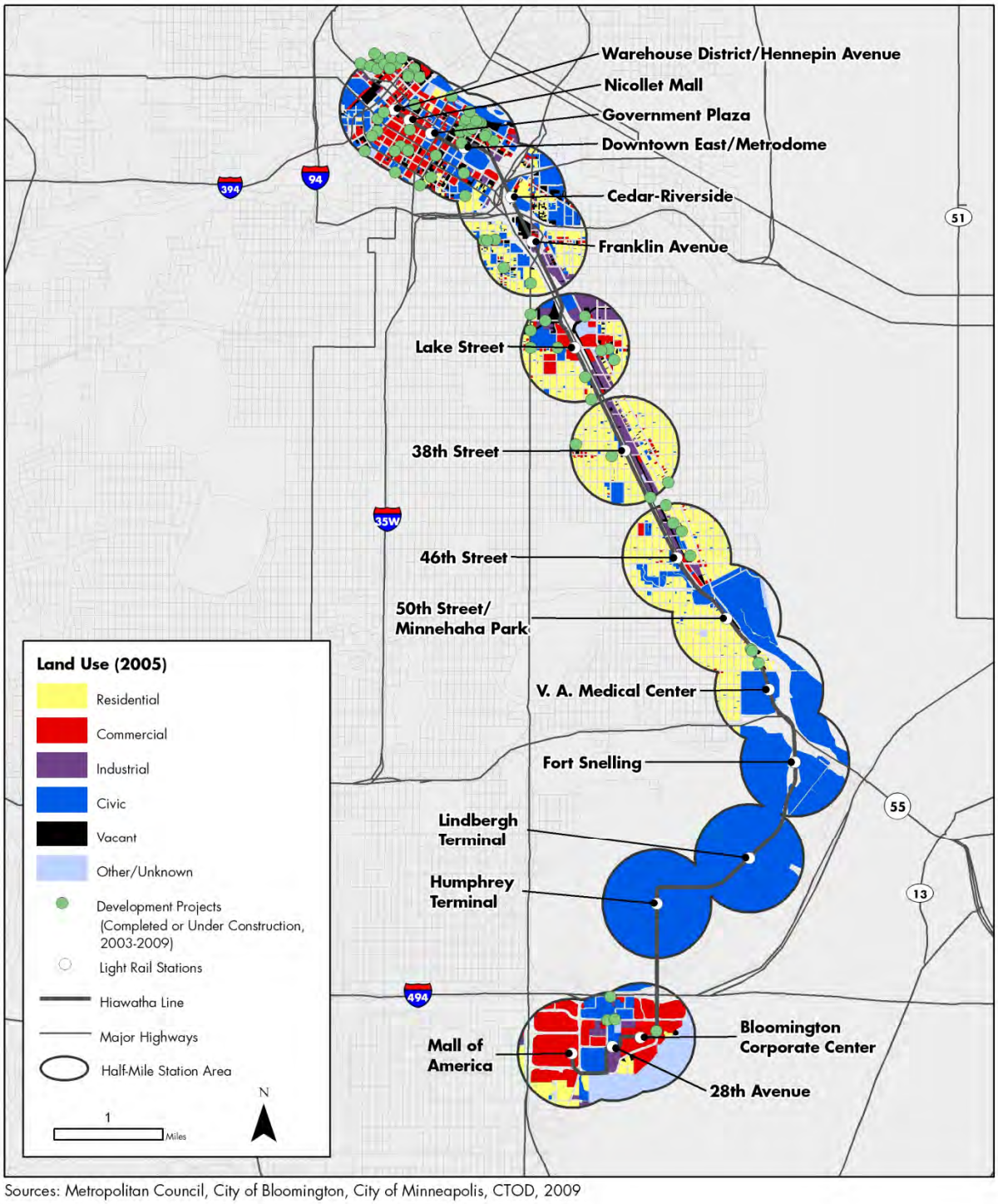
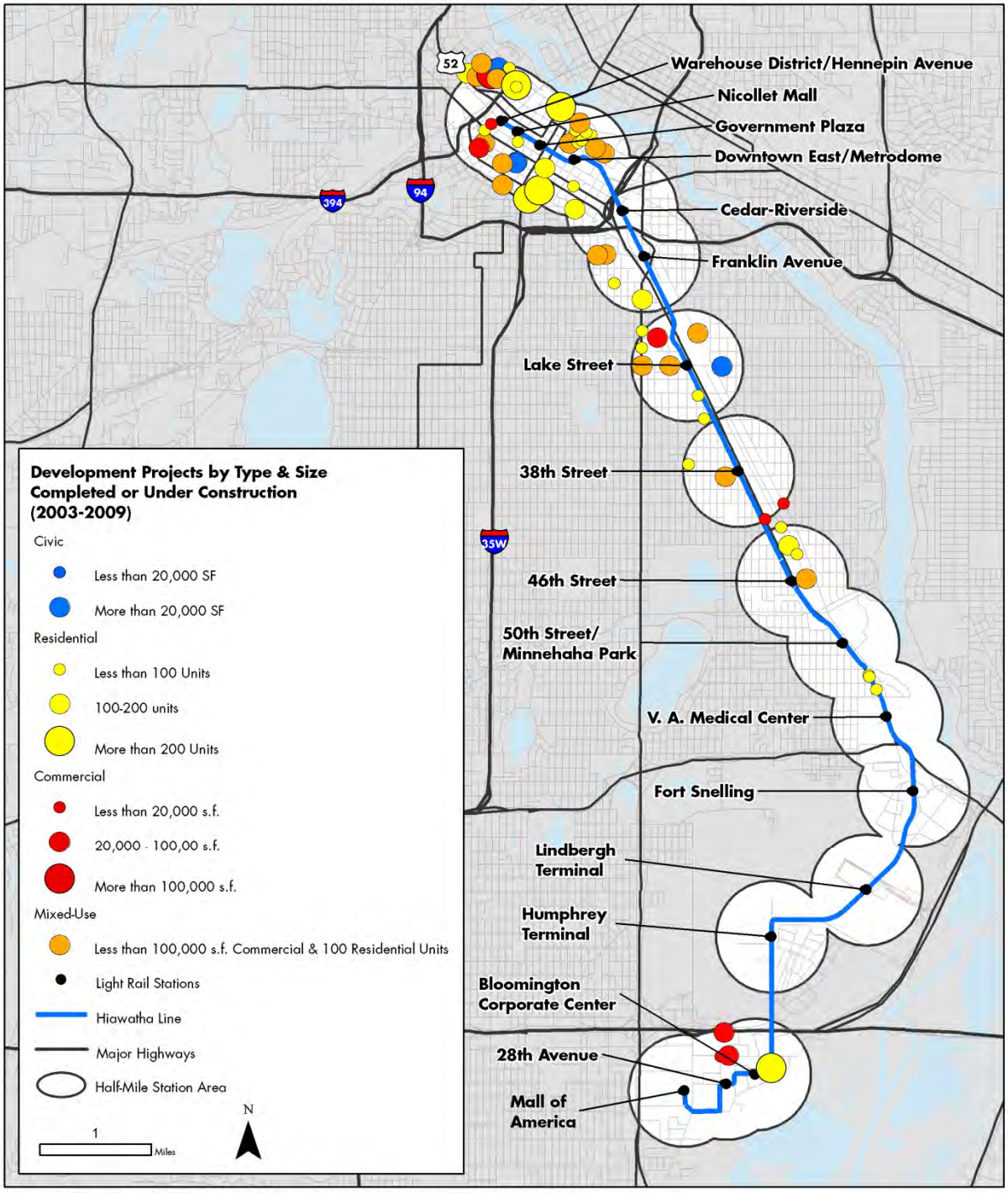


Figure 3-2: Hiawatha Line Land Use Patterns and Recent Development



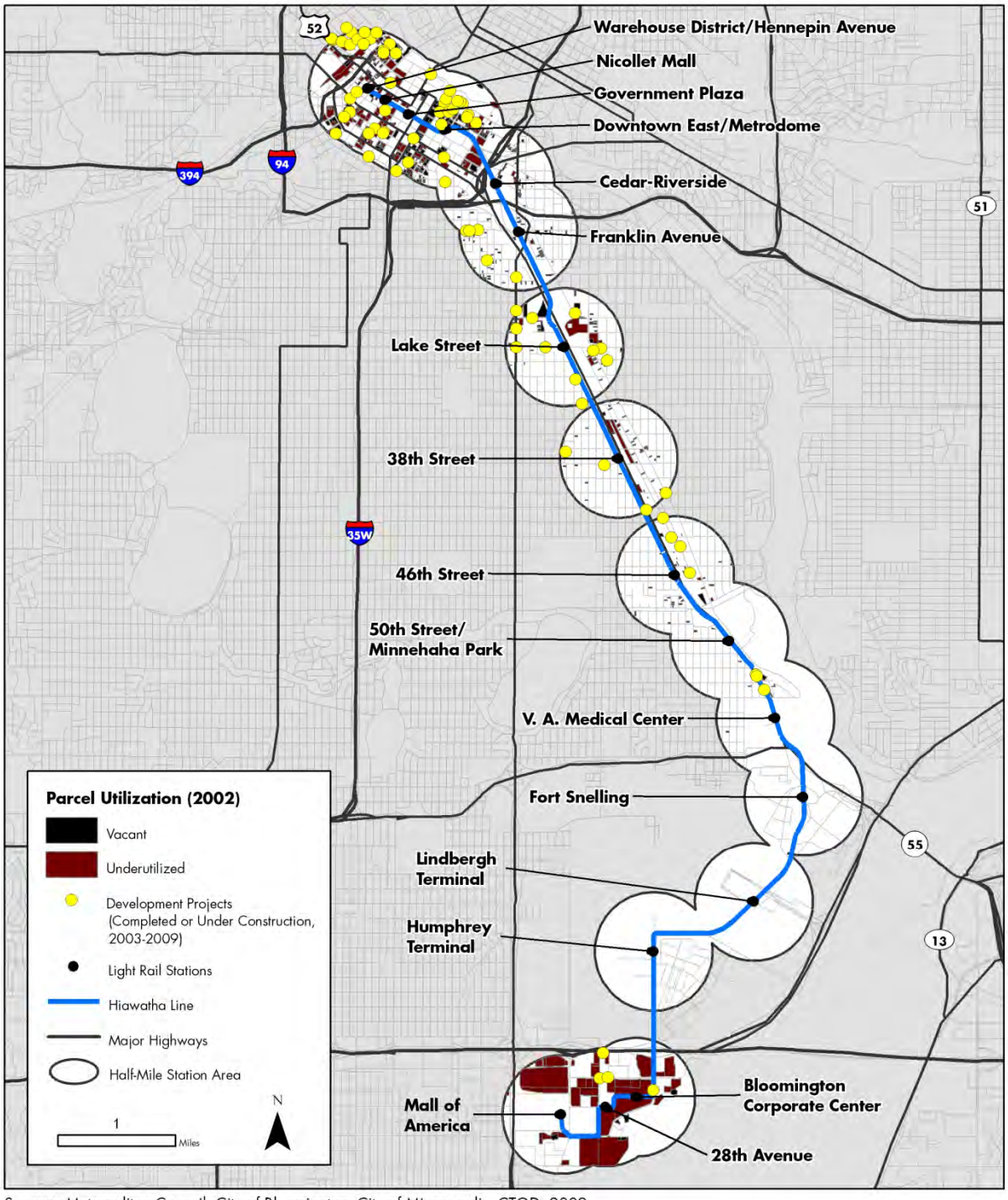
Sources: Metropolitan Council, City of Bloomington, City of Minneapolis, CTOD, 2009

Figure3-3: Hiawatha Line Development, 2003 – 2009



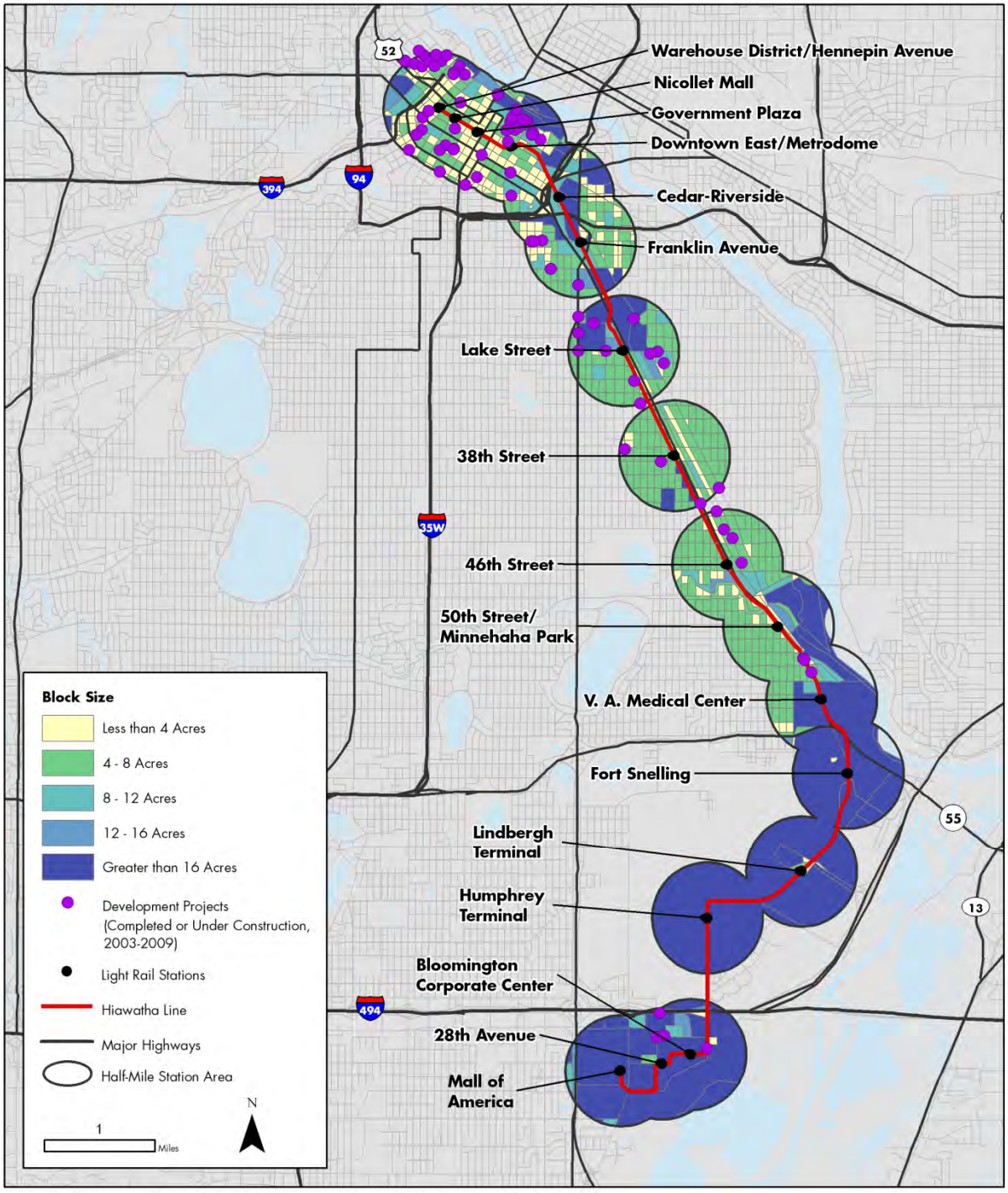
Sources: Metropolitan Council, City of Bloomington, City of Minneapolis, CTOD, 2009

Figure 3-4: Hiawatha Line Underutilized and Vacant Properties



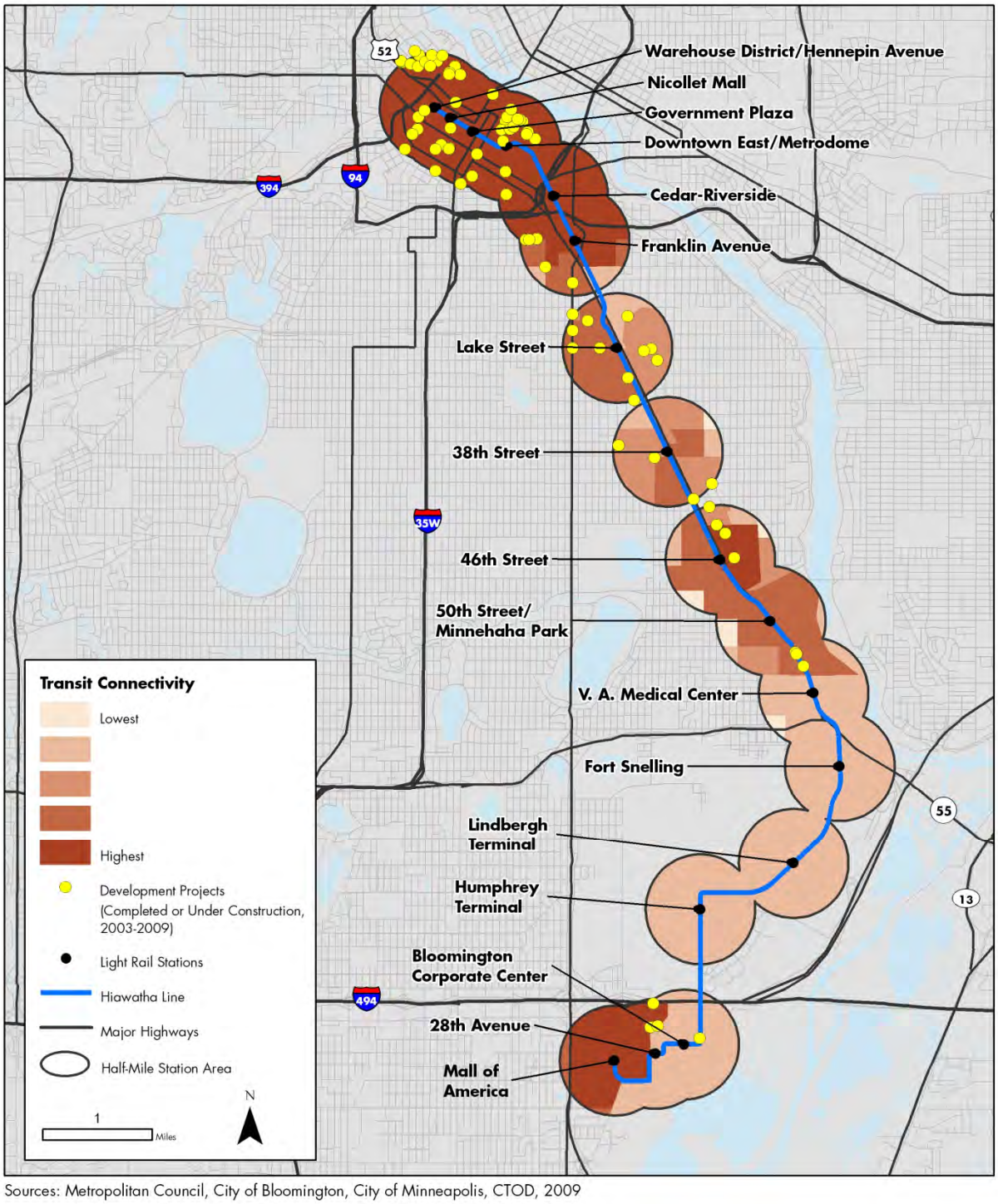
Sources: Metropolitan Council, City of Bloomington, City of Minneapolis, CTOD, 2009

Figure 3-5: Hiawatha Line Development Patterns and Block Size



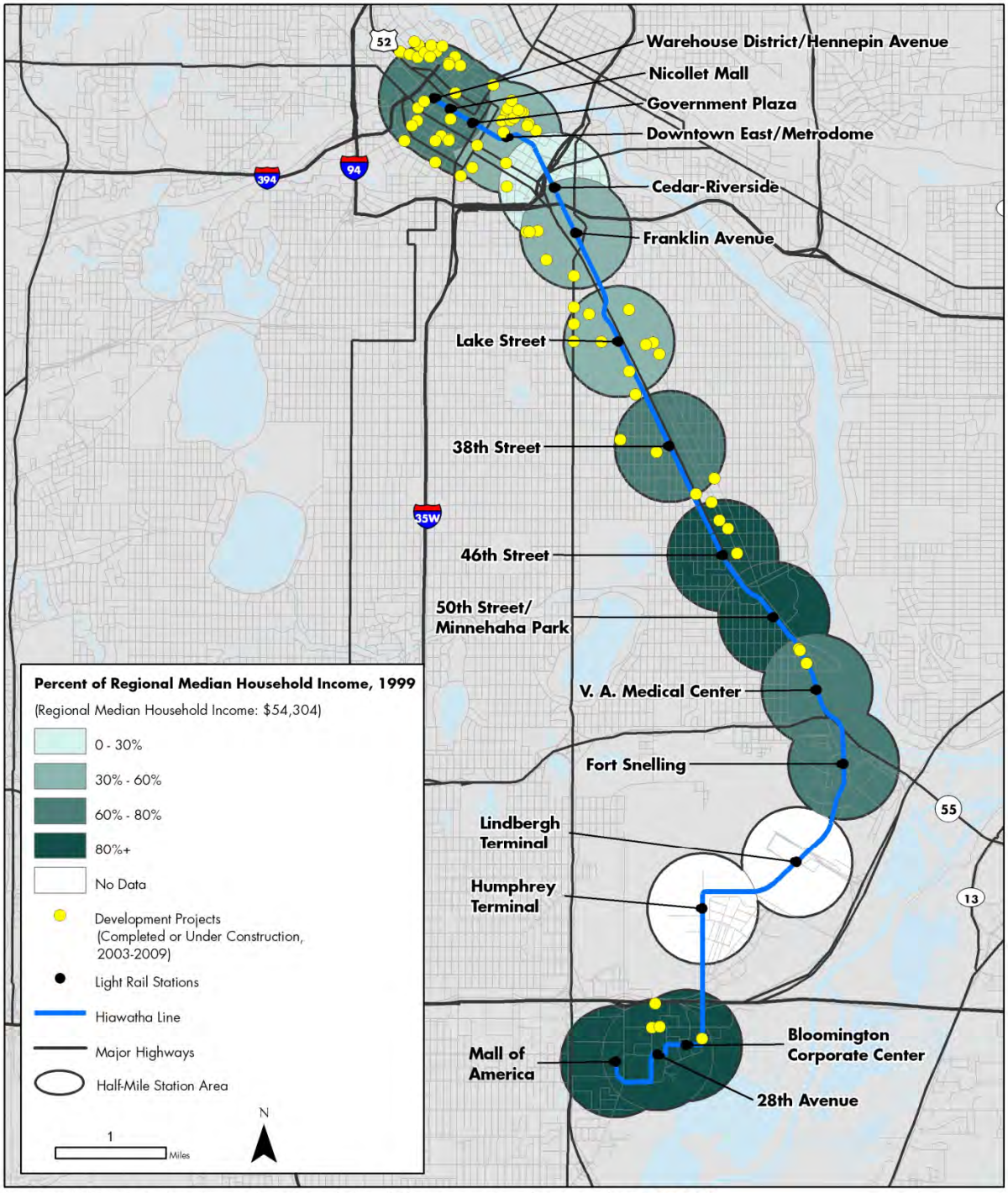
Sources: Metropolitan Council, City of Bloomington, City of Minneapolis, CTOD, 2009

Figure 3-6: Hiawatha Line Development Patterns and Transit Connectivity



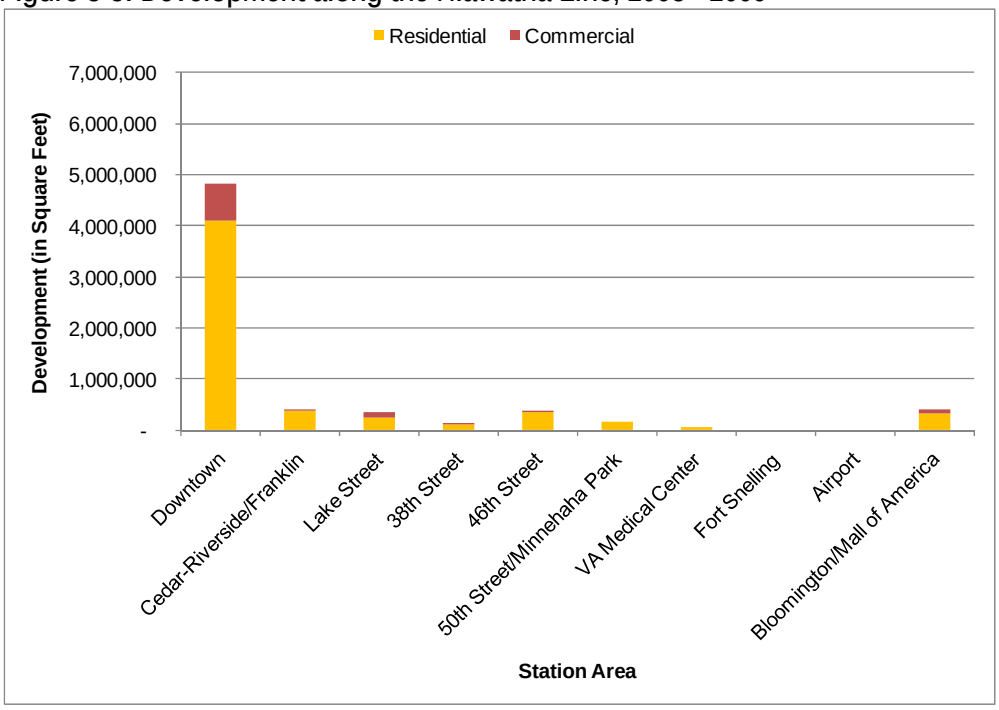
Sources: Metropolitan Council, City of Bloomington, City of Minneapolis, CTOD, 2009

Figure 3-7: Hiawatha Line Development Patterns and Median Household Incomes



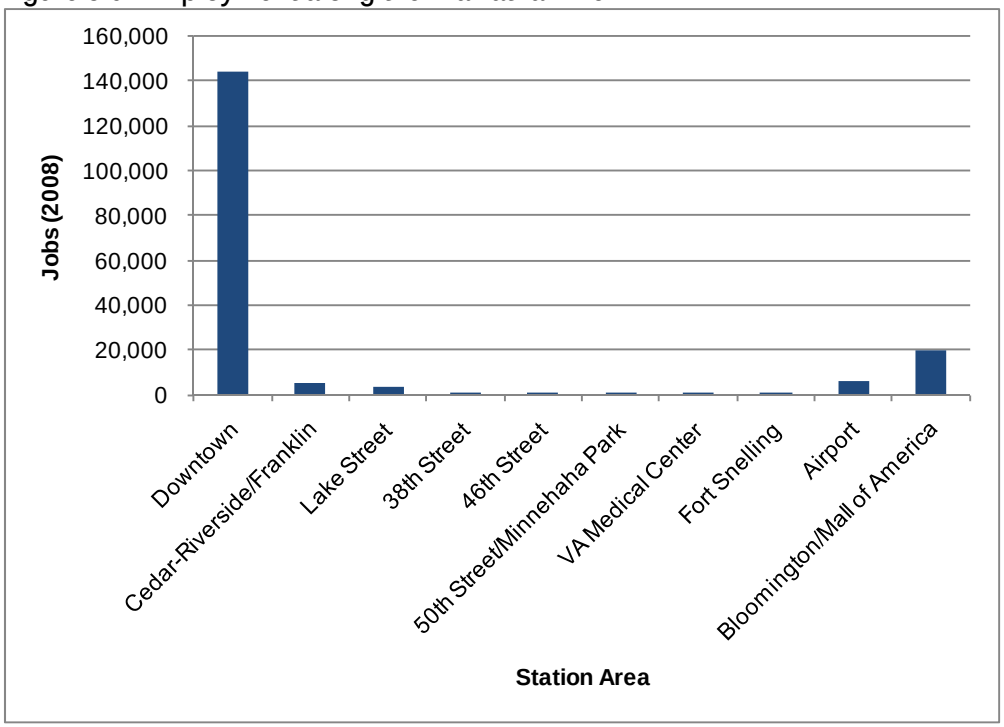
Sources: 2000 U.S. Census; Metropolitan Council, City of Bloomington, City of Minneapolis, CTOD, 2009

Figure 3-8: Development along the Hiawatha Line, 2003 - 2009



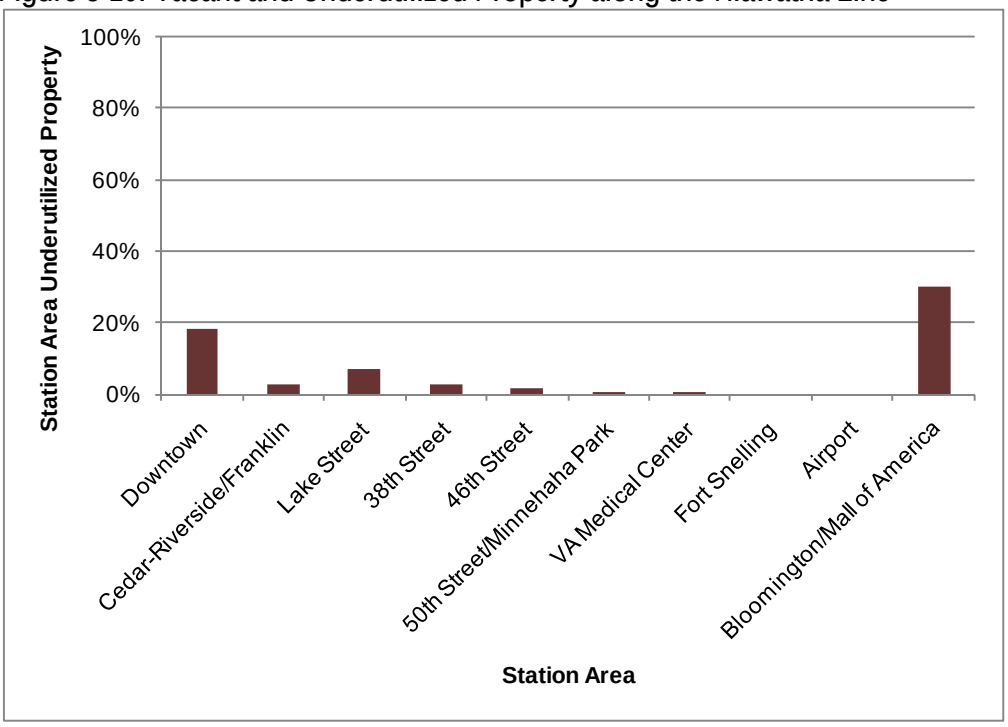
Source: City of Minneapolis, City of Bloomington, Strategic Economics/CTOD.

Figure 3-9: Employment along the Hiawatha Line



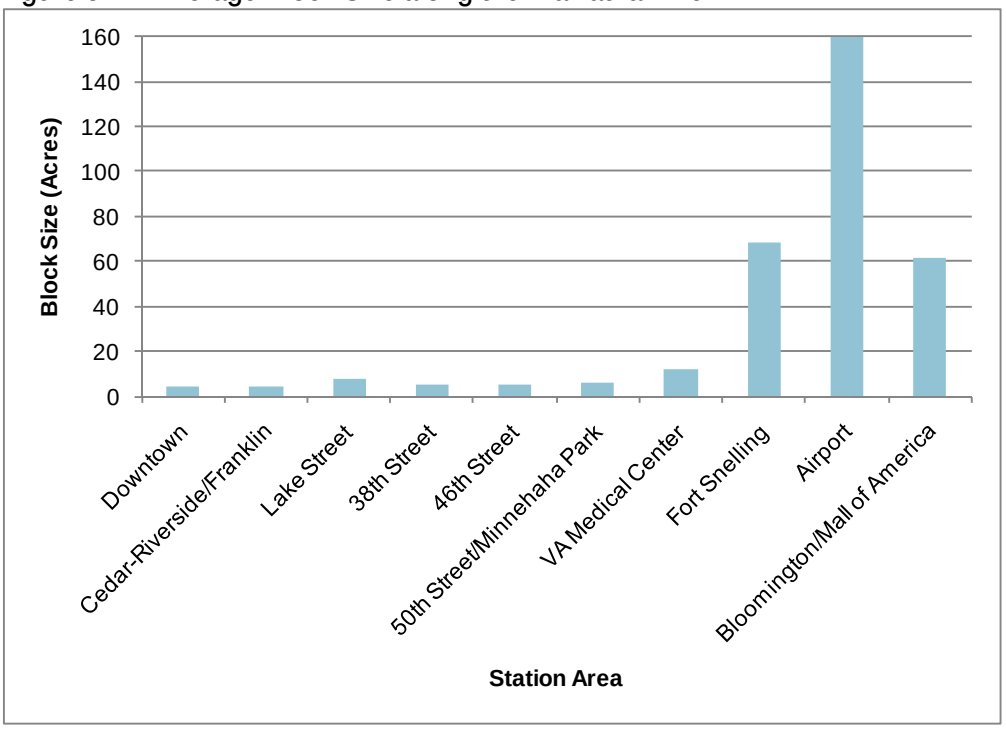
Source: US Census

Figure 3-10: Vacant and Underutilized Property along the Hiawatha Line



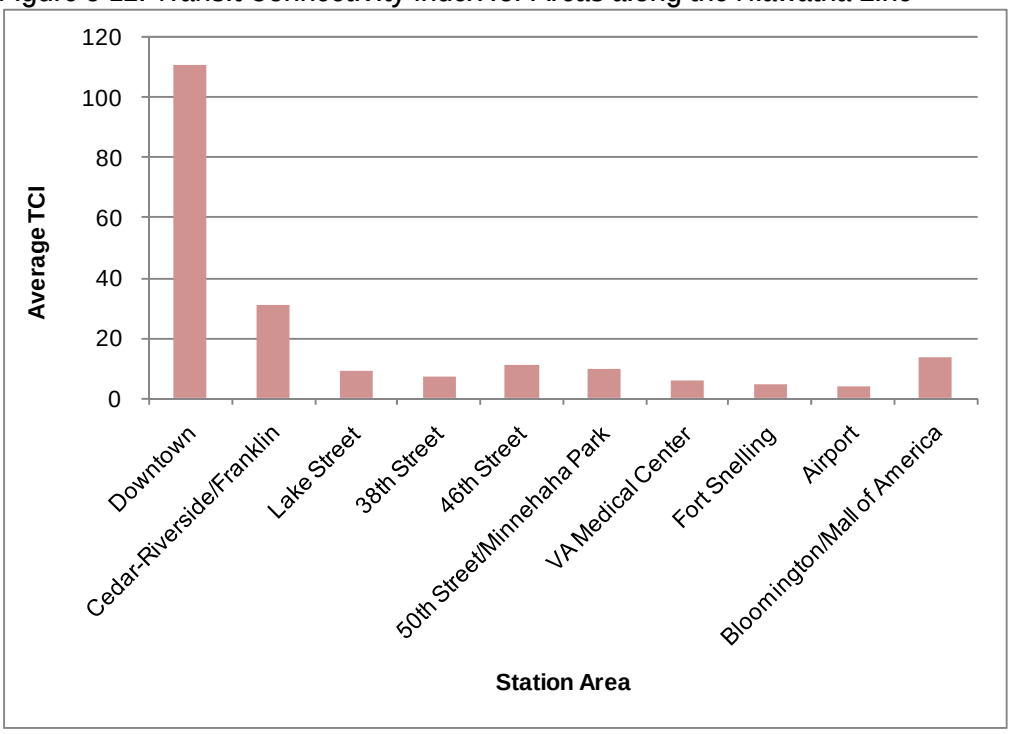
Source: Hennepin County Assessor's Office, 2002

Figure 3-11: Average Block Size along the Hiawatha Line



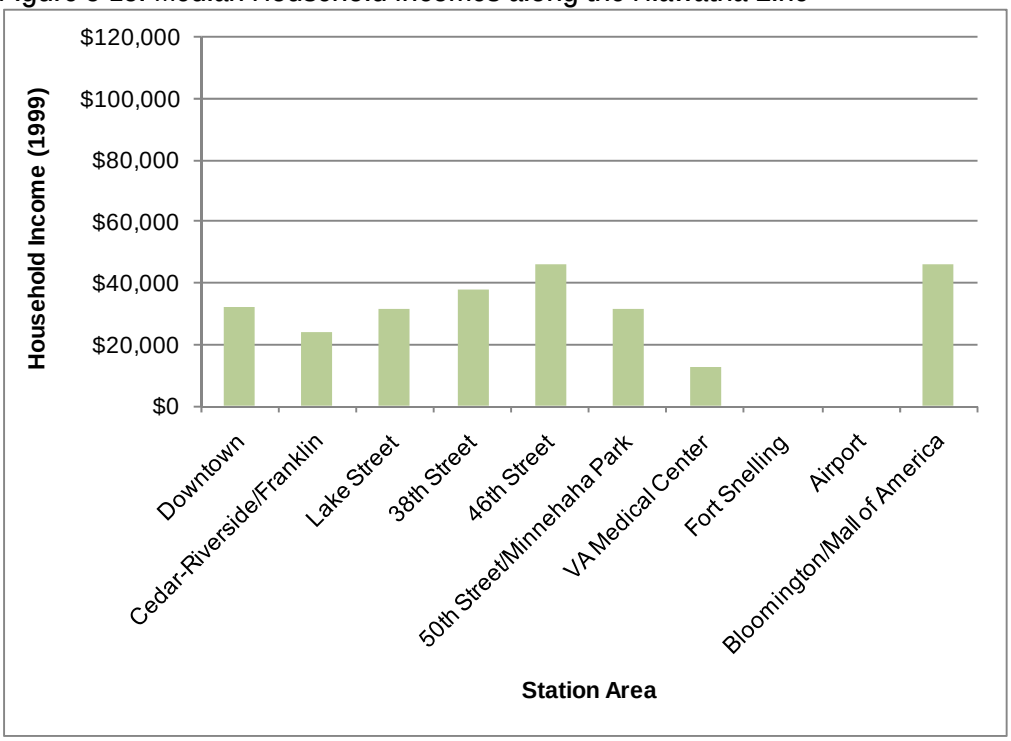
Source: US Census

Figure 3-12: Transit Connectivity Index for Areas along the Hiawatha Line



Source: Center for Neighborhood Technology, Strategic Economics/CTOD.

Figure 3-13: Median Household Incomes along the Hiawatha Line



Source: US Census

Figure 3-14: TOD-Related Planning along the Hiawatha Line

Station Area	Plan	Plan Type	Date Adopted
Warehouse District/Hennepin Avenue	Downtown East-North Loop Neighborhood Master Plan	Neighborhood (Downtown)	2003
	North Loop Small Area Plan	Neighborhood (Downtown)	2010
Nicollet Mall	Downtown East-North Loop Neighborhood Master Plan	Neighborhood (Downtown)	2003
Government Plaza	Update to the Historic Mills District Master Plan	Neighborhood (Downtown)	2001
	Downtown East-North Loop Neighborhood Master Plan	Neighborhood (Downtown)	2003
Downtown East/Metrodome	Update to the Historic Mills District Master Plan	Neighborhood (Downtown)	2001
	Elliot Park Neighborhood Master Plan	Neighborhood	2003
	Downtown East-North Loop Neighborhood Master Plan	Neighborhood (Downtown)	2003
Cedar-Riverside	Franklin/Cedar-Riverside TOD Master Plan	Station Area/TOD	2001
	Cedar-Riverside Small Area Plan	Neighborhood	2008
Franklin Avenue	Franklin/Cedar-Riverside TOD Master Plan	Station Area/TOD	2001
Lake Street	Hiawatha/Lake Station Area Master Plan	Station Area/TOD	2001
	Corcoran Midtown Revivial Plan	Neighborhood	2002
	Seward Longfellow Greenway Area Plan	Corridor-Based	2007
39th Street	38th Street Station Area Plan	Station Area/TOD	2006
46th Street	46th and Hiawatha Station Area Master Plan	Station Area/TOD	2001
50th Street/Minnehaha Park	Nokomis East Station Area Plan	Station Area/TOD	2007
V.A. Medical Center	Nokomis East Station Area Plan	Station Area/TOD	2007
Fort Snelling	N/A	-	-
Lindbergh Terminal	N/A	-	-
Humphrey Terminal	N/A	-	-
Bloomington Corporate Center	N/A	-	-
28th Avenue	N/A	-	-
Mall of America	N/A	-	-

Note: little to no development opportunity exists at the Fort Snelling, Lindbergh Terminal and Humphrey Terminal stations.
Source: local jurisdictions.

IV. SOUTHEAST CORRIDOR
DENVER REGION, COLORADO

Introduction

The Southeast Corridor, which opened in 2006, is the most recently opened line in Denver's rapidly expanding light rail system. The corridor is 19 miles long and extends from central Denver through Greenwood Village, Centennial, Arapahoe County, Lone Tree, and unincorporated Douglas County. The tracks run along or adjacent to Interstate 25 (I-25) for most of the line. The line serves the Southeast Business District, which includes the Denver Technology Center, Greenwood Village, Inverness, Meridian, and the City of Centennial.

While the Southeast Corridor does not include downtown Denver, riders can, without transferring, continue onto the Central Corridor, which provides service to the downtown. More than 180,000 people work in downtown Denver or the Southeast Business District, while another 30,000 work at intermediate points along the corridor.[12] With major employment destinations at each end, the corridor supports bi-directional commute flows and fosters linkages between the business services located downtown and the "high tech" industries located further south along the corridor. In addition, the corridor serves as an "amenity-extender", providing access to the cultural and entertainment resources of central Denver to its southeast suburbs.

The Southeast Corridor was the third expansion of Denver's light rail since 2000, during which the system grew from 11 stations over 5.3 miles of track to 34 stations over 35 miles of track. The Southeast corridor light rail was constructed as a part of the T-REX project, which also included widening of I-25. Future expansions in the system will be undertaken as a part of the FasTracks program over the course of 15 years, funded through a regional sales tax measure. The sales tax revenues will fund the construction of seven additional transit lines (four commuter rail, two light rail, and one bus rapid transit), as well as extensions of three existing lines. This $6.5 billion regional infrastructure investment is expected to occur over twelve years (see Figure 4-1). While the system is currently underfunded, at build out FasTracks would add approximately sixty new stations to the rapid transit system in Denver.

The FasTracks ballot measure gathered political support, in part, based on two arguments: (1) that the region needs transportation alternatives to diminish congestion and remain economically competitive; and (2) to shape future growth around walkable, mixed-use neighborhoods served by transit. New construction planned as a part of FasTracks will include an additional 2.3 mile extension of the Southeast Corridor to the south, along I-25.

Land Use and Development Patterns

The Southeast Corridor closely parallels I-25, the highway that has long linked some of the most affluent communities in the Denver metro area to downtown and provided access to a major suburban employment center. As a result, the market for new housing and office space was already strong in the area surrounding the Southeast Corridor prior to the introduction of transit, and the fact that the transit runs along I-25 makes it challenging to distinguish the impact of the light rail from the highway. The

[12] "T-Rex Transit Oriented Development Lessons Learned Report," Regional Transportation District, 2007. Estimates from the Denver Regional Council of Governments (DRCOG); additional 30,000 jobs includes businesses along Colorado Boulevard, Evans Avenue, and University Boulevard.

announcement and construction of the Southeast Corridor coincided with a boom in development within the station areas, with an estimated 7.8 million square feet of new construction between 2004 and 2009 (Figure 4-8).

Prior to the construction of the Southeast Corridor, most of the station areas along the future line were dominated by single land uses. From Bellevue, southward, commercial uses occupied the majority of land area. Belleview, Orchard, and Arapahoe at Village Center stations serve the Denver Technology Center, a robust suburban-style office complex first established in 1962. Commercial development in these station areas has historically been oriented toward the highway, with relatively low density development, large parking lots, and high open space requirements. Over the past 40 years, the success of the Denver Technology Center spurred similar office development further south along the Southeast Corridor, leading to similar land use patterns at Dry Creek and County Line stations. As if 2004, there was limited commercial development as far south as Lincoln station, though this area was largely occupied by vacant land and open space.

In 2004, the station areas north of Belleview Station were primarily in residential use, with increasingly dense, urban street grids moving northward.[13] The area around I-25/Broadway also included a large vacant industrial property, while the Colorado station area included a large amount of auto-oriented office, retail, and entertainment space. From 2004 to 2009, these residential areas hosted a considerable amount of development, mostly housing. Over this period, however, the majority of new development occurred further along the corridor, in the areas adjacent to the Denver Tech Center and in the burgeoning employment centers further south. While these areas saw a significant amount of additional office construction, 68 percent was new residential development. Consequently, the most significant land use changes came in the previously office-dominated station areas, which increased in intensity and became more mixed-use in character.

Proximity to Downtown and Other Employment Centers

In stark contrast to the other two corridors studied in this paper, the most substantial amount of development along the Southeast Corridor occurred far from downtown. However, development did cluster around the region's other major employment center, in the six southernmost stations that serve the Denver Tech Center (see Figures 4-8, 4-9 and 4-10). Because much of the new development was residential in nature, the result was that each of these station areas grew to include a more diverse mix of land uses, where it is now possible to both live and work. It is likely that the introduction of the new light rail, in combination with national and regional economic conditions, helped change the perception of these highway-adjacent areas as ones that primarily serve as job centers, to ones that would also be attractive to potential residents. The light rail helped to make the amenities of downtown more accessible to those who live and work along the I-25 corridor, further enhancing the appeal of the area for residential uses.

Vacant and Underutilized Properties

Running through suburban-style office parks and recently-converted agricultural land, the station areas on the Southeast Corridor consist mainly of large parcels, many of which were vacant or offered potential for redevelopment or intensification. This is especially true of the station areas in Douglas and Arapahoe Counties: in 2004, almost the entirety of County Line and Lincoln stations were composed of such parcels. This pattern provided opportunities for large-scale development (Figure 4-4). In fact, the pattern of recent major development seems to be more closely related to the availability of "opportunity sites" than proximity to existing activity centers. The vast majority of major new

[13] Note: 2004 land use data for station areas within the City of Denver was not available, and maps show 2009 data. However, most of this central area was already developed before the transit was built.

development along the Southeast corridor (including major projects at I-25/Broadway, Lincoln, Belleview, and Dry Creek) has occurred on very large parcels that were vacant in 2004.

Block Sizes

While the five station areas on the northern end of the corridor have urban grids with average block sizes of less than ten acres, station areas south of Yale Station are primarily composed of superblocks typical of suburban-style office development. Most of the new development that has occurred in the Southeast Corridor has been in these areas with larger block sizes (see Figure 4-5).

Transit Connectivity

Transit connectivity in the Southeast Corridor is relatively limited, beyond the light rail corridor itself. Running exclusively through lower-density suburban areas, there is little high-frequency bus service connecting riders to the light rail stations. With little variability, there is also little association between the amount of transit service in the station areas and the amount of recent development (Figure 4-6). This suggests that, to the extent that transit influenced development it has primarily been as a means of accessing central Denver, and not as a means of travel throughout the surrounding area.

Station Area Incomes

The southern portion of the Southeast Corridor runs near some of the wealthiest neighborhoods in the Denver metropolitan area. These strong residential markets helped to attract new residential development to nearby station areas, in particular at Dry Creek and Belleview stations. However, the station area with the next largest increment of new housing was I-25/Broadway, the area that had by far the lowest median household income in the corridor. As a result, there is not a consistent relationship overall between the location of new development and household incomes (Figure 4-7).

Other Physical Factors Influencing Development

The majority of the Southeast Corridor is constructed in the I-25 right-of-way. While freeway adjacency provides increased accessibility to the area, it also poses major barriers to TOD. The exhaust and noise of the freeway limit the building forms and land uses of parcels that abut I-25 and the stations. New projects are often built in a way intended to mitigate these effects, forming visual and physical barriers between the freeway and nearby areas; unfortunately, because the stations are also next to the freeway, these also form barriers to transit. Pedestrian bridges have been constructed to enhance access to the stations from both sides of the freeway, but the presence of the highway limits the amount of land that is truly transit-accessible. Finally, the excellent automobile access provided by the highway encourages driving and necessitates the provision of a large amount of parking, which limits both development density and the potential for a vibrant pedestrian-scaled environment.

Development Activity

From 2004 to 2009, housing prices were nearly flat in the Denver region; however development along the Southeast Corridor was buoyed by the one of the strongest office markets in the region. As a whole, employment in the Denver metro area grew by 83,700 jobs (a seven percent increase) from 2004 to 2008, and much of this growth was focused in and near the Denver Technology Center. This growth in employment also helped fuel an increase in demand for housing in the area. The strong match between the high income of households (Figure 4-14) and the white collar jobs offered by employers in the Tech Center has helped to concentrate demand into the neighborhoods that are served by the Southeast Corridor.

Large opportunity sites and a relatively strong market helped attract the attention of developers from outside of the region. Several interviewees indicated that the presence of TOD-related opportunities helped to attract capital investment for development projects.

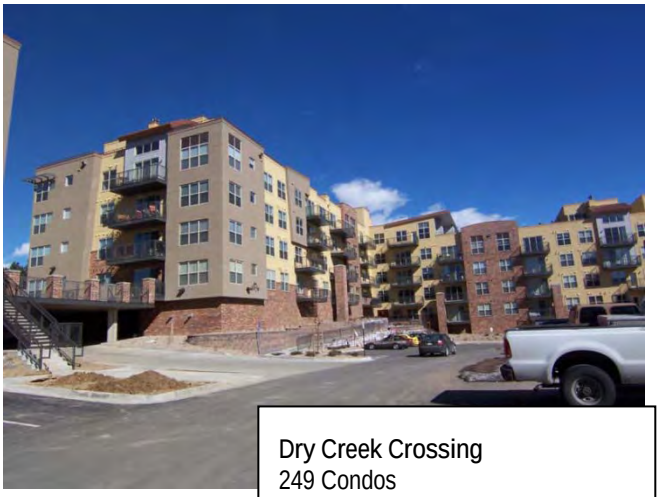
Housing construction along the Southeast Corridor fluctuated between 2000 and 2009, with a significant amount of new residential development completed in 2006 (the year the line opened) and the years immediately following (Figure 4-8). As of late 2009, there were also a considerable number of units under construction. A major increment of new retail and office space also was completed in 2007 and 2008. In these two years, six major projects with at least 100,000 square feet of commercial space opened within Southeast Corridor station areas.

The size of new residential projects along the corridor varied greatly. The single largest project was the Alexan Broadway (460 apartments with 16,000 square feet of retail), near the I-25 Station. This project was the first phase in the redevelopment of the 50-acre former Gates Rubber Plant, where 2,400 residential units are planned at build-out. Most projects in the northern stations of the corridor, which tend to be more urban in character, had fewer than 40 units. Examples include University Lofts (35 apartments at University Station) and Louisiana Station Lofts (29 condos at Louisiana-Pearl Station). Projects further south along the corridor tended to be larger, including the Villagio South (385 single family homes, townhomes and condos at Dry Creek Station) and Denver Tech Center III (397 apartments at Belleview Station).

In terms of scale and form, however, projects were similar throughout the corridor, composed chiefly of three to five story apartment and condominium complexes, which can be built using less expensive wood-frame construction. Only a small number of projects, such as the Villagio South and the Landmark (which includes a twelve story building) varied from this format. Despite these similarities, projects further south tended to be more suburban in character, including greater street setbacks and higher parking ratios. While some of the new office buildings were taller than 14 stories (such as the Re/Max headquarters at Belleview Station), these buildings are decidedly suburban in character. Each has a significant provision of parking and many are physically oriented toward surface parking lots, rather than toward the light rail stations.

As with residential development, most commercial development occurred in locations with larger opportunity sites along the southern portion of the corridor. Every new commercial project south of Southmoor station was more than 90,000 square feet in size (excluding mixed-use projects with a commercial component and a hotel). Of the 2.4 million square feet of commercial space built in that portion of the corridor, 87 percent was office space. Conversely, the Albertsons supermarket at Colorado Station was the only new commercial project with more than 20,000 square feet north of Belleview Station. Most of the commercial development in that part of the corridor consisted of retail space.

One developer interviewed for this report noted that businesses are not typically willing to pay a significant premium to be located near transit. Due in part to the composition of the local economy (consisting largely of back offices, rather than national headquarters), businesses have been unwilling to pay a premium for the other design amenities that make high quality TOD.

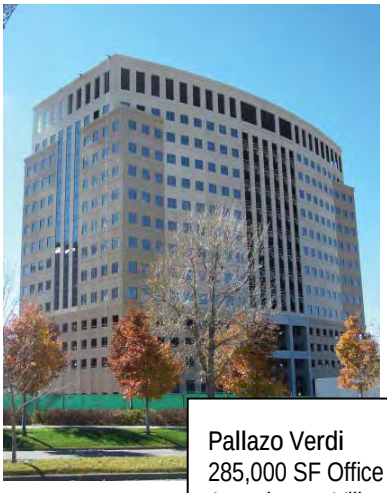


Dry Creek Crossing
249 Condos
Dry Creek Station
Source: www.freedomfirepro.com

The Landmark
251 Condos, 168,000 SF Retail
Orchard Station
Source: www.larryhotz.com

Alexan Broadway Station
460 Apartments, 16,000 SF Retail
I-25/Broadway Station
Source: www.hubuzz.com

Village Center Station I
454,000 SF Office, 30,000 SF Retail
Arapahoe at Village Center Station
Source: Grubb & Ellis



Pallazo Verdi
285,000 SF Office
Arapahoe at Village Center Station
Source: Denver RTD

Louisiana Station Lofts
29 Condos
Louisiana-Pearl Station
Source: Denver RTD

The lack of price or rent premiums may also be due in part to the newness of the light rail system, which opened its first station 2004. It is possible that not enough time has passed for transit to be recognized as an amenity and for a number of businesses to change locations with transit in mind. In 2009, the Denver Regional Council of Governments conducted a survey of businesses near light rail stations.[14] Of the 138 firms surveyed along the Southeast Corridor, 73 percent were not aware that transit would be constructed when they moved to their current location. Of the remaining firms, only 11 percent rated proximity to transit among the top three reasons for choosing their location, although nearly half reported that transit access had at least some influence in their decision.

Nevertheless, transit has had an impact on the success and form of development in the Southeast Corridor, and has helped to illustrate the viability of TOD in the Denver region. While transit may have only had a limited role in the amount of new office development along the corridor, there are other factors that suggest that transit has played a role in the success of these projects. The vacancy rates of offices directly adjacent to transit stations (within a tenth of a mile) are reportedly lower than those sited further away from transit. One broker interviewed for this report commented that one of his clients had such a strong preference for proximity to transit that the business elected to rent space in one such building, despite having a strong dislike for the conditions of the building itself. Recognizing this demand, there have been explicit and capital intensive efforts to embrace transit in some recent projects. At Colorado Center, a preexisting commercial complex, the developer worked with RTD to ensure that Colorado Station would be sited close nearby. In the case of the Vallagio at Inverness, the development is located on the opposite side of I-25 from Dry Creek Station. In order to make the project transit-accessible, the developer paid for the construction of an expensive new pedestrian bridge that spans the freeway. Several other new projects have made significant improvements to the public realm in order to encourage walking and transit.

Role of the Public Sector

Denver Regional Transit District (RTD), the agency responsible for constructing and operating the light rail system, has been highly supportive of TOD since early in the planning process for the Southeast Corridor. As a part of its efforts to advance TOD, RTD tracks and promotes development projects near light rail stations, and has worked with developers to help integrate stations with their projects. Running through six different jurisdictions, land use policy varies along the Southeast Corridor. Figure 4-15 shows the timing of TOD-related planning efforts.

Denver

The City of Denver completed the Denver TOD Strategic Plan in 2006, the same year the transit began service.[15] Early TOD planning was reportedly challenging, with many community concerns about the potential impact of the light rail. The strategic plan was an important step toward creating a common definition of TOD, setting expectations, and identifying priorities for the City. Each of the station areas was associated with a standard "TOD place type" (e.g., urban center, campus, or commuter town center), ranked in terms of market strength, and prioritized in terms of the need for City action. This was especially important given the rapid build-out of transit lines in Denver and limited staff capacity within the city to lead station area planning efforts.

Guided by the strategic plan, the nature of station area planning along Denver's section of the Southeast Corridor varied according to the development context. In station areas with major development opportunities under single property ownership, such as 1-25/Broadway and Belleview, the role of the

[14] Denver Regional Council of Governments, "Who is TOD in Metro Denver?" Business Survey Report, September 2009.
[15] City of Denver, *Denver TOD Strategic Plan*, 2006.

City was identified as "monitor and respond": the City would monitor the evolution of developer-initiated master planning processes to ensure that they reflect TOD goals and best practices. Other station areas were identified as needing more proactive planning, including the Louisiana Pearl station, where neighborhood groups were concerned about the potential impact of the transit on the neighborhood.

Planning at both the Colorado and Yale station areas was initiated early (before the strategic plan) because the stations were viewed as having opportunities for transit-oriented development that would not come about through a master planned development. The Colorado Station, while suburban in character, had a strong real estate market conducive to new development. Near the Yale Station, a church-owned parking lot was seen as an important opportunity site. While the Colorado Station plan was eventually put on hold, the plan for the Yale station was completed early, in 2003. Beginning that year, responsibility for station area planning shifted from the Public Works Department to the Community Planning and Development Department, reflecting a growing understanding of the importance of integrating transit planning with land use planning, regulations and entitlements.

In some cases, plans identified needed zoning changes or resulted in new zoning designations. In other cases, the City adopted a regulatory document called a General Development Plan that coordinates infrastructure such as roads and utilities that should be coordinated in a phased redevelopment with one or multiple property owners. At both the I-25 and Broadway and Belleview stations, new transit mixed-use zoning was created for larger-scale redevelopment projects. They allowed for higher densities, a mix of uses and parking reductions. These station areas consist largely of large parcels, each owned by a single entity that was motivated to secure entitlement for high-density development. In the case of I-25/Broadway, much of the station area consists of the 50-acre parcel formerly occupied by the Gates rubber plant. To facilitate site clean-up and the master-planned development of 2,400 residential units, the Denver Urban Renewal Authority and the City of Denver agreed to contribute $126 million in public financing, including $85 million from Tax Increment Financing. As a consequence of the economic downturn, however, the developer was unable to meet its agreements and was forced to abandon the project without having completed site clean-up and after only constructing one building.

In other station areas in Denver, including Louisiana-Pearl and Southmoor, the City used the proceeds of a voter-approved bond-issue to fund pedestrian infrastructure improvement. The City has also made multi-modal connections a major priority, constructing pedestrian bridges and bikeways to enhance station accessibility.

Outside Denver

Outside of the City of Denver, few station area plans have been initiated, however local jurisdictions have engaged in a variety of efforts to maximize the value created by the new transit stations and promote transit-oriented neighborhoods.

The City of Aurora is in the process of creating a station area plan for the Nine Mile Station, which includes an older shopping center that is planned for redevelopment. Aurora has also created TOD zoning designations, which can be applied. The City does not "upzone" in advance of new development because it wants to make sure that it can capture some of the value that is created to help pay for needed public improvements.

In 2008, Greenwood Village made changes to their comprehensive plan to allow higher densities and a greater mix of uses near the Belleview, Arapahoe at Village Center and Orchard Stations. In Greenwood Village, the City worked closely with RTD to plan for future transit at the Arapahoe at Village Center station, including the park-and-ride, in a way that would enhance development opportunities near the station. The City also worked closely with major property owners to develop plans for the Village Center, a major mixed-use project near the station.

Many of the development opportunities in the southern part of the corridor consist of large greenfield sites that are typically entitled as Planned Unit Developments (PUDs). A PUD is a mechanism that allows for entitlement of a district that may include a mix of uses. Planning for these major projects is usually initiated by property owners and/or developers. One example is Lincoln Station, where a significant amount of property was owned by a single property owner. Early in the planning for the light rail corridor, the family sold land to RTD for the station and identified the area around the future station as having the potential for TOD. The family initiated a PUD that would allow for development at higher densities than had previously been seen in the county.

In some cases, such as the Palazzo Verdi project at Arapahoe, proximity to transit and TOD-related amenities helped to "fast-track" a project through the entitlements process. The resulting cost savings and reduced risk provided a financial incentive for the developer to meet the local jurisdiction's TOD goals. In other cases, transit provided a basis for developers to lobby to local jurisdictions for greater densities on their site (such as for the Westfield project at Lincoln Station).[16]

Key Findings

- **The Southeast Corridor has supported a large increment of new commercial and residential development, and it is clear that the pace of development increased significantly after the transit line opened in 2006.** The Southeast Corridor was already home to a very strong office market and some of the most affluent residential communities in the Denver metro area. While it is very likely that development would have happened regardless of the new transit, it nevertheless seems to have played a role in attracting new development to the stations. These projects are viewed as "first generation TOD" for Denver, in that they demonstrate the value of properties in station areas with a mix of uses and a pedestrian-friendly design.
- **Much of the new development along the corridor was clustered near existing job centers**. Unlike the other two corridors studied, the Southeast Corridor does not include a major downtown. Nevertheless, new development tended to be focused near existing job centers. Most commercial development was an extension of the existing suburban employment center, and residential development also had a tendency to focus in areas near jobs.
- **Unlike the other two light rail corridors profiled in this report, most development along the Southeast Corridor has occurred on large, vacant properties.** Of the three corridors profiled in this report, the Southeast Corridor had the greatest amount of vacant property for development. Much of the development that has occurred consists of major suburban office, residential and mixed-use projects. In the case of the Southeast Corridor, the presence of vacant or underutilized properties was a good predictor of the location of subsequent development.
- **The fact that the Southeast Corridor runs along the highway has served as a major barrier to transit-oriented development, necessitating major investments in some areas to offer pedestrian access.** The freeway supports a continued automobile-oriented land use pattern, and the noise forces development to face away from stations.

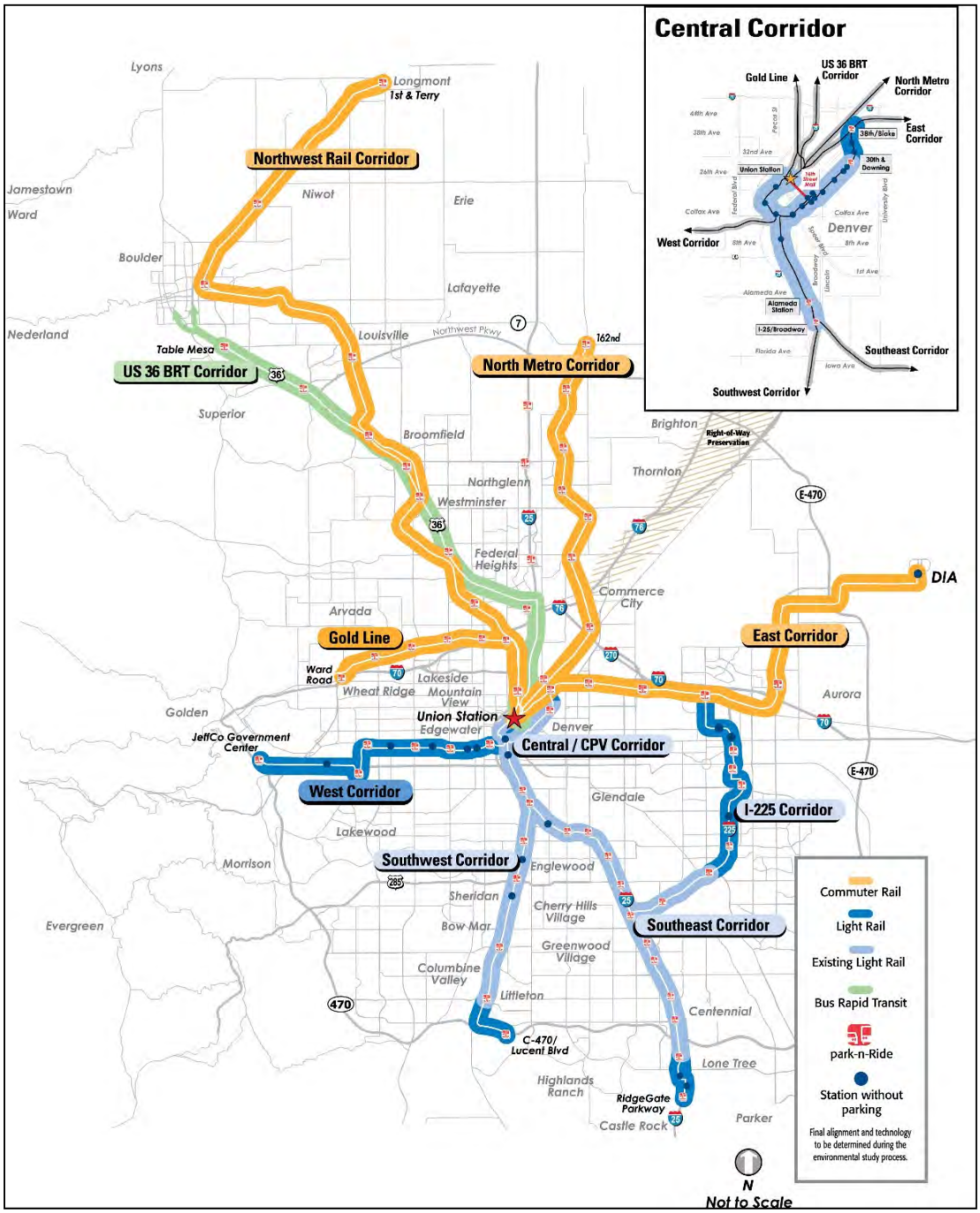
[16] This approach has not been universally successful. For instance, at Belleview, the presence of transit did not affect the development program, as densities, unit counts, and square footages are nearly identical in plans prior to and following the implementation of transit. However, transit has caused a shift in the proposed development form to one that is more tightly clustered around the station area and, potentially, more transit-supportive.

- **Transit may have played a role in bringing a greater mix of uses to the station areas, by attracting residential development to areas that had previously only included office uses.** Historically, most of the places connected by the Southeast Corridor were dominated by single uses, especially suburban-style office parks. Beginning around the time the transit was built, these areas began to attract much more residential development.

- **The new transit offered added value for development in several ways**. Vacancy rates are reportedly lower in buildings directly adjacent to transit, which translates into a more reliable cash-flow for property owners. In some cases, transit gave municipalities compelling reasons to approve higher density development, which in turn had a higher value. In others, it helped to attract capital for projects. While transit did not always affect the amount development that occurred, in some cases, it has an impact on design, with developers opting to make projects more pedestrian-friendly, with access to the transit stations.

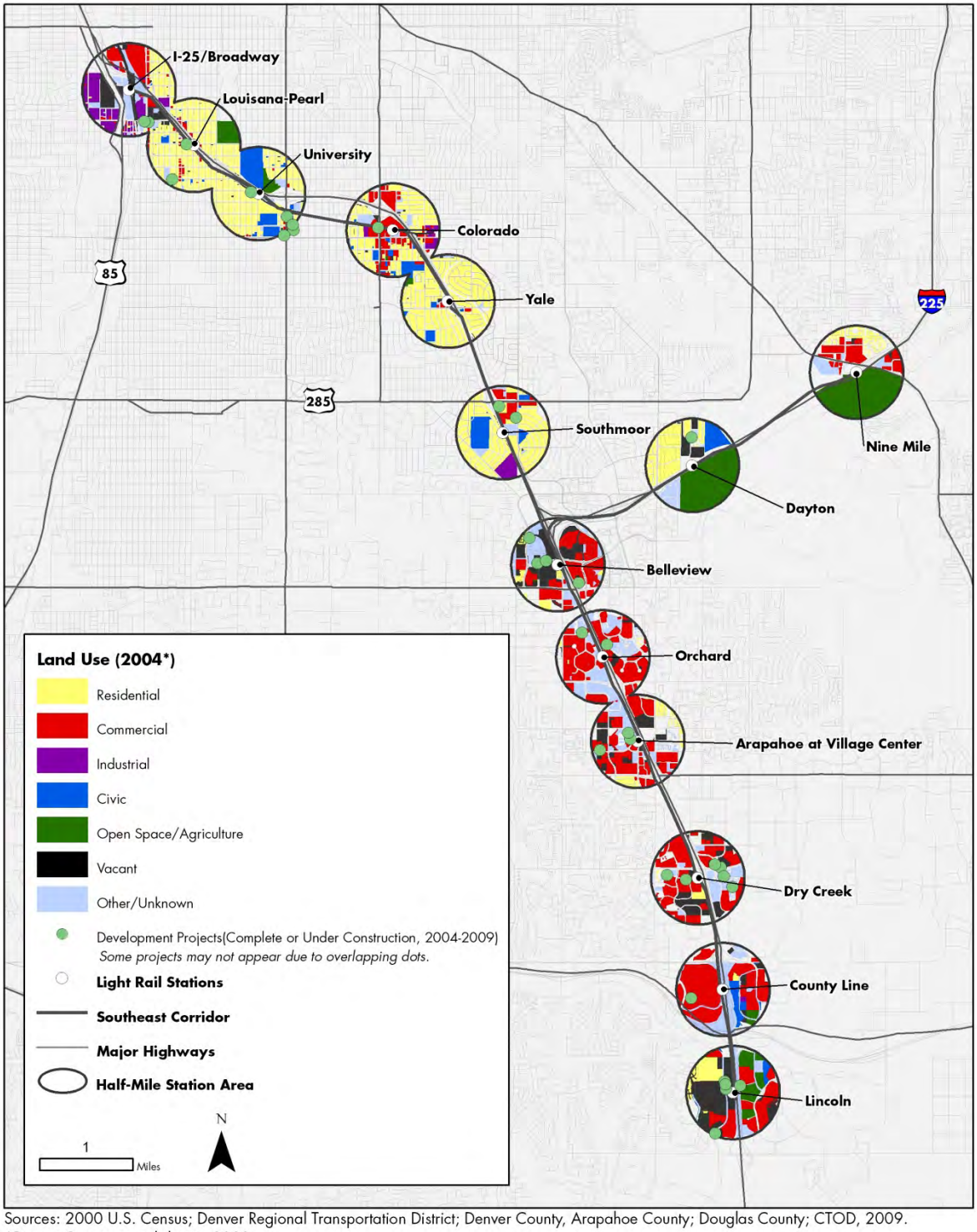
- **The timing and nature of land use planning and policy efforts varied along the line.** The Denver Strategic Plan set an important framework for understanding TOD in the region. The plan also helped to prioritize station areas that were most in need of proactive planning efforts, which was important given limited staff capacity. In station areas with major development or redevelopment opportunities under single property ownership, the timing of planning efforts and regulatory changes was driven mostly by property owners and developers, who would work with the local jurisdiction to develop a General Development Agreement or a Planned Unit Development, and in some cases identify assist with financing needed infrastructure. While the City of Denver has actively supported TOD with strategic planning, land use policies and direct public financing, many suburban jurisdictions have not historically been as proactive.

Figure 4-1: System Map including Future FasTracks Expansions



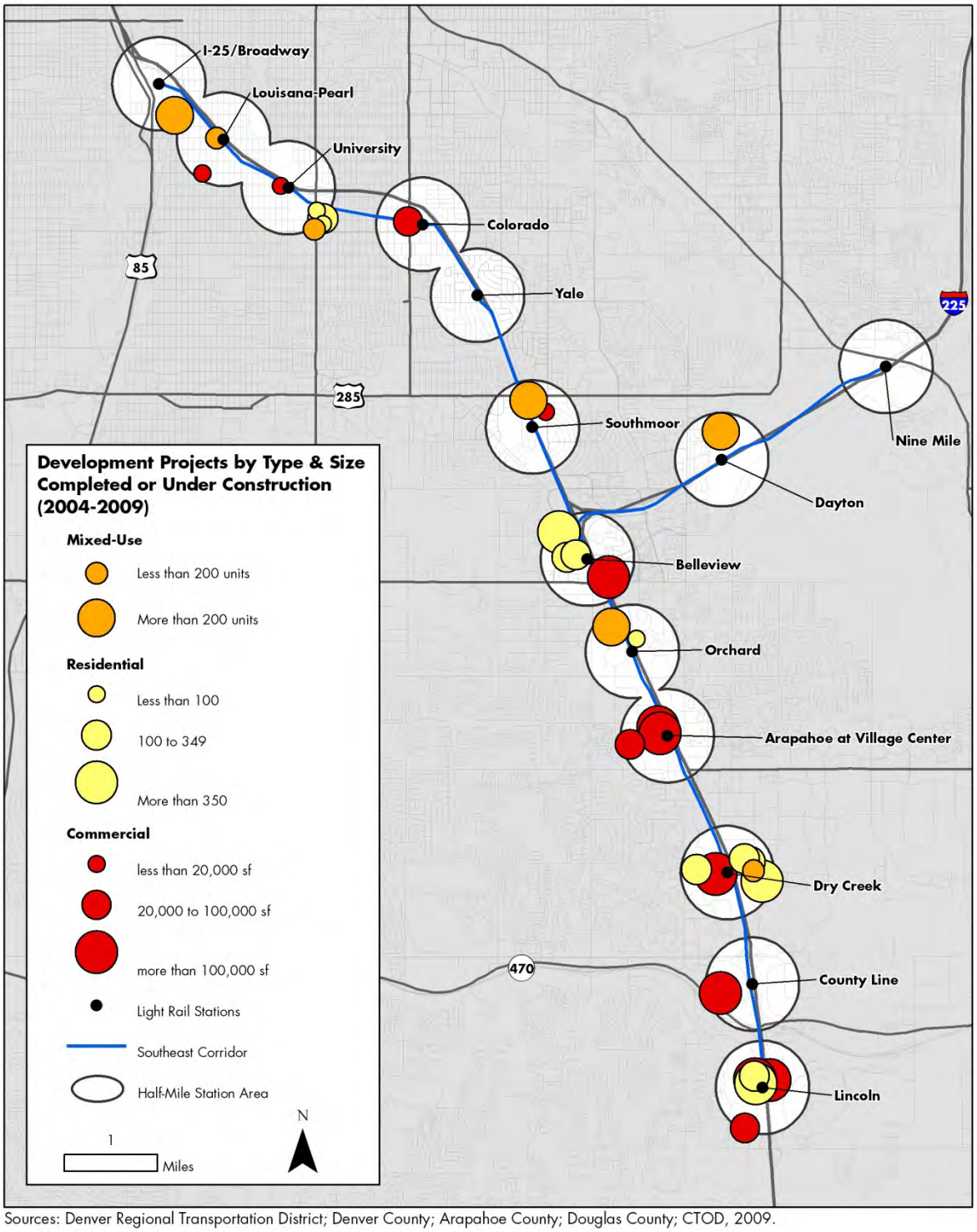
Source: Regional Transportation District, 2009.

Figure 4-2: Southeast Corridor Land Use Patterns and Recent Development



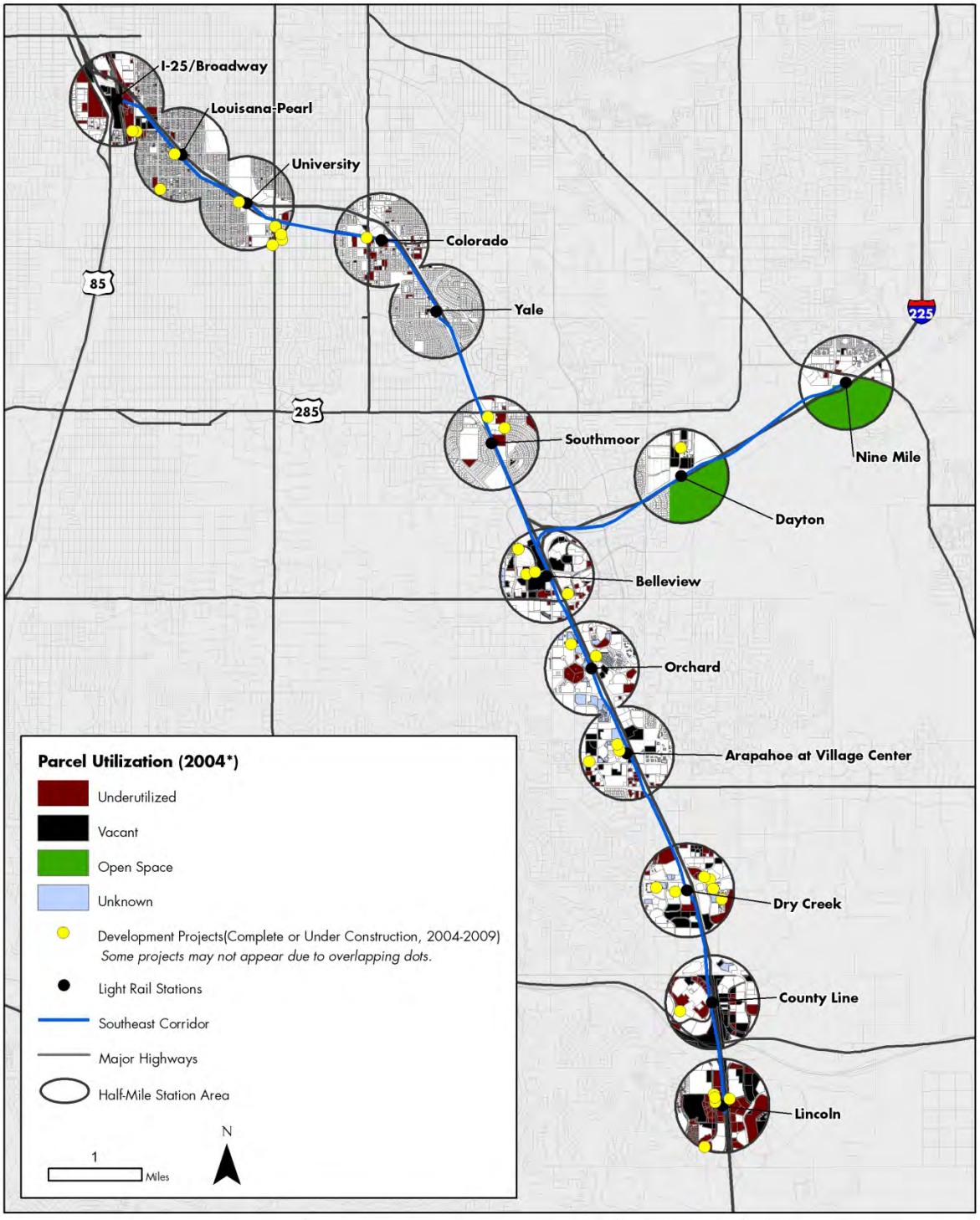
Sources: 2000 U.S. Census; Denver Regional Transportation District; Denver County, Arapahoe County; Douglas County; CTOD, 2009.
*Denver County parcel data is 2009.

Figure 4-3: Southeast Corridor Development, 2004 – 2009



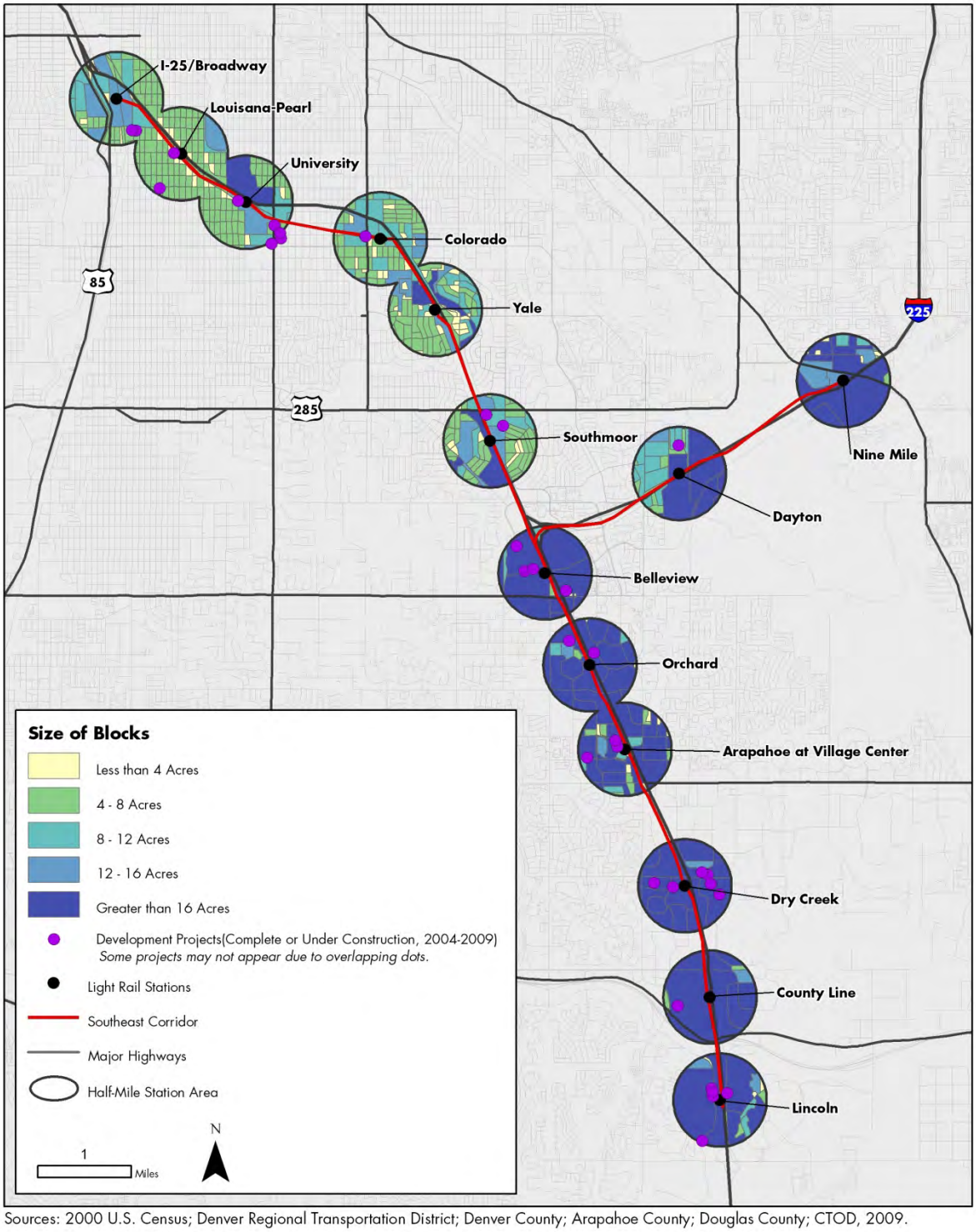
Sources: Denver Regional Transportation District; Denver County; Arapahoe County; Douglas County; CTOD, 2009.

Figure 4-4: Southeast Corridor Underutilized and Vacant Properties



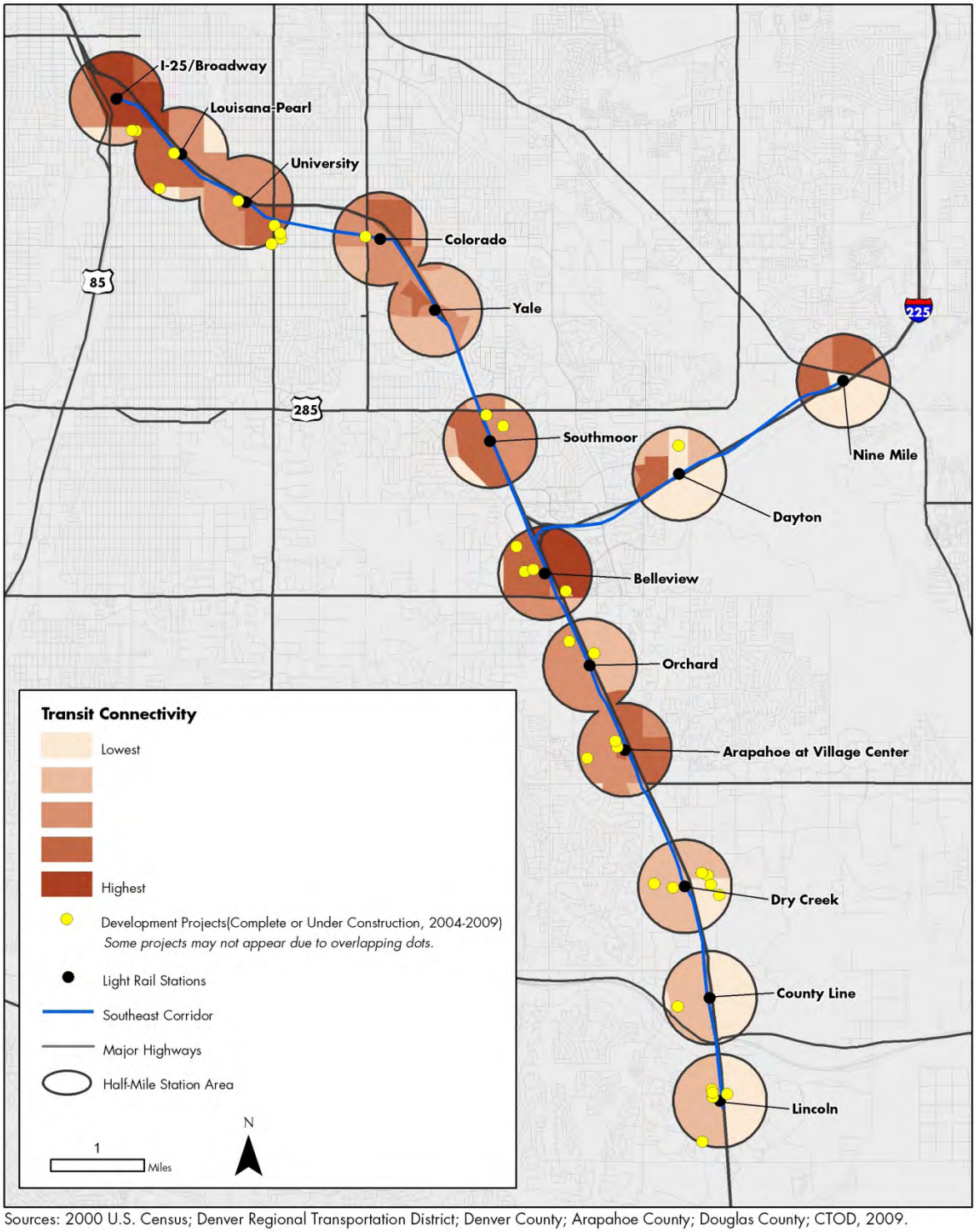
Sources: 2000 U.S. Census; Denver Regional Transportation District; Denver County; Arapahoe County; Douglas County; CTOD, 2009.
*Denver County Parcel Data is 2009.

Figure 4-5: Southeast Corridor Development Patterns and Block Size



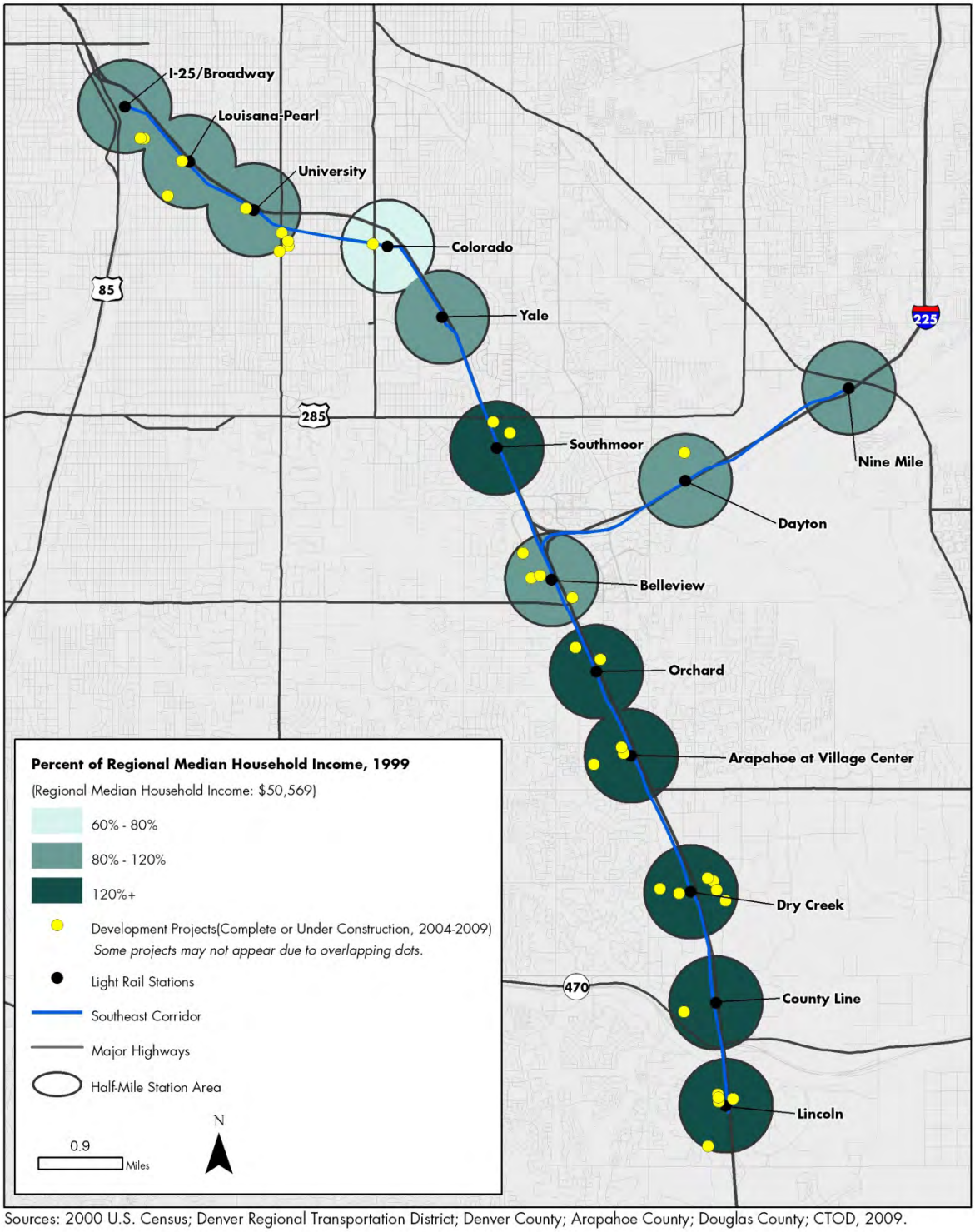
Sources: 2000 U.S. Census; Denver Regional Transportation District; Denver County; Arapahoe County; Douglas County; CTOD, 2009.

Figure 4-6: Southeast Corridor Development Patterns and Transit Connectivity



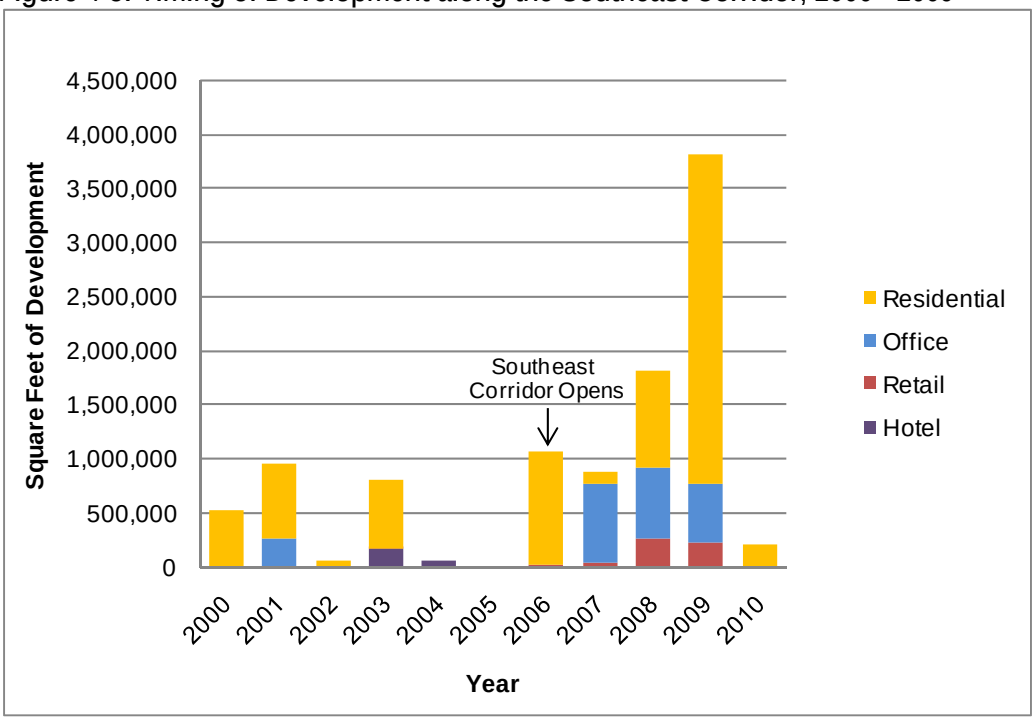
Sources: 2000 U.S. Census; Denver Regional Transportation District; Denver County; Arapahoe County; Douglas County; CTOD, 2009.

Figure 4-7: Southeast Corridor Development Patterns and Median Household Incomes



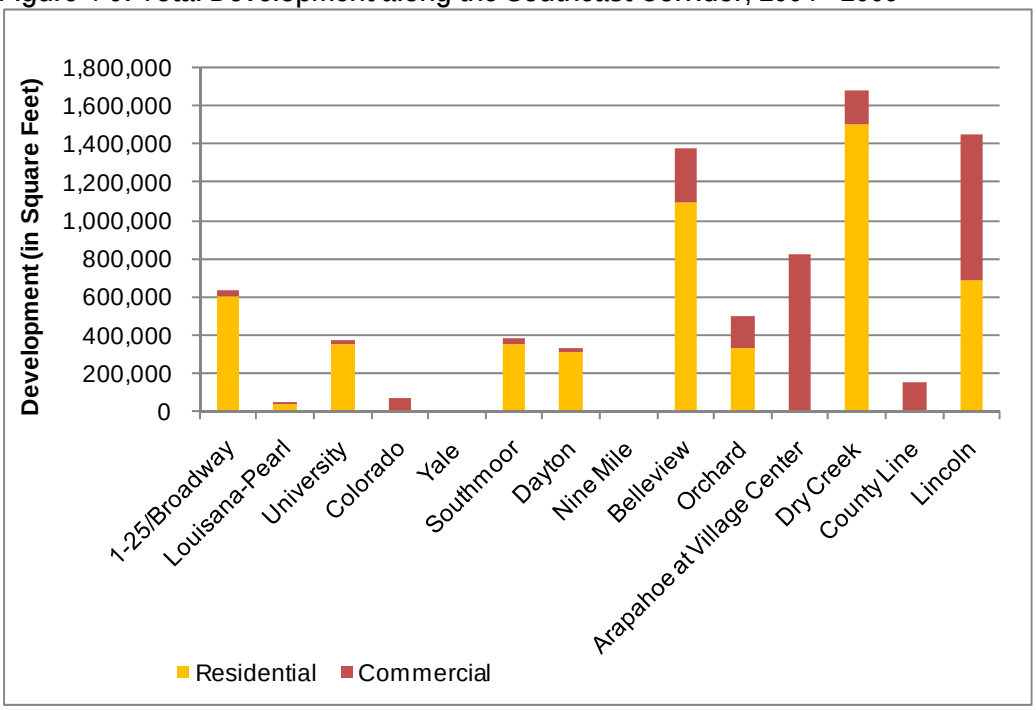
Sources: 2000 U.S. Census; Denver Regional Transportation District; Denver County; Arapahoe County; Douglas County; CTOD, 2009.

Figure 4-8: Timing of Development along the Southeast Corridor, 2000 - 2009



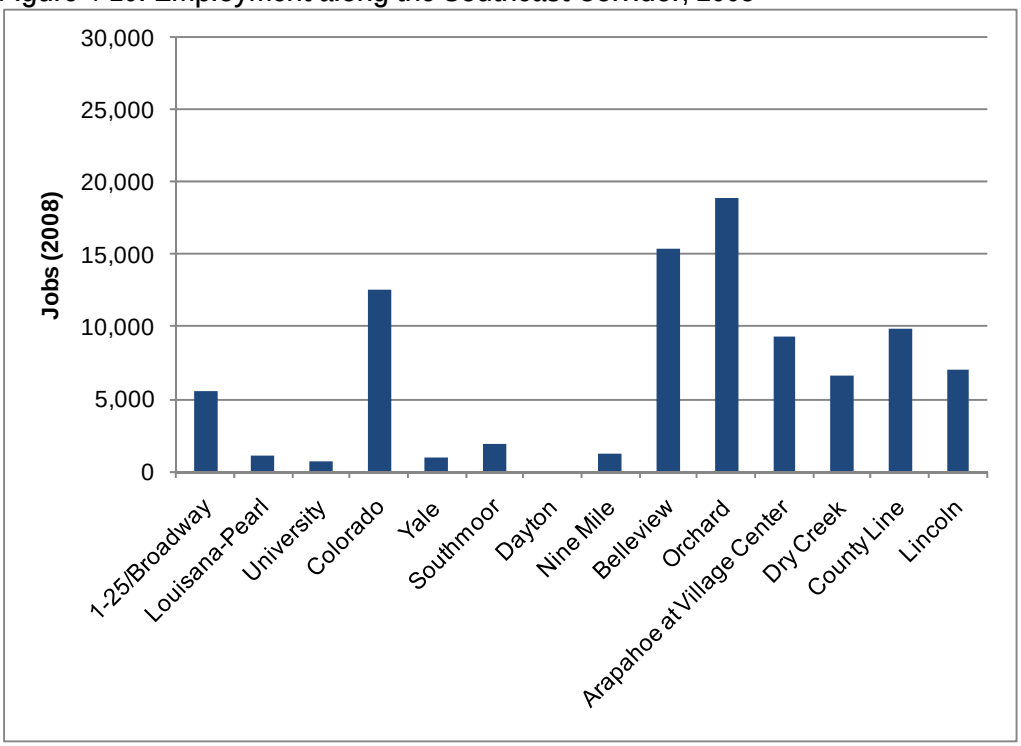
Source: Denver Regional Transportation District, Strategic Economics/CTOD.

Figure 4-9: Total Development along the Southeast Corridor, 2004 - 2009



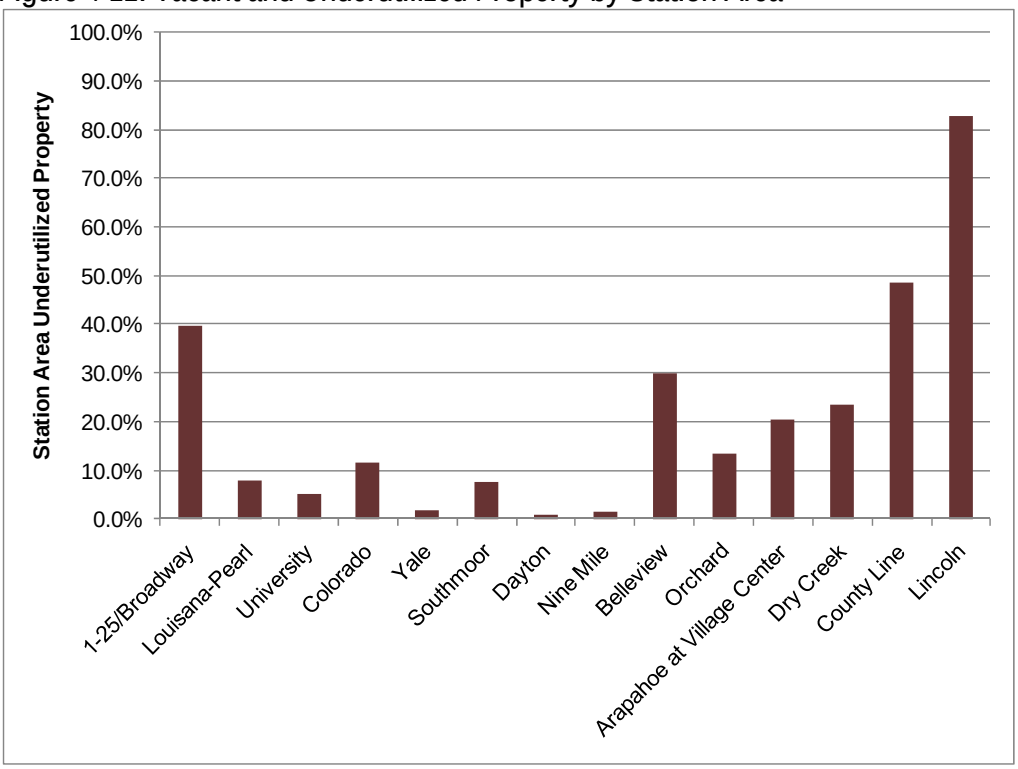
Source: Denver Regional Transportation District, Strategic Economics/CTOD.

Figure 4-10: Employment along the Southeast Corridor, 2008



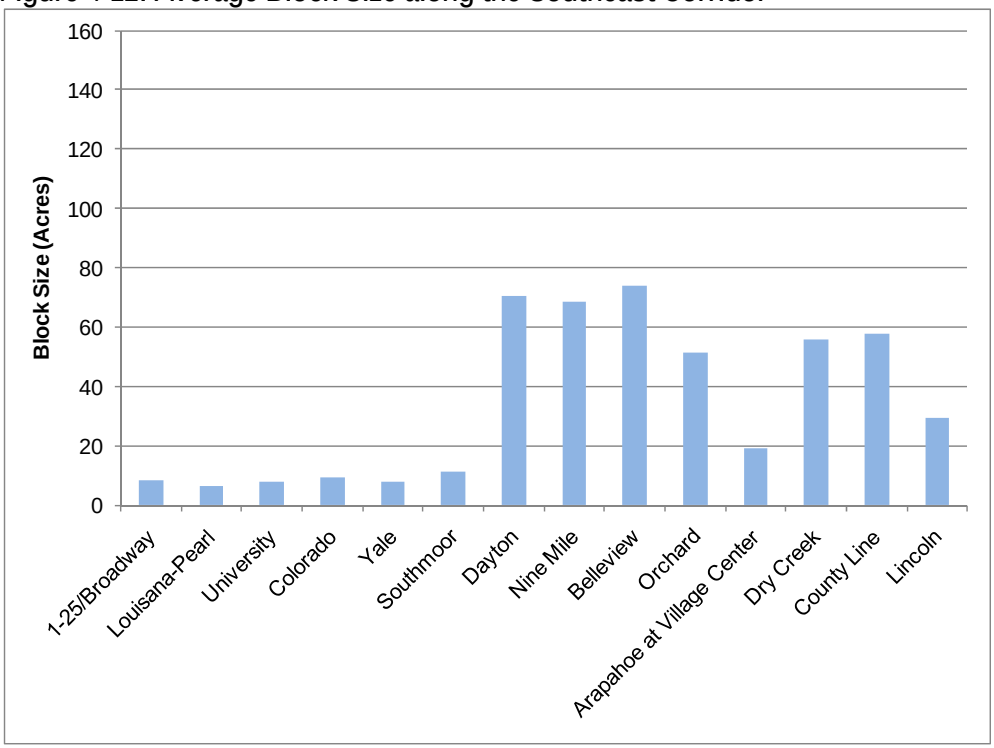
Source: US Census

Figure 4-11: Vacant and Underutilized Property by Station Area



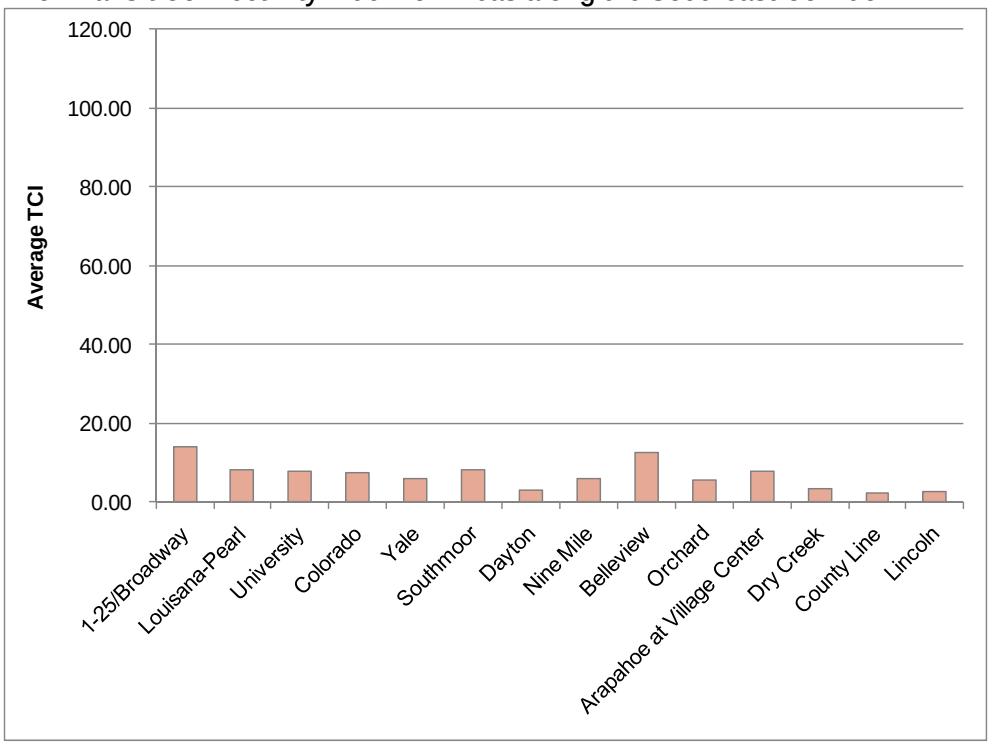
Source: Assessor Data.

Figure 4-12: Average Block Size along the Southeast Corridor



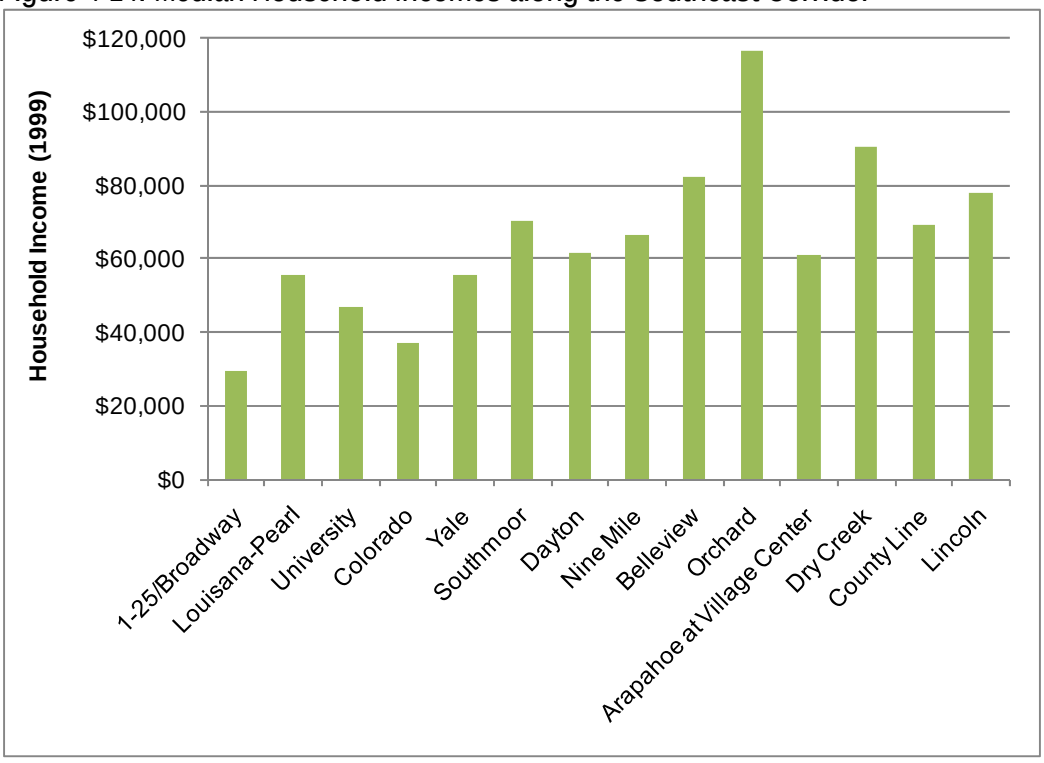
Source: US Census

4-13: Transit Connectivity Index for Areas along the Southeast Corridor*



Source: Center for Neighborhood Technology, Strategic Economics/CTOD.
*Note: Scale intentionally held constant with other corridors to illustrate relatively low connectivity.

Figure 4-14: Median Household Incomes along the Southeast Corridor



Source: Census 2000

Figure 4-15: TOD-Related Planning along the Southeast Corridor

Station Area	Plan	Plan Type	Date Adopted	Planning Body
I-25/Broadway	Denver TOD Strategic Plan	Citywide-TOD	2006	City of Denver CPD
Louisiana-Pearl	Denver TOD Strategic Plan	Citywide-TOD	2006	City of Denver CPD
	Louisiana-Pearl Station Area Plan	Station Area/TOD	2007	City of Denver CPD
University	Denver TOD Strategic Plan	Citywide-TOD	2006	City of Denver CPD
	University Park Small Area Plan	Neighborhood	2008	City of Denver CPD
Colorado	Denver TOD Strategic Plan	Citywide-TOD	2006	City of Denver CPD
	Colorado Station General Development Plan	Station Area/TOD	2008	City of Denver CPD
	University Park Small Area Plan	Neighborhood	2008	City of Denver CPD
Yale	Yale Station Area Plan	Station Area/TOD	2003	City of Denver CPD
	Denver TOD Strategic Plan	Citywide-TOD	2006	City of Denver CPD
Southmoor	Louisiana-Pearl Station Area Plan	Citywide-TOD	2006	City of Denver CPD
Belleview	Denver TOD Strategic Plan	Citywide-TOD	2006	City of Denver CPD
	Comp. Plan Amendment for 1-25 Corridor	Comprehensive Plan	2008	City of Greenwood Village
Nine Mile	Nine Mile Station Area Plan	Station Area/TOD	In Process	City of Aurora
Dayton	N/A	-	-	-
Orchard	Comp. Plan Amendment for I-25 Corridor	Comprehensive Plan	2008	City of Greenwood Village
Arapahoe at Village Center	Comp. Plan Amendment for I-25 Corridor	Comprehensive Plan	2008	City of Greenwood Village
Dry Creek	N/A	-	-	-
County Line	N/A	-	-	-
Lincoln	N/A	-	-	-

Source: local jurisdictions.

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V. BLUE LINE
CHARLOTTE REGION, NORTH CAROLINA

Introduction

The first in the LYNX light rail network, Charlotte's Blue Line includes fifteen stations along a corridor that stretches south of downtown Charlotte (commonly referred to as "Uptown"), through the South End, to suburban Pineville. The Blue Line is considered a tremendous success, opening in 2007 to much higher than expected ridership levels. The initial target was 9,100 riders per day, but within a year ridership had grown to more than 15,000 per day.

Through Uptown and the South End, the Blue Line follows the same right-of-way as the Charlotte Trolley, which began operation 1994 and continued to run, including some stops that lay between those of the light rail, until it was discontinued in July 2010.

The Charlotte Area Transit System (CATS) has plans to construct four additional transit corridors to connect the region, as well as a streetcar system. When complete, the system is planned to consist of 25 miles of commuter rail, 21 miles of light rail, 16 miles of streetcar, and 14 miles of bus rapid transit.

Land Use and Development Patterns

The Blue Line roughly follows the path of South Boulevard, originally the main highway through town. Most of the station areas south of the downtown include a mix of industrial, commercial and residential properties, with commercial uses concentrated on the western side of South Boulevard (see Figure 5-1). Prior to the most recent wave of residential development, the housing stock along most of the line consisted mainly of single family homes in auto-dependent neighborhoods.

Charlotte experienced relatively rapid growth in the 2000's, driven mainly by expansion in the banking sector. This economic boom fueled a significant amount of development in and around Uptown Charlotte, and the convenient access provided by the light rail to downtown office jobs made neighborhoods along the new light rail increasingly attractive for residential development. It is interesting to note that unlike many other regions in the US, development in Charlotte during the past decade was driven primarily strong employment growth, rather than the housing bubble. The recent downturn in the Charlotte real estate market was instead closely tied to the ensuing difficulties faced by the financial services industry.

The South End and the Charlotte Trolley

The South End is a former warehouse district located immediately south of Uptown Charlotte on the other side of Highway 277 and served by the Carson, Bland, and East/West Boulevard Stations. This area was historically dominated by industrial uses, originally a center for textile manufacturing. Beginning in the 1990's, the area began to shift to include a mix of restaurants, retail and design-related businesses. In the mid-90's, a non-profit teamed with the City of Charlotte to provide streetcar service between Uptown and the South End, along a historic streetcar line. The Charlotte Trolley provided an important linkage to Uptown that helped to stimulate additional interest in the South End, and as a catalyst for additional transit investments.

Proximity to Uptown

Proximity to Uptown has undoubtedly been an important factor driving development decisions along the Blue Line. As shown in Figure 5-2 and Figure 5-7, approximately 9.8 million square feet of new development occurred along the line between 2005 and 2009, of which about 64 percent was in Uptown. Uptown development consisted of a wide variety of cultural, entertainment, commercial and residential uses, the result of a strong economy and longer term center city revitalization efforts. Outside of Uptown, most of the development consisted of residential projects in the South End, many targeting young workers in the growing financial services industry. The Charlotte Trolley and subsequent Blue Line connections to Uptown are often cited as important for facilitating development in the South End, by offering direct access to the jobs and urban amenities in Uptown.

Vacant and Underutilized Properties

All of the station areas along the Blue Line had a significant proportion of vacant or underutilized parcels, most ranging from 30 to 40 percent of total land area (Figure 5-3).[17] Given that most development to date has happened in a few station areas at the Uptown end of the line, there does not appear to be a strong relationship between the presence of underutilized or vacant parcels and new development. Notably, many of the vacant or underutilized properties south of Scaleybark Station are commercial properties along major corridors. These properties typically are home to lower density, auto-oriented uses that qualify as "underutilized" because of the relatively low value of their buildings. However, in practice, these properties may be challenging to redevelop with higher intensity transit-oriented uses because they retain value as auto-oriented retail uses, and because this neighborhood context makes them less valuable sites for TOD than other locations along the line.

Block Sizes

Uptown and the South End have much smaller block sizes than other areas along the Blue Line, resulting in a strong (negative) correlation between block size and development activity. It is interesting to note that the southern parts of the line include much larger potential sites for redevelopment; however the development has mostly occurred in areas with smaller block sizes (Figure 5-4).

Transit Connectivity

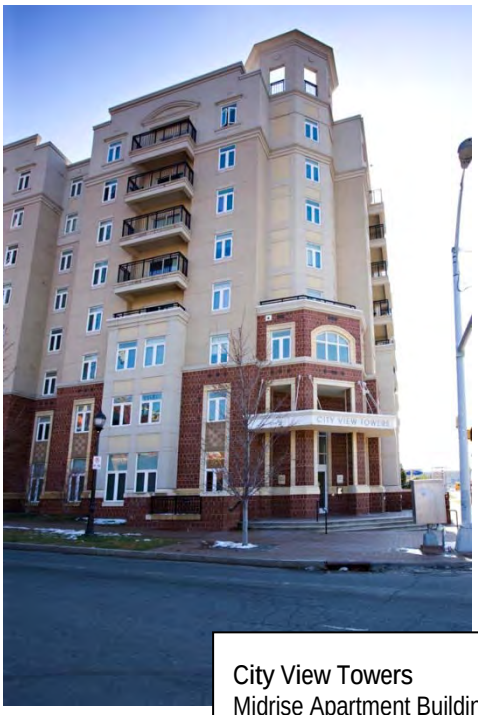
There is a strong relationship between the location of new development and access to transit along the Blue Line, with most development clustered in areas with quick and convenient access to Uptown Charlotte (Figure 5-6).

Station Area Incomes

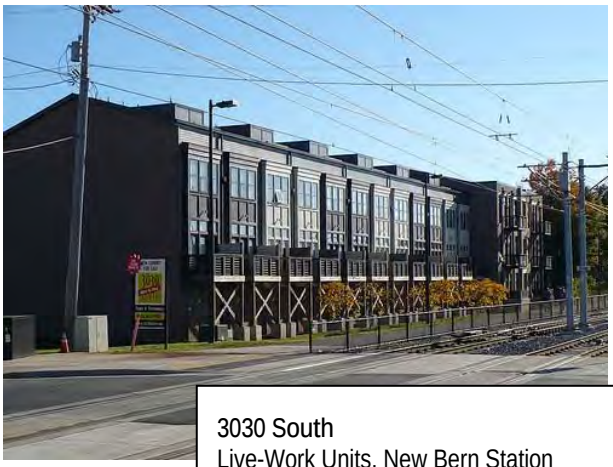
There does not appear to be a strong connection between income levels and development activity. As of 2000, and prior to the development shown on the maps, every station area on the corridor had household incomes between 60 and 100 percent of the regional median ($50,579). Incomes were lowest in Uptown, and in the neighborhoods surrounding the future New Bern, Scaleybark, and Woodlawn stations (Figure 5-7).

[17] See definition in Section 2.

701 North Church Condominiums
Uptown Charlotte
Source: ww.701northchurchcondos.com

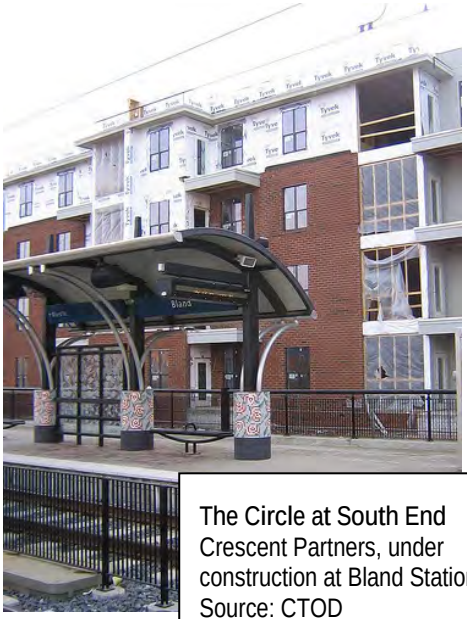


City View Towers
Midrise Apartment Building
Uptown Charlotte
Source: CTOD



3030 South
Live-Work Units, New Bern Station
Source: CTOD

The Vue
50-Story condominium project,
Uptown Charlotte (under construction).
Source: Charlotte Observer



The Circle at South End
Crescent Partners, under
construction at Bland Station
Source: CTOD

Development Activity

As mentioned above, about two-thirds of the development that occurred along the new transit line between 2005 and 2009 was located in Uptown, near the 7th Street, CTC/Arena, 3rd Street and Stonewall stations. Uptown Charlotte is divided into four Wards, and the light rail passes through the First and Second Wards. Recent development has of a wide variety of retail, entertainment, office, hospitality, residential, cultural and institutional uses. Much of the development in the First Ward has consisted of arts, sports, and cultural uses, including the Time Warner Cable Arena, the ImaginOn Children's Learning Center, the new University of North Carolina Campus, and other public uses. The Second Ward, meanwhile, has seen a considerable number of residential and mixed-use projects. In terms of building types, recent residential development in Uptown runs the gamut of residential densities, including three story row houses, four to five story condominium projects, midrise apartments and condominium towers. (See pictures, previous page). Many projects were hit hard by the downturn in the US economy and job losses in the banking sector, such as the Vue, a luxury high-rise condominium project that faced construction delays, but is now planned to open in late 2010.

A significant amount of development also occurred in the South End, located immediately south of Uptown, on the other side of Highway 277. As mentioned above, redevelopment and reuse of older manufacturing buildings began in the 1990's, assisted by the creation of the trolley system that linked the South End to Uptown. In addition to this important connection to Uptown, the South End also had the benefit of being located adjacent to the historic Dilworth neighborhood, a strong residential area.

By 2005, when the full funding agreement was received for the construction of the light rail line, the area began to attract the attention of additional developers, including developers from out of state. Thus, while the light rail did not create the market for development, there was a very strong relationship between transit and development in the South End, and a real understanding by developers of the value created by linking the neighborhood to Uptown. In some cases, local property owners were able to make considerable profits by purchasing properties, obtaining entitlements for higher-density development, and selling them to out-of-state developers.

Most recent projects in the South End were residential or mixed-use residential and retail, along with a few office projects. Recently constructed building types range from lower density townhouse projects to an 11-story high-rise project.[18] One of the most common building types is known as a "Texas Wrap", a four to five story apartment building with "wrapped" (i.e., internal) parking garages. This building type typically requires at least 3 acres of land. Much of this new development was driven by growth in the financial services industry, centered in Uptown Charlotte. These projects targeted young urban professionals who wanted to live in modern units with convenient access to urban amenities and Uptown jobs.

Once the light rail was built, it was clear that the new linkage created value for the South End area, and developers also began to look at station areas further south along the line. While a few projects were initiated during the late 2000's, most did not ultimately proceed due to the real estate downturn. A few projects have moved forward at the New Bern Station, including 3030 South, a multi-phase mixed-use project with a variety of housing types.

South of the New Bern station are several areas with relatively low-density commercial development that are expected to redevelop over time, including some large shopping centers, big box stores and strip centers. For example, the Arrowood Station was identified early on as having the greatest proportion of vacant land within a station area (defined as a ½-mile radius) of all stations along the line. The vacant land was identified as a location for a "greenfield transit village" consisting of mixed-use, higher-density development. Nearby low-density shopping centers were expected to redevelop over

[18] The eleven-story project is the Ashton South End, a luxury apartment project completed in early 2009.

time to more intensive uses. However, despite the availability of vacant land, only a limited amount of development (or redevelopment) has occurred to date, including South Oak Crossing, the only new project that includes affordable housing near the transit line.[19] The City recognizes that station areas located further from the downtown such as Arrowood will require a significant investment in pedestrian and other infrastructure to support redevelopment of older industrial and strip commercial development to more intensive, transit-supportive uses.

Most of the sites developed outside Uptown were between 1.5 and 3 acres in size. City staff interviewed for this report noted that after 2005, developers began to look at larger sites, around 4 to 5 acres. Only three projects outside Uptown were 10 acres or larger, and many of the largest opportunity sites have not yet been developed.

Role of the Public Sector

The initial groundwork for planning along the Blue Line began in 1994, with the Centers and Corridors Plan.[20] This plan set out a land use and transportation vision for the region, and formed the basis for the 2025 Integrated Transit/Land Use Plan, completed in 1996. The 2025 plan identified the means by which Charlotte could develop the light rail system and supporting land use, which ultimately led to the approval of a 0.5 percent sales tax to help pay for new transit. General development policies were created to provide an overriding framework for future station area planning, which set the stage for the TOD zoning ordinance (2003) and station area planning efforts.

Charlotte's TOD zoning allows developers to take advantage of reduced parking requirements, however staff report that developers typically build to the maximum allowed (1.5 to 1.7 spaces per unit), because it is required for their project financing. Another key aspect of the TOD zoning is that while it includes some height restrictions, it does not limit unit density. Properties are rezoned on a parcel-by-parcel basis, which in some cases allows the City to negotiate contributions from developers for public improvements.

Plans for the station areas are summarized in Figure 5-13. In the South End, station area planning built on the previous South End/Uptown Rail Corridor Plan, designed to foster transit-oriented development along the initial trolley line. In 2005, this was updated with the South End Transit Station Area Plan, which encompassed the Stonewall, Carson, Bland, and East/West station areas. These stations were viewed as the most likely to experience development in the short term. Plans for the remaining station areas to the south were completed in 2008 and 2009. Planning staff found that it was helpful to engage residents early in planning for future development near the light rail. Many residents were concerned about the potential neighborhood impacts of higher density development and lower parking requirements. While some residents were worried that developers would propose projects without enough parking, to date most developers have chosen to build the maximum allowed.

TOD concepts were also integrated into plans for the downtown, including the First and Second Ward Master Plans. In 2007, the City adopted Urban Street Design Guidelines intended to enable better use of streets by cars, pedestrians and bicyclists alike.

The City has been assertive in its efforts to promote TOD. In addition to changes to the land use and policy framework, the City has devoted two full time staff to assist developers in obtaining necessary entitlements and otherwise meeting City requirements. City staff have also been very proactive in negotiating easement agreements that allow for better integration of transit stations and surrounding development. They remain involved in ongoing policy updates and other efforts to reinforce TOD planning in the station areas.

[19] The affordable housing project was developed by the Charlotte-Mecklenburg Housing Partnership.
[20] An update to this plan, *Centers, Corridors and Wedges*, was completed in 2010.

Despite Charlotte's early efforts at station area planning, in some cases developers received entitlements for low-density, auto-oriented uses that were not considered ideal from a TOD standpoint before planning efforts were completed. The City has a policy of not making zoning changes for TOD until the transit infrastructure receives a Record of Decision, to make sure that the infrastructure will be in place to support higher density development. During this period some local developers were able to purchase properties for which they later obtained entitlements for higher-density development, and sold at a significant profit.

The City has also provided some assistance for development, in the form of streets and other needed neighborhood infrastructure. Voters approved a $50 million bond to assist with key station area infrastructure such as sidewalks, bike paths, medians, park and ride lots, and water drainage. Because this $50 million can only cover a small proportion of the total infrastructure needs, the City has worked closely with developers to create public-private agreements to build streets or other infrastructure. In other cases, the City has focused on investments that are likely to encourage later private development. For instance, the City has plans to upgrade an important intersection near a proposed joint development project at the Scaleybark station. In general, the City has focused on public realm improvements and improved connectivity, as opposed to writing down the cost of publicly-owned land or otherwise providing direct project subsidies.

In 2004 the State of North Carolina approved legislation for the use of tax-increment financing (TIF), however the tool has yet to be used successfully in the state. In lieu of tax increment financing, the City of Charlotte has used what is known as "Synthetic TIF" to assist with financing some TOD projects. This approach has some similarities to a traditional TIF but does not depend upon the issuance of bonds backed by an anticipated increase in tax receipts. In a Synthetic TIF, the developer provides funds for an up-front investment, and receives annual payments from the public sector that are related to the property taxes generated by the project. In this structure, the City agrees to rebate a portion of the new tax revenue generated by a specific project to help offset specific project costs. While not technically a tax abatement, this arrangement functions in a similar way. The proportion of the citywide tax base that can be subject to a synthetic TIF arrangement is capped at 3 percent. Synthetic TIF has been used to assist with some key projects in Uptown, but otherwise has not been used to promote TOD along the light rail line.

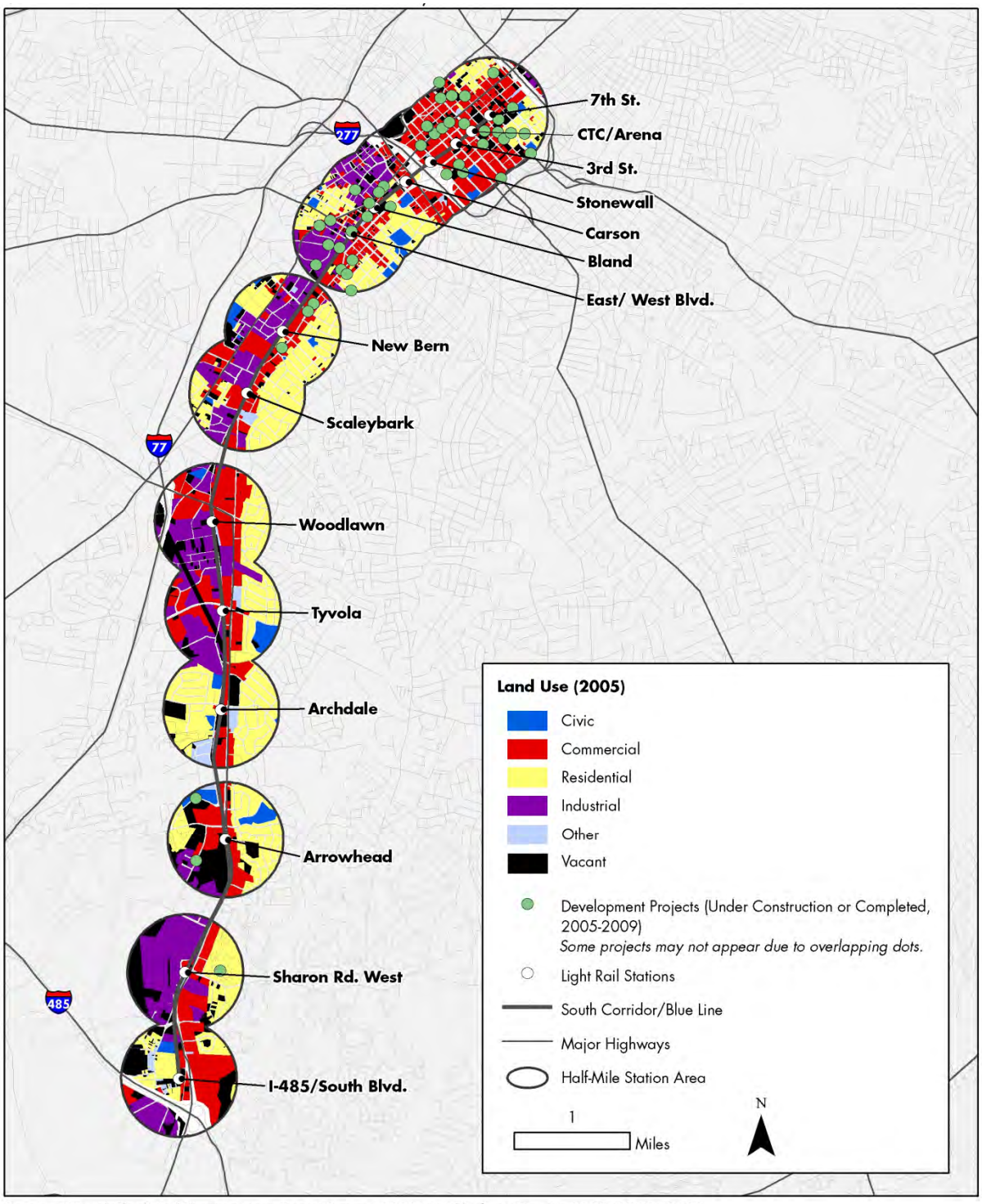
Key Findings

- **Charlotte experienced a significant amount of new development near transit, the majority of which was in Uptown**. Development was driven by growth in the regional economy and the importance of Uptown Charlotte as a job center, a variety of local initiatives focused on stimulating the revitalization of Uptown, and proactive efforts by the City of Charlotte/CATS.
- **The Charlotte Trolley and the LRT played an important role in the revitalization of the South End**. Physically cut off from Uptown by a freeway, the surge of development interest in the South End was fostered in part by the improved connection the Charlotte Trolley offered to downtown. The impact of the Trolley was important not only in gaining public support for a more extensive light rail system (funded in part with a voter-approved sales tax), but also in attracting additional new developers and development activity.
- **Outside Uptown proper, most development occurred on medium sized parcels in station areas nearest Uptown.** While several large parcels were available for development along the corridor, the ones that were developed first were mostly in the 1.5 to 6 acre range. Some of the larger parcels have attracted developer interest, however none have moved forward with development to date. These larger parcels require a longer time horizon, multi-phased

financing, and relatively high expected absorption rates. They are also less likely to be located in central, amenity-rich locations that are more desirable for development.

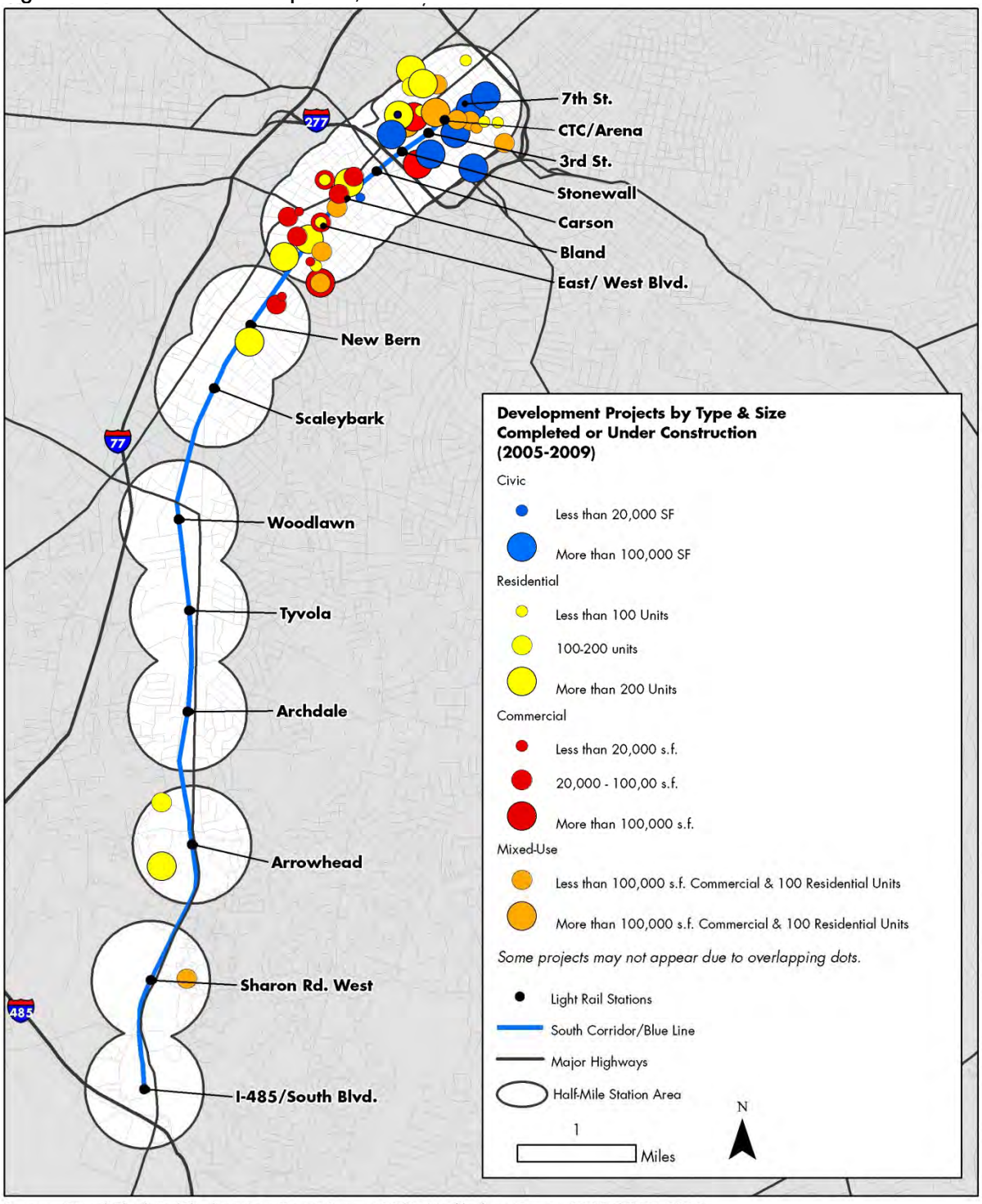
- **The $50 million infrastructure bond provided a critical source of funding to improve connections to station areas from surrounding neighborhoods, which helped to facilitate development on infill parcels.** This infrastructure fund was an important resource providing funding for key station area infrastructure such as sidewalks, bike paths, medians, park and ride lots, and water drainage. These funds also created an opportunity for the public sector to engage with private developers in the station areas to enhance the public realm and improve connections to the stations.
- **Despite a considerable amount of underutilized and vacant land in stations south of the South End, little development has occurred at these stations.** The availability of opportunity sites is only one factor guiding development decisions, and in the case of development along the Blue Line, proximity to Uptown appears to have been a more important factor.
- **Southern stations will in many cases require significant infrastructure improvements to facilitate development.** While these station areas share access to Uptown Charlotte via the train, they do not have the central location, small block sizes and historic charm of the South End. These areas are instead dominated by auto-oriented development patterns and uses that will require phased investments to transition over time to become more pedestrian-friendly, transit-supportive places.
- **Proactive efforts by the City of Charlotte were important for setting expectations for local property owners and other stakeholders, in facilitating development near transit stations.** TOD zoning was available to developers before light rail construction began, and station area plans were completed or underway for the entire corridor by the time it was completed. Early station area planning efforts helped to set expectations and ease concerns of local stakeholders. The City has also played an important role in facilitating development along the line, and partnering with developers to finance needed infrastructure.

Figure 5-1: Blue Line Land Use Patterns and Recent Development



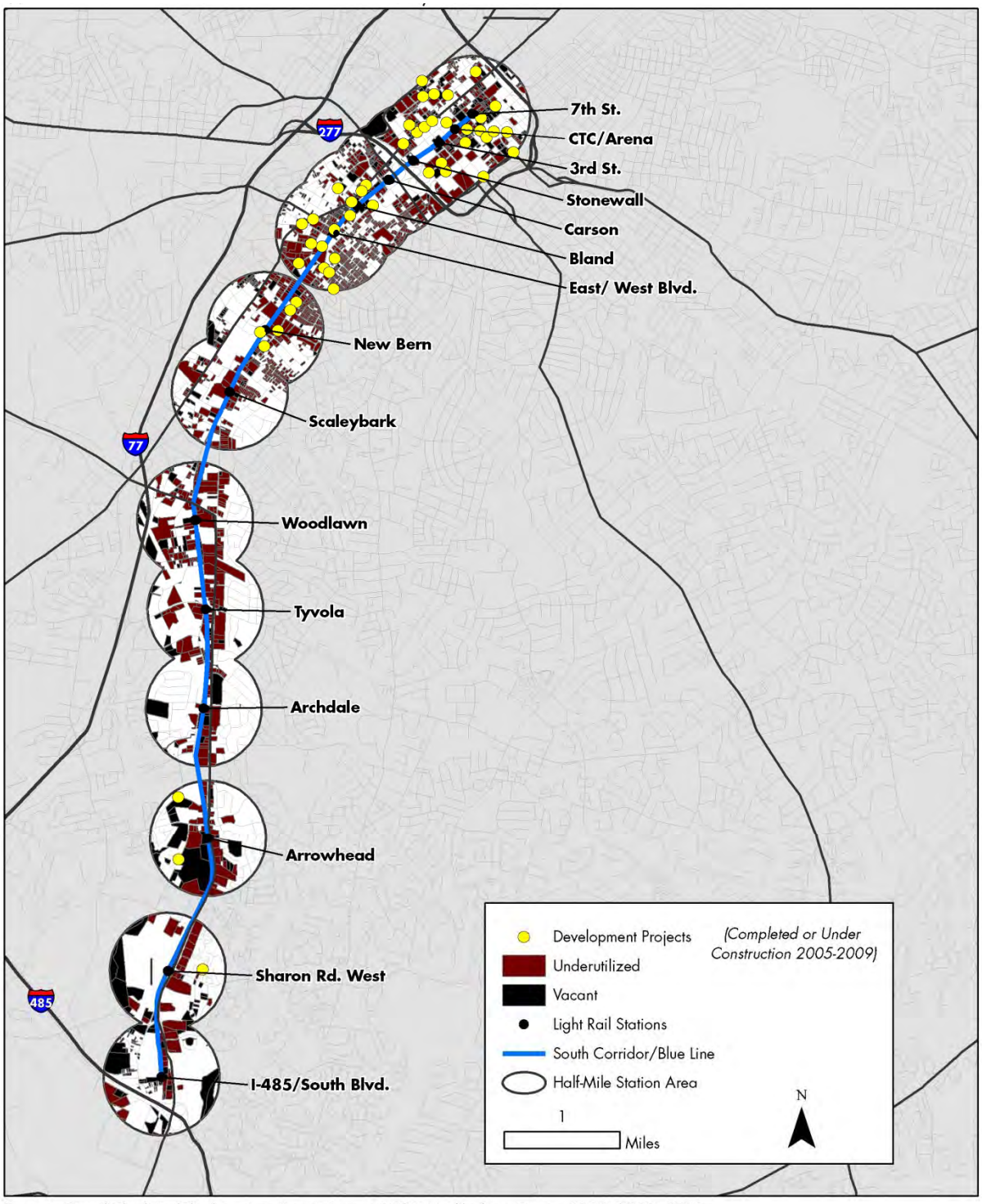
Sources: City of Charlotte/Charlotte Area Transit System, 2008; Mecklenberg County, 2005; CTOD, 2009

Figure 5-2: Blue Line Development, 2005 – 2009



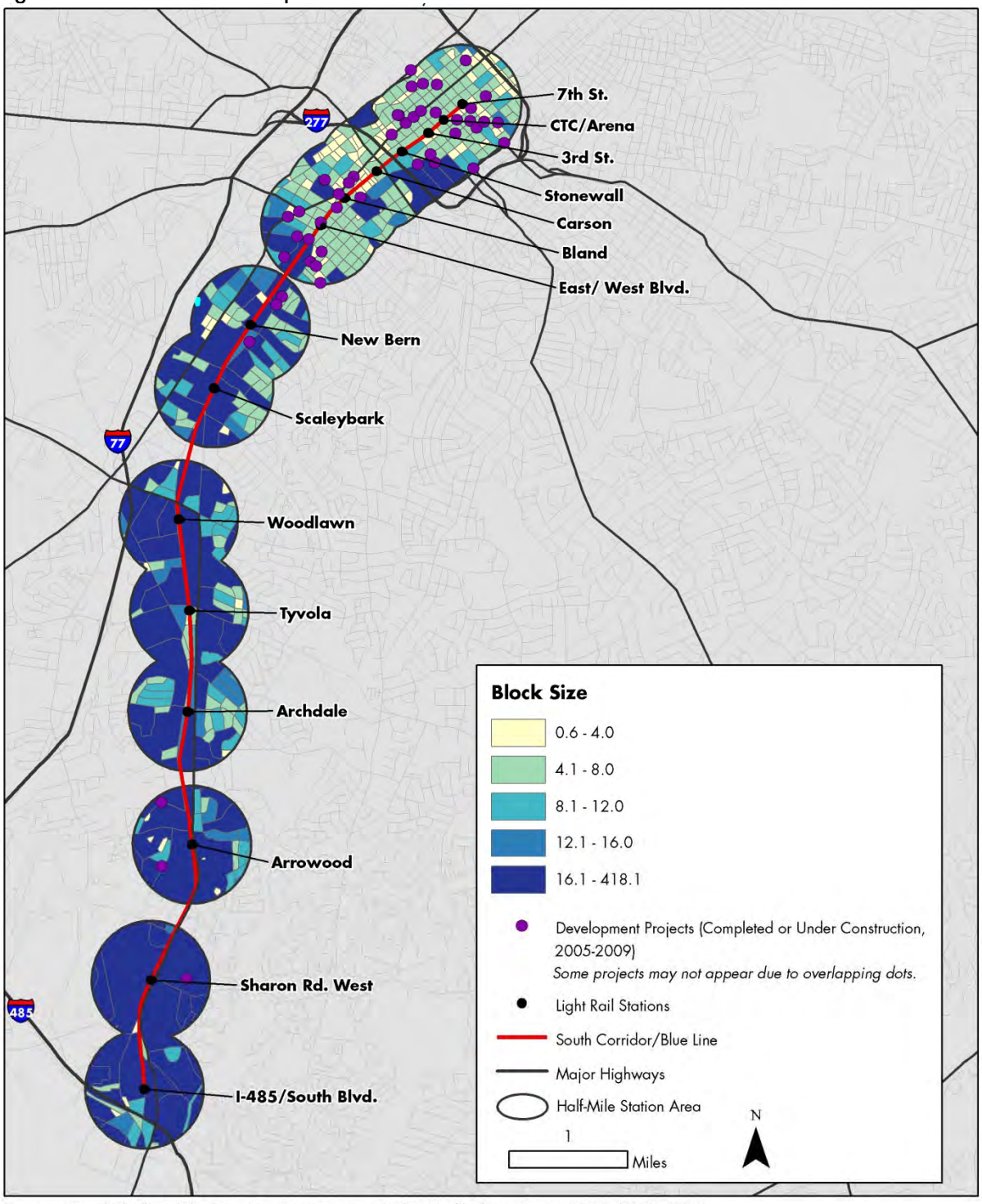
Sources: City of Charlotte/Charlotte Area Transit System, 2008; Mecklenberg County, 2005; CTOD, 2009

Figure 5-3: Blue Line Underutilized and Vacant Properties



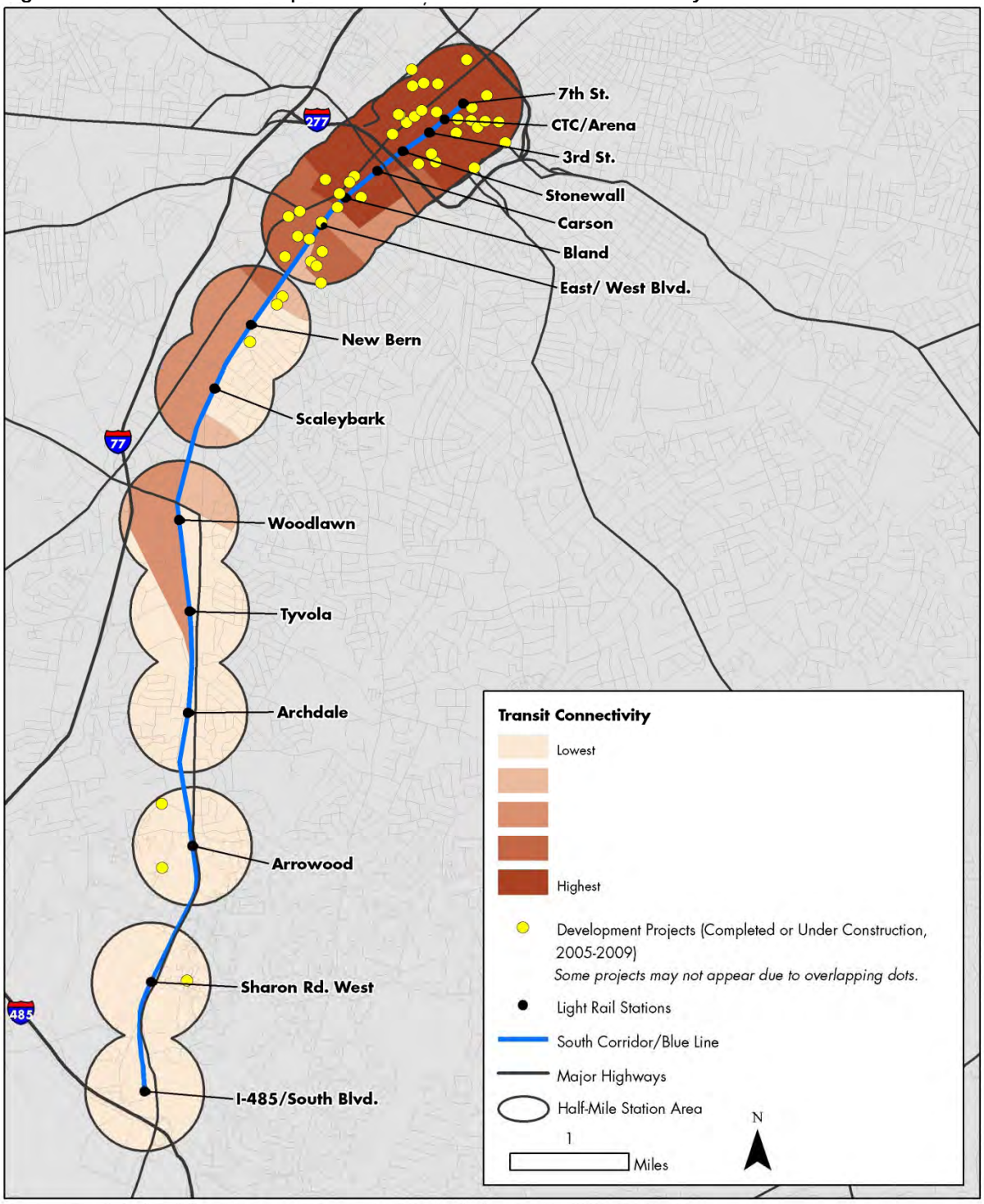
Sources: City of Charlotte/Charlotte Area Transit System, 2008; Mecklenberg County, 2005; CTOD, 2009

Figure 5-4: Blue Line Development Patterns and Block Size



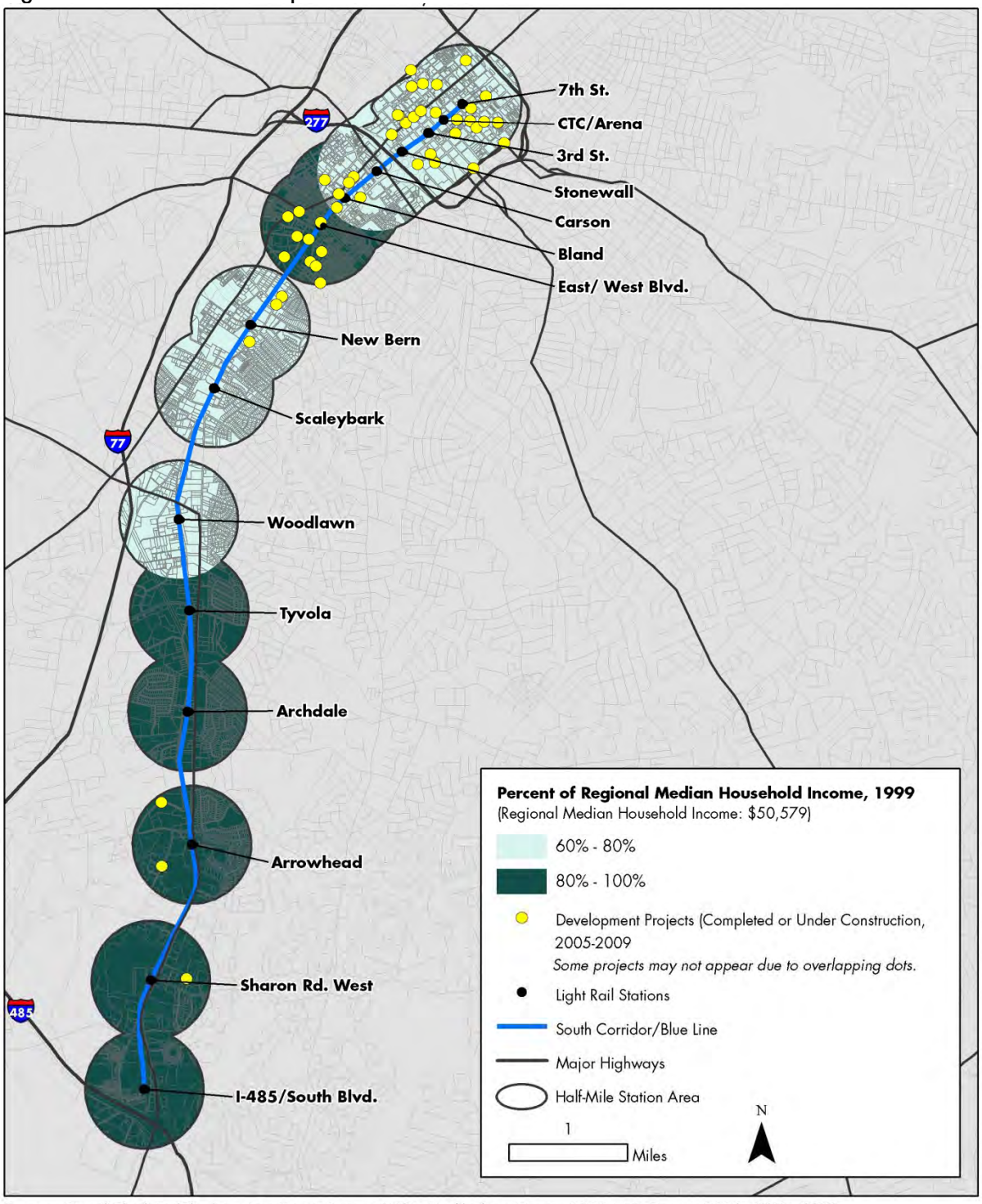
Sources: City of Charlotte/Charlotte Area Transit System, 2008; Mecklenberg County, 2005; CTOD, 2009

Figure 5-5: Blue Line Development Patterns and Transit Connectivity



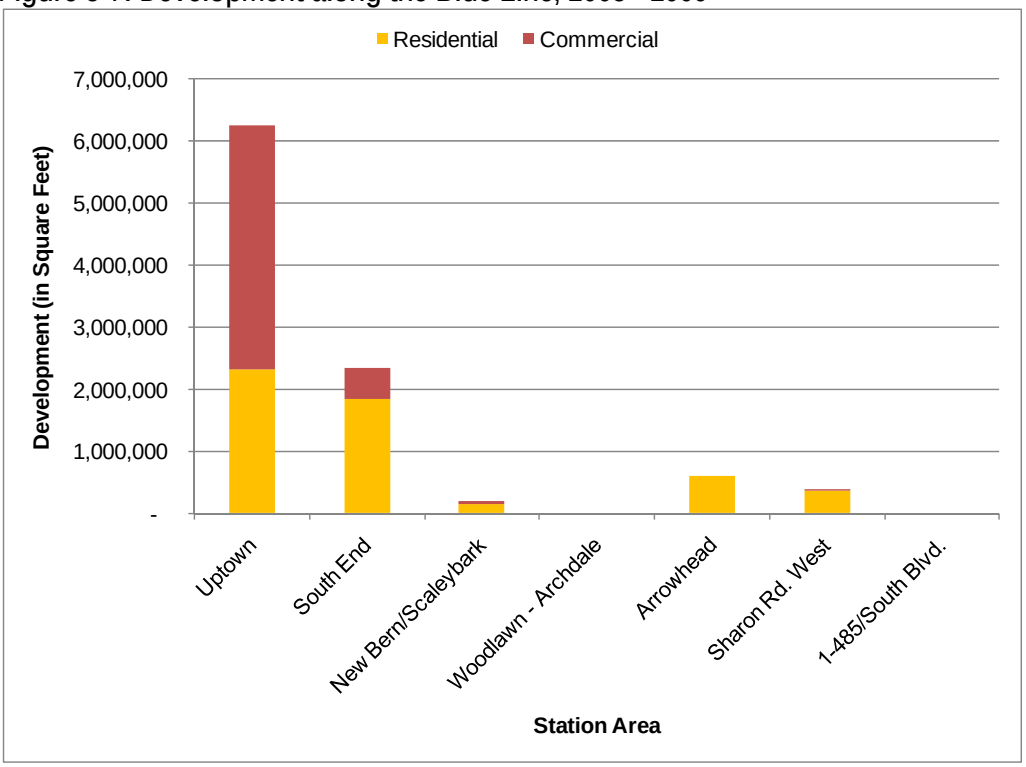
Sources: City of Charlotte/Charlotte Area Transit System, 2008; Mecklenberg County, 2005; CTOD, 2009

Figure 5-6: Blue Line Development Patterns and Median Household Incomes



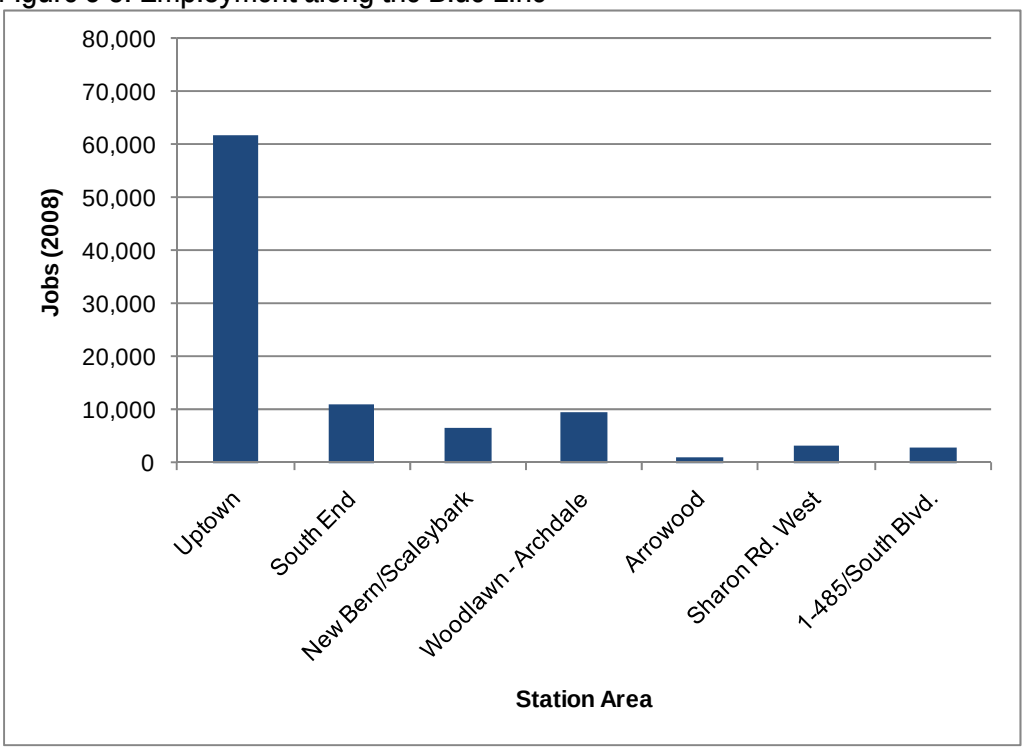
Sources: City of Charlotte/Charlotte Area Transit System, 2008; Mecklenberg County, 2005; U.S. Census, 2000; CTOD, 2009

Figure 5-7: Development along the Blue Line, 2005 - 2009



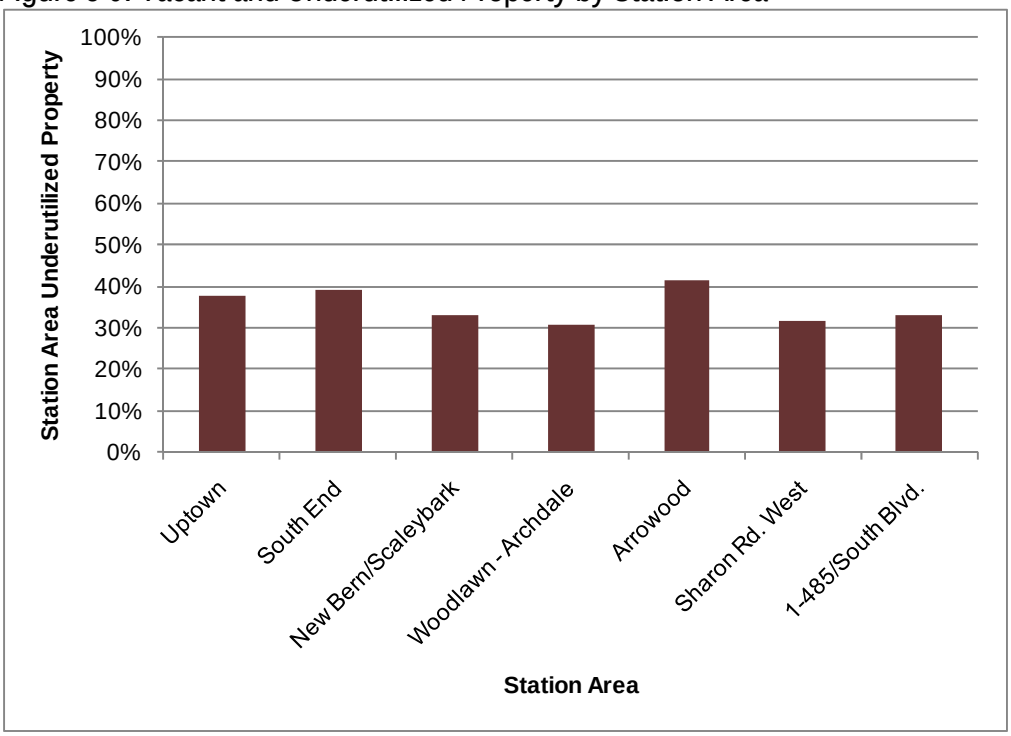
Source: City of Charlotte, Strategic Economics/CTOD.

Figure 5-8: Employment along the Blue Line



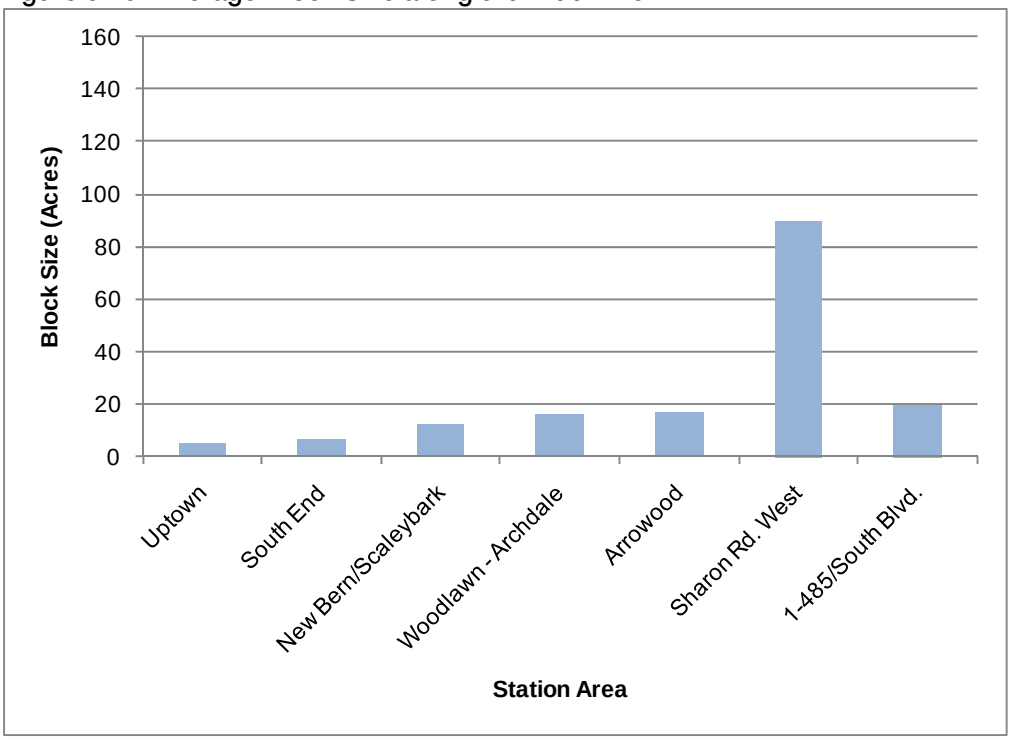
Source: US Census

Figure 5-9: Vacant and Underutilized Property by Station Area



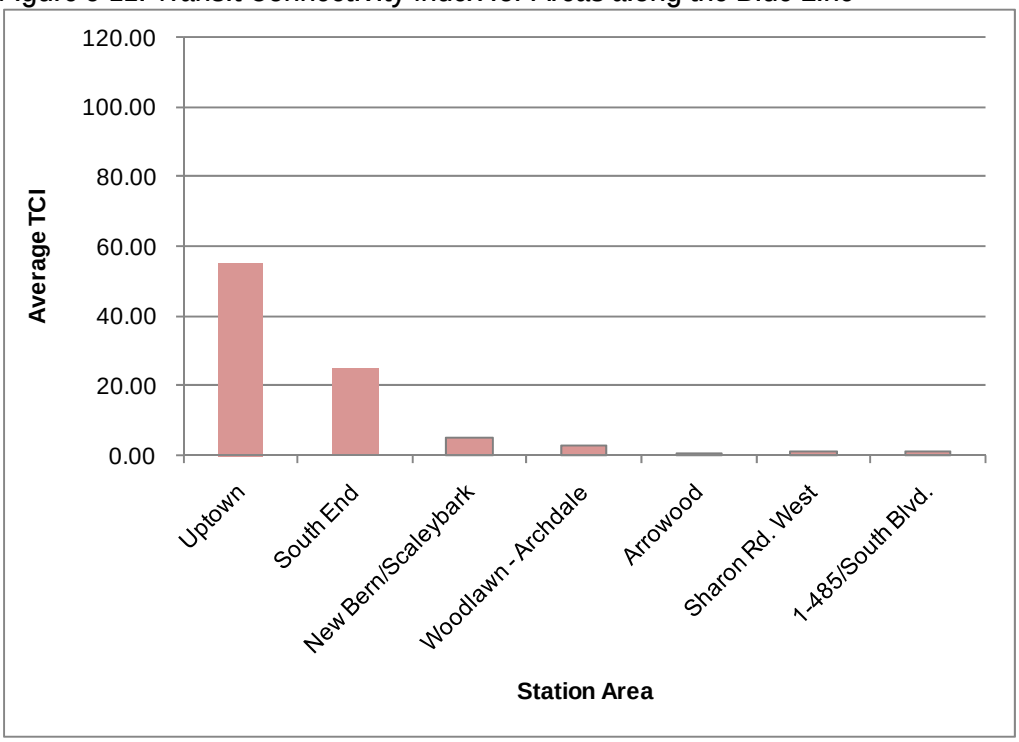
Source: Assessors Data, 2005.

Figure 5-10: Average Block Size along the Blue Line



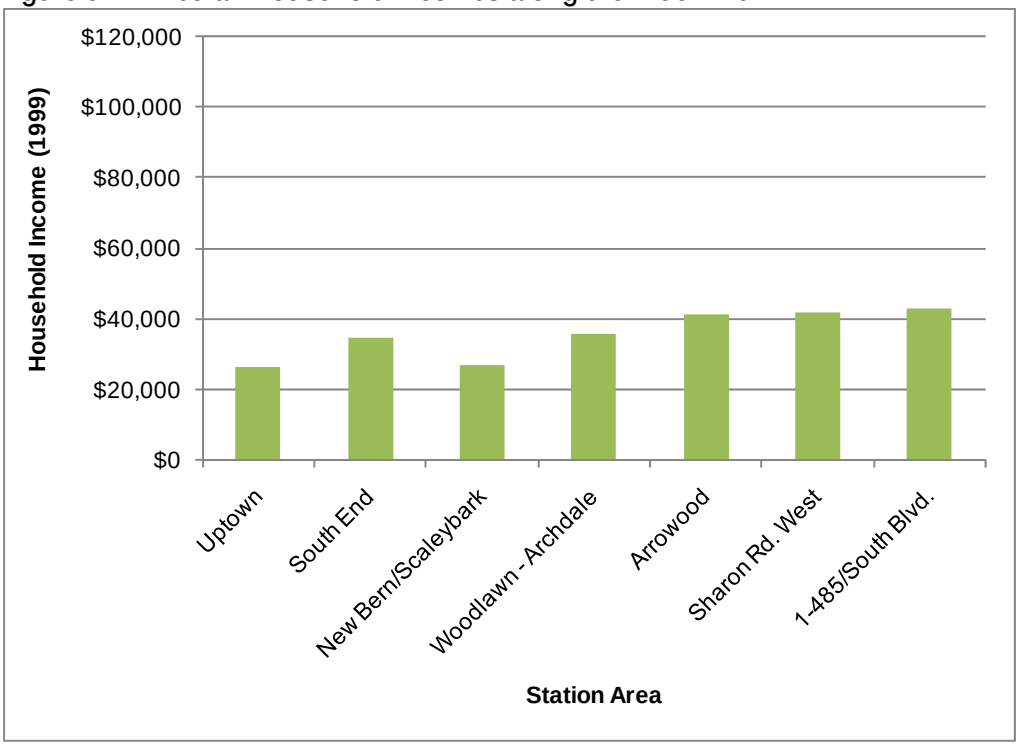
Source: US Census

Figure 5-11: Transit Connectivity Index for Areas along the Blue Line



Source: Center for Neighborhood Technology, Strategic Economics/CTOD.

Figure 5-12: Median Household Incomes along the Blue Line



Source: US Census 2000

Figure 5-13: TOD-Related Planning along the Blue Line

Station Area	Plan	Plan Type	Date Adopted
7th Street	First Ward Master Plan	Neighborhood	1997
	Center City 2020 Plan	Neighborhood (Downtown)	2010
Charlotte Transportation Center/Arena	First Ward Master Plan	Neighborhood	1997
	Second Ward Neighborhood Master Plan	Neighborhood	2002
	Brevard Street Land Use and Urban Design	Corridor-Based	2008
	Center City 2020 Plan	Neighborhood (Downtown)	2010
3rd Street	Second Ward Neighborhood Master Plan	Neighborhood	2002
	Brevard Street Land Use and Urban Design	Corridor-Based	2008
	Center City 2020 Plan	Neighborhood (Downtown)	2010
Stonewall	South End/Uptown Rail Corridor	Corridor-Based	1998
	Second Ward Neighborhood Master Plan	Neighborhood	2002
	Brevard Street Land Use and Urban Design	Corridor-Based	2008
Carson	South End/Uptown Rail Corridor	Corridor-Based	1998
	South End Transit Station Area Plan	Station Area/TOD	2005
Bland	South End/Uptown Rail Corridor	Corridor-Based	1998
	South End Transit Station Area Plan	Station Area/TOD	2005
East/West Boulevard	East Blvd. Pedscape Plan	Neighborhood	2002
	South End Transit Station Area Plan	Station Area/TOD	2005
New Bern	New Bern Transit Station Area Plan	Station Area/TOD	2008
Scaleybark	Scaleybark Transit Station Area Plan	Station Area/TOD	2008
Woodlawn	Woodlawn Station Area Plan	Station Area/TOD	2008
Tyvola	Tyvola/Archdale Transit Station Area Plan	Station Area/TOD	2008
Archdale	Tyvola/Archdale Transit Station Area Plan	Station Area/TOD	2008
Arrowood	Arrowood Transit Station Area Plan	Station Area/TOD	2009
Sharon Road West	I-485/Sharon Road West Transit Station Area Plan	Station Area/TOD	2009
I-485/South Blvd.	I-485/Sharon Road West Transit Station Area Plan	Station Area/TOD	2009

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VI. CONCLUSION

All three of the transit corridors profiled in this report experienced a considerable amount of new development since they were built, offering evidence of a shift in development patterns to favor infill locations near transit. However, the location and amount of this development varied considerably between stations according to the nature of development opportunity sites, land use context, market conditions, public sector support, and proximity to major destinations along each line. Key findings about the relationship of development patterns to various land use and demographic characteristics are described below, followed by a summary of other conclusions from the research.

Development Patterns and Station Area Characteristics

This report considered the location and nature of new development along the three transit lines with respect to several factors, including proximity to downtown and major employment centers, the extent of vacant and "underutilized" properties, average block sizes, transit connectivity and household incomes. Our qualitative findings about the relationship between these factors and new development is summarized in Figure 6-1, and described in detail below.

Proximity to Downtown

The majority of development that occurred along the new lines in the Minneapolis - St. Paul and Charlotte regions was in and around the two downtowns. In both regions, the introduction of light rail coincided with a boom in downtown development that appears to be in large part an outgrowth of long-standing efforts at revitalization. While the light rail was not a major factor stimulating development in these two downtowns, improved access to downtown entertainment and cultural amenities were an important factor making nearby station areas newly connected to the downtown attractive places for development. These development patterns also offer evidence that consumer preferences are shifting to favor urban places with excellent access to jobs, entertainment and shopping. In Charlotte, development showed a strong preference for locating in the South End, in part because of the proximity to Uptown jobs and amenities. Along Denver's Southeast Corridor, both residents and commercial tenants have also cited access to the amenities of downtown Denver as an important factor in their decision to locate near transit.

Proximity to Employment Centers

Proximity to employment centers appears to be one of the most important factors influencing new development along all three lines. In Charlotte, much of the development in the South End consisted of residential units marketed to young professionals working in downtown Charlotte, suggesting a clear relationship between jobs and development along the line. Similarly, most development along the Hiawatha Line occurred in areas in or near employment centers. Unlike Charlotte, however, only a limited amount of development occurred in places outside downtown, due in part to a limited number of opportunity sites.

The segment of the Southeast Corridor studied in this report is distinct from the other two corridors because it does not include any downtown stations. However, it does provide direct access to the Denver Technology Center, a major employment center with a strong, expanding market. Prior to the transit, employment was already drawn to the Southeast Corridor area because of the good highway access and proximity to desirable residential neighborhoods. It is difficult to discern the extent of the new transit's impact on the location of development, although interviews suggest that the transit influenced both the design of development near stations and in some cases the desirability of the office space (as evidenced by higher occupancy rates).

Figure 6-1: Relationship Between Station Area Characteristics and Development

	Hiawatha Line (Minneapolis)	Southeast Corridor (Denver)	Blue Line (Charlotte)
Proximity to Downtown	strong relationship (+)	N/A	strong relationship (+)
Proximity to Employment Centers	strong relationship (+)	strong relationship (+)	strong relationship (+)
Vacant and Underutilized Land	strong relationship (+)	strong relationship (+)	no clear relationship
Block Size (Walkability)	some relationship (+)	some relationship (+)	some relationship (-)
Transit Connectivity	some relationship (+)	no clear relationship	some relationship (+)
Household Income	no clear relationship	some relationship (+)	some relationship (-)

Vacant and Underutilized Properties

Based on the experience along the three corridors studied, this indicator is useful for generally identifying locations where development might occur. However, central locations with proximity to downtowns and other job centers appear to be more important factors influencing the location of new development. The measure of vacant and underutilized property is a very rough way to identify properties that are more likely to redevelop; nevertheless it is often used for planning purposes, and is therefore useful to test with regard to the location of new development.

In the Southeast Corridor, there is a strong relationship between the location of vacant and underutilized property and the location of new development. Many of the projects along this corridor were large mixed-use projects on greenfield sites. The nature of this development favored stations with significant amounts of vacant land.

Development patterns along the Hiawatha Line also favored locations with a significant amount of vacant or underutilized property, especially downtown Minneapolis. However, while Bloomington was identified as having the greatest amount of development potential, it has only experienced a limited amount of development to date (although much more is planned). Little development occurred in the Minneapolis neighborhood stations, consistent with the small amount of vacant and underutilized properties.

Along Charlotte's Blue Line, at least 30 percent of land in most of the stations along the line was identified as laying within potential sites for redevelopment according to this metric. Developers

showed an overarching preference for locations close to Uptown Charlotte, despite the fact that some station areas further along the line offered major greenfield or infill sites. It seems likely that interest will shift further out along the line once the best opportunity sites in these locations are no longer available, however many of these station areas will require significant investments in pedestrian and other infrastructure. Given the patterns of development that occurred during the last market cycle, creative partnerships with the public and private sectors will likely be required to enable transit-oriented development at many of these opportunity sites.

Block Size/Walkability

Development along both the Blue Line and the Hiawatha Line was more likely to occur in places with smaller block sizes, but development in Denver showed the opposite pattern. Most development in the Charlotte and Minneapolis - St. Paul regions occurred in the historic downtowns, which are characterized by smaller blocks. In contrast, most of the large office and mixed-use projects that were developed along Denver's Southeast Corridor were built in areas with larger block sizes. Several station areas at the north of the line are in older Denver neighborhoods with smaller blocks; however these areas have not seen as much development.

Transit Connectivity

Most Hiawatha Line and Blue Line development occurred in the downtowns, which tend to have the greatest transit connectivity because of their central location and regional importance. In Denver, meanwhile, most of the corridor offers limited transit connectivity beyond the light rail, and as a result there is little relationship between transit connectivity and development. The fact that the Southeast Corridor transit line travels along a major highway creates obstacles for pedestrian-friendly, transit-supportive development. The limited transit connectivity of these stations suggests that the value of the light rail is somewhat restricted.

Station Area Incomes

Based on the patterns of development along the three corridors studied in this report, there is no clear relationship between the location of recent development near transit and the household incomes of existing residents. However, most new residential development targeted households with higher incomes than existing residents. In the case of the Hiawatha Line, most new development was in the downtown, which was historically an area with a limited number of residents with relatively low household incomes. Along the Southeast Corridor, a significant amount of development occurred in the station areas with both the highest and the lowest incomes. In Charlotte, most development happened in the central part of the City, which also had the lowest incomes.

Key Findings

All three lines experienced a significant amount of new development since the opening of transit. The Charlotte line experienced the most development since the light rail, nearly 10 million square feet. This is particularly impressive given that Charlotte's Blue line is the most recently built of the three corridors. The Hiawatha Line in Minneapolis saw approximately 6.7 million square feet of new development between 2003 and 2009, and the Denver Southeast Corridor saw 7.8 million square feet between 2004 and 2009. The Minneapolis - St. Paul region had the greatest proportion of residential development, approximately 86 percent.

Table 6-2: Development Summary

	Minneapolis - St. Paul Hiawatha Line 2003 - 2009	Denver SE Corridor 2004 - 2009	Charlotte Blue Line 2005 - 2009
Square feet of development (est.)	6,713,904	7,767,917	9,753,963
Percent residential	86%	68%	54%
Percent commercial	14%	32%	46%
Percent downtown	72%	n/a	64%

Source: CTOD, local jurisdictions, RTD.

Proximity to existing employment centers and downtowns are critical factors driving development along transit lines. Overall, downtowns saw the greatest increment of new development in the three corridors surveyed. This development does not appear to be directly related to the new transit service, but rather the result of longstanding efforts to revitalize center cities, strong economies, and shifting demographics and consumer preferences toward places with urban amenities, shopping and entertainment. In Denver, meanwhile, development along the Southeast Corridor is closely tied to growth in employment in the Denver Technology Center, a major employment center.

Station area planning efforts are an important way to set the stage for future TOD and gain community support. Given the intensive planning needs along new transit lines, it is often necessary to prioritize planning efforts based on land use context, market strength, and community objectives. In Denver, the TOD Strategic Plan helped to create a framework to define TOD objectives and guide City actions. This kind of strategic framework was not available in smaller suburban jurisdictions along the line, and in some cases station area planning efforts have never been initiated. In Charlotte and the Twin Cities, early station area planning efforts helped to ease community concerns and create certainty for developers. In both the Denver and the Twin Cities regions, station areas with major development (or redevelopment) opportunity sites were more likely to rely on developers to initiate master planning efforts.

Proactive efforts by public entities to invest in neighborhood infrastructure and amenities are critical for unlocking the potential for TOD, especially in areas where land use patterns were previously automobile dependent. In the Minneapolis - St. Paul region and Charlotte, most development occurred in historic downtowns and warehouse/industrial districts that offer neighborhood amenities, historic architecture, and interesting, "walkable" streets. Outside these central areas, little development has occurred to date, in part because of the need for infrastructure improvements to make the station areas more appealing for TOD. Over the longer term, investing in these station areas will be important in order to unlock the potential for future development, take better advantage of the transit investment, and maximize ridership. In the Minneapolis - St. Paul region, limited investments in neighborhood connections have been recognized as an important factor limiting the benefits of transit to surrounding neighborhoods.

These kinds of investments are easier to implement as a part of larger projects, such as those in Denver, because they are of a large enough scale to allow for project-level financing of streets and other infrastructure. These larger projects also create opportunities for partnerships between the public and private sectors that facilitate TOD.

Developers see transit as an important amenity. Interviews in all three regions suggest that developers view locations near transit as a special kind of opportunity. In Minneapolis, for example, several projects have been directly marketed as being near the light rail. In other cases, developers have shown a willingness to change their design to reflect the presence of transit, especially for larger projects. In both the Denver and Minneapolis - St. Paul regions, developers have made major changes to the design of projects to take advantage of a new light rail connection. In some cases the concept of TOD may also have helped to attract capital for projects. While interviewees had differing opinions about whether locations near transit were able to achieve rent or price premiums, many agreed that projects near transit achieved faster absorption rates or higher occupancy rates.

The nature of the market along the corridor is an important factor to consider in planning for future development. Development in the Charlotte and the Minneapolis - St. Paul regions strongly favored historic downtowns and former warehouse and manufacturing districts directly adjacent to the downtowns. These places tend to be pedestrian-scaled, with smaller block sizes and good transit access. In Denver, however, development was more likely to occur in station areas with major opportunity sites that offered opportunities for large projects, in some cases multi-phased projects with multiple uses.

Implications for Value Capture Strategies

The findings of this report have implications for strategies that attempt to harness property value increases near transit to help offset the costs of transit investments, or to help finance other needed improvements along transit corridors. The 2007 CTOD report, *Capturing the Value of Transit*, described how most public sector value capture strategies are directly related to new development, in part due to the nature of existing public finance tools. These tools are more challenging to use in places with scattered-site infill development opportunities, because existing property owners may not perceive an immediate benefit from new transit or related investments, and as a result may not be willing to participate in an assessment district or other financing mechanism. As a result, infill development tends to favor urban locations that do not require major infrastructure upgrades or "placemaking" investments, or larger sites where a critical mass of development – and infrastructure financing – are possible.

This report finds that development patterns along transit corridors are uneven, in part because many station areas will require proactive efforts and investments to make development possible. This is especially true for many infill locations that were historically auto-oriented, which will require public realm improvements to encourage new kinds of development. In formulating value capture strategies, therefore, it will be important to be realistic about the need for station area improvements to facilitate better connectivity to neighborhoods and unlock development potential. Targeted investments will in many cases be needed to stimulate redevelopment. In other cases, station areas with very limited development opportunities may need substantial investment to ensure access to station areas by existing neighborhood residents.

Given that most corridors will need a series of strategic investments to encourage new development and provide community benefits, it will be important for value capture strategies to acknowledge the full range of contexts for infill development, and the full range of station area needs. In some cases this requires collaboration between the public and private sectors to find creative ways to finance and implement needed improvements. Where politically feasible, a corridor-level approach to value capture may be very useful, because this can allow value created in a strong market locations to assist with needed improvements elsewhere in a corridor.

Technical Report Documentation Page

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16. Abstract (Limit: 200 words)

This report evaluates real estate development patterns along three recently built light rail transit lines in the United States, in an effort to provide insights and guidance for local planning practitioners and others interested in fostering transit-oriented development (TOD). The three transit lines are the Hiawatha Line in the Minneapolis-St. Paul region in Minnesota, the Southeast Corridor in the Denver region in Colorado, and the Blue Line in the Charlotte region in North Carolina. Recent development is evaluated in the context of land use and demographic characteristics of the corridors at the beginning of the period studied, and in light of interviews with local planning and transit practitioners. The report finds that all three transit lines experienced a considerable amount of development, and that proximity to existing employment centers and downtowns appear to be important factors influencing the location of development. Nevertheless, all three corridors offer significant remaining areas of development opportunity. Investments in neighborhood infrastructure and amenities will be important for unlocking the potential for development, especially in areas where land use patterns were previously automobile dependent. Public sector "value capture" strategies should acknowledge the uneven nature of development patterns near transit and the need for strategic investments.

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