



Charlotte Streetcar Economic Development Study

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City of Charlotte

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Executive Summary

Overview and Study Approach

This Study presents an economic evaluation of the proposed Charlotte Streetcar, which would run on an approximately 10 mile corridor along Beatties Ford Road from Interstate-85 through Downtown and out along Elizabeth Avenue and Central Avenue to Eastland Mall. The central question addressed by this Study is how much funding could be anticipated from property-value based mechanisms, and what does this amount of potential funding mean for the feasibility of the proposed Charlotte Streetcar. The Study was prepared by BAE, a national urban economics and development advisory firm with expertise in transit-oriented development, in collaboration with Charlotte-based real estate firms Warren & Associates and Integra Realty Resources.

The proposed Charlotte Streetcar would be an addition to existing City plans and proposals for multiple new rapid transit lines, including the Northeast Corridor Blue Line extension, North Corridor Purple Line commuter rail, Southeast Corridor Silver Line, and West Corridor. Different types of transit are being evaluated for use on the various corridors, including light rail, heavy commuter rail, bus rapid transit, and streetcar (the latter for the West Corridor).

The Study involved identification of the lessons learned from other streetcar systems, thorough evaluation of local Charlotte markets and the proposed corridor, and preparation of detailed projections of potential property-value based funding. An academic literature review of streetcar systems (and related light rail) was conducted, along with qualitative and quantitative case study assessments of streetcar systems in other cities, and analysis of the impact of LYNX Blue Line on property values. Local developers and stakeholders along the proposed Streetcar corridor were interviewed. A detailed evaluation of development potential was conducted, and scenarios formulated for alternative levels of development from 2010 through 2035 along the proposed Streetcar corridor. The range of available property-value based mechanisms was identified and evaluated, and detailed projections were prepared that incorporate various assumptions about development, increases in property value, and other factors.

Key Findings

- Projected scenarios for new development along the entire 10 mile proposed Streetcar corridor from 2010 to 2035 include:
 - A “**No Build**” or “**No Streetcar**” development scenario, with only continued bus service along the proposed streetcar corridor (including Downtown), indicates that new development from 2010 to 2035 could realize approximately:
 - 6,600 new multifamily dwelling units (4,100 rental and 2,500 for-sale);
 - 3.8 million square feet of new office space (89 percent Downtown);
 - 250,000 square feet of new retail; and
 - 1,000 new hotel rooms.

These figures reflect active development Downtown, as well as increasing revitalization in areas along Elizabeth and Central Avenues, and Beatties Ford Road.

- A “**Baseline**” development scenario that reflects the proposed Streetcar corridor stimulating greater development than has occurred over the past decade, comparable to the potential rate of development along Charlotte’s other new transit corridors, due to the combination of streetcar and other supporting public actions. New development from 2010 to 2035 in this scenario could realize approximately:
 - 9,500 new multifamily dwelling units (5,400 rental and 4,100 for-sale);
 - 4.3 million square feet of new office space (78 percent Downtown);
 - 370,000 square feet of new retail; and
 - 1,100 new hotel rooms.
- An “**Accelerated**” development scenario that reflects the proposed Streetcar corridor capturing an even larger share of regional growth from 2010 to 2035 as a result of very strong catalytic effects from the new streetcar and other supporting public actions. New development from 2010 to 2035 in this scenario could realize approximately:
 - 11,300 new multifamily dwelling units (6,400 rental and 4,900 for-sale);
 - 4.5 million square feet of new office space (76 percent Downtown);
 - 390,000 square feet of new retail; and
 - 1,200 new hotel rooms.
- The two primary land value based revenue sources that are available and most viable for financing of the proposed streetcar under current North Carolina law are: (1) creation of a Tax Increment Finance District (recently authorized by the Legislature); and (2) creation of a Municipal Services District (already established in portions of the Downtown).
 - **Tax Increment Finance (TIF)** allocates increases in property tax receipts above a base level – using existing tax rates so there is no tax increase to property owners – with proceeds used to finance capital improvements to support new development.
 - A **Municipal Service District (MSD)** creates an additional property tax rate that is used to provide services or facilities within a defined district. Its proceeds can also be used to finance capital improvements to support new development.
- Potential TIF and MSD generation was projected based on the development scenarios, adjusted for factors affecting tax proceeds, including the potential MSD rate (0.02 percent to 0.06 percent per year); increases in land value due to a “streetcar premium” (one-time, ranging from zero to 10 percent); and appreciation due to neighborhood revitalization (combined ranging from zero percent to 0.3 percent per year).
 - “Low” and “Moderate” projections of TIF and MSD used the Baseline development scenario, and a “High” projection used the Accelerated development scenario.
 - Total combined TIF and MSD generation for the period from 2010 to 2035 are¹:
 - The Low funding scenario is approximately \$209 million.
 - The Moderate funding scenario is approximately \$249 million.
 - The High funding scenario is approximately \$305 million.

¹ These figures do not include the proposed Elizabeth Avenue Synthetic Tax Increment Finance District (STIF) repayment. The value of the STIF was in the process of being determined when the Study was prepared.

- These projections assume no payments from tax-exempt institutions in the proposed streetcar corridor, consistent with North Carolina law for property taxes and MSD's.
- The potential amount of financing that could be supported will be less than the above amounts due to interest and bond issuance costs, and would be affected by the timing of streetcar construction.
- Future property tax proceeds in 2035 were compared between the No Streetcar and Low, Medium, and High funding scenarios to allow an even comparison of fiscal benefit, i.e. what would be the proceeds after expiration of TIF and MSD Districts in 2035.
 - The growth in annual property tax proceeds only by 2035 above current levels would be approximately:
 - No Streetcar: \$11.8 million per year
 - Low Scenario: \$15.2 million per year
 - Moderate Scenario: \$16.0 million per year
 - High Scenario: \$17.9 million per year

These findings are set forth in the following summary table:

Summary of Key Assumptions and Potential Property Value Based Revenue Generation

Taxation and Property Value Increase Assumptions

Tax Rates	Tax / Appreciation Scenarios		
	Low	Moderate	High
MSD Tax Rate	0.02%	0.04%	0.06%
TIF Tax Rate	0.46%	0.46%	0.46%
Streetcar Value Premium			
Residential	0.00%	5.00%	10.00%
Commercial	0.00%	5.00%	10.00%
Neighborhood Reinvestment Factor (Annual)			
Residential	0.00%	0.30%	0.30%
Commercial	0.00%	0.00%	0.00%

Projected New Development

Type / Quantity of New Development	Growth Scenarios		
	Baseline	Baseline	Accelerated
For-Sale Residential, Units	4,117	4,117	4,928
Rental Residential, Units	<u>5,343</u>	<u>5,343</u>	<u>6,386</u>
Total Residential, Units	9,460	9,460	11,314
Retail, Sq. Ft.	365,723	365,723	391,109
Office, Sq. Ft.	4,338,849	4,338,849	4,488,439
Hotel, Rooms	1,137	1,137	1,176

Cumulative Revenue Projections, 2008 through 2035

(Figures in constant 2008 dollars)

Revenue Projections	Revenue Generation Scenarios		
	Low / Baseline	Moderate / Baseline	High / Accelerated
MSD Revenues	\$27,127,031	\$55,232,861	\$86,149,986
TIF Revenues	\$182,079,935	\$193,301,874	\$218,530,175
Total MSD and TIF Revenues	\$209,206,965	\$248,534,735	\$304,680,160

Note: See report and tables for explanation of methodology and assumptions.

Sources: Warren & Associates, 2008; BAE, 2008.

The remainder of this Executive Summary provides additional information regarding the research and analysis that supports these key findings. The following pages of the Study and its appendices provide the comprehensive research and analysis, including detailed tables documenting assumptions and containing the financial model prepared for the Study.

Potential Financing Sources

The types of financing plans used for most streetcar systems includes a combination of federal, state, and local sources. Most streetcar systems are financed from a complex combination of multiple financing sources.

The federal Small Starts programs has been seen as a promising source, however its restrictive criteria has led to only three streetcar systems to date obtaining initial funding approval. There is some potential that the Federal Transit Administration may consider revising its criteria in 2009 to make this source more available. Many states and regions have incorporated streetcar grants into their ongoing capital improvement programs, dependent upon funding sources which vary widely, but can include gasoline taxes and sales taxes.

Local sources for existing streetcar systems are broad-based, and in addition to gasoline and sales taxes, include General Fund contributions, other general tax increases, and parking meter and public garage revenues. Other pending proposals in other cities include surcharges on admissions at publicly-owned venues for entertainment and sporting events. A number of cities are looking at private donations to fund a portion of project costs, including donations from major universities that would receive substantial services from a streetcar line.

There are several potential land value based financing sources. The most significant source is TIF, and the North Carolina Legislature recently authorized local governments to create TIF Districts that can be used to finance bonds for public improvements (previously, local governments were only allowed to create “synthetic” project-based TIF Districts to repay public improvements financed by developers).

The next most significant source of land value based financing are numerous types of Special Assessment Districts, including Local Improvement Districts. A MSD is an example of a particular type of Special Assessment District. Another common mechanism is Development Impact Fees or Service District Charges levied on new development based on the benefits it receives (e.g. an amount per square foot or dwelling unit), however it is not allowed by North Carolina law. Joint Development projects involve a transit agency sale or lease of land it owns for development to capture its value, however most streetcar systems have limited agency-owned land.

Last year, the North Carolina Legislature approved Special Assessment Districts for Critical Infrastructure Needs, including public transit. Such an Assessment District, unlike TIF or MSD, result in levies on properties owned by tax-exempt institutions. However, the requirement for a majority vote of property owners could make establishment of one politically problematic in a larger area with hundreds or thousands of property owners, such as the proposed streetcar corridor.

Literature Review and Case Study Research

The academic literature on the land value created by transit, i.e. the “land value premium” mostly addresses light-rail or other types of rail transit that is not directly comparable to a streetcar. The more recent popularity of streetcar systems means that there is almost no analysis of its potential land value premium. For this reason a range of potential land value premiums were modeled for this Study.

Detailed research was conducted on the streetcar systems in Portland, OR; Seattle, WA; and Memphis, TN. An analysis of paired land sales along Charlotte’s South Corridor LYNX Blue Line was conducted to identify increases in land value associated with changes in zoning to support transit-oriented development and the opening of the new light rail service. Extensive interviews were conducted with local developers, including those who have already purchased property in the proposed streetcar corridor.

As demonstrated throughout the literature and in the case studies, the premium for property values located near transit can vary substantially from one location to another, as well as over time along the same route as it is extended. In Portland, the use of a Local Improvement District (LID) and other value-based financing tools to finance portions of each streetcar segment appears to bear out that capturing this value premium is workable. In Seattle, it is too early to ascertain any trend, while in Memphis the findings are a bit more varied. Charlotte itself, along the Blue Line, appears to have experience substantial value increases, although it should be noted that it is difficult to separate out the additional value created by new, higher density zoning from otherwise similar “before” and “after” transit system situations.

The picture for streetcar as a catalyst for new development will depend on the overall economic situation as well as a host of other non-transit related factors. In Portland, the streetcar route is credited with stimulating the revival of the Pearl District, and the data collected there does seem to bear this out. However, the Pearl District was already underway as a new urban neighborhood, and had attracted substantial private investment capital prior to the streetcar’s initiation (and much as in Seattle, these private developers actually encouraged the construction of the streetcar to enhance their projects’ market position).

Interviews conducted with developers in Charlotte indicate this same trend. Developers who have decided to invest along the proposed streetcar route attribute the streetcar with attracting their capital investment, but also mention in some cases that the corresponding increases in zoning/entitlements drew their attention. Separating out the two factors is quite difficult in this case. Indeed, there may be some potential developers or land owners who see the streetcar as a “silver bullet” that makes otherwise relatively modest local markets come alive. While this may be true in a city like Charlotte, with dynamic overall growth and extensive planned new transit service, it is not clear that the competitive advantages of the proposed streetcar route alone would elevate these local markets to the level of marketability desired by project proponents, especially in the next few years as the overall economy slows and capital dollars are limited.

It should be noted, however, that much of market demand and attraction of private capital is driven by perceptions of a competitive advantage. The streetcar route in Charlotte is perceived to be a

development catalyst by those developers who were interviewed. While this may be driven more by individual investment decisions speculating on the “next big thing,” the increasing need for more efficient patterns of land use made possible by transit service may well extend and reinforce this initial perception in the future.

Streetcar Corridor Development Potential

The proposed streetcar corridor was broken into four separate segments, covering ¼ mile on either side of the proposed streetcar route, in order to allow more detailed evaluation of local market conditions, and preparation of funding projections by sub-area. The four segments are:

- **West:** Rose Parks Place Community Transit Center, along Beatties Ford Road to Interstate-77;
- **Downtown:** Interstate-77 to Interstate-277 along Trade Street;
- **Midtown:** East of Interstate-277 along Elizabeth Avenue, north along Hawthorne Lane, and looping to Central Avenue and eastwards to Briar Creek; and
- **East:** Briar Creek to Eastland Mall.

Existing Area and Districts Plans covering these segments were reviewed to identify areas that have been rezoned to accommodate more dense mixed-use development through a Pedestrian Overlay District, Transit Supportive Overlay District, or other urban zoning. A review of all properties within the proposed streetcar corridor was conducted to identify the likely amount of underimproved property that could be expected to be redeveloped by 2035 based on existing and future zoning permitting denser mixed-use projects.

A market study of the local market area for each of the streetcar corridor segments was undertaken by Warren & Associates to project potential market support for various types of development, the amounts that could be captured within the ¼ mile proposed streetcar corridor, product types, pricing, and other considerations (a summary of the market study is in the Study appendices). The market study considered both development patterns and absorption over the past decade, as well as future development through 2035 as projected by the Centralina Council of Governments.

The analysis indicates that there is considerably more long-term development capacity, i.e. available land with appropriate zoning, than there is market support even under the most aggressive development projections. This is not unusual as zoning entitlements often exceed the potential market demand to ensure sufficient available sites, as not all existing owners are interested in selling their properties even if it can support denser new development. Since the availability of suitable sites is not expected to be a constraint, the market study analysis and future development projections were used to formulate development scenarios for the streetcar corridor segments.

Next Steps

The projected land value based funding does not directly translate to available potential financing for the streetcar system, for several reasons. Perhaps the most significant factor is that property-based value capture mechanisms build value over time, while capital improvement costs typically need to be made up-front. Obtaining a larger amount of financing than can be justified by available

tax increment and/or assessment district proceeds is often done by providing credit guarantees, or arranging internal loans of funds from other accounts that would be repaid from future tax increment and MSD payments as they increase. Other factors that might affect financing would include whether improvements can be phased.

The next steps for a streetcar financing strategy would include evaluation of these and other factors with the City's budget and management staff, and decisions on the optimal methods for leveraging potential tax increment and MSD proceeds. That work would then need to be integrated with other work addressing various other potential federal, state, and local grants and non-property tax based funding sources.

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I n t r o d u c t i o n

Purpose of Study

The City of Charlotte has experienced rapid growth and expanded economic opportunity in recent years. Strategic growth management, along with extensive private and public investment in Downtown and throughout Charlotte's neighborhoods have all strengthened the city's outstanding quality of life, heightened its competitive position, and boosted economic development.

The integration of modern rail transit into Charlotte's urban fabric has experienced strong success. The first light rail transit line - the LYNX Blue Line - opened in November 2007 and rapidly exceeded ridership expectations. Additional rapid transit lines are in various stages of planning and design, including the Northeast Corridor Blue Line light rail extension, the North Corridor Purple Line commuter rail, and the Southeast Corridor Silver Line light rail/bus rapid transit (to be determined). These fixed guideway transit lines, when completed, will transport people throughout the region, in a generally north-south direction.

To provide fixed guideway transit service and connect neighborhoods that are north and east of Downtown, Charlotte has explored construction of a contemporary streetcar system that would approximately run along Beatties Ford Road from Interstate-85 through Downtown and out along Elizabeth Avenue and Central Avenue to Eastland Mall. A separate proposed project for a West Corridor connector from Downtown to the Charlotte Douglas International Airport is considering use of a streetcar as well as bus rapid transit. Compared to light rail systems, streetcar systems generally offer smaller cars and can operate within existing streets, sharing rights of way with passenger and other vehicles. Streetcars also have the ability stop along the street, rather than at stations, allowing for an easy integration into neighborhood streetscapes

This Study was commissioned by the City of Charlotte to analyze the potential of the streetcar route to stimulate infill development, capture increases in property values, and finance a portion of the capital costs using contemporary financing mechanisms based on this increased property value.

Methodology

The concept of financing fixed guideway transit systems using value capture techniques has been utilized by many cities in the U.S. and Europe, with varying degrees of success in terms of achieving substantial funding streams, leading to the central question of this Study: *How much funding could be anticipated from property value-based mechanisms, and what does this mean for the feasibility of the Charlotte streetcar system?*

To address this central question, this Study takes a multi-pronged approach, seeking lessons learned from other cities' experiences, and applying those lessons to the fiscal revenue base in Charlotte. Specifically, this Study included the following steps:

- **Identify Lessons Learned From Other Systems**
 - Conduct a literature review of streetcar systems (and related light rail systems) in the U.S. to identify lessons learned
 - Conduct a qualitative series of case studies of selected recently constructed systems
 - Analyze available data in comparable case study cities to quantify increases in property values from streetcar-related development
 - Analyze the impacts of the LYNX Blue Line in Charlotte on nearby properties

- **Estimate Potential Funding in Charlotte**
 - Interview local developers and stakeholders impacted by the proposed streetcar route in Charlotte to understand expectations and concerns
 - Evaluate potential new development opportunities along the proposed route
 - Prepare a detailed estimate of value capture and funding streams generated by several financing mechanisms along the proposed Charlotte streetcar route

Report Organization

The following report first provides an overview of U.S. contemporary streetcar systems including financing mechanisms and studies in the literature that look at value capture issues. The next chapters profile case study findings from Portland, Memphis, and Seattle’s streetcar systems, as well as the value premiums associated with Charlotte’s existing light rail. This chapter also summarizes interviews held with property owners and developers along the proposed Charlotte streetcar route and their opinions about the streetcars affects on property values and development opportunities. Next, the report summarizes the proposed Charlotte streetcar system, including a detailed analysis of potential for infill development. A market study conducted for this analysis is also summarized. The report then presents a summary of the financial forecasting model prepared for this study, which analyzes the potential funding generated by municipal service district (MSD) and tax increment financing (TIF) mechanisms applied to properties within a defined area surrounding the streetcar system. The report concludes with a discussion of the implications of this analysis.

Financing for Contemporary Streetcar Systems

Contemporary Streetcar Systems

In the past 30 years, numerous cities have planned and implemented new rail transit systems. This movement has coincided with other urbanization factors, bringing new life to urban core areas and advancing strategies for growth that promote more efficient patterns of development. Various forms of heavy rail, commuter rail, light rail, and streetcar systems have been built, many with robust ridership and popularity, due to a rediscovery of this form of transportation, and exacerbated by rising gas prices.

One of the types of rail under consideration or built by numerous cities is the streetcar, reviving an older form of urban transportation. At present, there are more than three dozen streetcar systems either built, under construction, or planned across the U.S. (see Appendix B for listing). These streetcar systems have gained in popularity due to their relatively lower cost of construction than light or commuter rail, the ease of integrating streetcars into existing urban fabric, and the convenience of frequent stops.

Although the definitions can blur, a streetcar is generally differentiated from light rail by its narrower “cars,” its narrower gauge tracks, and its more frequent stops than light rail. Streetcars also use electric engines and are connected to overhead electricity lines with a trolley pole.² As described by Reconnecting America, “the U.S. term streetcar is generic to most forms of common carrier rail transit that runs or has run on streets, providing a local service and picking up and discharging passengers at any street corner, unless otherwise marked.”³ Modern streetcars typically run in the street at grade on embedded rails, stop every two or three blocks, move at 8 to 12 miles per hour, and provide low cost per mile construction costs relative to light or heavy rail. Stops can be as simple as signs marking a location.



² American Public Transit Administration

³ See Reconnecting America, “Transit Technologies Worksheet” at <http://www.reconnectingamerica.org/public/tod>.

Two subcategories of streetcars are experiencing a surge in popularity: vintage (historic) and modern. Some existing streetcar systems use historic rail cars to attract tourists and create an overall ambiance, while some systems use or are planning to use a mix of historic and contemporary cars. Charlotte has its own vintage trolley that was a precursor to the LYNX Blue Line, and that still runs on the South Corridor on weekends.

The most showcased modern streetcar system in the U.S. is the Portland streetcar, profiled in more depth in the following chapter. Opened in 2001, the system has grown to over four miles of track traversing downtown, and is currently in the final design stages of an additional 3.3 mile extension from downtown Portland across the Willamette River. The success of this system, and its relationship to further enhancing the Portland region's extensive network of light rail lines, has made Portland a leader in public rail transit. In the past few years, five new streetcar systems have been completed, including segments in Tampa, Florida; Little Rock, Arkansas, Memphis, Tennessee; and Tacoma, Washington, as well as the recently-opened system in the South Lake Union neighborhood near downtown Seattle. As of first quarter 2008, there are now as many as 46 streetcar initiatives across the US and Canada in the planning stage, ranging from larger cities such as Columbus, Ohio, to smaller cities like Winston-Salem, NC and Lake Oswego, OR.

Overview of Streetcar Financing Mechanisms

As a subcategory of rail systems, streetcar systems face a daunting challenge to finance initial construction costs as well as ongoing operating costs. However, streetcars, due to their light weight, smaller sizes, at-grade functionality, and other features, tend to be relatively easy to incorporate into existing public street networks, eliminating the need for major right-of-way land assembly, thus substantially reducing costs compared to other technologies.

The following provides an overview of the key types of financing used or under consideration by streetcar system planners across the U.S.

Small Starts Program (Federal Transportation Administration). Congress created this grant program in 2003, and it initially was considered as holding much promise. However, various measures used to evaluate system grant applications have resulted in many streetcar systems not achieving funding through this mechanisms, resulting in strong recommendations from the transit community to revamp Small Starts when Congress considers a new surface transportation bill in 2009. To date, just three systems have obtained Small Starts funding, including an extension to the well-established Portland system and new projects in Tucson, Arizona and Fort Lauderdale, Florida.

State and Regional Programs. Many states and regions have incorporated streetcar grants into their ongoing capital improvements programs, dependent on funding sources which vary widely, but can include gasoline taxes and sales taxes.

Local Sources – Taxes, Parking Revenues, Surcharges. Some cities have utilized a broad-based financing strategy with local surcharges on retail sales, other forms of general tax increases, allocations from local General Funds funded by tax revenues, and revenues collected from a defined area’s parking meters or public parking garage revenues. This last mechanism seeks to link automobile use to transit, creating a pricing disincentive to auto use, while collecting fees to fund alternative transportation methods. Examples include the Grand Rapids line, which has a proposed \$0.25 sales tax increase, and Sacramento, where public parking garage charges would increase 10 percent along with a \$0.25 per hour increase for metered on-street parking.

A few creative types of taxes and surcharges have surfaced in the streetcar financing realm, including a proposal in Columbus, Ohio to add a surcharge to paid admissions at publicly-owned venues for entertainment and sporting events. These events are held in publicly-sponsored arenas and other venues within walking distance of the proposed streetcar line and also affected by convention visitation, and as such, make sense to charge patrons to fund a transit system serving these venues.

Local Sources – Land Value Based. This category of financing is the main focus of this report. Many fixed guideway transit systems, including streetcar as well as light and heavy rail systems, are created and partially funded on the premise that providing fixed guideway transit service to a site enhances the site’s value, compared to other sites without this transit service. The added value of the service, expressed in higher values attributable to the land, means that in theory, a residential condominium or office space lease rates bring a higher price on the marketplace as a result of this new fixed guideway transit service. In addition, in many cities, higher density zoning or other development entitlements also can be obtained near fixed guideway transit lines, bringing an even higher value to the underlying land. For both of these reasons, many transit planners seek to capture the value of the transit service through land value-based types of financing mechanisms. There are several types of value capture mechanisms, as profiled below.

- *Tax Increment Financing (TIF).* This mechanism uses existing legal frameworks (which differ from state to state), to “freeze” property taxes at the inception of the process, and divert additional property taxes as property values rise from the public investment, to pay for the improvement. This can be accomplished either on a “pay as you go” method, where the increment of taxes above the original baseline are collected each year and directly reinvested in a public improvement, or these expected incremental tax revenues can be pledged to pay a tax increment bond, enabling up front funding of the full improvement.
- *Special Assessment Districts (Local Improvement District, Municipal Services District).* This mechanism relies on direct property tax assessments, usually in a defined geographic area which is demonstrably receiving the “benefit” of the fixed guideway transit service. Since streetcars are relatively localized, the geographic area is often fairly defined. The specific mechanisms will vary from state to state, but the general idea is that these property owners are charged an annual payment on the basis of a fair allocation (such as per lineal foot of frontage to streetcar, per square foot of land in a defined walkable zone, etc.). This funding stream is then used to either pay for improvements annually, or pledged to repay a bond over time.

Assessment districts often apply to all properties within a district, including those owned by tax-exempt entities, for the reason that all property owners regardless of tax status receive the same benefits provided by the district. In North Carolina, tax-exempt properties are not subject to Municipal Service District fees. However, the State legislature recently authorized a new special assessment district for critical infrastructure, including public transit, and tax-exempt property owners would be required to make payments for this type of district.

- *Development Impact Fee or Service District Charge.* This mechanism is used broadly throughout the U.S. to finance a variety of infrastructure and transportation improvements serving new development projects. However, in most cases, the impact fees charged must be demonstrably benefiting just the new development (e.g., a nexus test), and must therefore be carefully designed to not include benefits to other existing property owners or residents. These types of fees are not currently allowed in North Carolina.
- *Joint Development.* This mechanism uses publicly-owned land directly, to stimulate valuable private development with a transit orientation (TOD). Since streetcars do not generally involve substantial publicly-owned land area (e.g., do not involve parking lots), this concept is less frequently considered as a direct funding source for streetcar systems.

Private Donations. Multiple cities are planning to finance a portion of their streetcar line with private investments or sponsorships. Columbus' \$103 million streetcar proposal includes a \$12.5 million contribution from Ohio State University, which will receive substantial services from the proposed streetcar line. Similarly, Cincinnati, Ohio's plan includes a \$30 million private investment, approximately 40 percent of the entire cost of the line, while 50 percent of Grand Rapids, Michigan's \$80 million line would be financed by private donations. This approach tends to work best if there is a large institutional or other landowner with substantial services received from the streetcar system.

Literature Review of Transit Value Premiums

A substantial amount of research and analysis has been undertaken by policy experts over the past decades to track and document the effects of fixed guideway transit system development on property values. This topic has commanded so much attention because many policymakers believe that fixed guideway transit systems created a "value premium," meaning an increase in property values or related economic factors, as a result of the increased access and desirability of the land served by the fixed guideway transit. If increased value, can be linked to the transit improvement, a portion of this increase has strong potential to be "captured" up front in the transit development process, and converted to a funding source for the transit system. In other words, local and regional governments seek to share in the economic benefits which fixed guideway transit is thought to bring to private property owners, in order to finance the transit system.

Numerous studies have used statistical models (e.g., hedonic price models) and other methods to examine "before" and "after" land sales, lease rates, and home prices in areas near transit stops, particularly for commuter and light rail systems. Many of these studies were reviewed for this

report. However it should be noted that due to the relatively recent emergence of contemporary streetcar systems, almost no analysis of the value premiums potentially associated with streetcars has been documented in the literature.

An excellent summary of various fixed guideway transit value premium studies was recently published by the Center for Transit Oriented Development, a non-profit organization associated with Reconnecting America. Entitled *Capturing the Value of Transit* (CTOD, 2008), the publication reviews the concepts associated with this topic, and summarizes the findings of more than 20 analyses of the effect of fixed guideway transit on different land uses around the U.S. Many of these studies, in turn, identified a range of value premiums associated with fixed guideway transit, and utilized a variety of techniques to come to this conclusion.

The range of findings from the wealth of literature indicates that this topic presents challenges in distilling conclusions applicable directly to other locations. As shown below, *Capturing the Value of Transit* found the reviewed studies to conclude the following:

Table 1: Range of Value Premiums Associated with Transit

	Range of Property Value Premium	
Single Family Residential	+2% w/in 200 ft of station <i>(San Diego Trolley, 1992)</i>	to +32% w/in 100 ft of station <i>(St. Louis MetroLink Light Rail, 2004)</i>
Condominium	+2% to 18% w/in 2,640 ft of station <i>(San Diego Trolley, 2001)</i>	
Apartment	+0% to 4% w/in 2,640 ft of station <i>(San Diego Trolley, 2001)</i>	to +45% w/in 1,320 ft of station <i>(VTA Light Rail, 2004)</i>
Office	+9% w/in 300 ft of station <i>(Washington Metrorail, 1981)</i>	to +120% w/in 1,320 ft of station <i>(VTA Light Rail, 2004)</i>
Retail	+1% w/in 500 ft of station <i>(BART, 1978)</i>	to +167% w/in 200 ft of station <i>(San Diego Trolley, 2004)</i>

From: *Capturing Value from Transit* (Center for Transit Oriented Development, November 2008).

Note: VTA is the Santa Clara, CA (Silicon Valley) Valley Transportation Authority

The report also describes studies which show a negative impact on value associated with fixed guideway transit. For example, a 1995 study by Dr. John Landis at the University of California, Berkeley, found that values for single family homes within 900 feet of light rail stations in Santa Clara County (e.g., County containing San Jose) were 10.8 percent lower than comparable homes located further away, and no value premium could be identified for commercial properties within one-half mile of BART stations in the East Bay of the San Francisco area.⁴

⁴ 13 Landis, J. et al. "Rail Transit Investments, Real Estate Values, and Land Use Change: A Comparative Analysis of Five California Rail Systems," Institute of Urban and Regional Development, UC Berkeley, 1995

One of the most thorough analysis conducted after 2000, when contemporary fixed guideway transit systems had established their resurgence as a modern, desirable form of transportation in urban America, was conducted by Dr. Robert Cervero at the University of California, Berkeley. This study, a survey of other studies covering just housing value premiums associated with fixed guideway transit, found that among the seven locations (Philadelphia, Boston, Portland, San Diego, Chicago, Dallas, and Santa Clara County), value premiums ranged from 6.4 to over 40 percent.⁵ The authors concluded that value premiums depended on a variety of factors, including traffic congestion, local real-estate market conditions, and business cycles.

Transit in Europe can also provide insight to ways of measuring value capture. A study of 15 light rail systems in France, Germany, the United Kingdom, and North America measured housing prices, residential rent, office rent, and property values in each of the cities, concluding that there was a positive value premium in all but two cities. These two cities initially experienced negative value impacts from fixed guideway transit due to the noise associated with the light rail system.⁶

One key aspect of this extensive literature is the separation of fixed guideway transit's impacts on existing real estate versus its impacts on new development. In many situations, once a fixed guideway transit system is planned, local governments also increase zoning densities or implement policies which densify allowable development. This makes sense, because fixed guideway transit allows the movement of people without commensurate automobile traffic impacts. However, studies of value premiums often face the challenge of controlling the analysis for changes in zoning (to allow for denser development) and the effects of related development policies. Conversely, increases in allowable development through denser zoning, even in the absence of fixed guideway transit, will almost always result in a higher land value, because a developer can build more units on the same site under these increased density conditions.

For the Charlotte streetcar, these widely varying value premium findings make it is difficult to forecast this factor for the system's impacts with any precision. Moreover, many portions of the streetcar route in Charlotte have also undergone increased zoning densities, and several developers interviewed for this study had purchased land at higher values as a result of this combined situation (denser development allowances and the expectation of a streetcar).

The following chapter explores value premiums and related benefits for specific case study cities in more depth.

⁵ "Real Estate Market Impacts of TOD" (R. Cervero & M. Duncan, 2001).

⁶ "Economic Impact of Light Rail: The Results of 15 Urban Areas in France, Germany, UK, and North America". (Hass-Klau, Carmen, Graham Crampton and Rabia Benjari, 2004).

Case Studies

For this Study, research was conducted into the experience of several cities around the U.S. that have constructed contemporary streetcar systems, in order to understand the impacts of the streetcar presence on both the value of underlying property (e.g., the existing tax base) and the impacts of streetcar as a stimulant to attracting new private development projects.

It should be noted that both trends – increases in existing property, and accelerated new development – are anticipated as outcomes of the proposed Charlotte streetcar. These two ideas are linked, as well. Property values will rise with transit service, because there is the expectation that the existing land use has been enhanced (e.g., higher rents can be charged, home values increase, etc.), from access to this unique amenity.

From an economics point of view, the first outcome – increases in existing property values – is less difficult to identify across cities. Most cities keep good records of assessed value, and also of sale prices when property turns over. Thus, a review of assessed values in an area “before” and “after” streetcar construction is possible, as is analysis of “matched pairs” of sales.

Tracking the impacts of streetcar construction on the pace and amount of new development is a less exact matter, because every city in the U.S. experiences a host of other market forces influencing demand for new development projects. This means that the pace of development resulting from a new streetcar system is shaped by unique local factors, and therefore cannot necessarily be assumed to be repeatable in other locations. If the economy is not growing, or the idea of urban transit service is not valued by housing unit buyers or employers, no amount of transit service will stimulate a moribund situation. If, on the other hand, as Charlotte has experienced in the past decade or more, an economy is strong, vibrant, and growing, the added amenity of streetcar transit service in an area can enhance its desirability, and bring it an additional competitive advantage.

Portland Streetcar

The streetcar system in Portland has gained national prominence as an example of modern transportation using this traditional method of rail. Initially announced in 1997, the system commenced operations in 2001, with the segment from Good Samaritan Hospital to Portland State University. This first segment traversed primarily what was already a rich transit zone offering free bus service through downtown Portland.

Portland Streetcar is owned by the City of Portland in partnership with TriMet, the regional transit operator, who contributes a portion of operating funding. Portland Streetcar is managed by the City Office of Transportation and contracts with Portland Streetcar Inc., a private non-profit organization, for construction and operation of the system.

Streetcars currently run on four mile continuous loop from Legacy Good Samaritan Hospital at NW 23rd Avenue to the South Waterfront District where it connects with the Portland Aerial Tram to a terminus at SW Lowell and Bond.

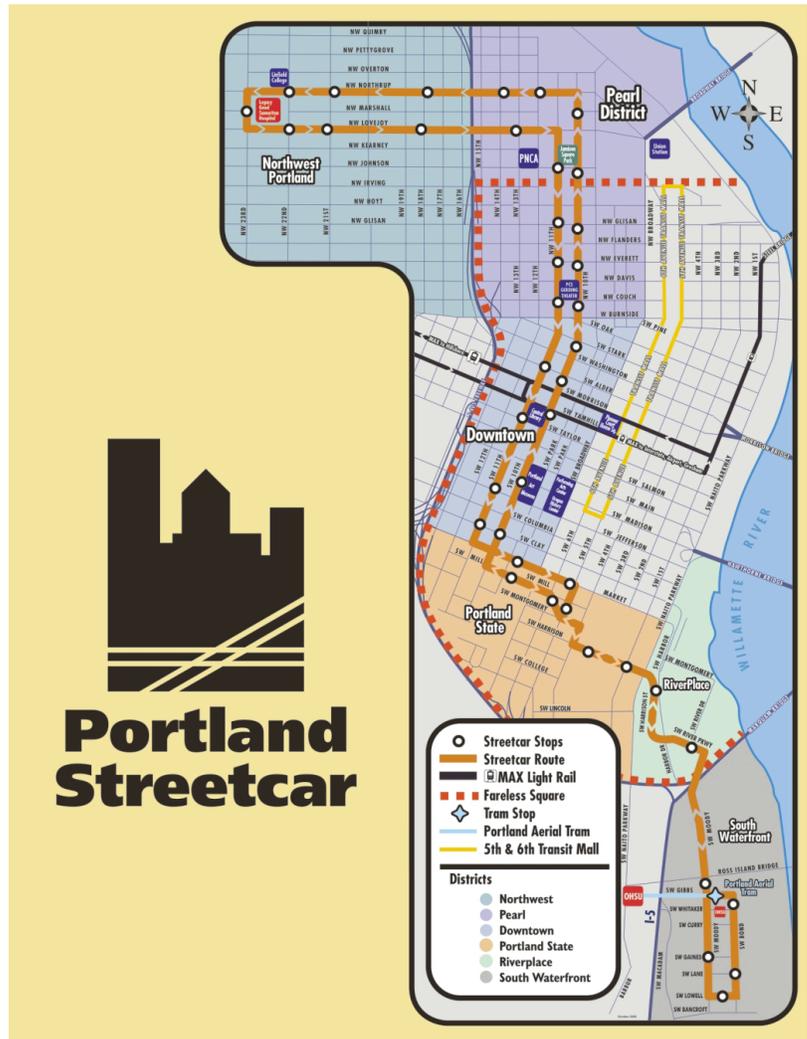
The current system has a total of 46 stops, located approximately every three to four blocks. Streetcars run approximately every 12 minutes during most of the day Monday through Saturday and less frequently in the early morning, evenings and Sundays.

There is currently no charge to ride the portion of the streetcar route traversing Fareless Square (see red dotted line on map), which is a large area covering most of the downtown area (predates streetcar, offers free bus service as well). Tickets for the streetcar outside of Fareless Square are currently \$2.00 for adults and \$1.50 for youth. Transfers from other transportation systems are honored. Ridership of the system as of Spring / Summer 2008 averaged 10,000 riders per day up to 12,600 per day during peak summer weekdays.

Financing for the Portland Streetcar To Date

The financing of the Portland Streetcar system has followed a different path and used a different mixture of funding sources for each segment constructed to date. The first segment, running from the Good Samaritan Hospital to Portland State University, a length of 2.4 miles, had a total capital cost of \$56.9 million in 2000/2001. This cost was financed by a mix of local and federal sources. At the local level the most substantial share of capital costs was financed by a city parking revenue bond supported by parking fees in the area of the streetcar. Additional local mechanisms relied on value capture, including a Local Improvement District (LID) and tax increment financing (TIF). Major tax-exempt property owners, including Portland State University, pay the LID fee because of the benefits they receive from streetcar service. As each of three much shorter subsequent segments were constructed, capital costs varied, and funding sources also varied for each increment, as

Figure 1: Portland Streetcar



summarized below. Overall, to date, the streetcar system has been financed by approximately 79 percent local funds, including just under 18 percent contributed by local improvement districts and just under 21 percent by tax increment financing.

Table 2: Summary of Portland Streetcar System Funding Sources Utilized To Date

Segment	Good Sam Hospital to PSU	PSU to RiverPlace	RiverPlace to SW Gibbs St.	SW Moody/Gibbs to SW Lowell	Total	% of Total
Length	2.4 miles	0.6 miles	0.6 miles	0.4 miles	4.0 miles	
Track Type	Double	Double	Single	Double		
Date of Service	July 2001	March 2005	October 2006	August 2007		
Sources of Funds (Million \$s)						
<u>Local Funds:</u>						
Local Improvement District (LID)	\$ 9.60	\$ 3.00	\$ 2.00	\$ 4.80	\$ 19.40	18.8%
Tax Increment (TIF)	\$ 7.50	\$ 8.40	\$ 3.80	\$ 1.80	\$ 21.50	20.8%
City Parking Bonds	\$ 28.60	\$ -	\$ -	\$ -	\$ 28.60	27.7%
City Parking Fund	\$ 2.00	\$ -	\$ -	\$ -	\$ 2.00	1.9%
City General Fund	\$ 1.80	\$ -	\$ -	\$ -	\$ 1.80	1.7%
City Transportation Fund	\$ 1.70	\$ 0.60	\$ -	\$ -	\$ 2.30	2.2%
Transp System Development Charge (SDC)				\$ 2.50	\$ 2.50	2.4%
Miscellaneous Local Funds (a)	\$ 0.20	\$ 0.10	\$ -	\$ 2.60	\$ 2.90	2.8%
Subtotal	\$ 51.40	\$ 12.10	\$ 5.80	\$ 11.70	\$ 81.00	78.5%
<u>Regional and State Funds:</u>						
Regional Transportation Funds	\$ -	\$ -	\$ 10.00	\$ -	\$ 10.00	9.7%
Connect Oregon				\$ 2.10	\$ 2.10	2.0%
Transportation Land Sale	\$ -	\$ 3.10	\$ -	\$ -	\$ 3.10	3.0%
Subtotal	\$ -	\$ 3.10	\$ 10.00	\$ 2.10	\$ 15.20	14.7%
<u>Federal Funds:</u>						
Federal Transportation Funds	\$ 5.00	\$ -	\$ -	\$ -	\$ 5.00	4.8%
U.S. HUD Grant	\$ 0.50	\$ 0.80	\$ -	\$ 0.65	\$ 1.95	1.9%
Subtotal	\$ 5.50	\$ 0.80	\$ -	\$ 0.65	\$ 6.95	6.7%
Total Funding	\$ 56.90	\$ 16.00	\$ 15.80	\$ 14.45	\$ 103.15	100.0%

Notes:

a) Unspecified for 3 segments, includes Gibbs Extension savings and tram transfer for Moody-Lowell segment.

Sources: Portland Streetcar Inc. Capital and Operating Fund Summary, 2-28-08; BAE, 2008.

Financing for Future Streetcar Extension: Portland Loop Project

At present, Portland is preparing for its next stage of streetcar system expansion, which will be a larger loop system connecting downtown Portland east with other areas across the Willamette River from the downtown core, including the Lloyd District, a major office center. This eastside extension will pass through additional fairly urbanized neighborhoods, connecting them with downtown retail and employment centers. Specifically, the loop extension will add 3.3 double-tracked miles to the existing streetcar line. It will extend from the Pearl District in NW Portland, crossing the Broadway Bridge, and ending at the Oregon Museum of Science and Industry. The project is currently in its construction design phase, with service slated to begin by 2011. Upon completion, the streetcar system route will be more than 7.3 miles.

Funding sources for this major expansion are shown below. As anticipated, this extension will rely more extensively on federal funds, with \$75 million or just over 51 percent of the project funded from this source. Local funding, from an LID and from the Portland Development Commission (most likely a mix of TIF and other sources) will contribute 10 percent and 19 percent, respectively.

Table 3: Sources of Funds for Future Portland Streetcar Loop

Source of Funds:	Amount	%
Local Improvement District	\$ 15,000,000	10.3%
Portland Development Commission	\$ 27,000,000	18.5%
System Development Charge	\$ 6,000,000	4.1%
Regional Funds	\$ 3,000,000	2.1%
Vehicles from State	\$ 20,000,000	13.7%
Federal Transit Administration	\$ 75,000,000	51.4%
Total Project	\$ 146,000,000	100.0%

Value Premium and Development Impacts

The Portland streetcar system has been analyzed extensively, but primarily for its impact on the amount and timing of development it has stimulated, rather than on land value increases. Anecdotally, the initial stage of the system is credited with stimulating development of luxury condominiums and specialty retail in the Pearl District, an area which was already undergoing urban revitalization prior to the streetcar but which was linked to upzoning entitlements granted to a large property owner in the late 1990s. Although no land value premium studies were identified for this report, several studies quote the total value of new construction in the Pearl District and attribute all of this new construction to the presence of the streetcar.

More information is available regarding the actual development amounts related to the Portland Streetcar. In a 2005 report prepared by E.D. Hovee & Company for Portland Streetcar, Inc., the operators of the Portland Streetcar system, analyzed the new development patterns experienced as a result of the “Westside” streetcar line in downtown Portland⁷. The study looked at new development quantities on a per lot basis, both before and after 1997 (the year the streetcar was announced). The analysis found that between 1997 and 2004, the density of new construction (e.g., amount of allowable lot development capacity that was actually used in new projects) increased significantly compared to the same geographic area prior to 1997. This density was more pronounced closer to the streetcar line (e.g., one block from streetcar) than further away (three blocks or more from streetcar). For the blocks adjacent to the streetcar alignment, new development averaged 90 percent of allowable Floor Area Ratio (FAR) post-1997, whereas prior to this time, existing buildings averaged just 34 percent of allowable FAR (the study did not look at the density of just newer development projects alone prior to streetcar announcement). Another way to understand the change is that the addition of 4+ million square feet in densely-developed

⁷ *Portland Streetcar Development Impacts*, E.D. Hovee & Company, November 2005.

new projects near the streetcar, in an area previously less dense than the rest of downtown Portland, increased the overall density of the blocks next to the streetcar to the same density as more distant downtown blocks that contain Portland’s Central Business District, as shown below.

Table 4: Summary of Findings from *Portland Streetcar Impacts, 2005*

Proximity to Streetcar	Buildings Developed Pre 1997				Buildings Developed Post 1997				All Developed Taxlots			
	Existing SF	Potential SF	% of max SF	% of pre 97 dev.	New SF	Potential SF	% of max SF	% of post 97 dev.	Existing SF	Potential SF	% of max SF	% of total dev.
1 block	9,029,000	26,507,000	34%	19%	4,171,645	4,612,000	90%	55%	13,200,000	31,119,000	42%	24%
2 blocks	5,734,000	16,864,000	34%	12%	793,886	1,074,000	74%	10%	6,528,000	17,938,000	36%	12%
3 blocks	7,465,000	15,399,500	48%	16%	773,015	1,175,000	62%	10%	8,198,000	16,575,000	49%	15%
3+ blocks	24,651,000	56,715,035	43%	53%	1,185,510	4,391,000	43%	25%	26,591,000	61,382,000	43%	49%
Total	46,934,000	115,763,000	41%	100%	7,584,056	11,252,000	67%	100%	54,581,000	127,015,000	43%	100%

Note: Condo projects are treated as a single taxlot for this analysis.
 Redeveloped spaces, inc. former warehouses converted to condominiums, is not included in this analysis.

Source: RLIS, Portland Bureau of Planning, E.D. Hovee & Company.

In addition, the study found that lots located within one block of the streetcar alignment dramatically increased their capture of development activity; prior to 1997, these blocks contained 19 percent of the neighborhoods’ existing development, while after 1997, the same blocks captured 55 percent of all new development in the same neighborhoods.

It should be noted, however, that this area of Portland has long been zoned to permit greater development densities than what actually is built in most new projects; thus, the Hovee study measured the amount of zoning capacity used by developers before and after a specific year in time. Other development trends such as increased demand for more densely developed sites (or increased costs to build, or land costs rising for more general economic reasons, can all influence development patterns and result in denser development with or without a streetcar. Hovee concludes this report with a recommendation that a more thorough statistical model be constructed to better verify the causal relationship between denser development post-streetcar with the effect of the streetcar itself (versus other factors).

Seattle Streetcar

The Seattle Streetcar is a relatively new system, consisting of 1.3 miles in a combination of single- and double-track segments through an area known as South Lake Union. The streetcar line opened in December 2007, with ridership exceeding expectations to date.

The South Lake Union area has been the target of extensive public and private investment to create a regenerated urban neighborhood, focusing on bio-tech R & D, including facilities occupied by the Fred Kettering Cancer Research Center, the University of Washington, and support uses including urban lofts, retail, office and privately-occupied R & D space.

The total capital cost of constructing this route segment was approximately \$50.5 million, including \$25 million from a Local Improvement District (LID) and the balance provided by local, state, and federal sources.

The adoption of the LID worked well in this case, because this area has several major property owners participating with the City of Seattle on revitalization, including Vulcan (a private development company) and the University of Washington. The University, as a tax-exempt entity, still pays the LID fee because of the benefits it receives from the streetcar line.

An analysis of value capture was not feasible for this report, due to the recent opening of the route, prohibiting a “before” and “after” value comparison.

However, the City of Seattle made its LID appraisal study available for review. This report, *Final Special Benefits Study for South Lake Union Streetcar Project*, City of Seattle LID No. 6750 (Allen Brackett Shedd, 2006), is interesting for several reasons. Instead of taking a strict engineering-style approach to

Figure 2: South Lake Union LID



All streetcars in service along MATA's seven route-miles are refurbished historic (or "heritage") trolley cars. Most are originally from Porto, Portugal, and several others originally served Melbourne, Australia. Trolleys run seven days per week, 10 to 12 minutes apart during weekday commute times, and at 20 to 25 minute intervals during evening/weekend service. The entire MATA trolley system averaged roughly 3,200 riders per day in mid-2008.

The MATA Trolley system serves as a useful case study of value premiums related to streetcar service for several reasons. The system is well-established, originally opening 15 years ago and expanding twice since then. This allows time for ridership to stabilize, as well as provides a longer period to track property values. In addition the Memphis system operates on seven-day-per-week schedule, with headways comparable to urban bus routes.

Analysis of Value Premium for Streetcar Line

For the Memphis Streetcar system, BAE was able to conduct original research and analysis of property value changes along the Madison Avenue line, with full data available "before" and "after" streetcar service was initiated.

The analysis compared tax appraisal data for residential and commercial uses drawn from the Shelby County (TN) Assessor's Office for the tax years 2002 and 2008 for properties within one-quarter mile of all stops along the Madison Street line to determine change in property values over time. The analysis used geographic information system (GIS) tools to isolate those parcels within the defined distance of one-quarter mile from stops along the line. Since the Madison Street line opened in 2003, this data analysis compared the "before" values to "after" values along the streetcar line, compared to the citywide data for the same time period. It is important to note that the data analyzed was for appraised values, as determined by the Shelby County Assessor's Office, rather than assessed values. All properties in the City are appraised at their fair market value, but assessed values can vary based upon land use type (residential, commercial, industrial, agricultural). In addition, many properties are exempt from tax assessment (i.e., institutional, religious, and government properties).

It is also important to note that the one-quarter mile distance from each Madison Street line streetcar stops limited the scope of the analysis to only those parcels within easy walking distance of the streetcar, excluding most of the nearby waterfront parcels undergoing value increases as well, but not associated with streetcar accessibility at that time.

As shown in the table below, residential properties near the Madison Street route increased in aggregate value over 780 percent for the period between 2002, before the streetcar opening, and 2008. Over the same period for the City as a whole, taxable residential properties rose just 24 percent, resulting in a potential premium in value attributable, at least in part, to the location near the streetcar. This dramatic difference between the Madison Street route and the City overall also reflects a substantial urban condominium building boom at that time. Existing commercial structures near the Madison Street stops, in contrast, did not experience dramatic increase in

property value per the County’s appraisals; these existing structures actually *decreased* in appraised value from 2002 to 2008, while similar properties citywide rose 17 percent⁸. However, when just vacant, commercially-zoned lands were analyzed, the Madison Street route experienced substantial value rises on the order of 70 percent for the period.

Table 5: Property Value Increases Along Madison Street Route (1/4 mile from Stops)

	# of Parcels	Aggregate Appraised Value (Millions of \$)		% Change	Total Value Premium
		2002	2008		
Residential Structures					
City of Memphis	175,698	\$ 14,963	\$ 18,485	23.5%	
Qtr-Mile from Madison St Rte	458	\$ 9	\$ 83	783.7%	760.2%
Commercial Structures					
City of Memphis	8,555	\$ 4,172	\$ 4,892	17.3%	
Qtr-Mile from Madison St Rte	493	\$ 280	\$ 258	-7.8%	-25.1%
Commercial Land					
City of Memphis	1,763	\$ 155	\$ 178	14.9%	
Qtr-Mile from Madison St Rte	54	\$ 3	\$ 5	70.1%	55.2%

Source: Shelby County Assessor; BAE, 2008.

In summary, similarly to other studies of transit-oriented value premiums, downtown Memphis along the Madison Street route shows varying results; residential properties as well as vacant commercially-zoned lands experienced substantial increases in value before and after streetcar service. However, existing commercial structures appear to have declined in value, opposite modest citywide increases during the same period. Since these findings are based on County appraisals, rather than actual land sales, the data may reflect other factors affecting assumptions about commercial structures’ values during the period.

Charlotte’s Light Rail Experience

Finally, a special analysis of Charlotte’s own value premium experience was undertaken for this report. A local appraisal firm, Integra Associates, was commissioned to study the increase in land values along the LYNX Blue Line, which opened in 2007.

The LYNX Blue Line Light Rail is a 15-station corridor that parallels South Boulevard (NC Highway 521) starting at 7th Street on the northeastern side of the Charlotte Central Business District (CBD) and moving southwest approximately 9.5 miles to the intersection of Interstate 485

⁸ It should be noted that the Madison Street route contains 451 tax exempt parcels out of 1,699 parcels within one quarter mile of the Madison Street Trolley. These include five hospitals and the University of Tennessee biomedical research campus. Tax exempt parcels cover 56 percent of the area’s total acreage, compared to 30 percent of citywide acreage classified as tax exempt.

and South Boulevard. This popularity of Charlotte’s vintage trolley that runs along a portion of this route helped stimulate interest in light rail, and the trolley still operates on weekends.

Integra’s analysis identified a total of 65 land sales along this corridor during the period between 2002 and 2008, including 11 paired sales (sale and resale of the same property). These paired sales were specifically analyzed to determine the various levels of appreciation along the light rail corridor, including accounting for changes in zoning to allow for higher density development.

The analysis found that the annualized percentage change in value for sales with zoning changes ranged from 36.8 at the New Bern Ave Station, to 143.1 percent at the Arrowood Station. The two pairs without zoning changes ranged from 5.1 percent at the Woodlawn Station, to 16.6 percent at the East/West Boulevard Station.

Table 6: LYNX Blue-Line Rail Corridor Comparable Sales Data (2002-2008)

Total Number of Land Sales	65
Size of Land Sales	0.06 to 48.53 acres
Price Range	\$1.49 to \$189.04/square foot
Highest Concentration of Sales (30 sales)	Between Stations 7 and 8
Lowest Concentration of Sales (1 sale)	Station 1
Total Number of Paired Sales	11
Number of Paired Sales with change in zoning:	9
Annualized Change In Value	36.8 % (Station 8) to 143.1% (Station 13)
Avg Annualized Change In Value	72.6%
Number of Paired Sales - No change in zoning	2
Annualized Change In Value	5.09% (Station 10) to 16.61% (Station7)

Source: Integra Realty, 2008.

The increase in values indicated by these paired sales was not compared to overall appreciation rates for property in Charlotte during the same time period, due to lack of available indices for commercial property values in Charlotte.

These LYNX Blue Line has also experienced substantial increases in development activity. According to an August, 2008 analysis prepared by the City, Transit Oriented Development Projects from the South End to Scaleybark, including completed, under construction, and proposed projects total 4,889 residential units; 552,213 square feet of retail space; and 643,390 square feet of office space.

Charlotte Stakeholder Interviews for Proposed Streetcar Route

For this study, numerous local real estate developers, major property owners, and real estate brokers were interviewed to assess local interest in the streetcar, and obtain opinions about the proposed streetcar line's relationship to economic development, as well as its ability to stimulate value premiums in the local marketplace. A list of stakeholders interviewed for this Study is included in Appendix A. The following points were made by one or more interviewees:

- The experience on South Boulevard has created “believers” in fixed guideway transit and the value that may accrue to transit-oriented properties
 - Entitlements that come with transit are attractive to developers
 - However, several developers cautioned that transit is an amenity, but it does not alone create market demand
- The streetcar is critical to the east/west corridor's economic development
 - Without fixed guideway transit, the eastside is not competitive with NoDa and South End
 - The streetcar is desirable due to frequent stops, ability to transport residents downtown and across town
- Stakeholders interviewed identified specific parcels with the potential for denser development / redevelopment which the stakeholder believed would be catalyzed by the streetcar
 - JCSU hopes the streetcar stimulates development along Beatties Ford Road (student housing, bowling, restaurants, bookstore, etc.). The corridor needs more housing, not just for students
 - Several property owners paid higher prices for land along streetcar route (up to \$50 per square foot of land); some were concerned about delay of streetcar on development plans and prices paid
 - Transit will affect ability of planned projects to attract debt and equity investors
 - Barnhardt Manufacturing does not foresee redevelopment unless streetcar is built
- Support was expressed by property owners for both TIF and an MSD
- There is an expectation that Gold Rush line replacement by streetcar will continue a fare-free zone
- Some stakeholders were opposed to LID (educational institutions, hospitals)

In summary the stakeholder interviewees expressed strong support for the proposed streetcar, with the view that this transit improvement would bring renewed vitality, economic development, and increased demand for development products to the east/west corridor.

Summary of Case Studies

The case studies of Portland, Seattle, Memphis, and Charlotte's own recent experiences highlight several key points.

Value Premiums for Existing Tax Base

As demonstrated throughout the literature and in the case studies above, the premium for property values located near transit can vary substantially from one location to another, as well as over time along the same route as it is extended. In Portland, the use of a Local Improvement District (LID) and other value-based financing tools to finance portions of each streetcar segment appears to bear out that capturing this value premium is workable. In Seattle, it is too early to ascertain this trend, while in Memphis the findings are a bit more varied. Charlotte itself, along the Blue Line, appears to have experience substantial value increases, although it should be noted that it is difficult to separate out the additional value created by new, higher density zoning from otherwise similar "before" and "after" transit system situations.

Catalyst for New Development

Here the picture will depend on the overall economic situation as well as a host of other non-transit related factors. In Portland, the streetcar route is credited with stimulating the revival of the Pearl District, and the data collected there does seem to bear this out. However, the Pearl District was already underway as a new urban neighborhood, and had attracted substantial private investment capital prior to the streetcar initiation (and much as in Seattle, these private developers actually encouraged the construction of the streetcar to enhance their projects' market position).

Interviews conducted with developers in Charlotte further indicate this same trend. Developers who had decided to invest along the proposed streetcar route attribute the streetcar with attracting their capital investment, but also mention in some cases, that the corresponding increases in zoning/entitlements drew their attention. Separating out the two factors is quite difficult in this case. Indeed, there may be some potential developers or land owners who see the streetcar as a "silver bullet" that makes otherwise relatively modest local markets come alive. While this may be true in a city like Charlotte, with dynamic overall growth and extensive planned transit service, it is not clear that the competitive advantages of the proposed streetcar route alone would elevate these local markets to the level of marketability desired by project proponents, especially in the next few years as the overall economy slows and capital dollars are limited.

As a final note, however, so much of market demand and attraction of private capital is driven by perceptions of competitive advantage. The streetcar route in Charlotte is perceived to be a development catalyst by those developers who the City asked the report authors to interview. While this may be driven more by individual investment decisions speculating on the "next big thing," the increasing need for more efficient patterns of land use made possible by transit service may well extend and reinforce this initial perception in the future.

Overview of Charlotte Streetcar System

Description of Proposed System and Corridor

The proposed Charlotte streetcar system would span an approximately 10 miles length in a generally east/west direction. The proposed route would have its western terminus at the existing Rosa Parks Transit Center located just north of Interstate-85 on Beatties Ford Road. From there it would proceed southerly along Beatties Ford Road, continue southeasterly as it turns on to Trade Street through Downtown, on to Elizabeth Street, turn northeasterly along Hawthorne Lane past Central Avenue, then loop back to Central Avenue moving east. The eastern terminus of the proposed route would be located at the Eastland Mall site, currently undergoing initiatives for redevelopment.

The streetcar system would replace existing bus service and provide significant increases in capacity. It would consist of double tracks, one for each direction, set in the public street right-of-way and sharing access with other vehicles. The proposed streetcar system would run on 7.5 minute to 10 minute headways during daytime hours, and up to 15 minute headways off-peak, with operations from 18 to 20 hours per day, depending on day of week. Travel time from either end to Downtown would run between 20 to 25 minutes, and peak daily boardings are estimated to run as high as 9,000 to 16,000 persons per day by 2030. Streetcar stops will consist of widened sidewalks directly adjacent to where the streetcar would stop.

A separate project, the proposed future West Corridor transit service from Downtown to the Charlotte Douglas International Airport, is considering use of streetcars as well as bus rapid transit.

The focus of this Study is on the corridor that lies within ¼ mile of either side of the proposed Beatties Ford Road to Eastland Mall streetcar route. This corresponds to an approximately five to ten minute walk from a streetcar stop to the edge of the corridor, a distance that numerous studies and experience has shown is the area likeliest to support streetcar-oriented development⁹. Streetcar-oriented development is denser mixed-use infill development designed to interact with the access provided by fixed guideway transit, attracting residents, workers, shoppers, and others interested in the mobility benefits provided by nearby transit.

Existing Streetcar Corridor Development by Segment

The proposed streetcar route spans numerous neighborhoods with substantial variations in existing development patterns, current market conditions, and future development potential. For the

⁹ Streetcar-oriented development is used here in lieu of the more common phrase Transit-Oriented Development (TOD) used in transit literature since TOD in Charlotte has a specific definition and applicable zoning that would not apply to the proposed streetcar corridor and future development along it. Where “TOD” is used elsewhere in this Study it generally refers to all types of mixed-use infill development along fixed guideway transit rather than Charlotte’s specific definition.

purposes of this Study, the streetcar route has been broken into four segments that define subareas with distinct characteristics and local real estate markets as follows:

1. **West Segment.** This segment corresponds to the ¼ mile area on either side of the streetcar route from the Rosa Parks Place Community Transit Center, along Beatties Ford Road and West Trade Street to Interstate-77. It includes traditionally African-American neighborhoods and passes Johnson C. Smith University, a historically African-American university that has evolved into a leading private liberal arts college. The segment includes neighborhoods close to Downtown with increasing rehabilitation of historic housing, as well as new development in areas such as Wesley Heights. North of the Brookshire Freeway, various types of older auto-oriented retail strip as well as other development in varying conditions line Beatties Ford Road, with residential neighborhoods behind the commercial frontage. Many residents are interested in expanded retail choices in this area.
2. **Downtown Segment.** This segment consists of the ¼ mile area on either side of Trade Street between Interstate-77 and Interstate-277, the proposed streetcar route through Downtown. This segment lies within Charlotte's Central Business District, and includes the Bank of America Corporate Center, Johnson & Wales University, City and County government centers, the Time Warner Cable Arena, the Charlotte Transportation Center and future Gateway Transit Station that provide connections to multiple other modes of transportation, and numerous other public and private office buildings, hotels, and other services. The Downtown area has experienced tremendous growth over the past decade that is expected to continue with recovery from the current economic recession.
3. **Midtown Segment.** This segment consists of the ¼ mile area on either side of Elizabeth Street west of Interstate-277, Hawthorne Lane northeast of Elizabeth Street, the Barnhardt Manufacturing Company site over to Clement Avenue, and Central Avenue to Briar Creek (this route avoids a new grade separation from the CSX rail line in this area). The Midtown segment includes Central Piedmont Community College and Presbyterian Hospital. Elizabeth Avenue and Hawthorne Lane are experiencing active development of mixed-use and midrise development. The area between Hawthorne Lane and The Plaza includes numerous large commercial developments with pending development plans, while the Plaza Central Business District, a unique neighborhood retail district abuts attractive historic residential neighborhoods. This area includes the large Morningside LLC housing development currently under construction.
4. **East Segment.** This segment consists of the ¼ mile area on either side of Central Avenue from Briar Creek to the eastern terminus of the proposed streetcar route at the future Eastland Community Transit Center at the Eastland Mall site. This segment of Central Avenue includes small-scale older commercial buildings with extensive auto-related retail and service businesses and numerous ethnic eateries, along with numerous multifamily developments. A larger retail center at the southwest corner of Eastway Drive and Central Avenue is struggling to retain retail uses, and Eastland Mall is a declining older mall for which the City is currently considering alternative redevelopment schemes. Beyond Central Avenue, the area includes single-family residential neighborhoods, along with some multifamily residential development.

South of this segment, revitalization planning is underway in anticipation of anticipated future fixed guideway transit along Independence Boulevard.

Each segment of the streetcar corridor lies within a distinct market area for residential and commercial real estate. These areas were defined to correspond to available data sources for real estate market information as well as boundaries for demographic projection data published by the Centralina Council of Governments. Figure 4 on the next page shows the proposed streetcar route and stations, and the local market area that has been defined for each segment for this Study.

Planning Context¹⁰

The City of Charlotte's Draft *Centers, Corridors, and Wedges Growth Framework* (September 2008) lays out the City's proposed focus on how growth and development should occur in Charlotte now and in the future, by encouraging the most growth in the "Centers and Corridors" with supporting infrastructure and capacity, leaving lower density development in the large residential "Wedges" between Corridors. Four of the Corridors are planned or proposed to have a Charlotte Area Transit System (CATS) LYNX line providing rapid transit service, with the Blue Line along the South Corridor already in service.

The need for such a strategic framework arises because growth has been a central issue for Charlotte for many years and will continue to be in the future. Charlotte's population more than doubled between 1980 and 2008, increasing from 315,000 to 697,000 persons. This growth stems from Charlotte's strong economy and high quality of life: Charlotte is the nation's second largest banking center, ranked first among industrial hubs in the Southeast, and is the sixth largest wholesale center nationwide. More than half of Fortune 500 firms are represented in the Charlotte region. This growth is expected to continue; in the next 25 years Charlotte will add an estimated 287,000 residents and 318,000 new jobs.

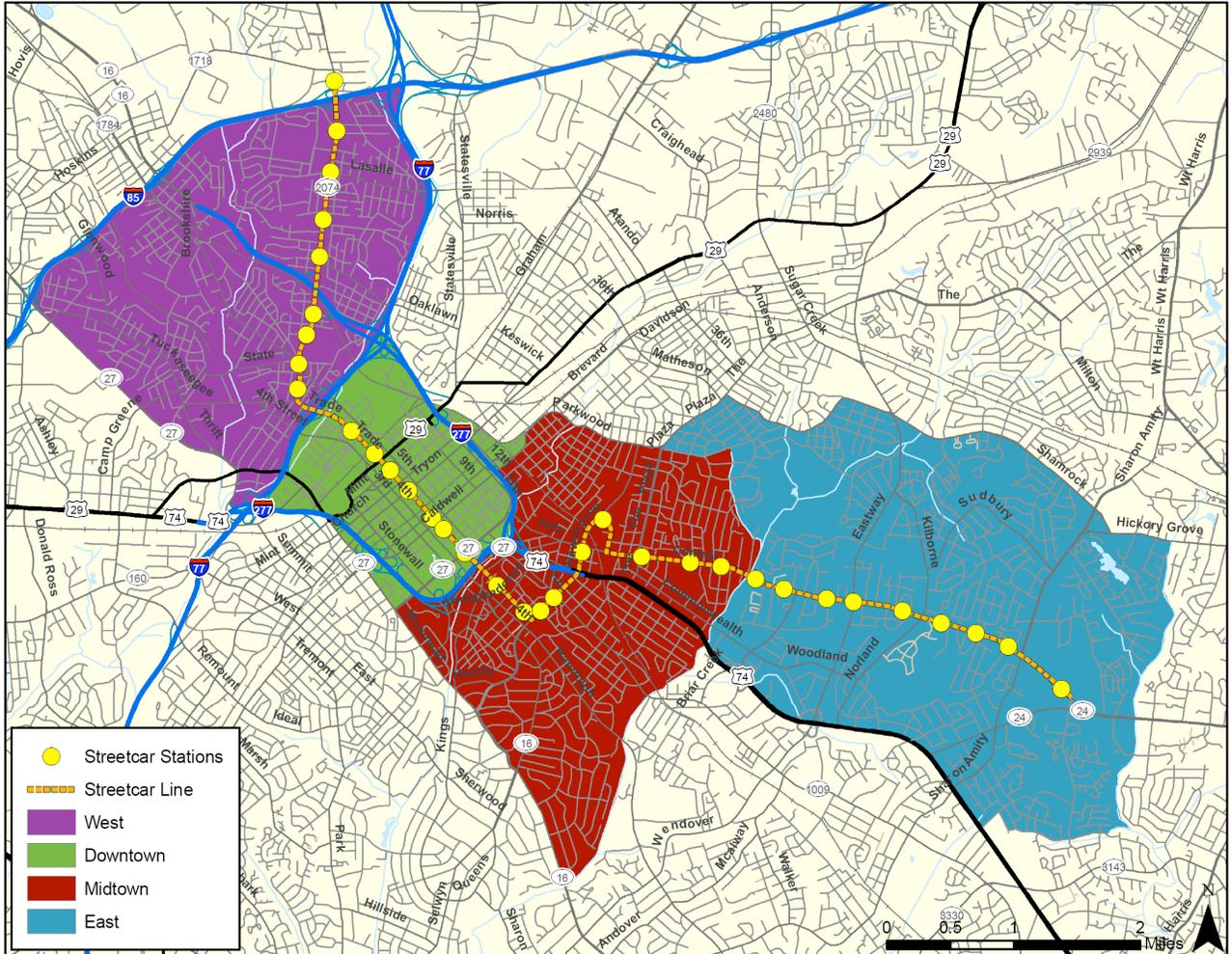
The Centers, Corridors and Wedges Growth Framework provides guidance for refinements to other plans, policies, and ordinances that will help accommodate growth by:

- Supporting a variety of housing choices at appropriate locations;
- Providing guidance to better match development types and intensities with infrastructure, particularly transportation facilities;
- Emphasizing quality design and the importance of environmental considerations;
- Recognizing redevelopment as a key part of accommodating future growth, particularly in Centers and Corridors; and
- Encouraging a variety of transportation choices.

These guidelines organize Charlotte's growth and development in a transit-oriented manner, which will be augmented by the construction of the streetcar system.

¹⁰ This section borrows extensively from Charlotte-Mecklenburg Planning Department publications and website.

Figure 3: Proposed Streetcar Route and Local Market Areas



Source: Warren & Associates.

Streetcar Corridor and Centers, Corridors, and Wedges

The proposed route of the Charlotte Streetcar connects several Activity Centers and Corridors. Its western terminus at the Rosa Parks Place Community Transit Center is located within approximately one-quarter mile from the eastern edge of a sizable designated industrial center area. The route provides a direct connection from there to the Center City, although its route along Beatties Ford Road is designated as a Wedge area. East of the Center City, the proposed route runs through the Southeast Corridor until it reaches Briar Creek Road; from there it continues east and provides a connection to the Eastland mixed use center area designated around Central Avenue and Albemarle Road.

Area Plan Context

The Planning Department prepares Area Plans to guide growth and development in smaller areas of the City, consistent with the vision for the City. These plans typically address: land use and zoning; transportation; environment; infrastructure; economic development/revitalization; community appearance and urban design; and safety. Much, but not all, of the proposed Streetcar Corridor has been the subject of Area and other plans most adopted since 2000, including¹¹:

- Belmont Area Revitalization
- Briar Creek/Woodland/Merry Oaks
- Center City 2010
- Eastland
- Plaza Central Pedscape
- Second Ward Neighborhood Master Plan
- Sunnyside Pedscape and Land Use
- Third Ward Neighborhood Vision
- West End Pedscape

The Area Plans already provide for land uses and zoning on portions of the proposed streetcar corridor to allow more intensive residential and mixed-use development that would benefit from the streetcar as an urban amenity, and in turn could help generate increased ridership for it. One of the most significant provisions to implement these area plans is the application of the Pedestrian Overlay District (PED), Transit Supportive Overlay District (TS), and other urban zoning to extensive portions of the streetcar corridor, as shown in Figure 4 on the next page.

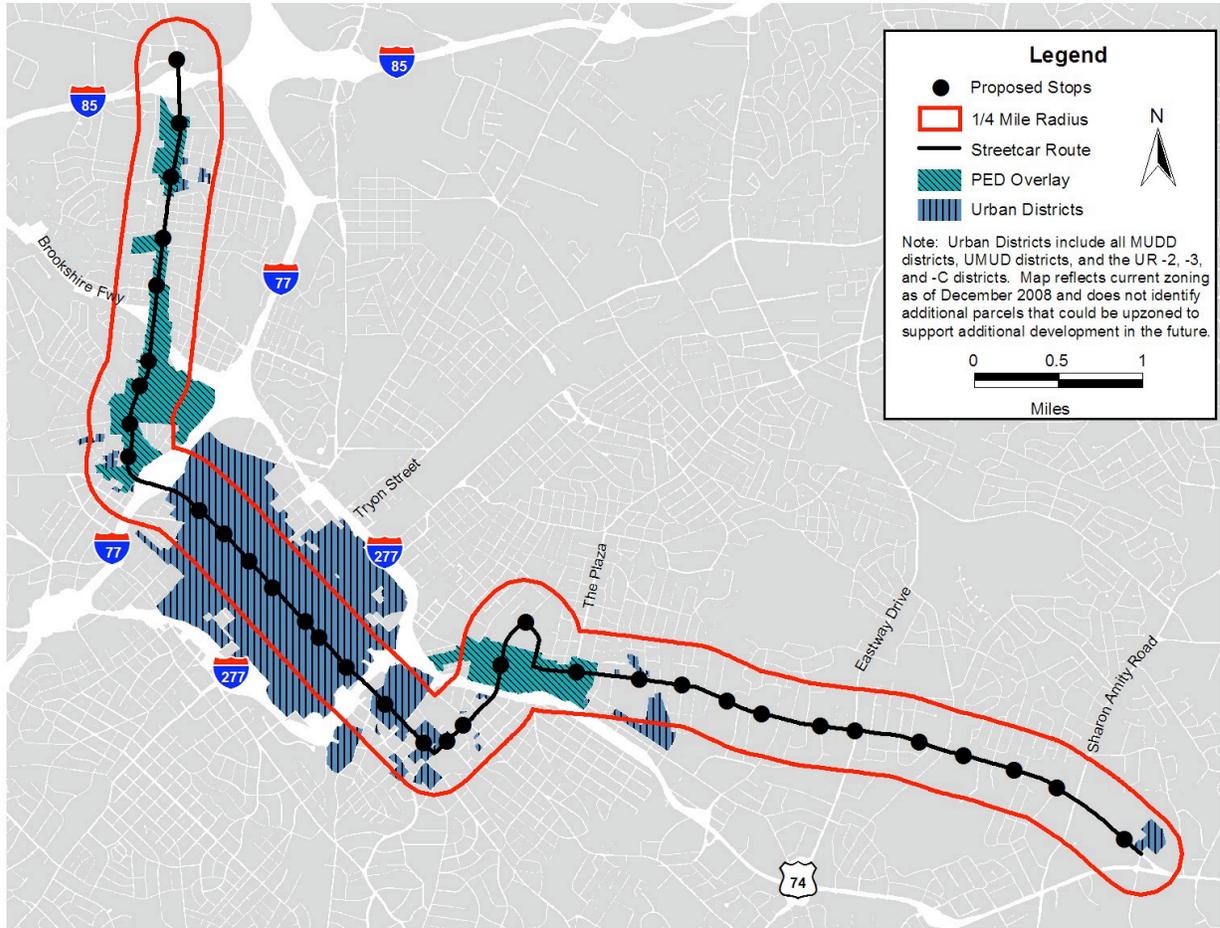
PED and Transit Supportive Overlay District zoning standards, along with other zoning code provisions, encourage high quality design, mixed use development, the use of public transit, and development, which complements adjacent neighborhoods. Specific zoning provisions for PED and Transit Supportive Overlay Districts to promote moderate intensity development include: increases in height limits above the base 40 foot height limit at the ratio of one foot in height for each ten feet of distance from adjacent residential uses; allowance for up to a maximum height of 100 to 120 feet (depending on the specific zoning); no maximum Floor Area Ratio¹²; reduced setback and side yard requirements; decreased parking requirements, and in some cases limits on how much parking is allowed; and flexibility in meeting parking requirements through on-street parking or parking on adjacent properties.

The adoption of the Area Plans and application of the PED and Transit Supportive Overlay District zoning has significantly increased the amount of development that could potentially occur along much of the proposed streetcar corridor, both in the City Center area as well as in the segments outside of it.

¹¹ Remaining areas of the streetcar corridor not included in the above plans are addressed in Central District and East District Plans.

¹² Floor Area Ratio is the ratio of total square footage of a structure to the area of the site it sits upon.

Figure 4: PED and Urban District Zoning Along Streetcar Corridor as of 2008



Charlotte Streetcar Corridor Development Scenarios

In order to forecast potential revenues from property-based funding mechanisms, a thorough assessment of potential development along the streetcar corridor was undertaken for this report.

The four segments of the streetcar corridor represent distinct existing market areas, with varying characteristics. The West and East segments are older, established neighborhoods with older auto-oriented commercial strip development along the streetcar corridor, and moderate amounts of new infill residential development. Midtown is experiencing strong development interest in the stretch from Elizabeth Avenue, up through Hawthorne Lane to where it meets Central Avenue, with extensive plans for large scale new mixed-use development and a first round of projects under construction. Downtown uniquely serves as the region's hub for corporate offices, government, cultural and entertainment activities and continues to experience transformational development with numerous high rises.

Methodologies for Projecting Future Development

This changing picture of each segment of the streetcar's route, and the ability of the streetcar to affect market demand and the pace of redevelopment/infill development activity, is difficult to forecast. It is rendered even more challenging against the backdrop of the recent economic downturn, which has started to impact Charlotte's overall real estate market and development.

There are several key approaches to estimating future development activity over the long term, as follows:

- **Local Historical Trends.** Overall development trends during the current decade can be extrapolated in the future to project potential development activity. This approach is well suited to areas such as Downtown that have experienced strong development activity during this decade. However, this approach could underestimate development potential for the streetcar segments outside of Downtown that have only seen significant increases in development in the last couple years, as these areas have been able to attract greater interest from developers, businesses, and residents. This approach, with adjustments, was used to project future development for a "No Streetcar" scenario without the proposed streetcar (i.e. a "no build" scenario).
- **Potential Development Based on Land and Zoning Capacity.** This method of forecasting the development that could occur along a new fixed guideway transit corridor takes the approach that at the outside, fixed guideway transit will stimulate as much new development as the zoning capacity will allow. The Draft *Centers, Corridors, and Wedges Growth Framework*, along with the Area Plans and District Plans applicable to the proposed streetcar corridor, and the associated zoning, allows evaluation on a parcel by parcel basis of development potential. This evaluation, combined with an assessment of which parcels are

likely to be developed or redeveloped in a given period, can be used to project potential development activity. This approach was not used because, as discussed in the following pages, all potential development scenarios for the proposed streetcar corridor would result in less development than is allowed based on current zoning¹³.

- **Transportation Planning Forecasts with Market Adjustments.** Another approach is to start with long-term growth projections that are prepared by the regional council of government for transportation improvement planning. These projections typically use demographic and economic forecasting techniques to identify long-term growth, and then allocate it down to city and small scale Transportation Analysis Zones (TAZ) based on existing plans, policies, and other directions. These projections are not directly market-based, and as such do not specifically call out near-term business cycles or rapidly redeveloping locations, but do forecast a potential distribution of growth for a long-term period, and are used to plan for infrastructure and other major capital improvement projects. This approach was used to develop the “baseline” development scenario for the Charlotte Streetcar Property Value-Based Funding described in the following pages.
- **Accelerated Market Share of Regional Growth.** A fourth approach is to estimate a capture rate for a small area, such as the proposed streetcar corridor, of a share of a larger regional growth forecast. This approach allows for adjustments to reflect changes in the attractiveness of a small area or corridor, vis-à-vis a larger region. It can account for the process of “redistributing” new growth in households and jobs, to follow the shifts in policy and market conditions as central city areas revitalize. This approach was used to formulate the “accelerated” development scenario used in this report.

For this Study, all of the above approaches described above were used to formulate development scenarios and forecasts of potential property value-based funding sources. A process of assessing development capacity based on identifying underutilized sites, estimating development potential based on zoning, and totaling the results to describe corridor capacity give an “outside” estimate of what could happen on the corridor over the long term.

Using a more calibrated approach, the transportation planning estimates available for TAZs encompassed by the corridor’s market segments were then also analyzed, and these were utilized to form the basis for a “baseline” development scenario incorporating further adjustments for market demand and the near-term economic downturn.

In addition to the baseline scenario, an “accelerated” scenario was formulated, which increased the market share of regional growth to further accommodate potential market responses to the streetcar service and its associated amenities.

¹³ Many cities’ zoning often provides for more development than the market can be expected to demand in order to ensure sufficient availability of development sites (since not all property owners wish to sell or develop), and to attract development in targeted areas.