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Final Project

TRANSIT-ORIENTED DEVELOPMENT AND WEAK REAL-ESTATE MARKETS

Submitted by

Jonathan M. Cabral

In Partial Fulfillment of Requirements for the
Degree of Master of Arts in Public Policy

Hartford, Connecticut

Advisor:

Professor Barry Feldman, Ph.D.

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Acknowledgements

This project would not have been possible without the support of many amazing people in my life. Many thanks to the Trinity College faculty that helped me along the way, most notably my project advisor, Professor Barry Feldman, who guided me through the research process and read countless drafts and revisions of this paper. I would also like to thank everyone who I interviewed for this project who took the time out of their busy schedules to help inform this paper. Thanks to my employer the Connecticut Housing Finance Authority, particularly my friend and manager Diane Smith, for providing the support and encouragement that made going to graduate school possible. And finally, a special thank you to my friends and family who always offered support, love, and a steady supply of coffee through the whole process.

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Chapter 1 – Introduction

Public officials around the country talk about the importance of investing in mass transit. Many states have already begun investing heavily in building new mass transit systems or adding lines to their existing systems. Reasons for investing in mass transit can run the spectrum from reducing congestions on roads and highways, environmental reason such as reducing CO2 emissions, to its role in encouraging economic and community development. It is the latter that I am most interested in as it is a growing narrative among the development world.

The investment of infrastructure has generally fostered growing economic outputs and growth. As discussed in later chapters, port cities along the river and ocean coasts generally saw rapid growth compared to those cities and towns that did not have ports. Eventually roads, railway, and highways forever changed the map as growth spread to other towns and cities away from the coastline. Early American infrastructure was built to move raw material, finished goods, capital, and labor. The first form of transit-oriented development in the United States would have come out of ports built to supply raw material to Europe and labor (voluntary and forced) back to the colonies.

Eventually transit-oriented development took on the needs of an industrialized United States in the form of factories, marketplaces, finance and insurance firms that surrounded ports. Although not classified as transit-oriented development in the modern definition, the development that occurred around these hubs was completely oriented towards the transportation hub. Transit-oriented development takes on role of the current economy. With the transition to a service economy, the modern form of transit-oriented

development places an emphasis on the mass transit of people, both as labor force and consumers.

What is Bus Rapid Transit

One of the newer forms of mass transit that has grown in popularity worldwide is the Bus Rapid Transit (BRT) system. BRT systems often operate much like the more familiar light rail transit system, however costs less to build. Rather than using tracks and trains, BRT uses buses and, frequently, a dedicated roadway as part of its system. Kittelson and Associates (2007) highlight a set of features that differentiate a BRT system from regular bus service, they include:

1. Physically separated, exclusive BRT use lanes or roadways;
2. Distinctive lines with frequent, reliable service and regular headways at the all daily hours;
3. Distinctive, protected and closely spaced stops;
4. Specially designed buses with large door-to-capacity ratios, low floors and/or high platforms;
5. Signalized intersection priority; and
6. Use of intelligent transportation technology to maximize vehicle movements, passenger information, and fare collection.

An example of a BRT system and a summary of its features can be seen on Figure 1.

BRT is the system that Connecticut chose to build as part of a new mass transit system in central Connecticut between the cities of Hartford and New Britain. Branded *CTfastrak*, this 9.4-mile new BRT system is made up of 11 stations on a dedicated roadway with circulators operating off the corridor, including a loop through downtown

Hartford (CROG, 2013). CTfastrak is currently central Connecticut's only operational mass transit system providing frequent and fast services to riders. There once was a fairly robust streetcar system that connected Hartford with many of its suburbs, but that service ended in the 1941 (Schrek, 2003).

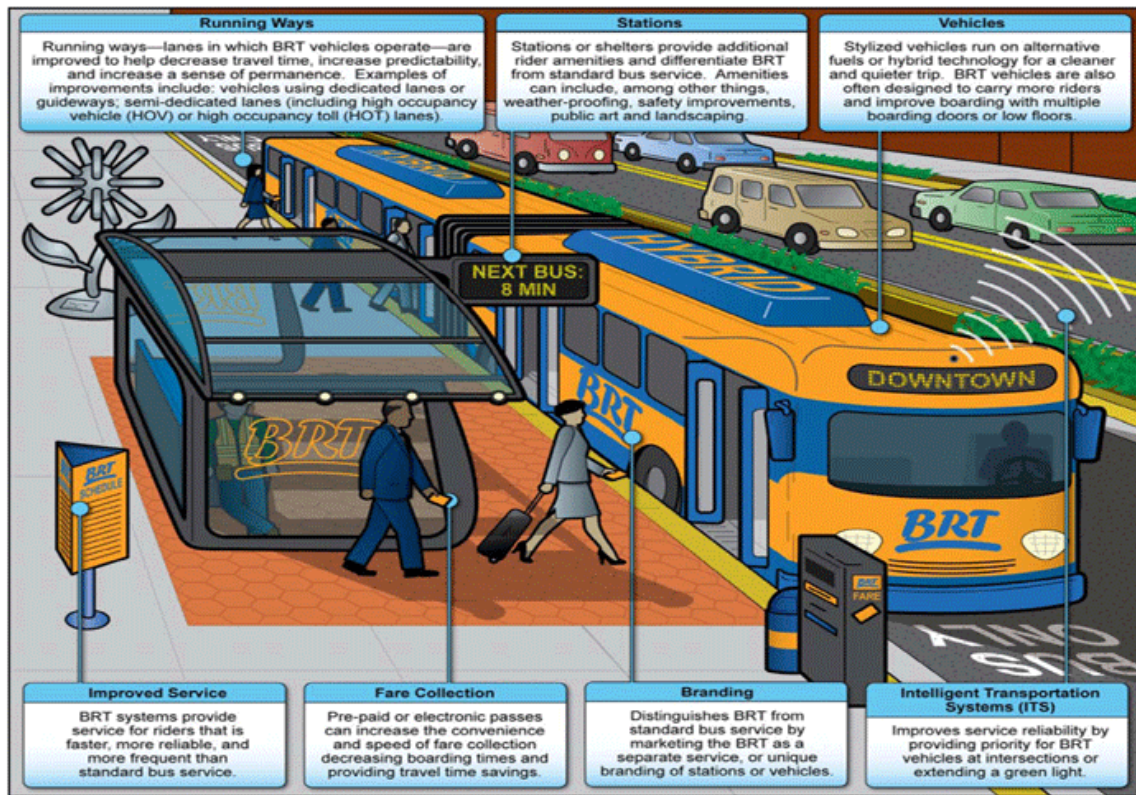


Figure 1 - Features of BRT System (Image from the Government Accountability Office)

Since its inception, the CTfastrak did not gain across the board support by local officials and residents. One of the biggest talking points was the cost of building the system, at over \$500 million of Federal and state funds. The system was originally offered as a solution to alleviate growing congestion of interstate-84 in central Connecticut (M. Kowalewski, personal interview, January 25, 2016). Supporters of the new system touted many of anticipated benefits, including the system's ability to spur on economic development through transit-oriented development around the CTfastrak

stations. Supporters believed the new system will stimulate the redevelopment of neighborhoods along the corridor by encourage housing and mixed-use development, the rehabilitation of existing properties, and the expected job growth that would follow. It is the economic and housing development claims that is the reason for this research project, the claim that transit stations built, as part of a mass transit system, will incentivize housing & commercial investment in nearby neighborhoods.

This research is important for the very reasons highlighted above. The Federal government along with many state agencies have invested, or plan too invest, heavily on new and expanding mass transit systems, particularly on BRT, with the expectation of seeing economic development. In 2013, more than 40 regions in the United States have either a light rail or BRT line compared to just 28 in 2000. In addition, there are over 721 new transit corridors planned in 109 regions across the country (CRCOG, 2013).

The objective of this research paper is to evaluate the impact that the new transit stations have on economic and housing development in the surrounding communities, particularly BRT stations. I will look to answer the following questions:

- Do stations affect the value of the land surrounding them?
- Do stations spur housing and economic development in the surrounding neighborhoods?
- Do stations influence the immediate surrounding market, particular in a weak market?

This project intends to address these questions in the next three chapters by evaluating existing studies/research, along with my own preliminary research along the new *CTfastrak* corridor.

Paper Outline

This research paper is broken up into four chapters, including this introduction. In chapter two the reader will find a review of the literature that gives the reader needed historical background information on urban development and what caused the decline of the urban core. Urban development, particularly in the United States, can be traced back to important economic centers found along coasts and rivers in the form of settlements and ports. Eventually, with the advent of new technology such as the steam engine and the electrical grid, economic centers spread in many cases out of the urban centers. As the economy shifted so did housing and transportation policies that significantly influenced housing values and development away from the city center out to the suburbs. Changes in housing policy and the development of the interstate system, significantly impacted urban development and suburban growth in the post-World War II era.

Chapter two also explores urban development and redevelopment theory. As some American cities have seen growth in population and wealth, many communities have adopted the policy of smart growth to help encourage urban development. Smart growth policies utilize existing infrastructure and encourages sustainable development through higher densities and the utilization of alternative modes of automotive transportation.

Chapter two also outlines the current shift to the new urbanism movement and outlines the fundamentals of the smart growth principles, a framework for which modern transit-oriented development comes from. The chapter ends with some of the current literature evaluating property value measures of transit-oriented development, the current ways of financing transit-oriented development projects, and their challenges.

Chapter three is on the methodologies used in conducting the research for this project. Both qualitative and quantitative research techniques were used to answer and evaluate questions. Quantitative techniques included using existing published research from a variety of different sources, the use of census data to analyze demographic trends in population and housing, and the use of real-estate data. Additionally, personal interviews were conducted with a number of stakeholders and experts in development as it relates to transit-oriented development along the *CTfastrak* corridor and the surrounding communities.

The fourth and final chapter synthesizes the results from the research and discusses the conclusions that can be made. The final chapter compares the *CTfastrak* corridor to Cleveland's fairly new BRT system. It also makes comparisons to the market conditions of the neighborhoods that can be found along the *CTfastrak* system and that of Cleveland. The chapter goes into detail on key points that help explain what has happened along the new *CTfastrak* corridor that has help foster development, and some of the significant obstacles that have hampered economic and housing development.

Additionally, suggestions are presented based on the analysis and interviews that were done for this project. Most importantly, this project recommends that policy makers have a better understanding of the different markets that exist along the *CTfastrak* corridor. Based on these local markets, different strategies should be implemented to help foster economic and housing development around new stations. In conclusion, there is no evidence that stations, by themselves, will result in significant economic and housing development without the addition of significant subsidies.

Chapter 2 – Literature Review

This review of the literature presents what has been published relating to transit-oriented development and housing development. This review will cover the historical context on how urban development has changed over the last century due to technological advancements, federal housing policies, and the new economy. The literature helps to explain how the changing economy and the evolution in lifestyle has made new urbanism, and specifically transit-oriented development, a means to revitalize urban communities that have experienced disinvestment.

Mass public transit has become one of the most discussed issues nationally. Connecticut in particular has made significant investments in public transit in the hope of creating a modern transportation system over the next two decades. The reason why to invest in transit range from an attempt to reduce traffic congestion on antiquated highways; combating climate change, reducing overall transportation costs; and revitalizing and stabilizing neighborhoods through transit-oriented development.

As part of the investment in public transit there has been significant investment in development planning around the newly created transit station and hubs. The development of the land around these hubs is often referred to as transit-oriented development. Rooted in Transit-oriented development are principles of “new urbanism” an attempt to make places safer, walkable, and aesthetically pleasing. In addition, Transit-oriented development has become a strategy to increase economic development, competitiveness, and increasing housing density. There has been a significant increase in the amount of investment to build light rail and BRT in various regions across the United States with more than 721 planned new transit corridors in 109 regions (CRCOG, 2013).

We are seeing this investment play out in our own backyards with the planning and investment in the New Haven-Hartford-Springfield commuter rail line and the just launched *CTfastrak* BRT system.

Historical Context of Urban Development

The urban space is ever changing; cities and towns reflect their current space, time, and people. Not all urban spaces share the same narrative. Depending on the time in history, the geography, the economic drivers of the period, and the technological advancements taking place, each American city and town has a different story to tell.

To better understand where we are today, we need to better understand the general historical background of the American urban space. Here we can see how changes in technology, migrant patterns, and federal policies have affected transportation and housing development particularly in the American urban core.

Technological Advancements & Creative Destruction

Few things affect the urban space more than technological innovation. Technology has time and time again driven economic growth and ultimately how a city and town grows or shrinks. As innovation drives new advancements, old technologies are replaced by the newest and greatest technology. The twentieth century economist Joseph Schumpeter referred to the act of a new technology destroying and replacing an old technology when describing how the market works as the process of creative destruction (Schumpeter, 1942). There is no doubt that the process of creative destruction has a significant impact on the city (Rae, 2003), forever destroying, reshaping, and recreating the urban space and how those in the urban space live, work and play.

Early during the industrial revolution, cities and towns located along rivers saw their economies boom, as the river became the main source of energy that was used to power early mills. The river, as it had in since the times of antiquity, was also used an avenue of transport. Large boats could easily travel up and down the river delivering raw materials to mills and finished goods to other towns and cities located along the riverbanks and coasts. Because of the rivers dual role as a power source and as a means of transport, cities and towns along major river ways became important economic centers. These cities and towns economies grew, as manufacturing became the best means to earn a living for large portions of the population. People moved into these cities to find work and eventually settled near their place of employment. The mill towns like those found throughout New England saw their populations grow significantly during the mid and late nineteenth century. The mill town of Warren Rhode Island for example, had a 50 percent population growth between 1865 and 1875, the period just following the American Civil War. Warren's population growth, like many other New England and American Mill towns, were directly related to immigrant populations coming to the United States to work in the mills (Mott, 1972).

Technological innovation and the process of creative destruction transformed the economic landscape and shifted the economic relevance of the old river/mill town. The invention of the steam engine significantly changed the way goods were manufactured and transported. Manufacturing was no longer tied to having to be located near a river. The steam engine replaced the waterwheel and the water turbine as a power source in manufacturing (Atack, Bateman, and Wiess, 1980). The steam engine now powered new larger factories and was also used to power locomotives. The locomotive could transport

large quantities of raw material and goods more directly over long distances on land more quickly and efficiently than boats on waterways. The steam engine led to the growth of railroad network that crisscrossed vast swaths of land, diminishing the importance of the port city along the coasts and riverbanks.

The steam engine was not the only significant technology that impacted manufacturing and the city in the late nineteenth and early twentieth centuries. With the invention of the incandescent light bulb, electricity began to have dramatic importance in the city. Early electrical generators provided direct current (DC). DC generated electricity was expensive, and required a significant amount of infrastructure to deliver to the consumer. Eventually the generation of alternating current (AC) and improvements on how electricity could be delivered, making electricity more affordable and practical. The AC electric grid was first adopted by cities like London and Chicago and eventually was adopted by cities across the globe (Nowotny, 1988). The adoption of the AC electrical grid allowed the delivery of electricity to be more widespread, eventually contributed to mobility. Electricity could now be distributed evenly and at far distances. There was no longer a need to be at the urban center in order to have access to electricity. This was a significant game changer for both commercial and residential development outside the urban core. Factories could now run electric motorized machinery outside the city core and could build large more efficient horizontal style factories that required large swaths of inexpensive, undeveloped land. Manufacturing and job creation was now taking place in the city's periphery rather than in the traditional urban core. Additionally, the importance of electricity to residential consumers meant that even homes could take advantage of the new AC electric grid outside of the city. A home located in the

periphery could now have the same amenities as the home found within the city center (Rae, 2003).

After the great depression and in the decades following World War II technology again reshaped the urban space and made people more mobile. The invention of the automobile forever changed the way people moved around, and where they lived, especially in our cities. The automobile led to the process of creative destruction of the horse drawn carriage, where few could argue against the positives of replacing the use of horse in the city. As the automobile became more affordable and disposable income increased, many families could now afford to purchase a car and opt out of using public transportation to run errands or get to work. The affordable car led to the eventual decline of rail and trolley systems, once the main source of transportation in many American cities. Public transportation became less important in the American city (St. Clair, 1981).

Additionally, the federal government, under the Eisenhower administration, embarked on the massive highway construction project. The German Autobahn impressed General Eisenhower for its rapidly mobility of the German Military during World War II. The now President Eisenhower felt the United States needed a similar road system that could be called on during the Cold War to transport and deliver men and equipment across the United States in the event of a bi-costal war (Blas, 2010). In 1956, the United States adopted the National Interstate and Defense Highway Act leading to the creation of the interstate highway system (Speck, 2012). Although the original intent of the highway was to be used primarily for military mobility, civilians quickly adopted the interstate highway system as an important means for transportation. Since the end of

World War II, the car has become engrained in the fabric of contemporary American culture as the main method of transportation and mobility (Pisarski, 1981). The automobile and the policies that led to the creation of the infrastructure that supported the automobile, ultimately led to the decline of public transportation in many American cities beginning in the 1950s.

The Decline of Public Transportation

The story of public transit has a strong connection with the story of urban growth and decline. There were essentially four noteworthy transformations in urban transportation during the first half of the twentieth century (St. Clair, 1981). First is the use of the electric streetcar as a primary form of urban public transit, which was later replaced with the motorized bus in just about every city in the U.S. Second, is the decline of public transit ridership, particularly in smaller cities after World War II. Third, the formation of the subsidized, publically owned transit agencies, which replaced the financially failing private transit firms in the mid-1950s. The fourth and final, is the dominance of the automobile over the public transit system as the main mode of urban transit (St. Clair, 1981).

The traditional explanation proclaims that consumer's tastes changed. Once the consumer purchased an automobile they chose to use it for the majority of their transportation needs resulting in the decline ridership and revenue in public transit. Because of this, public transit systems needed to adapt and generate revenue again in order to stay in business. It was because of the need to reduce cost and increase revenue that motorized buses replaced the streetcar and trolley systems (St. Clair, 1981).

In a Statement presented before the United States Senate Subcommittee on Antitrust and Monopoly in 1974, Bradford Snell a prominent researcher offered another hypothesis when he testified at a Congressional hearing in 1974. Snell claimed that the decline of the urban public transit system was organized by the General Motors Corporation along with Standard Oil, Philips Petroleum, Firestone Tire, and Mack Truck (Snell, 1974). This was done as an attempt to not replace an inferior system with a superior revenue generating system, but to motorize the transit system to earn more profit for the firms involved. According to Snell, this was carried out in 45 cities throughout the U.S. (Snell, 1974). An analysis by David St. Clair attempted to see if Snell's economic claims were accurate. The analysis measured the cost benefit, ongoing operating costs, and revenue generated by the streetcar, trolley, and motorized buses during the period 1935 through 1950. The analysis supported Snell's argument of the motorbus's inferiority. It found that both the streetcar and trolley coaches were more profitable than the motorbus (St. Clair, 1981).

Cities also actively secured funding from the Federal-Aid Highway Act (1956) to recreate transportation in the cities, which mostly focused constructing roads and highways. Cities and central business districts were eventually encircled and divided by highways leading to the demolishing of older, many blighted neighborhoods. One of the unintended consequences of the process of creative destruction with the new highway network was the draining of the downtown. One of the first to leave the downtown, were the large anchor department stores (Birch, 2009). A 2004 paper by Patrick Condon supports this narrative and found that there was a correlation between highway construction and urban property values in Canadian and U.S. cities. The research found

that during the rise in 1960s highway construction urban property values remained flat. In the 1970s highway construction was reduced and urban property values began to rise while in the 1980s highway construction picked up again and urban property values fell. Again, in the 1990s, highway construction dropped and urban property values began to rise (Condon, 2004).

The growing use of the car and the adoption of an AC electric grid meant that families could become more mobile. Families were no longer limited to work, live, and be entertained within the central city's core (Rae, 2003). With this expanded mobility, car centric development became the norm and required large swaths of undeveloped land. The commercial importance of the city's downtown quickly was replaced by the suburban style indoor shopping mall, the strip mall, and large office park. The suburbanization of America saw vast development and growth outside of the urban core in the periphery. The changing use of the city cannot completely be contributed to the development of the automobile; the migration of blacks from the rural south along with changing housing policies played a significant role in impacting the socio-economic makeup of the city (Rae, 2003) and the suburban housing development patterns in post-World War II America.

Changes in the Housing & the Socio-Economic Conditions of Cities

Cities experience periods of investment and disinvestment throughout their histories. Since the great depression, the American city was greatly affected by both the process of creative destruction, as discussed earlier in this paper, and federal policies that exacerbated disinvestment in the city and encouraged housing development in the suburbs. One such policy was the Home Owners' Loan Corporation (HOLC) adopted

under President Franklin D. Roosevelt's New Deal. HOLC was created to help reduce the significant amount of home mortgage failures during the Great Depression. HOLC was tasked with conducting housing market studies throughout the country, resulting in the agency's rating of housing finance risk. As a result, the HOLC market studies suggested to private lenders to reduce or stop the level of housing investment in older, often poor and black, neighborhoods mostly located within a city's core (Rusk, 2003). In addition, the Federal Housing Administration (FHA) and lenders who participate in the program, continued to exacerbate the problem when FHA would not provide mortgage insurance in neighborhoods that had been redlined. Inevitably this led to the practice of redlining by lenders who stopped making mortgages in many city neighborhoods. Not only could you not get a mortgage to buy a home in these neighborhoods, it was near impossible to even take out a mortgage to upgrade or repair a home. The value of the housing stock began to drop significantly as the market was shut out of credit and homes began to rapidly deteriorate from lack of maintenance (Rae, 2003). Anthony Downs (1973) beautifully summarizes this in "Opening Up the Suburbs," saying "Existing housing units are vacated by households with rising incomes who move to more modern and hence more desirable new units. These new units are out of the reach of low-income households... Relatively lower income families unable to afford the increasing costs of maintaining the older units replace the higher income groups who have moved out. Over time, as successively lower income groups come to occupy the structures, the buildings fall into disrepair and deterioration sets in" (Bradford & Rubinowitz, 1975, pp. 78). These federal housing policies institutionalized discrimination and segregation on an unprecedented scale (Rusk, 2003).

As HOLC began transforming the homeownership market in cities, the rental market was heavily transformed in cities by, what eventually became, the Department of Housing and Urban Development (HUD). In the 1930s significant development of low-income housing projects occurred primarily in the urban core. This concentration of low-income housing units, along with the redlining practices of the day, significantly impacted the socio-economic makeup of the cities. Although altruistic in its concept, there was no better way to negatively impact school performance and increase crime as to concentrate subsidize housing in a place where jobs would become extremely hardest to find (Rae, 2003). Housing development in the urban core became limited to government subsidized housing while housing development in the suburbs, particularly along the new highway system, grew substantially. Due to housing policies and changing markets, cities find themselves with an abundance of low-income restricted units with few market-rate apartment units (Speck, 2012).

Over the last few decades, housing policy makers have begun to shift from affordable public housing and other subsidized housing projects toward mixed-income housing developments (Weiss, 2003). Mixed-income policies have attempted to facilitate improvements in physical neighborhood revitalization and poverty amelioration for low-income families (Fraser and Kick, 2007).

There have generally been two methods to try and reduce the concentration of low-income households in a development or neighborhood. The first is to offer low-income families housing vouchers that would cover a portion of the rental costs in privately owned apartments. In the 1990s the Section 8 housing voucher program

became a substantial component of promoting mixed-income housing communities (Fraser and Kick, 2007).

The second is to combine low-income and higher income households in the same housing development (Schwartz and Tajbaksh, 1997). The development of mixed-income housing in existing low-income neighborhoods is thought to bring resources to that neighborhood. The aim of the mixed-use development is to move higher-income individuals back into lower-income neighborhoods, entice more private investment such as business investment and retail services, and increased revenue for the municipality through higher property tax, sales tax, and employment (Quercia and Galster, 1997).

Although both these approaches have the goal of decentralizing poverty, they do it in very different ways. By the late 1980s, the Section 8 Existing Housing program constituted the single largest form of Federal housing assistance. The Section 8 voucher authorizes housing authorities to issue portable rental vouchers that can be used in the private market. Due to the portability of the rental voucher, recipients may seek out housing in any neighborhood and in any building where rent does not exceed the area's fair market rent, determined by HUD (Schwartz and Tajbaksh, 1997). This program may not necessarily result in neighborhood improvement or revival.

Mixed-income housing has been in existence for much longer than the rental voucher programs. Through rent regulation and public housing management New York City encouraged mixed-income housing by selecting higher income households from the public housing's waiting list. The Federal government has looked towards mixed-income developments as an attempt to revitalize its public housing projects (Schwartz and Tajbaksh, 1997). Mixed-income projects are often used as a method of neighborhood

revitalization through restructuring the housing market upwardly and in conjuncture with other economic investment (Fraser and Kick, 2007). Higher income households have many more housing options than lower-income households. Because of this, mixed-income projects may find themselves needing to invest in more costly construction material and maintenance than a normal public housing project (Schwartz and Tajbakhsh, 1997).

While the housing policy since and the market steered housing development away from the urban core, there is evidence that this has begun to swing in the opposite direction. Although restricted low-income housing has been primarily the type of housing development seen in the city, there is evidence that mixed-income and above market rate housing is making a return to some urban centers due to a change in lifestyles and market demand.

Return to the City Narrative

Much has been made in the last two decades about how the middle class is returning to the urban core. The two demographics most discussed in the current narrative are the baby boomers, those born after the end of World War II up to the early 1960s, and the millennial generation, those born in the late 1970s until 2000. Many articles emphasize how these two demographics are largely interested in more walkable environments with access to public transportation and amenities located close by. Both demographics are said to be more frugal as their incomes are smaller, which may explain the tendency to be less interested in using a car to get around. Another group linked to the return to the city “movement” is the young entrepreneur or those in the “creative class.”

In his book “The Rise of the Creative Class” (2002), Richard Florida claims that for a city to be economically successful, it must try to attract members of a the “creative class.” The creative class can be defined as a talented group of fairly well educated individuals that are often talented and entrepreneurial in spirit. The creative class is not limited to any one occupation, but may range from artists, business owners, or those working in the high-tech industry. Many in the creative class seek places where knowledge is densely pooled rather than where there might be a high level of manufacturing jobs. For those in the creative class, knowledge and connection is at the center of their economy. Daniel Bell first coined the knowledge economy in 1973, when describing the modern economy. Bell explains how the modern economy has transitioned from an industrial to the post-industrial phase (Bell, 1973; Guile, 2010). The new economy is often referred to as the information age or the knowledge economy (Castells, 2000; Houston, Findley, Harrison, and Mason, 2008) as information has become a source and means of production. The city is often viewed as the center of the new knowledge economy as it is the center of cultural resources, which is needed to sustain the knowledge entrepreneur and workers (Amin and Thrift, 2002). For decades now artists have settled in enclaves within cities, taking advantage of low-cost often-neglected housing that could be renovated to better fit their lifestyle and culture. The creative class in this instance practices a form of cultural entrepreneurship and cultural gentrification (Pratt, 2008)

However with the advent of new communication technologies and mobile devices, proximity may not be as relevant to the knowledge economy as it once was. Members of the creative class may be more adept to share knowledge and work with

teams across the globe rather than in their own state let alone in the same city. But yet the creative class still seems to want to settle in an urban environment. This is perhaps more about a desired lifestyle rather than a desire of knowledge. Living in a city may be more about a feeling of belonging than the economy. Richard Sennett (1998) claims that the desire of the super-mobile for local familiarity in the public spaces of a city is a reaction to the intense volatility and mobility that marks their economic geography (Amin and Thrift, 2002).

Richard Florida argues that the creative class chooses to live in “bohemian” locations that offer stimulating leisure, personal development, and tolerance. Additionally they prefer to move into communities with low barriers of entry where acceptance of new comers and lifestyles are accepted (Florida, 2002; Houston, Findley, Harrison, and Mason, 2008).

It is important to note that not all cities are experiencing the return of the middle- and upper-income individuals, or have seen an influx of the creative class as discussed above. Alan Mallach (2014) conducted an analysis looking at a variety of cities to determine whether the return to the city narrative was in fact occurring. Mallach used educational attainment level as a proxy for middle- and upper income status given that the national median earnings for individuals with bachelor’s degrees or higher are nearly 60 percent higher than the national median income for all individuals. The analysis confirmed that that not all American cities have seen any significant increases of higher educated individuals returning. Large cities that have had rapid growth were more likely to attract an educated young millennial population compared to older stagnate cities. The trend for baby boomers is less evident. Cities like New York and Seattle saw a bump in

baby boomers; however that was not as evident in “legacy cities” like Baltimore, Buffalo, and Milwaukee.

New Urbanism Movement

The New Urbanism movement has become dominant in the area of urban planning in the United States and has been compared to the City Beautiful and Garden City movement of the early twentieth century in its influence and importance (Vanderbeek and Irazabel, 2007). New Urbanism attempts to recapture the urban “lifestyle” through planning and design. New Urbanism is an urban design plan that relies on a street grid to form denser, more walkable, mixed-use neighborhoods using traditional building architecture for a more “urban” experience (Marshall, 2003). New urbanism is often traced back to Jane Jacobs’ writings in particular her book “The Death and Life of Great American Cities.” Jacobs (1963) wrote her book as a reaction to New York City Parks Commissioner Robert Moses and the Urban Renewal practices during the 1950s and 1960s. It was during this period that many neighborhoods, particularly poor older urban neighborhoods, were razed to make way for the city super block, large scale modern developments, and the expanding interstate freeway system.

Jacobs outlines a list of important factors that are key to a successful neighborhood that is contrary to city planning practices of her time. Jacobs sees that city planners are sacrificing thriving, viable communities in the name of “slum removal.” The key thread to Jacobs’ observations and suggestions is the importance of the preservation of the communities “self-governance”. As streets, buildings, and sidewalks are used on a regular basis, people tend to self-police and maintain safety. The public realm is paramount to the community for Jacobs. Sidewalks and parks are places for

adults to congregate and for children to play. They should be maintained, open, and utilized at all times (Jacobs, 1963).

Clean, walkable, and aesthetically pleasing, is often the mantra of New Urbanism and is the center of Jeff Speck's book "Walkable City: How Downtown Can Save America, One Step at a Time" (2012). Cities are meant to bring people together, they are places where people work, eat, play, and a place where many people live. Speck understands the importance of finding the right balance and recognizes the history that has led up to the deterioration of the American city that is highlighted by Rae in "City." The exodus of wealth from the city to the suburb and the concentration of restricted low-income housing that replaced it.

The Importance of Diversity

Key to New Urbanism is the belief that diversity should be encouraged (Grant and Perrott, 2009). In order to encourage diversity a city must serve more than one or two primary functions, blocks must be short and create an opportunity to turn corners must be frequent, there must be a mixture of different building types of varying age and condition, and a city should have high population density (Jacobs, 1963). A city needs to encourage cross-use to accommodate the residents, people working in the city during the day, and visitors in the evening. A city should always attract people to keep the streets vibrant and fully utilized throughout the day. Jacobs is spot on in declaring the importance of a city to have a plenty of commercial establishments that bring employees into the city during work hours and a variety of events or attractions to encourage visitors to come into the city during the evening hours. This practice makes for an efficient use of space and sustainability (Jacobs, 1963). This is often cited in various New Urbanism

literature including Jacobs and Jeff Speck's "Walkable City" (2012). It is important for cities to have mixture of buildings within a neighborhood, both new and old (Rae, 2003). "Human settlements, planner say, should be socially and economically diverse – mixed in income, mixed in use and activity supportive of places that commingle people of different races, ethnicities, genders, ages, occupations and households' (Talen, 2006; Grant and Perrott, 2009). This mixture creates a diversity of housing stock associated with mixed-income multidimensional neighborhood.

Additionally a diversity of investment resources is needed to encourage a city's growth. Although public money is important, investment from private lending institutions are vital in contributing to the financial stability of a neighborhood. Financing from traditional lending institutions encourages Redlined neighborhoods can suffer from a complete lack of investment and fail to succeed (Rae, 2003).

Smart Growth

Recently, there has been a push for smart growth policies in regards to municipal and urban planning. Smart growth initiatives aim to leverage already existing infrastructure and reduce the physical development impact on the natural environment, mainly through encouraging density (Hawkins, 2011). Smart growth attempts to curtail decades of urban sprawl and unsustainable growth. Over time as suburban municipalities competed to attract business to foster economic growth and lower taxes, suburban residents began dealing with the negative externalities of rapid growth. Resident's taxes began subsidizing the costs associated with economic growth, including the construction of additional infrastructure and additional services (Schneider, 1992). The rate of return

from luring business and economic growth to suburbia began threatening suburbia itself (ibid).

The type of development that occurs around a smart growth fundamentally relies on the zoning adopted by the community. There needs to be a willingness by the community to evaluate their zoning and make changes that would encourage, or even allow, mixed-use development (Rae, 2003).

State government may also play an important role in encouraging smart growth development. One such approach is for the state government to direct local government to manage growth and projects through the adoption of a “comprehensive planning approach” for land use planning and policy development. This would be characterized as the top-down approach (Hawkins, 2011). The state may also try to encourage smart growth through a cooperative partnership with local government. This is primarily done through working with municipalities on their needs and concerns while making resources available to the municipality through the state agencies. These agencies may offer grants, financing, and expertise to local governments (Hawkins, 2011).

There is literature available on the value of the top-down and bottom-up approach to governance. Elinor Ostrom (2000) describes these approaches as “monocentric” and polycentric. Her research supports a polycentric model to planning and control where the decision-making remains local, allowing a community to make the right decision based on the reality at the ground level (King, 2004). The polycentric model encourages market-based choices where citizens may choose the community that best suits their needs and values. However, local zoning can sometimes become exclusionary limiting the access to many lower income individuals and families. This exclusionary practice

may hinder the opportunity for low-income families to benefit from smart growth initiatives (King, 2004).

Much of the transit-oriented development literature uses Jacobs's theory on urban planning and Speck's description of the walkable city. Speck understands the need to right size parking, place making, and importance of density to the city neighborhood. Speck explains the nodal nature of neighborhoods and how that structure has been in existence for over ten of thousands of years. This nodal structure of the neighborhood is essentially what planners now call transit-oriented development, the compact, diverse, walkable neighborhood that is built around a transportation hub that links that neighborhood to other neighborhoods. What might work in one area may not work in another.

Transit-Oriented Development

Many cities are embarking on mass transit projects to help reduce the cost of commuting, reduce emissions, and reduce traffic congestions. The design of rapid transit systems has been primarily as a result of technical problems such as how to get more riders from one place to another in the cheapest way possible. By analyzing rapid transit as a technical problem, planners have not fully considered the concerns for the social and economic impact of the new transit system (Plant and White, 1983).

Over the years, planners and government officials have not completely integrated transit development, economic development, and land use policy into a one cohesive planning process. During the 1980s, the increased cost of developing and maintaining rapid transit systems led many to question their value. According to Plant and White (1983), there was a focus on the relationship of transit and development and questions on:

- What effects do rail systems have on both commercial and residential land value?
- Will rail availability actually have an impact on jurisdictions to attract new industry and keep the industry it has?
- What is cost of growth, if there is any, without investment provided by the transit system?

Some cities have introduced, or reintroduced, the streetcar to connect neighborhoods to the city's downtown. Portland identified the Hoyt Rail Yards, north of downtown as an opportunity to connect that neighborhood to its downtown. The streetcar was opened in 2001 at a total of \$54.5 million, which has resulted in over \$3.5 billion of new investment along the new line (Speck, 2012). Central Hartford County has just completed the construction of the regions first BRT system. Many regions have turned to BRT as a form of mass transit due to its lower development costs compared to light rail. When done correctly, BRT systems have a dedicated roadway exclusively used by the buses and operates much like light rail with level boarding at raised pay-to-enter stations, wait-time indicators, and under ten-minute headways (Speck, 2012).

The development that is encouraged around these transit stations has been referred to as transit-oriented development. Transit-oriented development has at its core a new urbanism design pattern that encourages a higher density, mixed-use, pedestrian-friendly environment around access to a variety of transit primarily public transit to encourage sustainable behavior (Frelich and Popowitz, 2010; Quinn, 2006). Some of the guiding principles of transit-oriented development include:

- Development must occur on an existing or planned transit station;

- Mixed-use is at the core of development with a space for public, commercial, and residential uses;
- Housing stock must be diverse with a mix of residential densities, housing types, ownership/rental, and a range of pricing to mean a variety of income levels;
- Site design must be pedestrian-friendly, “walkable”;
- And project should adhere to a specific area plan. (Freilich and Popowitz, 2010)

Local economies may also greatly benefit from transit-oriented development. A well-planned transit network can reduce traffic; better connect employers with employees and suppliers, and business to their consumers. The clustering effect of place and people can lead to “agglomeration economics,” with increased labor output and increased information exchange (Chatman and Noland, 2013). This effect strengthens neighborhoods and increases access to public transit.

Access to transit increases the mobility of the residents who live next to the stations. This mobility in turn gives households better access to employment, retail, and any services. This helps benefit all residents, but low- and moderate-income households the most. Access to multi-modal transportation strengthens a neighborhood and increases the neighborhoods demand as it opens up opportunities. In an analysis of New York City neighborhoods conducted by the New York University’s Wagner Rudin Center for Transportation Policy and Management, households with limited access to transit had higher rates of unemployment when compared to households in neighborhoods with

either more substantial transit access or complete auto-dependency (Kaufman, Moss, Tyndall, and Hernandez, 2014).

Increase in Transit-Oriented Development Property Value

In addition to the public investment in the new transit lines and transit stations, there is evidence that property values increase around these transit lines and notes. This indirect outcome from the public investment may be one of the most important impacts transit development has on economic and housing development, particularly in urban centers. The added property value, particularly the added value to housing could be understood in a few different ways. First, the public investment in a new transit line or station may signal to the market that the public sector is interested in improving a particular location, heightening the level of demand in that particular region or neighborhood. This in turn may lead to individuals with more modest means to purchase sound, but dilapidated, housing in these neighborhoods and improving the housing stock. This is sometimes referred to as “transit-induced gentrification.” Studies have assessed the phenomenon of the clustering of advantaged groups and neighborhood transformation occurring along transit lines and stations in large cities (Florida, 2015). A San Francisco Fed study found evidence that there was some small to modest premium for properties located near a transit hub (Florida, 2015; Cervero, 1994; Garrett, 2004).

In addition to the increased value of property based on the demand to accessibility, another reason properties around transit stations may see an increased property value is related to transportation savings capitalized in the value of the property around transit stations (Koutsophoulos, 1977). According to Herbert Mohring, “the basic benefit of an investment – be it in highways or anything else – is the value of the

resources it releases for other uses” (Mohring, 1961; Koutsophoulous, 1977. p. 568).

Areas surrounding transit stations may also see an increased value based on other development occurring along the transit line. Property in one location may find have in indirect increase in their property if other stations along the transit line see significant commercial or housing development (Garrett, 2004).

The increased value of property is not limited to just the land itself, mixed-use or commercial properties; there is evidence that transit-oriented development has an impact on the value of existing single-family residences near transit stations. In a study looking at the impact of suburban transit-oriented development on single-family home prices in San Jose, California, there was statistical evidence that single-family home values increased over time within 1/8th of a mile from the transit station. During the transit-oriented development construction period home prices were 7.3% higher when compared to homes further away. Between 2004 and 2006, home prices increased by 18.5% indicating that the nearby transit-oriented development had positive impact on home values over time (Mathur and Ferrell, 2013).

Municipalities can oftentimes greatly benefit from the increased land values and the economic growth seen with transit-oriented development. The Victoria Transport Policy Institute conducted a review and found that residential service costs decreased as density increased. The denser development also yielded higher tax revenues per acre when compared too less dense development (Litman, 2012).

Financing Transit-Oriented Projects

The financing of transit-oriented development has occurred in a number of ways, mostly depending on the state and existing market. Large infrastructure projects are often

funded through government bond finance or by pooling resources different a variety of state agency and transit authorities (Cervero, 2003), however the development around the station can be financed and funded in a variety of ways. In strong markets private investment can fuel commercial and housing development around a transit station through private investment. Additionally, value capture mechanisms may be used. These include levying a special assessment district, property tax increment capture through a tax increment financing (TIF) district, and transit impact fee (Mathur and Ferrel, 2013). Local governments can use these finance tools to help finance infrastructure, additional services, and more importantly mixed-use urban development.

Traditional lenders may be absent from investing in transit-oriented development projects as mixed-use development is viewed as higher risk than single-use development. Traditional lenders may also find the deals difficult to structure do to its complexity and higher development costs when compared to single-use, greenfield development. Because of their complexity, transit-oriented development projects may take a long time to come together. Traditional lenders and investors are typically not interested in waiting 10 to 20 plus years to receive a return on investment. Even large national lenders may find that their local bankers, who are less familiar with mixed-use and dense developments, reluctant to structure transit-oriented deals (Federal Reserve Bank of San Francisco, 2010).

Private/Public partnerships have become more common in the financing of transit-oriented development. In particular is the use of community development financial institutions (CDFIs), which provide financial products and services that promote affordable housing and economic development. CDFI activity may range from providing

capital to housing developers; investments in small businesses and funding child care facilities and schools (Federal Reserve Bank of San Francisco, 2010).

Challenges to Transit-Oriented Development

Besides the challenges of financing transit-oriented development, there are a number of other factors that can make transit-oriented development difficult to implement. Zoning codes in particular make transit-oriented development difficult to move forward with in many municipalities, most notably the separation of residential from commercial and retail uses. Single use zoning that separates residential from commercial and retail uses has limited the number of mixed-use neighborhoods. In addition, density restrictions can severely limit housing and prevent neighborhoods from reaching the population level necessary to encourage and support mixed retail and commercial development (Enterprise, 2015). Many municipalities also have automobile-oriented development zoning that stipulates a minimum parking requirement that can hamper increased density in mixed-use development.

Although many of the challenges mentioned above are mainly found in more suburban communities, urban communities must overcome difficult hurdles. When trying to do transit-oriented development in urban infill locations, there are significant cost challenges associated with regulatory compliance, site layout, existing infrastructure, and demolition, and site preparation work (Jakabovis, Ross, Simpson and Spotts, 2014). The scarcity of land and the high construction costs associated with urban infill results in a high premium for transit-oriented development, often times making housing costs unaffordable for those who would need the access to public transportation the most. The higher costs can often time result (Enterprise, 2015).

Summary

As illustrated in this review of the literature the urban space has gone through some significant changes over the last century. The rise then decline of the urban core, through market forces and unintended consequences of public policy, has been the foundation of many of the issues urban policy makers face today. The American city is again going through some significant transformations. There is evidence that the market has again shifted in some American cities as young millennials and baby boomers favor an urban lifestyle making the city a desirable place to live. The 2008-09 financial services and housing market crash raised significant questions on the sustainability of rapid homeownership development and the true value of homeownership. And the transformation of the economy from one of static place to a knowledge-based economy has favored those of the “creative class,” mostly urban dwellers. Then there's transportation which itself has changed with the transformation of the city. A crumbling infrastructure of roadways and transit lines have left many cash strapped communities with difficult decisions to make. Many communities have prioritized mass transit over continued road repair and expansion.

All these forces have culminated in this period in urban history to highlight the importance of transit-oriented design as the way forward in urban design and growth. Smart urban development is no longer viewed as a desirable, but as necessary and expected by citizens to best utilize resources and leverage private sector investments in America's cities and towns.

Interviewing for Research Project

In selecting individuals to be interviewed for research, it is important to select individuals who are not only knowledgeable but who are motivated about the topic. In keeping them motivated, it is important to come up with a set of questions that answer questions that the research is aiming to answer. It is important to recognize that, over time questions may change and evolve as an interview or research moves along.

(Hargittai, 2009). Face to face interviews are particularly beneficial because one can adapt questioning to responses given (Purdue Online Writing Lab, 2010).

Chapter 3 – Methodology

This research paper used both quantitative and qualitative measures to better understand how new transit stations, as part of a larger transit system, can influence the development that occurs around it. Through the use of data from the U.S. Census Bureau, and a variety of municipal and state data sources, and interviewing a number of experts and stakeholders, this paper outlines a clearer understanding on how the new *CTfastrak* BRT system has and will impacted neighborhoods along the 10-mile corridor, particular in two different neighborhoods.

The Neighborhoods

When starting this research on *CTfastrak*, a goal was to get a better understanding of how transit-oriented development might occur around different types of neighborhoods. The new transit corridor runs through very different types of neighborhoods, some can be described as suburban, while other stations are located in more dense, urbanized communities. For comparison purposes the research focuses on two stations; one in the suburban neighborhood and the second in the urban neighborhood.

The main transit corridor runs through four different municipalities: Hartford, West Hartford, Newington, and New Britain. Two of the municipalities can be categorized as urban, both the cities of Hartford and New Britain. These cities have struggled economically over several decades and both have weak real estate markets compared to the relatively wealthier suburbs. Hartford has four stations on the *CTfastrak* guideway: Kane Street, Parkville, Sigourney Street, and Union Station. Union Station had already been in existence prior to the construction of *CTfastrak* as Hartford's train

station for Amtrak and is the intercity bus hub. New Britain has three stations along the guideway: East Street, East Main Street, and one in Downtown.

The research focuses on the Parkville station and the surrounding neighborhood, which is the urban neighborhood. The Parkville neighborhood can be described as densely populated with a main commercial corridor, Park Street, running through its center. Park Street is lined with older mixed-use properties, is generally walkable (with a “walk score” of 80, or “very walkable”), and has a diversity of retail shops and ethnic restaurants. The Parkville neighborhood has a median household income ranging from \$20,100 to \$37,600 (ACS, 2010-2014), well below the area median family income of \$87,500 (HUD, 2015), and can be considered distressed.

The two suburban municipalities are West Hartford and Newington. Both West Hartford and Newington have two stations each: Flatbush Avenue, Elmwood, Newington Junction, and Cedar Street respectively. The town of Newington has not embraced having two CTfastrak stations and has publically pushed against any development around its two stations. For example, the town has not changed its zoning to be more conducive for transit-oriented development or made an effort to encourage dense, mixed-use development near either station. Because of this decision by the town of Newington, the suburban station selected for this research is in West Hartford. The Flatbush and Elmwood stations are just less than one mile apart along New Park Avenue in the Elmwood section of town. The area between both stations is made up properties that are commercial and industrial in nature, such as small strip malls, big box stores, open/vacant lots, and former manufacturing facilities. Buildings are generally spread apart and there is little in the way of residential property along this part of the corridor. There are

sidewalks up and down the road between both stations, however they are generally narrow, not well maintained, and not utilized. In contrast to Parkville, this area's "walk score" ranges between 61 and 67, or somewhat walkable. For this research paper, both the Elmwood and Flatbush Avenue stations are treated as one area due to their proximity to each other along the same major road and their shared neighborhood.

Interviews of Experts

As part of my qualitative research I interviewed seven individuals; planners, state and municipal decisions makers, and a community lender in an effort to better understand the decision-making that was made when building the new transit system and what the hopes are now that it's fully built and operational. A number of interview questions were focused on the early planning process of the transit system. Not all those who were interviewed had the background to answer all questions, however all questions were addressed through the interviews. Additionally, those individuals interviewed were questioned about the current state of development around the stations; what is leading that development, and what future development looks like.

A list of questions was put together prior to all interviews. The list of questions tries to capture the expert's thoughts and opinions about several different aspects of the development of *CTfastrak* and the real estate development around the new stations. Not all questions were used for every interview. Questions were selected based on the interviewee's background, experience, and expertise. During the interviews, follow up questions were asked based on answers given to the main set of questions that were not part of the initial list of questions. The following questions that were developed for the interview are as follows:

- When *CTfastrak* was planned, were the expectations that housing or commercial development lead to the development surrounding the new transit station?
- Now that the stations and the system have been operating for almost a year, have the expectations for housing and commercial development to occur near the stations changed? If so, how and why?
- Are there municipal/county examples of BRT systems like *CTfastrak* spurring new and rehabilitated housing and commercial development near transit stations? If yes, where?
- Are there any plans to build new/rehabilitate housing/commercial uses near the transit stations being discussed in the municipalities that *CTfastrak* serve?
- Are there policies the municipalities and/or the state of Connecticut should adopt which would spur private investment in housing and commercial uses near the transit stations?
- What's the biggest impediment to new private sector investment near the transit stations? Is it the cost of land assemblage? The undesirability of the nearby areas? Local citizen opposition to development?
- Is there anything else you'd like to say about the possibilities/opportunities for private sector investments in housing and commercial uses near transit stations?

Early on in the research, Mary Ellen Kowalewski, the Director of Community Development of the Capitol Region Council of Governments (CRCOG), provided information about *CTfastrak* and transit systems, and was the first person interviewed for this research. CRCOG is an association of 38 Metro Hartford municipalities. The members have collaborated for over thirty years on a variety of projects and policies that

benefit the region as a whole. CRCOG was instrumental in planning and advocating for the new transit system that eventually became *CTfastrak*. As the Director of Community Development, Ms. Kowalewski oversees policies and projects encompassing topics such as housing, land use, environmental planning, cooperative purchasing, and municipal services. Ms. Kowalewski holds a Bachelor of Arts Degree in Sociology from Bates College and a Masters Degree from Harvard University in City and Regional Planning. Ms. Kowalewski is a certified planner and has served on the executive committee of the Connecticut Chapter of the American Planning Association and is a member of the Partnership for Strong Communities' HOMEConnecticut Steering Committee.

The State of Connecticut has invested heavily in the new *CTfastrak* project and Governor Dannel Malloy, has made public transportation a top priority in his second term. Multiple state agencies have devoted many resources to the effort including Connecticut's Department of Economic and Community Development (DECD). Tim Sullivan, the Deputy Commissioner of DECD is responsible for transit-oriented development. Tim Sullivan was appointed the Deputy Commissioner of DECD in 2015. Mr. Sullivan oversees a variety of economic development strategies including tourism, brownfield redevelopment, waterfront initiatives, and transit-oriented development. Prior to joining DECD, Mr. Sullivan served as the Chief of Staff to the New York City Deputy Mayor for Economic Development during the administration of Mayor Michael Bloomberg. In his time there, Mr. Sullivan focused on city policy surrounding transportation and transit-oriented development among other key areas. Before working in the public sector, Mr. Sullivan worked at both Lehman Brothers and Barclays Capital in New York. Mr. Sullivan is a graduate of Georgetown University.

Connecticut's Department of Transportation (DOT) has also led efforts to promote development around the new *CTfastrak* stations. The DOT's Bureau Chief of Policy and Planning, Tom Maziarz was interviewed and he talked about the new *CTfastrak* transit corridor from its inception to what the future holds for the corridor. Mr. Maziarz holds a Bachelor Degree from the University of Connecticut and a Master's Degree from the University of Cincinnati and has 30 years of experience in transportation planning. Mr. Maziarz has spent most of his thirty-year career in transportation planning working at metropolitan planning organizations, but joined the Connecticut Department of Transportation in 2010 as Chief of Policy and Planning. Prior to joining the Department of Transportation, Mr. Maziarz served as Transportation Planning Director at the Capitol Region Council of Governments (CRCOG) for 11-years. While at CRCOG Mr. Maziarz was directly involved in the planning of the *CTfastrak* where it continues at the Department of Transportation, where he is now responsible for transit-oriented development planning along the new transit corridor.

Municipal representatives of the city of Hartford and the town of West Hartford were interviewed. As the interview process began the City of Hartford was going through an administration change that impacted the city planning and economic development department. Fortunately Sara Bronin, the chair of the city's Planning and Zoning Commission and a land-use expert agreed to be interviewed. Ms. Bronin is an architect and attorney whose scholarly research examines property and law use among other things. The focus of Ms. Bronin's work is how the law can facilitate economically and environmentally sustainable American cities. She has been recognized for her work by being elected to membership to the American Law Institute, the leading independent

organization working to improve the law. Ms. Bronin is a professor at the University of Connecticut School of Law and serves as faculty director for the Law School's Center for Energy and Environmental Law. Ms. Bronin holds a Bachelor Degree in Architecture and Liberal Arts Honors from the University of Texas, a Master's Degree in Economic and Social History from the University of Oxford, which she attended as a Rhode Scholar, and a Law Degree from Yale Law School. Ms. Bronin also served as one of the lead attorneys and development strategists for the 260 State Street project, a mixed-use, transit-oriented project in New Haven, Connecticut and currently chairs the City of Hartford's Planning and Zoning Commission. As Chair of the Planning and Zoning Commission, Ms. Bronin has led sweeping changes and modernization to the City's zoning, changing it to form based zoning and adding transit-oriented development overlays around the CTfastrak stations.

The Town of West Hartford official interviewed for this research is the town's Director of Community Services, Mark McGovern. In addition to being the town's Director of Community Services, Mr. McGovern is a resident of the town and has a depth of experience in economic and community development in the region. Before accepting the role of Director of Community Services for West Hartford in 2013, Mr. McGovern worked for the City of Hartford for 13 years with the Development Services Department and as Executive Director of the quasi-public Hartford Parking Authority. Mr. McGovern also worked for the State of Connecticut as the director of business recruitment. Mr. McGovern has as Bachelors of Arts Degree in Political Science from Sienna College and a Masters Degree in Public Administration from the University of Connecticut.

In 2014 the State of Connecticut announced the creation of a \$15 million Transit-Oriented Development Pre-Development and Acquisition Fund with intention of providing financing that would encourage transit-oriented development projects along transit corridors, including the new *CTfastrak* line. (CHFA, 2014) The manager and largest investor in the loan fund is the Local Initiatives Support Corporation, (LISC). The Executive Director of LISC, Andrea Pereira who manages both the City of Hartford and the Connecticut Statewide programs was interviewed for this research. Ms. Pereira has experience in urban and community development working in economic and community development, affordable housing, community development finance, and public policy. In her thirty years of experience, Ms. Pereira has worked at the community, municipal, and state levels. Ms. Pereira holds a Bachelors of Arts Degree in Urban Studies from Trinity College and a Masters in Science Degree in Urban Planning from Columbia University. She currently is the co-Vice Chair of the HOMEConnecticut Steering Committee, and sits on the Community Development Advisory Committee of the Federal Reserve Bank of Boston.

This research project also interviewed an urban planner not directly linked to the *CTfastrak* project. Dr. Poland has over twenty years' experience in community development, land use planning, and market regeneration. Dr. Poland has worked in public, private, non-profit, and academic sectors as a municipal planning director, planning consultant, and was the executive director of The Neighborhoods of Hartford, a nonprofit community development corporation. Dr. Poland is a community strategist and planning consultant with czb in Alexandria VA and Goman + York in East Hartford. Dr. Poland's focus is on distressed weak market cities. Dr. Poland is a lecturer teaching

geography and planning at Central Connecticut State University, the University of Connecticut, and Trinity College. Dr. Poland holds a Bachelors of Arts Degree in Geography and Psychology and a Masters Degree from Central Connecticut State University and a Ph.D. from the University College London. Dr. Poland is a certified planner and has served on a number of boards and committees.

Case Studies

There are case studies describing transit-oriented development around existing and new transit corridors for both light rail and BRT. Many of the case studies were of significantly larger cities and metropolitan regions than that of the CT*fastrak* corridor. Additionally, many of the systems studied were in areas with more robust markets with less distressed neighborhoods.

In the research surrounding smart growth and transit-oriented development, the city of Portland Oregon is often cited as the model. The city has invested in its public transportation for several decades and has championed smart growth principles several decades before the rest of the country including central Connecticut. Portland's size, city profile, and market strength does not make it a very good comparison to what is happening along the CT*fastrak* corridor. While Portland is experience rapid growth Hartford and the metro region has experienced stagnation over several decades. Although Portland is often cited as the gold standard and a model for smart growth and transit-oriented development, its experience cannot be compared to that of Hartford or the Hartford Metro region. The same can be said about a number of other cities that have seen transit-oriented development including Washington D.C., San Francisco, and Boston to name just a few.

It is apparent that *CTfastrak* is a transit system built in a geographic corridor, that has potential development difficulties not experienced in many of the other transit corridors found in case studies. The most similar corridor I was able to find was the “HealthLine” or the Euclid Corridor Transportation Project in Cleveland Ohio. Like *CTfastrak*, the near 7-mile single BRT line runs through a blighted downtown corridor. Similar to Hartford, Cleveland has experienced decades of decline and disinvestment and has a weak real-estate market. The Cleveland experience was used as a guide for this research of transit-oriented development along the *CTfastrak*.

Quantitative Data

Because *CTfastrak* is a new transit corridor, the amount of data that is available is limited; however, there is census data on a census tract and census block level that provides important population and housing trends over the period of time that the new transit corridor was planned, announced, and constructed. The powerful geographic information system, PolicyMap allows for the collection and analyzing of demographic, economic, and real estate data along the transit corridor. PolicyMap is a web-based platform that has data from hundreds of sources including the U.S. Census and the U.S. Department of Housing and Urban Development. By using PolicyMap and downloading data from the U.S. Census Bureau, this research can focus on geographic areas surrounding the *CTfastrak* stations. PolicyMap allows for data collection on a half-mile radius, the optimal geographic radius that most research and literature emphasizes around a transit hub, and compare it to other areas in the region not in close proximity to public mass transit.

In addition to the data provided by the U.S. Census Bureau and PolicyMap, assessment data information was collected for properties around the stations. The data provided by Hartford was particularly useful as the city updates assessment values for properties on an annual basis and provided data going back as far as 1999. Using assessment data changes in the property value for a sample of both buildings and land around the Parkville Station were analyzed. Sample properties outside a half-mile radius of a *CTfastrak* station were used for comparison. The town of West Hartford also made available assessment values of properties around both the Flatbush and Elmwood Stations. Unfortunately assessment values in the town of West Hartford are not as regularly updated to capture the period of time between now and when the *CTfastrak* began construction. However, due to the Flatbush Stations proximity to the Hartford city line, a similar analysis to that done for the Parkville Station was conducted using properties in Hartford that were within a half mile of the Flatbush Station.

Like the assessment value analysis, a number of home and commercial real estate sales websites were used to see if there were any trends in sales and pricing during the period that *CTfastrak* was announced, funded, and constructed. This information helped in evaluating how the market reacted to the news of a new transit corridor when comparing sales volume and sales prices to that of the region. In addition potential real-estate projects around the three *CTfastrak* stations were shared and collected from a variety of sources including those individuals interviewed, publically available state funding round information, and media articles.

The next chapter, Findings and Conclusion, will explain the results from doing an analysis of the market using assessment and rental data. Additionally, the chapter will

discuss some of the major impediment to the economic and housing development around the new *CTfastrak* stations. A finally, there are suggestions and recommendations based on the findings and analysis that may help spur on the development of transit-oriented development around the new stations.

Chapter 4 – Findings & Conclusion

For many stakeholders the *CTfastrak* is the promise of significant revitalization and economic growth in a region that has, over several decades, experienced economic decline. Case study after case study is referenced as to why the new BRT system should reshape the region. The new system has been operational for just over a full year and because of this, data related to *CTfastrak* is currently fairly limited. With that said, the system has been in the planning stage for well over a decade and funding was fully secured in 2011 (“*CTfastrak* History,” 2016).

This chapter will analyze some of leading indicators on whether the construction of the *CTfastrak* transit system has led to a pick-up in housing and/or economic development. This chapter will look at some of the current market conditions and what are some of the impediments to development around the new transit stations. In addition, this chapter will explore some policies that may help spur on development along the corridor based on the data collected and the interviews conducted.

The New *CTfastrak* Corridor Communities

The new *CTfastrak* corridor runs from downtown Hartford through to the Elmwood section of West Hartford, Newington, and ends in downtown New Britain. Prior to the existence of *CTfastrak*, this corridor had various levels of bus service, but did not have a modern mass transit system. The *CTfastrak* corridor generally runs parallel to an old freight line along an industrial corridor. Like most New England cities, manufacturing in the region and along the new transit corridor, has been in steady decline through the 19th and 20th centuries.

Due to its industrial past, all along the corridor there are empty and decaying manufacturing buildings and brownfield sites that are yet to be remediated. Although there are funds available from both Federal and state sources, brownfield remediation may be one of the significant obstacles to development around some of the stations (T. Sullivan, personal interview, January 28, 2016).

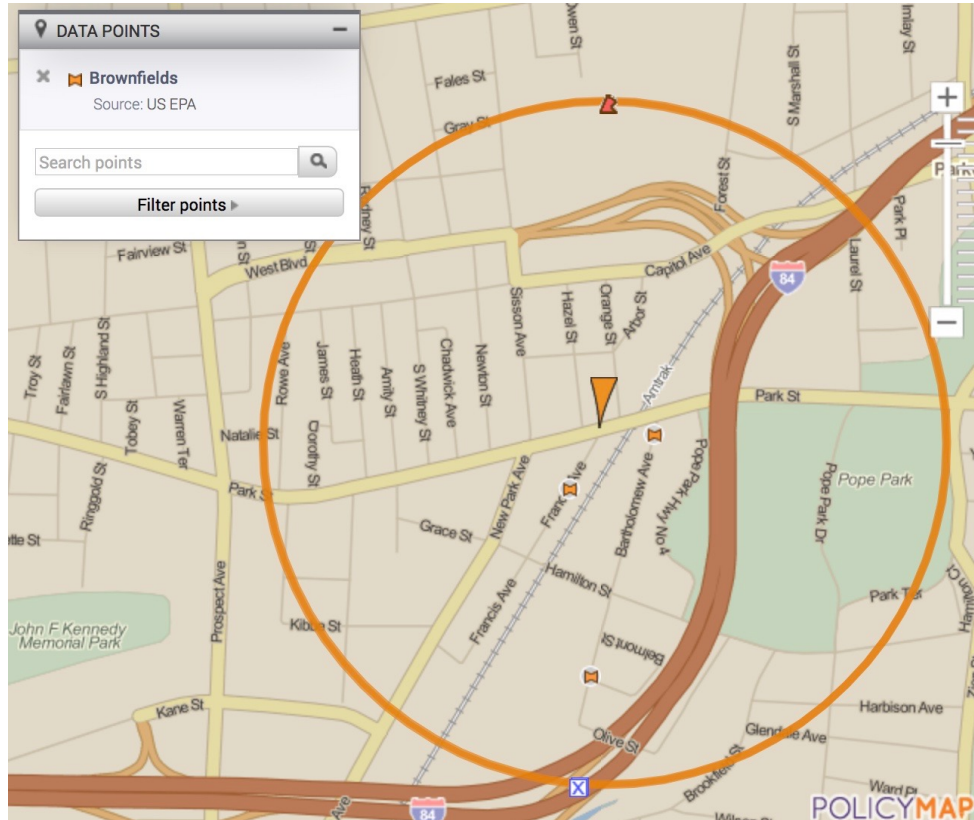


Figure 2 - Brownfield Sites near Parkville Station (source: US EPA/PolicyMap)

According to a study by the National Bureau of Economic Research, the Northeast Midwest Institute estimates the average per-site cost for brownfield remediation at \$602,000, with the US Environmental Protection agency providing clean up grants of up to \$200,000 (Capps, 2014). Additionally, the Connecticut Office of Brownfield Remediation and Development offers municipal and economic development agencies grants of up to \$4 million (“State of Connecticut Brownfield Program,” 2016). The

addition of significant state remediation subsidy may act as a disincentive to smaller developers who are looking to acquire and rehabilitate parcels of land along the *CTfastrak* corridor.

The corridor as a whole suffers from some modest population growth when compared to the region and state. Within the four municipalities that make up the *CTfastrak* corridor, there has been population growth of roughly 2.2% between 2000 and 2014, compared to a 4.7% for Hartford County, and 5.5% for the state for the same period (U.S. Census Bureau, 2015). Additionally, the corridor's demographic makeup ranges fairly dramatically. According to the 2014 American Community Survey estimates, the median family income ranged between \$33,686 to \$111,150 within the four municipalities, with the urban cores of Hartford and New Britain housing the lowest income families within the corridor.

Connecticut is a "home rule" state, which means that zoning is left to the individual municipalities. Because of that, four different zoning commissions govern properties along the *CTfastrak* corridor in their respective municipality. This can cause some disconnect along the corridor and may hamper regional coordination. Fortunately, the region does have a regional planning body, the CRCOG, which helps provide coordination of regional efforts and promotes zoning that is favorable for transit-oriented development along the *CTfastrak* corridor.

Although zoning is recognized as a potential barrier along the corridor, in those who were interviewed for this project, the consensus was that municipalities are making efforts to make transit-oriented development possible. For example, according to Sara Bronin, Chair of the Planning and Zoning Commission for the City of Hartford, the city

concluded a significant effort which took over two years to rewrite its zoning code in 2015 (S. Bronin, personal interview, January 22, 2016). Included in the rewrite, are additional transit-oriented development overlays around the *CTfastrak* stations that further encourage the type of development wanted around mass transit stations. These transit-oriented development overlays reduce the parking requirements for commercial and residential properties and creates high minimums to encourage more density around the stations.

In the period that *CTfastrak* was being constructed, Hartford worked with West Hartford to review zoning around the Flatbush Avenue station, as the station straddles the municipalities' border. Although West Hartford chose not to adopt transit-oriented overlays, the town did approve residential and mixed-use as a permissible use between the Flatbush Avenue and Elmwood stations (M. McGovern, personal interview, January 26, 2016).

On the other hand, Newington, the other suburban municipality along the corridor, has moved much more slowly to embrace the *CTfastrak* system and the two stations within the town. In 2015, the town's zoning commission unanimously approved a one-year moratorium on new dense housing near the town's two stations, using the yearlong period to review options around the stations (Hoffman, 2015). According to Craig Minor, Newington's town planner, at a public forum on April 4th 2016, the town is looking to adopt transit-oriented development zoning around the Cedar Street station with further plans to evaluate the Newington Junction station. The new zoning around the station was not available during the time of writing this research project, however a

multifamily affordable residential component will be crucial considering the lack of either in the town.

Parkville & Elmwood Neighborhoods

This research is focused on two particular areas along the CT*fastrak* corridor, the area around the Parkville station in Hartford and the area between the Flatbush Avenue and Elmwood stations in West Hartford. The space between the Flatbush Avenue and Elmwood stations, as discussed earlier in this paper, is mainly made up of vacant space, industrial lots, strip malls, and big box stores. There is one main commercial road, New Park Avenue that connects the Flatbush and Elmwood stations.

Businesses currently around both Flatbush and Elmwood stations that are not conducive to a consumer using public transit include a BJ's Wholesale Club, Home Depot, Raymour & Flanigan Furniture Store, Colt Defense, CT Self Stor, and several automotive stores and shops. Additionally there are many home design and tool shops that would not be considered transit friendly. Within pockets of this corridor and within a ½ mile radius of either the Flatbush and Elmwood station, there are retailers that are favorable to transit. These retailers include several restaurants including an Irish gastro pub and Thai restaurants, a couple bakeries, a few small grocery stores, a couple of fitness centers, some fast food chains, and a Wal-Mart Supercenter. The Wal-Mart Supercenter is within walking distance of the Flatbush station, but the space between the building and the station would be considered anything but “walkable” (see Figure. 3).

Because of the openness and the amount of vacant space and large parking lots, the area between the Flatbush station and the Elmwood stations have been characterized by a number of experts an area of significant opportunity to bring transit-oriented

development along the new CTfastrak corridor. It is sometimes referred to as a blank slate, although not necessarily a clean slate due the significant environmental clean up that will need to be done from old manufacturing facilities and auto repair shops within this space.

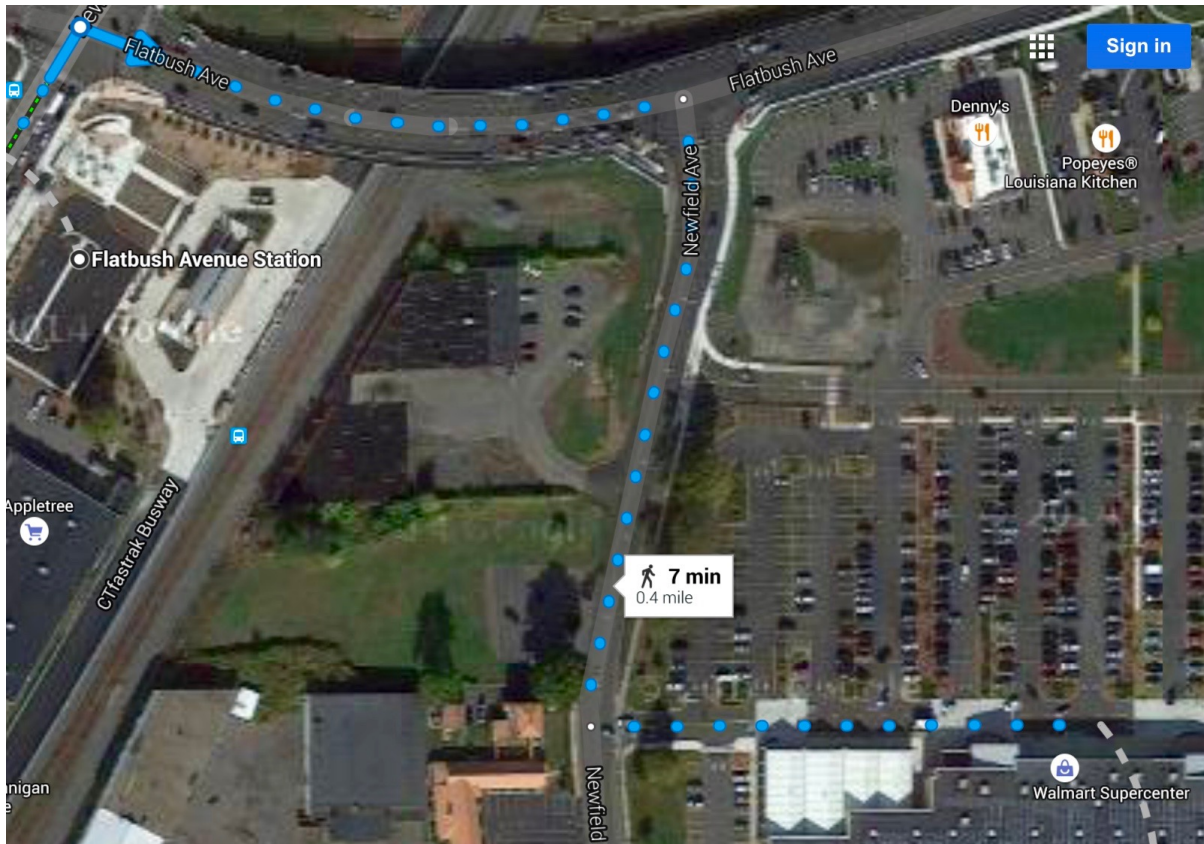


Figure 3 - Area between Flatbush Station & Wal-Mart (Source: Google Maps)

The Parkville neighborhood on the other hand would be considered more urban in nature when compared to the area between the Flatbush and Elmwood stations. There are two main commercial roads that run through the Parkville neighborhood. Park Street, which is mostly lined by mixed-use buildings that generally about the fairly wide sidewalks and New Park Avenue, which has a mix of mixed-use buildings, apartment buildings, and strip, malls. The neighborhood surrounding the station is dense with a

variety of retail, restaurants, and residential properties. It is characterized by experts as having “good bones” that is conducive of transit-oriented development.

Property Value Analysis

The *CTfastrak* has been in operation for just over a year, not much time to fully see the impact that the new BRT system has had on the surrounding neighborhoods. However, the system has been in the planning stage since the late 1990s and received its full funding years before it became fully operational. If new mass transit lines, like the *CTfastrak*, are vehicles for economic and housing development, than there should be some indication that savvy investors would start purchasing properties once the new transit project was fully funded and ready to move forward. Like any market, as demand for property increases the value of the neighboring property around the stations should start going up.

A look back on home sales and home sales prices was done using realtor website Trulia to see if there were any trends since the period *CTfastrak* became fully funded and since it became fully operational. Looking at a 16-year period, there were no sales trends worth noting, or at least nothing that could be related back to *CTfastrak*. Additionally, there was no significant increase in the number of home sales. Additionally, the asking rent since the *CTfastrak* became fully operational did not increase, in fact rents in Parkville decreased during this period (see Figure 5).

Median Sales Price

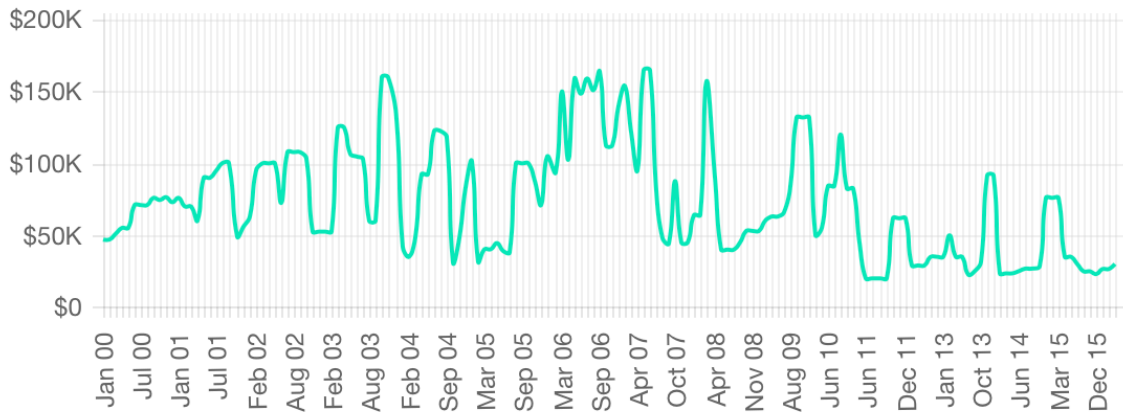


Figure 4 - Median Sale Price in Parkville (Source: Trulia)

Median Rent

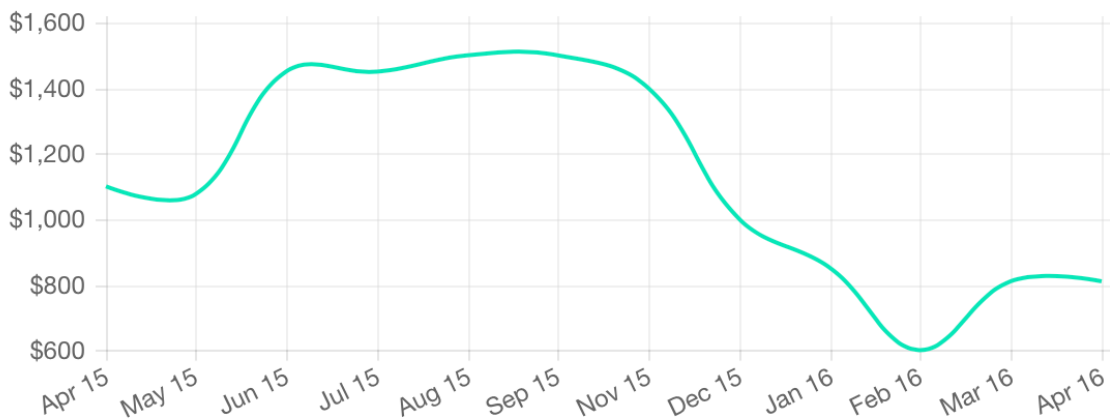


Figure 5 - Median Rent in Parkville (Source: Trulia)

An analysis done using the City of Hartford assessment data on properties within a ½ mile radius of the Parkville station, and Hartford properties within a ½ mile radius of the Flatbush station, shows an increase in all type property values since the projects announcement. Property types that are more complimentary to transit-oriented development, mixed-use and higher density residential properties (properties with 5 or

more housing units), increased in value at a far higher rate than single family and small multifamily properties with 2 to 4 units during the same period.

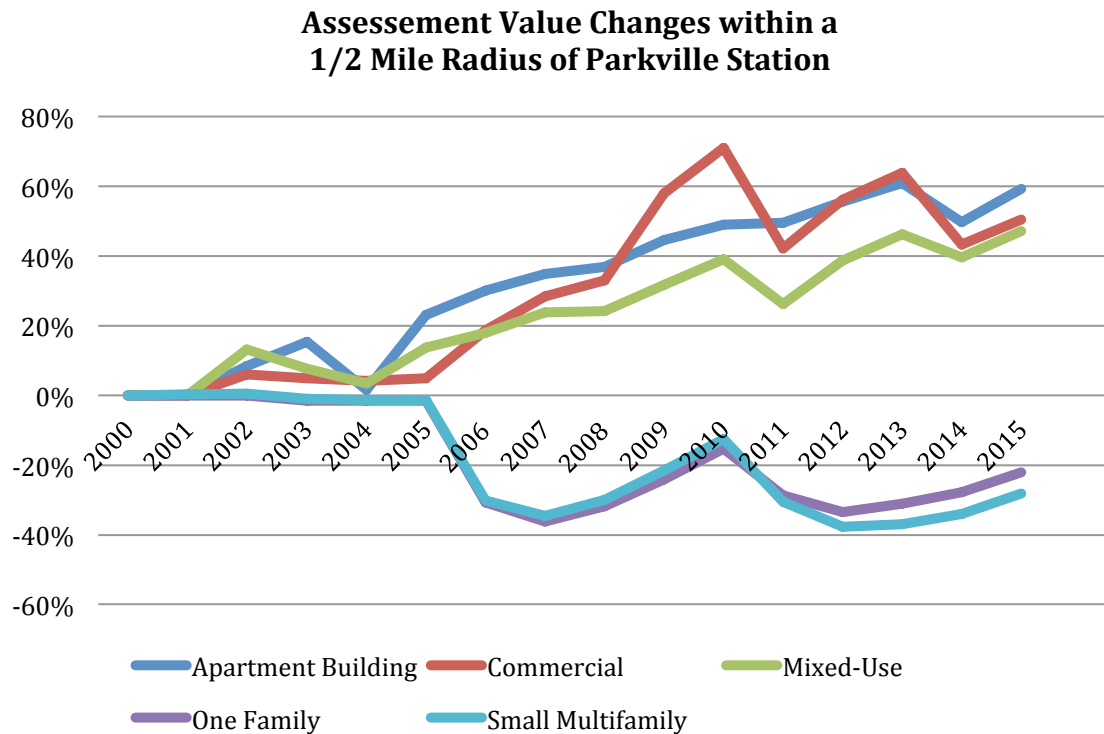


Figure 6 - Assessment Value Changes (Parkville)

Performing the same analysis on properties not within a ½ mile of a CTfastrak station renders the same results. The changes in the assessment values for properties not within a ½ mile of a CTfastrak station just about mirror the changes in the assessment value for properties within the ½ mile radius of Parkville and the Hartford properties near the Flatbush stations.

The assessment value changes don't really come as a surprise when you put them into context. The decline in value of single family and small multifamily properties occurred just before the collapse of the housing market and when subprime lending began to experience high defaults. At the same time, while the credit markets began to tighten, subprime lenders disappeared, and traditional lenders tightened their lending

underwriting standards. It became more difficult for individuals and families to purchase a home. Families and individuals were locked out of homeownership and had to turn to, or continue being renters. Not coincidentally, the demand for rental units began to outpace homeownership units making apartment buildings more valuable as an investment.

The analysis of some early indicators on property values and rent trends around the Parkville and Flatbush stations does not indicate that there has been a significant increase in demand by developers, homebuyers, or tenants. This does not mean that projects aren't in the pipeline or that interest hasn't been peaked. It may mean, however, that investors and developers are not yet convinced that the market is strong enough, or that the stations alone are not the spark for economic and housing development without additional resources and subsidies.

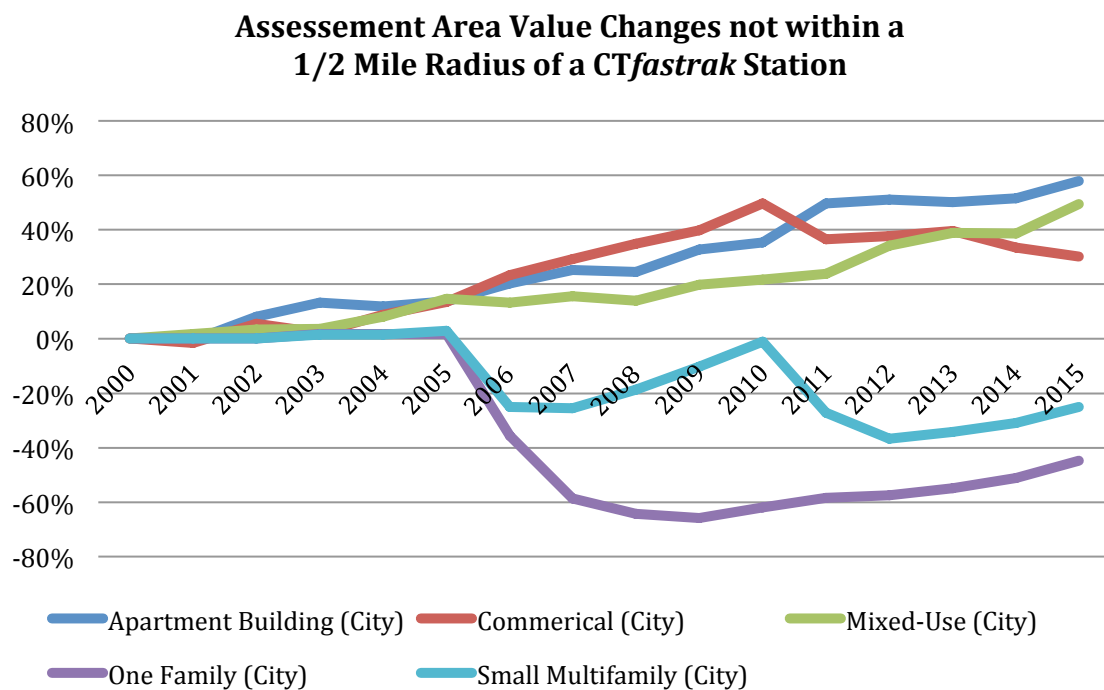


Figure 7 - Assessment Value Changes (not within CTfastrak station)

Project Pipeline

Even as property values and rents have not necessarily increased since the CTfastrak project was fully funded or even since it became operational, the corridor has seen some activity in the way of early indicators of development. Both the area around the Parkville station and the area between the Flatbush and Elmwood each have two projects that are worth noting. Within a week after the CTfastrak became fully operational, ground broke on a project by a local not-for-profit, Hands on Hartford, to develop affordable housing with supportive services for those in need such as the disabled, and a community center in two historic buildings near the Parkville station. Another project is in the predevelopment stages within a half-mile of the Parkville station by another local not-for-profit. These are expected to be mixed-use properties built on an unutilized lot with an aging commercial type building. It is unclear whether this project will need significant subsidy or state financing.

The two significant projects around the Flatbush and Elmwood stations are each very close to their respective stations. Near the Elmwood station, there are plans by the West Hartford Housing Authority to build a mixed-use development. The project, 616 New Park, will include 54 apartments, mostly affordable to families earning less than 60% of the area median income (CHFA, 2016). 616 New Park will be built on a long vacant plot of land, once a car dealership. The project was awarded federal 9% low-income housing tax credits, which is allocated by the state and providing equity to the project in exchange for setting aside low-income housing units (see Figure 8).



Figure 8 - 616 New Park Rendering (Source: Amenta Emma Architects)

The second project in this area, which will sit directly across the street from the Flatbush station, will be developed into a convenience store and gas station. According to a December article in the Hartford Business Journal, the national convenience store/gas station chain chose this spot as a direct result of its proximity to the CTfastrak station (Seay, 2014). An unusual statement, given that one of the long-term goals for this area is transit-oriented development. This more accurately highlights the lack of confidence in the transit-oriented development that could occur around the new CTfastrak station, and instead, the market sees this more as an opportunity for a “park-and-ride” scenario, where individuals drive to a station, park, and take the CTfastrak into downtown Hartford for work. In this scenario, a gas station would be convenient.

Funding & Financing Impediments

Although there is no evidence that property values have increased or that investment is occurring around the Parkville, Flatbush, and Elmwood stations at this

moment, it is important to note that these urban spaces should experience very different transformations from one another. The area between the Flatbush and Elmwood stations do not have, in their current state, any infrastructure that makes it transit-oriented. This space will need a complete re-think. Since most of the properties between the West Hartford stations are privately owned, it will require years of negotiation with several owners and willing property owners who want to reinvest in their properties to be more transit-oriented. This may be problematic for a business like Colt Manufacturing, which, even in its downsized state, is a significant taxpayer in the town of West Hartford (M. McGovern, personal interview, January 26, 2016).

There are however, some advantages to the type of “big box” properties located around the Flatbush and Elmwood stations. Many big box retailers build their properties to have an average of a 15-year lifespan before they are either redeveloped into the same use or are left vacant (Anderson, 2016). These properties may be ripe for redevelopment once they reach the end of their lifespans. Financing and funding will need to be fairly substantial. This will require a long-term strategy by the town that may take decades rather than years to complete. The redevelopment of this area really does require the building of a brand new neighborhood, where currently one does not really exist.

The Parkville station operates in a completely different market and environment when compared to the area between Flatbush and Elmwood stations. As discussed earlier in this paper, Parkville already has the infrastructure and property types in place to support mass transit and additional transit-oriented development. Even though Parkville has “good bones,” its properties require some level of rehabilitation. These smaller developments will require far less financing on a property-by-property basis than the area

around the West Hartford stations, however, the source of financing for these property types is currently very limited. The area around the Parkville station also has a high level of poverty and fairly low rents as shown earlier in this chapter. It can be inferred that the demographics around the Parkville station may greatly benefit from the new *CTfastrak* service, and thus help contribute to the ridership. At the same time, private investment may be slow to come in for the same reason. Private investors may, particular those investors interested in creating destination places, be deterred by the lack of income diversification in the neighborhood.

In both cases significant subsidy will be required to see development and redevelopment around the *CTfastrak* stations. Some of that is already occurring in the form of predevelopment funding, specific state grants to municipalities for transit-oriented development projects, and project scoring for competitive state funding that gives preference to projects located near a transit-station. These funds will now be available to the areas around the new *CTfastrak* stations. This will, in time, increase the level of investment around the stations, but without these subsidies and strong public incentives, investment related to the new transit line will be limited.

Other Impediments

The *CTfastrak* is Connecticut's first BRT system and the only mass transit system in central Connecticut. Because of this, the system has some significant obstacles to overcome, which may be somewhat unique. There is a strong perception by the public of what BRT looks like. Because the system relies on a bus rather than a train or trolley, in the case of light rail, the public does not distinguish it from normal bus service (T. Maziarz, personal interview, February 11, 2016). Because of lack of public enthusiasm

or even buy in by municipal officials, the market around the new proposed system did not change.

Additionally, early on during the planning and up to the time the system received its full funding, a significant amount of energy was used to scrutinize the need and cost of the system (Andrea Pereira, interview, January 29, 2016). There may have been a lack of planning by municipalities, investors, and developers around transit-oriented development because there was still some question whether the system would even be built or become fully operational (M. Kowalewski, personal interview, January 25, 2016). This coupled with the lack of information around BRT, may have stunted any potential economic and housing investment around each station.

Like many other regions and cities across the country, investment and development has been automotive oriented in nature in central Connecticut since the 1950s. This is what the market demanded and what many policy makers supported as highlighted in chapter two. The use of public transit, declined as the suburban municipalities grew and families bought cars. The new *CTfastrak* is not only a new method of transit in central Connecticut; it's also a different way of thinking and lifestyle for the region. It may take a significant period of time for families and individuals to not only think about using the corridor as its main form of transportation, but also whether live near a station to take advantage of nearby amenities (T. Sullivan, personal interview, January 28, 2016).

There is preserved higher risk for developers in an unproven, weak market like those areas located around the *CTfastrak* stations. As stated earlier in this chapter, the corridor's inherent risk is surrounded by the significant brownfields located around some

stations that need to be cleaned up and neighborhoods that have experienced decades of urban decline. The demand for housing around these stations is unlikely due to the current state of the neighborhoods around the stations (D. Poland, personal interview, March 6, 2016). It will take “pioneers” willing to take higher than average risk to take on developing around the new *CTfastrak* stations and it may have to take a government agency to do that, like a housing authority (T. Maziarz, personal interview, February 11, 2016).

A New State Authority

In addition, the state has tried pushing legislation that would create a new state authority that would help provide financing and technical assistance to municipalities and developers. In 2015, when the bill was first introduced it was met with a significant amount of skepticism and pushback from municipalities. At that time the bill would give the new authority some powers that were interpreted by some municipalities as trumping local zoning and planning. The fear was that the new authority could enact its own zoning around the stations and even use the power of eminent domain. The bill failed to pass at the state legislature in 2015. However, the bill was resurrected for the 2016 legislative session and changed, stripping out much of the language giving the new authority’s overarching powers. The bill is currently still on the legislative agenda for 2016 and has gained some significant support from municipalities that once opposed it. Many municipalities feel that the new authority may provide much needed technical assistance in the way of planning that municipalities often don’t have funding for.

The creation of a new transit-development authority is also supported by most interviewed for this research project. Most of the reasons given were focused around

adding capacity and providing transit-oriented development planning, often lacking at the municipal level. Additionally, the role of the new state authority could include courting out of state developers who may be more experienced with good transit-oriented development (S. Bronin, personal interview, January 22, 2016). In addition, the authority might be able to gain its own, separate, identify separate from the state, which has historically not had the best track record regarding projects its developed. This authority may take a page from the state's Capital Region Development Authority (CRDA), which over the last decade has provided technical assistance, funding, and financing for developments mostly in Hartford downtown. The CRDA has a good track record and can "point to a good product" (A. Pereira, personal interview, January 29, 2016). Others feel that the authority's role is not needed and may just be an avenue to have the state pump significant subsidy into projects to justify the creation of the *CTfastrak* (D. Poland, personal interview, March 6, 2016). While in a place like West Hartford, where the market is significantly stronger when compared to Hartford and New Britain, the authority might be helpful but really isn't needed. West Hartford has the luxury of strong demand for developable land, and thus, do not need to place too much focus on the areas around the new stations (M. McGovern, personal interview, January 26, 2016).

There is also a perspective that the legislative bill might have been proposed because the economic and housing development that was promised around the new *CTfastrak* stations just hasn't materialized, or at least, not at the level that state officials had hoped for. The new agency could eventually pour subsidy into projects around the *CTfastrak* corridor in order to make development happen and eliminate risk, thus

justifying the cost of building the new transit corridor in the first place (D. Poland, personal interview, March 6, 2016).

The “Back to the City” Narrative and Hartford

The narrative of the day is of large sums of middle- and upper-income individuals are leaving the suburbs and returning to the urban core. The two demographics most implicated in the migration back to the city are the baby boomers and the millennial generations. Alan Mallach (2014) conducted an analysis looking at a variety of cities and determining whether the narrative is in fact happening. Given the fact that median earnings nationally for individuals with a bachelor’s or higher degree are nearly 60 percent higher than the national median income for all individuals, Mallach treats the educational attainment level as a proxy for middle- and upper-income status. Mallach analyzes the distribution of adults who had attended a bachelor’s or higher degree between 2000 and 2012

The analysis shows that the narrative is not consistent across all cities. In fact, large cities that have had rapid growth are more likely to attract an educated young millennial population than older stagnate cities. The trend of baby boomers back to the city is less evident. Although there is evidence of baby boomers moving back to cities like New York or Seattle, there does not seem to be much evidence that this is occurring anywhere else, especially in “legacy cities” like Baltimore, Buffalo or Milwaukee.

Based on the same principals that Mallach used in his analysis, we can see that the city of Hartford has an interesting distribution. Hartford has significantly lower shares of individuals with a bachelor’s degree or higher than the rest of the state of Connecticut.

However, what's interesting is the jump between 2000 and 2013 of 25-34 year olds in the city.

City/State Ratios For Hartford				
	25-34	35-44	45-65	65+
Population Share 2013	0.74	0.26	0.30	0.30
Population Share 2000	0.30	0.29	0.29	0.40

Data Source: U.S. Census Bureau

Although still lower than the state's proportion, there will need to be further analysis to see what this jump may indicate. It may indicate a millennial migration back to Hartford, or may be as a result of the housing bubble locking younger individuals out of the housing market and the lack of affordable rental housing units in the suburbs. Further analysis may need to happen before a conclusion can be made.

The table above also supports Mallach's claim that few cities are attracting college-educated adults over 45, particularly in legacy cities. In fact, Hartford has seen a drop of college-educated individuals over the age of 35 in relation to Connecticut. The "return to the city" narrative may be occurring in Hartford, but only among the millennials, a proportion that still remains smaller than the state as a whole.

In the 2010 U.S. Census, many census tracts around the nation were redrawn and re-designated based on the income of the residents living in them. In 2010, Hartford's downtown census tract was redesigned from a low-income census tract to an upper income census tract. Since 2000, downtown Hartford has seen a fair amount of market rate housing units built as a State strategy to bring more vibrancy to the downtown. According to the 2000 census data, the downtown census tract had a population of roughly 1,118 individuals totaling 596 housing units. In 2010, the population increased to 1,852 with housing totaling 1,288 units, with vacancy remaining stable. Although the

population in downtown jumped nearly 66 percent, more staggering is that the number of housing units increased by 116 percent. This can be explained by a decrease in the average household size from 2000 to 2010 and an increase in the number of “non-family households,” defined as households where two or more persons living together are not related.

Although there is no clear-cut evidence that there is a “back to the city” effecting Hartford, there is evidence that there has been a shift in Hartford’s downtown. The numbers still remain small in comparison to the city as a whole; they should not be ignored and further understood. Although, possibly concentrated in the new market-rate housing in the downtown, this may, help spur on some development along the *CTfastrak* corridor as rents around some stations may be lower than downtown. This could be promising, but only time will tell.

The Economic Reality

One of the largest, if not the largest, impediment to transit-oriented development around the stations is the Connecticut economy (M. McGovern, personal interview, January 26, 2016). As highlighted in this chapter, the economy in these areas have been in decline or stagnant for a number of years. Additionally, the region and state’s economy have only seen slightly better job and population growth figures. With job and population growth in the region being stagnant for such a long period, one has to question the real demand for housing, and whether housing is a sustainable strategy for development along the corridor (D. Poland, personal interview, March 6, 2016).

There is one particular case study that the new *CTfastrak* corridor could model itself on. The Cleveland’s HealthLine is often cited as one of the best BRT in the United

States (Nelson and Ganning, 2015). Like the *CTfastrak* system, the HealthLine is compact, connects two employment centers together, downtown Cleveland and medical centers, and is roughly the same length. In addition to the systems similarities, Cleveland is a weaker urban market like Hartford and the *CTfastrak* corridor in its totality. The city of Cleveland has experienced an 18% population loss between 2000 and 2014, with most of that loss, over 17%, occurring between 2000 and 2010 (U.S. Census Bureau, 2015). This loss is significantly higher than the region, which also experienced a decrease in population, and the state of Ohio, which experienced an anemic 1.8% population growth during 2000 and 2014. The U.S. Census Bureau estimates that the largest industry based on numbers employed in Cleveland is the healthcare and social services industry, with just over 20.5% of the workforce in that industry. The median income is also low, with a median household income of \$26,179 compared to \$48,849 for the Ohio according to 2010-2014 American Community Survey estimates. Like Hartford and the *CTfastrak* corridor, Cleveland has similar weak market and poverty issues.

Since the launch of the HealthLine in 2008, areas around the system have experienced significant investment despite the weak market. According to Joe Calabrese in an article by Bridge Magazine, the HealthLine project boasts the highest return on investment for any public transit project in the country at about \$114 for every dollar spent (Derringer, 2016). The project has been described as a catalyst for economic rebirth with a total of \$6 billion in real estate investment (Derringer, 2016). With that said, the reality of the economic conditions and demographics have placed a significant toll on the Cleveland transit network that is often ignored in many case studies. The population along the corridor fell at a faster pace than the metro area as a whole (Nelson

and Ganning, 2015). Through the recession the regional transit authority has seen a significant reduction in revenue partially due to the loss of jobs and population. Additionally, the agency has had to contend with \$3 million reduction of federal funding due to the loss of population (Schmitt, 2016).

Final Thoughts

The *CTfastrak* system has been in some stage of planning for well over a decade and funding was secured in 2011. Using data through a variety of sources such as the U.S. Census, the city's assessment office, real-estate websites, and through interviews of experts and stakeholders, it is clear that the new *CTfastrak* system has not yet experienced the economic and housing development that some experts have expected. However, it is important to note the system is very new and the market in which the system operates is unique. The take away from this research project is that significant economic and housing development along the new corridor will take some 10 to 20 years by most accounts and will require significant support from municipal and state authorities.

With such high level of ongoing continuous support by government agencies, the real driver of economic and housing development around transit stations in weak real-estate markets may be the high level of focused public sector resources rather than the transit system itself. The system and new stations are not enough to encourage significant investment and development by the private market. Due to the strength of the market, significant resources and subsidy need to be present to mitigate risk and encourage private development. Existing market conditions cannot be ignored and will always drive the type of investment made whether there is a station or not.

Specifically in the case of the *CTfastrak*, the original inception of the system was to help alleviate congestion on interstate-84 in central Connecticut. Eventually, maybe as a way to justify the cost of the system, supporters began to claim the potential economic benefit to neighborhoods surrounding the new yet to be built stations. In fact, transit-oriented development was not originally discussed as a benefit of the system (T. Maziarz, personal interview, February 11, 2016). With more time and research, there should be a better understanding of how stations, as part of a new transit system, may or may not have an impact the economic development of surrounding communities, particularly in weak real-estate markets like those seen along much of the *CTfastrak* corridor.

Appendix

Research Question

Transit stations built, as part of a mass transit system, will incentivize housing and commercial investment in nearby neighborhoods.

Interview Questions

- When *CTfastrak* was planned, were the expectations that housing or commercial development lead to the development surrounding the new transit station?
- Now that the stations and the system have been operating for almost a year, have the expectations for housing and commercial development to occur near the stations changed? If so, how and why?
- Are there municipal/county examples of BRT systems like *CTfastrak* spurring new and rehabilitated housing and commercial development near transit stations? If yes, where?
- Are there any plans to build new/rehabilitate housing/commercial uses near the transit stations being discussed in the municipalities that *CTfastrak* serve?
- Are there policies the municipalities and/or the state of Connecticut should adopt which would spur private investment in housing and commercial uses near the transit stations?
- What's the biggest impediment to new private sector investment near the transit stations? Is it the cost of land assemblage? The undesirability of the nearby areas? Local citizen opposition to development?

- Is there anything else you'd like to say about the possibilities/opportunities for private sector investments in housing and commercial uses near transit stations?

Community Profile Reports Through PolicyMap

City of Cleveland – Whole City

Elmwood Station – 0.5 mile radius of station. Census tract report area contains the following 2010 census tract(s): 09003496100, 09003496100, 09003496200, 09003496300, 09003496800.

Flatbush Avenue Station – 0.5 mile radius of station. Census tract report area contains the following 2010 census tract(s): 09003496100, 09003496100, 09003524700, 09003504900, 09003496800, 09003504300.

Parkville Station – 0.5 mile radius of station. Census tract and the report area contains the following 2010 census tract(s): 09003504100, 09003504900, 09003504200, 09003504300, 09003502900, 09003503100, 09003524501, 09003504100.

Parkville Neighborhood – Located within or touches the following 2010 census tract(s): 09003504300, 09003504100.

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