Developing Tomorrow:
Creating and Financing the Ideal Public Realm for Mixed-Use Urban Projects in Denver's South Lincoln Redevelopment

by

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Submitted to the Program in Real Estate Development in Conjunction with the Center for Real Estate in Partial Fulfillment of the Requirements for the Degree of
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ABSTRACT

Society is at a crossroads; humanity is facing a new kind of threat to our personal happiness as our cities face the real risk of losing quality public space, the heart and soul of our urban civilization. The construction of an inspiring public realm develops a sense of place that people value and are attracted to living in. Pedestrian infrastructure and public spaces have essential roles in maintaining a healthy and vibrant community. These public infrastructure attributes of mixed-use developments however tend to be the most difficult to finance. In order to build a successful project a mixed-use developer requires the skills and knowledge to understand what constitutes a quality public realm and how to incentivize the financing. An important dichotomy exists; a great public realm is only developed though a strong public private partnership, with the addition of creative financing strategies, an interdisciplinary approach, and commitment to improving public spaces in the built environment.

This thesis will examine what the most important attributes of a successful public realm are, why these attributes are important, and what strategies are available to finance the public realm in the future. There are a variety of financing mechanisms available for developers to leverage, yet many mechanisms are incredibly specific, require a strong expertise, and are difficult to bundle together in order to fill the financing gap that mixed-use projects require. This thesis will categorize financing mechanisms available for mixed-use development into six main categories and will discuss the advantages and disadvantages of each. Financing mechanisms have a direct affect on the quality of the public realm and cities need to ensure their policies are incentivizing the outcomes citizens demand: a quality public realm.

More specially, this thesis will analyze a successful mixed-use development case study in Denver, CO: The South Lincoln Redevelopment. This project is a mid-century public housing site that is being transformed into a mixed-income, mixed-use, transit-oriented urban development. Denver Housing Authority, the developer, has used various financing strategies to specifically enhance the public realm of this development. Some of the financing alternatives are not available to a private developer so this thesis will propose how one could replace financing mechanisms, such as a HOPE VI grant, with other sources while maintaining a quality public realm. This thesis will focus on a few key questions. First, why does the public realm matter? Second, what determines a quality public realm for mixed-use urban developments? And lastly, how can developers begin to look at how to finance these much needed improvements?

Thesis Supervisor: James Buckley
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1.0 Chapter 1: Introduction

> *"The task of creating the tools, systems, sources and ethics that will allow the planet to grow in cleaner, more sustainable ways is going to be the biggest challenge of our lifetime."*
> –Thomas Friedman, Hot, Flat and Crowded

Looking back in history to the earliest human settlements, the premise of mixed-use development and walkability are not novel ideas. In fact, historically most towns and communities naturally developed in this pattern. Due to the limits of technology, people needed to live close to work, food, and entertainment. Communities developed in dense arrangements for economically driven reasons to conserve resources and gain economics of scale. In response to the industrial revolution this development pattern shifted in favor of single use zoning primarily to protect residents from heavy industrial uses and respond to safety concerns. Then, the most significant invention to affect the shape and form of cities came in the post-WWII period with the proliferation of the personal automobile. Soon following, the factories designed to mass-produce weapons for the war effort were repurposed to produce a new type of weapon against American cities, suburban sprawl. The first preplanned mass-produced suburban housing development, Levittown, developed on the furthest edge of the New York City metropolitan area. Mixed-use development faded and suburban sprawl was the new definition of the American dream.

In *Suburban Nation: The Rise of Sprawl and Decline of the American Dream* Andres Duany wrote, "since each piece of suburbia serves only one type of activity, and since daily life involves a wide variety of activities, the residents of suburbia spend an unprecedented amount of time and money moving from one place to the next" (Duany, 2000). Suburbia is neither functional nor sustainable for the future. It promotes sameness, which leads to apathy and boredom. "A multitude of uniform, unidentifiable houses, lined up inflexibly, at uniform distances, on uniform roads, in a treeless communal waste, inhabited by people of the same class, the same income, the same age group, witnessing the same television performances, eating the same tasteless prefabricated foods, from the same freezers, conforming in every outward and inward respect to the common mold" (Mumford, 1961). A unique and diverse city is not only interesting but it adds to the richness of a community and brings greater happiness and long-term vitality. James Howard Kunstler commented that, "the living arrangements Americans now think of as normal are bankrupting us economically, socially, ecologically and spiritually" (Kunstler, 1994). We need to begin finding solutions to this development pattern and building with environmental, social and economic goals in mind.   Mixed-use transit oriented development with a strong public realm is not only a sustainable option but also essential for maintaining a quality of life in the future.

It is not groundbreaking to suggest that the sprawl model of development is unsustainable and higher density, mixed-use development will continue to gain significance with the growing population in the United States. One of the major challenges with mixed-use development is financing the public realm to support the development. When luxury assets are included in the mix it is easier to support the high infrastructure costs, however, when the income is not there to support the construction costs of the public space improvements are often cut from the developments. This causes the end product, and ultimately the greater city, to suffer. It is our generations responsibly to refine the working models for future growth and adapt our financing strategies to incentives the proper development for tomorrow.

1.1 Purpose of Thesis

This study will examine the challenges of financing the public realm in urban mixed-use redevelopment projects.   Specifically, the thesis will be examining a case study in Denver, CO, called the South Lincoln Redevelopment project and analyzing what public realm elements are important for mixed-use development projects and the challenges and costs with financing the public realm. To supplement the case study multiple mixed-use developers were surveyed across the country to gain a general understanding of how practitioners are financing the public realm and challenges they are running into. In the case study analysis, the thesis will examine how the South Lincoln Redevelopment would have been financed without the large subsidy sources of the American Recovery and Reinvestment Act (ARRA) funds and the Hope VI grant.   What sources would have been available to fill the gap? Would there still be a remaining gap? Would the vision be compromised and would the new mechanisms have produced the type of public realm the community and stakeholders are demanding? Understanding the importance of the public realm and how one can finance those elements will be critical to get projects from concept to practice.

1.2 Research Background

Six years ago I read an article that cited American Sociological Review and reported that twenty-five percent of Americans have no close friends. Actually, the average number of close friends an American has is two, and this number has been declining since the mid 1980's (Kornblum, 2006). These statistics are not only shocking, but also disturbing to me, as I value my relationships with friends and neighbors as the most important part of my life. Why have relationships lost their importance to Americans? What is happening to our cities? This statistic inspired me to do more research and I found Robert Putnam, who is an advocate of rebuilding our social capital. His book, *Bowling Alone*, was an essential step for me beginning to develop my own environmental and social ethics for the built environment (Putnam, 2000).

My family, friends, and greater community are at the center of my life. The relationships that I have cultivated define who I am and they dictate my decisions and actions. In fact, relationships are what help me visualize my purpose. All of my personal achievements, fortune, and health would mean nothing if I did not have my family, friends, and community to share them with. Through the built environment relationships can thrive or suffer and my long-term career aspiration is to build mixed-use developments with a quality public realm and help communities reconnect with one another. Currently, these types of developments are incredible difficult to finance at times and require a strong expertise. I want to take this opportunity to look more closely at what criteria create a strong public realm and how developers can finance these types of projects.

Building an inspiring public realm develops a sense of place that people value and are attracted to living in. For purposes of this thesis the public realm and public space will be used interchangeably. The public realm refers to elements of a city that support the brick and mortar buildings. The public realm is the physical streets, sidewalks, parks and plazas. The public realm, however, is also the design quality and aesthetics on the exterior of the buildings that provides human scale elements that are enjoyable to walk around in. It is the morphology of the form, the block sizes and parcel pattern, as well as the movement through the space. It is ability of a space to provide comfort and protection. The public realm is all the elements of a city that create a sense of place and a unique image of a city. Pedestrian infrastructure and public spaces have essential roles in maintaining a healthy and vibrant community. However, as mentioned earlier, these public attributes of mixed-use developments tend to be the most difficult to finance. In order to properly build the public realm a developer needs to have the skills to understand and incentivize the public investment which is typically the only way to make makes the private investment work. A great public realm is only developed though a strong public private partnership, creative financing strategies, and an interdisciplinary approach and commitment to improving public spaces in the built environment.

Financing makes a large difference in the quality of the public realm. Local governments grappling with budget shortfalls must manage population growth and energy demand in a way that leaves their constituents satisfied and maintains the integrity of their community. As such, it is imperative that projects going forward are sustainability-focused, economically feasible and provide a lasting quality public realm. I believe that it will increasingly become more and more difficult to finance these types of quality spaces without the support of luxury assets on site. A quality public realm should not be limited to the wealthy and this thesis will outline the skills needed to develop and finance a quality public realm for mixed-use development.

My generation needs to think outside the box and challenge standards. As future leaders and entrepreneurs we need to pay attention to the enabling environments and act as change agents. We need to learn how to apply facilitating mechanisms from concepts to practice. It is our responsibly to refine the working models and adapt to updated cultural norms. Change happens by not accepting the status quo and finding and implementing solutions.

1.3 Methodology

Mixed-use development and the public realm are essential to create vibrant and sustainable cities. Financing mechanisms have a direct affect on the quality of the public realm in real estate development and many projects do not have the sources available to produce the desired results. Certain financing mechanisms incentivize a specific form and development pattern that is not always the intended outcome. The financing options for the South Lincoln Redevelopment project enabled a high quality public realm design, however those sources are not available to most private sector developers. An average private developer could not fund the quality public realm at South Lincoln without drastically adjusting the program and converting affordable uses to market uses. Specifically, the South Lincoln Redevelopment could not have been financed without the HOPE VI grant. A private developer could finance this project but it would require the developer to create more market value to invest in the quality public realm elements. In today's environment it is difficult for developers to finance mixed-use developments, and even more difficult to have a strong focus on a quality public realm and affordable uses.

<u>Part I: Creating a Quality Public Realm Matrix</u>

In the first part of my thesis I will be developing a matrix of what I believe are the most critical aspects to include in a mixed-use development to create a quality public realm. I will develop a list through literatures reviews of famous works of Kevin Lynch, Jan Gehl, William Whyte, Jane Jacobs, Randy Hester as well as collect real time data from some of the most predominate mixed-use developers in the United States.

DiLorenzo Six Quality Public Realm Attributes
Mix of Program
Design Quality + Human Scale
Social Space
Connectivity + Access
Biophilia – Connection to Nature
Comfort

Part II: Creating a Financing Elements Toolkit

The second part of my thesis will be an assessment of the major financing sources available to support the public realm. There are many individual programs available and I will categorize these financing mechanisms into six major categories for simplicity. This category 'toolkit' format has been adopted from Council of Development Finance Agencies and adapted to specifically reflect mixed-use development projects (Rittner, 2011). Each category will be discussed generally and a summary toolkit for mixed-use development projects will be provided to help assist developers in the future.

Mixed-Use Development Financing Toolkit Categories:

1. Bedrock Tools (i.e. bonds)
2. Targeted Tools (i.e. assessment districts)
3. Investment Tools (i.e. tax credits)
4. Access to Capital Lending Tools (i.e. revolving loan fund)
5. Support Tools (i.e. grants)
6. Developer Financing / Privatization Tools (i.e. debt and equity)

Part III: Case Study of South Lincoln Redevelopment

The final section of this thesis will be analyzing a case study in Denver, CO. The South Lincoln Redevelopment is a 15-acre mixed-use redevelopment project right in the urban core and adjacent to a light rail stop. I will be using this case study to evaluate the affects of financing on the public realm. What public realm elements were planned for the South Lincoln Redevelopment? Given my vision of a quality public realm does this project meet my criteria? What improvements should be included? How was this project financed? Specifically, what would be the affect on the quality of the public realm if the HOPE VI grant and other subsidies were not awarded?

I hope to look at the developer's strategy to finance the public realm and make suggestions on how they could finance the public realm elements if the subsidy sources were removed. Through this process I hope to answer what the ideal public realm is for a mixed-use urban project in 2011 and how one can finance it. Specific to the South Lincoln case, my hypothesis is they need more retail presence on the site and I think they could leverage the New Market Tax Credit Program to fund this aspect. However, there will be a few complications in this since it will have to be combined with the LIHTC so those strategies will be discussed as well as a quick discussion on New Market Tax Credits program. I believe there are some financing mechanisms in place that are not being leveraged for various reasons. NMTC is one of those programs. There is apprehension to use this program since it is not a permanent source and has to be reapproved each year. Making NMTC a permanent alternative for developers will allow people to better plan our mixed-use communities and leverage a creative financing source to build a quality public realm. Though this case study I will be able to answer all of these questions.

1.4 Results and Interpretation

The public realm can be very expensive to finance and creating a quality public realm and promoting affordability is a daunting task without full subsidies. A private developer would not be able to finance the South Lincoln Redevelopment as planned. In order to maintain the quality public realm, the affordable uses have to be replaced with revenue generating market uses. These uses allow the site to capture the future value and finance the public realm investment. Specifically, a private developer could finance this case study with tax increment financing (TIF) and new markets tax credits (NMTC). In order to leverage these sources more market retail and market housing was added on site and the subsidized uses that were directly linked to the HOPE VI grant and ARRA funds were removed from the program. Even though a private developer could find a financing solution on paper, in reality many of these sources come with political and timing issues. Below is the original and recommended sources and uses assuming the HOPE VI and ARRA funds were removed from the financial stack. A detailed description of the changes and proposal are discussed in Chapter 5.

Original and Recommended Sources and Uses for South Lincoln Redevelopment

Original Sources			**Updated Sources**		
Land Sales	$	6,315,750	Land Sales	$	5,815,750
Mortgage Debt	$	15,858,465	Mortgage Debt	$	56,807,736
LIHTC Equity	$	37,299,977	LIHTC Equity	$	28,799,977
HOME funds	$	3,142,686	HOME funds	$	-
Developer Fees	$	3,891,367	Equity	$	5,500,000
ARRA/Capital Funds	$	17,611,132	ARRA/Capital Funds	$	-
HOPE VI	$	15,000,000	HOPE VI	$	-
TIF	$	-	TIF	$	11,112,671
NMTC	$	-	NMTC	$	5,118,750
Total	$	99,119,377	Total	$	113,154,884
Total Rounded	**$**	**99,120,000**		**$**	**113,200,000**
Original Uses		**Total Cost**	**Updated Uses**		**Total Cost**
Senior Housing Tower	$	23,261,000	Senior Housing Tower		
Public Housing Units	$	20,650,000	Public Housing Units	$	-
LIHTC Units	$	21,350,000	LIHTC Units	$	21,350,000
Market Units	$	15,575,000	Market Units	$	57,750,000
Retail	$	500,000	Retail	$	7,500,000
Community Space	$	1,432,500	Community Space	$	1,432,500
Infrastructure	$	11,850,772	Infrastructure	$	11,850,772
Parking	$	4,500,000	Parking	$	12,500,000
	$	-	Offsite 10th Street Improvements	$	800,000
Total	$	99,119,272	Total	$	113,183,272
Total Rounded	**$**	**99,120,000**	**Total Rounded**	**$**	**113,200,000**

2.0 Chapter 2: Mixed Use Development and the Public Realm

> *"In a Society becoming steadily more privatized with private homes, cars, computers, offices and shopping centers, the public component of our lives is disappearing. It is more and more important to make the cities inviting, so we can meet our fellow citizens face to face and experience directly through our senses. Public life in good quality public spaces is an important part of a democratic life and a full life." - Jan Gehl*

The quality of a city depends on its public space. In *The Shape of a City,* architect Julien Gracq talks about the city of Nantes and as a child "he cannot remember the elements, neither the way people actually used the public areas, but he had no doubt in his memory, he had no doubt at all regarding the form, the shape of this area, the physical appearance of the public space" (Gracq, 2005). People remember the public realm. It is a destination and refuge. It is where people play, socialize and gather. It brings and encourages the life in our cities and is incredibly important in defining the quality of our cities.

Public space is also a critical supporting tool for our cities. According to Oriol Clos, Chief Architect for the city of Barcelona, "A public space is an infrastructure. I'm not talking about what is underground, I'm talking about what is supporting the infrastructure, I'm talking about mental infrastructures and Wi-Fi connections, also a part of the infrastructures. It's not a physical element it's the base if you like, of the supporting element. And the infrastructure, the support of structure of the city is something that is very important. It gives the city its cohesion; its coherence and it lends it a lot of strength" (Gracq, 2005). The public realm is more than the physical streets and parks. It has a deeper meaning to our cities and communities. Public space helps people connect to each other, improves happiness and health factors and creates the intangible 'sense of place' that so many people are attracted to living and working in.

Improving the quality of our public spaces is an essential strategy for the future sustainability of our cities and communities. People often underestimate the catalytic nature of public spaces for citizen engagement and community building. In order to begin discussing the public realm this thesis will review a few commonly used definitions of public realm.

<u>Public Realm Definitions:</u>

- "The public realm includes all exterior places, linkages and built form elements that are physically and/or visually accessible regardless of ownership. These elements can include, but are not limited to, streets, pedestrian ways, bikeways, bridges, plazas, nodes, squares,

transportation hubs, gateways, parks, waterfronts, natural features, view corridors, landmarks and building interfaces."
-*Abu Dhabi Public Realm Design Manual*

- "Public space relates to all those parts of the built and natural environment where the public has free access. It encompasses: all the streets, squares, and other rights of way, whether predominantly in residential, commercial or community/civic uses; the open spaces and parks; and the public/private spaces where public access is unrestricted (at least during daylight hours). It includes the interfaces with key internal and external and private spaces to which the public normally has free access."
  - *Bartlett School of Planning, Adopted by Office of the Deputy Prime Minister* (ODPM)

- "Public places are not owned by special groups, nor dedicated to special purposes; they do not impose restrictions on their use, so long as one person's use does not limit anyone else's."
  - *Livable Cities*

- "A public space may be a gathering spot or part of a neighborhood, downtown, special district, waterfront or other area within the public realm that helps promote social interaction and a sense of community. Possible examples may include such spaces as plazas, town squares, parks, marketplaces, public commons and malls, public greens, piers, special areas within convention centers or grounds, sites within public buildings, lobbies, concourses, or public spaces within private buildings."
  - *American Planning Association*

In this paper the terms public realm and public space will be used interchangeably. All of the above definitions have some similarities and some differences. For example, the first definition limited the public realm to exterior elements while other definitions didn't specify. Some of the definitions believed that to be truly public a space requires unlimited 24-hour access and some definitions talked about ownership details. The common elements that all of the definitions discussed are: accessibility, ownership, and usage. For purposes of this paper the definition that the public realm (space) is that it is accessible during the majority of the times in the day, can be owned by either public or private entities and has no use restrictions. The public realm includes elements that support the brick and mortar buildings in our cities. The public realm is the physical streets, sidewalks and parks as described in the above definitions. The public realm, however, is also the design quality and aesthetics on the exterior of the buildings that provides human scale elements that are enjoyable to walk around in. It is the morphology of the form, the block sizes and parcel pattern, as well as the movement through the space. It is ability of a space to provide comfort and protection. The public realm is all the elements of a city that create a sense of place and a unique image of a city.

2.1 Why is a Quality Public Real Important?

The public realm is the vital ingredient to creating community and a high-quality urban life. In fact, the core of cities is its public space. If one is to look at some of the oldest and greatest cities in the world there is a large focus on public space. Take Italy for example: people have gathered and socialized in piazza del Campo in Siena, piazza San Marco in Venice and piazza della Signoria in Florence for hundreds and thousands of years. To this day millions of tourists come and visit these piazzas and part of the image of the city is centered on these public spaces.

A high quality public realm is important for mixed-use developments for various reasons. It improves physical and mental health and provides benefits for children and the elderly. It provides a place for meeting spaces, relaxing spaces, socializing and community interaction. A strong public realm brings a greater sense of community and reduces crime and the fear of crime. People are happier in places with a good public realm as it reduces stress and increases confidence. A public realm provides essential connections and access and attracts investments. There is also an innate human desire to be close to nature and the public realm is a conduit for biophilic design and communities are demanding a high quality public realm. Probably most importantly, however, is without public space there is no democracy (Taipale, 2011). The public realm is a place for democracy to flourish and without a public realm we have no place to gather, protest, discuss and therefore have no democracy. In the past few decades the private car has robbed and invaded our public spaces – roads sidewalks, noises, smells, and space. The pedestrian is no longer the priority in many of our cities focus on building cities for cars, but not for people. As future developers it is essential to concentrate on the pedestrian and promote public realm.

Developments should aim to provide a great variety of public spaces in cities – small and large. The big spaces are typically a central park or large plaza and are great amenity for the city but the small spaces connect the large spaces and are what brings communities together. William K. Reilly, President of The Conservation Foundation, notes "collectively, a city's abundant small spaces have a major impact on the quality of life. If those spaces are unattractive, people will likely retreat from the city street, perhaps from the city itself – to the suburbs and country if they can manage it, to fortified shelters in cities if they cannot. But if we learn to take advantage of our small urban spaces, if we design new ones well, and fix up the old ones, we will keep the streets alive. We may even encourage more people to use them, and to smile about it" (Whyte, 2001). Future mixed-use developers it is important to focus on the small spaces and creating high quality flexible space within our developments.

The following dimensions discuss benefits of the public realm:

Public Health:

There are many public health benefits to having a strong public realm and exposure to nature. One of the first studies to show the links between the outdoors and public health benefits was the Ulrich Study in 1984. This study proved that a view of nature equaled shorter hospital stays, fewer negative comments and fewer strong analgesics. "The patients with the tree view had shorter postoperative hospital stays, had fewer negative evaluative comments from nurses, took fewer moderate and strong analgesic doses, and had slightly lower scores for minor postsurgical complications" (Ulrich, 1984). This was a very important relationship for both the hospitals and developers to understand. Connecting people with nature through a strong public realm has direct public health benefits for the residents and visitors and our cities should be designed with that in mind.

On top of the shorter hospital stays, a quality public realm also reduces stress, enhances a positive mood, improves performance and helps illnesses. The British mental health charity MIND compared the mood of a walk outside with a walk in a shopping mall. The results showed a 90% improvement in self-esteem and 71% reduced tension from walkers outside where 44% of walkers inside reported a decline in self-esteem and 50% of participants increased the tension. The study concluded that, "the new research…shows green exercise has particular benefits for people experiencing mental distress. It directly benefits mental health (lowering stress and boosting self-esteem), improves physical health (lowering blood pressure and helping to tackle obesity), provides a source of meaning and purpose, helps to development skills and form social connections" (Ecotherapy: the Green Agenda for Mental Health, 2007). By creating outdoor pedestrian pathways in the public realm people will have lower stress, reduced tension and improvements in self esteem. Stress has direct affects on our health and providing a strong public realm with outdoor walkways and connections to nature will improve the public health.

Benefits for Children and Elderly:

The public realm has large benefits for children and the elderly. It encourages community interaction, provides spaces for children to play and develop, brings people together, and creates a higher quality of life.

Last Child in the Woods by Richard Louv has ignited a new debate on if our children have disconnected with nature. He suggests some may be suffering from "nature deficit disorder" (Louv, 2008). The public realm is a place to allow children to play outside with other children rather than isolated by themselves inside with computers and TV. The public realm helps children concentrate better and ultimately do better in school. Robert Putnam proved that inner city kids with higher levels of social capital are less likely to be depressed than those children in the suburbs. Public space also has tremendous benefits for the elderly as it provides a place to socialize and improves health factors. Currently, many elderly people are aging in the suburbs and no longer able to drive. This is very isolating and lonely. As one ages and is no longer able to use a car it is important o have public spaces were one can interact with other people and feel a part of the community.

Socializing and Community Interaction:

In Robert Putnam's book *Bowling Alone: The Collapse and Revival of American Community,* he discusses the decline of social engagement and social capital in the twentieth century. He proved that "Over the course of the last generation or two, a variety of technological, economic and social changes have rendered obsolete the stuff of American social capital" (Putnam, 2000). Social capital is a concepts sociologist refer to that discusses connections between and within networks. L.J. Hanifan, a state supervisor of West Virginia schools wrote about the idea of social capital in 1916. She referred to it as: "those tangible substances that count for most in the daily lives of people: namely good will, fellowship, sympathy, and social intercourse among the individuals and families who make up a social unit… The individual is helpless socially, if left to himself…if he comes into contact with his neighbor, and they with other neighbors, there will be an accumulation of social capital, which may immediately satisfy his social needs and which may bear a social potentiality sufficient to the substantial improvement of living conditions in the whole community. The community as a whole will benefit by the cooperation of all its parts, while the individual will find in his associations the advantages of the help, the sympathy, and the fellowship of his neighbors" (Hanifan, 1916).

Putnam discusses the idea of social capital throughout his book and some examples he used that proved a loss in social capital are a decline in organizational membership, attending religious services, attending club meetings, and face-to-face interactions within communities. The decline can be explained by factors such as pressure of time and money, mobility and sprawl, technology and mass media and generational shifts. Sprawl and mobility are causing a decline in civic engagement because people are less likely to interact with others in the public realm and more likely to live a privatized life, moving from private office to private car to private garage to private house. With the long commutes and transportation options most do not interact with a lot of people outside of the workplace and home. The suburbs attract very homogenous people to live together and although one would think this homogenous would lead to stronger connections, there is evidence to prove the opposite (Putnam, 2000).

Eric Oliver, a political scientist, found that the stronger similarities within a community cause lower levels of community participation. "By creating communities of homogeneous political interest, suburbanization reduces the local conflicts that engage and draw the citizenry into the public realm" (Oliver, 1999). People become apathetic and isolated to themselves in the suburbs. Over 50 years ago Lewis Mumford said "suburbia is a collective effort to lead to a private life" (Mumford, 1961) and now it is incredible impersonal and introverted. Residents of the suburbs spend a vast amount of time commuting individually in the automobile to work, shop, and play. The public realm and mixed-use developments can help bring community bonds back. Our cities and technologies are changing faster than we can change ourselves and if communities do not focus on the public realm and repairing social capital and community interaction our society will have real costs.

Reduces Crime:

Public spaces help reduce crime by creating a greater sense of community and more social participation. More participation within a community has direct affects on cleaner, happier and safer neighborhood. Jane Jacobs writes about safety and how cities are equip to handle strangers in her book *Death and Life of Great American Cities*. "There must be eyes upon the street, eyes belonging to those we might call the natural proprietors of the street. The buildings on a street equipped to handle strangers and to insure the safety of both residents and strangers, must be oriented to the street. They cannot turn their backs or blank sides on it and leave it blind" (Jacobs, 1961). Public spaces help reduce crime and the fear of crime by putting eyes on the streets and having an area for more social capital and civic participation to thrive.

Happiness Factors:

Jeremy Bentham said "The best society, is one where the citizens are happiest. So the best public policy is that which produces the greatest happiness. And when it comes to private behavior, the right moral action is that which produces the most happiness for the people it affects. This is the Greatest Happiness principle. It is fundamentally egalitarian, because everybody's happiness is to count equally. It is also fundamentally humane, because it says that what matters ultimately is what people feel. It is close in spirit to the opening passages of the American Declaration of Independence" (Layard, 2005).

Although markets can be incredible effective they focus on the economic bottom line. Markets do not always take into account happiness and other intangible affects. Money beyond a certain point will not buy more happiness and a society will not flourish without a shared sense of purpose. If citizens are only focused on personal achievements then life turns into a competition, which is stressful, lonely, and ultimately a failure. However, it is easy to focus on only oneself when in isolation. Public space helps people connect with one another and exist for something larger than themselves, a community. Living for and being a part of a community gives humans greater happiness and takes off the pressure of personal competition. The public realm also reduces environmental stress, increase cultural and historic preservation, facilitates healthy lifestyles, and helps with community regeneration.

Provides Connections and Access:

The public realm provides incredible connections and access to places, people, and resources. Visual access is very important in the public realm. If people can see the space before they enter it they can decide if they would feel comfortable, safe and welcome in the space. If the space is hidden or inward orientated it tends to be exclusive and inviting to only one certain group of people. The design of a space can provide or hinder connections and access. In *Public Places Urban Spaces* Mathew Carmona explains the logic of seduction of a space in explaining Berlin's Potsdamer Plaza. "…the layout and design…represent a seductive presence that effectively closes down options, enticing visitors to circulate and interact in ways that they might not otherwise have chosen… Power in this instance works through the ambient qualities of the space, where the experience of it is itself the expression of power" (Carmona, 2010). It is important that the public space is inviting and visual to all. If true, public space will encourage access and provide essential connectivity. If not, the public spaces become exclusive and homogenous. Public space also provides connections within the site and to other parts of the city. It is important that public space is inviting and promote connections inward and out.

Attracts Investments:

A strong public realm attracts investments. When a new public realm is invested in it will increase civic pride as well as amplify the image and perception of the area and therefore increases the tourism. A public realm also provides opportunities for local residents, attracts new investments, and provides regeneration opportunities.

Rebecca Zimmerman, President of Design Workshop in Denver said, "In the past three years, we have seen investment in the public realm that creates a good framework for future real estate development and economic sustainability… Cherry Creek North, the premier outdoor retail mixed-use district in central Denver, just completed $18.5 million of streetscape improvements. The city of Denver is currently working on utility and streetscape renovation for 14th Street and $5 million of first-phase improvements to South Broadway. Denver has so many attributes that make it a desirable place to live and [for] employers to locate. These attributes don't go away in a down economy. Recreation, arts, culture, sports, etc., create a solid foundation from which Denver will thrive" (Sheridan, 2011). There is very common connection between a successful public realm and private investment. People demand a quality public realm and it has market value so when a successful public realm is built it attracts private investment. The public realm has clear economic benefits in that it provides well paying jobs and increase in tax revenues as well as a decrease in costs to provide services.

Biophilic Design (Connection to Nature) and Environmental Benefits:

People have an innate human desire to be connected to nature and in the outdoors. In E.O. Wilson's *The Biophilia Hypothesis* he states that, "For more than 99 percent of human history people have lived in hunter-gatherer bands totally and intimately involved with other organisms. During this period of deep history, and still further back they depended on an exact learned knowledge of crucial aspects of natural history… In short, the brain evolved in a biocentric world, not a machine-regulated world. It would be therefore quite extraordinary to find that all learning rules related to that world have been erased in a few thousand years, even in the tiny minority of peoples who have existed for more than one or two generations in wholly urban environments" (Kellert, 1993). The public realm provides nature to many citizens. If the public realm is designed appropriately it will attract people of all ages and lifestyles sitting for lunch, talking on the phone, or just relaxing. People want to be in the outdoors and the public realm is a great conduit for this craving. The public realm also provides more access to clean air, clean drinking water, improved biodiversity, decrease use of fossil fuels and increased use of renewable energy.

Market Demands It:

People want public spaces. In 2008 the Knight Soul of the Community project asked the following questions to 43,000 people and 26 communities across the country: What makes a community a desirable place to live? What draws people to stake their future in it? Are communities with more attached residents better off? The survey concluded that three main qualities attract people to place: social offerings, openness, and the area's aesthetics (What Attaches People to Their Communities, 2011).

Four in ten consider each of the following high priorities:

- Having housing for people with moderate and low incomes (46%, extremely high priority)
- Reducing traffic congestion (40%);
- Revitalizing cities (39%);
- Providing convenient alternatives to driving such as walking, biking, & public transportation (38%).
- And Revitalizing older suburbs (26%, extremely high or high priority) and building new developments (24%) are overall lower priorities for most Americans.

People want to have a strong public realm within their communities. It is in great demand. Jan Gehl comments that, "The social changes of our era can help explain the dramatic increase in urban recreation – premium public spaces, with their diversity of functions, multitude of people, fine views and fresh air obviously have something to offer that is in great demand in society today" (Jan Gehl, 2011). People are recognizing the benefits of the public realm and communities are demanding it across the country.

Democracy:

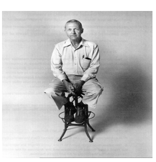
Without the public realm we would have no democracy. Public space is where everyone has the opportunity to play, stay, stand, and just be. It is also a common ground for people to protest, discuss and practice democracy. This is essential for not only the United States but developing countries as well. If you look at an example in Bogota where they pedestrian the streets and brought the public space back to the people. Immediately people started using it again and it empowered and gave hope to the citizens of that country. In Yemen protests and gatherings take place in Tahrir Square, public spaces near the University of Sanaa. This is not a new idea and has been going on for hundreds of years. In an article written by Project of Public Spaces they cited that Boston for example, 200,000 citizens gathered in Boston commons to protest food shortages in 1713 and 100,000 people gathered there to protest the Vietnam War in 1969 (Walljasper, 2011). People should have equal rights to transportation, education, and public space. It is a fundamental human right that citizens of the world should have access to public spaces – a square, a main street, a park – where they can gather, have their voices heard, and practice democracy.

The above are a few of the various reasons why cities need to focus on creating a quality public realm. It improves physical and mental health and provides benefits for children and the elderly. It provides a place for meeting spaces, relaxing spaces, socializing and community interaction. A strong public realm brings a greater sense of community and reduces crime and the fear of crime. People are happier in places with a good public realm as it reduces stress and increases confidence. A public realm provides essential connections and access and attracts investments. There is also an innate human desire to be close to nature and the public realm is a conduit for Biophilic design and communities are demanding a high quality public realm. And finally the public realm is the essential ingredient for democracy to prosper.

2.2 Quality Public Realm Precedents

Many architects, urban designs, planners and authors have a framework for what they believe are the most critical public realm elements. In order to develop what I think are the most essential elements I conducted literature reviews from some of the most famous thinkers in history.

Kevin Lynch



"In the development of the image, education in seeing will be quite as important as the reshaping of what is seen. Indeed, they together form a circular, or hopefully a spiral, process: visual education impelling the citizen to act upon his visual world, and this action causing him to see even more acutely. A highly developed art of urban design is linked to the creation of a critical and attentive audience. If art and audience grow together, then our cities will be a source of daily enjoyment to millions of their inhabitants."

Kevin Lynch is one of the most famous urban planners in history. His book, *The Image of the City,* is a fundamental literature read for planners across the country as it describes how people perceive, inhabit and move around cities. In his book *Good City Form*, Lynch sets out to identify what creates a good city. Lynch believed that each city will value priorities differently and developed five performance dimensions of urban design and the public realm:

- **Vitality**: the degree to which the form of places supports the functions, biological requirements and capabilities of human beings.
- **Sense**: the degree to which places can be clearly perceived and structured in time and space by users.

- **Fit**: the degree to which the form and capacity of spaces matches the patterns of behaviors that people engage in or want to engage in.
- **Access**: the ability to reach other persons, activities, resources, services, information or places, including the quantity and diversity of elements that can be reached.
- **Control**: the degree to which those who use, work or reside in places can create and manage access to spaces and activities (Lynch, 2001).

He then added two meta-criteria to his dimensions:

- **Efficiency**: related to the relative costs of creating and maintaining a place for any given level of attainment of the above environmental dimensions
- **Justice**: related to the way in which environmental benefits are distributed

These factors have been essential for architects, planners, and developers building the public realm and continue to be important in the future.

Jan Gehl:

"First life, then spaces, then buildings – the other way around never works."

Jan Gehl is a urban design consultant and professor in Copenhagen. His firm focuses on public life in public spaces and some of his books include *Life Between Buildings: Using Public Space; New City Spaces; New City Life and Public Spaces & Public Life.* Many of his writings discuss the public realm and focus on the pedestrian. In his 1971 work *Life Between Buildings: Using Public Spaces* Gehl broke up the dimensions of a quality public realm into three main categories: protection, comfort, and enjoyment (Gehl, 2006).

Jan Gehl: What Public Spaces Should Provide			
Protection	*Protection Against Traffic and Accidents*	*Protection Against Crime and Violence (Feelings of Safety)*	*Protection Against Unpleasant Sense-Experiences*
	-Traffic accidents -Fear of accidents -Other accidents	-Lived in /used -Street life -Street watching -Overlapping functions in space and time	-Winds/draughts -Rain/snow -Cold/heat -Pollution -Dust, glare, noise
Comfort	*Possibilities for walking*	*Possibilities for standing/staying*	*Possibilities for sitting*
	-Room for walking -Untiring layout of	-Attractive edges – 'edge effects'	-Zones for sitting -Maximizing

	streets -Interesting facades -No obstacles -Good surfaces	-Defined spots for staying -Supports for staying	advantages – primary and secondary sitting possibilities -Benches for resting
	Possibilities to see	*Possibilities for hearing/talking*	*Possibilities for play/unfolding activities*
	-Seeing distances -Unhindered views -Interesting views -Lighting (when dark)	-Low noise levels -bench arrangements – 'talkscapes'	-Invitation to physical activity, play, unfolding and entertainment – day and night, summer and winter
Enjoyment	*Scale*	*Possibilities for enjoying positive aspects of climate*	*Aesthetic quality/positive sense-experiences*
	-Dimensions of buildings and spaces in observance of important human dimensions related to senses, movements, sizes and behaviors	-Sun/shade -Warmth/cool -Breeze/ventilation	-Good design and detailing -Views/vistas -Trees, plants, water

William Whyte

"What attracts people most, it would appear, is other people."

An American urbanist, William Whyte, who is famous for studying human behavior in public spaces published the popular *The Social Life of Small Urban Places* book and movie. He believes that public spaces contribute the quality of life of individuals and we have a responsibility to facilitate civic engagement through high quality design of public space.

The most sociable spaces possessed the following features according to Whyte:

- A good location, preferably on a busy route and accessible both physical and visually
- Streets being part of the 'social' space - cutting a space off from the street with rail sing or walls isolated it and reduced use
- Being level or almost level with pavement was important– spaces significantly raised or sunken were less used
- Places to sit – both explicitly (benches, seats) and integrated (steps or low walls)
- Moveable seats enabled choice and communication of character and personality

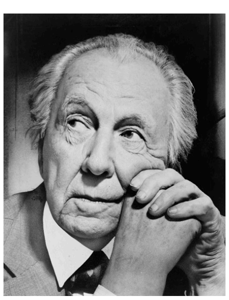
Whyte believed less important factors were sun, aesthetics, and the shapes and sizes of spaces. Through his five-year research process he discovered it was the quality of the space that mattered the most and many quality spaces had similar features that people were attracted to. People liked to sit, be close to the street, be comfortable (sun/shade alternatives were important), have food options such as street venders, be near water and trees and most notably people liked to be around other people which Whyte described as 'trianglization' - or bringing people together (Whyte, 2001).

Jane Jacobs:

"Old ideas can sometimes use new buildings. New ideas must use old

Jane Jacobs was one of the first urban designers to draw attention to the fact that cities were best as "organized complexity" and "unplanned casualness" on its streets (Jacobs, 1961). She was a big proponent of human scale because the small blocks provide for more navigations options and promotes more diversity and details. Small blocks send a message that the pedestrian is important and large blocks promote the idea that cars are superior. She also stresses the importance of adaptability and flexibility for our cities. In *The Death and Life of Great American Cities* she writes "All city building that retains staying power…requires that its locally be able to adapt, keep up-to-date, keep interesting, keep convenient, and this in turn requires a myriad of gradual constant, close-grained changes" (Jacobs, 1961). Jacobs focused on the socio-function of the streets and made observations on human behavior and social interactions within our cities. She laid a foundation for urban design and a focus on the pedestrian.

Frank Lloyd Wright



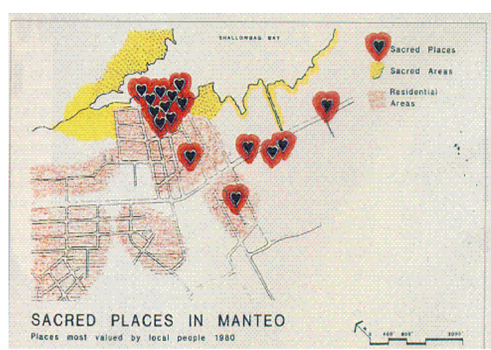
"I believe in God, only I spell it Nature."

Frank Lloyd Wright is considered by many authorities to be the best architect of the 20th century. He spent more than 70 years designing and revolutionizing architecture. His love of nature strongly influenced his work and created innovations in buildings that one still sees today. He designed to the human scale, understood the surrounding context and environment around him, respected natural materials, and valued the sense of retreat and prospect. He said, “A building is not just a place to be. It is a way to be” (Wright's Life and Work, 2011). As described by Bill Browning, during a sustainability seminar at MIT, without explicitly defining it one can see that Frank Lloyd Wright created a ‘refuge and prospect’ in many of his designs (Browning, 2011). The idea of feeling protected while also seeing out into the surrounding environment was a common theme with many of his designs. People have a natural desire to feel enclosed and sheltered and Wright understood this and often created sheltering eaves and balconies within his designs.

Randy Hester:

“Two irrepressible forces underlie my work: the human desire for participatory democracy and ecological limits. There are many more democracies in the world today and resource limits are more critical, complex, and misunderstood. More than any other factors, democracy and limits shape public landscape design.”

Randy Hester is a proponent of community building. He believes that city and suburban building over the last 50 years has divided us from others in our communities, destroyed our natural habitats, and failed to provide joyful context for our lives. He is a proponent of connections with citizens and the natural environment. Randy Hester argues that only by combining forces of ecology and democracy will we have a revolution in design. Public space is essential to create a connected community according to Hester. Designers must find a way to make the community feel like they own the space, which can be a symbolic ownership and something the community is proud of. He coined the idea of sacred places, which are resources, and elements of a place that the community feels strongly about and wants to preserve. It is a tool used in participatory design process and helps to drive action plan of maintaining the integrity of a community when it undergoes redevelopment (Sevtsuk, 2011).



Sacred Places Map (Sevtsuk, 2011)

There are many influential urban designers and thinkers such as Gordon Cullen, Christopher Alexander, Aldo Rossi, Ian McHarg and others but for purposes of this thesis only the above were examined. Below are a few associations that were also used in this analysis of what creates a quality public realm.

Project for Public Spaces

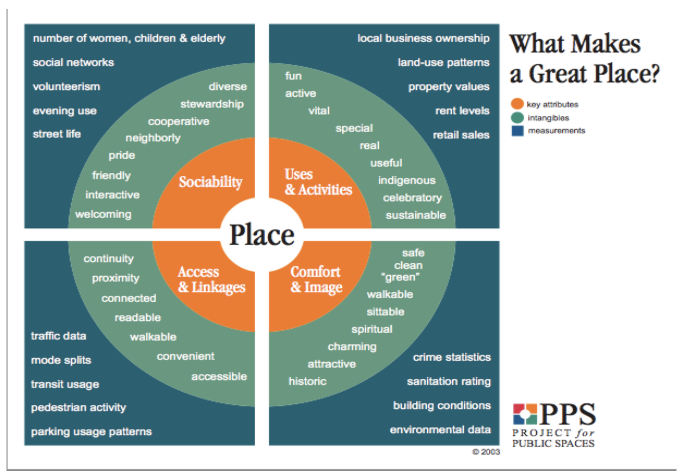
Project for Public Spaces (PPS) is a nonprofit design, planning and education organization that was founded in 1975. The inspiration for this organization was to expand the thinking of William Whyte's analysis in The Social Life of Small Urban Spaces. The goal of the organization is to help communities thrive and protect and create quality public spaces for our cities. Below describes Project for Public Space's Place Diagram, with is at the core of their philosophy. Project for Public Spaces does not put any value on quality of design. Instead, the place making philosophy is that uses and programming are most important and design only matters to the extent that is contributes to the comfort and beauty of the area (Project for Public Places, 2011).

Sociability: diverse, stewardship, cooperative, neighborly, pride, friendly, interactive, welcoming

Access & Linkages: continuity, proximity, connected, readable, walkable, convenient, accessible

Comfort & Image: safe, clean, 'green', walkable, sittable, spiritual, charming, attractive, historic

Uses & Activities: fun, active, vital, special, real, useful, indigenous, celebratory, sustainable



Place Diagram (Project for Public Places, 2011)

Great Communities Collaboration

The Great Communities Collaborative is a cooperation between non profit and for profit agencies in the Bay Area. Some of the organizations include: Greenbelt Alliance, Nonprofit Housing Association of Northern California, Transform, Urban Habitat, Reconnecting America, East Bay Foundation, The San Francisco Foundation and The Silicon Valley Community Foundation. This organization helps shape plans, create tools, and secure public and private funding for sustainable mixed use transit orientated development in the Bay Area. The goal of the organization is *for all* *people in the Bay Area to live in complete communities, affordable across all incomes, with nearby access to quality transit by 2030 (*About the Great Communities, 2011).

They suggest the following guidelines for designing quality public spaces:

- Focus on activity in and around public spaces
- Respect your neighbors
- Minimize conflicts between active and passive uses
- Hide the dirty work, such as large garbage bins and loading docks
- Create connections
- Ensure design recognizes local climate and weather variations
- Prioritize safety factors
- Keep Scale in Mind

The following attributes are included in public spaces: benches, shade/shelters and sun spots, trees and landscaping, water fountains, lighting, public art, signs for directions and destinations, trash cans and public restrooms, activities located adjacent to parks such as venders, retail shops, community centers and libraries. Quality public spaces can include: farmers markets, community gardens, greenways, pocket parks, wide sidewalks, courtyards, sculpture gardens, and dog parks.

American Planning Association (APA)

The American Planning Association (APA) Great Places in America flagship program celebrates *places of exemplary character, quality, and planning*. They program look at great streets, great neighborhoods and great public spaces. The following characteristics were set up to designate great public spaces across America.

- Promotes human contact and social activities
- Is safe, welcoming, and accommodating for all users
- Has design and architectural features that are visually interesting
- Promotes community involvement
- Reflects the local culture or history
- Relates well to bordering uses
- Is well maintained
- Has a unique or special character

The following criteria and guidelines were set up to designate great public spaces across America (Characteristics and Guidelines of Great Public Spaces, 2011).

1.0 Features and Elements

- 1.1 What landscape and hardscape features are present? How do they contribute to the unique or special nature of the space?
- 1.2 How does the space accommodate pedestrians or others whose access to the space is by transit, bicycles, or other means? Is the space welcoming to those with physical disabilities or others with special needs?
- 1.3 Does the space accommodate multiple activities?

- 1.4 What purpose does it serve for the surrounding community?
- 1.5 How does the space utilize existing topography, vistas, or geography? Does it provide interesting visual experiences, vistas, or other qualities?
- 1.6 How are murals or other public art incorporated into the space?

2.0 Activities and Sociability

- 2.1 What activities make the space attractive to people and encourage social interaction? (Commerce, entertainment or performances, recreational or sporting, cultural, markets or vending, exhibits, fairs, festivals, special events, etc.)
- 2.2 Does the space provide a sense of comfort and safety to people gathering and using the space? Does the space provide a friendly and welcoming atmosphere?
- 2.3 How do people interact with one another? Does the space encourage communication or interaction between strangers?
- 2.4 How does this place encourage use by a diverse cross section of the public?

3.0 Unique Qualities, Traits, and Characteristics

- 3.1 What makes this public space stand out? What makes it extraordinary or memorable?
- 3.2 Is there variety, a sense of whimsy, or an atmosphere of discovery or pleasant surprise?
- 3.3 Is there commitment to maintain the space and to keep it a usable space over time? Does the public have a sense of ownership about the space? How has it changed over time?
- 3.4 Is there a sense of importance about the space? What characteristics or qualities contribute to this?
- 3.5 What is the history of the space, and how is it remembered or passed on from one generation to the next?
- 3.6 Does the space serve as a place of inspiration or contemplation, or is it considered sacred?
- 3.7 What is it about the space that contributes to a sense of community?
- 3.8 What makes this space special and worthy of designation as a Great Space?

Kevin Lynch Seminar Class, Fall 2010, MIT School of Architecture + Planning

Established in 1988, the Kevin Lynch award is *a renowned international award for outstanding work in urban design, planning, or scholarship that expands the understanding of the human environment*. The MIT community selects recipients every other year and in 2010 a seminar was offered to allow students to participate in nominating awardees. The class prepared a list of general characteristics for selection criteria and these elements are relevant to a quality public realm analysis. The recipient must be: Creative and original; Inspirational rather than impressive; Addressing a broad rather than a specific audience; Explicitly engaging people – the users of the work; Consciously addressing the public image of a place; and Open to contradictions and change in time. These categories are also very applicable to a quality public realm (Sevtsuk, 2011).

The above precedents helped define the DiLorenzo Six Quality Public Realm Attributes.

2.3 DiLorenzo Six Quality Public Realm Attributes Summary

Although there are many aspects to a quality public realm this study will focus on the following elements which I believe are the most important to incorporate in mixed-use urban redevelopments. Using the above people and organizations as precedents the following criteria was created for this study.

DiLorenzo Quality Public Realm Attributes		
Attribute	**Ranking**	**Measurements**
Mix of Program	Exceptional, High, Medium, Low, Unacceptable	Number of uses, both affordable and market, flexibility, year round applicability, food options
Design Quality + Human Scale	Exceptional, High, Medium, Low, Unacceptable	FAR, % active storefronts, building heights, sidewalk width, amount of landscaping, quality materials used
Social Space	Exceptional, High, Medium, Low, Unacceptable	% of social space, quality of social space, 24-hour uses, cultural mix, # of women, children and elderly
Connectivity + Access	Exceptional, High, Medium, Low, Unacceptable	Number of linkages, walkability index, transit options
Biophilia – Connection to Nature	Exceptional, High, Medium, Low, Unacceptable	Number of trees, connection to water, views to natural features, sustainability features and ratings, outdoor options and flexibility
Comfort	Exceptional, High, Medium, Low, Unacceptable	Sanitation ratings, building conditions, traffic speeds and congestion, places to protect against weather

Mix of Program

This dimension describes the programming mix of the development. Ideally, there should be a strong mix of uses including, residential, retail, office, community centers and open space. The uses should be mixed-income and include both market and affordable spaces. The space should provide for flexible uses and programming that promotes 24-hour activity in the both summer and winter months. For example, many developments have a pond in the summer and ice rink in the winter, or a lemonade stand in the summer and hot chocolate in the winter. It is important that the program is designed to handle different seasons and different times of the day to maintain activity at all times. An integrated holistic site allows people to become more involved because one would live, shop, work, and play onsite. It is also important that a site attracts outsiders and has a variety of food options. Having a strong mix of uses onsite is beneficial as it reduces reliance on the personal automobile, saves energy as well as provides amenities to local residents.

Design Quality & Human Scale

A high design quality and human scale plan are very important for the success of a mixed-use development and the public realm. People are attracted to areas they feel comfortable in and that have nice aesthetics. Design quality and a human scale provide a positive image and identity to the site as well as promote people to linger and slowly move through the site rather than to pass it by. The buildings should be not be overpowering to the pedestrian. People like to be in places that are appropriate proportions and scale. There should be complementary building heights, stepped back densities, and the blocks should be small. High-end building materials and architectural design provide beauty that people are attracted to. Large sidewalks and active street fronts draw people in. It is important to encourage activities within walking distances of each other and provide a comfortable pathway for people to get from point A to point B. Jan Gehl once said, "Only architecture that considers human scale and interaction is successful architecture" (Gehl, 2011). A successful public realm will prioritize the pedestrian and plan for people, not cars. It will have a strong rhythm of buildings and open spaces, and ease which the urban form can be perceived and promote interesting views. Quality design will create and identity and image or the site with a good entry, soft edges, and appropriate scale and form. Public art and culture is also another essential part to high quality design. The site should be designed based on the environment, context, history and forces that shaped the site. One should consider local cultural influences as well as public art and creativity as part of high quality design.

Social Space

Social space is the physical places where people can interact and be social with one another. Some examples are parks, plazas, paths, benches, and chairs. A strong development will have an 'edge effect', which has defined spots for staying, standing, sitting and socializing.

Connectivity + Access

This element includes upgrades in infrastructure, roadway connections, bike and pedestrian paths as well as providing connections to transit. It is important that the transit is frequent and accessible. This element also should take into account the access the site provides to other people, resources, transit and services.

Biophilia – Connection to Nature

Biophilia translates to "love of life or living systems". E.O. Wilson proposed the Biophilia

Hypothesis which stated that there is an innate human desire to be near other organisms and subconsciously we constantly seek the be near other life (Kellert, 1993). In a sustainability seminar Bill Browning explained this hypothesis and categorized biophilia design concepts into three groups: nature in space, nature of space and natural analogs (Browning, 2011). Nature in space elements are as is says literally in nature. These would be design elements such as an outdoor park, a coy pond, an indoor garden wall or bringing fresh airflow into a building. An extreme example of this is the Isabel Gardner Museum in Boston, MA where a garden is situated inside the museum. Nature of space would be a view of the outdoors. A few interesting design concepts that Mr. Browning explained were the ideas of prospect and refuge, enticement, peril and the savannah. Prospect and refuge is a concept that Frank Lloyd Wright often used in designing and is where one is sheltered but at the same time has a view outside. An example would be balcony seats at an Opera house. You feel safe, protected, but also have a view outwards. The last biophilia design technique is natural analogs, such as a picture, statue, or other representation of nature. This could be through a direct representation such as a landscape painting or an indirect representation such as using wood and stone materials.

In addition to Bill Browning's three categories integrated holistic design and general sustainability features are also a way to connect to nature. Are there a lot of trees planted and preserved onsite? Does the design promote the sun through southern exposure? Does it design for the environment around the site and integrate into the existing ecosystem? Many of the rating agencies such as USGBC's LEED or Energy Star are a great start for sustainability. Moving into the future it is essential that new developments, redevelopments and the public realm have environmental ethics and include sustainability features and biophilia design techniques.

Comfort

This element is a very important factor to creating a high quality public realm. People want to feel safe against crime, traffic, and the natural elements. When designing public space it is important to keep eyes on the street, which increases safety and reduces people's fear of crime. There should be appropriate lighting and cleanliness. The design should protect against unpleasant sense experiences such as wind, rain, dust, glare, noise, heat, and cold. Traffic slowing techniques should be put into place to make the pedestrians feel comfortable. Other amenities such as restrooms, adequate garbage cans, directions and signs also add comfort to the public realm.

These six elements can be used to rank the quality of public space in mixed-use developments and will be the attributes used to examine the quality public realm of South Lincoln Redevelopment.

3.0 Chapter 3: Financing

Despite the tremendous amount of financing tools available for urban redevelopment projects many projects today lack the necessary funding to create a quality public realm. The result? Numerous financing tools are underutilized. This is happening because of the complexity and expertise required for these programs, the nature of locally controlled political economic development effects and lack of focus on financing strengths within community. Even more discouraging is that there is evidence from East Midlands Development Agency that proves the public realm's increasing value and importance to cities and developments, and counter evidence to suggest a decline in funding for the public realm (Economic Impact of the Public Realm, 2011). It is essential that we continue to build a quality public realm and we need to have the financing tools and knowledge to support that.

Partnerships are critical to successfully implementing many financing mechanisms for mixed-use development. According to the Council of Development Finance Authorities (CDFA), 81 percent of public agencies allocated less than 21 percent of their budgets directly to financing development while 33 percent of public-private agencies allocated over 50 percent of their budget directly to financing development (Rittner, 2011). In *Unequal Partnerships* Marc Levine wrote that two sets of literature have emerged since the late 1970's on public private partnerships. The first set of literature is mostly written by economic development practitioners and begins with the premise that "public private partnerships are indispensable tool for urban revitalization," while others have argued that the formal public private partnerships often "amounted to corporations doing the planning while the city government facilities corporate plans using municipal legal powers" (Squires, 1989). When two sophisticated parties are involved the second argument is invalid. Both the public and private parties need to calculate what is "necessary, sufficient, but not excessive" (Kayden, 2011) to move the project forward and can use a variety of techniques such as: real estate finance analysis, modified cost benefit analysis, fiscal impact analysis, economic multiplier analysis, and modified social cost benefit analysis. Public private partnerships should spell out important issues such as: distribution, contributions, control rights and exit strategies just as joint ventures agreements on the private side do. If a more standardized agreement between the public and private sectors was created it would make all parties feel comfortable with the arrangement and provide a fair risk and reward structure, which would increase the willingness to work together to build a stronger public realm. These partnerships are vital to successfully implementing financing strategies and it is essential that both parties understand and are aware of the financing tools available to them.

In addition to partnering with the right agency, financing agencies need to adjust the allocation of their funds. CDFA discovered that 50 percent of finance agencies issue bonds, 41 percent act as a conduit bond issuers, 50 percent provide direct loans, 27 percent provide loan guarantees, 39 percent provide grants, and 62 percent provide technical assistance. However, despite those statistics 50 percent of all finance agencies allocate less than 20 percent of their budget to financing development, which is defined as "the efforts of local communities to support, encourage and catalyze expansion through public-private investment in physical development or redevelopment or business" (Rittner, 2011). This is due to the complexity of programs, lack of staff education and resources and lack of political support.

If we want to continue to build better cities and manage population increases and sustainability concerns, we need to not only ensure projects are able to acquire the financing required for development, but also ensure that our finance agencies are allocating funds to projects that improve the city. It is also essential that developers understand the tools that are available to finance and support the public realm.

This thesis collects a comprehensive list of financing tools for mixed-use urban redevelopment projects. They have been classified into six main categories in order to more easily sort through the options. This format was adapted, and slightly altered, from the Council of Development Finance Agencies (Rittner, 2011). This categorical method has been refined to be specific to redevelopment projects in Colorado. The six categories of financing tools for mixed-use development are the following.

1. Bedrock Tools
2. Targeted Tools
3. Investment Tools
4. Access to Capital Lending Tools
5. Support Tools
6. Developer Financing / Privatization Tools

Below are descriptions of each of the six categories. This part of the thesis will give the reader an understanding of the complexity of all of the programs available for mixed-use developers and some of the advantages and disadvantages of each. In order to build a quality public realm many financing sources need to be leveraged and combined to fund the cost of the project, yet many of these programs are underutilized due to a lack of knowledge. Developers of the future will need to be creative and knowledgeable about the types of financing available to support the public realm.

3.1 Bedrock Tools

Bonds and Basics of Public Finance

Bedrock tools are a category that includes the basics of public finance – primarily bonds. Municipal bonds can come in the form of a general obligation bond (GO) or private activity bond (PAB). Private activity bonds have many forms- exempt facility bonds, 501(c)(3) bonds, qualified redevelopment bonds, and other revenue bonds. These bonds are backed and repaid by a pledge in future tax revenues (Better Denver Bond Program, 2011).

Advantages	Disadvantages
- Lower interest rate - Tax-exempt status to buyers - Lower cost to borrower - Cheaper money	- A lot of rules and regulations - Need appropriate bond council and approvals - Market timing
Bedrock Tool Examples	
General Obligation Bond (GO)	
Private Activity Bond (PAB) Exempt Facility Bond 501 (c)(3) bonds Qualified redevelopment bonds Qualified small issue bond Other revenue bonds	
Transit Orientated Development (TOD) Bond Financing	
Certificates of Participation (COPs)	
PACE Bonds	
Federal Green Bonds	

Bonds can be great tools for redevelopment projects. They have lower interest rates, which ultimately lower costs to the borrower. However, bonds are at the mercy of market timing and governmental rules and regulations. A general obligation bond can be very difficult to get approval for. This is typically used for projects such as libraries, schools and museums. Certificates of Participation are lease financing agreements and legally not considered debt. Because they are not considered debt they do not require voter approval but can be approved by a board of supervisors. More typically, a redevelopment would leverage a private activity bond that would be specific to the project, a PACE bond or a Federal Green bond.

A PACE bond stands for “Property Assessed Clean Energy” and is specific to promoting improved energy efficiencies. It is gaining a lot of popularity and is a great source of up-front financing. Green bonds are unique fixed-income instrument as they are specifically tailored for environmentally friendly businesses. In order to access these funds, a project must at least 20 acres, have 1,000,000 square feet of building space, and generate a portion of its own power on site.

3.2 Targeted Tools

Tax Increment Financing (TIF) & Special Assessments Districts

Targeted tools are financing instruments that directly affect one 'targeted' area and often leverage tax revenues generated by the project. These taxes can come from property tax, sales tax, hotel occupancy tax, corporate income tax, local and state income tax and utility tax.

The main categories of targeted tools are tax increment financing (TIF) and special assessment districts. Special assessment districts include government districts as well as project specific district financing. Below I have outlined some of the main programs specific to Colorado.

Advantages	**Disadvantages**
- Typically no public approval - No upfront capital -Can make a large impact on infrastructure costs	- Requires a revenue sources - Can take revenues away from other uses (i.e. schools) - Higher cost of funds
Targeted Tool Examples	
Urban Enterprise Zones (UEZs)	
Tax Increment Financing (TIF)	
Urban Renewal Authority (URA)	
Metro District	
Business Improvement District (BID) Special Improvement District (SID) Local Improvement District (LID) General Improvement District (GID) Public Improvement District (PID)	
Downtown Development Authority (DDA)	
Economic Development Corporation (EDC)	

- TIF: *Tax Increment Financing (TIF)* is a method of municipal support for private development projects that is aimed at eliminating symptoms of urban blight. TIF allows municipal governments to subsidize projects by issuing bonds to pay for certain up-front development expenses, such as land acquisition and road construction, and then use the increased property tax revenues from the redeveloped property to pay the principal and interest on the bonds (Seidman, 2005). At times, a TIF incentivizes bad land planning. TIF is very desired by developers because it has an ability to accelerate infrastructure development but it also has challenges. TIF can be difficult to value because of the uncertainty of future revenues and difficulty of matching revenues with debt service. If a project leverages a revenue bond based on retail taxes predicting future retail sales can be challenging, especially if it is a small local store with limited historic sales data. TIF can also be difficult because the actual incremental revenue growth will lag the debt service by a few years and at times alternative sources need to be able to repay the bonds (Seidman, 2005). A capital interest account and a reserve can be accounted for in the initial TIF calculation to help fund the debt service the first few years while the revenues stabilize.

- *Metro Districts:* In Colorado Title 32 of the revised Statue allows for the creation of special districts. Colorado Metro District Reform webpage sites that "The title specifically authorizes the creation of ambulance, water, sanitation, water and sanitation, fire protection, parks and recreation and metropolitan districts. Special districts are defined as "quasi-municipal corporations" and there has been a history of competition between special districts and cities in Colorado" (Metro Districts Overview, 2011). Metropolitan Districts allow developers to retain control as they have an independent board of directors that are made up of the development team. A Metro district works by issuing a mill levy (i.e. extra tax) on the property to repay the bonds. The board of directors can then use the bond proceeds to fund infrastructure requirements within the community. Currently, Colorado is reforming the Metropolitan District laws.

- *Business Improvement Districts (BID):* Assessment districts are similar to tax increment financing, yet they do not need to rely solely on the increase in the project's tax base to be feasible. Instead, beneficiaries pay a fee for the new improvements within the district. A BID is a hybrid entity, organized by a municipality and specifically designed for economic development. The boundary of the BID may only include commercial properties. BIDs are unique because they are not subject to the jurisdiction of the State Securities Commissioner and no exemption request is required to issue these bonds (Crawford, 2001). Residential, non-profit and government entities are usually exempt from making contributions and this helps the 'free rider' problem. Business Improvement Districts have proved very controversial. They help finance a range of improvements to the public realm but critics point out that they are undemocratic, controlled and exclusionary (Privitasation of Public Space, 2011).

3.3 Investment Tools

Tax Credits, EB-5, and Program Related Investments

Investment tools are financing mechanisms that have investors. Common investment programs are tax credits, the EB-5 Investor Program and Program Related Investments.

- *EB-5 Immigration Investor Program*: The EB-5 immigration investor program was created in 1991 to stimulate job creation and capital investment by foreign investors. In 2003 the program was reorganized and now focuses on regional centers. This program requires a

$500,000 - $1,000,000 investment in a new commercial enterprise per family that creates at least ten permanent jobs. Denver Industries that have benefited include: hospitality, mixed-use real estate, manufacturing, bio-fuels, dairy farming, agriculture, aero-space and healthcare. In David Cohan, lecturing of *Assessing Capital: Tax Credit and Other Programs* seminar, stated that to date 1,885 families have been approved for the EB-5 Visa and $942,000,000.00 has been invested and over 18,000 jobs have been created. However, many people are still unaware of this program. A development team should check with their local regional center to see if any investors are looking to place capital. An example of this program being implemented in development recently is in Vermont. A ski resort raised $17,500,000 from 35 investors and is funding their project with the EB-5 investments. This project of course created over 350 jobs and was a great source of funding for the development team (Cohan, 2011).

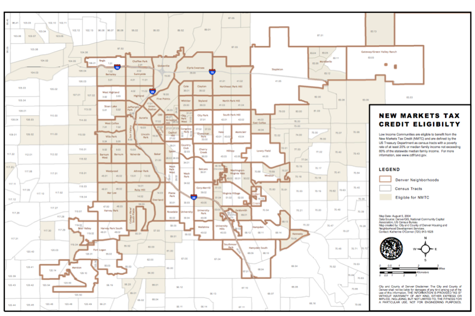
Advantages	**Disadvantages**
- Can be large amounts of funds - "Free money"	- Expensive - "Wait your turn" at times - Political
Investment Tool Examples	
EB-5 Investor Program	
Program Related Investments (PRI)	
Tax Credits Low Income Housing Tax Credits (LIHTC) New Market Tax Credits (NMTC) Energy Tax Credits Historic Preservation Tax Credits	

- *Program Related Investments*: Program Related Investments (PRI) are investments made by foundations that support charitable causes and involve a return on capital over a period of time. They can come in multiple forms, but most typically are low interest loans. There are thousands of foundations across the country that could participate in this program but there are only a few hundred that make program related investments. Some examples of PRI's in the past are high-risk investments in nonprofit low-income housing projects, low-interest loans to small businesses, investments in businesses in blighted urban areas that improve the economy by providing employment or training (Public Related Investments, 2011). This program is a powerful tool that is currently underutilized. Program Related Investments can be very confusing and few foundations have considered this tool. A Program Related Investment counts towards a foundations distribution allocation as a grant would, yet it does not count in the asset base. Many foundations are weary of this tool because it is unfamiliar, it looks risky and they fear it will cost their organization money. However, once understood PRIs are a great investment tool for projects to leverage.

Tax Credits Programs

- *Low Income Housing Tax Credits (LIHTC):* One of the most popular and successful tax credit programs, LIHTC started under the Tax Reform Act of 1986 and today accounts for the majority of affordable housing in the United States (Cohan, 2011). It is a dollar for dollar tax credit that incentives affordable housing. These credits are very attractive to investors and very well understood. The federal government disperses tax credit to the states, which select developments to receive the allocation. This is a very competitive process and often takes developers multiple rounds of funding to be awarded the tax credits.

- *New Market Tax Credits (NMTC):* New Market Tax Credits are less well understood than Low Income Housing Tax Credits and not as many developers leverage this program. Developers hesitate taking the time to learn this program since it is not a permanent funding source and continues to have to be renewed by the federal government. Making this a permanent source would allow the program to flourish. New Market Tax Credits are available to promote economic development in low-income communities. If a property is located in a qualified census track this program is available to leverage. Typically, the net dollars generated from a project are about 20 percent of the allocation amount. For example, if there was a $10M allocation, a credit of 39% is taken and then that is currently priced at about $0.70. After costs are deducted that brings the total funds available to $2M (Cohan, 2011).



New Market Tax Credits		
Allocation (Project Cost)	$	10,000,000
NMTC %		39%
NMTCs Generated	$	3,900,000
NMTC Pricing	$	0.70
Gross $ Generated	$	2,730,000
Costs		25%
Net Project Dollars $ Generated	**$**	**2,047,500**

New Market Tax Credit Eligible Area Map: Denver (Financing l New Markets Tax Credits, 2011)

- *Energy Tax Credits*: The Energy Tax Credit is based on the cost of a facility and generally is about 30% the cost of the facility. These credits are typically taken all in one year when a facility is placed into service (Cohan, 2011). These credits tend to be smaller and the time period is accelerated compared to the NMTC and LIHTC. Originally, this tax credit was only for solar and fuel cells, wind and geothermal but not it applies to many different energy technologies. In addition to tax credits local utility companies often run various energy saving programs.

- *Historic Preservation Tax Credits*: There is a 20 percent tax credit available for the rehabilitation of certified historic structures and a 10 percent credit available for the rehabilitation of non-historic, non-residential buildings built before 1936. These tax incentives are intended to preserve the architecture and history of our cities but often restrict energy upgrades and efficiency improvements (Cohan, 2011).

3.4 Access to Capital Tools

Revolving Loan Funds (RLF) & Loan Guarantees

This category of tools allows projects to acquire capital. It can be thought of as working capital – the funds you need to start and grow a business or development. It gives project access to reliable and affordable cash. This could come in the form of loan guarantees, credit support, revolving loan funds, forgivable loans, state infrastructure banks, or HOME funds (Rittner, 2011).

3.5 Support Tools

Grants, Tax Abatements, Subsidies

There are many federal funding programs that provide support and grants to mixed-use development projects. Some of the most common federal funding programs that provide support are: U.S. Department of Housing and Urban Development (HUD), U.S. Department of Treasury, Federal Housing Administration, Department of Health, Fannie Mae, Freddie Mac, Federal Home Loan Bank, U.S. Environmental Protection Agency (EPA), and Federal Transit Administration (FTA). These organizations provide support through: direct investment, below market rate subordinate loans, grants, interest rate buy-down on third-party loans, loan guarantees, soft second mortgages, credit enhancements, tax credit programs and programs to increase purchasing powers. Support tools are great options for projects if available, however, these tools tend to be very specific and sometimes non-permanent programs, such as the American Recovery and Reinvestment Act.

3.6 Developer Tools

Debt, Equity, Project Delivery and Privatization

Developer tools include debt, equity, public private partnerships and project delivery strategies. Debt and equity are the most traditional sources of funding developers could leverage. Public private partnerships are a partnership between a public entity and private entity. An example would be a private developer working with a local city municipality for a devolvement project. These partnerships can be an incredibly powerful tool and a conduit for better cities. The local authority might contribute the land and relax the code requirements and the developer would then have to less equity to finance the project costs. For complex development projects a partnership is ideal because it joins the public sector intervention with the private sector expertise. Lastly, project deliver strategies could include design build or integrated project delivery, which shifts the financial risk of the construction period from the developer to the contractor.

Most developers are using primarily developer financing to support the public realm. Bonds, tax credits and subsidies are used sporadically for public realm improvements but from the small sample of mixed-use developers across the country the majority of the public realm improvements were funded through developer financing (debt and equity).

In order to appropriately incentivize developers to build high quality public realm there needs to be some streamlining in the financing process. There area hundreds of programs, all which require a strong expertise, political support and the correct timing and therefore are not leveraged as often as they should be which cause the public realm, and ultimately our cities, to suffering.

3.7 Financing Toolkit

Below is the Financing Toolkit this thesis categorized for urban mixed-use development projects in Denver. Specific programs were collected from lists produced by the U.S. Environmental Protection Agency (EPA), City and County of Denver and various other resources and then categorized to create the below financing toolkit. Although one may not understand every program on this list it is important to have a comprehensive catalog to look through and begin to check the availability for specific project.

Financing Strategy Toolkit

1 Bedrock Tools

- General Obligation Bond (GO)
- Private Activity Bond (PAB)
  - Exempt Facility Bond
  - 501 (c)(3) bonds
  - Qualified redevelopment bonds
  - Qualified small issue bonds
  - Other revenue bonds
  - Ex. Denver Scientific & Cultural Facilities District
- Transit Orientated Development (TOD) Bond
- Certificates of Participation (COPs)
- PACE Bonds
- Federal Green Bonds

2 Targeted Tools

- Urban Enterprise Zones (UEZs)
- Tax Increment Financing (TIF)
- Urban Renewal Authority (URA)
- Metro District
- Business Improvement District (BID)
- Special Improvement District (SID)
- Local Improvement Districts (LID)
- General Improvement District (GID)
- Public Improvement District (PID)
- Downtown Development Authority (DDA)
- Economic Development Corporation (EDC)
- Regional Transportation Districts & Parking Districts
- Other Value Capture Techniques & Districts

3 Investment Tools

- Low Income Housing Tax Credit (LIHTC)
  - 9% credit - competitive
  - 4% credit
- New Markets Tax Credit (NMTC)
- Energy Tax Credits
- Historic Preservation Tax Incentives Program
  - 10% credit and 20% credit
- Colorado Brownfield Tax Credit
- Program Related Investments (PRI)
- EB-5 Immigration Investor Program

4 Access to Capital Lending Tools

- Revolving Loan Fund (RLF)
- Section 129 Loans
- State Infrastructure Bank (SIB)
- Capital Improvement Program (CIP) of General Fund
- Industrial Loan Company (ILC or industrial bank)
- Colorado Brownfield's RLF
- Transportation Infrastructure Financing Innovation
- Railroad Rehabilitation & Improvement Financing
- Business Incentives Special Revenue Fund
- Neighborhood Business Revitalization Loan Program
- SBA 504 Mortgage Loan Program
- Creative Enterprises Revolving Loan Fund
- HOME Loan & SMART Loan
- HUD 221(d) loan & HUD 220 loan
- Housing Opportunity Fund Loans
- Community Development Financial Institutions
- Mile High Community Loan Fund & Funding Partners
- Mercy Loan Fund and City Skyline Fund
- Favorable Loan Terms (i.e. lower interest)
- Financing Equitable Impact Fees
- Metro Mortgage Assistance Program

5 Support Tools

- Property Tax Abatement
- Credit Enhancements (Private Bond Insurance / LOC)
- Land Contribution
- Federal Loan Guarantees
- Community Development Block Grant (CDBG)
- Economic Development Administration (EDA) Grants
- American Recovery and Reinvestment Act
- HOPE VI Grants
- Community Reinvestment Act (CRA)
- Surface Transportation Program
- Congestion Mitigation and Air Quality Improvement
- Highway Trust Fund
- Federal Transit Administration (FTA)
- Denver Regional Council of Government TIP funds
- Colorado Department of Transportation (CDOT)
- Support to reduce development costs & enhance cash
- EPA Brownfield's grants
- HUD BEDI Grants
- Brownfield Assistance / Brownfield Green Building
- Fannie Mae Line of Credit
- HOPWA Funds
- Foundation Support
- Philanthropic Support
- GARVEE Bonds / TEA-21
- Lottery Fund
- HOME Funds
- Del Norte Nonprofit Agency
- Urban Land Conservancy
- Colorado Community Land Trust
- Carbon Offset Funds
- Enterprise Nonprofit Agency / Green Communities
- Many Specific Funds to assist projects (i.e. Denver Art
- Many Sustainability Support Tools
- Power Purchase Agreements with Utilities
  - (DESIRE at http://www.dsireusa.org/ search by Sustainability Bonds, Tax Incentives, Grants, Loans, Support, Rebates, Utility Discounts, etc.
- Housing Development Grant Program
- NSP Funds
- "80/20" Programs (include LIHTC, tax exempt bonds &

6 Developer Financing / Privatization

- Market Debt
  - Construction Financing
  - Mezzanine Financing
  - Permanent Financing
- Market Equity (Private & Institutional Investors)
- Investments Funds (i.e. Pension Funds)
- Risk Sharing Project Delivery Strategies
  - Design Build
  - Integrated Project Delivery
- Joint Development / Public Private Partnerships
- Privatization (i.e. Congestion pricing / charges)
- Asset Sales

4.0 Chapter 4: South Lincoln Redevelopment

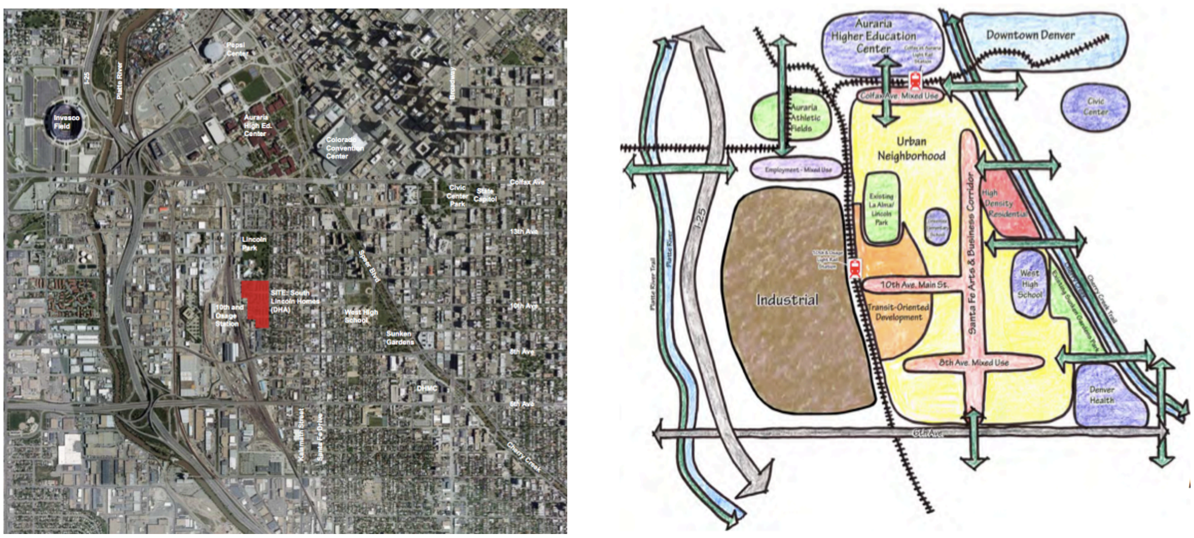
"Make not little plans; they have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work, remembering that a noble, logical diagram once recorded will never die, but long after we are gone will a living thing, asserting itself with ever-growing insistency."
- Daniel H. Burnham

Denver South Lincoln Redevelopment Rendering (Denver Infill, 2011).

4.1 The Site

Situated in one of Denver's oldest neighborhoods, the South Lincoln Redevelopment is a 15.1 acre site positioned a little over a mile away from Denver's CBD. South Lincoln is in the La Alma / South Lincoln Neighborhood and currently contains 270 Public Housing units on site. There are 39 two-store brick buildings built in 1954 that hold the 270 units. The buildings are clearly dated and much of the surrounding infrastructure is problematic. The neighborhood is a dynamic historic area that was originally settled by westerners in the 1850's when gold-seekers came in hopes of finding their fortune. Today this neighborhood has become incredibly distressed due to the large concentration of poverty and higher than average crime rates. This neighborhood also faces the challenges of adjusting demographics, low homeownership rates, underutilized parcels, changes in land use, limited transportation connections east-to-west which is blocked by an industrial area, train tracks and a river, inefficient infrastructure and an aging housing stock. The EPA approved a $200,000.00 Brownfield cleanup grant prior to the creation of the master plan of the site to help the remediation of the three-acre 10th and Osage light rail stop adjacent to this site.

The site is directly south of Lincoln Park, east of 10th and Osage RTD light rail stop and west of Speer Avenue, a major North-South Boulevard in Denver (South Lincoln Redevelopment Master Plan, 2011).



Site Location and Site Concept Diagram (South Lincoln Redevelopment Plan, 2011)

4.2 The Context and History

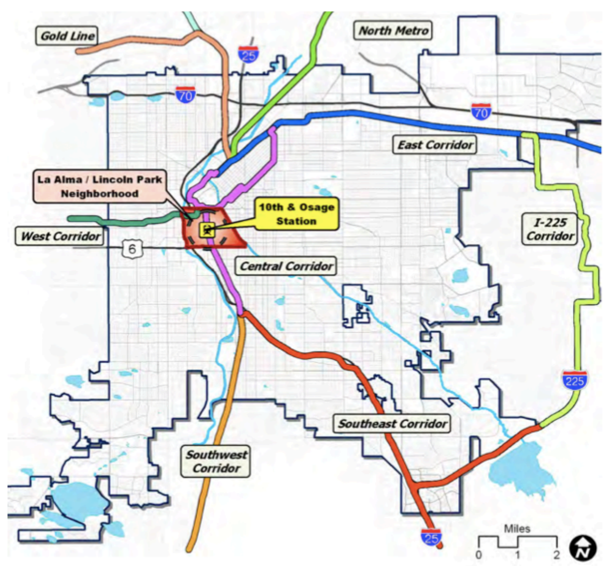
The History of South Lincoln Area

This site is located just south of where the first settlers came to Denver in the 1850s. It hosts some of the oldest architecture in the city and has homes dating back to 1900 (Planning & Development, 2010). This area has traditionally been a hub for the arts. In 1921 the Denver Civic Theater opened and according to their website, hosted the first silent movies in the city of Denver. This building went through various uses, including a meatpacking plant and was renovated in 1993 to return to its original intent as a host for the arts. The Santa Fe Arts district runs just east of the site and is connected by 10th Avenue. The regions first museum dedicated to Latino culture, the Museo de las Americas and the Asian and Hispanic chambers of Commerce are located in this neighborhood. On top of the heavy focus on the arts, this site hosts the Buckhorn Exchange, one of Denver's most historic eating and drinking establishments founded in 1893 and the first restaurant to receive a liquor license in the State of Colorado. This restaurant has been featured in countless publications such as Time magazine and presidents have dined there including President Roosevelt who ate here while he visiting Colorado in 1905 (History, 2010). The area has a long and rich history full of culture yet is in a strategic location situated in a close proximity to the central business district.

Buckhorn Exchange Restaurant (History, 2011) Museo De Las Americas

Denver

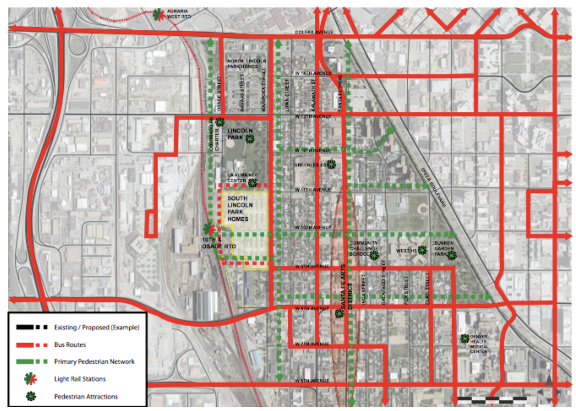
Denver is the largest city in the rocky mountain west and has explosive growth rates in population since the 1960s. It was one of the first large cities to adapt a form based code, which focuses on physical form rather than separation of uses, and Denver is currently transforming the region with one of the most ambitions public infrastructure investments in the country, the multi billion dollar "FasTracks" regional rail system. Denver's regional transportation authority (RTD) has a comprehensive twelve year, $6.9 billion dollar plan to design and build a transportation system and facilities for the seven counties metro Denver area. The regions include: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson counties. This plan includes 122-miles of light rail and commuter rail, 18 miles of bus rapid transit, and 21,000 parking spaces at rail and bus stations. The main intersection and hub of this system will be based at the old Denver Union Station site located in Lower Downtown (LoDo) and approximately two miles from the South Lincoln Redevelopment.



The photograph to the right shows the planned light rail system and the site location (Planning & Development, 2010). The Central Corridor Line currently stops onsite at 10th and Osage station and there is existing service to the Southeast, Southwest and Central light rail corridors. This transit investment will provide many convenient transit opportunities for residents of the neighborhood.

Transit Context

This site is currently located next to the 10th and Osage light rail station and has a variety of bus connections surrounding the site. Although the transit access looks extensive there is no direct connection to the light rail station and limited east west access. In addition, the frequency of these routes is limited however many residents are captive transit rider thus heavily rely on these transit options. It is recommended that the frequency of transit services be enhanced to better serve the surrounding population. Additionally, bicycle access is not fully connected to the rest of the city's active transportation network and therefore is underused. This area's transportation network is very focused on cars and can be very dangerous at times to both pedestrians and cyclists. Various traffic-calming techniques are planned to promote a more pedestrian friendly experience. The pedestrian network's connectivity is limited on site due to the blocking off of some essential street connections.



Existing Transit Connections
(South Lincoln Redevelopment Master Plan, 2010)

4.3 Why is this Redevelopment Necessary?

The South Lincoln Homes are over 50 years old and this neighborhood suffers from severe economic distress and isolation from the greater community and city at large. This site has above average crime rates, poverty and poor public health factors. There is an opportunity to provide a better life for current residents, attract new residents and private investment while reducing energy consumption and creating a better overall community. Although this site is proximal to many public amenities and various transit options, a perception of distance and isolation still persists. Providing necessary connections will allow residents and outsiders to better integrate the site into the surrounding neighborhoods. Significant barriers enclose the neighborhood, which adds to this isolated feeling. To the north Colfax Avenue runs with a 47,898 average daily traffic (ADT), to the south 6th Avenue (35,881 ADT), to the west Speer Blvd (66,713 ATD) and to the west the railroad tracks (Planning & Development, 2010). These edges do not feel permeable to the pedestrian and make the existing neighborhood feel inaccessible from the rest of the surrounding areas. Many community meetings were held regarding the potential redevelopment of this site and the top issues to the residents were the following, listed by the frequency of comments: Replacement of units / keeping or improving affordability; relocation concerns; better community services; connection to Santa Fe; gentrification concerns / retail diversity; supports non-residential and mixed-use; improved education opportunities; improved jobs & training; importance of redevelopment communications; safety; pedestrian improvements; personal responsibility; community gardens; and healthcare (South Lincoln Redevelopment Master Plan, 2010).

4.4 The Master Plan

South Lincoln Redevelopment is mixed-use plan that will total 900 mixed-income residential units once it is completed. Not only is Denver Housing Authority replacing one for one the existing public housing units on site but they are also including more income mixes as well. The final plan is focused around 10th Avenue, which will be a connection point between the light rail station and the Santa Fe arts district. This promenade will have non-residential uses on the ground floor to create an active street front and serve as an amenity to the neighborhood currently lacking in retail options.

Program:

	Denver Housing Authority	For Sale
Residential		
PH Units	223 units	
LIHTC Units	122 units	
Market Rate Units	89 units	327 units
Total Residential	**434 units**	**327 units**
Non Residential		
Community Space	27,500 sf	
Retail / Commercial	4,000 sf	27,900 sf
Total Non Residential	**31,500 sf**	**27,900 sf**

(South Lincoln Redevelopment Master Plan, 2010)

Public Realm Improvements:

This development has a heavy focus on the pedestrian and the existing community. There are many public realm improvements planned for this site that go above and beyond what is required by the city and community. The developer will be replacing all public housing units and adding new housing to the site which will be a mixed-income combination of live/work units, apartments, townhomes, and low rise flats. This site will be mixed-use and have retail and community space onsite. There will be various outdoor amenities such as a new plaza, park, and community garden.

The infrastructure will be drastically improved and many street connections and improvements as well as traffic slowing techniques will take place. There will be new storm water system on site to protect from flooding and street extensions to remove the sites exiting isolated feeling. Public art will be included on site and there will be many sustainability features such as PV solar, geothermal, a recycling and compost center, and holistic site storm water and energy design. A mix of new parking will be included on this site for residents and retail users. Lastly, new connections will be created on and off site in the form of roadways, higher frequency of public transportation, bike paths and pedestrian paths. These public realm improvements are examples of what developers should be thinking about in the future. The bare minimum infrastructure and public realm investment will no longer be acceptable to creative vibrant 21st Century cities.

Phasing:

Phase	Denver Housing Authority			For Sale	
	Residential Units	**Community Space**	**Retail / Commercial**	**For Sale Residential**	**For Sale Commercial**
I	105 units	18,000 sf			
II	80 units	2,000 sf	4,000 sf		7,200 sf
III	77 units			88 units	13,500 sf
IV	63 units	7,500 sf			
V	68 units				
VI	41 units			198 units	7,200 sf
VII				41 units	
VIII					TBD
	434 units	27,500 sf	4,000 sf	327 units	27,900 sf

Project Goals:

The following goals were prepared after 15 community meetings, 5 steering committee meetings and over 320 comments. The goals promote a holistic outlook on the future of this site and focus beyond the brick and mortar of the real estate and talk about economic, environmental and social goals. The developer and community saw a need to better accommodate a mix of families on site, reduce energy demand and increase connectivity amount others. These goals were generated early on and constantly reexamined as part of the master planning process.

Goal A: Base the redevelopment plan on the current and long term physical, social, economic and environmental needs of South Lincoln residents.

Goal B: (later combined with Goal E)

Goal C: Use and implement an approach that promotes a sustainable and holistic site design and promote economic self-sufficiency. A holistic site looks at integrated sustainable solutions on a site wide basis.

Goal D: Increase access to the outdoors by providing varied opportunities for open space and 'green' design solutions and materials.

Goal E: Provide mixed-income redevelopment. Replace public housing, expand affordable housing at attract market rate housing.

Goal F: Provide opportunities to increase jobs and job training, particularly in emerging sectors of the economy.

Goal G: Improve safety and security of homes, site amenities, public places and streets.

Goal H: Provide opportunities for non-residential uses that serve the neighborhood in a specific locations within and surrounding South Lincoln Park.

Goal I: Provide amenities and site features that meet the needs of families and residents of different ages and cultures. Promote community interaction and active participation.

Goal J: Create a redevelopment consistent with the positive physical qualities of the surrounding neighborhoods, increase interconnections between South Lincoln and the neighborhood and include non-residential uses that benefit the La Alma / Lincoln Park residents.

Goal K: Expand the visibility and opportunities for art and creative ways to channel graffiti.

Goal L: Incorporate and expand opportunities for education on the site, in the physical plan, in programming and in the community services that will be a part of redevelopment at South Lincoln. Promote hands-on experiences, community learning, and historical education.

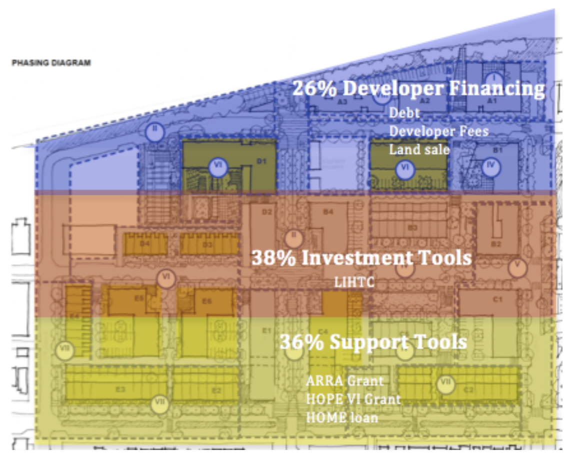
It was very important to the community and city that many of the public health issues were addressed through this redevelopment. A Health Impact Assessment (HAI) was conducted and the main health related issues identified in the South Lincoln Master Plan were: "increase physical activity, improve pedestrian, bike and traffic safety; improve access to health care; reduce crime and the fear of crime; and improve social cohesion" (South Lincoln Redevelopment Master Plan, 2010).

<u>Financing Plan:</u>

The South Lincoln Redevelopment has a creative financing plan with multiple sources leveraged. This financial plan, however, would not be a solution for a private sector developer. To begin with, a large part of the source list is a HOPE VI grant, which only Housing Authorities are eligible to apply for. HOPE VI is a program run by the U.S. Department of Housing and Urban Development (HUD) and was developed by the National Commission on Severely Distressed Public Housing. The HOPE VI grants are very competitive and directed to help replace distressed public housing across the country. South Lincoln was awarded one of the largest grants in the country in

June 2011. This project also bought 1.2 acres of city owned land that help assemble the land together, which often can be a difficult for the developers to do. Assembling land for a large project has many challenges. Certain projects need economies of scale to make considerable improvements to the area. Land does not always come in developable sizes and often developers have to assemble land together for sizing, setback, or aesthetic reasons. Having neighboring parcel owners agree to sell their land is often very challenging and some neighbors can take financial advantage of the buyer by holding out to sell the land for an above market price. Assembling land is a long and difficult process and the South Lincoln site benefited from the City agreeing to sell their land.

Based on the financing categories developed in Chapter 3 one can see that the South Lincoln has a mere 25% of developer financing and the remaining investment and support tools. This is incredibly atypical for a traditional private developer. In the Chapter 5 this thesis will examine the affect of pulling out the large subsidy sources such as HOPE VI grant and look at how a traditional developer could fund this project.



South Lincoln Redevelopment: Financing Strategies

	Mechanism	Examples / Tools	South Lincoln Tool	
1	**Bedrock Tools**	Bonds (General Obligation Bonds, Bond Banks), certificates of participation	N/A	
2	**Targeted Tools**	Assessment districts, Special Districts, Community Development Districts (CDD), TIF	N/A	
3	**Investment Tools**	Tax credits (LIHTC, New Market Tax Credits, Renewable Energy, Historic Preservation)	LIHTC	$37,299,978
4	**Access to Capital Lending Tools**	revolving loan funds, mezzanine funds, loan guarantees, microenterprise finance	N/A	
5	**Support Tools**	grants, subsidy, tax abatement, credit enhancement, government owned land	HOPE VI Grant ARRA Grant HOME loan	$15,000,000 $17,611,132 $3,142,686
6	**Developer Financing Tools**	Debt, Equity, design build strategies, asset sales, public private partnerships	Mortgage Debt Developer Fee Land Sale	$15,858,465 $3,891,367 $6,315,750
				$99,119,378

5.0 Chapter 5: Analysis

The best way to predict the future is to invent it.
- Immanuel Kant

The South Lincoln Redevelopment plan is one of a kind. This project is planned to be a large mixed-use site while maintaining a strong community and low-income focus. These goals however would be very difficult for a private developer to achieve. This section of the thesis examines the quality public realm elements included in the plan and the financing structure. This master plan has a heavy focus on creating pedestrian zones, improving the health and opportunities for residents and providing strong connections throughout the site. The developer, Denver Housing Authority, used an interdisciplinary approach to this redevelopment project and had most of the stakeholders involved early on. This planning process was very iterative taking into account environmental, social, and economic needs through the use of sustainable site designs, integrated infrastructure, cultural audits, health impact assessments, and a creative financial model. This plan was developed with the help of fifteen community meetings and interviews, five steering committee meetings and over 320 public comments. This extensive public process truly took into account the concerns of the stakeholders and could be categorized as a partnership or even delegated according to Sherry Arnstein's Ladder of Public Participation. This chapter will analyze the quality of the public realm of South Lincoln as well as the financing strategy. During the financial analysis a few of the large subsidies will be removed from the financial stack and this analysis will look at how a private developer could fill the financial gap. South Lincoln is a highly subsidized development and consequently has incredible political and community support. Most developments are not as fortunate. This project is a wonderful example of how to build a quality public realm but as planned it is not realistic for a private developer to replicate the financial plan. This thesis will analyze how a developer could keep the integrity of the quality public realm through various financing alternatives.

5.1 Quality Public Realm Analysis

The first part of the analysis will be applying the DiLorenzo Six Public Realm Attributes to the South Lincoln Redevelopment. The below table reviews the ranking of each criteria and summarizes some major elements of the South Lincoln plan.

Quality Public Realm Matrix *Exceptional, High, Medium, Low, Unacceptable*	
Mix Of Program **Medium**	- Goal E: Provide mixed-income redevelopment. Replace public housing, expand affordable housing at attract market rate housing. - Celebrates history and culture - Mixed income and mixed-use (commercial space and community services) - 1-for-1 replacement of existing housing and thoughtful relocation plan - Flexible space (planned farmers markets and festivals) - Low market retail square footage - Low jobs onsite - Not very many food options - Not a destination - No entertainment uses - Low amenities to support market residential
Design Quality + Human Scale Features **High**	- Goal K: Expand the visibility and opportunities for art and creative ways to channel graffiti. - 10th Avenue (promenade) - Ground floor activities - Transition design so it is in line with historic neighborhood to east (lower buildings along Mariposa street) - Public Art along 10th Avenue - Lower density (FAR) and building heights (human scale) - Encourages activities within walking distances of each other - Smaller blocks and streets - Successful entry, edge, place, scale and form - Does not give people the chance to stay – not a destination - Needs to promote connections with Santa Fe Arts District more
Social Space **High**	- Outdoor amenities - Promenade - Promotes usage of existing adjacent Lincoln Park through new design and connections - New parks to compliment Lincoln park - Plaza - Public spaces are very visible to public and open to everyone - Community Garden - No water - Limited views - More sitting options (make sure details of benches are

	appropriate heights and depths) - More weather protecting options
Connectivity + Access **High**	- Goal I: Provide amenities and site features that meet the needs of families and residents of different ages and cultures. Promote community interaction and active participation. - Increases connections within site (i.e. street connection of Osage to 9th Avenue) - Reconnecting the street grid - New parking - New bike paths (provides connection to Cherry Creek and Platt River bike paths) - Adds pedestrian paths - Great access to transit - Improvement of transit frequency - Very close proximity to downtown and creating more connections to downtown - Perception of connections improved through design tactics such as large sidewalks - Access to health care and fresh fruit - Access to community needs and job training - Promote community interaction and active participation (connecting to neighbors) – even this planning process and focus on participatory planning brought these groups of residents together. - Permeability and soft edges - Does not attract outsiders to the site
Connection to Nature **High - Exceptional**	- Goal C: Use and implement an approach that promotes a sustainable and holistic site design and promote economic self-sufficiency. A holistic site looks at integrated sustainable solutions on a site wide basis. - LEED senior building - New storm and water management system, which will provide site-wide storm water storage versus individual parcel storage of storm water and an integrated onsite infiltration network onsite. Currently the existing water system does not meet Denver standards, specifically the ability to convey the 5-year storm minimum with minimal disruption and it does not implement the Best Management Practices (BMPs) for water quality issues. This is an inadequate system and is prone to flooding which is a problem for residents and the new light rail station. - New utilities - District level onsite renewable energy generation: 2 Megawatt PV system that is estimated to offset nearly 80% of projected energy needs for the community. - Geothermal system - High performance building envelopes - Energy Star heating/cooling standards (reduce consumption 40%

Connection to Nature **High - Exceptional**	- Goal C: Use and implement an approach that promotes a sustainable and holistic site design and promote economic self-sufficiency. A holistic site looks at integrated sustainable solutions on a site wide basis. - LEED senior building - New storm and water management system, which will provide site-wide storm water storage versus individual parcel storage of storm water and an integrated onsite infiltration network onsite. Currently the existing water system does not meet Denver standards, specifically the ability to convey the 5-year storm minimum with minimal disruption and it does not implement the Best Management Practices (BMPs) for water quality issues. This is an inadequate system and is prone to flooding which is a problem for residents and the new light rail station. - New utilities - District level onsite renewable energy generation: 2 Megawatt PV system that is estimated to offset nearly 80% of projected energy needs for the community. - Geothermal system - High performance building envelopes - Energy Star heating/cooling standards (reduce consumption 40% for residents) - Community Garden - Community recycling and compost

The South Lincoln Redevelopment has a tremendous amount of positive quality public realm elements and is an example of thoughtful mixed-use development. Every category has many positive elements included, some stronger than others. Specifically, the comfort and connection to nature categories excel in this redevelopment.

The program mix that was included in this plan had a specific focus on low-income uses and community centers. It is very important to integrate mixed-income uses together but this plan has a heavy focus on lower income uses. By understanding the context and mission of the specific developer it is obvious why this mix was chosen but this might not be the ideal mix for a private developer to use on an alternative site. Ideally, there would be more market retail and market office uses on site. However, currently the real estate market will not support office and the image of the site needs to be improved for the retail to prosper. As planned, this site is not much of a destination. The uses are primarily for the current residents and the amenities are not planned for future market residential units. The site has a focus on celebrating culture and history and should try to draw outsiders in as well as the current residents. This site could also benefit from some entertainment uses that compliment the history and culture.

The design quality and human scale ranked high for this site. The developer did not maximize the FAR (floor area ratio) or building height limits in the plan thus allowing for human scale developments and proportions as well as good transitions from the site to the historic neighborhoods. Using Dennis Frenchman's five development design criteria this thesis can analyze the entry, edge, place, scale, and form. Originally this site did not have an entry. Now it will be anchored by the 10th and Osage light rail station as well as the Santa Fe arts district. It is important that 10th Avenue gives orientation, has symbolism and makes the user feel like they have arrived. Through various design techniques this can happen. For example, having street light fixtures for the district that are unique or an archway at the edges of the main street gives the place symbolism. It is also important that the user anticipates arriving and one should design this space so there are views towards the main promenade and people are curious to come explore the site.

The edge of this site is no longer a harsh abrupt edge and the master plan provides for connections and permeable edges, which will allow the transition between areas and not a separation. It is key that the edges feel permeable so users can come and leave comfortably. With the planned improvements, the site will have more of a physical definition (i.e. place) and connection to context and existing urban fabric. The main street on this site could benefit from having plaques exampling the history of the site and the rich culture around it, which would add richness to the place criteria. The scale and massing of the site is proportional with the developments surrounding and stepped back appropriately. The plan was very thoughtfully designed to blend in with the surrounding areas while still providing a high quality design aesthetic and the entry, edge, place, scale, and form were all appropriate for this site.

There are various social spaces planned for this site as well as increased connections to existing social spaces, such as Lincoln Park. There will be a number of small pocket parks and social spaces throughout the plan with the main promenade and plaza in the center of the plan. There is also a community garden on site, which helps foster social interaction and gives residents a place to go, as well as improving access to healthy food. The social spaces could be improved by adding more seating options and more weather protective alternatives. In addition, the materials on 10th Avenue are critical to creating that central space sense of place. Investing in quality materials, such as stone roads, adds to the character and image of the site. The social space should be programmed to have a hub of activity year-round, including places for relaxing, exhibitions, classes, concerts, and special events. According the Kimball Crangle, project manager, the street activation is the most essential part of the public realm for this plan because it will turn isolated crime ridden streets into lively and safe streets.

This site proposes to create both internal and external connections, which are a cornerstone to a successful transit-orientated mixed-use development. Both the infrastructure and perception needs to be addressed for the existing site connections and the plan does both. This plan addresses and increases access immensely. There is access to other people, to services, to fresh food, to other places, and to information. With that said, this plan connects people within the site and connects people to the outside but may have a difficult time attracting people to the site itself. There needs to be a reason for people to linger through the site and not just walk through it on the way to the train. It is also important to assess the role this project plays citywide and regionally. Currently, this site should add to the goals of the city, specifically Denver's new Livability Partnership and Blueprint Denver, the city's integrated land use and transportation plan. The goal of the livability partnership is to "expand permanent affordable housing, improve access to jobs and create better multi-modal connectivity along Denver's transit corridors" (Denver, Livability Partnership, 2011).

Blueprint Denver, an integrated land use and transportation plan, was adopted in 2002 to supplement the Denver Comprehensive Plan and informs the city's Strategic Transportation Plan. The three main focus areas of Denver Blueprint are: areas of change and areas of stability, multi-modal streets and mixed-use development (Blueprint Denver, 2011). Areas of stability are those neighborhoods in Denver that are not expected to change drastically over the next 20 years. Those areas should maintain their current character. Areas of change on the other hand are areas that will benefit from an increase in population and new investments. Secondly, Blueprint Denver has focuses on multi-modal streets where the focus is on moving people and not moving cars. Various transportation options should be available on the streets of Denver including: public transportation, pedestrian pathways, bike lines as well as roadways for private vehicles. Lastly, it is important for Denver to focus on mixed use development and returning communities to where there is a focus on the pedestrian and amenities within walking distances. This will provide more choices for residents, employees and visitors of Denver.

It is important that this site in integrated within the existing city fabric, specifically along 10th Avenue. There is a large opportunity to piggyback off the Santa Fe Art's District and its successful events such as First Fridays to bring people to site. This can be achieved through some sort of entertainment use such as a restaurant or bar or street connections along 10th Avenue. According to *The 2011 Community Preference Survey* two-thirds of people see being within an easy walk of places in their community as an important factor in deciding where to live. Specifically, being within an easy walk of a grocery store, pharmacy, hospital, and restaurants is important to at least six in ten Americans (The 2011 Community Preference Survey, 2011).

Humans greatly demand a connection to nature and sustainability features on site. This plan does a great job of bringing many sustainable building techniques such as LEED, Energy Star, PV systems, integrated storm water system, and district energy.   There is also social space designed in the outdoors and a community garden so people are closer with the food they eat. New tree plantings will occur on site as well as preservation of existing trees. This plan could take it one step further and implement a state of the art installation such as Atelier Dreiseitl's Water Traces project in Hannoversch, Munden Germany in which rainwater was collected from the roofs and filtered down into an water pond-public art piece. People play in this water but also light pillars and acoustic vibration plates respond to the rhythms of the water. One can also sing next to the pillars and vibrate the water, which therefore reflects light and vibrates the lights on the buildings surrounding it.   These instillations can be expensive but provide both a sustainable solution to the environment as well as a destination and social space.

Atelier Dreiseitl's Water Traces project in Hannoversch, Munden Germany (Waterscapes, 2011)

This site is currently very isolated and riddled with poverty. The comfort level for the current residents is relatively low. This plan addresses many comfort items such as safety, weather, public health, traffic and social cohesion.   People want to feel protected from traffic accidents and fear of traffic accidents with their children. Many traffic-calming techniques were included in this plan to reduce car speeds and promote pedestrian safety. The design of the buildings and public space is such so the fear of crime is also reduced.   Eyes on the street and a strong community network are essential to improving social cohesion and lowering crime rates. Other techniques, such as extra lighting can also be implemented on site to increase safety. People want to feel protected from the elements such as rain, snow, cold, heat, pollutions, dust, glare, noise, and wind. This plan should make sure offer protection from the elements, which can be achieved by creating a feature such as a permeable archway along 10th Avenue to provide covered pathways during weather events.

Quality Public Realm Recommendations:

1. Make this site a destination for outsiders – include more for market retail or entertainment.
2. Add amenities to attract market housing.
3. Draw people into the site by programming an event in conjunction with First Friday.
4. Promote digital technology by having a Wi-Fi park or a projector screen where you could plan drive in movies in the summer and allow local residents to benefit from close proximity of technology. This could be a donation by AT&T similar to Main Plaza in San Antonio.
5. Have flexible design buildings to make them adaptable through time.
6. Brand this district as historic and innovative. Make clear physical symbols at the edges of 10th Avenue to provide legibility to users of the site.
7. Historic plaques on the promenade street that tell a story and bring people into the site.
8. Add a reading room similar to Bryant Park, which has free newspapers, books, and magazines with quiet seating and various events such as author appearances, writer's workshops and children's events.
9. Create permeable archways along 10th to increase resident and visitor comfort from elements. It also provides for a nice rhythm along the street.
10. Add an innovative art installation similar to Atelier Dreiseitl's Water Traces project in Hannoversch, Munden.
11. Add a bike share stop on site to drive traffic inward and provide an amenity for local residents.
12. Add offsite funds to create a strong connection all along 10th Avenue from the edge of the property to Santa Fe Street. Currently, the property between the site and Santa Fe it is private property which the city has a right of way. These funds could be donated to make improvements to the area such as public art and improved lighting.
13. Add a bike share station on site to draw people into to the site and provide an amenity to local residents.

5.2 Financing Analysis: What happens without the subsidies?

As described earlier this plan has incredible political support and the ability to leverage certain financial tools that a private developer would not have access to. It is a wonderful plan with a high quality public realm, however, it would be very difficult to replicate the financial stack. According to Kimball Crangle, project manager for DHA, if they did not receive the HOPE VI grant it would require a major restructuring of the entire plan and specifically the affordability mix (Crangle, 2011). This thesis aims to examine if this project could have been funded without the subsidy sources and if not how that would change the redevelopment plan. Making the assumption that this was a traditional private developer this thesis will analyze the affects on the financing stack and ultimately the affects on the quality of the public realm.

Currently, South Lincoln Redevelopment is financed with the following seven sources: Low Income Housing Tax Credits (LIHTC), Hope VI grant, American Recovery and Reinvestment Act (ARRA) funds, HOME funds, developer fee, mortgage debt, and land sales. The last two are common sources available to all private developers. The other five sources are more difficult for the developer to leverage or not available to the private sector.

- ♦ **Mortgage debt** is based on the future income streams and quality tenants and credit. Having strong banking relationships and a good reputation helps developers obtain mortgage debt although the maximum loan amount typically comes down to a projects risk and ability to generate income.

- ♦ **Land sales** are a potential revenue source for all developers. In large mixed-use projects that are phased over time land sales are very common. It gives the developer flexibility as well as allows them to shift development risk if a certain asset class is not their particular expertise. For example, in this case DHA is trying to shift the risk of for-sale housing and sell parcels off to a third party.

- ♦ **Low-income housing tax credits** are also available to all private developers as well but are not a guaranteed source of financing. The 9% LIHTC are competitive and there is no guarantee that a project will be awarded the credits. Currently, Colorado Housing and Finance Authority (CHFA) allocates the low income housing tax credits for the state and they have different priorities. The South Lincoln Redevelopment had a lot of political advantages and was able to secure LIHTC on top of other sources, which isn't always the case for private developers. At times it can take five to six rounds to obtain the credits, which is difficult for the developers because it requires a lot of carrying costs and overhead.

- ♦ **HOME funds** are also available to private developers but can be difficult to receive and require some politics and time. HOME is the largest federal block grant program and designed to support the creation and preservation of affordable housing. Every year this program allocations nearly $2 billion across the country with the goal of improving housing affordability. HOME funds are awarded to participating jurisdictions and then can be dispersed in a variety of forms such as: grants, direct loans, loan guarantees, credit enhancements or rental assistances.

- ♦ The **development fee** is something any developer could chose to forgo but most would not. This is how overhead and profit is captured. Most developers try to obtain as much of this fee as early on as they can. It is possible to delay the development fee or forgo a portion of it but no developer would give up his or her entire fee. Denver Housing Authority chose to forgo 50 percent of their development fee to use as a source of financing and used the remaining half to cover overhead.

- ♦ The **ARRA funds** are a limited time subsidy source and competitive. In early 2009 the American Recovery and Reinvestment Act was signed into law with the following goals: creating and saving jobs, spur economic activity and long term investment, and transparency and accountability in government spending (The Recovery Act, 2011). This will not be a permanent source of financing for projects and would not be easily accessible to a developer.

- ♦ Lastly, the **HOPE VI grant** is also not available to private developers. To be awarded this subsidy one must be a housing authority. The last two sources, ARRA and HOPE VI, were large pieces of the capital stack and would not be available to the average developer.

SOURCE	Amount	Likelihood of obtaining source as a private developer
Land Sales	*$ 6,315,750*	Very likely
Mortgage Debt	*$15,858,465*	Very likely
LIHTC Equity	*$37,299,977*	Possible, but may have to wait
HOME funds	*$3,142,686*	Possible, but may have to wait
Developer Fees	*$3,891,367*	Unlikely, not feasible for a developer
ARRA/Capital Funds	*$17,611,132*	Unlikely, program ending
HOPE VI	*$15,000,000*	Not available to private developers
Total	*$99,119,377*	

Lets make an assumption that a private developer is able to get LIHTC and HOME funds and also has access to favorable lending terms. This leaves a private developer with the following sources and $37 M gap once removing the ARRA funds, HOPE VI and the development fee.

SOURCES AVAILABLE	
Land Sales	*$ 6,315,750*
Mortgage Debt	*$15,858,465*
LIHTC Equity	*$37,299,977*
HOME funds	*$3,142,686*
Developer Fees	-
ARRA/Capital Funds	-
HOPE VI	-
Total	$61,758,414

Below summarizes the use and primarily funding source. Since this is a holistic plan many of the sources are contributing to different uses but this shows what the majority of the source is financing. For example, the ARRA funds are primarily building the senior housing tower and some related infrastructure. If this source of financing were lost, the subsidized senior building would most likely be cut from the program. A more detailed breakdown of the sources and uses by parcel is in the Appendix.

USES	Senior Housing Tower	Affordable Housing	Retail	For Sale Housing	Community Space	Infrastructure
Land Sales			X	X		X
Mortgage Debt			X			X
LIHTC Equity		X				X
HOME Funds		X				X
Developer Fee	X	X	X	X	X	X
ARRA Funds	X					X
HOPE VI		X		X	X	X

For this development to be feasible the developer has three options: increase revenues, decrease costs, or find a new source to fill the $37M gap. Most likely it will be a combination of all three but lets first look at each step individually.

Project Feasibility: Maintaining a Quality Public Realm	
Step 1: Calculate the gap	- What are your sources and uses? - What is the financing gap?
Step 2: Are there new sources to fill the gap	- Review the Financing Toolkit provided in Chapter 3 - Discussions with local jurisdiction, urban renewal authority, economic development department, funding agencies, etc. - Analyze the affects of adding a new source: timing, costs, politics, form requirements
Step 3a: Lower Costs	- Could you change project delivery method to lower costs? Design Build or Integrated Project Delivery Techniques? - Value Engineering techniques, new materials? - What items are essential and what can get cut and still provide a quality public realm?
Step 3b: Increase revenues	- Could the site add creative revenue sources? Food ventures? Monthly revenue producing events? - Change program mix? More market uses and less subsidized uses - Could you charge higher rents with new amenities?

5.2.1 Step 1: Calculating the Gap

After removing the highly subsidized sources not available to a private developer this project has a $37M gap.

5.2.2 Step 2: Finding New Sources of Funding

Using the toolbox that was created in Chapter 3 one can start looking through the different sources available for this jurisdiction categorized in bedrock tools, targeted tools, investment tools, access to capital lending tools, support tools and developer financing tools. Understanding the combination and timing issues with each source can be incredibly difficult and requires a strong expertise. Many sources create silos of expertise and few consultants and development firms fully understand the entire toolkit.

Both the HOPE VI and ARRA funds were support tools and didn't require any upfront capital or promise to repay. From a developers point of view these are great sources of funding to have in the capital stack. However, with those financing sources also came obligations, especially the HOPE VI grant. When utilizing a HOPE VI grant the developer (a housing authority) must also have a Community and Support Service Plan approved by HUD, which promises to include services such as early childhood education, health initiative, workforce partnerships, and green jobs. According the Kimball Crangle, the project manager, HOPE VI comes with a lot of commitments and Denver Housing Authority's application was over 400 pages with numerous promises included in it in exchange for the funds. When this source is no longer available those obligations also go away which should be considered in this analysis (Crangle, 2011).

<u>Bedrock Tools:</u>

Looking at bedrock tools we can analyze the use of municipal bonds. This project would not likely qualify for a GO (general obligation bond) but could be considered for a revenue bond. In 2007, Denver voters approved $550 million in GO bonds through the Denver Better Bond Program. These funds have gone towards improving and preserving roads, libraries, parks, hospitals, and cultural facilities. There were a pipeline of projects and currently the majority of funds are accounted for (Better Denver Bond Program, 2011). According to the City of Denver's Debt Service Funds report as of August 2010 only $120M of the original $550M bonds is remaining (Budget, 2011). Five of the bond projects are on the South Lincoln Redevelopment site are immediately adjacent. They include: public infrastructure at 10th and Osage, paving the street on 13th street connecting Kalamath Street to Osage Street, replacing the irrigation system at Lincoln Park, replacing the La Alma outdoor pool, and making improvements to an existing Neighborhood House Child Care Center on Mariposa and 13th Street.

Since this area already leveraged five bonds, they would most likely not qualify for another general obligation bond. Leveraging a bond takes tremendous political support and must prove that it is making Denver better for everyone on a citywide level.

Targeted Tools:

Using the targeted toolkit one can examine if this site could be part of an assessment district or have a TIF placed on it. The steps to determining if a TIF is a possible tool is to see if this site qualifies for blight, if the site passes the 'But For' analysis and if the site has the capacity to generate tax revenues. Although his project would qualify for blight and pass the 'But For" analysis ("But for Denver Urban Renewal Authority's assistance the project will not happen") this site would most likely not be granted a TIF due to the capacity analysis. When calculating TIF the analysis includes property taxes, sales taxes and lodger taxes. Currently, the Denver Housing Authority is tax exempt and unable to leverage tax increment financing. If a private developer were to develop the site they would be eligible for TIF since it would convert to a taxable property. To calculate the new increments the analysis would start at a tax base of zero and show the new increment of taxes over a 25-year period. These TIF funds could then be used for publically eligible costs such as infrastructure, life safety, and in some instances parking garages.

According to Jamie Roupp, a redevelopment specialist at Denver Urban Renewal Authority (DURA), when applying for a TIF DURA analyzes the above three items as a baseline and then looks at the risk profile of the development as well as the projected returns (Roupp 2011). If TIF bonds are issued by DURA, the risks shifts from the developer to DURA and they carefully underwrite these deals in order to ensure that the future revenue streams have the capacity to serve the bond debt service. There are no set underwriting standards and they can change based on the risk of the project. A debt service coverage ratio is applied similar to the underwriting process of obtaining a loan and in this instance a conservative 1.4 DSR was used. After calculating the total funds to service debt that number is discounted at 7% and then fees, reserves, and capital interest were deducted to give the total funds available for public investment. The bonds will need to be paid off even when the project isn't producing revenue in the first few years and that is why a capital interest account is set up. After the first few years the project will generate enough revenues to service the debt and the reserve is there to protect DURA. Even with the benefit of having a zero tax base the current program planned for this site would only generate $2.5M in TIF funds if a private developer were to build the same program mix.

PROGRAM AS-IS TAX INCREMENT FINANCING ANALYSIS

General Assumptions		Retail Tax	
Coupon Rate	4%	Retail SF	4,000 SF
DCR	1.4	Avg Revenue/SF	$ 125
Base Tax Value (previously exempt)	$ -	Ann. Revenues	$ 500,000
General Vacancy	10%	Sales Tax	3.50%
Property Biennial Growth Rate	2%	Revenue Growth	2.50%

Property Tax - Residential Rental		Property Tax - Retail	
Cost/Unit	$ 200,000	Value/SF	$ 100
Units	89 units	SF	4,000 SF
Cost	$17,800,000	Value	$ 400,000
Base Tax Value	$ -	Base Tax Value	$ -
Assessment	29%	Assessment	29%
Commercial Mill Levy	0.065139	Mill Levy	0.065139

Year	Property Tax Increment (both property & retail)	Retail Sales Tax Increment	Total TIF Revenue	Total Reimbursement Revenue	DCR	Total Funds to Service Debt
2012	343,804	15,750	359,554	359,554	1.40	256,824
2013	343,804	16,144	359,947	359,947	1.40	257,105
2014	350,680	16,547	367,227	367,227	1.40	262,305
2015	350,680	16,961	367,641	367,641	1.40	262,601
2016	357,693	17,385	375,078	375,078	1.40	267,913
2017	357,693	17,820	375,513	375,513	1.40	268,224
2018	364,847	18,265	383,112	383,112	1.40	273,652
2019	364,847	18,722	383,569	383,569	1.40	273,978
2020	372,144	19,190	391,334	391,334	1.40	279,524
2021	372,144	19,670	391,814	391,814	1.40	279,867
2022	379,587	20,161	399,748	399,748	1.40	285,535
2023	387,179	20,665	407,844	407,844	1.40	291,317
2024	387,179	21,182	408,361	408,361	1.40	291,686
2025	394,922	21,712	416,634	416,634	1.40	297,596
2026	394,922	22,254	417,177	417,177	1.40	297,983
2027	402,821	22,811	425,631	425,631	1.40	304,022
2028	402,821	23,381	426,202	426,202	1.40	304,430
2029	410,877	23,965	434,843	434,843	1.40	310,602
2030	410,877	24,565	435,442	435,442	1.40	311,030
2031	419,095	25,179	444,273	444,273	1.40	317,338
2032	419,095	25,808	444,903	444,903	1.40	317,788
2033	427,477	26,453	453,930	453,930	1.40	324,236
2034	427,477	27,115	454,591	454,591	1.40	324,708
2035	436,026	27,793	463,819	463,819	1.40	331,299
2036	436,026	28,487	464,514	464,514	1.40	331,795

NPV	7%	$3,286,577
Issuance Fees	3.0%	$98,597
TIF Reserve		$210,380
Capital Interest		$420,760
Bonds Available for Public Improvements		**$2,556,839**

Since TIF heavily relies on future revenue streams and this project is not projected to be a large income-producing asset this site would not be an ideal candidate for a TIF. Often they are used in redevelopments that have a large opportunity for appreciation. Another assessment district we could look at is a Business Improvement District (BID). This would not likely be an option for this site because a BID is required to be a majority of commercial properties and this plan is focused around housing.

Next this thesis will look at how much retail would be required to fill the $37M gap with tax increment financing. One could also even combined TIF with a public improvement fee (PIF), which would provide an extra benefit by adding an additional sales tax percentage of 1.5%. This is an additional tax that retail consumer's pay. Only one other PIF has been approved in the City of Denver. Although PIF is an unlikely source one can add it to this analysis to show how extreme the scenario is. In order to fill the $37M gap with tax increment financing (TIF) and a public improvement fee (PIF, which is uncommon for Denver) the site would require close to 600,000 SF of retail space and 3000 parking spaces. This is completely unfeasible for the site and the $37M gap is too large to be solved with targeted tools alone.

FILLING $37M GAP WITH TAX INCREMENT FINANCING ANALYSIS

General Assumptions		**Retail Tax**	
Coupon Rate	4%	Retail SF	586,073 SF
DCR	1.4	Avg Revenue/SF	$ 125
Base Tax Value (previously exempt)	$ -	Ann. Revenues	$ 73,259,109
Public Improvement Fee (PIF)	1.50%	Base Tax Value	$ -
General Vacancy	10%	Sales Tax	3.50%
Property Biennial Growth Rate	2%	Revenue Growth	2.50%

Property Tax - Residential Rental		**Property Tax - Retail**	
Cost/Unit	$ 200,000	Value/SF	$ 100
Units	89 units	SF	586,073 SF
Cost	$ 17,800,000	Value	$ 58,607,287
Base Tax Value	$ -	Base Tax Value	$ -
Assessment	29%	Assessment	29%
Commercial Mill Levy	0.065139	Mill Levy	0.065139

Year	Property Tax Increment (both property & retail)	Retail Sales Tax Increment	Total TIF Revenue	PIF Retail	Total PIF Revenue	Total Reimburseme nt Revenue	DCR	Total Funds to Service Debt
2012	1,443,357	2,307,662	3,751,019	988,998	988,998	4,740,017	1.40	3,385,727
2013	1,443,357	2,365,353	3,808,711	1,013,723	1,013,723	4,822,434	1.40	3,444,596
2014	1,472,224	2,424,487	3,896,712	1,039,066	1,039,066	4,935,778	1.40	3,525,556
2015	1,472,224	2,485,100	3,957,324	1,065,043	1,065,043	5,022,367	1.40	3,587,405
2016	1,501,669	2,547,227	4,048,896	1,091,669	1,091,669	5,140,565	1.40	3,671,832
2017	1,501,669	2,610,908	4,112,577	1,118,960	1,118,960	5,231,537	1.40	3,736,812
2018	1,531,702	2,676,180	4,207,883	1,146,934	1,146,934	5,354,817	1.40	3,824,869
2019	1,531,702	2,743,085	4,274,787	1,175,608	1,175,608	5,450,395	1.40	3,893,139
2020	1,562,336	2,811,662	4,373,998	1,204,998	1,204,998	5,578,996	1.40	3,984,997
2021	1,562,336	2,881,954	4,444,290	1,235,123	1,235,123	5,679,413	1.40	4,056,723
2022	1,593,583	2,954,002	4,547,586	1,266,001	1,266,001	5,813,587	1.40	4,152,562
2023	1,625,455	3,027,852	4,653,307	1,297,651	1,297,651	5,950,958	1.40	4,250,684
2024	1,625,455	3,103,549	4,729,004	1,330,092	1,330,092	6,059,096	1.40	4,327,926
2025	1,657,964	3,181,137	4,839,101	1,363,345	1,363,345	6,202,446	1.40	4,430,319
2026	1,657,964	3,260,666	4,918,630	1,397,428	1,397,428	6,316,058	1.40	4,511,470
2027	1,691,123	3,342,183	5,033,306	1,432,364	1,432,364	6,465,670	1.40	4,618,335
2028	1,691,123	3,425,737	5,116,860	1,468,173	1,468,173	6,585,033	1.40	4,703,595
2029	1,724,946	3,511,381	5,236,326	1,504,877	1,504,877	6,741,204	1.40	4,815,145
2030	1,724,946	3,599,165	5,324,111	1,542,499	1,542,499	6,866,610	1.40	4,904,721
2031	1,759,445	3,689,144	5,448,589	1,581,062	1,581,062	7,029,651	1.40	5,021,179
2032	1,759,445	3,781,373	5,540,817	1,620,588	1,620,588	7,161,406	1.40	5,115,290
2033	1,794,633	3,875,907	5,670,541	1,661,103	1,661,103	7,331,644	1.40	5,236,888
2034	1,794,633	3,972,805	5,767,438	1,702,631	1,702,631	7,470,069	1.40	5,335,763
2035	1,830,526	4,072,125	5,902,651	1,745,196	1,745,196	7,647,847	1.40	5,462,748
2036	1,830,526	4,173,928	6,004,454	1,788,826	1,788,826	7,793,280	1.40	5,566,629

NPV	7%	$47,560,035
Issuance Fees	3.0%	$1,426,801
TIF Reserve		$3,044,411
Capital Interest		$6,088,822
Bonds Available for Public Improvements		**$37,000,000**

According to the Denver retail division at CB Richard Ellis, this is in an up and coming location and could handle a moderate amount of retail but would not support anywhere near 600,000 square feet of retail because of the demographics and density (Writt, 2011). And, all of the retail would require a parking ratio of 5 per 1,000 SF. According to CB Denver retailers have not bought into the idea of TOD yet and most shy away from the idea of low parking ratios and shared parking. Transit Orientated Development (TOD) is gaining a lot of popularity in Denver but many believe it will take awhile for the culture of the automobile to change here. In order to get a TIF approved on site there would need have a substantial combination of retail and residential in order to capture the value.

Investment Tools:

Moving towards investment tools one could look at layering tax credits, programmed related investments (PRI) or EB-5 investment funds into the capital stack. Currently, Low Income Housing Tax Credits (LIHTC) are being maximized on the site and can be combined with historic tax credits, energy tax credits, program related investments and EB-5 investment funds. Since no buildings are being preserved historic tax credits are inaccessible. Energy tax credits could be a potential source specific to energy upgrades or the project could leverage carbon credits. A developer could also look at New Market Tax Credits (NMTC) as a source of financing on this site. NMTC cannot be combined with LIHTC on the same site but it has done before though a condo structure. There is a potential for this structure on the site but would require higher income producing commercial and retail assets to be programmed in on the ground level of 10th Avenue. That will be discussed in more detail below.

A program related investment (PRI) is an investment tool that could be accessed on this site. A PRI is provided by a foundation that supports a deemed charitable cause that involves potential repayment of capital or appreciation within an established time frame. It typically takes the form of a low interest loan. Some examples in the past are high-risk investments in nonprofit low-income housing projects, low-interest loans to small businesses, investments in businesses in blighted urban areas that improve the economy by providing employment or training. This program is a powerful tool that is currently underutilized. The demand for the program is low because few charitable organizations seek to receive debt or equity financing. However, as grants are becoming more competitive organizations need to look to leverage these tools. A second problem is the supply of the program is also low. Program Related Investments can be very confusing and few foundations have considered this tool. A Program Related Investment counts towards a foundations distribution allocation as a grant would yet it does not count in the asset base. Many foundations are weary of this tool because it is unfamiliar, it looks risky and they fear it will cost their organization money. However, PRI are not risky once fully understood. This tool is very powerful as it provides investment to projects which gives the project credibility and strength and therefore lowers the risk to allow investors and lenders to feel more comfortable providing additional funds. Various foundations participate in this program such as the Ford Foundation, Gates Foundation, and Packard Foundation. This is a program that could be considered for this site.

The EB-5 Investor program is also underutilized. This financing source is an immigration program that allows foreigners to make a $500,000 - $1,000,000 investment and create ten permanent jobs in the US and in return the investor and family members are granted permanent residence in the US. The investment of funds can go towards a variety of industries including hospitality, mixed-use real estate, manufacturing, healthcare and agriculture. To date, 1,885 families approved and nearly $1 billion has been invested in projects across the United States. This program has been extended until September 2012 and is a great tool to access capital. The jobs must be created in a targeted employment area and can be used as leverage for new market tax credit deals. Similar to program related investments, mixed-use developers underutilize EB-5 funds. They are a great source of capital but few know how to acquire the funds. Both PRI and EB-5 funds are tools that should be considered in any redevelopment project.

New Market Tax Credit (NMTC) is an investment tool that provides great support to projects as they support economic growth and investment. They are gaining more popularity but developers still have challenges understanding the complexity of the program and uncertainty if the program will be permanent source available. The New Markets program began in 2000 as part Community Renewal Tax Relief Act and encourages private investment capital to low income communities. The benefits of this program are it provides below market interest rate, longer than standard interest only period, higher long to value, longer amortization, and equity or equity equivalent structures. A Community Development Entity (CDE) is an intermediary between the investors and low-income communities. Unlike low income housing tax credits CDE's apply for the NMTC allocations and then distribute them to deserving projects within their geographic jurisdiction. As described above NMTC cannot be combined with LIHTC. Since the South Lincoln Redevelopment is leveraging LIHTC the only way for a project to leverage both sources is to set up legal condo on the project. It is expected that this will be more common in the future as many LIHTC projects are located within NMTC qualified census tracks. South Lincoln Redevelopment is the perfect example as it is leveraging LIHTC and is also included in the NMTC qualified areas.

New Market Tax Credits

Allocation (Project Cost)	$	25,000,000
NMTC %		39%
NMTCs Generated	$	9,750,000
NMTC Pricing	$	0.70
Gross $ Generated	$	6,825,000
Costs		25%
Net Project Dollars $ Generated	**$**	**5,118,750**

Although a legal condo structure can add complexity to an already complex project it is achievable. Assuming that form was to take place this project could leverage new markets to try to fill the $37M gap. In this condo scenario one would need to deduct the LIHTC from the total project cost and estimate the retail and community space costs, which is estimated around $25M. New Market Tax Credits do not have as stringent of requirements for calculation the amount of tax credits available for the project. That can be both positive and negative. It allows for flexibility but also can be more difficult to understand at times. Also, instead of having the projects directly apply to the state allocating agencies for NMTC as they do with LIHTC, NMTC are awarded to Community Development Entities (CDE's). CDE's then have the obligation to invest in qualified projects within their geographic jurisdiction. The projects must meet some requirements, such as having at least 20% of the income coming from commercial uses but for the most part CDE's can award an allocation to a project based on a projects need and usually it is close to the total project cost. This allocation then gets turned into seven years worth of tax credits (5% the first three years and 6% for the remaining four). Therefore, the NMTC generated are 39% of the allocation amount. These tax credits are then currently priced at $0.70 on the dollar, which brings the gross amount of money generated that is available to the projects. However, there are tremendous amount of legal fees and costs associated with NMTC so the net money generated is only 75% of that gross.

Taking the South Lincoln Redevelopment and assuming a condo structure was set up to parcel out the LIHTC the maximum NMTC would be close to $5M assuming a $25 allocation. If a CDE does not have enough allocation dollars to support this project multiple CDE's can contribute to the project. In order to obtain this source more retail would need to be built as NMTC require that at least 20% of the project income is coming from commercial sources. Currently, only 5% of the projects income is coming from retail uses and over 80% is coming from residential uses, which disqualifies South Lincoln from using this source. If more income producing commercial uses were added the NMTC could be used for both development purposes and can assist with operating costs. According to Wyatt Jones, Senior Loan Officer of Colorado Housing and Finance Authority (CHFA), every new market deal is unique and it depends on the community development entity on what projects they will award tax credits to. New Market deals are very complex but can be very powerful tools for projects to leverage. Below outlines a Seven-step guide for borrowers to use to obtain New Market Tax Credits produced by Wildman, Harrold, Allen & Dixon LLP.

Seven Step Guide for New Market Tax Credits

1. Qualifying Project or Business
    a. Is it in a qualified census track and low income community?
    b. "But For" Test
    c. Nature of Project or Business (certain businesses restricted)
    d. Shovel Ready
2. Sources and Uses of Financing
3. Guarantors
4. NMTC Questionnaire
5. Obtain Commitment Letters and Term Sheets

    a. Leverage Lenders
    b. Investors
    c. Community Development Entity (CDE)
6. Negotiate NMTC Financing Documents
7. Close NMTC Financing

Access to Capital Lending Tools:

This site could potentially look at a revolving loan fund but what would be more applicable is an infrastructure bank. This tool is currently being discussed in congress. In February 2011, President Obama's six-year transportation plan considered transforming the Highway Transportation Fund into a national infrastructure bank. If a tool like this was in place it could help fund infrastructure costs to this site. However, currently no tool exists but it should be something one should continue to look out for.

Developer Financing:

Based on the income produced on the property the developer will not be able to acquire any more construction or permanent debt but could look into mezzanine or equity financing. Those both have high yields and this project will not be able to pay back interest required for those types of financing. It is currently projected that the total net operating income (NOI) on this 15-acre site would be under $1,000,000 for the first five years and then stabilize at $1,400,000. This is incredibly low NOI and significantly restricting the mortgage debt. If more income producing assets were added the mortgage debt could increase.

Support Tools:

For purposes of this exercise there is an assumption that no more support or subsidy tools will be placed on the site. These tend to be difficult to get and many programs are temporary depending on the political climate and programs available.

Summary of Toolbox Approach:

There are many different tools this project could potentially use to start fill the financing gap, however without changing the program none of the tools would adequately fill the $37M shortfall. The purpose of the thesis is not to go through each specific program but just show a few of the more realistic sources that could be leveraged in some detail. Tax Increment Financing is a possibility for this site but requires that more revenue to capture the value. New Markets Tax Credits could also potentially be leveraged, but it would require a complex legal condo structure and 20% or more of the income from commercial purposes. Program Related Investments and EB-5 Investor program are two other sources that could be considered for this site. Those two sources are complex and often overlooked by projects and should be considered in the future. What is most important is that developers begin to become aware of the sources available and use a toolbox approach to make gap financing more understandable. This is also a good way to catalog sources for future projects. The next step in this analysis is examining increasing the project revenues or lowering the project costs.

5.2.3 Step 3: Increase Revenues and Lower Costs

Increase Revenues

There are many ways to increase revenues on the site but primarily adding more market housing and market retail the plan would be recommended if the subsidy sources were unavailable. It is important that this site benefits existing residents and attracts new ones. There are many growing neighborhoods surrounding the site and having an active ground level main street would benefit both the residents on site and off.

Currently, the plan is proposing to build 89 market units, 223 public housing units, 122 affordable units then sell land in future phases for sale market housing. Under the assumption that the developer is a private entity the site would not be able to afford the public housing units. Those would likely be cut from the program since HOPE VI was the primary funding source and more market units would be constructed. The LIHTC units would remain onsite. It would be suggested to have close to 300 market units and 122 affordable LIHTC units because it is important to have a mixed-income community and the funding is in place.

Currently, the Denver for sale housing market is over saturated. The market units could start out as rental units and a condo map could be placed on the site so when the for-sale housing market rebounds the developer could quickly convert them. According to a market report by Cushman Wakefield the Denver multifamily market has performed exceptionally well. In 2010 there was an increased demand and limited new supply and the overall vacancy dropped to a ten year low of 5.3%. Long run outlook is also positive as Denver will benefit from economic growth in energy, R&D, biotech and aerospace sectors and the metro area will gain 259,000 migrants in the next decade (Marketbeat, 2011). Changing demographics within the existing population will also increase demand for multifamily housing. For example it is projected that Denver will experience a 21.1% increase in residents between the ages of 20 and 29 and 61% increase in the number of people reaching retirement over the next 10 years. Both groups will be looking for high qualify urban lifestyles that are close to transit and the outdoors. Of course, many developers are seeing the same trends in the multifamily market and the market rental units would compete with the future units near the Broadway and Alameda light rail stations near the Denver Design District, the expanding Golden Triangle neighborhood and Capital Hill neighborhood of Denver.

In order to attract market rate housing this plan needs to provide the amenities that market users would require. The transit and close proximity to downtown and Santa Fe arts districts are great benefits for this site. However, when building the market rate units they should also be matched with market rate amenities. Some retail, grocery store, or even office usages for the future of this site would benefit market uses. Since the project is next to light rail, bike paths and close proximity to downtown underground parking for each unit would not be required. There could be shared parking with other uses or less than one spot per unit parking ratios. Food and beverage is an important amenity for market housing and that should be in close proximity. Having a coffee shop, sandwich shop and another restaurant establishment would add to the value of the site. More market retail and restaurant uses should support the housing. Lastly, rail noise is an issue for this neighborhood and techniques such as highly insulated buildings and windows would need to be used to help mitigate the noise similar to the LoDo neighborhood where noise is also an issue.

Market retail uses could be supported on this site with more market housing. According to Frank Griffin, a retail broker at Newmark Knight Frank Frederick Ross in Denver, retail performs best when it follows rooftops (Rebchook, 2011). It is a bit of a double edge sword because housing requires amenities and retail requires housing but typically retail follows housing. This site is near to Santa Fe Avenue and should take advantage of the draw that street gets. Ideally, in the long term creating street improvements all along 10th Avenue from Osage to Santa Fe and making it more human scale would allow for the site to benefit from the draw Santa Fe gets.

The Santa Fe Arts District is a very distinctive anchor a few blocks from this site. It is full of art galleries, museums, dining opportunities, retail stores and nightlife. This street is growing in importance to local residents and draws people from across the city for First Friday, a monthly art walk hosted on Santa Fe. Adding more market retail to 10th Avenue connection would have various benefits. Not only would it attract more visitors to the site but it would also allow for alternative financing such as new market tax credits or potentially a TIF.

According to a TOD economic market study the 10th and Osage station area could capture 70,000 square feet of retail with a modest future growth outlook (Transit Oriented Development Economic Analysis and Market Study, 2008). As planned, only DHA is only constructing 4,000 square feet of retail and 40,000 for sale retail is proposed in the future. The reason for the low retail square footages is twofold. First, Denver Housing Authority is not in the business of building retail – their mission is to promote affordable housing. Second, since the mission of the organization is centered on affordable housing, non-income producing public housing is included in the plan, which does not support retail. Lower end demographics do not support retail and adding more market housing would not only increase revenues for the site but also incentivize retailers. It is important for this site to draw people in and retail is a great way to do that.

The site should place around 60,000 square feet of market retail along the heart of the plan, 10th Avenue. As built, many retailers are not interested in this area due to the perception of crime. Whether crime is perception or reality retailers stray away from those markets as they are considered high risk. Retailers are also concerned if they enter a non-established retail market. This area is not historically a retail powerhouse, however Santa Fe Arts District a few blocks away is established and continuing to gain popularity for Denver residents. The addition of more market housing, the new investment in the public realm and synergy with Santa Fe will be large draws for retailers.

In general, supporting more market uses would be ideal for this site to fund the financing gap. It should continue to be a mixed-income site but in order to fill the gap and build the public realm improvements more market uses need to be included. Specifically, 300 market units and 60,000 square feet of retail space would produce an $11M TIF.

ADJUSTING USES TAX INCREMENT FINANCING ANALYSIS

General Assumptions		Retail Tax	
Coupon Rate	4%	Retail SF	60,000 SF
DCR	1.4	Avg Revenue/SF	$ 125
Base Tax Value (previously exempt)	$ -	Ann. Revenues	$ 7,500,000
General Vacancy	10%	Sales Tax	3.50%
Property Biennial Growth Rate	2%	Revenue Growth	2.50%

Property Tax - Residential Rental		Property Tax - Retail	
Cost/Unit	$ 200,000	Value/SF	$ 100
Units	300 units	SF	60,000 SF
Cost	$ 60,000,000	Value	$ 6,000,000
Base Tax Value	$ -	Base Tax Value	$ -
Assessment	29%	Assessment	29%
Commercial Mill Levy	0.065139	Mill Levy	0.065139

Year	Property Tax Increment (both property & retail)	Retail Sales Tax Increment	Restaurant Tax Increment	Total Reimburseme nt Revenue	DCR	Total Funds to Service Debt
2012	1,246,760	236,250	47,250	1,530,260	1.40	1,093,043
2013	1,246,760	242,156	48,431	1,537,348	1.40	1,098,106
2014	1,271,696	248,210	49,642	1,569,548	1.40	1,121,106
2015	1,271,696	254,415	50,883	1,576,994	1.40	1,126,424
2016	1,297,130	260,776	52,155	1,610,061	1.40	1,150,043
2017	1,297,130	267,295	53,459	1,617,884	1.40	1,155,631
2018	1,323,072	273,978	54,796	1,651,845	1.40	1,179,889
2019	1,323,072	280,827	56,165	1,660,065	1.40	1,185,760
2020	1,349,534	287,848	57,570	1,694,951	1.40	1,210,679
2021	1,349,534	295,044	59,009	1,703,586	1.40	1,216,847
2022	1,376,524	302,420	60,484	1,739,428	1.40	1,242,449
2023	1,404,055	309,980	61,996	1,776,031	1.40	1,268,594
2024	1,404,055	317,730	63,546	1,785,331	1.40	1,275,236
2025	1,432,136	325,673	65,135	1,822,944	1.40	1,302,103
2026	1,432,136	333,815	66,763	1,832,714	1.40	1,309,081
2027	1,460,779	342,160	68,432	1,871,371	1.40	1,336,694
2028	1,460,779	350,714	70,143	1,881,636	1.40	1,344,026
2029	1,489,994	359,482	71,896	1,921,373	1.40	1,372,409
2030	1,489,994	368,469	73,694	1,932,157	1.40	1,380,112
2031	1,519,794	377,681	75,536	1,973,011	1.40	1,409,294
2032	1,519,794	387,123	77,425	1,984,342	1.40	1,417,387
2033	1,550,190	396,801	79,360	2,026,351	1.40	1,447,394
2034	1,550,190	406,721	81,344	2,038,255	1.40	1,455,897
2035	1,581,194	416,889	83,378	2,081,461	1.40	1,486,758
2036	1,581,194	427,312	85,462	2,093,968	1.40	1,495,691

NPV	7%	$14,284,298
Issuance Fees	3.0%	$428,529
TIF Reserve		$914,366
Capital Interest		$1,828,732
Bonds Available for Public Improvements		**$11,112,671**

The Denver market will support rental housing and this is a great location as it is in close proximity to downtown and will have great multi-modal connections to other areas of the city. Adding more market retail is not necessarily just for financing, but also to create safe and active street front along 10th Avenue. The retail will draw visitors in and give people a reason to stay, which will ultimately increase the overall value of the site. Additional revenue generating solutions for this site could be adding a digital Wi-Fi park that is sponsored or has advertisements. The sponsor and advertisers could pay for both the Wi-Fi park as well as contribute to some of the maintenance fees associated with the public realm. Food carts could also locate onsite and pay rent or a portion of revenues generated. This would be a great draw for people in the surrounding neighborhoods and give local residents access to the free Internet and cheap food options. Lastly, planned revenue generating events could be hosted once a month on site to help create revenues. The public realm and parks could be rented out for special occasions and events. This of course has the potential to privatize the public space for periods of times so it is important to consider that effect when looking into this revenue option. Ideally, all public spaces should be open to everyone at all times.

Lowering Costs

A further way to look at filling the financing gap is to analyze ways the project can lower costs. This thesis will assume that Denver Housing Authority received the best construction pricing through design build project delivery and they cannot negotiate lower costs. In order to lower project costs, uses will have to be cut or the timing of the costs will need to change.

The South Lincoln Redevelopment could change the phasing plan but that would go against the goal of minimizing displacement. The only major change to the phasing plan that would be helpful is to bring more market uses in earlier on. Currently, most of the market uses are being built in phase six and beyond. The reason for that is the Denver Housing Authority wants to minimize displacement and rebrand the neighborhood. There was a large focus in this plan to help the relocation of current residents and the phasing strategy was focused around minimizing resident displacement and replacing as many units as soon as possible. Although that strategy allows for the product and image of the site to evolve it also pushes out revenues which is not something a private developer wants to do. Typically, a developer wants to maximize revenue and minimize costs early on. However, due to the unique financing plan for this redevelopment the South Lincoln project was able to push future revenues and keep there mission-orientated goals in mind while developing a phasing strategy.

The neighborhood would rebrand quicker if market uses and the 10^{th} Avenue build out were in the earlier phases. It is essential to get the 10^{th} Avenue infrastructure in place as it is the heart of the project but some of the other infrastructure can be built on an as needed basis phase by phase.

Current Phasing Strategy:

USES	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
Public Housing	105	31	26	30	21	10		TBD
LIHTC Units		32	25	33	21	11		TBD
Community Space	18,000	2,000		7,550				TBD
Market Units		17	26		26	20		TBD
Retail Space		4,000						TBD
For Sale Residential			83		203	41		TBD
For Sale Non Residential		7,200	13,500		7,200			TBD

As planned the first few phases focus on adding affordable housing units to minimize displacement and building the public realm and infrastructure investments. This plan is putting non-revenue generating uses in first and generating large costs. This works with this plan based on the large subsidies but typically developers always want revenue as early as possible and costs incurred as late as possible.

It would be prudent to phase this large development so income sources begin to come in as early as possible and costs are pushed out as late as possible. Since this site will be undergoing revitalization it is also important to create a heartbeat and put in some public realm with the first phase of development. Rooftops lead retail and housing should go in before retail. The for-sale housing market is currently weak in Denver and there is a tremendous amount of competition across the city. However, rental housing is doing really well in Denver and a structure could be proposed were rental housing could convert to for sale housing when the market is ready. The structure would be pre-approved as a condo and then rented out as rentals as the market recovers. This allows the developer to time the market with the for-sale product as well as have market residential onsite. In conjunction with the market housing infrastructure improvements should be made for each development. Next, market retail should follow. This will allow for income to begin to be produced on site and start paying down debt service.

Proposed Phasing Strategy:

USES	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
Public Housing								TBD
LIHTC Units		32	25	33	21	11		TBD
Community Space		2,000		7,550				TBD
Market Units	50	50	100	50	25	25		TBD
Retail Space	10,000	20,000	30,000	10,000				TBD
For Sale Residential			83		100	41		TBD

One of the first costs that could be lowered is the private developer would have the option of not paying the prevailing wage, which could lower costs of the project slightly. Also, without the HOPE VI grant the developer would not be obligated to produce as much community service programs or support services. It is still important to have support services on site but they could be limited to 9,550 square feet of community space. The senior housing complex that the ARRA funds were funding would be cut from the plan. That source is not replicable and paid directly for the building. Since it is not producing revenues and does not have a source of financing it would need to be removed from the plan.

5.3 Recommendation

Below is the summary of Denver Housing Authority's planned program sources and uses.

Original Sources				
Land Sales			$	6,315,750
Mortgage Debt			$	15,858,465
LIHTC Equity			$	37,299,977
HOME funds			$	3,142,686
Developer Fees			$	3,891,367
ARRA/Capital Funds			$	17,611,132
HOPE VI			$	15,000,000
TIF			$	-
NMTC			$	-
Total			$	99,119,377
Total Rounded			**$**	**99,120,000**

Original Uses	**Use**	**Unit Cost**		**Total Cost**
Senior Housing Tower	105 units			
	18,000 sf of community space		$	23,261,000
Public Housing Units	118 units	$ 175,000	$	20,650,000
LIHTC Units	122 units	$ 175,000	$	21,350,000
Market Units	89 units	$ 175,000	$	15,575,000
Retail	4,000 sf	$ 125	$	500,000
Community Space	9,550 sf	$ 150	$	1,432,500
Infrastructure	all	varies	$	11,850,772
Parking	180 spaces	$ 25,000	$	4,500,000
			$	-
Total			$	99,119,272
Total Rounded			**$**	**99,120,000**

The previous program had a large focus on affordable housing, public housing and community space. Those uses were all directly funded by the subsidies including HOPE VI and ARRA funds.

Some market uses were included in the original plan but they were planned for later phases or a third party developer to build them.

Recommendations to Fill the Gap

	Updated Sources			
1	Land Sales			$ 5,815,750
2	Mortgage Debt			$ 56,807,736
3	LIHTC Equity			$ 28,799,977
4	HOME funds			$ -
5	Equity (could be a portion of developer fee if equity not available			$ 5,500,000
6	ARRA/Capital Funds			$ -
7	HOPE VI			$ -
8	TIF			$ 11,112,671
9	NMTC			$ 5,118,750
10	Total			$ 113,154,884
				$ 113,200,000
	Updated Uses	**Use**	**Unit Cost**	**Total Cost**
11	Senior Housing Tower			
12	Public Housing Units	0 units	$ 175,000	$ -
13	LIHTC Units	122 units	$ 175,000	$ 21,350,000
14	Market Units	300 units	$ 192,500	$ 57,750,000
15	Retail	60,000 sf	$ 125	$ 7,500,000
16	Community Space	9,550 sf	$ 150	$ 1,432,500
17	Infrastructure	all	varies	$ 11,850,772
18	Parking	500 spaces	$ 25,000	$ 12,500,000
19	Offsite 10th Street Improvements			$ 800,000
20	Total			$ 113,183,272
	Total Rounded			**$ 113,200,000**

As described earlier it was necessary to remove certain sources from the analysis since the HOPE VI and ARRA funds are unlikely sources in the future, especially for private developers. This was an iterative analysis looking at the gap to fill, the market, the program mix and how a developer could finance this project without those large subsidies. In order to fund this project more revenue generating uses needed to be included in the program mix. Specifically, 300 market housing units and 60,000 square feet of retail were included in the updated plan. This changed the source list in the following ways.

- Line 1: Land Sales. The amount of land sales decreased slightly. With the new market uses some of the land is required to be retained to build on.

- Line 2: Mortgage Debt. The amount of debt increased substantially. Previously, the debt amount was restricted by a $1.4M annual NOI. Now the NOI is close to $5M. The loan was underwritten with the same standards as before with a 6.25% interest rate, 30-year amortization and 1.2 debt coverage ratio and increased to $56.8M. Many banks would require a developer to put 'skin into the game' by contributing equity but because the developer has LIHTC, NMTC and a TIF funding as well, equity may not be required depending on the relationship with the bank and market conditions.

Mortgage Calculation

		Previous Loan	New Loan
NOI		$ 1,406,063	$ 5,036,760
Max Debt Repayment	1.2 DCR	$ 1,171,720	$ 4,197,300
DCR Loan	6.25% ; 30 yrs	$ 15,858,465	$ 56,807,736
Total Project Cost		$ 99,120,000	$ 114,500,000
LTC Loan	75% LTC	$ 74,340,000	$ 85,875,000
Maximum Loan		**$ 15,858,465**	**$56,807,736**

- Line 3: LIHTC Equity. The amount of LIHTC decreased by the $8.5M that was allocated to the senior housing building. The senior tower was removed from the project since it was primarily funded with the ARRA funds.

- Line 4: HOME funds. It was assumed that HOME funds would not longer be available since the public housing units were being removed from the program and more market housing units were being built on site.

- Line 5: Equity. The private developer ideally wants to keep the developer fee and this is no longer a forced source of funding for the project. To be realistic, however, a lender will require the developer to contribute equity into the deal with the size of the loan amount. Lenders want to make sure the developer has skin in the game. If equity is not available immediately then the developer can defer a portion of the development fee (about 40%) or get an outside investor as an equity partner.

- Line 6: ARRA Funds. This was assumed unavailable to a private developer since the program is short term and that is a difficult source to obtain.

- Line 7: HOPE VI. The HOPE VI grant was assumed unavailable to a private developer since only housing authorities are eligible for those funds.

- Line 8: TIF. Adding 300 market units and 60,000 SF of retail on site generated a $11M TIF.

- Line 9: NMTC. A $5M in new market tax credit funds are available to this project since over 20% of the new project income comes from commercial uses. This was based on a $25M allocation.

- Line 10: Total Sources. The new total sources are $113,200,000.00

- Line 11: Senior Housing Tower. The senior housing tower was removed from the program since the primary funding source was ARRA funds and this asset did not produce any income. Included in the senior tower were 105 public housing units and 18,000 square feet of community space.

- Line 12: Public Housing Units. The public housing units were removed from the program after the HOPE VI grant was removed.

- Line 13: LIHTC Units. The LIHTC units remained the same as before.

- Line 14: Market Units. The amount of market units increased from 89 units to 300 units. These will begin as rental units and convert to for-sale when the market recovers. An additional 10% cost premium was added to the unit cost for extra interior finishes.

- Line 15: Retail. The amount of retail increased from 4,000 square feet to 60,000 square feet on site.

- Line 16: Community Space. The community space outside of the senior tower remained the same.

- Line 17: Infrastructure. The infrastructure remained the same.

- Line 18: Parking. The parking costs increased significantly as more parking became required. The blended cost of $25,000/stall includes a mix of underground, structure and podium spots.

- Line 19: Offsite 10the Avenue Improvements. $800,000 was remaining to contribute to 10th Avenue offsite improvement, which would help connect this site to Santa Fe through street improvements.

- Line 20: Total Uses. The new project costs are $113,200,000.

All unit costs were assumed to be the same unless noted above. The site can still be developed with a quality public realm but market uses are required to support the costs. Without the large subsidies, lower income uses alone could not support the expense of building a quality public realm. Although this sounds obvious it is important that subsidies and housing authorities continue to preserve affordability in our cities. A private developer could have never financed a quality public realm for strictly public housing units.

Financing sources are not always available to fund a high quality public realm and the developer must cut costs in order to make a feasible project. If more sources were made available, or easily accessible, developers would be including more quality public realm elements to the site. Moving forward mixed-use development will become more critical and it is essential that the financing sources and policies in place support this type of city form.

Summary Project Feasibility: Options for Maintaining a Quality Public Realm	
Step 1: Calculate the gap	- $37M Gap
Step 2: Are there new sources to fill the gap	- Tax Increment Financing (TIF) - New Market Tax Credits - Project related Investments - EB-5 Investments - Not enough funds without adjusting uses
3a: Increase revenues	- Add more market housing - Add more market retail - Add food ventures and/or revenue generating events in public spaces - Wi-Fi park (paid by sponsor)
3b: Lower costs	- Decrease community center space - Cut Senior Housing Tower - Cut / decreases public housing units - Don't pay prevailing wage - Change phasing plan - Shared parking

This is an example of one solution that could be in place if the large subsidy sources were no longer available. This exercise undertaken to investigate how private developers can begin to analyze how to create a quality public realm and how it can be financed. The South Lincoln Redevelopment is a wonderful and inspiring plan; there is no doubt of that. It would be difficult, however, for a private developer to replicate it and this thesis shows how one could begin to think about that. Financing a high quality public realm in mixed-use developments is an incredibly difficult task that requires both expertise and persistence.

Although the exact value is not always known, it is certain that a quality public realm increase the value of a project. An example is Central Park in New York; not only is that an icon across the globe but also it significantly increased the surrounding property values. Fifteen years after it was built properly values increased from $53M to $236M (Schwartz, 2011). Research by Lutzenhiser & Netusil proved that parks have a large impact on property values and there is a positive significant relationship between property prices and their proximity to a green, open space (Schwartz, 2011). Richard Florida also discusses that the creative class require "parks and trails close at hand," and "lifestyle trumps employment when choosing where to live" (Florida, 2002). The public realm clearly generates value for surrounding properties and is demanded. It is essential that our cities promote and incentivize developers to build a high quality public realm. Currently, financing these projects is difficult and without luxury assets onsite can prove to be impossible at times. Standardizing and streamlining the financing process for mixed-use development would help incentivize a high quality public realm and the long-term sustainability of our urban areas.

6.0 Chapter 6: Conclusion

"We can't solve problems by using the same kind of thinking we used when we created them."
– Albert Einstein

6.1 A Financing Solution: A Clearinghouse and Standardized Lending

The director of the Mayor's Institute on City Design, Story K. Bellows, discussed the challenges that cities are having implementing mixed-use development deals today. At the ULI Spring Council Forum she advocated for more flexible, innovative tools for financing modern developments and Bellows specifically recommended that the focal point of 21st Century cities should be on public space (Dornfeld, 2011). The Knight Foundation Gallup Poll concluded that openness, social offerings and aesthetics are the key elements that connect people to each other and their cities (What Attaches People to Their Communities, 2011). As cities begin understanding the importance of a quality public realm it is essential that financing mechanisms become more understandable and assessable to assist building quality 21st Century cities.

Multiple studies, including one done by Gyourko and Tracy prove that public financing is directly related to a quality of life (Gyourko, 1991). As one can see from the analysis it can be very difficult to finance a quality public realm. The reason so many developments are unable to rank high in all six-quality public realm elements is the financing barriers. According to a survey of mixed-use developers common challenges in financing the public realm are: high levels of required expertise, competitive funding, high cost of funds, timing issues, large transaction costs, political issues, and approval difficulties (DiLorenzo, 2011). In the South Lincoln case study this thesis was able to fill the funding gap only by including market rate uses and maximizing most financing sources available to the project. It was achievable in this instance yet difficult. The financing process needs to be streamlined in order to properly incentivize developers and provide them with the tools required to build a quality public realm.

A HUD report proved that low-density, spatially extensive developments are costly to build and more expensive than mixed-use urban developments. With all things being equal, sprawl increases the cost to build projects and raises capita spending across the entire country (Carruthers, 2008). It is best to transfer some of those funds into mixed-use urban developments and public realm upgrades. There are numerous statistics and books written on the issues with sprawl and our country should not be incentivizing that type of development by subsidizing costs. This finding proves that anti-sprawl, smart growth and mixed-use development policies should be in place.

It is important that municipalities cooperate together when meeting the needs of smart growth and holistic societal goals. Theoretical research (Haughwout, 1997) and applied policy analysis (Orfield, 1997) show that, in the case of public finance, there is a great deal of fiscal interdependency within regions. More importantly it shows that cooperation, rather than competition, can produce net benefits for all of the parties involved. Partnerships between public and private entities as well as cooperation between municipalities are essential to creating a better planet. Decentralized cooperation and a foundation for innovative knowledge sharing between municipalities is important step for our cities moving forward. Pollution does not stop at governmental borders and as a society we need to work together to build better cities and a strong public realm. This could be done through regional techniques that look beyond borders and focus on the impact to the greater good.

Developers should have incentives to build mixed-use but currently the financing structure is such that it can be very difficult. On top of the support tools listed above, municipalities can reduce fees for mixed-use development and there can be other regulation relief for permitting, codes and design standards. The cost of sprawl to our society is too great and it is important to appropriately incentivize developers to produce smart growth developments. According to the Midlands Development Agency, "Financing the public realm can be an issue especially given changing management structures. In particular, there is some evidence to suggest an overall decline in investment in this area, despite an increasing recognition of its added value. Furthermore, public realm activities are frequently funded as part of urban policy initiatives, which means that there is a much greater proportion of capital funding, as opposed to revenue funding. This can pose problems associated with the long-term maintenance of the public realm. A more co-coordinated approach to public realm activity could ensure adequate investment and, more importantly, could allow for funding streams to combine" (Economic Impact of the Public Realm, 2011).

Could there be an intermediary that collects, tranches, and distributes subsidies to projects? For example, a mixed-use project with all of these great attributes tends to collect ten to fifteen different financing sources to become feasible. Could there be an intermediary party that a project could come to and receive a 'package of financing tools', including some subsidies, a portion of a tax credit and a loan? Bundling financing could promote better projects by streamlining and increasing efficiency for projects that have a strong public realm planned. This would encourage developers to increase the quality of the public space if financing was simplified. Maybe the underwriting standards would include more than financing returns by focusing on the quadruple bottom line and underwrite the impacts made on the community. The underwriting would need to examine the economical, environmental, social and spiritual impacts of a project. John Elkington, a prominent environmentalist in the UK created a Triple Bottom Line reporting model in 1994 that gained tremendous popularity for competitive advantages for companies across the world, such that 50 percent of the worlds largest companies publish tipple bottom line reports as of 2003 (Lanchlan, 2003). The quadruple bottom line reporting adds one additional element, which requires looking beyond shareholders to the greater community at large and to governance issues with a global community mindset. Bhutan has a gross happiness index and the UK is currently working on policies that could increase the nation's happiness. These approaches include an alternative to gross domestic product as the only measure of how well the country is doing and embrace quality of life indicators when making decisions. These approaches reflect happiness as well as welfare, education and human rights. Items that are harder to measure, such as happiness are becoming more important to a high quality life and the quadruple bottom line is an important consideration as we build future developments.

When looking at financing projects we should not be concentrating on simply matching one source with one solution. Instead, we should really promote the holistic projects that target multiple missions. However, these projects need to have a support system that allows them to move forward and avoid working with ten different financing sources with complex and often conflicting requirements that can lose focus on the ultimate goal. Society needs development projects to focus on the quadruple bottom line of economic growth, social equity (such as education, housing, amenities), environmental focus (such as parks, water, clean energy), as well as focus on the final element, the cultural vitality that shows how communities find meaning for themselves (Kwatinetz, 2011).

Creating a clearinghouse that could aggregate financing sources, rate projects and distribute them would provide a lot of efficiencies and ultimately allow for an enhanced built environment. It would shift risk and increases efficiency of many of these programs. Many times certain available sources aren't leveraged because there is high barriers to entry – either a specialized expertise is required, large political barriers or approval and timing issues come into play when combining different sources. The Council of Development Financing Agencies has a federal financing clearinghouse online tool available for members of their services. This is the only online resource that catalogues all federal programs. However, this is just a catalog. Future development needs to have a group, whether public or private, that aggregates sources and can distribute them in sums.

This provides efficiencies and allows projects to focus more on the product and holistic goals and less on the timing and political issues with funding sources.

Financing mixed-use developments with traditional debt can also be incredibly difficult. Lenders want to underwrite each piece individually and there is almost always a funding gap. The same tools to analyze mixed-use developments that they use for single use developments reviewing each component to meet the standards (Mixed-use development, 2011). The extra time has extra costs and requires a strong expertise.

Uncertainty is higher with mixed-use development and that translates into more risk for equity investors and therefore higher returns are required. However, mixed-use development also has flexibility and allows the developer to time the market better in certain situations so it should not necessarily contain more risk. Further research should be completed on the risk of mixed-use developments compared to single use developments. If investors felt more comfortable with the product the required returns would decrease allowing for cheaper capital.

If there was a clearing house for subsidies those ratings could be passed along to lenders and equity investors giving a more standardized lending process for mixed use development and ultimately giving lenders and investors more comfort and certainty to loan on mixed-use developments similar to how the rating agencies in the CMBS market gave investors more comfort initially. Creating a standardized process would promote private investment by lowering risk and increasing certainty as well as provide an efficient clearinghouse for bundling sources.

There was a study commissioned to find whether lending practices made it especially difficult for mixed use development to obtain financing and Gyourko and Rybczynski found that "Multiple uses add a layer of complexity that many financiers found difficult to evaluate for a variety of reasons. Increased uncertainty raises risk and required returns for investors and lenders…Higher perceived risk leads to higher required rates of return, which puts pressure on new urbanism developments to generate cash flow quickly. This is difficult to do in large, complex multiple-use deals, and unless there is a patient financing source such as a pension fund or an endowment, this can be a major problem. And, further, unless the very nature of transactional bank lenders, opportunity funds, or other investors in the capital market changes, the problem is not likely to go away unless perceived risk falls" (Gyourko, 2000).

It is also difficult to finance mixed-use development because these loans do not fit the conventional loan types that can be sold on the secondary market. Having a standard clearinghouse would create certainty to lenders and might even be able to help lenders develop a standard loan type for mixed-use developments to supplement the other tools, which then could be sold on the secondary market. Wall Street likes efficiency in order to quickly sell a product and standardization is the best way to create efficiency in the capital markets. Real estate products are all unique and mixed-use projects are even more unique. It is essential to have a standard for lending practices and the capital markets to provide access to financial sources.

There can also be longer timelines for mixed-use projects and higher carrying costs. If there was a clearinghouse that could act as a revolving loan fund costs for an individual project could potentially be reduced by diversifying a portfolio of projects with different timeframes.

Creating a clearing house and standardized financing process for mixed-use development would help reduce risk, increase efficiencies and ultimately lead to better mixed-use development projects with a higher quality public realm.

6.2 Conclusion

Developing a quality public realm and building mixed-use development should be a priority for cities in the future. Unfortunately, financing these high quality developments can be prohibitively difficult and financial sources need to be available to incentivize these types of preferred developments for the future well being of citizens and the sustainability of our urban environments. A high quality public realm is not only important from an aesthetic point of view but creating a quality public realm has mental and physical health benefits, restores social capital, increases happiness, provides connections, attracts investments and most importantly a strong public realm allows democracy and freedom to flourish. Many authors and organizations have qualified what creates a quality public realm and after examining those precedents this thesis developed the DiLorenzo Six Quality Realm Attributes: Mix of Program; Design Quality + Human Scale; Social Space; Connectivity + Access: Biophilia – Connection to Nature; and Comfort. These six criteria were used to examine the South Lincoln Redevelopment, a mixed-use transit-oriented development in Denver, CO. South Lincoln should be an example to many future developments as it ranks "high" in most categories. That is a difficult task, however, and thus required the developers to be thoughtful, patient and have the financial resources to fund these elements. Developing a quality public realm can be an expensive investment but in the long run always increases the overall financial and social value of the project. The exact value that it provides can be difficult to measure but all developers that were interviewed in the prior analysis were confident that that public realm investment helped the project overall. Since the South Lincoln Redevelopment was financed with a significant amount of public subsidies this thesis analyzed what would happen if those sources were removed. After eliminating the HOPE VI grant and ARRA funds there was a $37M gap between the cost of the project and the sources available. This thesis analyzed the project feasibility by either: filling the gap with new sources, increasing revenues, decreasing costs, or changing the program. Ultimately, the recommendation was a combination of all of the above. In order to maintain a quality public realm the project needed to remove the subsidized public housing and 18,000 square feet of community space and replace it with market retail and market housing. These revenue-generating sources would allow the project to engage in value capturing techniques. The project could leverage tax increment financing (TIF) and New Market Tax Credits as new sources to the capital stack. These changes ultimately increased the total sources and uses from $99M to $113M. It is important to note that this was not the only solution, but only an example of how one can begin to analyze how to build and finance a quality public realm without substantial public subsidies. Although a solution was proposed the financial sources are not guaranteed: In fact, securing the financing could make or break this project.

The reality is that financing mixed-use developments can be incredibly difficult for developers today. There should be streamlined processes and priorities given to mixed-use urban developments. After WWII policies were set into place that stimulated suburban sprawl and the "white flight." The homebuilding and mortgage industry spurred the American economy and building suburban communities became so easy to finance that the market was filled with builders who were less concerned on the quality of product and more concerned with manufacturing a product and turning a profit. This trend, combined with the relaxed underwriting lending standards pre-2007, created an oversupply and complete dependency on the automobile. The availability of financing and policies have a large affect on our built environment and it is important that they incentivize high quality mixed-use developments with a high quality public realm.

Certain financing tools and policies do not always yield the construction of a high quality sense of place or the intended development form. It is essential that the future policies and tools properly incentive quality, sustainable developments and desensitize other less desirable forms. For example, currently Business Improvement districts (BIDs) often privatize public space due the management structure and funding source. Historic tax credits can prevent sustainable solutions and TIF frequently promotes big box retail stores that produce high tax revenues. Those were not the intents of the programs but a reality in the development environment. It is important that our policies promote a quality of life and good mixed-use developments in our future.

Jeremy Bentham, a philosopher, said "The best society, is one where the citizens are happiest. So the best public policy is that which produces the greatest happiness" (Layard, 2005). Markets are incredible efficient but markets do not know how to price or guarantee happiness. Many key factors that impact happiness, such as crime, comfort, friendliness, are not always considered in cost-benefit calculations and thus are often afterthoughts. Richard Layard went on to say, "A society cannot flourish without some sense of shared purpose. The current pursuit of self-realization will not work. If your sole duty is to achieve the best for yourself, life becomes just too stressful, too lonely--you are set up to fail. Instead, you need to feel you exist for something larger, and that very thought takes off some of the pressure" (Layard, 2005). The public realm and mixed use developments helps all of these intangible items that are essential to preserving and creating quality cities for the long term sustainability of civilization. Great cities cannot be built in silos; it takes an interdisciplinary approach, creative financing mechanisms and a commitment to improving the public spaces in the built environment.

6.3 Further Study

This thesis focused on one case study and specifically examined the public realm and the financing structure. It began to analyze how financing affects the quality of the public realm, but did not go into the fine details. It would be beneficial to analyze specifically how certain sources of financing shape the form of the built environment and if our policies line up for what the community wants. Can one directly connect certain forms of financing such as TIF to promoting big box developments or bonds to public art? If so, would there be a standard template to ranking future city building so projects could be ranked on there holistic impact and benefits? Secondly, examining if affordable housing leads to private development investment and ultimately revitalization an area. Some believe affordable housing leads market housing, which leads retail, but very few studies have been done on this topic. Penultimately, what is the investment risk of mixed-use development compared to single-use development? What would make investors feel more comfortable with mixed-use development that would lower the required returns? Lastly, more research needs to be done to analyze the value of the public realm. This would be important for cities and financiers to understand. Some studies have been completed showing the increase in property values that parks provide but a more comprehensive analysis on how the public realm increases the value of developments would be very interesting. All developers that were interviewed believed that the public realm increased the value of the developments. However, it was beyond this study to pinpoint the exact value. Does the public realm achieve more desirable living conditions for residents and how does the market quantify that? How much does the public realm increase property values onsite and off? How do you put a value on the public realm?

7.0 Appendix

Unit and square foot break down by parcel

				Denver Housing Authority Residential				DHA Commercial		For-Sale	
	USE	SELL	PHASE	Public Housing	LIHTC Units	Market Units	Total Units	Community service	DHA retail	Housing Units	Commercial
A1	Senior Tower	N	1	105			105	18000			
A2	LR Flats	N	8				0				TBD
A3	TBD	N	8				0				TBD
A4							0				
A5							0				
A6							0				
B1	LR Flats	N	4	21	21		42	7550			
B2	LR Flats	N	6	10	11	20	41				
B3	Lg Family	N	4	4	5		9				
B4	Mixed Use	N	2	16	17	17	50	2000	4000		
B5	LR family	Y	6				0			40	
B6							0				
C1	LR Flats	N	5	21	21	26	68				
C2	TH	Y	7				0			13	
C3	TH	N	4	2	3		5				
C4	Mixed use	Y	3				0			83	13500
C5	TH	N	4	3	4		7				
C6							0				
D1	LR Flats	Y	6				0			63	7200
D2	LR Flats	N	2	15	15		30				7200
D3	LR Flats	Y	6				0			7	
D4	Flats	Y	6				0			5	
D5							0				
D6							0				
E1	Mixed Use	N	3	26	25	26	77				
E2	TH	Y	7				0			8	
E3	TH	Y	7				0			12	
E4	TH	Y	7				0			8	
E5	LR flats	Y	6				0			44	
E6	LR flats	Y	6				0			44	
F1	offsite	Y	2				0				
F2	offsite	N	3				0				
F3	offsite	N	4				0				
F4	offsite	N	5				0				
F5	offsite						0				
F6	offsite						0				
Total				223	122	89	434	27550	4000	327	27900

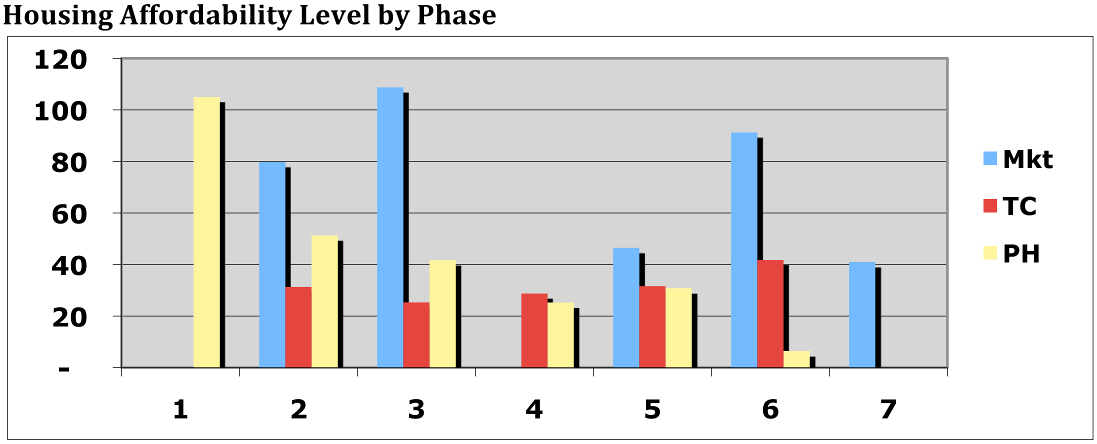
Source of Funds by Parcel

	USE	SELL	PHASE	Land Sales	Tax Credit Equity	Mortgage Debt	ARRA / Capital Funds	HOPE VI	Dev Fees	HOME	Total
A1	Senior Tower	N	1	$0	$8,500,000	$0	$15,211,132	$0	$729,916	$0	$24,441,048
A2	LR Flats	N	8	$0	$0	$0	$0	$0	$0	$0	$0
A3	TBD	N	8	$0	$0	$0	$0	$0	$0	$0	$0
A4				$0	$0	$0	$0	$0	$0	$0	$0
A5				$0	$0	$0	$0	$0	$0	$0	$0
A6				$0	$0	$0	$0	$0	$0	$0	$0
B1	LR Flats	N	4	$0	$3,631,802	$1,766,687	$223,149	$591,246	$347,626	$330,100	$6,890,610
B2	LR Flats	N	6	$0	$2,145,639	$2,207,319	$276,835	$527,899	$318,223	$209,040	$5,684,955
B3	Lg Family	N	4	$0	$1,363,458	$440,491	$60,840	$639,237	$122,995	$90,000	$2,717,021
B4	Mixed Use	N	2	$0	$4,455,147	$3,232,138	$334,996	$599,885	$543,279	$326,133	$9,491,578
B5	LR family	Y	6	$684,000	$0	$0	$0	$875,352	$0	$0	$1,559,352
B6				$0	$0	$0	$0	$0	$0	$0	$0
C1	LR Flats	N	5	$0	$4,339,249	$3,335,153	$459,491	$921,423	$541,123	$415,276	$10,011,714
C2	TH	Y	7	$484,500	$0	$0	$0	$620,041	$0	$0	$1,104,541
C3	TH	N	4	$0	$757,477	$262,197	$33,800	$685,308	$82,438	$50,000	$1,871,220
C4	Mixed use	Y	3	$731,250	$0	$0	$0	$935,820	$0	$0	$1,667,070
C5	TH	N	4	$0	$1,004,653	$367,076	$47,320	$518,300	$96,565	$70,000	$2,103,915
C6				$0	$0	$0	$0	$0	$0	$0	$0
D1	LR Flats	Y	6	$1,152,750	$0	$0	$0	$1,475,237	$0	$0	$2,627,987
D2	LR Flats	N	2	$0	$2,988,876	$851,896	$202,801	$287,945	$222,128	$300,000	$4,853,647
D3	LR Flats	Y	6	$282,750	$0	$0	$0	$361,851	$0	$0	$644,601
D4	Flats	Y	6	$243,750	$0	$0	$0	$311,940	$0	$0	$555,690
D5				$0	$0	$0	$0	$0	$0	$0	$0
D6				$0	$0	$0	$0	$0	$0	$0	$0
E1	Mixed Use	N	3	$0	$6,561,339	$3,395,508	$517,407	$610,443	$707,462	$510,179	$12,302,336
E2	TH	Y	7	$408,000	$0	$0	$0	$522,140	$0	$0	$930,140
E3	TH	Y	7	$624,750	$0	$0	$0	$799,526	$0	$0	$1,424,276
E4	TH	Y	7	$312,000	$0	$0	$0	$399,283	$0	$0	$711,283
E5	LR flats	Y	6	$696,000	$0	$0	$0	$890,709	$0	$180,734	$1,767,443
E6	LR flats	Y	6	$696,000	$0	$0	$0	$890,709	$0	$301,224	$1,887,933
F1	offsite	Y	2	$0	$564,300	$0	$135,201	$921,423	$89,125	$200,000	$1,910,049
F2	offsite	N	3	$0	$988,038	$0	$108,161	$614,282	$90,488	$160,000	$1,960,968
F3	offsite	N	4	$0	$0	$0	$0	$0	$0	$0	$0
F4	offsite	N	5	$0	$0	$0	$0	$0	$0	$0	$0
F5	offsite			$0	$0	$0	$0	$0	$0	$0	$0
F6	offsite			$0	$0	$0	$0	$0	$0	$0	$0
Total				$6,315,750	$37,299,978	$15,858,465	$17,611,132	$15,000,000	$3,891,367	$3,142,686	$99,119,378

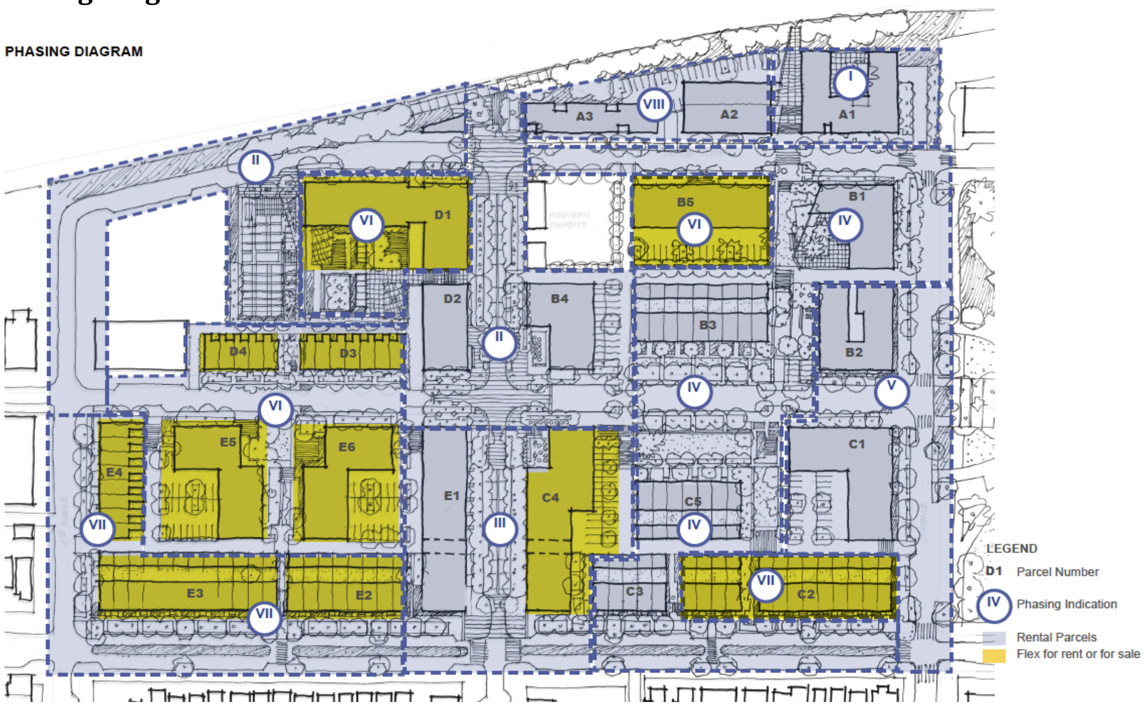
Sources of Funds by Phase

Phase	Land Sales	Tax Credit Equity	Mortgage Debt	ARRA / Capital Funds	HOPE VI	Dev Fees	HOME	Total	
Phase 1	$0	$8,500,000	$0	$15,211,132	$0	$729,916	$0	$24,441,048	24.7%
Phase 2	$0	$8,008,323	$4,084,034	$672,997	$1,809,253	$854,532	$826,133	$16,255,273	16.4%
Phase 3	$731,250	$7,549,377	$3,395,508	$625,567	$2,160,545	$797,949	$670,179	$15,930,375	16.1%
Phase 4	$0	$6,757,389	$2,836,451	$365,109	$2,434,093	$649,624	$540,100	$13,582,766	13.7%
Phase 5	$0	$4,339,249	$3,335,153	$459,491	$921,423	$541,123	$415,276	$10,011,714	10.1%
Phase 6	$3,755,250	$2,145,639	$2,207,319	$276,835	$5,333,696	$318,223	$690,998	$14,727,961	14.9%
Phase 7	$1,829,250	$0	$0	$0	$2,340,991	$0	$0	$4,170,241	4.2%
Phase 8 - TBD	$0	$0	$0	$0	$0	$0	$0	$0	
Total	$6,315,750	$37,299,978	$15,858,465	$17,611,132	$15,000,000	$3,891,367	$3,142,686	$99,119,378	

Housing Affordability Level by Phase



Phasing Diagram



Denver Housing Authority action by parcel

DHA Action by Parcel

Parcel	A1	A2	A3
DHA Action	Build	Build	Build
Use	Senior Tower	LR Flats	TBD
Phase	1	8	8

Parcel	B1	B2	B3	B4	B5
DHA Action	Build	Build	Build	Build	Land Sale
Use	LR FLats/B&G	LR Flats	Lg Family TH	MR Mixed-Use	LR Flats
Phase	4	5	4	2	6

Parcel	C1	C2	C3	C4	C5
DHA Action	Build	Land Sale	Build	Land Sale	Build
Use	LR Flats	TH	TH	MR Mixed-Use	TH
Phase	5	7	4	3	4

Parcel	D1	D2	D3	D4
DHA Action	Land Sale	Build	Land Sale	Land Sale
Use	LR Flats	LR Flats/MU	LR Flats	Flats
Phase	2	2	6	6

Parcel	E1	E2	E3	E4	E5	E6
DHA Action	Build	Land Sale	Land Sale	Land Sale	Land Sale	Land Sale
Use	MR Mixed-Use	TH	TH	TH	LR Flats	LR Flats
Phase	3	7	7	7	6	6

Parcel	F1	F2	F3	F4
DHA Action	Land Sale	Build	Build	Build
Use	Off-Site	Off-Site	Off-Site	Off-Site
Phase	2	3	4	5

New Net Operating Income Calculation

New NOI Calculation

Retail Space	60,000	$ 16.80 / year	$ 1,008,000.00	Given in proforma
Community Space	9,550	$ 7.20 / year	$ 68,760.00	Given in proforma
LIHTC	122			
Market Units	300	$1100 /month	$ 3,960,000	Calculated Blended Rate Below
Total			**$ 5,036,760**	

Res-Townhouse

Stand alone

	0 BD	1 BD	2 BD	3 BD	4 BD	Wght Avg
Market	$ 700	$ 900	$ 1,100	$ 1,275	$ 1,400	$ 1,275
TC 60%	$ 450	$ 812	$ 975	$ 1,126	$ 1,257	$ 1,126
TC 50%	$ 400	$ 676	$ 812	$ 939	$ 1,047	$ 939
PH 40%	$ -	$ -	$ -	$ -	$ -	$ -
PH 30%	$ -	$ -	$ -	$ -	$ -	$ -
Total						

Integrated

	0 BD	1 BD	2 BD	3 BD	4 BD	Wght Avg
Market	$ 700	$ 900	$ 1,100	$ 1,275	$ 1,400	$ 1,275
TC 60%	$ 450	$ 812	$ 975	$ 1,126	$ 1,257	$ 1,126
TC 50%	$ 400	$ 676	$ 812	$ 939	$ 1,047	$ 939
PH 40%	$ -	$ -	$ -	$ -	$ -	$ -
PH 30%	$ -	$ -	$ -	$ -	$ -	$ -
Total						

GF Flats

	SRO	1 BD	2 BD	3 BD	4 BD	Wght Avg
Market	$ 700	$ 900	$ 1,100	$ 1,275	$ 1,400	$ 970
TC 60%	$ 450	$ 812	$ 975	$ 1,126	$ 1,257	$ 869
TC 50%	$ 400	$ 676	$ 812	$ 939	$ 1,047	$ 724
PH 40%	$ -	$ -	$ -	$ -	$ -	$ -
PH 30%	$ -	$ -	$ -	$ -	$ -	$ -
Total						

Res-Flats

LR Flats

	SRO	1 BD	2 BD	3 BD	4 BD	Wght Avg
Market	$ 700	$ 900	$ 1,100	$ 1,275	$ 1,400	$ 970
TC 60%	$ 450	$ 812	$ 975	$ 1,126	$ 1,257	$ 869
TC 50%	$ 400	$ 676	$ 812	$ 939	$ 1,047	$ 724
PH 40%	$ -	$ -	$ -	$ -	$ -	$ -
PH 30%	$ -	$ -	$ -	$ -	$ -	$ -
Total						-

MR Flats

	SRO	1 BD	2 BD	3 BD	4 BD	Wght Avg
Market	$ 700	$ 900	$ 1,100	$ 1,275	$ 1,400	$ 970
TC 60%	$ 450	$ 812	$ 975	$ 1,126	$ 1,257	$ 869
TC 50%	$ 400	$ 676	$ 812	$ 939	$ 1,047	$ 724
PH 40%	$ -	$ -	$ -	$ -	$ -	$ -
PH 30%	$ -	$ -	$ -	$ -	$ -	$ -
Total						

Other

	SRO	1 BD	2 BD	3 BD	4 BD	Wght Avg
Market	$ 700	$ 900	$ 1,100	$ 1,275	$ 1,400	$ 970
TC 60%	$ 450	$ 812	$ 975	$ 1,126	$ 1,257	$ 869
TC 50%	$ 400	$ 676	$ 812	$ 939	$ 1,047	$ 724
PH 40%	$ -	$ -	$ -	$ -	$ -	$ -
PH 30%	$ -	$ -	$ -	$ -	$ -	$ -
Total						

Blended Market Revenue Rate

Weighted Average	$ 1,072
Monthly Market Housing Rent (Blended Average)	**$ 1,100**

Cost Estimates

Unit Cost by Product

Product		Hard Cost/SF	Cost/Unit	"Green" Premium	Soft Cost/SF	Soft Cost %	Soft Cost/Unit	Avg Cost/Unit
Townhouse								
	Stand alone	$ 90.00	$ 180,000	5%	$ 4.50	25%	$ 45,000	$ 225,000
	Integrated	$ 90.00	$ 180,000	5%	$ 4.50	25%	$ 45,000	$ 225,000
	GF Flats	$ 90.00	$ 72,000	5%	$ 4.50	25%	$ 18,000	$ 90,000
Flats								
	LR Flats	$ 115.00	$ 115,000	5%	$ 5.75	25%	$ 28,750	$ 143,750
	MR Flats	$ 150.00	$ 150,000	5%	$ 7.50	25%	$ 37,500	$ 187,500
	Other	$ -	$ -	5%	$ -	0%	$ -	$ -
							Average	$ 174,250
							RS Means Estimate	**$175,000 /unit**
Retail/Other								
	Retail	$ 100.00	N/A	0%	$ -	25%	$ 25.00	**$125 / sf**
	Office	$ 100.00	N/A	0%	$ -	25%	$ 25.00	**$ 125.00**
	Community	$ 120.00	N/A	0%	$ -	25%	$ 30.00	**$150 / sf**
Parking								
	Podium	$ 45.00	$ 15,750	0%	$ -	25%	$ 3,938	$ 19,688
	Structure	$ 35.00	$ 12,250	0%	$ -	25%	$ 3,063	$ 15,313
	U/G	$ 70.00	$ 24,500	0%	$ -	25%	$ 6,125	$ 30,625
							Average	$ 21,875
							Conservative Estimate	**$25,000 /space**

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