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Clear Creek Transit Village Feasibility Study

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I. Introduction

Denver is a rapidly growing city, the rate of population growth in the Denver metro area has on average increased 1.5% each year for the last 10 years, one of the nation's fastest population growth rate¹. The Denver Metro area population for 2014 was 3,002,629, and is expected to grow to 3,306,177 by 2020. The population growth in the City is due to employment opportunity provided by multiple job sectors, predominantly natural resources, construction, education, health services, professional and business services, and leisure and hospitality, and their associated companies who have established their facilities and offices throughout Denver². According to the U.S. Bureau of Statistics, the annual employment growth rate in Denver has ranged from 2.9% to 3.5% within the last 3 years, in comparison to the US annual employment growth rate which has ranged from 1.7% to 1.8%. Not only will the Denver metro area continue to grow in population, but will also grow economically. This rapid growth will leave the area with a housing shortage. Due to the high demand for housing, new home developers in Denver are now holding lotteries to determine who receives one their limited home sites³. "Buyer demand continues to be strong...in particular Millennials who are entering the market at a rapid pace"⁴. This means there will be a need for more new housing developments within the Denver metro area and a more efficient means of transportation in and around the city to meet the needs of the market.

In 2004, the Colorado voters approved a plan to expand transit throughout the Denver metro region, since then, the City has implemented and built many light rail routes and stations which

¹ <http://www.metrodenver.org/do-business/demographics/>

² <http://www.metrodenver.org/research-reports/economic-forecasts/2014-economic-update/>

³ (<http://www.dmarealtors.com/wp-content/uploads/2013/05/DMARMarchMarketTrends.pdf>

⁴ <http://www.dmarealtors.com/wp-content/uploads/2013/05/DMARMarchMarketTrends.pdf>

connect many new and existing neighborhoods in the city. Most of the stations were located in dense neighborhoods, and since the installation of the light rail, these areas have experienced an increased in density, as well as the areas along the light rail routes. Before the light rail began its service, the land between an existing station and another station usually had low density, and little to no build developments. Since the light rail began, these in-between areas have been infilled with denser residential, commercial, and retail mixed-use buildings, and have become higher in demand, due to their proximity to light rail transportation. Denser mixed-use developments along rapid transit systems have been in higher demand, allow for less car dependence, make it easier walk, bike or take public transportation, prevent sprawl and decreases infrastructure cost into the suburbs, all these things the City of Denver was interested in implementing into new and existing developments to accommodate for new growth within the City. Transit Oriented Development (TOD), a denser mixed-use development centered around rapid transit and other means of transportation other than automobile use, “a type of community development that includes a mixture of housing, office, retail and/or other amenities integrated into a walkable neighborhood and located within a half-mile of quality public transportation”⁵ is the type of development the City supports implementing. As one of the fastest growing cities in the country, Denver is attracting, bright and innovative people and businesses. Thousands of housing units are being built in Downtown Denver and nearby neighborhoods, while more millennials and baby boomers demand urban living. “The national trend towards people looking to live in more mixed use communities that are walkable and have great transit access indicates a significant shift away from the prevalent

⁵ <http://www.reconnectingamerica.org/what-we-do/what-is-tod/>

land use and transportation choices of the last 70 years”⁶. By implementing TOD it prepare Denver to be able to handle expected growing demand for walkable and livable communities.

Clear Creek Transit Village (CCTV) is a proposed TOD in unincorporated Denver, located near the future Gold Line Light Rail Federal Station, the Clear Creek Trail, and Little Dry Creek Trail bike paths. Clear Creek Transit Village will be a planned unit development (PUD), meaning the program will have a mix of residential, commercial, and retail. CCTV is still in the pre-development process, and trying to determine how the project is most feasible. The purpose of this research is to conduct a feasibility study on Planning Area 1 (PA-1) for the new Clear Creek Transit Village Transit Oriented Development in Denver. The purpose of the study is to determine product type and mix for the conceptual development plan to determine the highest and best use for PA-1 for this site of this catalytic Transit Oriented Development.

II. Clear Creek Transit Village Site:

The site for Clear Creek Transit Village, has been carefully studied and chosen for this catalytic development. The CCTV site is located on the North West edge of metro Denver within unincorporated Adams County. Within the last few decades Denver has grown North and West, and land use patterns have changed from agricultural to suburban. “The Federal Boulevard route has evolved from an agricultural ‘farm to market’ route to a north south highway connecting outlying towns and settlements to Denver as the regional urban center”⁷. The area along Federal

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<http://www.denvergov.org/tod/TransitOrientedDevelopment/SettingtheStage/ReadinessforTOD/tabid/445261/Default.aspx>

⁷ Matrix Design Group et al, *The Federal Boulevard Framework Plan* (Adams County, Colorado: July 3, 2014)

Blvd, where the CCTV site is located has suffered long term economic disinvestment. The area that runs from 72th to 52th along Federal Blvd is a very auto oriented corridor, most businesses along Federal Blvd are either commercial or industrial buildings, mostly catering to auto businesses, such as auto repair garages or car sale lots. The Federal Blvd corridor stretched 2.25 miles, from 72nd Ave to 52nd Ave, and is an eight lane street. Federal Blvd connects outlying towns to Denver as the regional urban center. Federal Blvd is used as a major thoroughfare, primarily to reach other more direct highway routes, such as 1-70 and I-76. The corridor is set up as a highway, and has few crosswalks, making it difficult to get across, either as a pedestrian or as a driver. The stretch of the corridor is missing segments of sidewalk, meaning there isn't a consistent sidewalk for pedestrians to walk on. The significant sidewalk gaps and adjacency to the road make it difficult and uncomfortable for pedestrians to walk on and reach certain destinations. The current sidewalk along Federal is between three to ten feet wide, most of the sidewalk has insufficient space for 2 pedestrians to share. Most of the sidewalks on the corridor are not ADA compliant. There are two bike paths, Clear Creek bike Trail and Little Dry Creek Bike Path, which run across the corridor. These two bike trails connect to other bike trails that make up the Colorado bike trail system. The bike trails are a great transportation alternative, but lack entry access to the trails, as well as lighting for safety purposes. The larger size of the corridor and its current layout were clearly designed for automobile use, and although, there are other methods for transportation along the corridor, they are not easy to navigate.

The site's east side runs along Federal Boulevard, one of Denver's most transited roads.⁸ Federal Blvd is a large arterial thoroughfare which runs north-south through Denver, it connects to and in between more direct and alternative highway routes. Along the south side of the site runs the

⁸ <http://www.gomapper.com/travel/busiect-streets-in/denver.html>

Burlington Santa Fe rail Corridor as well as Clear Creek and the Clear Creek Bike Trail. The south of the site will be where the future Gold Line Light Rail will run through. East of the site is Lake Sangraco. North of the site is 60th Place, as well as Lake Sangraco and the Aloha Beach residential community. North of the site along Federal Blvd are existing commercial and industrial buildings. Currently, on the site there are 3 structures that serve as commercial and industrial buildings. Most of the site is paved and is currently used as parking lots for commercial and industrial purposes.

Residences in the area, are few and in fair-to-poor conditions. Adjacent to Federal Blvd, there are three mobile home parks, Rustic Ranch Mobile Home Park, Mobile Gardens, and Pioneer Gardens. The homes in the area offer very low rents, which provide affordable housing for the very low income residents.

The area along the corridor has a few land uses, mostly zoned Commercial C-5, the highest density of commercial, Industrial I-1 and I-2, light industrial, common near floodplains, and a small part Residential. The Clear Creek Transit Village site had been zoned Commercial C-5, the highest density of commercial, for many years, and now has been rezoned as a Planning unit Development (PUD), in order to be able to develop the planned Clear Creek Transit Village development on the site. "The objective of a Planned Unit Development is to establish an area of land, controlled by one or more landowners, to be developed under unified control or unified plan...and allows greater flexibility in the design of a development, more variety and diversification in the relationships between buildings, open spaces and uses, and conservation and retention of historical and natural topographic features while meeting the goals, policies and objectives of the comprehensive plan."⁹

⁹ <file:///C:/Users/tanya/Downloads/Federal%20Blvd%20Framework%20Plan.pdf>.

Flooding in the area is a major concern, because there is reoccurring flooding along the Clear Creek lowland, which is where the CCTV site will run along. Prior to the CCTV plan, the properties around area have remained as agricultural or industrial restricted, due to flooding.

On the contrary to the majority of Denver, the area where the site is located lost population over the past decade, and only had a slight increase in households, this is most likely due to the lack of improvements made in the area within the last 40 years. As of 2012, the population along the 2.25 mile stretch of the Federal Blvd Corridor was 11,564 and the average household size in the area was 4,119. The majority of the residents in the area are renters, most of which are either non-family households or a one and two person household, and make up 80.9% of the households in the area, this percentage is much higher compared to the Denver households at 70%. There is a higher share, 11.3%, of the 65 and older population in the area, and also slightly higher compared to Denver at 10%. Children ages 0-18 make up a lower share of the population in the area, 27.1%, slightly higher than Denver 23%. The median age in the area is 33.9 years, compared on Denver 36.6 years, falling in the higher age range of the millennial generation. The majority, 55.9%, of residents work blue collar jobs, and have a median household income of \$36,178 and a \$15,730 per capita income, that's very low compared to Denver. In 2012, the median household income in Denver was \$62,346 and the per capita income was \$33,194.¹⁰ The residents of the area are very diverse, 61.8% are Hispanic, 3.3% African American and 7.4% Asian American, a total of 72.5 % compared to Denver at 44.5%.¹¹ Retail rents, triple net, along the Federal Blvd Corridor average \$14.72 per square foot. Office rents, triple net, average \$12.00 per square foot. Industrial rents, triple net, average \$9.66 per square foot. Median residential rents are approximately \$753 in the

¹⁰ <http://www.deptofnumbers.com/income/colorado/denver/>

¹¹ <http://www.city-data.com/city/Denver-Colorado.html>

area.¹² Overall, the demographics suggest there is a market for smaller low maintenance, catering to non-family and 65 and older residents. The majority of the residents work blue collar jobs and have low per capita and low household median incomes, suggesting a need for affordable housing. There is high demand for ethnic retail in the area. The location of the area is in the outer limits of Denver, and not quite suburban, but as housing demand continues to grow in Denver, primarily downtown, many are being priced-out, and the need for urbanity, in and near the suburbs, will grow. The Federal Blvd corridor has the opportunity to redevelop and meet the need more affordable urbanity.

Now is the time to reinvest in the area, and make improvements that will allow the area to be used to its highest and best use and prepare for growth of the City. Denver is predicted to grow in population size within the decade, and demand for housing is and will continue to high. As demand for housing remains high, so will housing prices and rents. Many residents will continue to get priced out of downtown, meaning they will have to move outward to a more affordable neighborhood. With the Light Rail expanding its routes throughout Denver and neighboring cities, developing in outer areas, like the Federal Blvd corridor area, it will making living outside downtown more accessible and affordable for many. Developing the area should be done around the same time the Gold Line Light Rail is being constructed, to take advantage of the current low costs of the area. A successful CCTV development will create a higher potential for spurring more development and redevelopment in in the vicinity, because the Light Rail commuter station will offer residents an alternative or supplement to auto transportation and become an asset to the community. Light Rail commuter stations promote demand for commercial land uses due to the increase exposer and

¹² <http://www.policymap.com/maps>

traffic. Demand for property in and around the Clear Creek Valley is likely to accelerate as CCTV and the Gold Line are developed.

III. Clear Creek Transit Village Plan

Clear Creek transit Village will be a 21.9 acre mixed-used transit oriented development, the first of its kind along the Federal Blvd corridor from 52nd Ave to 72nd Ave. CCTV will be encompass 9 lots, called the planning areas. Each planning area will have different building types, and permitted uses and building standards.¹³ The development will consist of a mix of residential, retail, office, open space and parking. The new Gold Line Light Rail will run along the south end of the site, and the nearest Light Rail station will be a quarter of a mile away from the site. The proximity to the Light Rail will make it easier for the residence of CCTV and residents of the area to walk, bike and take public transportation to and from the site. It is anticipated that the CCTV development along with the Gold Line Light Rail and streetscape renovations in the area, will be the catalyst to spark the revitalization of the corridor. The corridor will transform from a heavily auto-transited and oriented thoroughfare to a more pedestrian, bike-friendly corridor. To orient the development and corridor in a less auto-dependent manner, CCTV will build a denser mixed-use development. The development will range from one to seven story buildings, with a diverse mix of building types and tenants to attract people to the area. The residential buildings will be made up of a mix of for-sale condos, townhouses, and for-sale and affordable apartments. Residential part of the development is imperative to the development. Currently, the area CCTV is located has very few residential units, mostly, motorhomes. Developing residential at CCTV would bring more density to the area. Retail

¹³ The TOD Group, *Clear Creek Transit Village Planned Unit Development – Preliminary Development Plan in The County of Adams, State of Colorado* (Adams County, Colorado: December 6, 2012)

and office buildings will also make a large part of the development. Having offices in the CCTV development will bring people to the area for work. Retail is also a very important building type to have, not only will it provide places for residence to shop, but it will attract people outside of the area to come to this development. Retail will provide places to shop, amenities, and services for the area, something the corridor currently lacks. It's crucial to choose the right retail tenants who will be the major drivers in attracting people to the area to spend their income. Parking will be a mix of street, structure, and surface parking to accommodate for the various building types and uses. Developing the right mix of building types is imperative to CCTV's feasibility and success, the development must be make a return of investment and a return on investment.

The Federal Blvd corridor will also require a transformation that will allow for pedestrians and cyclist easier access to the light rail station. The corridor is planned transform into a pedestrian-oriented streetscape, accommodate a variety of non-motorized transportation and enhance the TOD and surrounding businesses. The corridor will include better lighting, road way improvements, wide consistent sidewalks, and addition of roadway medians, and addition of furnishings such as pedestrian facilities, seating, trash bins, bus shelters, and bike racks. The existing bike trails in the area, will require some work, to allow for easy trail entry access, maintenance, of the trails, and improved lighting for more visibility for safety purposes. The addition of the light rail, renovation of the corridor, and CCTV development will be the first additions to the area, their success will attract further development and investments in the area, revamping the existing auto-oriented, underutilized area.

IV. Precedents TODs

Clear Creek Transit Village is not the first TOD in Colorado, there have been many other that have come before. Most of the existing TODs are located near Downtown Denver and south of Downtown Denver, along where the earlier light rail systems were implemented. These existing TOD have proven to be successful in revitalizing the area that they're located in, generating income for the area, and providing housing, work spaces, shops, and amenities in the area. According to the City and County of Denver, "TOD's have five times more investment in an area, than non-TOD's".¹⁴ To support the development of the CCTV site as a TOD, it's a good idea to look at precedent TOD's in Colorado.

The Englewood City Center, a 55 acre TOD, located adjacent to the Englewood Light Rail Station, began development of the site in 1999, prior to the TOD development, the site was the Cinderella City Mall. The Cinderella Mall, first opened 1968, and at the time was the largest shopping mall west of the Mississippi, with 1.35 million square feet of enclosed space.¹⁵ In the 1980's, the downturn of the economy and growing competition, cause the success of the mall to fade. By 1995, the mall was deserted by shoppers and tenants, and by 1997, the last of the mall's tenants closed its store. The mall sat vacant for a few years before the development of the TOD on the site began. The Englewood City Center TOD, is a pedestrian friendly, mixed-use project that includes, retail entertainment, residential units, office, civic, and open space, and includes a Light Rail station. Englewood City Center's new tenants include; city hall offices, the library, municipal court, a museum, a major national and independent retail stores, multi-family residential, restaurants, and other retail. The retail tenants of the development contribute more than \$2.5 million in sales tax to the City of Englewood each year, compared to the zero dollars of sales tax generation when the

¹⁴ Interview with David Gaspers at the City and County of Denver

¹⁵ <http://www.engagewoodgov.org/inside-city-hall/city-departments/community-development/redevelopment-projects/citycenter-englewood/history-of-cinderella-city-mall>

mall sat vacant. The Englewood TOD project is seen as a catalyst that sparked the revitalization of the once deserted area. Not only, have the tenants of the new site been successful, but so have older shops near located near the site, who have benefited from an increase in foot traffic and residential activity.¹⁶ The combination of transit oriented development and light rail create a catalytic reaction for investment for businesses and properties in the area near the development site. Considering the success of the Englewood City Center TOD, the CCTV site would benefit from becoming at TOD.

V. CCTV Feasibility

As previously mentioned, selecting the right combination of building types is very important to the success of the development. To figure out what the best combination of building types, relative costs and revenues the proposed facility can have, a feasibility study should be conducted for the CCTV site. For purposes for this research project, the feasibility study will be conducted on Planning Area 1 (PA-1) of the CCTV site. PA-1 is located on the north east corner of the CCTV site, and is 2.47 acres or 107,593 square feet. The lot will be surrounded by streets, on the east side, the lot will be adjacent to Federal Blvd. South of the lot is Clear Creek Avenue, west of the lot is Green Court, and north of the lot is W. 60th Place. PA-1 allows for a mixed use development with ground floor commercial space along Federal Blvd and Clear Creek Ave, made up of 3% to 100% commercial/institutional purposes and 0% to 97% residential. The lot has a maximum height of 95 feet and seven stories.¹⁷ PA-1 has an FAR of 2.0, meaning its total buildable gross area is 215,186 square feet. The cost of acquisition for PA-1 was determined with multiple comparable for-sale

¹⁶ <http://www.bizjournals.com/denver/stories/2007/06/25/story5.html?page=all>

¹⁷ The TOD Group, *Clear Creek Transit Village Planned Unit Development – Preliminary Development Plan in The County of Adams, State of Colorado* (Adams County, Colorado: December 6, 2012)

vacant land in close proximity to the site. The average cost per square foot for vacant land was \$6.53. The approximate acquisition price for PA-1 is \$702,217. These building standards along with market demand will help determine the building mix and type optimization of the development.

To begin the feasibility analysis, I had to narrow down what the permitted building type uses could be for the lot. For PA-1, similar to the entire CCTV site, a mix of residential, possibly affordable multi-family, market rate multi-family and for-sale multi-family. A portion for retail, office space, open space, and required parking for the multiple building types. Next, I took location and building standards into consideration, and arranged the building types to where they would have the best use. According to the CCTV preliminary development plan, commercial space should be located on the ground floor along Federal Blvd and Clear Creek Avenue. Placing retail along Federal Blvd will make it more visible to many traveling through the heavily transited corridor, and attract people to the area. Also, the corridor lacks retail space, which would give CCTV an advantage to have retail space and bring people and income to the area. Floors two through seven would be occupied by office space, and or residential units, building types that are currently lacking along the corridor. Parking for retail, office, and commercial space is required. The preliminary development plan has parking provisions which state the maximum parking ratios for each use. Residential requires 2 parking spaces per unit, retail requires 4 spaces per 1,000 square feet, and office requires 3 spaces per 1,000 square feet. Following these parking provisions along with the total square feet for each building type will determine the number of parking spaces needed for PA-1. Parking will be comprised of street parking, structure parking, and or lot parking. The last use of the lot is open space, the regularity non-street open space for the entire CCTV site is 35.7%. To determine the amount of non-street open space PA-1 would require, I used the same percentage, 35.7%, as the

entire site. In reality the percentage of non-street open space for PA-1 could possibly lower because other planning areas on the site that are predominately dedicated for open space, such as PA-4 which will require a 90% to 100% of open space. Once the building types have been determined it's time to get information on the market and construction costs.

To help determine the best combination of building types, it's crucial to look at the area market for rental costs and vacancy rates. To determine market for market-rate multi-family residential units, I looked at comparable multi-family development in mixed-use developments, TOD's, and nearby residential units. Comparables used for market-rate multi-family residential units included, Alexan City Center, Regis Place Apartments, Highlands Place, 1000 Broadway South, and Lamar Station Apartments. I looked at the different types of units each development offered, studio, one, two, and three bedrooms, collected square footage for each unit type and averaged all, to determine the average rental rate per square foot for each unit type. Studios averaged 487 square feet and \$1,002 per unit that equals a rental rate of \$2.06 per unit. One bedrooms units had an average of 703 square feet, and rental rate of \$1,272 per unit, the average rental rate for the one bedroom was \$1.81 per square foot. Two bedroom units averaged 1,177 square feet per unit, and an average rental rate of \$1,632 per unit, with an average rental rate of \$1.39 per square foot. The three bedroom units averaged 1,286 square feet per unit, an average rental rate of \$2,040 per unit, the average rental rate per square foot equaled \$1.59. These averages will help estimate the square footage per unit and rental rates for the feasibility analysis of multi-family residential units for CCTV PA-1.

To determine the average square feet and average of rental rates for affordable multi-family rental units, used the same approach as the market-rate multi-family rental units. I gathered information from comparable affordable multi-family units located in the surrounding area, and affordable

multi-family units located in a TOD. The comparable used for affordable multi-family rental units included, Aria, and Evans Station. These affordable units included one and two bedroom units. The one bedroom units averaged 717 square feet per unit, averaged \$462 for rental rate per unit, and average of \$0.64 rental rate per square foot. The two bedroom units averaged 962 square feet per unit, an average rental rate \$809 per unit, and an average rental rate of \$0.84 per square foot. These averages will help estimate the square footage per unit and rental rate for affordable multi-family rental units on PA-1 of the CCTV site.

To determine the average rental rates per square foot for retail, and office, I looked at the CBRE Denver Market Reports. The 2015 quarterly report determined Denver retail to have an average rental rate of \$16.73 per square foot. While office had an average rental rate of \$23.69 per square foot.¹⁸ These rental rates will be as rental price per square feet for retail and office in PA-1.

Once I have the price per square foot for each building type and rental rates per square foot of each building type, I can begin to determine different sized combinations of building type that are allowed within the PUD Preliminary Development Plan. The average rental rate price per square foot and combinations of building type will also determine the total income that will incurred from rents.

Collecting average rental rates per square feet, and average square feet per unit and is just part of the feasibility analysis, it's also necessary to collect information on area construction costs, vacancy rates, cap rates, and financing terms. Collecting this information and applying it to the feasibility analysis will help determine the total development cost, how the project will be finance, and

¹⁸ www.cbre.us/o/denver/Pages/market-reports.aspx

whether the proposed combination of building type, square feet, and, income, and expenses are feasible.

Another thing to consider, when determining a development's building type and mix is the demand for each type building type. This can be done by looking at vacancy rates for each type in the surrounding area. To determine vacancy rates, I looked at the CBRE Denver Market Report.

Vacancy rate for multi-family residential averaged 3.4%, which means there is a higher demand for that type of building type. Compared to a vacancy rate of 12.9% for office, which is much higher than multi-family residential, and less of a demand for. Retail vacancy rates average 6.2%.¹⁹

Determining construction cost per square foot, along with the square foot of each building type, will allow for the calculation of total construction costs. To obtain construction costs, I obtained construction costs per square foot from multiple construction companies in Denver and the Rider Levett Bucknall (RLB) 2015 Quarterly Construction Cost Report.²⁰ Companies included; Catamount Construction, Kiewit, and Mortenson Construction. Average cost of construction for mixed-use multi-family residential equaled \$150 per square foot. Average cost of construction for core and shell office is \$180 per square foot. Average cost of construction for retail core and shell is \$150 per square foot. Construction cost of parking varies depending on the type of parking. For structure parking, cost per square foot is \$53.99, and for surface parking it's \$22.58 per square foot. Another cost that should be included in total construction cost is infrastructure, which on average is \$8.50 per square foot. For the feasibility analysis, I used these construction cost averages to determine total hard costs for PA-1.

¹⁹ www.cbre.us/o/denver/Pages/market-reports.aspx

²⁰ <http://rlb.com/wp-content/uploads/2015/03/rlb-usa-report-first-quarter-2015.pdf>

Loan terms for a construction and permanent loan can also help determine what type of building type and mix is allowed on a site. Financing each building type required different loan terms, these terms are based on the market. Residential multi-family construction loans require a loan-to-value (LTV) of 75%, debt service coverage ratio (DSCR) of 1.25, 25 year amortization period and a rental income of NOI of \$5,000,000. For the multi-family residential permanent loan, an LTV of 70% is required. The interest rate is currently set at 4.25%, but interest rates are expected to increase to 6% in 2 years, it's safe to assume a 6% interest rate, for a loan term of 10 years. The loan will have an amortization of 30 years. The loan will have a replacement reserve of \$200 per unit.²¹ For office and retail construction loans a 75% LTV is required, as well as, a DSCR of 1.3. These loans have a 25 year amortization period. A permanent loan for retail and office has a LTV of 75%, DSCR of 1.3, and interest rate of 6% to 7%, with a 10 year loan term. The loan has a 25 year amortization period, and a replacement reserve of \$1 per square feet of capital improvements. The each of the three building type, multi-family residential, office, and retail, have different loan terms, and for the purpose of the feasibility study for PA-1, I combined the terms for the three building types into one loan, and used the most conservative terms.

During the search for the best combination of building type and size, I found that neither affordable nor market rate rental multi-family residential units are feasible on lot PA-1, given square footage and rental rates. The residential housing is not feasible due to the terms of the loan. My original development combination included 15 market-rate studios, at 450 square feet per unit, 15 market rate one bedroom units, at 700 square feet per unit, 78,294 square feet of office space, 12,600 square feet of retail, and 345 parking spaces. This scenario would have an internal rate of return (IRR) for the investment of 12.52%, but its NOI net income would only be \$394,920 for the

²¹ Information provided by Karen Klerman at Well Fargo

residential rental units, and \$2,460,503 for the entire development. Knowing what possible NOI net income returns rental residential have, it would be difficult to justify having rental multi-family residential in the PA-1 development. Even if PA-1 was comprised of all market rate studios, the units with the highest rent per square foot, the required ground floor retail space, and parking, the NOI for rental income would around \$2,100,000, not the required \$5,000,000. Developing residential on PA-1 is not feasible, with the current rental and unit size projections. The only way to increase NOI rental income, would be to increase rents. If rents for rental units increase, the market for those units might not be there, and that would increase vacancy rates. Knowing this I will discard multi-family residential housing from the possible building type.

To continue with the search for the best combination of building type and size, I must narrow the building type options to office, retail, and parking. Parking is dependent on the square footage of office and retail, this means, I need to figure out what the best possible size combination of both those building types would be. To understand the type of investment return retail delivers, I make the entire development retail space. The development would have the 96,063 square feet of retail space, and 384 parking spaces. Not the best solution, considering the annual cash flow would be negative during the first year, and the IRR would be 9.85% after year 10. Next I do the same with office, I make the entire development office space. The development would have 111,492 square feet of office space and 334 parking spaces. This scenario is the project would have a positive cash flow every years, and have an IRR of 12.77% at year 10. The all office scenario has better results than the all retail scenario. The best possible building mix type for PA-1 would be the all office scenario, because that would generate the highest IRR, combining retail with office would only lower the IRR. It's important to understand that although office rents are higher than retail rents, the vacancy rate for office is more than double the rate of retail, which causes concerns for whether

or not there is a substantial market for office. It's important to consider that in the area the CCTV site is in, lacks retail, services, and amenities. Strong retail tenants drive investment to the area, making the development more successful. Perhaps it's better to combine retail and office to make up the development, in order to attract people to the area, this is crucial in a catalytic project, rather than go for the highest return on investment. A development scenario with a combination of office and retail would be 81,316 square feet of office, 26,000 square feet of retail, and 348 parking spaces. This combination would have a positive cash flow every year and have an IRR of 12.14%. This scenario's IRR is definitely lower than all office scenario, but there is a greater chance for success through diversification on the development.

VI. Conclusion

After discussing the feasibility options for PA-1, my recommendation is to not go with the option that provides the greatest return, it's too much of a risk. The risk comes from only relying on one type of business as the source of income for the development. Currently, there isn't much demand for office, making the both the rents and vacancy rates high. In a worst case scenario, the demand for office decreases, and there is no other income source rely on, the development would fail, at least within PA-1. Having a combination of different building types, is less risky, if one business type is failing, there is always a back up to generate income for the development. The return on investment isn't as high, but has a higher chance of success, even when times aren't as great.

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