

# **Public Dollars and City Investments: A Contemporary Assessment of Flagship Projects in Denver**

Zeke Perez  
MPP Candidate, 2014

Advisor: Dr. Lapo Salucci  
CBA Advisor: Dr. Andy Sharma

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University of Denver  
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## Executive Summary

The vast majority of Americans today live in urban metropolitan areas, be it in the center core of a city or in the suburbs. Metropolitan areas must provide the services and amenities necessary to meet the common needs of both core and suburban residents, as well as those of tourists from outside of the state, region, or country. In addition to providing schools, parks, hospitals, grocery stores, and the like, cities must also provide tourism, retail, business and academic attractions, and transportation.

These amenities are often provided as “flagship projects”. Cities must provide all of the essential and additional amenities and services with limited municipal budgets. Additionally, many flagship projects are funded with public dollars, often requiring significant public support. It is important, then, that flagship projects are relatively successful. If they fail, hundreds of millions of public dollars are essentially wasted, public approval may dwindle, and public approval will be less likely for future projects. The city may also lose out on potential economic and social benefits.

Flagship projects are not necessarily one-size-fits-all. Cities cannot simply take any flagship project and know it will succeed. Such projects are dependent on context and city goals. A city must first understand which problems they hope a flagship problem to solve, who they believe will use a flagship project, how much will a flagship project cost, and what return on investment it can expect before moving forward with any project.

This analysis compared three common flagship projects (convention centers, stadiums and arenas, and transit systems) over a set of common indicators (use, tourism, spending, and development). By these standards and measurements, this memorandum recommends that cities consider investing in public transit systems, as they are the most flexible alternative to meet the needs and goals of any individual city, and as they provide the biggest returns in the indicator areas discussed.

## Introduction & Problem Definition

*Cities and metro areas, working with limited budgets, must decide which projects provide the most benefit to the area for the amount of public dollars spent. If flagship projects are invested in, cities hope to see a return on investment through increased use, spending, and development in the area.*

The American city remains an important part of life in the United States today. Although there is some debate between demographers over whether people are flocking to suburbs or urban cores, there is little question that metropolitan areas remain extremely significant. Metropolitan areas, including both core centers and suburbs, are home to 269.9 million people according to recent Census data.<sup>1</sup> Census data shows that cities are neither dying nor roaring back, but are essentially holding ground as an important facet of American living.<sup>2</sup> While there certainly have been shifts between suburbs and core centers over time, they work in tandem as a metropolitan area more often than not. In fact, “city and suburban fortunes tend to rise and fall together.”<sup>3</sup> With people settling into metropolitan areas, city leaders across the United States have begun to shift their priorities in order to provide for their residents and appeal to potential newcomers, ensuring benefits exist in the core center and in the suburbs. City leaders have done this in a number of ways, including making their cities generally more livable, working to attract businesses, or investing in one of many types of flagship projects. Common flagship projects include airports, marquee events, convention centers, stadiums and arenas, and public transit systems.

Denver has recently begun to rapidly climb the ranks of America’s most desired and most livable cities. It placed sixth on the Forbes Fastest-Growing Cities of 2014 list, a ranking based on municipal population growth rates, economic growth rates, median salaries, and unemployment rates.<sup>4</sup> Denver has seen booms in population, tourism, and business, with a large portion of that growth coming in the downtown area. Not coincidentally, Denver has also recently made investments in a number of flagship projects – again, especially in the downtown area.

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<sup>1</sup> Westcott 2014

<sup>2</sup> Kotkin 2011

<sup>3</sup> Katz 2013

<sup>4</sup> Carlyle 2014

## Denver Metro Area Population 1960-2010

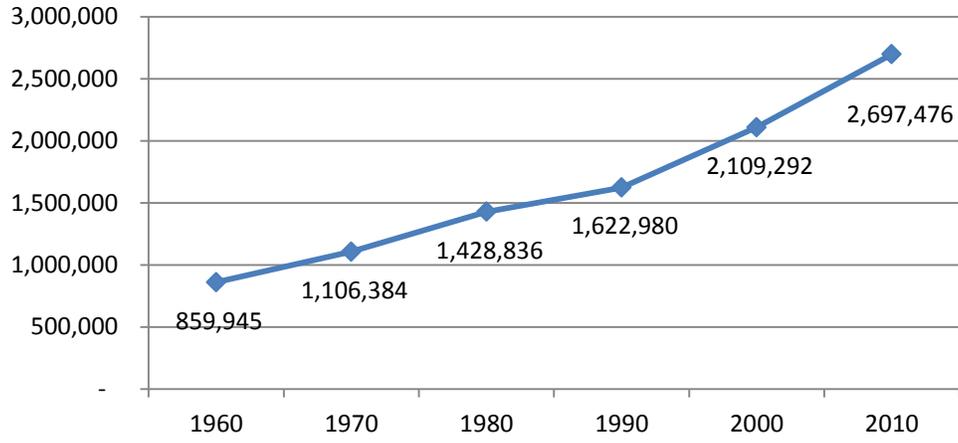


Figure 1: Metro Area Population

U.S. Census

## City of Denver Population 1960 - 2010

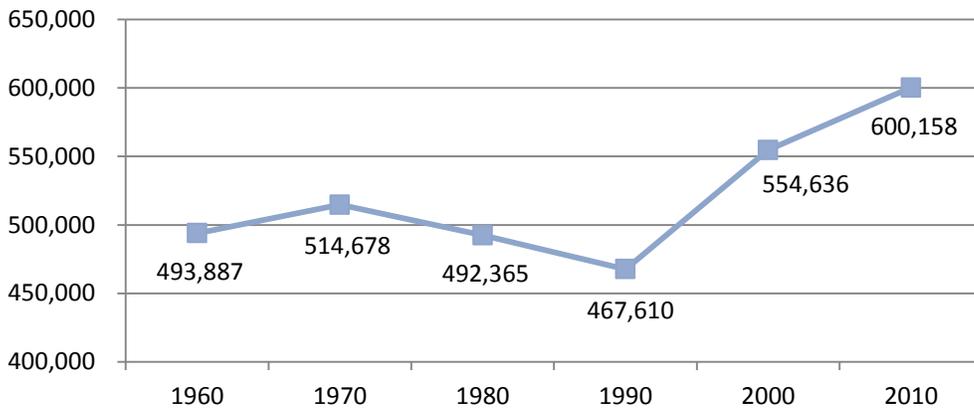


Figure 2: City Population

U.S. Census

The city of Denver opened the Colorado Convention Center in 1990 and expanded it in 2004. Denver has created a pro sports complex within the last 20 years as well. Coors Field, Pepsi Center, and Sports Authority Field at Mile High were opened in 1995, 1999, and 2001, respectively. Denver has also placed a large focus on public transit, vastly expanding its light rail lines through the RTD FasTracks project of 2004. RTD is also currently working on redeveloping Union Station to be a hub of travel and transit in Denver.

Denver's recent growth can likely be linked, at least in part, to these flagship projects. But to what extent is each project responsible for Denver's economic and physical growth? And which of these flagship projects has the biggest impact, especially in relation to cost, for a metropolitan area? Many cities employ one or more of these "silver bullet" projects, but end up firing blanks. As successful as some projects have been in Denver, other projects have not. Cities often find failure in flagship projects. They may see a flagship project working well in another city and attempt to use it, while they "frequently fail to adequately define what problem they are trying to solve, and what their priorities are."<sup>5</sup> Some examples of these projects will be given later.

With limited city budgets, it is important for city leaders and taxpayers to invest their money wisely into projects that will have an obvious and measurable impact. Cities must examine their priorities, explore the costs and potential benefits, and understand the potential outcomes before moving forward with any project. Flagship projects are generally expensive, costing hundreds of millions of dollars. It is important then that city leaders are able to ensure that the benefits that cities and neighborhoods receive outweigh these high costs.

When investing in one of the various flagship projects, city officials claim that the city will see a return on investment immediately and in the long-term. Key benefits cited include increased tourism numbers, ancillary development, a positive economic impact to local businesses, economic growth in the neighborhood that the project is placed in, and more. When prioritizing city projects, it may be important for city leaders and taxpayers to understand costs and benefits they should expect from each type of

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<sup>5</sup> Stevens 2011

project. By dedicating efforts to understanding the unique costs and benefits of each project, city leaders can gain a better understanding of how to utilize their time, effort, and financial resources in a manner that will most benefit the city.

This paper will examine the viability of a number of flagship projects by looking at the costs and benefits associated with convention centers, stadiums and arenas, and transit systems. It will use Denver as a case study to examine these projects in detail, but will also make reference to these projects in general.

## Issue Analysis

The role of the American city has changed over time. Mobility between core cities and suburbs has played a large part in shaping the city's ever changing role. Prior to World War II, the nation's largest metropolitan areas had strong, dense cores, and "could generally be delineated by the city limits of the largest municipality".<sup>6</sup> Following World War II, cities began to annex considerable amounts of land.<sup>7</sup> A number of the large metro areas that emerged in the post-war period lacked dense cores.<sup>8</sup> Today, the majority of Americans call urban metro areas home, with a substantial amount of growth in both city cores and in suburbs.<sup>9</sup> Cities today must cater to the residents living in the city core and in the suburbs.

The major cities of today serve a variety of functions for an array of audiences. For its own residents, a city must be livable, providing excellent schools, good parks, access to amenities and services, and opportunities for work. Cities must also seek to be places that people want to visit, so they must provide connectivity, landmarks, hotels, and other features that would attract and appease guests from out of town. Cities must meet individuals' entertainment and lifestyle consumption needs by providing culture and "'heritage' in the form of both the built and natural environments".<sup>10</sup> Cities also look to provide "new forms of aspirational tourism".<sup>11</sup> In short, cities must provide a mix of amenities and destinations to become places that people want to visit, work in, play in, and stay in.

## Why examine flagship projects?

City leaders may take a number of routes to make their city more attractive and viable. One of the most common efforts comes in the form of flagship projects. There are a number of different types of flagship projects, making them a versatile option for most cities. Common flagship projects include airports, museums, performing arts centers, marquee events, shopping centers, convention centers,

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<sup>6</sup> Cox 2011

<sup>7</sup> Cox 2011

<sup>8</sup> Cox 2011

<sup>9</sup> Cox 2011

<sup>10</sup> Voase 2012

<sup>11</sup> Voase 2012

stadiums and arenas, and public transit systems.<sup>12</sup> Cities may make use of one or more of these projects and use them as the centerpieces of their city.

Flagship projects can be very successful in boosting a city's image.<sup>13</sup> Larger cities may have multiple flagship projects that they are known for, while smaller cities may have one or two that put them on the map. In fact, some projects and cities become so closely linked that they go hand-in-hand. New York City has Times Square and the Metropolitan Museum of Art, Bloomington has the Mall of America, Cheyenne has the Cheyenne Frontier Days, and Chicago has the Navy Pier and Wrigley Field.

Over the past several decades, municipal governments have demonstrated an inclination to invest in major projects.<sup>14</sup> In the best case scenario, a flagship project will blossom, bring in new businesses to the surrounding area, consistently bring in users and income, and become the face of a city. However, this may not always be the case. For all of the potential that flagship projects have, there is also a great deal of uncertainty about their impact. A number of unanswered questions exist regarding the implementation of flagship projects, making such projects an interesting and valuable topic of study. A few of the main factors that concern those who study flagship projects include costs, budgets, outcomes, and risk or uncertainty.

It is important to study flagship projects because of their prevalence and cost. Cities of all sizes look to invest in these projects to boost their urban image.<sup>15</sup> These projects tend to require sizeable up-front and long-term costs. City leaders often work hard to come up with funding solutions in order to afford these projects. City residents and taxpayers are often left to foot the bill, mainly through tax increases. Additionally, these projects are susceptible to cost overruns where the actual cost is higher than the projected cost, causing delays in the project's completion and applying more pressure to funding sources.

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<sup>12</sup> Stevens 2011

<sup>13</sup> Smith 2006

<sup>14</sup> Voase 2012

<sup>15</sup> Smyth 1994

The issue of high costs is compounded by the fact that city governments today often work with limited revenues and tight budgets. For most any city, a project costing hundreds of millions of dollars is often a steep price. The City and County of Denver 2014 operating budget for all appropriated funds is \$1.64 billion.<sup>16</sup> Depending on the size of the city and a myriad of other factors, other city budgets may be higher or lower than Denver's. Using Denver's budget as an example, the relative cost of a flagship project compared to an entire city budget is demonstrated. Although the total costs would be spread out over time – and potentially split – it is obvious how city budgets may be strained by flagship project costing hundreds of millions of dollars. City budgets are also vital because “unlike the federal government, which is allowed to run deficits year after year, most U.S. cities are required to balance their budgets,” often forcing city leaders to make hard choices regarding what to spend their limited budgets on.<sup>17</sup> Nonetheless, cities take up these projects, optimistic about the benefits that they may provide. Unfortunately, benefits may not always come.

One main issue with large flagship projects is that they do not always succeed. A city may invest hundreds of millions of dollars into a project, simply to see it stagnate or lose money. Cities in the past have invested large amounts of money and resources into a trendy flagship project, only to see the trend quickly fade away and to see that project underperform compared to expectations.<sup>18</sup> From Detroit's expensive and underutilized “People Mover”,<sup>19</sup> to failed publicly funded shopping malls and office buildings across the country,<sup>20</sup> a number of examples exist of cities investing in projects whose goals are never realized. It is important to examine flagship projects to gain a realistic understanding of the costs and benefits that can be expected. Without this information “planners or government officials are making an uninformed decision at best and a tragic error at worst.”<sup>21</sup>

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<sup>16</sup> Mayor's Budget 2014

<sup>17</sup> Kurtzleben 2011

<sup>18</sup> Stevens 2011

<sup>19</sup> Stevens 2011

<sup>20</sup> IJ 2006

<sup>21</sup> Fenich 1992

With a better understanding of the risks involved with flagship projects in terms of costs and benefits, city leaders can make a more informed decision about whether or not to move forward with any given project. It is also important to examine these projects to ensure that city leaders are pursuing them for the right reasons. Often cities may sacrifice practicality for image when investing in a project. Cities may not use financial logic alone when deciding to pursue a flagship project.<sup>22</sup> Cities are more likely to make a bad investment when building flagship projects solely for civic pride, to keep up with other cities, or for other intangibles, rather than to meet demand or to generally better the city. Again, the study of flagship projects is important to ensure that all costs, benefits, and outcomes are considered before cities make large investments on limited municipal budgets.

There is often a policy argument about how much each individual flagship project impacts the city it is placed in. This analysis will contribute to that debate by framing it in a different light. Rather than simply suggesting that a flagship project either can or cannot contribute to the strength of a city, this analysis will look at three possible major projects to compare the effects of each on its immediate area using common measurements for all. This may provide policymakers with a better idea of their options regarding flagship projects.

Most existing research on flagship projects evaluates each type of project individually. This paper differs from such research by comparing and contrasting multiple types of projects over a common set of metrics. Specifically, this paper compares and contrasts convention centers, stadiums and arenas, and transit systems. The projects will be ranked in terms of impact and cost-effectiveness. There is currently little research that compares all three of these options as a brief for municipal prioritization. Even though they are each different by nature, the three projects share similar benefits and a comparison of the projects could prove useful. If the goal of a city is to find the most efficient and cost-effective solution – whether that be investing in a flagship project or not – then one must consider all types of projects and their unique benefits to stakeholders.

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<sup>22</sup> Fenich 1992

## Stakeholders

In city politics and municipal investments, there are a number of key decision-makers and stakeholders who not only move projects forward, but feel the impact of various projects. To understand who is most affected by the costs and benefits of a given project, it is important to look at each of the stakeholder groups involved, looking specifically at their interests and desired outcomes.

	Stakeholders	Alternative 1 Convention Center	Alternative 2 Stadium / Arena	Alternative 3 Public Transit
<b>Benefits</b>	Cities	-Potential for tourism  -Increased income	-Potential for tourism  -Increased income	- Local connectivity
	Public	-Increased use / business  -Increased property values  -Increase in number of businesses	-Increased use / business  -Increased property values  -Increase in number of businesses	-Increased use / business  -Increased property values  -Increase in number of businesses
	Private	-Return on investment  -Income	-Return on investment  -Income	-Return on investment  -Income
	State / Federal	-Tax revenue	-Tax revenue	-Tax revenue
	<b>Costs</b>	Cities	-Cost of CC  -Infrastructure costs	-Cost of Stadium  -Infrastructure costs
	Public	-Increase in taxes (Varying based on % publicly funded)	-Increase in taxes (Varying based on % publicly funded)	-Increase in taxes (Varying based on % publicly funded)
	Private	-Cost of CC (if privately funded)	-Cost of stadium (if privately funded)	-Cost of system (if privately funded)
	State / Federal	-Portion of project cost	-Portion of project cost	-Portion of project cost

## **City**

Cities and municipal projects are the main focus of this paper. Cities are the setting in which flagship projects exist and operate. City leaders and city councils play a big role in determining whether a project will be pursued, how a project will be funded, and in placing any possible tax increases before the public. City officials often claim that the costs to invest in flagship projects will be offset by the benefits that the projects will provide to the city – this statement is, of course, the main focus of this analysis.

Cities set the goals and priorities, and flagship projects follow. If a city wants to become recognized around the world, it may institute a flagship project with global appeal, such as a large international airport. For a city looking to become nationally relevant, convention centers, notable museums, marquee events, or other tourist attractions may be used. A city may also look to boost civic pride with a flagship project. In this case, stadiums, monuments, parks, or libraries may be incorporated. Cities are most successful when they identify their needs and desired outcomes first and identify a flagship project that can deliver second.

## **Public**

Whereas a city acts as a valuable stakeholder by serving as a setting for flagship projects, the public may be even more important in the case of this analysis. This analysis groups a fairly broad number of actors under the “public” heading. First and foremost, this stakeholder group includes the residents and taxpayers of a city. Voters and taxpayers play an enormous role in the development of flagship projects. This is especially true in Colorado where initiatives can play a large role in the lawmaking process. The voters of Colorado have been instrumental in deciding whether or not flagship projects are undertaken. While city leaders may lay the groundwork and look into a flagship project, most publicly funded projects are approved or denied by a vote of the people. Additionally, a project relies heavily on public, taxpayer funding for construction and completion. Without residents and taxpayers, publicly funded flagship projects simply could not exist.

The neighborhoods that flagship projects exist in are also included in the “public” category. Neighborhoods exist in this category as a means to best capture the benefits a flagship project brings to the public and to an area. Any potential impacts of a new project are more likely to be felt and are more easily measured in the neighborhoods that the projects are placed in, so this level will serve as the main space of analysis. In order to measure the impact that flagship projects have on an area, some of the main benefits used are pedestrian counts and spending.

### **Private**

Although this paper is primarily concerned with the public dollars involved in flagship projects, it also considers the role of private stakeholders. Some of the costs of flagship projects are picked up by private developers or by public private partnerships which play a larger role in city development. Cost sharing reduces the pressure on cities and city governments.

Private entities may also receive a good deal of the benefits from flagship projects. Businesses and properties on the blocks around a flagship project are the most likely to feel an impact from a successful new project. They are also the most likely to decline if a neighboring flagship project fails. Ideally, a project will draw individuals to that project and to an area as a whole. Those individuals would then spend money to use the project while also potentially spending at businesses in the vicinity. The money that goes to the project itself and to businesses in an area is likely to go into private hands. As this paper is focused on the public investments and public benefits, it will not go into extreme detail into the benefits received by private stakeholders, but it will provide an estimate of said benefits.

## **State / Federal**

At least in this paper's analysis, the state and federal levels serve only as relatively minor stakeholders. From a cost perspective, the federal government or a state government may contribute to the costs of a municipal project. In terms of benefits, states may profit from a municipal project through state sales taxes collected. This analysis could not account for any benefits that the federal government would receive from the use of the flagship project alternatives, mainly because of the scope of such calculations.

## Methods

This paper offers an ex-post analysis of recent flagship development projects to determine which types, if any, should play a leading role in future municipal development. This section will begin by establishing the timeframe and scope that this analysis uses. It will then discuss the indicators that this analysis uses to compare and contrast each project. Each type of project offers its own set of strengths and weaknesses, goals, uses, and more. For instance, some are more conducive to improving the city's business environment, others provide amenities for tourists, and others provide amenities for the city's residents. This analysis will consider public interests, private interests, neighborhood impacts, and funding structures for each project in order to recommend the most feasible and cost-efficient flagship project.

In attempting to measure the impact of municipal flagship projects, this study will weigh both the costs and the benefits of each type of project. The costs are fairly straightforward. This analysis will examine the total costs of constructing or completing each project. This paper and its cost-benefit analysis are focused primarily on the public costs and benefits for each project. Although there are a number of annual costs that each project incurs – operating costs, infrastructure cost, maintenance costs – these costs are not taken on by the public. Therefore, such costs will not be covered in detail in this analysis and will not figure into the overall CBA.

Unlike the costs, the benefits are far more complex. This study will mainly examine the common areas that city leaders claim will be boosted by the addition of a new flagship project. These areas typically include: increased tourism, positive economic impacts on local businesses, economic growth for the neighborhood or area the project is placed in, and ancillary development.

This paper will conduct both a cost-benefit analysis and a cost-effectiveness analysis. The cost-benefit analysis will examine the monetized benefits, namely direct spending on each project and pedestrian spending related to each project. The cost-effectiveness analysis will examine the components and indicators that are more conducive to a non-monetized analysis, namely ancillary development. By

utilizing a cost benefit analysis and a cost effectiveness analysis, this paper will provide a holistic overview of the true impact of Denver’s flagship projects.

## Timeframe

This analysis uses a contemporary timeframe to provide an ex-post analysis of Denver’s flagship projects in order to measure the lasting impact they have had on the city’s development and use. With an array of different projects completed at different times, it is important that the timeframe unite all alternatives. Although Coors Field was opened in 1995, the Colorado Convention Center expansion and RTD’s FasTracks occurred in 2004. Therefore, any analysis of the three would have to come after at least 2004.

The timeframe chosen for a contemporary analysis is 2007 to 2013. This timeframe proved useful for a number of reasons. One of the primary drivers for this selection was the ability to track development during this timeframe. The Downtown Denver Partnership’s compilation of downtown development spanned from 2007 to 2013. This key source provided a foundation for all other research to be built upon.

These dates were also extremely conducive to the availability of data for all three alternatives as well. For the projects completed in 2004, data was limited in the immediate years following. However, by 2007, more comprehensive data was available for both the Convention Center and RTD’s FasTracks.

Incidentally, however, the dates used for the timeframe also coincide with a historical U.S. recession. The latest recession for the U.S. economy began in December 2007 and peaked in many metro areas in 2009.<sup>2324</sup> For cities and the nation, the recession was characterized by “a slowdown in economic activity, a downturn in the business cycle, and a reduction in the amount of goods and services provided and sold”.<sup>25</sup> Cities faced tight budgets and an inability to spend freely on projects that weren’t completely necessary. Many residents felt an economic pinch and found themselves with less expendable income. This was a recipe for fewer new flagship projects and a potential downturn in the use of existing projects.

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<sup>23</sup> Bureau of Labor Statistics 2012

<sup>24</sup> Friedhoff 2014

<sup>25</sup> Bureau of Labor Statistics 2012

The state of affairs in Denver during the recession will be discussed specifically in the “A Discussion of Denver” section.

Finally, this timeframe allows for a snapshot of the current state of Denver in relation to the three flagship projects used. The timeframe allows for recent development and tourism numbers to be used to determine the impact that the three projects have had and are having to the present day. It provides a range of dates that allows for a side-by-side examination of all three projects. In my analysis, I made an effort to compile data for each year from 2007 to 2013 when possible. If not applicable or possible, this timeframe will serve as a range of dates for data to be collected within.

## Scope of Analysis

Before examining any of the individual indicators, I selected specific geographic areas in which to take all of the measurements. The benefits of a large municipal project may be measured at the state level, the city level, the neighborhood level, or even the block level. To properly assess the impact that flagship projects do or do not have, the scope should be neither too narrow nor too broad. For example, Coors Field may have some overarching benefits for the entire city of Denver, but the true impact of the stadium is much more likely to be felt in the Ballpark Neighborhood and in LoDo than in other parts of the city. Examining the benefits of a flagship project at the city level may be too broad of a scope. If the city of Denver saw a large change in employment between 1990 and 2000, it would be possible that some of that could be attributable to the construction of Coors Field in 1995, but much of the change may have come as a result of many other factors, including other building and infrastructure projects, changes in demographics, booms of various industries, relocations of companies, and more. In short, the large number of moving parts and the sheer size of a city make it impossible to completely link all changes in a major indicator solely to one project. At the same time, using a single block or street may be too narrow of a scope, as it would not capture all of the impacts of a project.

In my analysis, I examine an area of about 10 to 12 square blocks near each flagship project as the scope. To consistently define the boundaries, the analysis will use a set area for each project. Both the Denver Infill website and the Kiewit Building Group's Downtown Denver Development Map divide downtown Denver into various districts, often based on the flagship projects in each district. For instance, the Kiewit map defines the area around the Denver Center for Performing Arts and the Colorado Convention Center as the "Cultural Core". However, neither map's districts were ideal, although they did serve as good reference points. Instead, this analysis uses custom districts (see Appendix A).

In order to compare all of the flagship projects in a similar context, I ensured that the areas of analysis were similar. Thus, the custom districts that were created are contiguous, compact, and roughly equal in size. Even with the most ideal boundaries, one should note the dynamic nature of these flagship projects and of cities in general. Cities and city politics are full of moving parts, so not one of these flagship projects is independent of another, nor is their impact. The impact of any given project might be felt beyond the blocks surrounding the project and, at the same time, one single project is not always responsible for all of the growth or change within the district that it is in. In my analysis, I will make use of the established boundaries in order to pair each flagship project with nearby indicators or measurements of impact

## **Measurements**

### **Costs**

The costs for each type of project are fairly straightforward. First, I will look at the total public costs of completing each project, including construction costs, land costs, and labor costs. Other costs, such as annual maintenance costs, will not be included in the total cost if they are not covered by public dollars. Next, as flagship projects often cost more than their initial price tag indicated they would, I will attempt to provide an idea of what the initial proposed costs of a project were and what the final total costs of a project actually were. Finally, this project will attempt to clarify how cities tend to fund each type of project. The division of a flagship project budget between city funding, private funding, and taxpayer funding is important because it gives different costs to different city stakeholders. How funding

is split may shape a city's reception to the project and may influence whether or not a project is even feasible at all. Considering each of these aspects should allow for a complete picture of project costs.

## **Benefits**

The most important portion of the analysis will come from measuring the benefits of the three alternatives. City leaders promote flagship projects by maintaining that they will lead to increased tourism, a positive economic impact on nearby businesses, economic growth for the area and the city, and ancillary development,. This analysis will look to assess key measurements in each of these areas for Denver's flagship projects.

## ***Tourism and Use***

One of the most important measures of success for any city project is how often it is used. If a city spends hundreds of millions of dollars constructing a stadium for a team with few fans or on a rail line that has low ridership, most will consider those projects to be failures. On the other hand, if a project is widely used by the community, and is even responsible for bringing tourists to a city and to the area, it will be viewed as a success. Tourism and use numbers show not only how many individuals are making use of the project itself, but also the number of people that any type of project can bring to a city or a specific neighborhood.

Tourism and use numbers will vary greatly from project to project. Tourism and use numbers for the Colorado Convention Center will consider the total number of convention attendees in a given year. It may also be useful to consider how many conventions are held each year, how many days are booked for conventions, and how many conventions are local, regional, national, or international. For Coors Field, use numbers would simply be the attendance numbers for any given year, average game attendance, and number of days of use. The CBA will use ridership numbers to measure the use of RTD's FasTracks.

Aside from how often each project is used, another very important indicator that this analysis will make use of is pedestrian counts. Pedestrian counts, kept by the Downtown Denver Partnership, break down by block the number of individuals walking on a certain street in any given year. Pedestrian counts are useful as they show a flagship project's ability to pull individuals to that area. These counts are often used by developers as it allows them to determine where their project will have the most exposure and the most ability to succeed. DDP takes both morning and evening counts and extrapolates daily counts to find annual figures. I will make use of both mid-day and evening weekday counts, as they are the most consistently available for all areas from year to year.

### ***Economic Impact***

In addition to looking at ancillary development and at how many people a given flagship project brings to an area, it is also vital to look at the economic impact of the visitors and the new development. Preferably, city leaders would like to see flagship projects draw people to an area and have those visitors spend in that area as well. This area is somewhat harder to measure than the others.

Ideally, the best way to measure the economic impact would be to measure the dollars that businesses in an area brought in in any given year. However, since individual business sales and sales tax information is confidential, this is an unlikely source of measurement. As a substitute, I will estimate sales and business income by looking at pedestrian numbers in an area and assuming those pedestrians spend a certain amount, and also by multiplying average attendee spending by average attendance for each project.

The first method of estimating economic impact in an area makes use of pedestrian count numbers. For each flagship project, a total of five immediate streets were considered. Using the Downtown Denver Partnership Pedestrian Count Report data for daily and annual pedestrian numbers, an average annual pedestrian count for each project can be established. Next, the total amount of downtown Denver visitor spending can be divided by the total number of downtown Denver visitors to come up with an average per person spending amount. This can then be applied to the pedestrian counts of each area to

come up with a proxy of spending related to each project. This method provides a broader glimpse of economic impact for each project.

An additional – and more specific – measurement of economic impact looks at the use numbers for each individual project. For convention centers, studies exist showing the total amount of spending by convention visitors, including a breakdown of how much they spend on hotels, dining, entertainment, and more. This information can be applied to the Colorado Convention Center visitor records for an estimate of spending. For baseball stadiums, there are reports of minimum and maximum average costs for a fan to attend a Major League Baseball game by stadium. This can be applied to the average attendance at Coors Field to come up with an average amount of fan spending in any given year. For transit, ridership numbers can be used to assess the amount of public spending. In each of these cases, a given amount would be multiplied by the average number of annual users for each project in Denver.

The combination of these two methods will attempt to estimate the economic impact of individuals making use of the three flagship projects, as well as estimating the economic impact to the area around each project.

### ***Ancillary Development***

Next, ancillary development that comes after the completion of a flagship project will be measured. New development in a city often tends to congregate around flagship projects due in part to the traffic that such projects can bring in. This ancillary development can come in a number of forms, including hotels, bars and restaurants, shops, grocery stores, and more, depending on the type of flagship project.

To quantify ancillary development as a benefit, this analysis will take a count of development near flagship projects that came as a result of or following the completion of a flagship project. One source that will be instrumental to this measurement is the Denver Development Map. The 2013 Downtown Denver Development Map was created by the Kiewit Building Group in partnership with the Downtown Denver Partnership. It maps out the various types of development occurring in downtown

Denver between 2007 and 2013 and provides a useful breakdown of downtown Denver development over that time, noting the number of projects by type, the number of projects by year and more.

Another source that this analysis will draw from to identify ancillary development is the Denver Infill website, specifically the Infill Scoreboard. The Infill Scoreboard tracks the number of development projects in Denver and classifies those projects as residential, commercial, office, hotel, parking, institutional/governmental, or as mixed use between any of those. These classifications alone will be useful as they give an idea of what types of development are spurred by each flagship project. The Infill Scoreboard also provides statistics on each development, such as number of square feet, number of units, number of floors, and which block the development belongs to.

These sources will be used to create a count of the ancillary development that occurred following each flagship project in that project's set boundaries. It will allow for an overall count and a count based on the type of development (residential, commercial, etc.). This development will be discussed in the cost effectiveness analysis.

## A Discussion of Denver

### Denver, Colorado

#### Key Facts and Figures

<i>Metro Population</i>	2,649,400
<i>Net Migration (2012)</i>	21,110
<i>Gross Metro Product</i>	\$152.7 B
<i>Median Household Income</i>	\$60,699
<i>Job Growth (2012)</i>	2.6%
<i>Cost of Living</i>	5.0% above national avg.

Figure 3: Denver Facts and Figures<sup>26</sup>

One of the United States' up-and-coming cities, Denver has a unique mix of geographic, economic, and demographic characteristics that makes the city a prime location for flagship projects. As it adds these projects, Denver continues to become more recognized as a world leader.

A geographic factor that lends Denver to flagship projects is the city's role as a leader in the region. Denver is one of the larger cities in the surrounding states, making it a hub for business, commerce, and travel in the Rocky Mountain region and in the western half of the United States. An already established flagship project that contributes to this role is the Denver International Airport (DIA). DIA is the largest airport by area in the U.S. It is also the 5<sup>th</sup> busiest in the U.S. and 11<sup>th</sup> busiest in the world in terms of passenger traffic, bringing more than 52 million passengers through Denver each year.<sup>27</sup> By making Denver an accessible destination, the door is opened for other flagship projects to grow and prosper.

The Denver metropolitan area has a diverse and strong economy. Metro Denver posted job growth in each of the main sectors in 2013, especially in professional and business services, education and health services, and natural resources and construction.<sup>28</sup> Denver's 2.6% and 2.9% employment growth rates in 2012 and 2013, respectively, were above the national and state changes.<sup>29</sup> Business

<sup>26</sup> Forbes 2014

<sup>27</sup> ACI 2013

<sup>28</sup> Metro Denver 2013

<sup>29</sup> Metro Denver 2013

growth and more workers can both mean strong economic times for the city and the region. From a standpoint examining economic impact and flagship projects, more workers potentially means more spenders in the city.

Denver's economic strength is also evidenced by the city's ability to combat the negative effects of the economic recession. When compared to the performance of the 100 largest U.S. metropolitan areas, Denver did extremely well, ranking 11<sup>th</sup> in its ability to withstand and to recover from the recession.<sup>30</sup> This means that Denver did an excellent job compared to other cities in maintaining jobs, keeping unemployment and foreclosure rates low, and maintaining city output (gross product). These detrimental effects can take their toll on a city's economic performance if not managed correctly.

Demographically, the populations of both the core city and the Denver metro area have continued to grow over time. On paper, this provides the city with a broader tax base and more individuals to make use of various flagship projects. A city's population may either be a kick starter or a roadblock to a potential flagship project. If a city's population is too small, a very large flagship project may not be the best fit and such an investment may not be made. Once flagship projects are established, they tend to succeed or fail based on how many people make use of them. Retail and tourism destinations or public transit systems will not thrive if they are not attended or used, and neither will the surrounding neighborhoods or businesses. Theoretically, then, an influx of new people means that there are more people to potentially make use of a project. Denver's population has continued to grow fairly consistently in recent years, both in the core center and in the suburbs. Between 2000 and 2010, the city of Denver's population grew by 8 percent and the population of the Denver metro area as a whole boomed by 27.8 percent. The growth is even more remarkable going back another 10 years.<sup>31</sup> Between 1990 and 2010, the city's population grew by 28.3 percent and the metro area's population grew by 66.2 percent.<sup>32</sup> The joint growth can be extremely beneficial for those flagship projects in Denver.

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<sup>30</sup> Brookings Metro Monitor 2014

<sup>31</sup> U.S. Census

<sup>32</sup> U.S. Census

A number of Denver’s flagship projects – including those discussed in this paper – were dependent on the cooperation of Denver and its suburbs. For a large flagship project to get started, it often requires heavy support from citizens, city leaders, and private companies. Denver has been fairly lucky in garnering support for such ventures in the past. Denver’s voters have general showed tremendous support for any ballot measures regarding flagship projects. More importantly, this support was generally shared between voters in Denver and voters in Denver suburbs. The people of the Denver metropolitan area succeeded by “working out the tension between the common and competing needs of different communities.”<sup>33</sup> Public support on key ballot measures led to a number of great triumphs for Denver in the past, including a period of growth through annexation and the construction of a new airport, new stadiums and arenas, and additional cultural and arts venues.

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<sup>33</sup> Katz 2013

## Proposed Solutions

Cities are made up of a wide array of investments and projects, each with their own purpose and funding structure. This includes a number of large-scale, “silver bullet” investments in the form of flagship projects.<sup>34</sup> However, flagship projects are not created equally and each one impacts a city in a different way. This paper will examine the viability of three main alternatives.

### Status Quo

Due to the nature of the analysis, the status quo will not be used as a specific alternative. That is, since each of the three alternatives will measure the impact of a project by looking at the levels of various data points before and after project development, the status quo is essentially built into each alternative.

### Alternative 1: Convention Center

Convention centers are the first alternative. Facilities are generally qualified as convention centers if they meet two primary criteria. First the facility “must be freestanding and not simply part of a larger structure such as a hotel.”<sup>35</sup> Secondly the “majority of events this center hosts [must be] either conventions, trade shows, or consumer shows.”<sup>36</sup> This analysis will look at the Colorado Convention Center, which is centrally located in downtown Denver. The Colorado Convention Center was opened in 1990, but was greatly expanded in 2004. It is home to more than 400 events a year and is neighbored by a number of hotels, restaurants and businesses.

The United States’ convention and tourism industry has boomed over the last half century, spurring an increase in the number of convention centers built. Convention activity increased by 10% between 1986 and 1988 and 40 cities responded by building or expanding convention centers in the late

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<sup>34</sup> Stevens 2011

<sup>35</sup> Fenich 1992

<sup>36</sup> Fenich 1992

1980s.<sup>37 38</sup> This trend continued through the 1990s and into the 2000s. Between 2000 and 2005, 53 U.S. cities expanded or built new convention centers, with plans for new centers underway in an additional 44 cities.<sup>39</sup>

The proliferation in convention centers has had very real cost for municipal spending; the average public spending for convention centers doubled from \$1.2 billion in 1993 to \$2.4 billion in 2003.<sup>40</sup> The cost of a convention center varies, depending on region, location, size, layout, infrastructure and more, making it difficult to pin down a one-size-fits-all average cost. Convention centers tend to be multi-million dollar projects, with the construction of new centers or the expansion of existing centers ranging anywhere from \$25 million to \$500 million.

Increased convention spending is no longer limited to large cities. At one point, only major cities such as New York City, Los Angeles, Dallas, or Washington D.C. would invest in large convention centers. However with the degree of convention center construction activity mentioned above, “cities of all sizes are jumping on the convention center bandwagon,” hoping to corner a portion of the convention and tourism market.<sup>41</sup> With an array of cities investing in convention centers, it is important to examine the benefits and issues they may encounter.

Proponents of convention centers detail a number of potential benefits to support their stance, ranging from economic to social and from direct to indirect. The list of benefits that is regularly pointed to by convention center proponents and city leaders includes direct spending by convention attendees, increased levels of employment, enhanced urban image, new facilities for at least partial use by residents, and redevelopment of blighted areas.<sup>42</sup> This analysis will look specifically at convention attendance, convention spending, and ancillary development, but the other potential benefits will now be discussed briefly.

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<sup>37</sup> Braun 1992

<sup>38</sup> Fenich 1992

<sup>39</sup> Clark 2007

<sup>40</sup> Copeland 2005

<sup>41</sup> Fenich 1992

<sup>42</sup> Fenich 1992

First and foremost, city leaders may point to the potential pull factor of a convention center, claiming that such a facility will draw visitors from the state, the region, the nation, and even internationally. One main benefit that proponents lay claim to is spending, either direct or indirect. Both convention delegates and general tourists alike will often spend on hotels, restaurants, local transportation, entertainment and more while staying in town for a convention.<sup>43</sup>

Employment related to convention center construction is an additional benefit claimed. Development of the convention industry in a city often leads to the creation of new jobs, namely those in hotels or food service that especially benefit the “difficult to employ, unskilled segment of the population” of a city.<sup>44</sup> The exact impact that convention centers may have on a city’s employment outlook is questionable, as impact varies greatly from city to city depending on a wide variety of factors. Nonetheless, it is clear that at least some level of increased employment will result from the development of a new center.

City leaders often look to convention centers as a source of civic pride or as a means to enhancing the city’s urban image. While less concrete than other benefits, an enhanced urban image can still be a positive and useful benefit for cities. Convention centers may serve as a centerpiece for municipal redevelopment, remolding the image of a city and creating publicity. And by attracting conventions, centers bring in real benefits such as tourism and spending. However, it is important that city leaders do not overvalue the benefit of an enhanced urban image. While city image is important, city leaders must also ensure that they are not putting it before the realities of other costs and benefits.

From a physical redevelopment standpoint and from a city growth standpoint, one of the most important and visible benefits of convention center construction is “the spin-off development near the center.”<sup>45</sup> In order to compete as prime convention destinations, “cities have to add elements to their total convention product”.<sup>46</sup> These elements often come in the form of new hotels, restaurants, stores, and

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<sup>43</sup> Braun 1992

<sup>44</sup> Fenich 1992

<sup>45</sup> Fenich 1992

<sup>46</sup> Clark 2007

entertainment options, with hotels being chief among those options. Ancillary development can contribute to the impact of the initial project by providing amenities to keep visitors in an area and by increasing the likelihood of visitor spending. Cities large and small, from Baltimore and New York City to Bangor, Maine and Loveland, Colorado have debated the need for amenities that comes with the purchase of a convention center.<sup>47</sup>

While convention centers offer a number of direct and indirect benefits, cities should not ignore or fail to investigate the negative side of convention centers. Convention centers carry a number of costs, many of which are monetary. Drawbacks often include construction costs, size, operating costs, opportunity costs, loss of property tax potential,

A number of the main issues associated with convention centers are related to high financial costs. For one, convention centers tend to be “very large structures with interior volumes that are much greater than is typical in any other type of urban structure and range in size from 20,000 to over 1 million square feet.”<sup>48</sup> The sheer size of a convention center requires a large lot, resulting in potentially high land acquisition costs and other delays results in costs for a city. Further, the size and layout of a convention center may also lead to relatively high construction costs. Additionally, operating costs may be a major threat to the overall impact of a center. Past examinations of convention center spending and income found that most convention centers, including city-owned facilities, lose money.<sup>49</sup> This is due in large part to high operating costs. The large size and high ceilings of convention centers subject them to higher energy costs than those of their downtown office counterparts.<sup>50</sup> While larger convention centers offer benefits as they can fit more people and events, they also have considerable tradeoffs in monetary costs alone.

Non-monetary costs that should still be considered include opportunity costs. In this case, opportunity costs may be the value sacrificed when cities construct a convention center rather than

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<sup>47</sup> Clark 2007

<sup>48</sup> Fenich 1992

<sup>49</sup> Fenich 1992

<sup>50</sup> Fenich 1992

another potential alternative, such as municipally financed housing, a hospital, or even general tourism spending. It is also important to consider that cities may forego potential property tax revenue by using a site for a convention center rather than a commercial property.

In all, convention centers offer a good deal of benefits, but also come with some drawbacks that must be considered. City leaders must ensure that the potential impacts of a convention center align with the city's goals. As part of the convention and tourism industry, the impacts of convention centers will by nature be focused on generating tourism and drawing visitors from out of town. While they offer some value to a city's residents, they may offer much more to convention delegates and visitors from outside of the city. Cities and their residents may see the impact of convention centers through outside spending, ancillary development, and a boosted city image.

## **Alternative 2: Stadiums and Arenas**

The second alternative is a stadium or arena, especially those for professional sports teams. Stadiums and arenas are seen as hot commodities and as essential entertainment options in any big city. To examine this alternative, this analysis will look at Denver's Coors Field, home of the Colorado Rockies of Major League Baseball. Coors Field opened in 1995; two years after the Colorado Rockies were added as an expansion team. Since its opening, Coors Field has drawn an average of 2.8 million visitors a season, with a mean of 36,050 per game. Coors Field and other developments are credited for the revitalization of the Lower Downtown (LoDo) area.

Over time, professional sports in the United States have transformed from a simple entertainment option to a multi-billion dollar industry. Early on, professional sports were a private undertaking, "financed with private money and played in private stadiums and arenas".<sup>51</sup> Eventually state and local governments began to finance and subsidize these stadiums.<sup>52</sup> Stadiums and arenas began as simple facilities where a sport could be played and watched. Naturally, as pro sports grew and gained in popularity during the early 20<sup>th</sup> century, stadiums grew alongside to accommodate a growing fan base,

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<sup>51</sup> Baade 1994

<sup>52</sup> Baade 1994

both in size and in features. In the latter half of the 20<sup>th</sup> century, between 1960 and 1980, pro football began to rise in popularity and cities began to see their budgets decline.<sup>53</sup> As a result, teams moved into larger, multipurpose facilities. Then, 1990 saw the beginning of the recent stadium boom. New, individualized and specialized stadiums started to be constructed. These were not as large as stadiums in the past, but they became more customized, offering more features and amenities for modern fans. Following these trends, Major League Baseball ballparks started with an average capacity of 25, 865 in 1920, peaked at 52,889 in 1993, and have stabilized around 45,000 today.<sup>54</sup>

While stadium capacities have fluctuated over time – initially skyrocketing and then dipping and stabilizing – stadium costs have continued to trend upward. Again, this is due to the fact that stadiums have become more customized, offering a variety of amenities for fans. Oriole Park at Camden Yards was opened in Baltimore in 1989 and is credited with starting the modern ballpark boom. It was constructed for a cost of \$110 million.<sup>55</sup> More recently constructed stadiums have ranged anywhere from \$130 million to over \$1 billion. Yankee Stadium and Citi Field, both in New York, cost \$1.5 billion and \$900 million, respectively, and are the two most expensive stadiums in the league. The average cost of an MLB ballpark is around \$500 million.

Stadiums and arenas tend to be considerably more uncommon than other flagship projects. A city is much more limited in constructing a stadium than in constructing another project, mainly because of the limited availability of professional sports teams. Unfortunately for interested cities, professional sports leagues have “used their monopoly power to limit expansion”.<sup>56</sup> League expansions are few and far between. Each of the four major professional sports leagues has a current total of 30 or 32 teams. With few exceptions, these teams are mainly concentrated in cities with large markets or large populations. In most cases, cities have teams in more than one league. Given those factors, professional sports are very

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<sup>53</sup> Mathewson 2011

<sup>54</sup> Mathewson 2011

<sup>55</sup> Long 2005

<sup>56</sup> Baade 2001

exclusive in the sense that it is difficult – if not impossible – for a small city or a new city to land a pro team.

Baseball stadiums present their own sets of benefits and challenges. It is rare that pro sports teams move between cities or that an expansion franchise is created. Nonetheless, whenever there is a possibility that either of those scenarios take place, cities work hard to land a team. It is important to examine the benefits and costs that cities can expect to incur when attracting a team or building a new stadium. Key areas include use and days of use, tourism and big events, ancillary development, urban image, spending, and construction costs.

Stadiums are a highly sought after commodity for cities. They are constructed in the hopes that they will bring in large crowds and large revenues, with city leaders crafting economic arguments to justify subsidies.<sup>57</sup> However, stadiums and arenas vary greatly depending on the type of facility, as each type of stadium differs in terms of use and size. For instance, a football stadium holds around 70,000 people but may only be used around 15 times a year, whereas a basketball or hockey arena only holds around 18,000 people but may be used 100 plus times a year. Their location in a city – their proximity to a downtown area, for example – also factors in to determine their impact. Compared to other types of stadiums and arenas, a ballpark comes as a high use, medium attendance option. MLB teams host 81 home games each year, giving them more days of use than a football stadium but perhaps less than a combined arena that hosts basketball, hockey, and other events. In terms of capacity and attendance, baseball stadiums can hold an average of about 45,000 and have an average actual attendance of about 30,514.<sup>58 59</sup> This means baseball stadiums bring in fewer people per game than a football stadium would, but more people per game than a stadium or arena. Although having a high use rate compared to other stadiums is a plus, this is still a significant challenge for stadiums as a flagship project. Even with 81 home games, it might not make financial sense for a city to spend hundreds of millions of dollars on a venue that will only be used for less than a quarter of the year.

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<sup>57</sup> Baade 1994

<sup>58</sup> Mathewson 2011

<sup>59</sup> Brown 2013

In addition to potential issues with days of use, there are problems with use numbers as well. As mentioned above, the average baseball stadium holds 45,000 people, while the actual average MLB attendance is only about 30,514. While most ballparks are relatively successful, it is not uncommon for ballparks in many cities to sit mostly empty throughout an entire season. If a team cannot consistently draw a sizeable crowd, an expensive stadium is essentially rendered useless.

A closely related topic is that of tourism and big events. Many cities buy into the idea of stadiums in the hopes that they can be used to host other big events to draw national and even international crowds into the city. Outside of the normal games, stadiums and arenas may host championships, all-star games, concerts, traveling shows, and more. These may provide some additional days of use and they may come through occasionally for a very large event, but cities must avoid banking costly expansions or rebuilds on the hope of hosting a big event, as these may not always pan out. Some have questioned the value in hosting mega events, as the additional use and prestige may be outweighed by the cost of the stadium, infrastructure costs, and political costs.<sup>60</sup>

As is the case with other flagship projects, ancillary development is a benefit often associated with stadiums and arenas. Stadiums and arenas are conducive to the development of bars and restaurants, retail establishments, apartments, offices, and some hotels. In the case of stadiums, ancillary development again depends on the type of facility, specifically the days of use. Due to their few days of use, football stadiums tend to spur less ancillary development than ballparks or arenas. Baseball stadiums tend to bring in the most spin-off development; ballparks and their ancillary development often work in tandem to provide considerable neighborhood revitalization.

City leaders look for stadiums and arenas to revitalize both neighborhoods and cities as a whole. More so than any other flagship projects, cities pursue teams and build stadiums as a source of civic pride and as a means of projecting a “world-class” image for their city.<sup>61</sup> Enhanced urban image comes in both concrete and indirect forms with stadiums. Being one of a limited number of cities with a sports team can

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<sup>60</sup> Keeton 2014

<sup>61</sup> Baade 2001

make a city well-recognized and highly publicized. Cities and teams often have a strong connection. This may lead to more direct benefits such as tourism or spending on city and team related goods.

Stadiums and arenas for professional sports teams have their benefits, but may not be the most viable option for many cities. For one, the chance of a city luring a new team to town is very small, and the cost of doing so even when the opportunity is presented is high. If a city has a team and a stadium or decides to invest one, the return on investment is limited simply due to the nature of stadiums and sports. Even the most used stadiums are only open for a portion of the year, limiting both the direct revenue that can be taken in as well as the activity in the surrounding neighborhood. While stadiums may do a lot for a city or a neighborhood given the correct context and solid attendance, most research shows that the benefits of a stadium barely outweigh the costs, if at all. The projected impact of stadiums tends to be overstated.

### **Alternative 3: Public Transit**

The third alternative is public transit. A number of different definitions of public transit and transit-oriented development exist, and the application of such transit systems varies from city to city. It is important to define both “public transit” and “transit-oriented development”, and to clarify which aspects of each this memorandum will examine.

. Public transit refers to the various systems of transit themselves – buses, light rail lines, monorails, shuttles, etc. Specifically, this analysis will look at Denver’s light rail system. Light rail transit is defined as “a streetcar system that has extensive priority signaling at intersections and at least 30% of its route operating on ‘reserved right-of-ways.’”<sup>62</sup> The light rail’s right-of-way system and its operation in mixed-use traffic differentiate it from various other types of metro transit. Development and use will, of course, follow the development of a transit system, but it is not part of the system plan as is the case with transit-oriented development.

I will look at the use and development following the completion of the light rail transit system, but it does not look at transit-oriented development, per se. Transit-oriented development can be defined

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<sup>62</sup> VTPI 2014

in a number of ways, but essentially refers to a project where both a transit system and the subsequent development are specifically and deliberately planned for. Transit-oriented development is meant to be a symbiotic relationship between transit and development in which “the location of the station should support new land use development, while the development should increase transit ridership.”<sup>63</sup> Such development is focused on the surrounding area that is considered a walkable distance to a transit station, usually within a half mile.<sup>64</sup>

While Denver has made use of transit systems and transit-oriented development, this memorandum is concerned primarily with the former rather than the latter. This memorandum is concerned with the implementation and use of transit systems, not necessarily with transit-oriented development. This analysis will focus on the projects of Denver’s Regional Transportation District (RTD) that have led to the infusion of light rail transit into downtown Denver.

Transit, public and otherwise, is an ever-changing situation in the United States. The use of various types of transportation ebb and flow over time, shifting with economic realities and social interests. Street cars, trams, and other forms of light rail were heavily used in the early 20<sup>th</sup> century. Many factors contributed to the downfall of such systems, including the Great Depression, declines in municipal budgets, the rise of the motorbus, and the rise of the car.<sup>65</sup> In recent years, however, Americans have begun to step away from the car and trend towards public transit, including light rail. Recent studies show that between 1995 and 2013 public transit ridership increased by 37.2 percent and that more Americans are using public transit today than in any year since 1956.<sup>66</sup> Economic growth, environmental awareness, traffic, and rising gas prices have influenced the shift back to light rail and other public transit.

The total cost of a transit system varies based on a number of factors, including size, scope, pre-existing infrastructure, and technology. Cities can employ one or more of a number of types of transit, including local buses, regional buses, shuttles, light rail, light metro trains, heavy metro trains, and more.

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<sup>63</sup> Ratner 2010

<sup>64</sup> Ratner 2010

<sup>65</sup> Taplin 1998

<sup>66</sup> Hurdle 2014

Cities may select their desired type of transit based on size, sprawl, population, or budget. Additionally, cities may vary in their goals for development surrounding such projects. Cities approach transit-oriented development with different forms of development in mind, including commercial, retail, housing, mixed-use, and more. In fact, a city may make use of multiple types of development. The type of transit selected and the type of development pursued greatly shape the overall cost of a transit project. Costs for a city will also vary greatly depending on infrastructure and right-of-way acquisition. For example, if a city is adding light rail, it may be much cheaper if the city makes use of existing railroad tracks or other infrastructure already in place. Cities must also pay for or acquire right-of-way for a light rail system. Finally, the cost to a city for a public transportation project will vary based on the amount of federal or other outside funding that a city can acquire. Each of these factors contributes to the total cost of a transit system, which tends to be one of the most expensive flagship projects.

Great cities are often heralded for the ability of local residents and tourists alike to easily navigate the city. Since a wide range of options exist, cities of any size can usually find some form of transit project to meet their needs. Obviously, certain cities will be conducive to certain projects, based on their size, population, sprawl, and budget. A smaller, more compact city may only need local buses, while a large, highly-populated city will need a mix of bus and train systems. All major cities and even most average and smaller cities have some kind of public transportation, as the range of options and costs make it a relatively accessible flagship project.

The versatility in terms of options, scope, and costs make public transit systems a relatively viable option for just about any city. Aside from this benefit, however, other concrete benefits must be considered, and compared to some of the lofty costs of such a project. Others would argue that transportation and light rail may be too costly and too underused. This analysis will now consider some of the common benefits and drawbacks associated with transit systems. Key benefits include connectivity, economic growth, development, and impact on the environment. Drawbacks include cost, project length, land or right-of-way acquisition, and use.

Connectivity is an important facet of city life for cities of all sizes. One of the main benefits of a transit system is its ability to create or assist movement around a city. Public transit makes it easy for citizens and tourists alike to visit other flagship projects and attractions around a city. It allows people to commute to and from work. Cities and their suburbs tend to succeed or fail together. If a good transit system is in place to connect a city's downtown area with its suburbs, the city is most likely to thrive and grow.

A transit system can be a boost to a city's economy in a number of direct and indirect ways. For one, it allows people to move around a city where they will, theoretically, spend money. Transit systems can also contribute to a city's economic growth by attracting new businesses and companies to an area. Transit systems in cities such as Portland and Atlanta have been noted for their ability to positively connect residents to employment.<sup>67</sup> Large companies looking to relocate may take note of a city's transportation and move to a city that allows its workers to commute around the city easily and efficiently.

In addition to attracting business, transit systems also spur new growth and development. The type of development is fluid, as cities can adapt various projects based on their goals. The ancillary development spurred by transit systems can come in the form of housing, apartments, offices, restaurants, entertainment, public art, parks, land-use, and more.

A number of additional benefits exist, including reduced environmental impact and eased traffic congestion. In cities that rely heavily on automobiles for commuting, auto pollution may be high, traffic may be problematic, and roads and highways may wear more frequently. By adding public transit and shifting some of the commute to buses and trains, these problems can at least be eased.

A number of significant drawbacks also come with transit systems. Although transit systems have seen a modest increase in ridership since 1970, the number of workers needed to operate these transit systems has increased by 180 percent and operation costs have increased by 195 percent during the same

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<sup>67</sup> Sanchez 1999

time.<sup>68</sup> To start, these projects can become very costly, depending on the size and scope. While cities can choose from a range of public transit projects and investments, costs can reach prohibitive levels, ranging from hundreds of millions to even billions of dollars. There are often discrepancies between the proposed or initial cost and the final cost and transit projects tend to be lengthy, and as new, unforeseen costs pile up as the project goes on. These investments are very costly in part because of the infrastructure and zoning involved. Light rail transit and other light and heavy metros move through a city and require special infrastructure to do so.

The success of transit is potentially threatened by use. The recent boom in public transportation ridership is promising. Nonetheless, cities must ensure that the costly investment will be met with decent ridership. As with any project, cities may forecast a higher level of use than they are met with upon project completion. Cities must ensure, then, that they are willing to spend on a project and that they are able to cope in case the project is used less frequently than predicted. This is especially true in the case of transit, as transit projects are so expensive and because it may be difficult to gauge exactly how much a city's residents will use it.

Public transit systems may be the most useful alternative for cities as a whole. They strike a balance in serving both out of town visitors and city residents, and in providing access to work, shopping, entertainment, and more. They also are conducive to attracting the widest array of ancillary development projects. If city's can overcome the high costs and find the land and funding to make a transit system a reality, it seems a practical and beneficial investment to make.

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<sup>68</sup> O'Toole 2010

## Cost Benefit Analysis

This policy memorandum employs a Cost-Benefit Analysis (CBA) in order to monetize and critically compare the impacts of each of the three alternatives. The net present benefits (NPB) will be subtracted from the net present costs (NPC) in order to calculate the net present value (NPV) for each alternative. The project with the greatest NPV is, quantitatively, the best or most successful option for the city of Denver. As has been discussed throughout the memorandum, since this analysis is primarily concerned with public investments and benefits, the CBA will make use of only the public figures for the NPB and the NPC. The costs and benefits are discussed in detail below.

### Costs

For the CBA, the costs used for the NPC include simply the overall costs to complete each project. This figure includes construction costs and infrastructure costs. While the total costs for each project may have included some minimal funding from other sources, this analysis and CBA looks primarily at the costs taken on by the public stakeholder group.

The costs for the three projects have their similarities, but are in many ways starkly different. First and foremost, all three of the projects saw the majority of their funding come from the public, either through sales tax increases or bond measures, all of which were approved by Denver and Colorado voters. Of the three, the RTD alternative has the most financial support from outside sources; however, it is also much more expensive than the other two. The Colorado Convention Center expansion and Coors Field each cost roughly \$300 million total, while the FasTracks program had a public cost of about \$2 billion total.

This analysis broke the costs down further. Since the benefits of this analysis were measured for an average year, the costs also needed to be looked at in a single year. To find the cost per year for each project, the total public cost of each alternative was divided by the total length of each project. This generated values of about \$97 million per year for the Colorado Convention Center, about \$134 million per year for Coors Field, and about \$197 million per year for RTD. Breaking down costs by year not only

made it easier to compare the costs to the annual benefits, but it also made the three alternatives themselves more comparable.

## Benefits

The benefits for the CBA can be separated into use benefits and pedestrian benefits. Use benefits focus on the amount individuals spend while actually making use of each of the alternatives. Pedestrian benefits use pedestrian traffic in the vicinity of each alternative to estimate how much is spent in the area. In order to calculate the NPB, the total use spending and pedestrian spending amounts are broken down by applying state tax and city tax to the totals. They are broken down further by examining only the amounts that go to the public stakeholder group. Again, private benefits and incomes are disregarded as this memorandum is primarily concerned with public dollars.

## Use

The Colorado Convention Center, Coors Field, and RTD are three of the most widely used flagship projects in Denver. In relative terms, however, each has its own strengths and weaknesses in terms of benefits produced. As far as days of use go, the Colorado Convention Center and RTD are easily the two best options. The Colorado Convention Centers boasts an average total of 603 event days each year, as it often runs multiple conventions on any given day. RTD operates year-round as well. Coors Field, like any stadium or arena, is the weak link in terms of days of use, as Major League Baseball teams host only 81 home games a year. This leaves the ballpark, and the surrounding neighborhood, empty for over 75 percent of the year.

In spite of the limited days of use, Coors Field outperforms the Colorado Convention Center in the number of annual attendees. Coors Field averages about 2.7 million attendees in any given year, while the Colorado Convention Center average total is closer to 900,000. RTD leads in this category, as over 100 million people make use of the entire RTD system each year, with an annual ridership of 2.8 million people making use of the downtown Denver light rail stations alone.

## Spending

<i>Use Spending</i> (in 2014 dollars)			
<b>ALTERNATIVES</b>			
	1. Convention Center	2. Stadium	3. Transit
Total Use Spending	792,560,207	544,344,653	2,349,832
<i>Denver sales tax</i>	28,690,679	19,705,276	85,064
<i>CO sales tax</i>	22,984,246	15,785,995	68,145
<i>Spending to Alternative</i>	740,885,282	508,853,382	2,196,623

The amount of spending generated by each project does not necessarily match the amount of use each project received, as some projects generate more spending than others. The Colorado Convention Center generated the most spending at about \$792 million. This figure takes into account the amount spent by convention delegates and general convention tourists. Included is spending on hotels, food, transportation, entertainment, and convention services, based on national data for convention spending. Coors Field came in next, generating about \$544 million in fan spending. This figure is based on the annual MLB Fan Cost Index, which accounts for the price of four adult average-priced tickets, two small draft beers, four small soft drinks, four regular-size hot dogs, parking for one car, two game programs, and two least-expensive baseball caps at each MLB ballpark. While RTD had the most annual users, it generated the least annual spending, at about \$2.4 million. This is because of modest per person, per ride revenue estimates, which RTD places at \$0.83.

## Pedestrian Traffic

Pedestrian counts served as another proxy for measuring the amount of use a project attracts and as a means to capture other indirect spending generated by each project. The Downtown Denver Partnership monitors the number of people walking on any given street downtown each year and extrapolates the data to get annual totals. These counts are useful in determining the value and impact of each project. They are regularly used by developers interested in the downtown area and by city officials

and other municipal organizations looking to plan events or to gain a better understanding of Downtown Denver.

Areas associated with RTD and FasTracks led the way with about 3.9 million pedestrians each year. The Convention Center area came second, with 1.1 million pedestrians each year. Streets surrounding Coors Field came in third with about 900,000 pedestrians a year. This figure obviously conflicts with Coors Field’s attendance of over 2 million people a year. It is important to note that the Downtown Denver Partnership attempts to avoid doing pedestrian counts on game days, although they do counts for some. While this may diminish the total number, it is also important to recognize that the counts and extrapolation process attempt to estimate annual pedestrian use. This may be more accurate given the number of days of use for Coors Field.

**Pedestrian Spending**

<i>Pedestrian Spending</i> (in 2014 dollars)			
<b>ALTERNATIVES</b>			
	1. Convention Center	2. Stadium	3. Transit
Total Ped. Spending	283,787,500	217,156,750	975,252,250
<i>Denver sales tax</i>	10,273,108	7,861,074	35,304,131
<i>CO sales tax</i>	8,229,838	6,297,546	28,282,315
<i>Spending to business</i>	265,284,555	202,998,130	911,665,803

Pedestrian spending figures attempted to account for indirect spending not captured directly by any given project. Pedestrian spending is based on the total amount of annual spending in downtown Denver and the total number of pedestrians in downtown Denver each year. The estimate is \$250 per pedestrian.

With this indicator, RTD bounced back, leading the three alternatives at about \$975 million. The Colorado Convention Center and Coors Field accounted for \$284 million and \$217 million, respectively. These figures are consistent with pedestrian counts. These estimates may not tell the full story and they do

have their weaknesses and limitations, but they also fairly accurately reflect the levels of use that each project generates.

## CBA Totals

<i><b>Cost-Benefit Analysis of Alternatives</b></i>				
<i>Projections for any given year</i>				
<i>(in 2014 Dollars)</i>				
<b>COSTS</b>	<b>ALTERNATIVES</b>			
		1.	2.	3.
		Convention Center	Stadium	Transit
	City	0	0	0
	State / Federal	0	0	98,667,887
	Public	96,638,500	133,807,600	197,332,467
	Private	0	0	98,667,887
	<i><b>Total Costs</b></i>	96,638,500	133,807,600	394,668,250
<i><b>Total Public Costs</b></i>	96,638,500	133,807,600	197,332,467	
<b>BENEFITS</b>	<b>ALTERNATIVES</b>			
		1.	2.	3.
		Convention Center	Stadium	Transit
	City	38,963,786	27,566,351	35,389,195
	State / Federal	31,214,083	22,083,541	28,350,460
	Public	265,284,555	202,998,130	911,665,803
	Private	740,885,282	508,853,382	2,196,623
	<i><b>Total Benefits</b></i>	1,076,347,707	761,501,403	977,602,082
<i><b>Total Public Benefits</b></i>	265,284,555	202,998,130	911,665,803	
<i><b>Net Present Value</b></i>	168,646,055	69,190,530	714,333,336	

This cost-benefit analysis compared the annual public cost of each project to the annual public benefits generated by use spending and pedestrian spending, based on project averages. In all three cases, the benefits outweighed the costs. Public transit or RTD had the greatest NPV at about \$714 million. The Colorado Convention Center had the second greatest NPV at about \$169 million. Coors Field finished last at \$69 million.

## CBA Discussion

The RTD alternative is the strongest of the three alternatives overall, leading the way in terms of monetary benefits to the public stakeholder group. While the RTD alternative did not generate much in terms of use spending, it generated the most pedestrian spending by a wide margin. This gave the RTD alternative the edge, as most of the use spending was assigned to the private stakeholder group, while most of the pedestrian spending was assigned to the public stakeholder group.

When investing in a publicly-funded flagship project, a city must attempt to maximize what it and its residents and neighborhoods will get in return. Obviously, 100 percent of what is spent at a convention center, stadium or arena, or transit system does not go back to the city. These costs are divided mostly among private interests. This is why the benefits generated by use spending were assigned primarily to the private stakeholder group and it is why those benefits were not factored into the total NPV. When attempting to identify public benefits, pedestrian spending proved to be a more useful source. The pedestrian numbers give a more balanced assessment of the impact of each individual project by comparing them across very similar standards.

Additionally, the comparison of the three alternatives is not complete without analysis of the development spurred by the flagship projects. Ancillary development, discussed in the cost effectiveness analysis section, contributes heavily to the final strategic recommendation.

## Cost Effectiveness Analysis

To contribute to the cost-benefit analysis and the overall goal of this paper, the cost effectiveness analysis will discuss the ancillary development spurred by each of the flagship projects. This paper made use of a cost effectiveness analysis instead of a cost-benefit analysis for the ancillary development section for a couple of reasons. For one, this analysis lacked the data and the methodology necessary to interpret the true costs and benefits of ancillary development. Next, a discussion of development simply lends itself more naturally to an analysis of flagship projects than a monetized analysis of development would. A discussion of the amount of development and the types of development is more than sufficient for gathering an understanding of the impacts of flagship projects. Finally, this analysis made use of different physical boundaries for spending and for development. It makes more sense to have a different analysis for development than to mix it in with the analysis of spending.

A cost effectiveness analysis relates the costs of a program to specific measures of program effectiveness. In a cost effectiveness analysis, a cost effectiveness (CE) ratio is determined by dividing costs by units of effectiveness. In this analysis, each ancillary development project is used as a unit of effectiveness.

## Ancillary Development

This analysis did a count of all of the new development near the three alternatives between 2007 and 2013. The analysis provides a total count of all development, as well as a breakdown of new projects by type. For the breakdown of projects by type, the following categories of development were used: hotels, offices, residential, mixed use, and transportation/public.

**Cost Effectiveness (CE) Ratios**  
*(in millions of dollars per development)*

	<b>Alternative 1: Convention Center</b>	<b>Alternative 2: Coors Field</b>	<b>Alternative 3: RTD</b>
Cost	96,638,500	133,807,600	197,332,467
Number of Developments	12	8	16
<b>CE Ratio</b>	<b>8.05</b>	<b>16.7</b>	<b>12.5</b>

**Alternative 1: Convention Center**

Convention centers tend to spur a good deal of ancillary development, primarily hotels and restaurants. This remained true in the case of the Colorado Convention Center expansion. After the Colorado Convention Center expansion was completed in 2004, an adjacent Hyatt Regency hotel was completed and opened in 2005. In 2010, an Embassy Suites hotel was opened across the street from the Convention Center.

The convention center alternative had the lowest CE ratio. In total, twelve projects were opened between 2007 and 2013 in the vicinity of the Colorado Convention Center. Nine of the twelve were either hotel, residential, or mixed hotel and residential developments, with the remaining three as transportation and public realm developments. The convention center did not spur any office development.

**Alternative 2: Stadiums and Arenas**

Stadiums and arenas tend to spur relevant ancillary development, namely restaurants, bars, and shops. The LoDo area is widely known for its number of breweries and bars. In terms of large-scale development, however, Coors Field has attracted more residential housing than anything.

Alternative 2 had the highest, or most costly, CE ration. Altogether, a total of eight projects have been built near Coors Field from 2007 to 2013. Five of those eight are residential units. Two of the projects are mixed use projects. One of the mixed use projects concerns the redevelopment of the Historic Windsor Dairy Block, which will be developed as a mixed use residential, office, and retail development.

The eighth and final development is an office building. No hotels or transportation/public projects were built in the vicinity of the ballpark.

### **Alternative 3: Public Transit**

The ancillary development following transit projects tends to come in the form of housing, apartments, shopping, or mixed-use. Successful transit projects will attempt to provide access to as many kinds of projects as possible. This was the case in Denver, as out of the three alternatives, RTD's FasTracks seemed to provide the best mix in terms of types of projects.

Alternative 3 ranked second in its CE ratio. Between 2007 and 2013, sixteen new projects occurred just around the Union Station redevelopment alone. Half of the sixteen came in the form of office building developments, potentially demonstrating the link between a strong transit system and new business. One of the most notable of those eight office developments was the addition of the DaVita Healthcare Partners headquarters, which moved to Denver in 2011-2012, which noted mass transit accessibility as one of its reasons for relocating.

The project also saw the creation of four residential developments and one hotel, as well as two mixed use developments. It also spurred a public realm project, in the form of the Denver Union Station Infrastructure redevelopment project. Solely in terms of the types of developments spurred, RTD's FasTracks program seems to be relatively successful. The area around Union Station has been the center of development in downtown Denver in recent years. While it is not measured in this analysis, it is also important to recognize the impact that FasTracks has on areas outside of downtown Denver, in terms of connectivity and other ancillary development projects.

## **CEA Discussion**

Each of the alternatives posts a fairly reasonable cost-effectiveness ratio, with a minimum of \$8 million per ancillary development project and a maximum of \$16 million per project. In other words, for every \$8, \$12, or \$16 million in spending on a flagship project, a new ancillary development project is spurred. Although the convention center alternative posted the lowest or most cost effect ratio, it is important to consider the variety of ancillary development spurred. The Colorado Convention Center had the best CE ratio, but RTD produced the most development and the widest array of development, in terms of development type. This analysis will take those factors into account.

## Sensitivity Analysis

This paper’s cost-benefit analysis includes a sensitivity analysis to re-examine figures in the cost-benefit matrix in order to account for differences in costs for the selected alternative. Based on the CBA, the RTD alternative has the largest NPV and is therefore the best possible alternative. The RTD alternative has the strongest NPV despite the high total costs and public costs of the project, mainly due to the strong impact of high pedestrian use and spending.

The NPV for the RTD alternative was re-examined at two different levels to account for different potential funding options. In other words, the sensitivity analysis creates a range of potential outcomes by looking at various levels of public spending.

The RTD alternative was funded 50% by the public, 25% by the federal government, and 25% by private donors. This sensitivity analysis simply looks at how the NPV for the alternative would change if it were funded 25%, 75%, or 100% publicly. At 50%, the cost for the alternative was about \$197 million in any given year.

### *Sensitivity Analysis – Alternative 3 (in 2014 dollars)*

	<b>25%</b> <b>Publicly Funded</b>	<b>50%</b> <b>Publicly Funded</b>	<b>75%</b> <b>Publicly Funded</b>	<b>100%</b> <b>Publicly Funded</b>
NPC	98,667,887	197,332,476	296,000,363	394,668,250
NPB	911,665,803	911,665,803	911,665,803	911,665,803
NPV	812,997,916	714,333,336	615,665,440	516,997,553

As the table above shows, altering the cost load did very little to affect the total NPV in a given year. In fact, regardless of what percentage of the cost the public stakeholder group took on, the NPV for the RTD alternative was always better than the NPV for either of the other alternatives.

However, it is important to note the consequences of shifting 100% of the costs onto one group. The costs of the RTD alternative only appear low when spread out over the length of the project. In reality, the RTD alternative was the most expensive alternative. While the benefits in any one year still outweighed the costs no matter what percentage of the costs the public took on, assigning 100% of the

total costs to one stakeholder group would render the alternative no longer feasible. The RTD alternative had more cost-sharing than the other alternatives because it would be too large of a project to take on straight up.

So, in short, the sensitivity analysis demonstrates that the RTD alternative is a good investment to take on regardless of how the costs are split, at least for a given year. However, if costs were 100% publicly-funded, the alternative as a whole would not be feasible, as the total cost for the RTD alternative was in the billions.

## **Weaknesses & Limitations**

The three policy options that this paper puts forward are all extremely feasible, as all three are currently in place in various cities across the United States. The goal is to find out which of the three is the most effective. However, this project does have its share of potential limitations.

### ***Information on Businesses***

One of the first limitations is the lack of business sales tax income and business income. These would be perfect measures to see exactly how much individuals are spending in a given area or even at a given business. If this data were available, it would be very easy to see whether or not a new flagship development caused a spike in business in the vicinity. This data is not available because the income of a business and the sales taxes paid by a business are confidential. In order to compensate for this lack of data, the study made use of total downtown spending, total downtown visitors, and visitors per downtown block to make estimations of spending in any given area each year. It also made use of various local and national studies or surveys that estimate the spending and benefits of each type of project.

### ***Airport Alternative***

One key decision for this analysis involved choosing the set of alternatives. Cities take part in a wide array of development projects and flagship projects, so narrowing down the list to some of the most used or most impactful projects was vital. However, one type of project that was set to be an alternative but was eventually removed was airport development. Airports have a tremendous impact on cities. This was and is especially true in the case of Denver and the Denver International Airport. Nonetheless, airports were not included as an alternative because, from a data standpoint, airports did not fit in with the other alternatives. Many of the data points and measurements for the other three alternatives had to do with their impact on the Downtown Denver area. Since DIA is not downtown, it would be difficult to duplicate the data for the airport, creating an uneven comparison with the other alternatives.

### ***Selecting Geographic Area Borders for Analysis***

One of the challenges of this analysis came in choosing the geographic areas to use for the analysis of each project. In order to determine the impact of a project, a set area to measure the impact in must be established. The difficulty with this is that no area will ever be perfect. That is, no preselected area can ever account for all of the impacts of any given project.

Although not necessarily a weakness, another possible issue came in the selection of scope or district boundaries for the analysis. There were a number of possibilities available for defining the different areas of downtown Denver, including those definitions provided by the City and County of Denver, the Downtown Denver Partnership, or the Denver Infill Blog. If none of these options worked, there was also the possibility to draw boundaries specifically for this analysis. However, after examining all of the options, it seemed most beneficial to use the areas created by the Denver Infill Blog. The Denver Infill Blog created divisions in downtown Denver based on geographic space (i.e. Lower Downtown; Central Downtown; Upper Downtown). The boundaries created by the Denver Infill Blog tended to be more uniform in size in relation to each other and contained flagship projects very well in each. The boundaries created by the Downtown Denver Partnership were more based on the functionality of each area (Cultural Center, Central Business District). While these definitions may also be useful, it seemed better for the purpose of the study to use boundaries that better encapsulated the flagship projects within.

### ***Public Transit***

There are a few potential weaknesses and limitations in the use of public transit systems. The first limitation comes from the sheer size of a city's public transit. Even in a relatively smaller city like Denver, public transit covers a large area. RTD serves a 2,340 square mile district with 9,509 active bus stops, 46 light rail stations, and 48 miles of track.<sup>69</sup> Each of these bus and light rail stations has an impact

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<sup>69</sup> RTD Facts and Figures 2014

on the surrounding area. With a total service area of over 2,000 square miles, it is very difficult to measure all of the impacts that RTD's services have on the areas and populations it contacts. In order to form a manageable analysis, this paper had to narrow in and examine the impacts that RTD's FasTracks program had on the Downtown Denver area.

The analysis of transit systems also faced limitations due to the timing of flagship projects in Denver. The most ideal RTD project that this analysis could have looked at would have been the redevelopment of Union Station. The Union Station project would have been ideal because it is more like the other alternatives in terms of cost and impact area than the FasTracks project is. Unfortunately, Union Station was only recently completed and thus there is not enough data to examine its impact on Denver. Nonetheless, the FasTracks project does serve as a good, useful alternative, as it is akin to what a city would be most likely to develop.

Finally, a causal direction issue exists. As is the case with the other alternatives, it is difficult to determine whether all of the benefits came as a result of a flagship project, or if they would have existed to some extent regardless. There is also a question of whether public transit drives denser development in a city or if it merely serves dense development. Arguments exist both ways. Cities investing in public transit may also plan for transit-oriented development in the area. At the same time, new developments may come in areas that are easily accessible. This analysis attempts to examine all development or use in the given timeframe, whether planned or not.

### ***Pedestrian Counts***

Though the pedestrian counts are definitely a useful portion of the analysis, they do have their limitations. The most pressing limitation is the consistency with which the pedestrian counts were recorded for each street. That is, pedestrian counts were not taken for every block every year. The Downtown Denver Partnership conducts the pedestrian counts for certain blocks that are deemed "core sites" at least once each year; otherwise, counts are conducted for other blocks on a rotating basis. Because of how and when the pedestrian count surveys are carried out, they are better for comparing

areas of downtown in a given year, rather than comparing the same areas overtime. Nonetheless, this works very well for this study, as it provides a snapshot of the impact of each project.

### ***Benefits Not Discussed***

This analysis made use of a number of key indicators to examine the impact of flagship projects. However, a couple of notable measures were not used. City leaders often point to increased employment levels and increased property values as benefits generated by flagship projects.

This analysis did not make use of employment numbers for a few reasons. For one, the analysis lacked the data and methodology necessary to capture changes in employment. Secondly, employment linked to flagship projects is often temporary. Finally, more permanent increases in employment can be inferred through ancillary development. That is, if new hotels or new offices are built near a flagship project, it can be assumed that those developments represent some increase in employment.

While property values would have been a valuable tool for the overall analysis of flagship projects, they were left out in favor of a non-monetized description of ancillary development. The monetized portion of this analysis covered use and spending. Development, on the other hand, was simply discussed qualitatively.

## Strategic Recommendations

Each of the flagship project options offers a unique set of benefits to a city. Each differs in how exactly it impacts tourism, spending, local use, and more. Ideally, over time a city would make use of a variety of flagship projects, depending on the contexts and goals unique to the city. In most cases, flagship projects complement rather than compete with one another. However, the question at hand was how cities should prioritize incorporating these flagship projects or how cities should act if they only have the budget to start one. In order to compare a variety of starkly different flagship projects, I used a select set of indicators.

First, I used the use numbers of each project. The three alternatives all posted solid and relatively comparable numbers. RTD led the three with over 2.8 million riders making use of the downtown Denver light rail stations alone.<sup>70</sup> In total, over 5 million people use the light rail in any given year.<sup>71</sup> Coors Field came in second, with about 2.7 million users each year.<sup>72</sup> The Colorado Convention Center placed last, with over 800,000 visitors each year.<sup>73</sup>

In my analysis, I then attempted to monetize use by estimating spending at each venue. These results were drastically different than the use numbers would suggest. Although the Colorado Convention Center had the fewest users in a year, it generated the most spending. Estimates for convention center use take into account spending on hotels, transportation, entertainment, and a variety of other costs. Coors Field ranked second in estimated user spending. This estimate was based on an index demonstrating only what fans might spend at the ballpark. RTD had the most modest use spending, only accounting for per person per ride revenue. These estimates account for what is spent when making use of the three flagship projects. City and state taxes were subtracted from the total use spending estimates, with the remainder of use spending being attributed to the private stakeholder group.

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<sup>70</sup> Appendix D

<sup>71</sup> RTD Facts and Figures 2014

<sup>72</sup> Appendix D

<sup>73</sup> Ibid

Next, the analysis used pedestrian counts and pedestrian spending as an indicator of the impact to each flagship project's surrounding area. RTD had the most pedestrians, with around 3.9 million. The Colorado Convention Center had the second most with 1.1 million and Coors Field finished last with about 870,000. It was estimated that each pedestrian spent about \$250. While use spending only considered what each individual user spent when using each flagship project, the pedestrian counts attempt to account for indirect spending around each project. After deducting taxes, this spending was attributed to the public stakeholder group. Looking strictly monetarily at the total public costs per year and total public benefits per year, RTD provides the most benefit, with the Colorado Convention Center second and Coors Field third.

This analysis also looked at ancillary development through a cost-effectiveness analysis. RTD led in ancillary development with 16 new developments. The Colorado Convention Center had 12 and Coors Field had 8. Not only did RTD spur the most development, it also spurred the widest variety of development. However, when compared to total costs, the Colorado Convention Center provided each new development for the smallest development. It is important to consider both the CEA ratio and the total development count.

Based on use, spending, and development, public transit or transit-oriented development is the best option. Public transit is something that can be done in essentially any city. While it may not have global pull in the same way a tourist attraction would, it builds the infrastructure of a city which is useful for locals and a potential draw for businesses or employees. Cities succeed as its suburban neighbors and the region around it succeeds, and transit systems play an integral role in connecting those areas.

## Conclusions

The types of investments a city can make are numerous and diverse. The same can be said of the benefits that a city can garner from any given investment. However, any investment brings a certain amount of risk and a fair number of trade-offs. Numerous factors must be considered, including total cost, longevity of the project, how often it will be used, how often *can* it be used throughout the year, who will spend to use it, and more. Cities that take on such projects must attempt to optimize success in each of these areas. Failure in one or more of the areas could represent the failure of the project and a large monetary, political, and social loss for the city.

The case-study of Denver presented in this memorandum even demonstrated that there is hardly a clear cut answer when it comes to identifying the “best” type of flagship project. While the construction of a transit system brought about the least amount of direct spending, it generated the most pedestrian traffic and the most indirect spending. While the transit-system spurred the most ancillary development, it did not generate the best value for cost per new development; the convention center alternative did. The stadium alternative spurred a relatively high level of use, but it was hurt by limited days of use. In short, taking a comprehensive look at a number of outcomes changes how each project performs overall.

Comparing the three alternatives side-by-side using a single city as a case study proved to be a useful and telling experiment. Looking at each type of development individually will, of course, allow for a more in-depth analysis and will allow for the examination of more indicators. Comparing multiple projects, however, highlights the relative strengths and weaknesses of each. Public policy decision-making may benefit from similar analyses of multiple flagship projects in various cities. It would be interesting to see how the rankings of flagship developments would change when more alternatives are added or when the alternatives are placed in other contexts or other cities. Such an analysis may influence how cities approach flagship projects.

Another interesting takeaway came from paying close attention to the public stakeholder group. Each of the three alternatives generated a number of costs and benefits. Looking specifically at the costs

and benefits that affected the public stakeholder group drastically changed the rankings and the performance of the alternatives. This could have a considerable impact on the attitudes of a city's taxpayers.

In an era where municipal budgets are constrained but where municipal actions have as large of an impact as ever, cities must try to extend the life and impact of a taxpayer dollar. Flagship projects are not one-size-fits-all endeavors. They should be examined first and used only when they fit the context and the goals of a city. It is no surprise that cities with popular, flourishing flagship projects are more successful than are cities with underused projects. Exploring multiple flagship projects across common indicators can help weed out those with staying power from those that may just be a flash in the pan and, ultimately, help build a strong, world-class city.

## Appendix A: Maps and Location Definitions

### ***Pedestrian Count Streets:***

The streets used for pedestrian counts for each project are as follows:

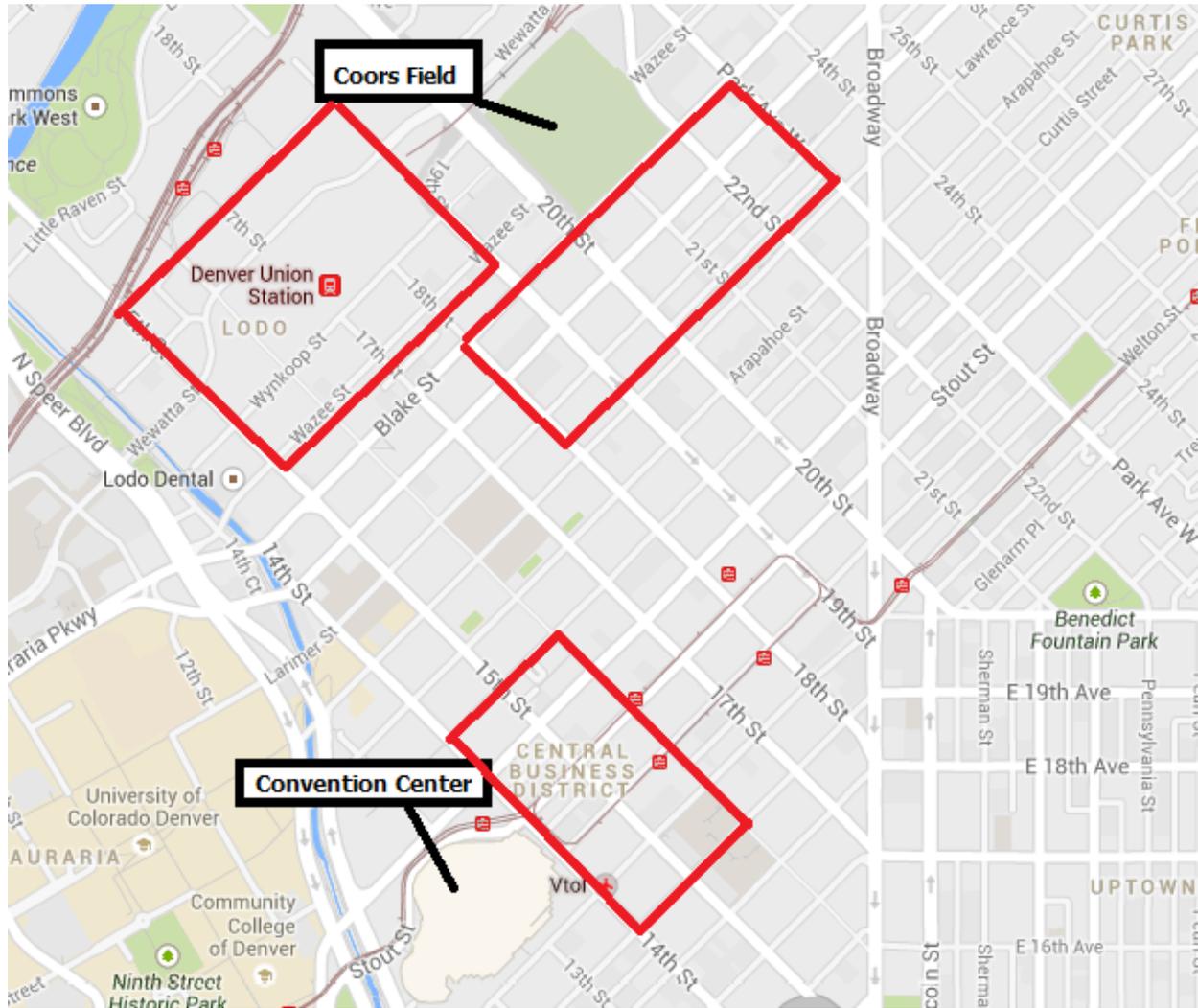
- Colorado Convention Center
  - Block 1: 14<sup>th</sup> between Stout and California
  - Block 2: 14<sup>th</sup> between California and Welton
  - Block 3: Stout between 14<sup>th</sup> and 15<sup>th</sup>
  - Block 4: California between 14<sup>th</sup> and 15<sup>th</sup>
  - Block 5: Welton between 14<sup>th</sup> and 15<sup>th</sup>
- Coors Field
  - Block 1: 20<sup>th</sup> between Blake and Market
  - Block 2: 20<sup>th</sup> between Market and Larimer
  - Block 3: Blake between 19<sup>th</sup> and 20<sup>th</sup>
  - Block 4: Blake between 18<sup>th</sup> and 19<sup>th</sup>
  - Block 5: Market between 19<sup>th</sup> and 20<sup>th</sup>
- RTD
  - Block 1: Market Street Station
  - Block 2: California between 15<sup>th</sup> and 16<sup>th</sup>
  - Block 3: California between 17<sup>th</sup> and 18<sup>th</sup>
  - Block 4: Stout between 16<sup>th</sup> and 17<sup>th</sup>
  - Block 5: Stout between 18<sup>th</sup> and 19<sup>th</sup>

### ***Ancillary Development Boundaries:***

The boundaries for ancillary development counts are as follows:

- Colorado Convention Center
  - 14<sup>th</sup> St. to 16<sup>th</sup> St.
  - Curtis St. to Glenarm Pl.
- Coors Field
  - 18<sup>th</sup> St. to Park Ave. West
  - Wynkoop St. to Larimer St.
- RTD
  - 15<sup>th</sup> St. to 19<sup>th</sup> St.
  - Chestnut Pl. to Wazee St.

**Ancillary Development Map:**



## Appendix B: Statistical Inputs

This section will list the raw data and the sources of any data used in the analysis and the cost-benefit analysis.

<b>Statistic</b>	<b>Value</b>	<b>Calculation Method</b>	<b>Source</b>
Annual attendance, Coors Field	2,700,122	Average of 7 years (2007 – 2013)	Baseball Almanac
Annual convention delegate attendance	250,443	Average of 6 years (2007 – 2012)	Convention Complex Event Statistics, SMG
Annual convention delegate spending	\$951.99	-	Study
Annual convention tourist attendance	629,148	Average of 6 years (2007 – 2012)	Convention Complex Event Statistics, SMG
Annual convention tourist spending	\$880.78	-	Study
Annual ridership, RTD	2,831,123	Average of 5 years, (2009 – 2013)	RTD
Annual number of pedestrians, Colorado Convention Center	1,135,150	-	Downtown Denver Partnership, Pedestrian Count report (year)
Annual number of pedestrians, Coors Field	868,627	-	Downtown Denver Partnership, Pedestrian count report (year)
Annual number of pedestrians, RTD	3,901,009	-	Downtown Denver Partnership Pedestrian count report (year)
Average Coors Field fan spending, per game	\$201.60	-	Fan Cost Index study, <i>Team Marketing Report</i>
Colorado sales tax	2.90%		Denver Treasury Division
Denver pedestrian spending – per person	\$250	{(Downtown Denver total annual spending) / (Downtown Denver total annual pedestrians)}	Downtown Denver Partnership, economic report
Denver sales tax	3.62%	-	Denver Treasury Division
Project length, Colorado Convention Center	4 years	-	Denver Infill

Project length, Coors Field	2.5 years	-	Coors Field
Project length, RTD	15 years	-	RTD
Revenue per ride, RTD	\$0.83	-	RTD
State tax from pedestrian spending, Convention Center	\$8,229,838		
State tax from pedestrian spending, Coors Field	\$6,297,546		
State tax from pedestrian spending, RTD	\$28,282,315		
Total cost, Colorado Convention Center	\$386,554,000	-	DDP
Total cost, Coors Field	\$334,519,000	-	Long
Total cost, RTD	\$5,920,023,000	-	RTD
Total development count, Colorado Convention Center	12	2007 – 2013	Downtown Denver Partnership
Total development count, Coors Field	8	2007 – 2013	Downtown Denver Partnership
Total development count, RTD	16	2007 – 2013	Downtown Denver Partnership

## Appendix C: Calculations

<b><i>Cost-Benefit Analysis of Alternatives</i></b>				
<i>Projections for any given year (2014 Dollars)</i>				
<b>COSTS</b>	<b>ALTERNATIVES</b>			
		1. Convention Center	2. Stadium	3. Transit
	City	City Share	City Share	City Share
	State / Federal	State / Federal Share	State / Federal Share	State / Federal Share
	Public	Taxpayer Share	Taxpayer Share	Taxpayer Share
	Private	Private Share	Private Share	Private Share
	<b><i>Total Costs</i></b>			
<b><i>Total Public Costs</i></b>				
<b>BENEFITS</b>	<b>ALTERNATIVES</b>			
		1. Convention Center	2. Stadium	3. Transit
	City	(Denver Sales Tax) (Use Spending)	(Denver Sales Tax) (Use Spending)	(Denver Sales Tax) (Use Spending)
	State / Federal	(CO Sales Tax) (Use Spending)	(CO Sales Tax) (Use Spending)	(CO Sales Tax) (Use Spending)
	Public	(Pedestrian Spending) - [(% Denver Sales Tax) + (CO Sales Tax)]	(Pedestrian Spending) - [(% Denver Sales Tax) + (CO Sales Tax)]	(Pedestrian Spending) - [(% Denver Sales Tax) + (CO Sales Tax)]
	Private	(Use Spending) – [(% Denver Sales Tax) + (CO Sales Tax)]	(Use Spending) – [(% Denver Sales Tax) + (CO Sales Tax)]	(Use Spending) – [(% Denver Sales Tax) + (CO Sales Tax)]
	<b><i>Total Benefits</i></b>			
<b><i>Total Public Benefits</i></b>				
<b><i>Net Present Value</i></b>				

## Appendix D: Data

### *Alternative 1: Convention Center*

#### Number of Convention Center Event Attendees – Convention Delegates

<b>Year:</b>	<b>Total Delegate Attendance:</b>
2007	228,030
2008	265,509
2009	209,548
2010	268,905
2011	264,497
2012	266,111
<b>Average</b>	<b>250,443</b>

#### Number of Convention Center Event Attendees – General Tourists

<b>Year:</b>	<b>Total Tourist Attendance:</b>
2007	676,961
2008	712,649
2009	608,557
2010	597,056
2011	574,356
2012	605,307
<b>Average</b>	<b>629,148</b>

#### Number of Convention Center Event Attendees - Total

<b>Year:</b>	<b>Total Annual Attendance:</b>
2007	904,991
2008	978,158
2009	818,105
2010	865,961
2011	838,853
2012	871,418
<b>Average</b>	<b>879,581</b>

*Alternative 2: Stadiums and Arenas*

Coors Field – Game Average Attendance

<b>Year:</b>	<b>Game Average Attendance:</b>
2007	28,978
2008	33,127
2009	32,901
2010	35,497
2011	35,923
2012	32,474
2013	34,492
<b>Average</b>	<b>33,342</b>

Coors Field – Season Total Attendance

<b>Year:</b>	<b>Season Total Attendance:</b>
2007	2,376,250
2008	2,650,218
2009	2,665,080
2010	2,875,245
2011	2,909,777
2012	2,630,458
2013	2,793,828
<b>Average</b>	<b>2,700,122</b>

**Alternative 3: Public Transit**

RTD Station Use – Average Use: Daily

Station	May 10	Aug 10	Jan 11	May 11	Aug 11	May 12	Aug 12	Jan 13	May 13	Aug 13
16th Street Stations	14778	16250	17460	16779	17010	16051	14975	15105	15084	14162
18th Street Stations	5859	6398	6993	6074	6571	6431	6298	6540	6173	6286
Union Station	3976	3589	3855	4497	3258	4700	3935	3971	10772	9752
Theater / Convention Center	2918	3900	4280	3221	4069	3850	4284	4603	3871	4638

RTD Station Use – Average Use: Daily

Station	2010	2011	2012	2013
16th Street Stations	15514	17083	15513	14783.67
18th Street Stations	6128.5	6546	6364.5	6333
Union Station	3782.5	3870	4317.5	8165
Theater / Convention Center	3409	3856.667	4067	4370.667

RTD Station Use – Estimated Average Use: Annually

Station	2010	2011	2012	2013	Average
16th Street Stations	5662610	6235295	5662245	5396038	5,739,047
18th Street Stations	2236902.5	2389290	2323043	2311545	2,315,195
Union Station	1380612.5	1412550	1575888	2980225	1,837,319
Theater / Convention Center	1244285	1407683	1484455	1595293	1,432,929
				<b>Average</b>	<b>2,831,123</b>

***Pedestrian Counts***

Alternative 1: Convention Centers

	Mid-day	Evening	Avg. Daily	Avg. Annual
Block 1	513	927	5,004	1,826,460
Block 2	262	370	2,196	801,540
Block 3	432	433	3,002	1,095,730
Block 4	368	531	3,124	1,140,260
Block 5	292	348	2,224	811,760
			<b>Average</b>	<b>1,135,150</b>

Alternative 2: Stadiums and Arenas

	Mid-day	Evening	Avg. Daily	Avg. Annual
Block 1	164	324	1,477	539,105
Block 2	98	180	840	306,600
Block 3	422	395	2,796	1,020,540
Block 4	770	479	4,128	1,506,720
Block 5	385	561	2,658	970,170
			<b>Average</b>	<b>868,627</b>

Alternative 3: Public Transit

	Mid-day	Evening	Avg. Daily	Avg. Annual
Block 1	3339	2256	19,442	7,096,330
Block 2	1489	1592	10,706	3,907,863
Block 3	1364	921	7,883	2,877,295
Block 4	1537	1888	11,901	4,343,865
Block 5	553	456	3,506	1,279,690
			<b>Average</b>	<b>3,901,009</b>

*Development Counts*

<b>Downtown Denver Development: Projects by Type (2007 -2013)</b>			
	<b>Convention Center</b>	<b>Coors Field</b>	<b>RTD</b>
<b>Hotel</b>	7	0	1
<b>Office</b>	0	1	8
<b>Residential</b>	1	5	4
<b>Mixed Use</b>	1	2	2
<b>Transportation / Public</b>	3	0	1
<b>Total</b>	<b>12</b>	<b>8</b>	<b>16</b>

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