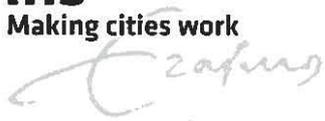


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Thesis

**Title: The Influence of Public Private Partnerships on Social Justice: An
Analysis of the University of Colorado A Line Public Private
Partnership - Eagle P3**

Name: Joan Crockett Lyons

Supervisors: Lori Porreca and Carley Pennick

Specialization: Urban Strategies and Planning

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**MASTER'S PROGRAMME IN URBAN MANAGEMENT AND
DEVELOPMENT**

(October 2017 – September 2018)

**The Influence of Public Private Partnerships on
Social Justice: An Analysis of the University of
Colorado A Line Public Private Partnership - Eagle
P3**

Joan Crockett Lyons
United States

Supervisors: Lori Porreca and Carley Pennick

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Summary

As transportation agencies continue to search for different ways to not only provide transportation options for all communities, but also hope to finance larger infrastructure projects responsibly, it is important to look to cases that tackle both issues head on. Many urban professionals have deemed the implementation of the FasTracks project to be a large success in the field. These observations call for investigation of the University of Colorado A Line commuter rail, the first full transit Design Build Operate Finance Operate Maintain (DBOFM) PPP in the United States to understand if the project has been deemed successful or not in the eyes of those that use it most frequently; the people of the metropolitan region with a special focus on social justice when understanding the PPP's performance metrics. In order to increase success, scholars and urban practitioners involved in PPPs find social justice important to look at.

The main objective of this study is to understand if PPPs can generate different outcomes that reflect social justice values and aims to explain what actions within a PPP framework are most relevant to social justice.

This study utilized the mixed methods approach. In order to determine the factors that generate social justice values from all perspectives, the following methods were utilized in data collection and analysis:

1. Existing reports, documents and data were studied from the project to understand the emphasis placed on social justice indicators,
2. Semi-structured interviews were conducted with those most familiar with the project to solidify or challenge social justice findings from existing reports and,
3. Community surveys were administered to understand the public's perspective of social justice to ultimately determine the emphasis of values in different portions of the PPP in the eyes of those who use the University of Colorado A-Line service most.

Findings ultimately determined best practices and actions to for generating PPPs with the public and social justice in mind.

Keywords

transportation planning, public private partnerships, social justice

Acknowledgements

At 19, in between my time reading the book *More Than Just Race* by William Julius Wilson, and biking back and forth between my university in South Louisiana and my residence, I recognized how American transportation infrastructure tends to be extremely car-driven. Wilson argues that the advent of the highway and its structural factors led to steering marginalized, disadvantaged communities out of every day opportunities. After researching this topic in my undergraduate thesis, this proved to be a true issue in South Louisiana, but I also recognized that this issue likely spreads across the entire United States. Following my undergraduate degree, I searched for innovative ways to solve the issue. Over the course of my four years in my bachelor's studies, I dedicated my life to finding ways to help disadvantaged communities better access things they need in their day to day life.

With this in mind, and through the help and guidance I received in the Masters of Urban Development and Management programme at Erasmus University Rotterdam and the Mastersclass Design for the Just City developed by the Harvard Graduate School of Design, I came to find my interest in understanding how to better develop cities in large-scale infrastructure projects with the public good in mind. Without the help and support of many, I likely would not have had the opportunity to research the projects I have over the past year. For this reason, and a multitude of others, I find it incredibly important to thank the people that have helped me realize my true passion for sustainable and equitable urban development.

It is with great pleasure that I thank the following people and dedicate this work to them. First and foremost, to my professors, Granger Babcock, and Nancy Clark from Louisiana State University, I am eternally grateful for their continuous push for me to seek for justice in the ways we serve others. I would also like to thank each individual in the Urban Management and Development team in the Urban Strategies and Planning specialization team for allowing me to learn about urban planning from vastly different perspectives and challenging me daily. As well, it is important to also thank my supervisors, Lori and Carley, for their willingness to assist me in every possible way as I completed this paper. Their dedication to help me succeed, and expertise in the transportation and public private partnership fields accelerated this research. Finally, I am forever indebted to my family for supporting me thus far. Their love is worth everything and more.

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Chapter One: Introduction

1.1 Background

In the United States, the construction of highway and freeways dominated most urban areas in their structure and form for most of the 20th century. However, starting in the late 1960s to early 1970s, some urban areas started the transition to find alternatives to the institutionalization of roads. Issues such as congestion, topography, geography, and political power fueled the search for new transportation modes. When looking at the different aspects of transportation that exists in large cities, it is argued that topics such as the environment, land use, health, and equity within transportation are rather intertwined with each other (Mercier, 2009). Equity, in particular, has become a central concern during planning and development of a project.

In relation to the topic of equity, policy makers and scholars started to recognize that mobility options for those who were unable to afford vehicles, or were considered transportation disadvantaged, and for those who wanted other options outside of using motor vehicles, were scarce. This, in turn, triggered the need for other types of transportation options in cities (Hassell, 1982; Schaeffer and Sclar, 1980). Though this type of priority was not at the forefront of reasons for developing alternatives for car travel, scholars and practitioners have been interested in justice and equity within transportation for decades (American Academy of Arts and Sciences, 1968; Meyers, 1968; Ornati, 1969; Notess, 1972; Schuler, 1979; Hanson, 1995; Bullard et al., 2004).

Recent literature argues that mobility is a defensible human right that is essential to freedom and can even be tied to right that is closely related with citizenship (Langan, 2001; Cresswell, 2006). With this in mind, and the fact that United Nations estimating that 55 percent of the world lives in cities (United Nations, 2018), it is increasingly important for the public sector to provide transit options in cities, and more specifically in extending metropolitan regions, as cities are extending far into suburb regions (Kantor and Savitch, 2010; UN Habitat; 2011).

Typically, the type of public transportation offered varies by region to combat issues of justice and equity. Some regions will create transportation systems for buses, trains or rails, bicycle use, pedestrian traffic, or even boat and ferry traffic, but all choices made to create particular transportation systems are meant to be accessible for everyone (USDOT, 2015). However, for the remainder of this research we will focus on passenger rail forms of transportation systems. Historically speaking, many regions opted to provide public

transportation through use of systems such as bus, or heavy rail lines. Starting in the 1980's, the United States started the process of implementing light rail systems across the country (Weiner, 2013).

Table 1- United States Light Rail Systems – 2004

Location	Year Built	Year Modernized (if applicable)	Miles
Baltimore, Maryland	1992		57.6
Boston, Massachusetts	1897	1975-1989	51.0
Buffalo, New York	1985		12.4
Cleveland, Ohio	1919	1980s	30.4
Dallas, Texas	1996		87.7
Denver, Colorado	1994		31.6
Houston, Texas	2004		15.0
Los Angeles, California	1990		82.4
Memphis, Tennessee	2004		5.8
New Jersey Transit, New Jersey	1935	1980s	99.9
New Orleans, Louisiana	1893	1980s	16.0
Philadelphia, Pennsylvania	1892	1981	69.3
Pittsburgh, Pennsylvania	1891	1985	34.8
Portland, Oregon	1986		81.3
Sacramento, CA	1987		40.7
Saint Louis, Missouri	1993		75.8
Salt Lake City, Utah	1999		37.3
San Diego, California	1981		96.6
San Francisco, CA	1897	1981	72.9
San Jose, CA	1988		58.4
Tampa, Florida	2002		4.8

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(Source: Weiner, 2013)

These light rail systems, provided for the public good, typically consisted of larger infrastructure projects in the built environment. These large infrastructure projects face key barriers to the public providing transport, including but not limited to the administration of the infrastructure, construction technology, barriers in economic conditions, or funding the projects solely through public financial resources (Nie and Ye, 2017). Because of these barriers, people in the United States have become increasingly aware of the fact that the public sector does not have the resources to provide sole government-committed transportation programs, especially at the local and regional level (Weiner, 2013).

1.2 Introduction to Public Transportation in Denver, Colorado

Comprehensive public transportation programs in the City of Denver did not exist until the creation of the Regional Transportation District (RTD). RTD is the regional authority in charge of operating public transit in the Denver metropolitan region and is governed by a 15-member Board of Directors that are publicly elected (RTD, 2018a). After its creation in 1969, RTD initially was in charge of buses as a mode of public transportation. In October of 1994, RTD started to offer rail transit as an option for a small fraction of the Denver metropolitan region, spanning 8.5 kilometres (km) that was initially called the Central Corridor Project. Though the rail line did not cover many regions of Denver, or the extending metropolitan area, the rail saw increasing ridership year after year following its opening. From 1999 - 2001, the rail line saw an increase from an average of 74 million riders per year to 80 million per year. Ridership as of 2015 and beyond has reached over 100 million riders per year with an average of 340,000 riders per day (RTD, 2018c). RTD developed other light rail lines in response to the success of the Central Corridor Project. The metropolitan area that has RTD coverage has grown by approximately 500,000 people from 2004-2016 and is the second largest growing metropolitan region in the United States (Metro Denver, 2018). As the city continues to grow, RTD hopes to meet present and future public transit needs for the region (RTD, 2018a).

1.3 Transportation and Public Private Partnerships

According to the Federal Transit Administration (FTA) Public Private Partnerships, also known as PPPs, or P3s, are typically seen as a configuration of procurement that is unlike standard contracts because function responsibilities are divided typically by a consortium consisting of private companies and a public transit agency to assume risk and responsibilities for particular portions of a transportation project (Federal Transit Administration, 2018). In this model, the private partner of the PPP has the opportunity to

earn financial returns along with the risk they assume when taking responsibilities for a combination of design, finance, operations, construction, toll revenue collection, and maintenance of transportation facilities (DeCorla-Souza and Sullivan, 2017). Interest is growing for using PPPs for transportation infrastructure projects to expedite the process of urgent transportation project creation and implementation, and to address funding shortages. The following four types of PPPs have been used typically for transportation in the United States, and can also be identified as purely innovative contracting. In PPPs, tasks associated with building and managing are combined together, but in the contracting, tasks of building and managing are delegated to individual private contractors (Hoppe and Schmitz, 2013). Acronyms are listed below to assist in understanding names:

- Design-Build (DB)
- Design-Build-Finance (DBF)
- Design-Build-Operate-Maintain (DBOM)
- Design-Build-Finance-Operate-Maintain (DBFOM)

Many states eventually opted to utilize PPPs for primarily road and highway construction. From 1989 to 2011, 81 percent of PPPs in the transportation sector in the United States were used for bridges, tunnels, and highways (USDOT, 2016; DeCorla-Souza and Sullivan, 2017). However, as time progressed, some transit agencies recognized how PPPs could be used for other transportation-related projects, such as commuter rails, like those in Denver, Colorado; the first operable DBFOM commuter rail PPP in the US, the University of Colorado A-Line. According to the Public Private Partnership Legal Resource Center at the World Bank, “the U.S. is entering a new phase in surface transportation investment, and PPPs are likely to be increasingly relied upon by state and local governments to finance transportation infrastructure improvements,” (2016). Thus, it is important for the urban studies field and urban practitioners to learn lessons and approaches from current or prior PPP projects.

Transportation PPPs are said to generate social services and facilities, and serve as an iron fist (save time, cost effective, and create quality infrastructure) in scholarly literature (Ng, Wong, and Wong, 2010; Bian, 2016). PPPs are also said to create socially inclusive communities (Siemiatycki, 2009). However, while mentioned in literature briefly by Siemiatycki, generally speaking, most PPP guidelines leave out viewpoints from the public and non-commercial shareholders. As well, they tend to leave out the obligation for PPPs to create public benefits and public good for the general public, and more specifically for those communities most immediately impacted by infrastructure projects. Critics say that PPP guidelines dedicate more to financial management with an emphasis on serving interests of the private sector, and do not explain how other groups are impacted by and react to infrastructure (Aizawa, 2018).

With the shift of public transportation being provided through partnerships, and not solely public or private funding, the remainder of Chapter One explains the context of the case study research at hand; the first operable commuter-rail PPP in the United States. The chapter also focuses on providing a brief introduction to topics that will be further discussed in Chapter 2; how PPPs can generate both outcomes associated with PPP literature, but also with that of literature pertaining to social justice.

1.4 FasTracks and Eagle P3

Starting in the late 1990s, residents, private sector organizations, and public officials recognized the potential to develop more rail projects and strengthen the growing economy in Denver proper and the further metropolitan region due to a growing population as seen above, and improve access to opportunities for low income populations (Mile High Connects, 2012). This led to public and private sector stakeholders coming together to develop a transportation plan that eventually became known as FasTracks. The FasTracks plan, and the PPPs existing within the plan itself, hoped to supply transportation that the Denver metropolitan community deemed necessary (RTD, 2004). The plan identified long-term goals and visions of developing the region with various transportation projects such as light rails, commuter rails, and bus rapid transit (BRT), that covered 196 km throughout RTD’s eight county region (Goetz, Jonas, and Brady, 2016).

Table 2- FasTracks Intended Outcomes

1. “Provide improved transportation choices to citizens of the district”	2. “Increase transit mode share”	3. “Establish a proactive plan that balances transit needs with future regional growth”
Wanted to improve the region’s quality of life by allowing individuals to make choices for travel options through local and regional transportation services.	Looking at regional growth, the FasTracks plan was intended to provide more options to relieve commuters from congestion. The plan also wanted to increase the percentage of transit users during peak hours from 11 to 22 percent.	Wanted to increase capacity and convenience as the region’s population increased over time and ideally meet the future transportation needs of the region.

(Source: RTD, 2004)

In order for these various projects to be completed, RTD realized that they could not be the sole entity funding these projects due to the expansive reach throughout the metropolitan region. The comprehensive plan was originally documented to cost \$4.7 billion over the course of 12 years (RTD, 2004). With an annual budget of \$120 million in 2003 implementation of all projects in the plan would be unattainable within 12 years (RTD, 2007), especially with the 2008 and 2009 Recession. To combat these funding issues to fill the gap of providing transportation for the community, it was important to get others involved in delivering transportation services.

RTD started the process in the early 2000s to get various stakeholders, such as the Colorado State Legislature, municipal and county governments, among others, to assist the transit agency in funding these projects, including a region-wide sales tax increase that was voted on by the metropolitan region in 2004. RTD had the FasTracks plan solidified following the sales tax increase and also started the process of working with public and private entities outlined in the plan that would have various responsibilities, mainly designing, building the infrastructure, but in some cases financing and continuing the operation and maintenance on the new infrastructure; a strategy also identified as a PPP. As the plans were expansive nature throughout the metropolitan area, this meant bringing in public-sector organizations and sometimes different local and global private sector firms (see Table 3) to deliver portions of the FasTracks plan. However, only commuter rail lines such as the North Metro Commuter Rail Line, the University of Colorado A Line, the G Line, and the US 36 BRT were considered P3s. Other projects within the FasTracks plan were considered innovative contracting solutions.

Table 3- FasTracks Projects (Excluding Eagle P3 Projects): Funding Sources and Stakeholders Involved

Project	Stakeholders Involved	Funding Source(s)
Denver Union Station	<ul style="list-style-type: none"> ● RTD ● Denver Regional Council of Governments (DRCOG) ● CDOT ● City and County of Denver ● Union Station Neighbourhood 	<ul style="list-style-type: none"> ● Railroad Rehabilitation and Improvement Financing (RRIF) grant ● Transportation Infrastructure Finance and Innovation Act (TIFIA) loans

	<ul style="list-style-type: none"> Company ● Kiewit 	<ul style="list-style-type: none"> ● FHWA grant ● FTA grant ● Senate Bill 1 ● FasTrack funds*
BRT on US 36 ⁺	<ul style="list-style-type: none"> ● CDOT ● RTD ● High Performance Transportation Enterprise ● Plenary Roads ● Aims Granite Joint Venture 	<ul style="list-style-type: none"> ● RTD funds ● Transportation Investment Generating Economic Recovery (TIGER) grant (USDOT) ● Colorado Bridge Enterprise funds ● DRCOG funds ● TIFIA loans ● CDOT funds ● Plenary Roads Funds
I-225 Light Rail	<ul style="list-style-type: none"> ● RTD ● Kiewit 	<ul style="list-style-type: none"> ● RTD FasTrack funds*
Commuter Rail ⁺	<ul style="list-style-type: none"> ● RTD ● Graham and Balfour Beatty Rail (Joint venture also known as Regional Rail Partners, or RRP) ● DTP 	<ul style="list-style-type: none"> ● RTD FasTrack funds* ● RRP Funds

+ Denotes projects that are considered P3

* Denotes funding combinations of sales tax revenues and revenue bonds

(Source: RTD, 2004; RTD, 2007; Goetz, Jonas, and Brady, 2016)

While FasTrack plan projects varied in their contracting and funding mechanisms, the only rail lines that were a full DBOFM PPP were the East Rail Line (University of Colorado A Line), Gold Line (G Line), and the first segment of the Northwest Line (B Line). The University of Colorado A Line and the Gold Line were part of the Eagle P3. Eagle P3 has been possible in large part because of FTA creation of the Public Private Partnership Pilot Program (Penta P) in 2007, established by the Safe, Accountable, Flexible, Efficient, Transportation Act (SAFETEA-LU) legislation brought forth by Congress (Federal Transit Administration, 2017). Designed with the notion of reducing costs and time associated with applying for money

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from the FTA New Starts program, FTA chose three projects around the country to understand PPPs projects better. Specifically, they were looking to understand risk sharing in PPP projects and if PPPs were economical and efficient mechanisms for delivering projects. The Denver Eagle P3 project was one of three projects selected by the FTA.

Not only was Eagle P3 responsible for the DBOFM of the three rail lines, but the PPP also created the Commuter Rail Maintenance facility (CRMF), an office for Denver Transit Partners (DTP), the consortium eventually selected for the project delivery, and for servicing Commuter Rail vehicles that differed from typical RTD light rail vehicles. Eagle P3 is noted as an innovative finance and project delivery method that served to deliver these key rail lines, as it was one of few projects selected to participate in the Penta P program. It also is the first and only operable Penta P project in the U.S. (Goetz, Jonas, and Brady, 2016).

Photograph 1 – Eagle P3 Funded Project Map

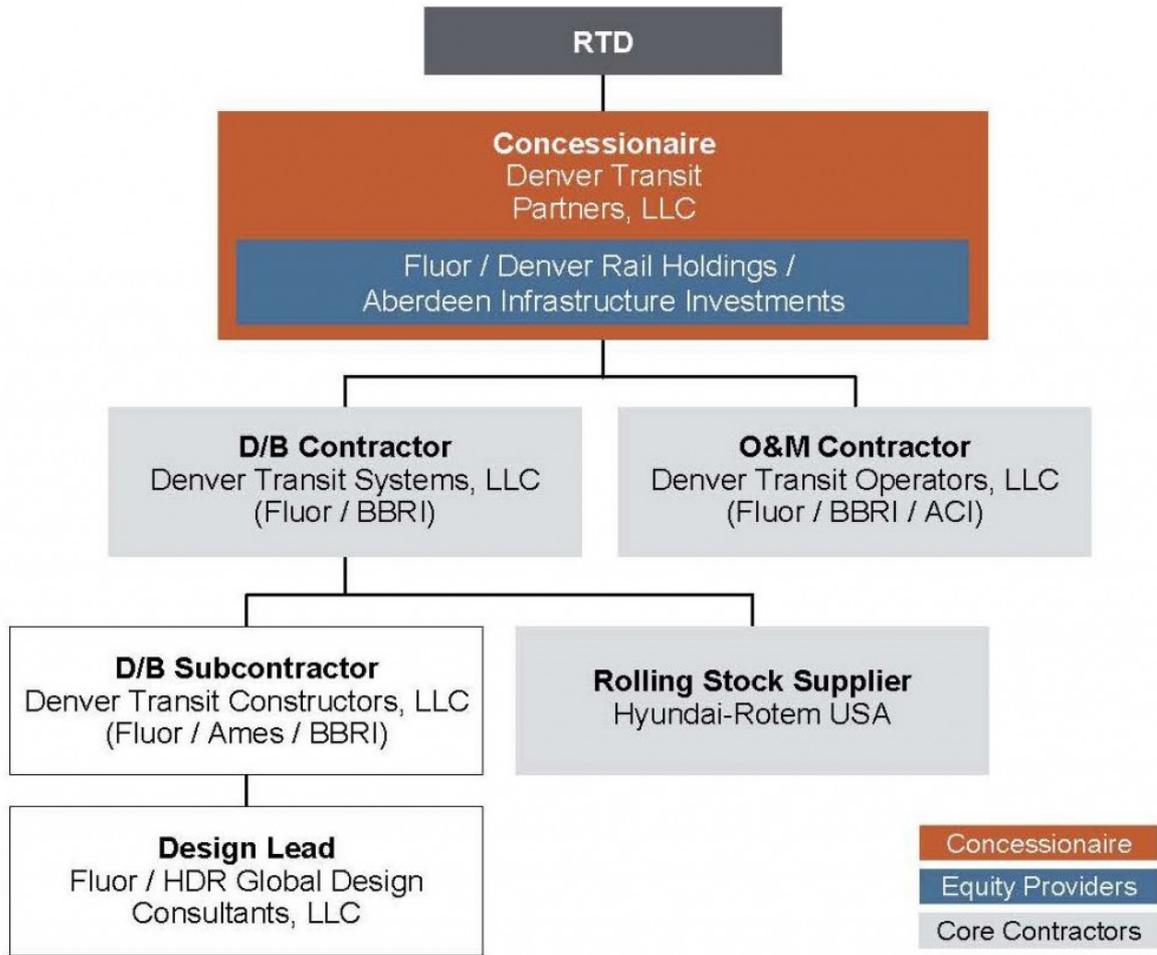


(Source: Denver Transit Partners, 2018a)

DTP, RTD’s selected concessionaire for Eagle P3, is comprised of partnerships between Fluor Enterprises, Inc., an entity of Fluor Corporation; Denver Rail (Eagle) Holdings, Inc., an entity of John Laing PLC; Aberdeen Infrastructure Investments (No 4) USA LLC, an entity of Aberdeen Global Infrastructure Partners LP, Balfour Beatty Rail Inc. (BBRI), Airports Council International (ACI), Ames Construction, and HDR. DTP was awarded the Eagle P3 project in July of 2010 that followed a financial close in August 2010 (DTP, 2018b).

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Chart 1- Eagle P3 Project Organization Chart



(Source: DTP, 2018b)

To understand how Eagle P3 projects were funded, Table 4 explains the sources of capital funds dedicated to the projects. However, the remainder of this research will only focus on the University of Colorado A Line portion of the Eagle P3 project, the first formally operable line of the PPP.

Table 4- University of Colorado A Line Eagle P3 Project: Funding Sources and Stakeholders Involved

Funder and Funding Source	Funding Amount (in USD Millions)
---------------------------	----------------------------------

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Regional: RTD funds, bonds raised through the increase of the regional sales tax in 2004	684
Federal: FTA Grant	1,030
Global: Equities and revenue bonds from the private sector	486
Combined investments for Eagle P3	2,200

(Source: Goetz, Jonas, and Brady, 2016; RTD, 2018c; RTD, 2018d; RTD, 2018e)

RTD pays the private partners over the project's lifetime and retains asset ownership of all parts of the project that relate to the FasTracks system. The project's Phase 1, the design and build, began in August 2010. The remaining build phase of the project was completed in 2016. Now, DTP (the private consortium) operates and maintains the project for the remainder of its contracted lifetime of 29 years as of 2016.

Revenue bonds for the project were issued in 2010. They received ratings of Baa3 and BBB-, which were up to investment grade scale, but were among the lowest ratings feasible for infrastructure bonds (Long, 2012). Coupled with high interest payments, rising costs, and the Denver metropolitan area unwilling to vote in favor of extra taxes, FasTracks projects needed partnerships willing to provide capital. Following the regional sales tax measure passing in 2004, a preferred partner emerged: Macquarie Group. Macquarie Group is a global investment bank that specializes in infrastructure project financing around the world and invested approximately \$486 million. However, throughout the course of the project, it became clear that Macquarie wanted to sell off Eagle P3 interests before it was completed. Following Colorado politicians expressing concerns about FasTrack project management, Macquarie decided to sell shares in DTP to Uberior Infrastructure Investments.

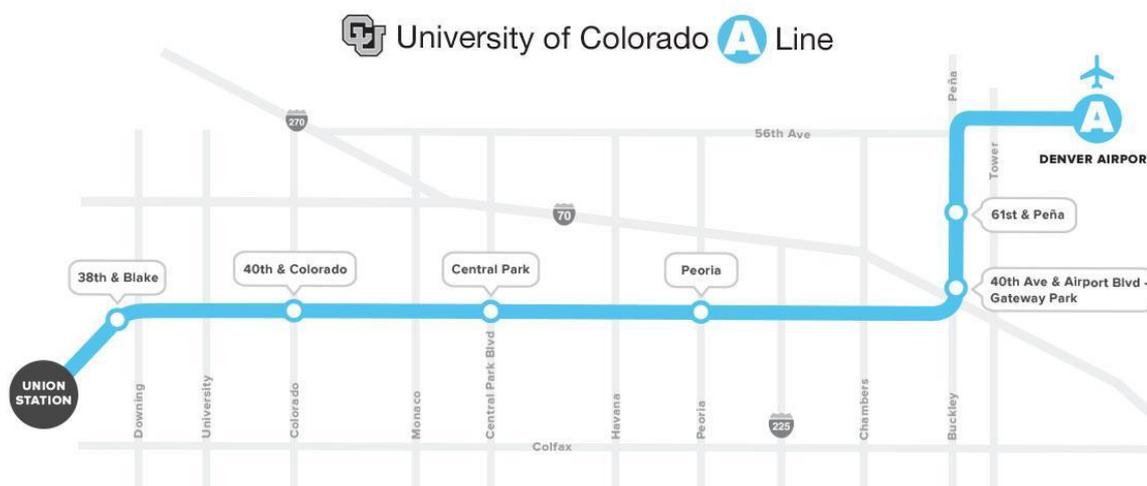
1.5 Problem Statement

Since 2016, most phases of the FasTracks project have been completed. Including, but not limited to, the A Line Commuter Rail, covering the eastern part of the metropolitan region. Prior to its operation, rail transit only operated to 30th and Downing Station to the north of the city and the Florida Station to the south of the city. As well, bus operation to the eastern part of the city is limited compared to other bus route networks in surrounding areas; resulting in a uneven distribution of choices for those wanting to limit use of their vehicle and those without access to vehicles (Shaeffer and Sclar, 1980). The A Line project added

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13.5 km to the east of the city, and also added 1.6 km of rail to the north of city, which bridges the gap of uneven distribution of transit options to the extended suburb regions of the city (RTD, 2018a).

Photograph 2 – University of Colorado A Line Commuter Rail Map



(Source: RTD, 2018a)

Many scholars argue that with the advent of the motor vehicle, building of the highway and/or freeway networks, coupled with the “American Dream”, pushed lower income and generally disadvantaged communities out from accessing normal goods and services in other areas (Smith, 1994; von Hoffman, 2002; Konrad, 2006; Wilson, 2010). Though, at the time, and still today, the personal vehicle is the most commonly used mode of transportation, including in the Denver region today (US Census Bureau, 2016), many opportunities (goods, services, jobs) exist in extending areas to central cities, requiring more of an emphasis to be placed on providing better options for public transportation (Kaufman, Moss, Hernandez, and Tyndall, 2015; Pojani and Stead, 2015).

The A Line commuter rail, extending to the East of Denver outside of the central city area, is one outcome of the PPP in FasTracks. Connecting theory to practice, the rail allows people to access extended areas of the city where more opportunities (goods, services, jobs) exist, as the rail line covers 15 km worth of land previously not accessible by public transport, and only by vehicles. Since social justice is concerned with justifying differential treatment, or access among people whom live in a society to particular resources or opportunities (Smith, 1994), the added rail line helps not only those whom are at an economic disadvantage, but also those that are not; solving issues of distributional justice.

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The new rail line touches approximately 10 different zip codes, with some that would be identified as 'transit dependent'. Transit dependent demographics consist of populations that have high percentages of young people (under the age of 18), high percentages of elderly people (ages 65 and up), high percentages of low-income households, and households with people of color (Taylor and Fink, 2012).

RTD strives to "meet the transit needs for their riders and communities," which include those that are generally disadvantaged neighbourhoods, but also those who are not. The rail is a way to distribute transportation options evenly between 10 drastically different neighbourhoods as shown in the summary of transit dependent variables of neighbourhoods in East Denver (See Annex 1) (RTD, 2018b).

As discussed earlier in Chapter One, the advent of the motor vehicle furthers the idea of individualism and the advancement of neoliberal thought. However, as more roadways develop, their growth pushes away low-income communities from accessing basic resources; causing those without vehicles to become further disadvantaged. This creates the potential for structural inequalities, which causes concerns for social justice; a measurement of wealth distribution, and opportunities, and general privileges that exist in societies.

As people recognize these structural inequalities play out in everyday life, one solution in combating these issues could be having the government look to private organizations to provide public goods instead of through sole public intervention because of limited funding and government inefficiencies; a typical argument of neoliberal theory and capitalism that the private sector is more efficient in providing services due to the "free market", creating competition (Hearne, 2010). Neoliberal proponents argue that privatization of public goods allows for a more efficient delivery of goods and services through the market, which thereby provides more to the public generally. Mass transit systems are argued to be examples of public goods (Enright, 2012). Everyone has access to highway systems and public transportation systems; thus, people utilizing these systems should experience the same benefits, or suffer from the same problems.

However, it is also possible to exclude people from accessing these systems using tools such as tolls or usage fees for public transport. Critics of neoliberal theory argue that privatization of goods makes the good excludable and rival and that there is a need for public intervention to insure that public interest is protected. Public transportation can be seen as a critical issue that lower income groups need to access basic resources (Taylor and Fink, 2012).

To make these systems more accessible, and because the US economy and its politics have created a frame where minimal government intervention is needed because of the sheer nature of lofty expenses to fund infrastructure (Farmer and Noonan, 2011; Crawford, 2018), there is a push to privatize the infrastructure we build to enhance standards of living. Though scholars argue that sole privatization is not the only answer, adding private elements to transit infrastructure can help with critical financial gaps that public organizations cannot access on their own (Schaeffer and Sclar, 1980), can the push to privatize in order to provide public goods fill gaps for financing but also fill the gap of providing social justice?

As transportation agencies continue to search for different ways to not only provide transportation options for all communities, but also hope to finance larger infrastructure projects responsibly, it is important to look to cases that tackle both issues head on. Many urban professionals have deemed the implementation of the FasTracks project to be a large success in the field. These observations call for investigation of the University of Colorado A Line commuter rail, the first full transit Design Build Operate Finance Operate Maintain (DBOFM) PPP in the United States to understand if the project has been deemed successful or not in the eyes of those that use it most frequently; the people of the metropolitan region with a special focus on social justice when understanding the PPP's performance metrics. In order to increase success, scholars and urban practitioners involved in PPPs find social justice important to look at. Communities, whether seen as general communities, or communities that are transportation disadvantaged, are the most affected by PPP schemes (Ng, Wong, and Wong, 2010) though there is little to no literature surrounding these topics.

1.6 Research Objectives

The main objective of this study is to understand if PPPs can generate different outcomes that reflect social justice values and aims to explain what actions within a PPP framework are most relevant to social justice.

1.7 Research Questions

Following the identification of the problem, and research objectives, the main research question is:

Can PPP factors create outcomes that reflect social justice values as implemented in the case of the University of Colorado A Line?

To assist in answering the main research question, sub-questions will also be discussed throughout the paper as well. The remaining questions bulleted below consist of sub-questions to the main research question:

- What is the nature of transportation PPP outcomes in general in the United States, more specifically in Colorado, and how do they relate to social justice?
- Which PPP factors influence social justice outcomes in the case of the University of Colorado A Line?

1.8 Relevance

In relation to theory, while some research has been conducted on the planning processes of the FasTracks plan, as well as the Eagle P3, little to no research has been conducted on the commuter rail portion of the FasTracks plan post-operation. As well, though PPPs produce social facilities and services, little to no research has been conducted to understand if PPPs contribute to social justice. It is important to connect the two together as neoliberal theory references PPPs as a mechanism to continue free market competition values and globalization in core public services and governance infrastructure, but also creating public services with the public in mind.

From a societal point of view, PPPs are likely to be increasingly relied upon in the US to finance transportation projects. For many years federally, the United States has pushed for more funding for infrastructure projects, but funding for said projects is not allocated despite regular attention from both political parties in Washington. As most rail transportation PPP projects exist outside of the US market, it is also important to understand how projects like the first commuter rail PPP in the US not only compare to other PPPs in society, but also gain better insight into how exactly they influence the general American people.

1.9 Scope and Limitations

Due to time constraints, though the FasTracks project produced multiple new transit options, this study will focus on only the University of Colorado A Line commuter rail. When studying public perception against the PPP's performance metrics, this study focused on collecting data in three of the 10 zip codes where the commuter rail operates: 80204, 80205, and 80238. These zip codes were chosen based upon their transit dependency (See

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Annex 1) by ranking various variables (percentage of population in poverty, percentage of population below the age of 18, percentage of population older than 65, and income) and ranking the different regions against each other on a scale of one to 10 for need.

Following this ranking system, the first, fifth and tenth most transit dependent zip codes were selected based on a scale of ten. This was done to provide a more in-depth understanding justice from both the perspective of lower-economic populations, but also those who are less in need of public transportation. However, because of this selection, findings are not generalizable for all zip codes along the rail line or bordering it. To combat issues of validity, this study utilized secondary data and qualitative interviews from stakeholders to triangulate data collection.

As well, during the data collection phase when administering community surveys to study public perception of the PPP and the project as a whole, some respondents were unaware of what the University of Colorado A Line was. Typically to clarify, if surveyed in person, the researcher would mention that the rail line was the RTD line that took people from Union Station to the Denver International Airport (DIA). In the process of administering the community surveys, there may have been respondents who did not know what the survey was about. However, as the sample size reflects statistical significance, any results reflect that the neighbourhoods being studied indicate a five percent risk of a difference in response or less.

1.10 Conclusion

Chapter One attempted to explain the shift of public transportation being provided through partnerships, not solely public or private funding, and how there is a critical need to understand if these partnerships still produce social justice. This chapter also provided context into the case study at hand; the University of Colorado A Line commuter rail in Denver, Colorado, and the study's limitations. Following this introductory chapter, Chapters Two and Three provide insight into the theories underpinning PPPs and social justice, and how to quantify literature into methods that can be researched. Chapter Four focuses on discussing the findings of the research, and Chapter Five discusses the research at hand and provides key conclusions and recommendations for further research.

Chapter Two: Literature Review

Introduction

To understand the issues that exist surrounding the topics in Chapter One, it is important to understand the theoretical context that underpins a PPP infrastructure project, such as a commuter rail. This chapter defines PPPs and the relevant theories and history existing behind PPP development, and explains the factors that impact PPP success and outcomes based upon literature. Following, the chapter explores social justice theory and outlines key activities that lead to socially just outcomes. The chapter concludes by utilizing the theory of change to summarize arguments made throughout the chapter in a framework to explain how specific choices made in a PPP project could result in successes associated with social justice.

2.1 Understanding Public Private Partnerships

As mentioned earlier in Chapter One, cities in the United States started to realize around the 1980s that the most viable way to build new infrastructure was through a mixture of funding coming from the public and private sector. As public debt started to grow, governments looked to encourage private sector groups to invest in infrastructure (Frieden and Sagalyn, 1991). Now, scholars consider it the ‘the way of living’ for the United States, as its political and social welfare system exists today (Moulton and Anheier, 2001). However, to understand how the political and social welfare system operates in the United States, it is important to also understand the concept of neoliberalism and how it relates to PPPs.

Through the lens of a geo-political-economist, one would argue that neoliberalism is identified as a process of neoliberalization where governments experience locally and nationally specific changes. Governments restructure their political and economic systems to align with values of free market competition and globalization (Hearne, 2010). Through this process, socio-political effects and contradictions are capable of rising (Brenner and Theodore, 2002; Peck and Tickell, 2002). One example of a contradiction widely studied by scholars is the significant backlash by the public to the privatization of Keynesian welfare-state and its institutional forms in the 1990s. This significant political backlash was because of the dramatic rise of income inequality and state reliance on corporate financial capital. This resulted in weak voter support of privatization amongst other backlash throughout the United States (Bourdieu, 1998; Brenner and Theodore, 2002; Harvey 2005; Peck and Tickell, 2002). Governments then face the problem of continuing free market competition values and globalization in core public services and governance infrastructure, but also creating these public services with the public in mind. Policy mechanisms like PPPs were in turn

developed so that neoliberalization implementation could continue throughout key institutions in the welfare state (Murray, 2006; Whitfield, 2006; Hearne, 2010).

Defining PPPs

While there are many definitions of PPPs, and there truly is no single agreed upon definition of PPPs (World Bank, 2018), it is important to provide clear definitions of the concept. With hopes to avoid public opposition to privatisation, PPPs are explicitly separated from privatisation and are branded as partnerships with a mixed investment economy that seek to introduce private sector markets into the public sphere (Hearne, 2010).

Some examples of PPP definitions include:

- An institutional means to deal with market failure that creates equity and accountability through mutual transactions between public and private organizations that hold each other accountable and are cooperative (Pongsiri, 2002),
- The combining of resources from the government and private sector that deliver societal goals (Skelcher, 2005),
- When public necessity and private capability and resources meet to create market opportunity that meets public needs and profit is made (Kwame Sundaram et al., 2016),
- An agreement made by the government and one or more private sector actors that delivers services that follow objectives set out by the government aligned with objectives of profit for private partners. Risk and effectiveness of the agreement is generally seen to be in the hands of the private partner (OECD, 2008), and,
- When public and private actors cooperate, develop mutual services, and risks and benefits are distributed between the actors (Klijn and Teisman, 2003).

For the sake of clarity in this research, we will utilize a combination of the definitions listed above including Klijn and Teisman (2003), and Skelcher (2005) to **define PPPs** a policy, market mechanism, or contractual agreement that is an institutional means to deal with government or public sector failure that is developed through a cooperation of a multi-stakeholder network of public and private sector actors that delivers societal goals or public services.

Explaining PPP Agreements

There are various types of contractual agreements for PPPs. Most countries, including the United States, use traditional methods in the process of creating capital investments- either through solely public funding, innovative contracting, or less complex PPPs (Packable, 2002).

As mentioned in Chapter One, the most common methods of transportation PPPs in the United States used are the design build (DB) model, and the design build operate and maintain model (DBOM), where the consortium of private actors is responsible for the designing and building of the project at hand, or designing, building, operating and maintaining said infrastructure (Thomas, 2014). Though it is not common, it is important to understand the structure of the design, build, finance, operate and maintain model (DBFOM) of PPPs. The DBFOM method transfers financial risk to private sector and typically creates cost savings for the life-cycle of the infrastructure (Fishman, 2009). Typical structure of the DBFOM model is outlined below:

Table 5- DBFOM Project Delivery Method

	Determine Needs	Propose Solution	Project Design	Financing Project	Project Construction	Maintain/ Operate Project	Project Ownership
Responsible Party	Public/ Community	Public	Private	Private/P ublic	Private	Private	Public

(Source: Clifton and Duffield, 2006)

Clifton and Duffield (2006) explain this delivery method and the phases between stakeholders in a comprehensible way. During the ‘determine needs’ phase, the community and the public sector work together to determine community interest and the need for a project through phases of testing. The public sector also tests the financial capabilities typically during this phase and determines particular terms of output expectations that are released during the ‘project solution’ phase. The public sector releases these expectations and conditions, which are then translated into a phase where the private sector tries to match their expectations. Once a match is found, specific agreements and standards are then delivered in a contractual agreement for the public and private sector to work together. This is usually done using a Special Purpose Vehicle (SPV) where a company is created to design, finance, construct, maintain and operate facilities for an extended amount of time (normally 20-30 years at least). This specific agreement normally created using an SPV, also known as a consortium documents, outlines more specifics, such as who controls ticket prices, what are requirements for availability payments to the private entity, and when exactly the agreement ends to ultimately transfer ownership back into the hands of the public entity. Historically, the specifics of the SPV or the consortium documents are handled through the private entity, but the government can create any specific commitment in the terms they see fit. At the end of the agreed terms for operating the facility, also known as the concession period, the facilities are transferred for the public sector to own.

As explained previously, most partnerships involve public sector authority (mainly government entities) and private sector actors that form a consortium to deliver services. However, some forms of PPP agreements also include community agreements as well. One example of community agreements includes Tax Increment Financing (TIF), where the public votes on a tax increase to subsidize project implementation. (Goetz, Jonas, and Brady, 2016).

Critical Success Factors of PPPs

During these different phases in a DBFOM project delivery method, there are different activities that both the public and private sector do that result in favorable outcomes that are needed for all partners in the project to reach their own individual goals (Rockart, 1982). This is also known in literature as Critical Success Factor. Examples include appropriate risk allocation, stability of the economy, stakeholder interaction, plan implementation balance between public and private sector, equality of authority of actors in the PPP, and other various factors (Li, et al., 2005a). Research cites many different activities to be key determinants of PPP success. However, Osei-Kyei and Chan (2015) brought together all literature surrounding critical success factors internationally to determine which factors contributed to improvements in PPP implementation practices. They ultimately determined, based upon frequency of citation and publication of particular factors, the factors that were considered the most important to success in a PPP project. Of the 40 factors they listed, the top 15 are as follows:

1. Appropriate Risk Allocation and Sharing
2. Strong Private Consortium
3. Political Support
4. Public/Community Support
5. Transparent Procurement
6. Favorable Legal Framework
7. Stable Macroeconomic Condition
8. Competitive Procurement
9. Strong Commitment by Both Parties
10. Clarity of Roles and Responsibilities Among Stakeholders
11. Financial Capabilities of the Private Sector
12. Technology Innovation
13. Good Feasibility Studies
14. Open and Constant Communication
15. Detailed Project Planning

Typically, evaluation of these critical success factors occurs following project completion for stakeholders to reflect on the important parts that indicated success or failure of a project. In research this process is usually done through documenting quantitative and qualitative measures of expert opinions (Chua et al, 1999). This study will utilize factors outlined in Oseki and Chan's research to test based on indicators they found that reflected proper use of the particular critical success factor. As it is important to draw focus in the research, for the sake of brevity, the following eight factors and their indicators will be discussed in greater detail: Appropriate Risk Allocation and Sharing, Public and Community Support, Transparent Procurement, Detailed Project Planning, Clarity of Roles and Responsibilities Amongst Stakeholders, Technology Innovation, Political Support, and Good Feasibility Studies.

Detailed Descriptions of Critical Success Factors for PPPs

Appropriate Risk Allocation and Sharing: Risk allocation specifically involves outlining risks and sharing them between both parties, or the public and private sector (Osei-Kyei and Chan, 2015). Appropriate allocation is determined based upon which party has the better mitigation techniques for managing said risk in the project (Roumboutsos and Anagnostopoulos, 2008). It is important to note that risk is not only transferred to the private sector, but also to the public. Transferring all risk to the private sector could likely impact project progress or future private investor involvement in PPPs.

Public and Community Support: Public and community support from the beginning of a project or planning process helps with any sort of project delays. With this in mind, scholars and practitioners have noted that getting the media, civil society, trade unions, general public, and non-governmental organizations on board with understanding and accepting of the project and PPP process. Some scholars, such as Yong (2010), note the importance of public education and awareness of PPPs to gain community and public support. Others mention that if a government reassures the public of quality service and provides reasonable user fees for the project that it indicates the potential for public and community support (OECD, 2010).

Transparent Procurement: Since a PPP is also a procurement process, many scholars find that transparency in the process of formulating a PPP is key to its success. Transparency can be seen as constant and cordial communication between stakeholders during the tendering process (Osei-Kyei and Chan, 2015), or throughout the entire process of project delivery (Li et. al, 2005). The importance of project information being made publically available as well

as government reassurance of public ownership is another indicator highlighted in scholarship that reflects transparency in the procurement process.

Detailed Project Planning: Because PPP projects are complex in nature; many find it important to plan for a PPP as much as possible prior to implementation as it provides insight into the future of what the project and PPP process will look like. Research states that clarity in objectives in contracts; technical plans and specifications are important for PPP success as well as life cycle assessment scenarios of designs and planned facilities (Zhang, 2005b).

Clarity of Roles and Responsibilities Amongst Stakeholders: Literature discusses that both public and private parties should openly discuss their roles, both in documents, and in communication with each other throughout the project and its delivery (Oseki-Kyei and Chan, 2015). Typically, these roles and responsibilities amongst the public and private sector are complementary to each other. Each party brings skills together for project to provide public services, PPP, or the project (Tang, Shen, and Cheng, 2010).

Technology Innovation: Throughout many different critical success factors, literature discusses the importance of consortiums being ready with technical skills to assist in undertaking a PPP project. Liu and Wilkinson (2011) explains that typically technological components of a PPP projects should be provided by the private sector so that facilities and structures can benefit users to a maximum capacity.

Political Support: There is clear linkages between PPPs and public policy at the local, state, and federal level. Without support of those in power, many PPP projects would not be capable of being financed due to their complex bond and taxation structure. This requires that approval from state or federal government for public expenditure be fulfilled (Jacobson and Choi, 2008). In order for states to likely approve public expenditures for PPPs, this requires those in power to accept PPP projects as a project option to deliver infrastructure (Li et al., 2005).

Good Feasibility Studies: Literature identifies PPP studies as a way to enhance relationships, the environment, value for money, risk management, and if a project is financially viable. Thus, it is also important to properly evaluate PPPs and their potential through study conduction (Jamali, 2004).

Rationales For Using and Against Using PPP

With the DBFOM model in mind, many scholars argue for and against PPPs. Arguments include:

For Using PPPs:

- Innovation increases with the inclusion of the private sector with their expertise as they typically produce better quality transit infrastructure at a lower cost for the public good (Batley, 1996; Thomas, 2014; Savas, 2000).
- Projects typically get delivered faster, and on time, at lower costs than in solely public run methods according to UK research (NAO, 2003).
- Public good, specifically transport and transportation, is linked to the right of mobility. One strategy to deal with the right to mobility includes solving problems with private sector actors in social sector activities (Wang, 2000).
- Private sector involvement brings more specialized experience with management, technology, and funding (Savas 2000, Grimsey and Lewis 2007).

Against Using PPPs:

- Critics argue that public accountability can be lost when a private sector actor operates a public asset (Siemiatycki, 2006; Forrer et al., 2010)
- Profit maximizing can come at the expense of the public (Siemiatycki, 2006).

A concern very important to this research is that other research that has shown that PPP projects typically introduce or increase public service user charges, causes a reduction in producing quality and accessible public services, and ultimately increases corporation's involvement in governance (Hearne, 2010; Li et al., 2005b). This calls to question if a neoliberal market regime at the failure of government can provide basic human needs for all groups of society in the form of PPPs, and ultimately deliver social justice. The remainder of the research presented in following chapters will attempt to determine which elements of PPPs presented in the literature impact the delivery of social justice. With this grey area in mind, it can be assumed that there are elements of PPPs that may or may not impact the delivery of social justice. However, as there is no research specifically tying social justice to PPPs, it calls for further investigation.

2.2 Contextualizing Social Justice

Defining Social Justice and History

“‘just’ means ‘equitable’ with respect to persons or conduct, ‘fair’ and ‘deserved’ treatment,

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which adds reference to 'well grounded,' 'right,' and 'proper.'" (Smith, 1994, p. 24)

As seen above, social justice and its historical context can take many different turns. However, for the sake of clarity, we will start by explaining social justice from the context of social and moral philosophy and its ethical principles since these principles can be used to evaluate activities and circumstances in the urban context (Harvey, 1973). When using this approach for evaluation of circumstances based upon ethics, values are created based upon a stamp of moral approval or disapproval (Asquith and Cheers, 2008). This form of ethical evaluation method derives from the Marxist ethical approach. Philosopher Karl Marx explains that moral standards take form from general human behavior and historical conditions established in the interest of society (Coleman, 1990). Marx says that observing these concepts of social justice and morality is the way to evaluate human practices.

Theory of Justice and Distributive Justice

The approach outlined by Marx created a foundation for liberalism, a moral philosophy based upon equality, outlined by John Rawls (1971) in his book *A Theory of Justice*. Rawls, and other scholars elaborate on this theory of social justice and explain the nature of distributive justice; a market mechanism or institutional structure, to provide material things and services equally amongst members of society (Rawls, 1971; Griffin, 1988; Barry, 1989). Barry (1989) continues to elaborate on institutional structures existing in distributive justice and how they determine the access to basic resources to reach a means of satisfaction with a wide variety of desires. He argues that distributive justice recognizes that production and distribution of these material things and services are related to each other and that efficiency of the services is also equal to equity.

These basic resources discussed by Barry are argued by many scholars to have "moral importance" that are in this sense like rights (Barry, 1989; Friedmann, 1992; Langan, 2001; Cresswell, 2006). The distributional justice approach to social justice that based on the basic needs value set argues that justice is achieved when producing services if the following standards are met:

1. Minimum requirements for consumption of goods and services are met,
2. Essential services are provided by and for the extended community,
3. People are allowed to participate in the decisions that impact them, and
4. The satisfaction of people meets an absolute level of basic human rights within a broader framework (Friedmann, 1992).

Justice and Transportation

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Scholars have been investigating issues of distributive justice and transportation since the 1960s. The core of this work argues that when basic needs are not met, it can result in issues surrounding social exclusion and can ultimately compromise a person's well-being (Kain, 1968; Wachs and Kumagai, 1973). Social justice is concerned with differential treatment in circumstances where there is no morally relevant difference between individuals or groups of people. This differential treatment is considered unjust, or also known as social injustice. (Smith, 1994). When measuring injustice related to transportation, the literature emphasises approximately three different types of inequalities related to transport:

1. Unequal geographical distribution of transport (Murray and Davis, 2001; Ong, 2002),
2. Inequalities in travel behavior, reflected through opposing levels of well-being and participation throughout a society (de Vasconcellos, 2005; Bills, Sall and Walker, 2012)
3. Unfulfilled mobility needs of generally disadvantaged groups due to constraints created by a transport system relative to economic reasons (Nordbakke and Schwanen, 2015).

In order to prevent transport-related inequalities listed above, scholars argue to utilize the basic needs value set in the process of creating transportation systems that result in more socially 'just' outcomes (Smith, 1994; Bills, Sall and Walker, 2012; Noordbakke and Schwanen, 2015). The remainder of the research presented in following chapters will utilize the basic needs approach to social justice to determine if PPPs inhibit or enhance the three different types of inequalities related to transport listed above.

2.3 Conceptual Framework

Social justice is both a process and a goal to achieve. Most goals associated with social justice discuss how satisfactory social justice is achieved when full and equitable participation of people in a society mutually shape goods and services to meet the needs of society as a whole. Aligning with goals of social justice, the process of achieving these goals requires participatory and democratic actions to take place. Actions and activities that take place in the process of developing transportation projects, and PPPs, ultimately determine how much social justice is created for the majority of people that live in a community.

While governments face challenges of not only developing processes that meet the needs of society and allow full and equitable participation, they also face the problem of the following: Free market competition values and globalization in providing core public services, governance structures, and infrastructure. Policy mechanisms and procurement

documents like PPPs were developed to help continue neoliberalization implementation throughout institutions in the welfare state. Evidence shows that PPP projects typically introduce or increase public service user charges, which can cause a reduction in producing public services that are accessible to all, and ultimately increase corporation's involvement in governance (Hearne, 2010; Li et al., 2005b). However, PPPs can also be identified as a cooperation of a multi-stakeholder network of public and private sector actors that delivers societal goals or public services through a contractual financial agreement for the public good. Because a government fails to provide basic needs for all groups of society, PPPs **could** be a solution in the neoliberal market regime to provide socially just outcomes.

With all of this grey area in mind, it is important to understand how PPPs could be a solution in the neoliberal market regime to provide socially just outcomes. In the PPP process and in its formal contracting documents, there are particular activities (also discussed as Critical Success Factors earlier in Chapter 2) that can be seen as mechanisms to encourage social justice. Depending on what the public sector and the private sector invest in the process of PPP generation, and what is developed in the contract of the PPP, this determines outputs and outcomes of social justice. Some of these particular activities, or portions of PPP contracts may have little to no influence on social justice at all. However, breaking parts of the PPP into key activities, or success factors, allows us to further investigate the specifics of understanding various mechanisms to determine the PPP influence on social justice.

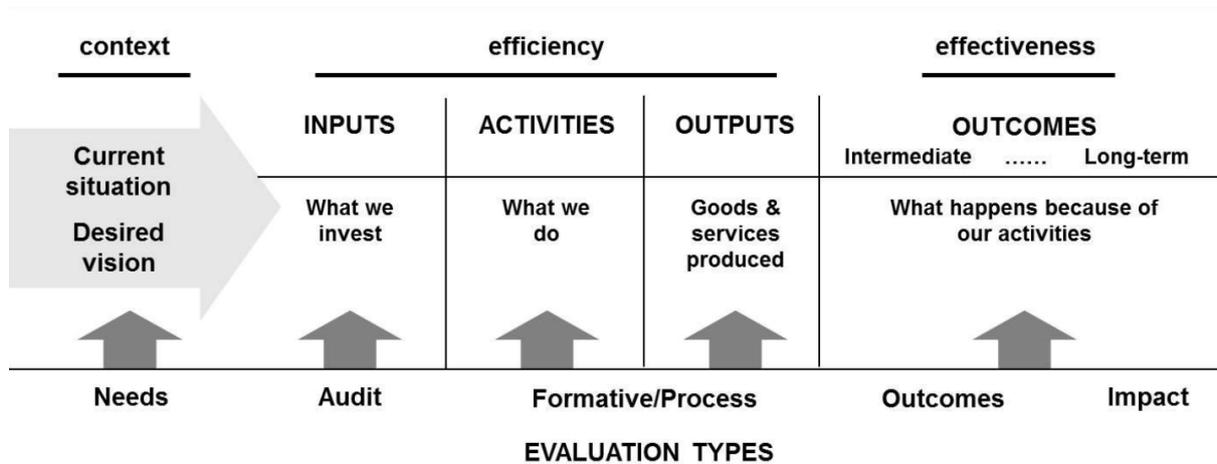
Both PPPs and social justice are processes and have goals, or outcomes they seek to achieve. They also seek to deliver societal goals and public services. However, little to no knowledge has been developed in understanding if the activities and actions that take place in a PPP, its development, and outcomes, also reflect underlying social justice values when developing public services. This leads to the importance of developing a framework to research what elements, or factors of PPPs presented in literature impact the delivery of social justice.

A theoretical framework, **theory of change**, is used in both PPPs and social justice research to show how both processes achieve outcomes. The theory of change explains how and why the world and people change. It is an understanding how people, or a group's behavior and the choices they make result in societal changes (van Es, Guijt, and Vogel; 2015). More specifically, for actors involved in creating social change, this model influences the strategies they choose to either achieve PPP success or more socially just outcomes.

The theory of change reflects on understanding particular actions, such as critical success factors in PPPs. The framework for the theory of change, which is listed below, is a tool to assist in understanding specific PPP mechanisms that do or do not enhance social justice.

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Figure 1 – Theory of Change Framework

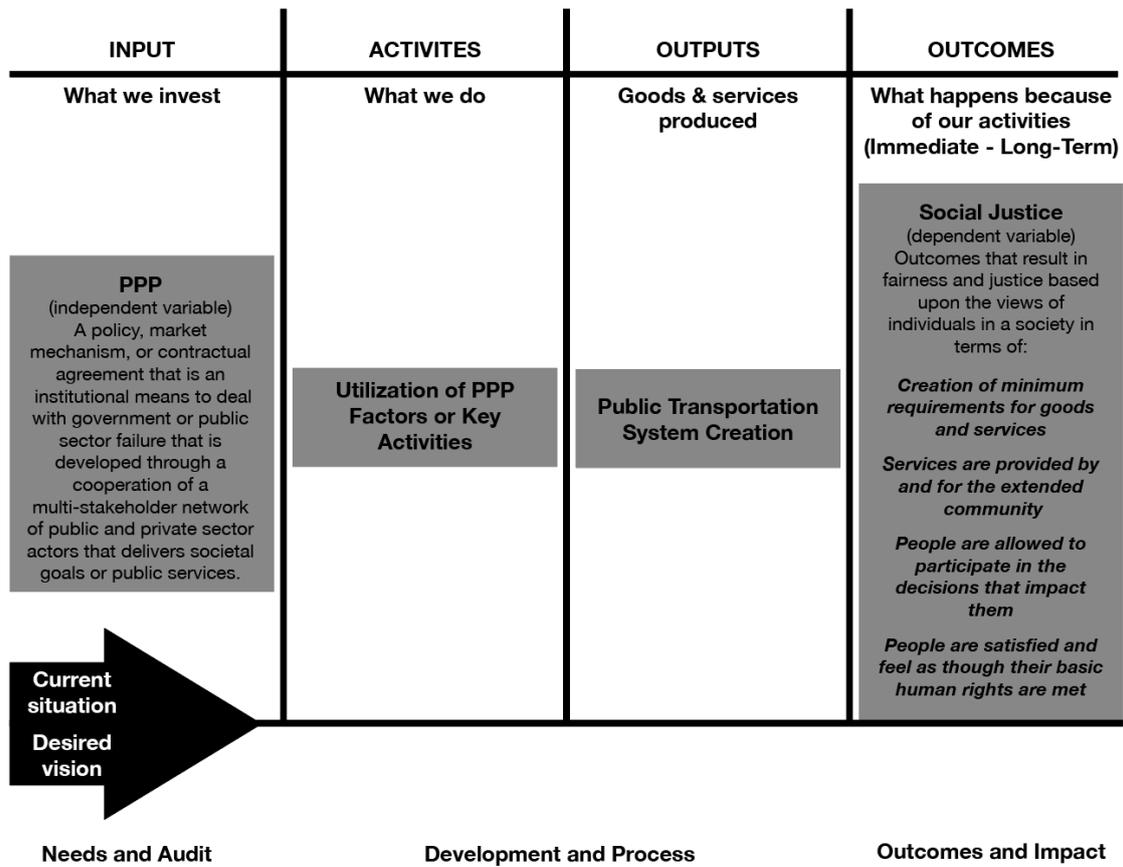


(Source: Allen, Cruz and Warburton, 2017)

The framework measures the outcomes and impacts based upon the inputs, actions and activities that take place in the process of developing a particular change in society (Hodge and Greve, 2005; Klugman; 2011). Some argue that without an understanding of the strategies that are used to get to a particular outcome, “it is not possible to assess progress,” (Klugman, 2011, p. 148).

Because this framework mainly is used in PPP development and social justice individually, a framework that reflects both has been developed for this research specifically. It seeks to explain how to explain that there are potential linkages between PPP factors and social justice outcomes that will be explored in the remainder of the study.

Figure 2 – Theory of Change Framework For Social Justice and PPPs



(Source: Author, 2018)

As stated before, this research postulates that PPPs have the capability, if properly executed, to create outcomes associated with social justice. Depending on what the public sector and the private sector invest in the process of PPP generation, and what is developed in the contract of the PPP likely determine outputs and outcomes of social justice. Some of these particular activities, or portions of PPP contracts may have little to no influence on social justice at all. However, if the process of developing PPPs is broken down into smaller subsections, or success factors, this allows us to further investigate the specifics of various PPP mechanisms to determine their influence social justice. This study will seek to understand how these particular factors, or key activities lead to social justice in transportation PPP projects.

2.4 Conclusion

Chapter Two has explained how particular factors, or key activities in a project can lead to outcomes in a transport project that reflect social justice values. Chapter Three continues to explain how we can operationalize these concepts to further study.

Chapter Three: Research Design and Methods

3.1 Introduction

Following the review of literature and theory surrounding PPPs and social justice, Chapter Three explains how to operationalize the concepts discussed in Chapter Two into a research strategy with adequate design and methods to study at an in-depth level. To reiterate the research objective outlined in Chapter One, this study seeks to understand if PPPs can generate outcomes that reflect social justice values, and aims to explain which actions within a PPP framework are most relevant to social justice. Thus, the following research questions will be investigated:

Can PPP factors create outcomes that reflect social justice values as implemented in the case of the University of Colorado A Line?

To assist in answering the main research question, sub-questions will also be discussed throughout the paper as well. The remaining questions bulleted below consist of sub-questions to the main research question:

- What is the nature of transportation PPP outcomes in general in the United States, more specifically in Colorado, and how do they relate to social justice?
- Which PPP factors influence social justice outcomes in the case of the University of Colorado A Line?

Based upon an extensive literature review, there are many different factors that indicate success or failure of a PPP (see Osei-Kyei and Chan, 2015). There is an extensive list of 40 factors that indicate success or failure of a PPP, and knowledge of contractual cooperation and phases between stakeholders in a PPP (See Table 4). Many of these PPP factors likely do not contribute to understanding social justice due to the nature of the PPP factor itself such as a technology innovation and entrepreneurial skills among others. This study will test if the top 15 factors mentioned by Osei-Kyei and Chan (2015) impact the outcome of a PPP and if these factors achieve or do not achieve social justice. For the sake of clarity, the list of critical success factors explained in more detail in Chapter Two are listed below:

1. Appropriate Risk Allocation and Sharing
2. Strong Private Consortium
3. Political Support
4. Public/Community Support
5. Transparent Procurement
6. Favorable Legal Framework

7. Stable Macroeconomic Condition
8. Competitive Procurement
9. Strong Commitment by Both Parties
10. Clarity of Roles and Responsibilities Among Stakeholders
11. Financial Capabilities of the Private Sector
12. Technology Innovation
13. Good Feasibility Studies
14. Open and Constant Communication
15. Detailed Project Planning

Though the study will specifically test if all 15 critical success factors listed above are considered critical success factors for the University of Colorado A Line, the study will also analyze if other factors were important to the development of the PPP. In Chapters Four and Five, top four factors influencing the project will be reflected upon in greater detail to synthesise data and methods. As well, the study will specifically discuss the top four factors that contribute to success of a PPP relating to social justice based upon the distributional justice approach. The distributional justice approach to social justice argues that justice is achieved when producing services if the following standards are met:

1. Minimum requirements for consumption of goods and services are met,
2. Essential services are provided by and for the extended community,
3. People are allowed to participate in the decisions that impact them, and
4. The satisfaction of people meets an absolute level of basic human rights within a broader framework (Friedmann, 1992).

Variables of critical success factors for PPPs, such as Detailed Project Planning, Transparent Procurement, and Competitive Procurement apply similar requirements to that of social justice values, such as services being delivered in a timely, efficient, and effective manner, including both rewards and deductions if services do not meet these incentive requirements (Mandri-Perrott, 2010). This means that there could be PPP factors that enhance social justice values. In order to determine if there are other factors that could be influenced by social justice, questions were asked during semi-structured interviews with PPP actors to determine if portions of PPPs (through process development or formal documentation) influence social justice or not.

The remainder of this chapter will focus on understanding the study strategy and methodology utilized, the determinants of size and selection for each method, and seeks to explain the specifics of how this data will be collected and analyzed. Following this

discussion, the chapter provides definitions of concepts, variables and indicators to explain how methods will be operationalized.

3.2 Research Strategy

In order to answer the following research questions and achieve aims outlined in the objectives of the study, the single case study approach was applied to researching the University of Colorado A Line. With an understanding of the general phenomenon of PPPs, but less of an understanding of the specific processes of the case and the products produced (Stake, 2003), a case study strategy allows us to look at the empirical context and gain deeper insight into the situation at hand. As discussed in Chapter Two, there are many different factors of PPPs with multiple variables and indicators, which ultimately result in different outcomes of a PPP project. In order to understand these factors as they play out in a project, it requires a strategy that allows for in-depth, detailed, “vivid and nuanced answers, rich with thematic material,” (Rubin and Rubin, 2005). Case study strategies are also applied when the context is unclear. Though there is a general understanding of the different factors that influence PPP success, the context is rather unclear as to how those factors achieve values associated with social justice. Analysis and data produced by quantitative and qualitative data collection allows exploration of complex PPP processes and how differing factors can generate socially just outcomes. Within the singular case study approach, though there are three different types of case studies, co-variation, causal process tracing, and congruence analysis, this research will focus on the co-variation approach of case studies to understand how PPP factors (independent variable) generate social justice values (dependent variable) (Blatter and Blume, 2008).

3.3 Research Methodology

This study utilized three types of methodologies known in research, meaning that the research reflects a mixed methods approach. In order to determine the factors that generate social justice values from all perspectives, the following methods were utilized in data collection and analysis:

4. Existing reports, documents and data were studied from the project to understand the emphasis placed on social justice indicators,
5. Semi-structured interviews were conducted with those most familiar with the project to solidify or challenge social justice findings from existing reports and,
6. Community surveys were administered to understand a the public’s perspective of social justice to ultimately determine the emphasis of values in different portions of the PPP in the eyes of those who use the University of Colorado A-Line service most.

Secondary information established facts needed in research to fortify primary data. Semi-structured interviews provided insight to the subject at hand and provided flexibility in understanding aspects of the project that may not be formally expressed in secondary documents. Finally, community survey administration provided a general understanding of public opinion regarding the rail and PPP. Each method's results will be discussed individually in Chapter Four. However, the methods combined together will also be discussed further in Chapter Five to identify overlap and commonalities to ultimately answer the main research question and sub questions.

3.4 Sample Size and Selection

Each methodology explained had varying sample sizes and were selected in different ways. First and foremost, desk analysis of existing reports, documents and data from the PPP allowed for a comparison of PPP literature to practice. Over 30 secondary data documents were analysed following data collection. Documents consisted of, but were not limited to the following:

1. Regional Transportation District and Denver Transit Partners, LLC. Concession and Lease Agreement
2. Regional Transportation District and Denver Transit Partners, LLC. Concession and Lease Agreement Attachments 7, 8, 9, 10, and 11
 - a. Attachment 7: Design, Construction and Rolling Stock Requirements
 - b. Attachment 8: Construction Payments
 - c. Attachment 9: Project and Construction Management
 - d. Attachment 10: O&M Specifications
 - e. Attachment 11: Service Payments
3. DRCOG Annual FasTracks Review and Determination Reports (2004-2018)
4. RTD Eagle Project Financial Plans (2011-2018)
5. RTD FasTracks Eagle P3 Project: Eagle P3 Project Procurement Lessons Learned
6. The Denver Regional Equity Atlas: Mapping Access to Opportunity at a Regional Scale
7. FasTracks Public Participation Policy (RTD FasTracks website)
8. FasTracks Stakeholder Participation Policy
9. Who is TOD in Metro Denver? Resident Survey Report
10. Review of the RTD FasTracks Plan Final Report
11. Moody's assigns (P)Baa3 to RTD's Series 2010 Denver Transit Partners Eagle P3 Project PABs
12. Moody's revises Denver Transit Partners, LLC rating outlook to negative; affirms Baa3 rating

13. Lessons Learned from Penta-P

These documents were selected based upon their connection to the project. Following document analysis, semi-structured interviews were conducted with 15 actors closely tied to the University of Colorado A Line PPP. Actors were selected based upon their interaction in the PPP process, but also upon the variation of perspective the interviewee could provide to the study. Interviews had guiding questions (see Annex 2), but room for flexibility depending upon the actor, their role in the process, and how these processes and variables can contribute to social justice. Interviewees will be unidentifiable when discussing their contributions to the research in Chapters Four and Five. However, the following actors were interviewed throughout the process:

- Design/Builder (private)
- Operation/Maintenance Project Managers (private/public)
- Project Director (public)
- Procurement Contract Controller (public)
- Federal Transportation Regulation Specialists (public)
- Head of Planning Departments (public)
- Design/Build Project Managers (public/private)
- Working Group Participants (public)
- Legal Team for Procurement (public)
- Investor Firm in Charge of Project (private)
- Head PM of Consortium (private)
- Professor Researching Project (civil society)

Finally, surveys were administered to 284 people living in neighbourhoods surrounding the rail line to understand the process and outcomes from the perspective of the general public to see how adequate the material conditions and processes associated with the rail reach the basic needs of those living in the community. To get a broad understanding of the basic needs approach to social justice, three zip codes surrounding the University of Colorado A Line were selected to administer the survey to based upon transit dependency (See 1.7 Scope and Limitations and Annex 1). 10 zip codes fall along the rail line route. Each zip code was ranked amongst other zip codes based on demographic data that determines transit dependency (percentage of those in poverty, income, age, percentage of population of different races or ethnicity). Once ranked per demographic variable, an average was calculated per zip code. The first, fifth, and 10th transit dependent zip codes were selected to understand the distribution of justice equally amongst all members of the community surrounding the rail (see Photograph 3). The community survey was made available in

English (see Annex 3) and Spanish (see Annex 4) because of a large Hispanic population throughout the Denver metropolitan region.

Photograph 3 – Zip Code Survey Location Comparison to Commuter Rail Map



Red dots denote zip codes where community surveys were administered.

(Source: Author, 2018)

3.5 Data Collection Methods

All methods discussed above were collected using the purposive sample method, whereby the researcher selects the units of study based upon theoretical grounds as seen above (Theil, 2014). Documents from the project were collected through formal actor agencies and companies to then further analyze. Semi-structured interviews were conducted face-to-face or via telephone if the interviewee is no longer located in the Denver area. Basic notes were taken during each interview. However, all interviews were recorded and transcribed to generate rich, in-depth data to analyze further. Following each interview, interviewees were asked if they could provide contact information to other project stakeholders, a method also known as snowball sampling. Approximately 45-50 stakeholders were ultimately contacted throughout the interviewee identification process. Finally, the community survey was made available online via the survey software Qualtrics, but was also distributed in person at community events such as farmers markets, local concerts, and immigrant resource events among others. With permission of community associations and city officials, surveys were also administered in public spaces such as libraries, parks, and community centers. If taken online or in person, respondents were required to live in the zip code regions of 80204, 80205, and 80238. If respondents live outside of the zip code region, the online version of the survey was automatically terminated. All surveys were formally entered into the Qualtrics program, either by the respondent themselves, or manually by the researcher following in-person survey administration. This process was conducted during each day of

data collection in order to create a comprehensive database in a digital format that is easier for analysis. The survey primarily used Likert-scales to generate statistical data about the different regions.

3.6 Data Collection Analysis

Documents from the project and transcriptions of interviews were analyzed using the software ATLAS.ti where codes were made to correspond to indicators and variables outlined in the operationalization tables below. Surveys were analyzed initially using the Qualtrics software. Qualtrics generates statistical summaries for Likert-scale, closed-questions and can show the percentage of response for each choice in a question. However, SPSS and Microsoft Excel were utilized to determine statistical significance of the data generated or for linear regressions.

Each question asked in an interview, survey, or document connects to one, or multiple particular indicators, concepts, or variables as outlined in the operationalization table to understand the different aspects of PPP factors and if these different aspects can connect to indicators of justice.

3.7 Operationalization: Variables and Indicators

In order to study the concepts of PPP factors and social justice, it is important to define these concepts as they stand in literature and explain how these concepts can be further operationalized into variables and indicators. To start, we will define the main concepts, which are categorized into the independent variable (PPP factors) and dependent variable (social justice).

Table 6 - Independent and Dependent Variable Definitions

Concept	Definition	Authors
PPP Factors	<p>Critical Success Factors (CSFs) for PPPs can be defined as the key activities result in favorable outcomes that are needed for partners to reach their project goals.</p> <p>*A table of PPP factors can be found in Chapter Two and earlier in Chapter 3</p>	Osei-Kyei and Chan, 2015

Social Justice	<p>Social Justice is predicated on the basic needs of a society. Institutions ultimately determine the access (or chance of access) of members within society to their basic needs. The basic needs approach emphasizes distribution of essential accommodations that are defined as the following:</p> <ul style="list-style-type: none"> ● Minimum requirements for consumption of goods and services are met, ● Essential services are provided by and for the extended community, ● People are allowed to participate in the decisions that impact them, and ● The satisfaction of people meets an absolute level of basic human rights within a broader framework. 	Smith, 1994; Friedmann, 1992
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The concepts above can then be operationalized into variables and indicators to test in surveys, semi-structured interviews, and documents to determine how these factors generate social justice. Variables and indicators are outlined in more detail below. Each variable and indicator is used as a code for formal analysis when using quantitative and qualitative data based upon the different collection method utilized.

Table 7 - Operationalization: Concepts, Variables, Indicators and Their Collection Method

Concept	Variable	Indicator	Collection Method
	Appropriate Risk Allocation and Sharing	Clearly defined risks and allocation to parties that have better mitigation techniques for management (Roumboutsos and Anagnostopoulos, 2008)	Semi-Structured Interviews and Secondary Documents
		Risk not transferred solely to the private sector (Osei-Kyei and Chan, 2015)	Semi-Structured Interviews and Secondary Documents
	Strong Private Consortium	Different companies coming together to form a consortium (Osei-Kyei and Chan, 2015)	Semi-Structured Interviews and Secondary Documents

PPP Factor		Consortium Structure (Osei-Kyei and Chan, 2015)	Semi-Structured Interviews
		Consortium Compatibility (Osei-Kyei and Chan, 2015)	Semi-Structured Interviews
		Consortium readiness for creating large projects with technical, operational and managerial capacity to undertake a PPP (Zhang, 2005a)	Semi-Structured Interviews and Secondary Documents
Political Support		Approval from state/federal government for public expenditure (Jacobson and Choi, 2008)	Semi-Structured Interviews and Secondary Documents
		Political acceptability of PPP projects (Li et al., 2005)	Semi-Structured Interviews and Secondary Documents
PPP Factor	Public/Community Support	Acceptance and understanding of general community (media, NGOs, civil society, general public, etc.) (Osei-Kyei and Chan, 2015)	Semi-Structured Interviews, Community Survey, and Secondary Documents
		Awareness creation and public education about PPP (Yong, 2010)	Semi-Structured Interviews, Community Survey, and Secondary Documents
		Host government reassures public of good, quality service, and reasonable user fees for project (OECD, 2010)	Semi-Structured Interviews, Community Survey, and Secondary Documents

	Transparent Procurement	Tendering process transparent - determined based upon constant and cordial communication between stakeholders (Osei-Kyei and Chan, 2015)	Semi-Structured Interviews and Secondary Documents
		Transparency throughout project delivery -determined based upon constant and cordial communication between stakeholders (Li et. al, 2005)	Semi-Structured Interviews and Secondary Documents
		Information and reports for project publically available (Osei-Kyei and Chan, 2015)	Semi-Structured Interviews and Secondary Documents
		Government reassurance in public domain of project delivery to prevent negative public perception (Osei-Kyei and Chan, 2015)	Semi-Structured Interviews, Community Survey, and Secondary Documents
	Favorable Legal Framework	Built legal and regulatory capacity that fosters participation in PPPs (Jamali, 2004)	Semi-Structured Interviews and Secondary Documents
		Change in tax regulation (Hwang, Zhao, and Gay, 2013)	Semi-Structured Interviews and Secondary Documents
	Stable Macroeconomic Condition	Reasonable market certainty (Li et al., 2005)	Semi-Structured Interviews and Secondary Documents
		Macroeconomic policy measure set in place by the government (Li et al., 2005)	Semi-Structured Interviews and Secondary Documents

PPP Factor		Government stable and balanced budget (Li et al., 2005)	Semi-Structured Interviews and Secondary Documents
	Competitive Procurement	Assistance offered to tender applicants in the form of a reimbursement for applying to fit the needs of the PPP's proposal (Jefferies, 2006)	Semi-Structured Interviews and Secondary Documents
		Two or more bids being prepared to directly compete with each other for the PPP proposal (Jefferies, 2006)	Semi-Structured Interviews and Secondary Documents
	Strong Commitment By Both Parties	Unified vision from both public and private actors (Tang, Duffield, and Young, 2006)	Semi-Structured Interviews and Secondary Documents
		Devotion of more than minimum resources to the project from both public private actors (low turnover of jobs, construction allocations, etc.) (Jacobson and Choi, 2008)	Semi-Structured Interviews and Secondary Documents
	Clarity of Roles and Responsibilities Among Stakeholders	Public and private sector brings complementary skills together for project to provide public services, PPP, or the project (Tang, Shen, and Cheng, 2010)	Semi-Structured Interviews and Secondary Documents
	Financial Capabilities of the Private Sector	Project is of financial interest to private sector (Ng, Wong, and Wong, 2012)	Semi-Structured Interviews and Secondary Documents
	PPP Factor	Technology Innovation	Technological components provided by private sector experts so that facility designs can benefit users to the

		maximum capacity (Liu and Wilkinson, 2011)	
	Good Feasibility Studies	Proper evaluation of PPP potential through study conduction (Jamali, 2004)	Semi-Structured Interviews and Secondary Documents
	Open and Constant Communication	Trust present to attain project objectives (Jacobson and Choi, 2008)	Semi-Structured Interviews and Secondary Documents
		Regular communication between PPP actors (meetings, site assessments, emails, phone calls, etc.) (Jacobson and Choi, 2008)	Semi-Structured Interviews and Secondary Documents
	Detailed Project Planning	Clear statement of objectives in contracts, clarity of technical plans and specifications (Zhang, 2005b)	Semi-Structured Interviews and Secondary Documents
Social Justice	Full and Equitable Participation of All Groups of Society	Frequency of Participation (Smith, 1994)	Records of project planning process and Semi Structured Interviews
			Community Survey
		Type of participation method: One way/Dialog/Multilateral (Walter and Scholz, 2006)	Community Survey
			Semi-Structured Interviews
		Feedback mechanisms (Walter and Scholz, 2006)	Semi-Structured Interviews
	Use of the rail line (Walter and Scholz, 2006)	Community Survey	
Needs Met of	Needs (Smith, 1994)	Community Survey	

Social Justice	All Groups of Society		Semi-Structured Interviews
		Satisfaction (Smith, 1994)	Community Survey
			Semi-Structured Interviews
		Support (Smith, 1994)	Community Survey
	Semi-Structured Interviews		
	Essential Accessible Services Created by and for the Community at Large	Affordability (Enright, 2012)	Community Survey, Semi-Structured Interviews, Secondary Documents
		Distance to get to the station (Enright, 2012)	Community Survey
		Safety (Enright, 2012)	Community Survey, Semi-Structured Interviews
		Timely Transportation Mode (Enright, 2012)	Community Survey, Semi-Structured Interviews, and Secondary Documents

As variables and indicators are outlined in more detail above, it is also important to outline how the main research question will be answered and subquestions will be answered in Chapter Five using the following indicators and variables. Each subquestion is outlined with more information below.

Subquestion one ‘What is the nature of transportation PPP outcomes in general in the United States, more specifically in Colorado, and how do they relate to social justice?’ will be answered by utilizing semi-structured interview transcriptions and secondary document information to discuss PPP, their key actions, and outcomes and if there is a relation to social justice by using the different indicators for social justice and factors listed above.

Subquestion two ‘Which PPP factors influence social justice outcomes in the case of the University of Colorado A Line?’ will be answered by the utilization of semi-structured interview transcriptions that will be coded using the variables and indicators above. Top four factors will be determined based upon responses and secondary documents that were coded and analyzed using ATLAS.ti. Secondary document information will also provide further investigation into understanding the factors that influence PPPs. Following understanding what factors influenced the rail line, factors will then be analyzed using social justice variables and indicators to determine if these factors influence social justice or not. Justice variables will also be challenged utilizing community survey responses.

Finally, the main research question, ‘*Can PPP factors create outcomes that reflect social justice values as implemented in the case of the University of Colorado A Line?*’ will be answered by utilizing sub questions one through four, but will also capitalize on community survey responses to answer part two of the main research question.

3.8 Validity and Reliability

Though the case study strategy is optimal for researching these indicators and variables, there are always challenges to any research strategy. One critical challenge that will be important to overcome in the case of the University of Colorado A Line research is creating findings that can be generalized; meaning that the case study research strategy tends to be more internally valid rather than externally valid. With an attempt to increase external validity, the methods of a survey and desk research are applied to not only triangulate the findings, but also increases external validity. However, though methods were created to increase internal and external validity, it is still almost impossible to generalize past one case. This paper serves as way to provide alternative explanations when comparing to other research in Chapters Four and Five.

3.9 Conclusion

Chapter Three reviewed main research questions, sub questions, and concept definitions. Following, the chapter explained how to operationalize concepts into a research strategy, methodology, data collection methods, and ultimately how methods will be operationalized and analyzed in Chapters Four and Five.

Chapter Four: Presentation of Data and Analysis

Introduction

Following breakdowns of research strategy, methods, variables, indicators, and how they apply to the conceptual framework of the research at hand, Chapter Four presents data from each respective data source. The chapter starts by explaining the findings from secondary data sources to understand how plans served as a precursor to formal project implementation and impact. Following, the chapter details results from semi-structured interviews paired with a reflection on data collected from the community survey. Together, semi-structured interviews and the community survey provide insight into results of the project post implementation, and how the project impacted the general public to understand social justice variables in a more complete way. However, finalizing the chapter with a combination of analysis of documents, interviews, and surveys allows for a better understanding of project expectations versus reality.

4.1 Secondary Data- Results and Analysis

During the classification of over 30 secondary documents, particular items were analyzed to understand PPP factors more in-depth, the nature of PPPs in the US and Colorado context, and how the Eagle P3 relates to neoliberal theory. First and foremost, this section will explain the emphasis placed on factors and indicators in secondary documents. It is important to start with data and analysis from secondary documents as they served as the precursor to the project. Data from Table 8 reveals the emphasis placed on PPP factors based upon the factor's indicator definition outlined in Chapters Two and Three:

Table 8 - PPP Factor Influence in Secondary Documents on the University of Colorado A Line and Eagle P3:

Factor Name	Indicator Relation Correlation
Appropriate Risk and Allocation Sharing	15
Public/Community Support	15
Transparent Procurement	12
Detailed Project Planning	7
Good Feasibility Studies	7

Technology Innovation	5
Competitive Procurement	3
Favorable Legal Framework	3
Clarity of Roles and Responsibilities Among Stakeholders	3
Financial Capabilities of the Private Sector	2
Strong Commitment By Both Parties	2
Strong Private Consortium	2
Political Support	1
Open and Constant Communication	1
Stable Macroeconomic Condition	0

Many factors such as Appropriate Risk Allocation and Sharing, Public/Community Support, Transparent Procurement, and Detailed Project Planning were regularly discussed in project documents. However, Factors such as the Strength of the Private Consortium, Political Support, Open and Constant Communication, and the Macroeconomic Condition had little to no influence or discussion in documents. To explain what specifically was important to project implementation according to secondary documents, the following section will go into more detail on the top four factors from Table 8 below.

Risk Allocation

According to secondary documents, the most important factor influencing the University Colorado A Line, and the Eagle P3, was the allocation of risk and how that risk was ultimately shared between the concessionaire and RTD. In concession agreements, RTD also pledged to the Concessionaire the ‘RTD Pledged Revenues’ from the TABOR legislation approved by voters in 2004. Secondary documents listed that the P3 procurement approach provided competitive pricing, significant risk transfer, and accelerated project delivery of the University of Colorado A Line. While Moody’s (Investors Service that gives international financial ratings on bonds) believes that the project operations are somewhat more complex than a typical PPP, they felt as though the operating risk was manageable. Specifically, the concessionaire has responsibilities for all payments, and other liabilities to the Operations and Maintenance term. This means that if at any time during the 29 years of project

ownership it appears to the Concessionaire that any maintenance or repair work is needed, whether for scheduled maintenance or otherwise, on facilities, commuter rail cars, or the rail itself, that the Concessionaire will take care of said repairs. As well, if there is ever an interruption or restriction to passenger services on the commuter rail due to regular maintenance, or because of a problem, the Concessionaire is responsible for:

1. Notifying RTD in advance of carrying out the work and the likely disruption of services,
2. Taking all steps reasonably practicable to notify Passengers at least 10 days in advance of any disruption (pending circumstance), and
3. Take all steps to minimize adverse consequences of such work to passengers.

Many risks were allocated to the Concessionaire throughout the project delivery. However, not all risks were allocated to the private sector, which serves as an indicator in literature of appropriate risk allocation. Further breakdown of RTD risk and Concessionaire risk are listed below in Table 9:

Table 9 - RTD and Concessionaire Risk University of Colorado A Line and Eagle P3:

RTD Risk	Concessionaire Risk
<ul style="list-style-type: none"> • Third party change/betterments request • RTD requested changes to project requirements • ROW acquisition • Unforeseen archaeological risks • Errors/omissions in environmental reports • RTD permits • Discriminatory legislative changes • Ridership meeting forecast • Railroad force account work 	<ul style="list-style-type: none"> • Failure to meet the specified requirements • Design/construction delays • Cost overruns • Additional land requirements • Compliance with environmental requirements • Geological conditions/obstructions • Safety and security • FRA approvals • Accuracy of reference data • Concessionaire permits • Concessionaire or subcontractor default • Final completion • Third party claims • Security during the construction period • Failure to meet operating performance standards • Operation and maintenance costs • Condition of system at the end of concession period • Identified utilities • Compliance with railroad agreements
Shared Risk	
<ul style="list-style-type: none"> • Non-discriminatory legislative change • Force majeure • Third party design reviews – disputes • Fare evasion 	

(Source: Hertenberg, 2014)

Public/Community Support

The Concessionaire was, and still is according to documents, responsible for educating the public to an extent on PPPs, and also in charge of generating an understanding and trust of the FasTracks plan. The existing RTD public information program for FasTracks mentioned in secondary documents was developed to establish and maintain a high level of communication and outreach to the public and community. The public information and communications function was considered an essential part of keeping communities connected and engaged throughout the FasTracks Plan process. It also was helpful when needing to identify and resolve issues and concerns. As the FasTracks Plan has evolved, public participation evolved as well. During the planning phase, the FasTracks public information program provided an opportunity for the public to provide input. Then as the program moved into the construction phase and on into operation, the FasTracks public information program was designed to inform and educate the public about the University of Colorado A Line and the Eagle P3. The public information team marketed the project with P3 social benefits in mind. This included but was not limited to marketing mobility for the transit dependent (Hertzenberg, 2014). The goal was to establish a FasTracks public information program that honored the public desire for participation and information, while also ensuring that Eagle P3 moved forward on schedule.

In regard to community relations and public information, The Concessionaire and RTD partnered together to provide information to the public. RTD is responsible for promotion of the Commuter Rail services, including the design, production, and distribution of any promotional materials. The Concessionaire has the responsibility to develop and implement programs to maintain comprehensive, reliable, and responsible communication program that contributes to creating a high level of understanding and trust from the public to understand the FasTracks plan. RTD has the primary role of getting information out about the FasTracks plan, but both Public Information teams work together to ensure that the public is engaged and informed in a timely manner about project elements and progress. The Concessionaire is entitled to make suggestions and proposals to RTD with respect to the promotion of the Commuter Rail services. However, RTD is entitled to accept or reject such suggestions and proposals at its discretion. Further details on public outreach and communication tasks allocated to each partner are listed below in Table 10.

Table 10 - RTD and Concessionaire Public Outreach and Communication Tasks:

Outreach Type	Concessionaire Tasks	RTD Tasks
---------------	----------------------	-----------

Public Outreach	Plan and host public meetings as appropriate dependent on Eagle Project status and activities. Results of PI should be provided as part of the public outreach meetings.	Approve plan, format, location and content of meetings.
Websites	<p>Maintain design and construction related internet content and updates on Eagle Project pages of www.rtd-fastracks.com, including upcoming construction, impacts to traffic, residents and businesses; posting of a look-ahead construction schedule.</p> <p>Field and answer questions and comments submitted through www.rtd-fastracks.com. The Concessionaire will be provided with administrative access to Eagle Project sections of www.rtd-fastracks.com.</p>	<p>Provide main design and hosting for www.rtd-fastracks.com.</p> <p>Update general project information on corridor section of www.rtd-fastracks.com.</p>

Like risk allocation and sharing, the Concessionaire and RTD shared and continue to share many different tasks in terms of educating the public about the P3 as well as promoting the University of Colorado A Line project. This included, but was not limited to how public meetings are structured; to what particular information exists online that is made publically available on websites.

Transparent Procurement

Based upon the above information in the sections outlining the influence of Public/Community Support and Appropriate Risk Allocation, it is very clear that contractual documents for the P3 needed to be extremely clear and transparent on which entity is responsible for each action during the course of the project. Documents also outline how the Concessionaire is paid for their services they provide and how this process takes place, reflecting the importance of the PPP factor ‘Transparent Procurement’.

The Influence of Public Private Partnerships on Social Justice: An Analysis of the University of Colorado A Line Public Private Partnership - Eagle P3

During the Operation and Maintenance phase of the project, DTP, the Concessionaire, is responsible for:

1. Operating trains,
2. Dispatching commuter rail and heavy rail at Denver Union Station,
3. Preserve Rolling Stock,
4. Upkeep of tracks, Right Of Way (ROW) and bridges,
5. Maintaining facilities such as stations and the Commuter Rail Maintenance Facility (CRMF),
6. Managing communication systems, signals and train controls, and traction power, and
7. Reporting to RTD.

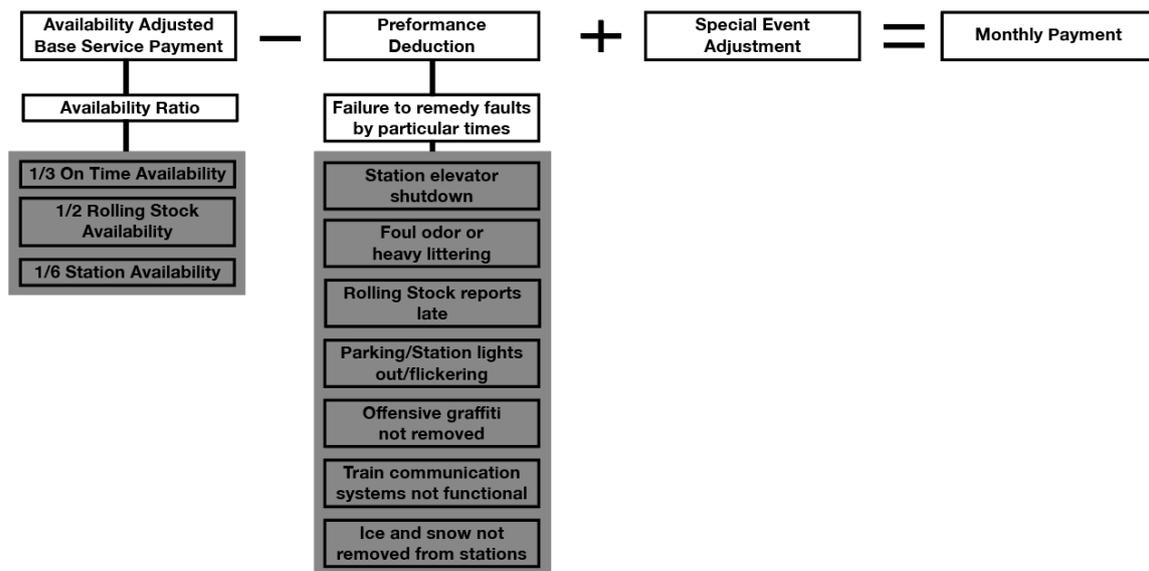
In relation to operating the University of Colorado A Line, there are particular performance standards DTP must adhere to receive their payments for availability, performance, and special events. DTP's payments start first with a base payment. The base payment is broken down into two payments; the Base Annual Indexed Service Payment and the Base Non-Indexed Service Payment. The Base Annual Indexed Service Payment was bid in 2010 US Dollars and is adjusted annually by the Consumer Price Index. This payment covers operating costs. The Base Annual Non-Indexed Service Payment is bid in year of expenditure US Dollars. This means the payment can rise with yearly dollar inflation. This payment covers debt service costs. In order for the Concessionaire to receive the Base Service Payment, they must meet particular requirements from the Availability Ratio outlined in the concession agreement. Availability is determined based upon three different percentage breakdowns: the Rolling Stock Availability, On Time Availability, and Station Availability.

If trains meet scheduled times and are compliant with the specified times to run, this is also known as Rolling Stock Availability. The percentage of arrivals at each station within five minutes of the specified times to be at the station is also known as On Time Availability. Finally, the percentage of station days where elevators are operational, more than 75 percent of lights are working, and access routes to stations are clear of snow and ice is also known as Station Availability. Rolling Stock accounts for $\frac{1}{2}$ of the of the availability ratio, On Time Availability accounts for $\frac{1}{3}$ of the availability ratio, and Station Availability accounts for $\frac{1}{6}$ of the availability ratio. In order for DTP to receive 100 percent of their Base Service Payment, they must meet at least 97.5 percent of the availability ratio metrics.

Even if the Concessionaire meets the 97.5 percent availability ratio required to receive their payment in full each month, additional performance deductions can occur based upon the total number of performance deduction points collected in a month. This is determined by whether DTP can remedy faults such as elevator shutdowns, not providing Rolling Stock reports on time, not removing graffiti, and others all within particular timeframes. Up to five percent of the Base Service Payment can be deducted if performance deduction points collected are high enough.

Payments, however, can also be added to DTP if they provide additional route service due to special events that might require higher transportation access. Events include sporting events, concerts, and other large attended activities within the community. This payment reflects the bare bones of additional service costs. Explanation of how DTP is paid for services it provides through the University of Colorado A Line are outlined graphically below in Figure 3.

Figure 3 – DTP Service Payments Breakdown



(Source: Author, 2018)

Detailed Project Planning

Along with specificity in transparency of risk and role allocation between the public and private sectors working on the project in contracts, project plans were also specific as well. Multiple Environmental Impact Statements (EIS), as well as project plans were developed

with the public in mind to make sure that the project and the P3 could meet the needs of all within the community. Specifically the plans targeted the following stakeholders:

1. Local elected officials,
2. City and County staffs,
3. CDOT,
4. Residents along the line,
5. Commuters,
6. DIA,
7. FTA,
8. The Federal Aviation Administration (FAA),
9. Project third parties:
 - a. The trucking industry,
 - b. Emergency response agencies (including relevant fire districts, police departments, county sheriffs and state patrols),
 - c. Neighbourhood associations,
 - d. Businesses (small and large employers),
 - e. Delivery and courier services,
10. Property owners,
11. Non-profit organizations,
12. Chambers of Commerce,
13. News and community media organizations,
14. Professional associations,
15. Minority organizations,
16. School districts,
17. The Environmental Protection Agency (EPA), and
18. Resource agencies such as the Army Corps of Engineers, etc.

When trying to meet the needs of the stakeholders listed above, the Concessionaire was required to identify and consult with these groups regarding specific design elements on the project. It was also required to host public information meetings and interest group information meetings to determine the following:

- Rolling Stock design elements related to the passenger area. This included including general layout, seating configuration, location and feel of hand rails and hand grips,
- Station architectural style. This included the design and aesthetic treatment of station canopies, canopy columns, windscreens, pavement material and color, walls, fencing, railings and platform furnishings, and
- Station stops and locations.

Influence of PPP Factors on Social Justice in the University of Colorado A Line and Eagle P3:

As mentioned previously, Public/Community Support, Detailed Project Planning, and Transparent Procurement PPP Factors not only had a strong influence on the project according to secondary documents, but they also had ties in relation to social justice indicators. This includes but is not limited to keeping the public informed of the project and P3 process (Public/Community Support), creating a user-based payment plan for the Concessionaire also known as the Availability Ratio (Transparent Procurement), allocating for wear and tear on project materials in risk allocation (Appropriate Risk Allocation and Sharing), and consulting with communities about project designs (Detailed Project Planning). As well, Clarity of Roles and Responsibilities Among Stakeholders carried ties of social justice. A more detailed outline of what particular indicators affiliated with particular PPP Factors is located in Annex 6.

Public/Community Support and Social Justice

The public information and communications function of contract documents, and the plan for the project was considered an essential part of keeping communities connected and engaged throughout the FasTracks Plan process. It also allowed stakeholders to identify and resolve issues and concerns to ensure public and community support. Because of the mechanisms located in the public information plan, they encourage not only full and equitable participation of all groups in society, but also tried to meet the needs of all groups of society by resolving any issues or concerns people had with the project. Participation methods were rather standard; either one way or dialog forms of participation. This means that the Concessionaire and RTD may have not completely provided full and equitable participation. Feedback mechanisms were also not innovative, and there is no indication of numbers or specific actions taken in formal documents to try to include all. However, it is important to note that there was an emphasis placed on this to be done the process, but no follow-through on how exactly this process would happen.

Detailed Project Planning and Social Justice

Project plans were developed with the public in mind to make sure that the project and the P3 could meet the needs of all within the community. When targeting meeting the needs of the communities listed earlier in Chapter 4, the Concessionaire was required to identify and consult with these groups regarding specific design elements on the project. Project planning allowed the Concessionaire to create Rolling Stock design elements related to the passenger area, including general layout, seating configuration, location and feel of hand rails and hand grips, and more. These decisions were made based upon what users and

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communities wanted. As well, the various station's architectural style were determined based upon what the community wanted. Though it is referenced in concessionaire documentation that societal groups would be included in on the process of developing station planning such as local elected officials, city and county staffs, CDOT, residents along the line, commuters, DIA, FTA, FAA, project third parties, property owners, non-profit organizations, and others listed earlier in the chapter, it is again unclear how much power or action was taken to include some groups of the community over others in the discussion. If those in the community did assist in the station development process, they were allowed to provide input on the design and aesthetic treatment of station canopies, canopy columns, windscreens, pavement material and color, walls, fencing, railings and platform furnishings. Finally, and likely most important, users and the community helped determine station locations and stops. Not only were community members allowed to participate in more technical specifics of the P3 and the project, which could be considered a multilateral participation method. Determinants of station locations and stops ultimately influences the use of the rail line as it stands today, and if the public's needs can be met and satisfied.

Transparent Procurement and Social Justice

Specifically relating to finance and how the Concessionaire is paid for their services they provide, contract documents clearly state how DTP is paid during Operation and Maintenance phase of the project. Performance standards DTP must adhere to receive their payments in relation to availability, performance, and special events. These metrics are extremely user-based. Depending on the service they provide to the public, DTP can get paid more or less. If DTP performs generally lower, thus not meeting the needs of society as outlined in project plans, RTD penalizes the Concessionaire to adhere to providing a socially just and satisfactory rail line through the performance metrics.

Clarity of Roles and Responsibilities Among Stakeholders and Social Justice

Though not discussed previously in the chapter, Clarity of Roles and Responsibilities Among Stakeholders also has a influence on participation. Each role assigned to the Concessionaire and to RTD when communicating to the public ultimately has an impact on how people participate, who is listening to their thoughts and inputs for the project, and determine how participation is taken into consideration. This not only affects the needs of people, but also how equitable participation is.

Secondary Data: Concluding Thoughts

To conclude analysis of secondary documents in the research scope, top four PPP factors influencing the University of Colorado A Line and Eagle P3 are Appropriate Risk Allocation and Sharing, Public/Community Support, Transparent Procurement, and Detailed Project Planning. This contrasts Osei-Kyei and Chan's (2015) top PPP factors contributing to PPP implementation practices. To provide a refresher, Osei-Kyei and Chan determined that the factors Appropriate Risk Allocation and Sharing, Strong Private Consortium, Political Support, and Public/Community Support had the strongest influence on implementing PPPs.

PPP Factors that were found to also have ties to social justice indicators differed from the top four PPP factors influencing the University of Colorado A Line and Eagle P3 only slightly. The top four factors mentioned with social justice relations were Public/Community Support, Detailed Project Planning, Transparent Procurement, and Clarity of Roles and Responsibilities Among Stakeholders.

Based upon what is specifically written in contract documents, and other secondary sources alone, PPPs in the Colorado context, more specifically the Eagle P3, care a lot about risk, role allocation, transparency, and ultimately if the community supports and utilizes its services. In this sense, Eagle P3 can be seen as a neoliberal mechanism that was created with the public in mind and generated a service that delivers social goals through a cooperation of a multi-stakeholder network. RTD faced the problem of continuing free market competition values and globalization in rail services following funding failures. Thus, the organization recognized how mechanisms could be created, such as a PPP to creating this public service. The process of creating Eagle P3 utilized specific strategies more than others to achieve PPP success, as well as social justice success. Thus, the project, on paper, can also reflect the ideals of the theory of change. The project had processes and outlined actions to create a better user-based product. Actions mentioned in the documents to create a better user-based product included keeping the public informed of the project and P3 process (Public/Community Support), creating a user-based payment plan for the Concessionaire also known as the Availability Ratio (Transparent Procurement), allocating for wear and tear on project materials in risk allocation (Appropriate Risk Allocation and Sharing), and consulting with communities about project designs (Detailed Project Planning).

The documents discussed in this portion of the chapter were set to serve as a precursor to create justice and equity. They show intention for socially just practices, but interviews and surveys allow for determination if there was in fact social justice and equity in the process and in the project's outcomes.

4.2 Semi-Structured Interviews and Community Survey: Results and Analysis

Following the culmination of over 15 interviews with project stakeholders whom worked on the University of Colorado A Line and Eagle P3, interview transcripts were analyzed to understand PPP factors more in-depth, the nature of PPPs in the US and Colorado context. They also were analyzed to determine how the Eagle P3 relates to neoliberal theory. As well, 287 community surveys in three zip codes of Denver, 80204, 80205, and 80238, were analyzed to also understand these factors at a more in-depth level. The survey also serves as a way to understand how rail service and its PPP relate to neoliberal theory and social justice. The culmination of surveys and interview together allows further determination of social equity and social justice.

First and foremost, demographics of respondents for both project stakeholders and survey respondents will be discussed to understand the diversity of the three zip code communities and the background of each stakeholder interviewed. Following, factors discussed in both surveys and interviews will be introduced together to provide fluid arguments to determine levels of social justice and equity in each factor.

Demographics of Respondents: Community Survey

Approximately each zip code, 80204, 8025, and 80238 responded to the community survey equally. 96 residents of 80204, 91 residents of 80205, and 95 residents of 80238 responded to the survey. Two online respondents answered “other” when asked about their zip code, requiring them to be exempt from the survey. This means that the survey had a 99.3 percent response rate. Slightly more females than males responded to the survey. 56.76 percent of respondents identify as White, while other respondents identified with another race or ethnic group. Most respondents that did not identify as white identified as either Black or African American (19.26 percent), or Hispanic or Latino (15.2 percent). Breakdown of annual household income was relatively equally distributed, though the highest percentage of respondents fell in the “less than \$25,000 per year” category. When asked to elaborate on employment status, respondents’ answers varied from “looking for employment”, “self-employed”, “full time”, “disabled”, “part-time”, “unemployed”, “retired”, and “student”. Ages of respondents also varied as well. Respondents ranged from 14 years of age to 86 years of age. Though a Spanish survey was provided to respondents unable to respond properly to a survey in English, only two of the 287 respondents utilized the Spanish survey. Further breakdown of demographic statistics are provided graphically in Annex 8.

Demographics of Respondents: Stakeholder Interviews

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Over 60 Actors were contacted based upon their interaction in the PPP process, but also upon the variation of perspective the interviewee could provide to the study. Interviews had guiding questions (see Annex 2). When asking questions there was room for flexibility depending upon the actor, their role in the process, and how these processes and variables can contribute to social justice. Interviewees will be unidentifiable when discussing their contributions to the research this chapter and Chapter Five. However, the following actors were interviewed throughout the process:

- Design/Builder (private)
- Operation/Maintenance Project Managers (private/public)
- Project Director (public)
- Procurement Contract Controller (public)
- Federal Transportation Regulation Specialists (public)
- Head of Planning Departments (public)
- Design/Build Project Managers (public/private)
- Working Group Participants (public)
- Legal Team for Procurement (public)
- Investor Firm in Charge of Project (private)
- Head PM of Consortium (private)
- Professor Researching Project (civil society)

Factor Analysis: Semi-Structured Interview and Community Surveys

As noted multiple times throughout the chapter previously, though secondary documents indicated intention to create socially just outcomes, it is also important to understand documents, processes, and outcomes through the eyes of those that utilize the services created, or that created the services themselves. This portion of the chapter will first discuss main takeaways from both community surveys and interviews together and discuss general factor influence on the project, and finish by explaining how these factors relate to social justice.

Public/Community Support

According to semi-structured interviews, the most important factor influencing the University Colorado A Line, and the Eagle P3, was the support of the public and community. The basics of the various rail lines were fundamentally defined in the 2004 ballot measure. On the ballot for the FasTracks initiative was a rail line on a map going from downtown to the airport. Though there were basic ideas about station locations, nothing else was solidified. Once the measure passed, it was up to RTD to determine what the community wanted. During interviews, project stakeholders discussed this process and the importance

of the political and public process that took place years before P3 bid documents were released. One stakeholder mentioned in an interview that, *“The general public helped us determine what the project would look like in terms of where stations would be, what service frequency would be, what the other transportation networks would look like; so that stakeholder input and support was likely the largest objective of the project. The second most important objective was to achieve support from the federal transit administration. Their oversight through the Environmental Impact Statement, clearance, and their funding decisions, made the project possible.”*

Most respondents to the Community Survey either ‘Strongly Favored’ (52.52 percent) or ‘Somewhat Favored’ (20.5 percent) the University of Colorado A Line. A small margin of respondents ‘Strongly Opposed’ (1.08 percent) or ‘Somewhat Opposed’ (2.16 percent) the rail as it stands today. When asked about affordability of the rail line, most respondents agreed (16.45 percent) or somewhat agreed (12.7 percent) that the rail was affordable for them. However, most respondents disagreed (28.74 percent) or strongly disagreed (20.41 percent) that the rail line had reduced their travel time for where they needed to go. Since starting operation of the University of Colorado A Line, most respondents (66.07 percent) have not been asked to provide feedback on how the University of Colorado A Line’s operations could be improved or modified.

Support and communication with the public has looked different, however, as time progressed and project actions changed. One stakeholder who was there for the entirety of the project and the P3 process mentioned, *“At the start, you are sort of saying, ‘This is what we are planning, what do you think? Tell us about some of the details of the stations you’d like to see...That type of thing. So you get the public input from the general public and from elected officials, and then once you’ve been through that sort of process, and you’ve reached your conclusions and your environmental documents, then you typically do transition to a more information giving process.”* However, as mentioned previously, there were particular parts of the contract where the concessionaire still had responsibilities of formulating station designs, as well as train designs, with the public following the concession being signed.

But while stakeholders mentioned the importance of public involvement, based on community survey data, only 3.17 percent of those surveyed said that they participated in the planning process for the University of Colorado A Line initially started. When asked about receiving information about the line however from 2004 until construction began on the line, 27.21 percent of respondents received information about the line. If the

respondent participated in the planning process, most listed they attended public meetings or participated in surveys about the line. If the respondent received information about the line prior to its operation, they received it from flyers, mailers, door hangers at their residence, through word of mouth, physical plan retrieval, through the media (Denver Post, online, or through the local Stapleton newspaper), buses and light rail advertisements, television and radio stations, and online through the FasTracks and RTD website. One respondent was a part of a Denver public transit e-newsletter and read articles about the line through there as well.

Though both the Concessionaire, and RTD teamed up to tackle the public information process of the course of the project, as Denver is a growing metropolitan region, one problem both public and private sector actors noted in semi-structured interviews was the notion that many people are moving in and out of neighborhoods in Denver, making it harder to engage with people that live in various regions of Denver. One stakeholder mentioned that, *"You have people that can live on a corridor and then 5 years later say, 'We didn't know this happened.' And I'd say that that has probably been the biggest challenge. With individuals that come in after the fact and say 'What about this?'"*

One key indicator associated with the PPP factor Public/Community Support is the government reassurance of the public good, quality service, and reasonable user fees for the project (OECD, 2010). Many stakeholders mentioned the importance of the fare box revenue risk, or public fares for the rail, not being transferred to the Concessionaire. This gave RTD the power to control the rates of the rail line and to make sure that the public was setting their fares to provide the public good of transit at a reasonable cost. One stakeholder on the public side of the project mentioned the importance of trying to transfer all risks to the private sector, but also noted that risk needs to also fall into the hands of the public sector since it is important to also get enough bidders on a PPP project. With this in mind, RTD thought it was important to not place the task of fare collection into the hands of the private sector. *"We wanted to retain that risk and we also wanted to control our fares because if there were different fares set out on the A Line than the rest of our system, it would kind of cause a mess- maybe people wouldn't want to ride it if they set the fares too high... that kind of thing."*

While some respondents to the Community Survey noted that the rail saved time and money, many noted that the rail was too expensive in their opinion. One respondent explained that, *"\$9 for a ride is steep. Granted it's convenient, but it's even more expensive than the Bay Area."* Another respondent mentioned that the line is more expensive to take than parking in some areas, and that taking a car, such as an Uber or taxi to the airport is

cheaper when traveling with more than one person. *“I take the line to get to the airport, but if you have more than three suitcases, it gets to be hard. Instead we sometimes take the bus to Federal if we are trying to get to that part of town.”* One respondent offered feedback to make return fare free to make the line more affordable for users.

As well, though mentioned previously in the secondary documents analysis and, it is important to note that stakeholders discussed how the contract was also performance based. DTP receives payments based on their performance and the accessible service they provide to the public. One stakeholder mentioned that ideally, if they were to do the P3 procurement process over again, that they would make the performance metrics stricter in how the private sector is paid due to problems with rail lines breaking down during its initial years of service. *“We’ve had a couple incidences where a train broke down for instance... It might have been down for three or four hours, but it was a big public relations nightmare, really bad for the customers that were stuck on the train, and of course, it’s RTD’s name,[1] [2] not the concessionaire who is the one that looks responsible to the public. And of course, more importantly, passengers [need to get to] where they need to be.”*

Two interviewees were part of the Working Groups process. This was an effort brought forth in the project to engage the public at a more in-depth level. Working Groups were broken down into specifics of the project design elements. Interviewees from the Working Group process were less impartial to provide positive information about outcomes of the project. One interviewee that was part of the Working Group process mentioned a concern they expressed during the technology innovation phase of the project. *“I do worry about the compromises that were made in terms of the extended single track sections of the East Corridor. They had public meetings to unveil that they had narrowed it down to two RFP respondents and that the public could give responses on everything except for the financial details. One of the ways the winning concessionaire kept their costs under control was extended single-track sections, which is okay when everything is running perfectly on time. But if one thing isn’t running on time, it throws off everything else. So, that will, if it’s not already, I’m not close to operations people to know if it is, but that might be a problem some day.”* Based on other interviews with other project stakeholders, during the first two years of operation, the rail line’s performance metrics were not always being met due to delays, or the rail breaking down; causing potential problems for delivering a sound, reliable, and accessible system. Since the beginning of 2018, DTP has been meeting performance requirements according to multiple stakeholders, and at times, they are regularly exceeding their metrics. Within the P3, one stakeholder noted, *“The focus always was the quality of service that would be provided to the passengers, not the specifics of any design detail.”*

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Working Group members also mentioned that the rail, in their opinion, has surprisingly limited frequency hours. *“I don’t have the schedule in front of me, but in the early evening it drops from 15 minute frequency to half hour frequency and, I may be wrong about this, but we have had the light rail for quite some time running at generally a 15 minute frequency for any given line in most places with a good span of service from the early morning to the later evening. The East Corridor, the A Line, stops being 15 minutes much sooner than the light rail does.”* Some respondents in the Community Survey also expressed that trains should be more frequent from the airport after 7 p.m. and that there should be better options for getting to and from the A Line such as buses. Another respondent expressed that they would *“love to try riding the rail, but I am nervous to take it alone. I only recently rode the bus for the first time to get to court.”*

Finally, one specific action a stakeholder mentioned the Concessionaire did in the process to gain community support that was a part of the terms of their agreement was the requirement to do a mock-up of the commuter rail vehicles. Vehicles were put on display in high-traffic areas, such as outside of Denver Union Station for many weeks. DTP received input from the general public, as well as special interest groups, such as those with disabilities during the display period. From the display period, DTP made changes to proposed vehicle designs because of the input they received from the public. All of this was done as per contract requirements.

Detailed Project Planning

The second most important factor according to project stakeholders in semi-structured interviews was the detailed project planning process that took place prior to RTD moving into a PPP with DTP. The most important indicator associated with Detailed Project Planning is the clear statement of objectives in contracts, clarity of technical plans and specifications. According to many stakeholders, the goal and objective of Eagle P3 and the University of Colorado A Line was to provide a safe ride that is clean, reliable, and cost-effective service for current and future patrons. In order to attain this objective, stakeholders made it clear that clarity and technical plan specification was important factor in determining project success. In the past, RTD had contracts where bidders liked doing Design Build Operate fixed price bids. With potential uncertainty of cost overruns, project bidders would argue about specifications, causing change orders among other things. One stakeholder believed that setting everything up with detailed project planning for the P3 allowed RTD to have to power to refer back to the initial contract if there were any problems with the Concessionaire.

Other specific project planning mechanisms mentioned within contract included performance measurements for Concessionaire payments, as well as commuter rail car design details mentioned previously in the chapter. However, another specific project plan outlined in contracts that was mentioned regularly by stakeholders was the requirement for the Concessionaire to employ contractors or subcontractors that are considered small business enterprise or disadvantaged business enterprises, also known as SBE and DBE. Small businesses, or minority and women owned businesses were required to receive 30 percent of the work on the project. DTP was noted as an “active participant” in devoting more jobs to minority and small business organizations. *“We have a whole department that works on [DBE and SBE] and they track wages paid by the Concessionaire to make sure that contractors and subcontractors meet these requirements. I think we actually exceeded the goal on the project, so that was a pretty big deal.”*

Technology Innovation

“There was a sense that there was a goal to create a competitive process amongst teams, to make them be competitive against each other and it really brings some technical innovation to the project and I think that [Eagle P3] was that.” The third most important PPP factor to project stakeholders interviewed was the notion that generating a PPP like Eagle P3 encourage an alternative, technical project. Many stakeholders noted the vast amounts of technical components that were provided by private sector experts, a key indicator of the Technology Innovation factor.

Many stakeholder argued about how prescriptive the concession document should have been since the Concessionaire was responsible for delivering the project and maintaining it for 30 years. Thus, the public sector let DTP choose the way the rail was going to be created based upon what system they felt comfortable with. The private sector had the in-house capabilities RTD did not have, such as contractors and technical designers. Thus RTD was looking for technical construction side alternative concepts, also known as ATCs, or value engineer solutions. With ATCs, stakeholders felt as though they got expertise where they were trying to save as much money they could on the project, but meet the project specs and scope.

One example of value engineering utilized in the project was going from a double track design to single track design to save money. Another example was utilizing electric train control, also known as Electric Multiple Unit (EMU). The University of Colorado A Line was the first train system in the United States to utilize Positive Train Control (PTC), a common feature of EMU trains. Utilizing this technology means that the train can be operated

electronically when a train crosses at a highway or roadway, which then notifies gates at the crossing to open or close when a train is passing.

In regards to technology innovation of the line, many respondents in the Community Survey were rather frustrated with the crossing issues the rail has had. One respondent explained that they *“need to be assured that the A line operation is reliable in view of the crossing issues.”* As well, many noted that the train breaks down a lot, delays, which makes it unreliable, but one respondent explained that they would still use line since they used to work in the transit industry. Finally, a few respondents discussed problems with quiet zones around their home. One respondent explained that they *“live near 40th and your and was told it would be a quiet zone. The horns blast constantly every hour except between 1 am and 5 am.”*

As mentioned previously in Chapter Four, some stakeholders believe the decision to value engineer portions of the rail to be single track has led to train delays or closures. Another problem with value engineering has consecutively been compliance issues with grade crossings due to PTC from the EMU. Because the project used a newer technology regarding how PTC talks to highway and rail crossing segments, RTD and the Concessionaire are still working to improve how quickly and how far away the crossing is telling highway gates to come up. Grade crossing issues with the University of Colorado A Line has prevented other commuter rail line projects that are a part of the Eagle P3, specifically the G Line mentioned in Chapter One, from being run currently.

Political Support

The fourth, and final PPP factor found to be of critical importance by stakeholders and survey respondents was the amount of political support the project received. Stakeholders specifically on the public side noted that there is always politics in what is done in relation to transportation, but that there was even more of an emphasis placed on politics in the University of Colorado A Line and Eagle P3. Not only was the University of Colorado A Line considered to be a key component of the FasTracks which was approved by voters in 2004, but also elected officials and other key decision makers in the Denver metropolitan region provided continue support to the project. One stakeholder noted that even as elected officials changed, there was still a great deal of support from most parties even as people left respective offices and new officials came in. Many stakeholders noted the important role TABOR, the Taxpayer Bill of Rights, in Colorado played in Political Support. TABOR was a voter-approved measure in 1992 that amended the Colorado State Constitution to restrict governments from raising taxes without voter approval. Without TABOR, or the ballot measure, the process would have likely not been possible. One stakeholder noted that RTD

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hired both bankers and lawyers who had experience with not just the P3 delivery model, but also experience within Colorado law because TABOR was a big part of what drove tax structure. The stakeholder noted that, *“having knowledgeable advisors, and working with folks who understood the main intricacies of Colorado law helped make this project successful.”*

Influence of PPP Factors on Social Justice in the University of Colorado A Line and Eagle P3:

Based upon a cross tabulation of PPP factors against social justice indicators, PPP factors correlated to social justice when reviewing semi-structured interviews and Community Survey results. As mentioned previously, Public/Community Support, Detailed Project Planning, and Technology Innovation PPP Factors not only had a strong influence on the project according to semi-structured interviews, but they also had ties in relation to social justice indicators. As well, Good Feasibility Studies carried ties of social justice. To prevent confusion, because Detailed Project Planning and Good Feasibility Studies have similar indicators as PPP Factors, they are grouped together when discussing social justice in this portion of the chapter. A more detailed outline of what particular indicators affiliated with particular PPP Factors is located in Annex 7.

Public/Community Support and Social Justice

Stakeholders interviewed found that making sure that the public felt as though the rail line was a reflection of their wants and needs was likely the most important portion of P3 generation. Support of the rail from the public in the community survey reveals that people generally favor it currently. Public input in design happened through a public involvement and outreach program. Examples provided earlier in the chapter of design influence, such as commuter rail vehicle mock-ups could be seen as a multilateral participation method in social justice, thus encouraging full and equitable participation. However, there are likely potential social equity problems with communication methods based upon results from the community survey. Many respondents reported not being involved in any public involvement process and ¼ of those surveyed received some form of information about the line. This alone requires question of how exactly the public involvement process took place.

As well, because RTD controls fares of the rail, and risk is not transferred to the private sector to control rates, this increases the potential of needs being met of all groups of society and prolonged use of the rail. Because DTP receives payments based on their performance and the accessible service they provide to the public, this also furthers the potential for needs being met of all groups of society; a social justice indicator. However,

many survey respondents discussed how the rail is unaffordable for them, which again calls to question if the risk being transferred to RTD means that the rail is an accessible service to all.

Not only are there concerns that the rail tends to be an unaffordable service, but also the community found that rail frequency was too low in off-peak hours, thus not meeting the needs and satisfaction of the public and community.

Good Feasibility Studies, Detailed Project Planning and Social Justice

To begin this discussion, though literature separates Good Feasibility Studies and Detailed Project Planning, both factors will be combined together for analysis since feasibility studies are normally associated with project planning in the context of the United States. One important detail brought up by stakeholders in interviews relating to social justice and detailed project planning was the requirement for the Concessionaire to employ contractors or subcontractors that are considered small business enterprise or disadvantaged business enterprises. Not only does the participation of minority and small businesses in projects lead to full and equitable participation of all groups of society within the project, but it also satisfies other economic benefits.

As well, though not discussed in great detail in Chapter Four thus far, as factor, the PPP factor Good Feasibility Studies was discussed regularly among project stakeholders in interviews, and also correlated to social justice values. The entire process leading up to the bid of the P3, the environmental impact process, public meetings and public input determined if the service that RTD and DTP provided would be equitable in regards to participation, but also meet the needs of all groups of society. Feasibility studies, more specifically the EIS process was long in development in relation to the project because RTD and DTP strived to make a service the public wanted to utilize and meet transit needs.

Technology Innovation and Social Justice

The largest takeaway from technical components of the project being provided by private sector experts on social justice has been the potential sacrifice to reliable service due to value engineering methods. Not only has the use of single track on the rail line led to delays or closures, but also PTC from the EMU has caused potential dangers at crossing grades, requiring the FRA to step in and take extra precautionary measures with other portions of the Eagle P3. This means that the needs, satisfaction and support of the public are likely

sacrificed at the will of technology innovation. Many concerns were expressed in the community survey about the project breaking down regularly the first two years of its operation, meaning that the rail could also be an unreliable service, resulting in low ridership, delays, or cancellations.

Semi-Structured Interviews and Community Survey: Concluding Thoughts

To conclude analysis of semi-structured interviews and the community survey in the research scope, top four PPP factors influencing the University of Colorado A Line and Eagle P3 according to interviewees and the community are Public/Community Support, Detailed Project Planning, Technology Innovation, and Political Support. Like results found in secondary documents, this contrasts Osei-Kyei and Chan's (2015) top PPP factors contributing to PPP implementation practices. To provide a refresher, Osei-Kyei and Chan determined that the factors Appropriate Risk Allocation and Sharing, Strong Private Consortium, Political Support, and Public/Community Support had the strongest influence on implementing PPPs.

PPP Factors that were found to also have ties to social justice indicators differed from the top four PPP factors influencing the University of Colorado A Line and Eagle P3 only slightly. The top four factors mentioned with social justice relations in interviews and the survey were Public/Community Support, Detailed Project Planning, Technology Innovation, and Good Feasibility Studies.

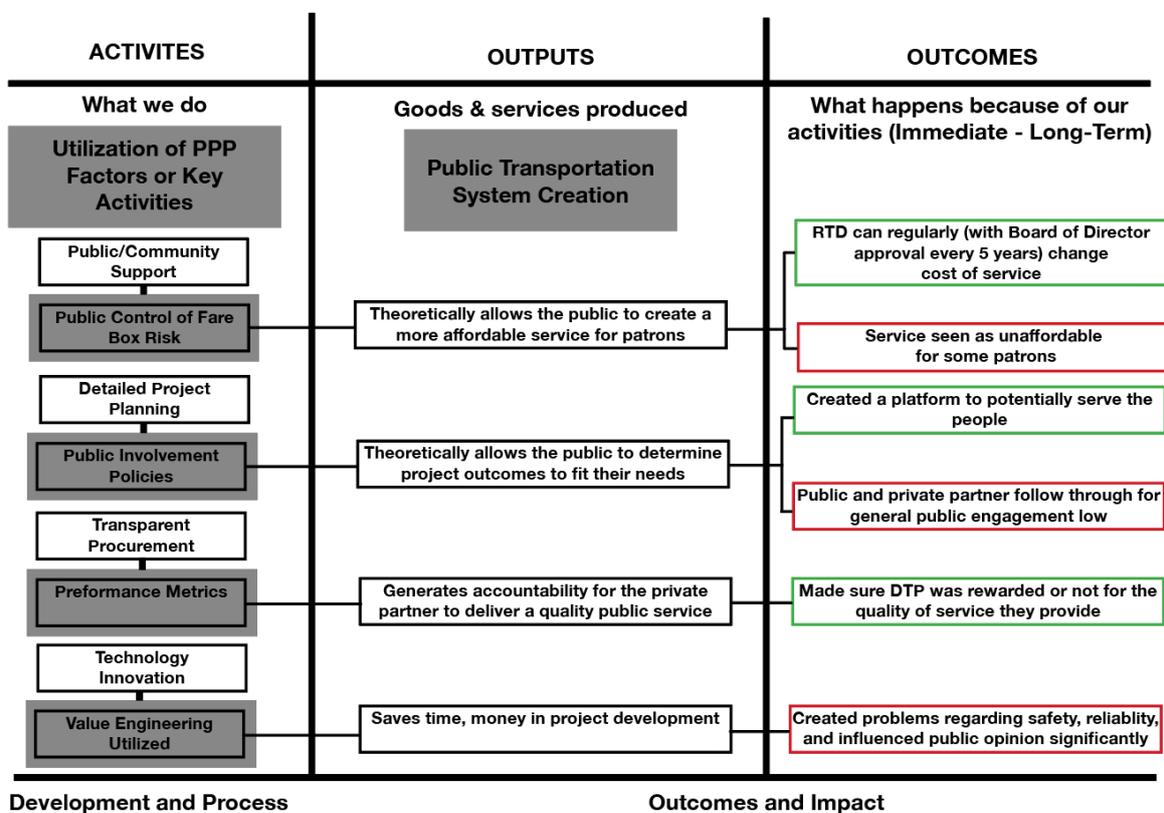
In the process of developing Eagle P3, stakeholders wanted to be sure the project delivered what the community wanted based on secondary documents and interviews, and they also wanted to create a PPP that delivered innovative financial and technological solutions. However, in the process of utilizing new, innovative financial and technological solutions, such as cost savings in engineering, Eagle P3 and the University of Colorado A Line created problems for the community's safety, and compromised patron's opinion of the reliability of the rail. Because there are particular PPP factors that have influenced outcomes of social justice more significantly than others, it is important to discuss them more.

4.3 Analysis and Results Conclusions

In the process of developing the Eagle P3 and the University of Colorado A Line, it is clear that RTD and DTP wanted to work together to create a quality service for the public. Not only did they attempt to set up a network in contract documents to make sure people were

informed and involved in the process, but they also agreed to create a user-based payment plan with the Availability Ratio, and made sure that DTP inherited significantly more risks associated with the project. However, though stakeholders developed plans and contracts in writing, and created some opportunities to serve social justice to the community, outcomes were less than black and white. In order to make things more clear in understanding the different factors and specific actions in each factor that did or did not influence creating a socially just project and PPP, the figure below attempts to explain these relationships graphically prior to discussing them.

Figure 4 – PPP Factors: Determinacy of Just and Unjust Practice



Main factors discussed in Chapter Four, Public/Community Support, Detailed Project Planning, Transparent Procurement, and Technology Innovation had particular actions in the course of developing the P3, or in the project’s procured lifetime. Each action in the factors generated particular outcomes. In the case of Public/Community Support, the largest takeaway from the research and analysis was the fact that the public entity, RTD has control to change fares for the rail. In theory, this risk allocation helps the public sector to reassure the community that fare prices are more equitable and accessible. Every five years, the RTD

Board of Directors has the power to change costs of service for all lines, including the University of Colorado A Line. However, many residents based upon community survey results see the rail as unaffordable at the currently price. In the case of the factor Detailed Project Planning, one action taken to create a project with detailed specifications throughout plans and implementation was create a public involvement and information plan. On paper, this allowed all members of the community to participate and determine how the project would fit their needs. However, based on results of the survey, most did not participate in the planning process for the rail and have not been asked to provide feedback since the rail has become operable. The third factor influencing the project discussed frequently in Chapter Four was Transparent Procurement. An indicator of Transparent Procurement in PPPs is government reassurance of the public domain. Creating performance metrics for the private entity, DTP, to get paid allows RTD to reward, or penalize the Consortium for the quality of service they provide or lack of. Finally, the factor Technology Innovation influencing a project typically is indicated through the private sector providing technological parts of the project to maximize the project's capacity. In the case of the Eagle P3 and the University of Colorado A Line, DTP utilized many different value-engineering techniques to save time and money. However, the techniques at times have jeopardized safety of those in communities, and the capability of providing a continuous reliable service.

With these issues in mind, results are mixed in the sense that PPPs provide social justice. Some factors, or actions taken can influence social justice for the better, and other actions do not. As well, though there may be indication and intention that a service will be just and equitable on paper does not mean that through implementation and operation that it will be. This will be further discussed in Chapter Five when creating conclusions and recommendations.

Chapter Five: Conclusions

5.1 Reflecting On Main Research Questions and Sub Questions

Based upon a combination of data discussed in Chapter Four, the following PPP factors proved to be most important in improving, or impacting social justice:

- Public/Community Support
- Detailed Project Planning
- Transparent Procurement
- Technology Innovation

These top four factors differ from scholarship's research noted top factors in Chapter Two, Three and Four. In the process of developing the Eagle P3 and the University of Colorado A Line, it is clear that RTD and DTP wanted to work together to create a quality service for the public. Not only did they attempt to set up a network in contract documents to make sure people were informed and involved in the process, but they also agreed to create a user-based payment plan with the Availability Ratio, and made sure that DTP inherited significantly more risks associated with the project. However, though stakeholders developed plans and contracts in writing, and created some opportunities to serve social justice to the community, outcomes were less than black and white. Results are mixed in the sense that PPPs provide social justice. Some factors, or actions taken can assist in providing justice, and others do not. As well, though there may be indication and intention that a service will be just and equitable on paper does not mean that through implementation and operation that it will be.

When generating a new project in a new city like that of the Eagle P3 and the University of Colorado A Line, it is important to consider the following: If prices for rail lines are too high for some users, or if technology innovation is impacting service quality too much at the beginning portions of a rail being open, will the Concessionaire be able to recover trust of the public despite the rail's history of delays and potential safety concerns? If the line is too expensive for some members of the community, can RTD consider lowering box fare prices since they bear the risk of fare control? And ultimately, are both parties truly concerned with how the general public feels about the rail when most are not participating in their public involvement processes built into the PPP mechanism?

The author, due to the limitations of the data collected and constraints of the study, cannot answer many of these questions. However, research questions discussed in Chapter One can be answered based upon the data analyzed in Chapter Four.

The first subquestion, ‘What is the nature of transportation PPP outcomes in general in the United States, more specifically in Colorado, and how do they relate to social justice?’ can be answered very simply. Many stakeholders believed that if it were not for the PPP, the rail line would not be created. Due to time and budgetary constraints, creating the rail through the public was not an option. With this in mind, the PPP is seen as an iron fist as its procurement documents and process generated the creation of the public service. Specifically in the physical contractual documents of the Eagle P3, there were portions of the documents that ultimately influenced the outcome of the PPP and its delivery of social justice in multiple ways. This includes, but is not limited to frequency of the rail, or which public or private entity had specific responsibilities. However, for the sake of clarity, the following portions of the contract documents were truly important in delivering justice and influencing it:

- Performance Metrics for Concessionaire payments
- Public control of the Box Fare
- Public Involvement Policies
- Value engineering techniques utilized to save project costs

Because the Concessionaire is evaluated based upon their performance, if a line breaks down, or delays regularly, DTP is penalized if they do not meet the metrics required of them. This is important to note because though the rail may have delays or problems at times because of value engineering techniques utilized to save project costs, if they do not meet their frequency or timeliness requirements, they will not be paid in full for the services they are providing to the public.

Though the public has control of the Box Fare risk, people still find the rail unaffordable. As other portions of the rail lines developed by RTD are approximately half price, many people are used to getting around for much less money per ride. Though the ride is only \$9 if taking the rail in its entirety, many people only use the line locally to go in and out of the airport. As well, because other transportation options like Uber tend to be cheaper if carpooling, to many residents, it only makes sense to use vehicles to get from point A to point B. It is important to note that the public has control of fares, which normally would be seen as a positive since the private sector would not be allowed to increase fare prices at

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their leisure. However, in this circumstance, it seems as though this risk transfer ultimately did not influence social justice for the better when creating a equitable and accessible service.

Finally, though there are mechanisms regarding public involvement throughout the entire PPP process, many people from the general community seem to be disengaged in the process. Only 3.17 percent of those surveyed had been involved in the public participation process, and even fewer had been asked of their opinions on the rail once operable. When administering surveys, many had feedback that could be beneficial to implementing particular PPP factors.

The second sub question seeks to understand what PPP factors influence social justice outcomes in the case of the University of Colorado A Line. As mentioned earlier in the discussion, the most important factors to influencing social justice outcomes in the case of the University of Colorado A Line were the following:

- Public/Community Support
- Detailed Project Planning
- Transparent Procurement
- Technology Innovation

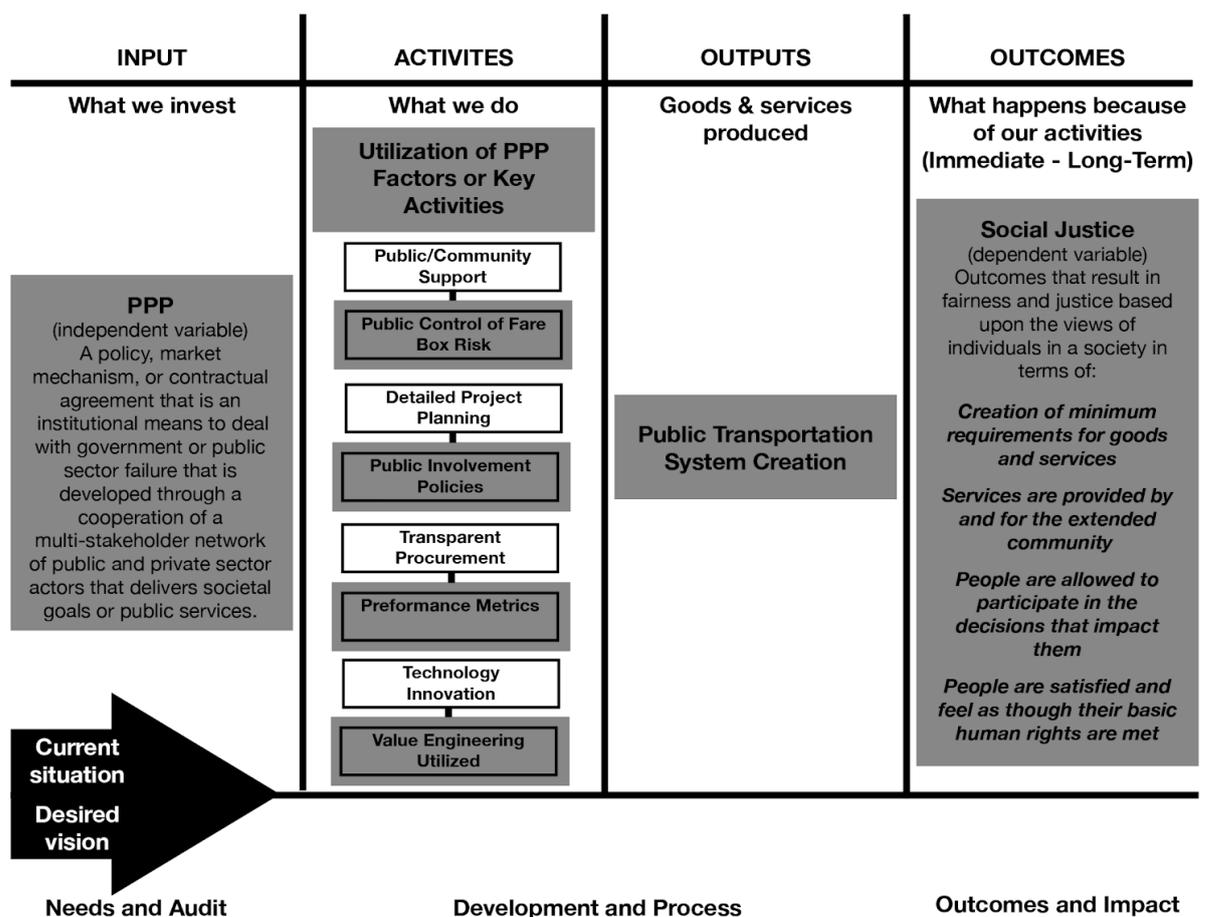
All factors discussed in the conclusion section of Chapter Four thus far ***achieved*** or ***did not achieve*** social justice depending on the point of view the factor is analyzed in. This reflects the true grey area of PPPs in neoliberal theory discussed in Chapter Two's sections on PPPs and the conceptual framework of this study.

Both the PPP, and the outcome of the PPP, the University of Colorado A Line fulfill the ideology of grey area associated with PPPs providing public services. Because RTD, and the State of Colorado could not provide the public with the core public transportation services and infrastructure on their own, an RFP was put out for DTP, the Concessionaire, to help provide the public services instead. The Eagle P3 project was a vast cooperation of multi stakeholders in public and private environments that came together to attempt to deliver societal goals and public services through contract documents for the public good. However, though RTD, the public sector, has control over public service user charges, regional service to the airport on the University of Colorado A Line is more expensive than other user charges on other lines of their services. This could be causing a reduction in creating a public service that is accessible to all.

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To answer the main research question, ‘Can PPP factors create outcomes that reflect social justice values as implemented in the case of the University of Colorado A Line?’, PPP factors can create outcomes that reflect social justice values *if* implemented properly. Each factor can and cannot create justice. Determinants of how much justice is brought to a community truly depends on what PPP stakeholders invest, or the strategies they choose to utilize in the process of creating a PPP. As well, it is important to follow through on actions described in formal documents. It is one thing to create ‘just’ intentions, but in this circumstance, actions speak louder than words. This influences the results achieved in creating social changes as large as those achieved with the University of Colorado A Line. The discussion above reflects the theoretical framework of the theory of change discussed in more detail in Chapter Two. With this discussion in mind, the theoretical framework discussed in Chapter Two is listed below and has been derived to include the specific factors that influence justice in the case of the University of Colorado A Line:

Figure 5 – Framework For Social Justice and PPPs



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5.2 Recommendations

Much of transportation PPP research, and general PPP research circulates around the stakeholder's experiences dealing with PPPs, and determining best practices based upon viewpoints only associated with stakeholders working on PPP projects. Because PPPs are designed to create public services, and because government funding is disintegrating in various countries around the world, it is important to study the user in relation to how specific portions of the PPP mechanism impact the general public; as they are the ones impacted most by the effects of large-scale infrastructure projects.

In relation to the case at hand, it is important for RTD, DTP, or any transportation practitioner debating utilizing a PPP in a project in another city to take into consideration the following:

- The importance of fares in PPPs and the amount of influence they have on social justice
- Gauging performance metrics
- Educating the public about PPPs

The importance of fares in PPPs and the amount of influence they have on social justice

RTD's decision to bear the risk of rail fares is likely a positive influence to social justice. However, if the public is generally upset with the difference in fares between other service lines, it is critical to make sure that the public sector takes this into extreme consideration. Not only because they bear the risk in the partnership for this mechanism, but also because the public sector is in charge of harnessing the public good in providing public services.

Gauging performance metrics

Performance metrics are a key factor in holding the private sector accountable for providing quality customer services. However, if utilizing new technologies due to value engineering, consider creating stronger performance metrics that penalize the private sector for not delivering public services properly. This specifically refers to creating stricter availability ratio metrics relating to on time availability, rolling stock, and station availability discussed previously in Chapter Four. This allows the service being provided to the public to have a higher likelihood of delivering socially just outcomes.

Educating the public about PPPs

Many respondents to the community survey in this study mentioned offhand that they did not know that the University of Colorado A Line was developed by a PPP, Eagle P3, and that there is a concessionaire, DTP, currently running the operations and maintenance of the rail for the next approximate 28 years. Educating people about PPPs allows users to be more informed of who is in charge of delivering what in their public services, and allows the public to make more informed decisions when reflecting upon key decisions that impact their community. The more people learn about PPPs and the potential influence they can bring to creating socially just outcomes, the more likely it is that PPPs will do just that: provide social justice.

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Abbreviations

ACS	American Community Survey
ADA	Americans with Disabilities Act
BRT	Bus Rapid Transit
CDOT	Colorado Department of Transportation
CRMF	Commuter Rail Maintenance Facility
CSFs	Critical Success Factors
CTPP	Census Transportation Planning Products Program
DB	Design Build
DBE	Disadvantaged Business Enterprise
DBF	Design Build Finance
DBFOM	Design Build Finance Operate Maintain
DBOM	Design Build Operate Maintain
DC	Washington, District of Columbia
DOT	Department of Transportation
DRCOG	Denver Regional Council of Governments
DTP	Denver Transit Partners

EMU	Electric Multiple Unit
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HPTE	High Performance Transportation Enterprise
IHS	Institute for Housing and Urban Development
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
KM	Kilometres
MPO	Municipal Planning Organization
P3	Public Private Partnership
Penta P	Public Private Partnership Pilot Program
PPP	Public Private Partnership
PTC	Positive Train Control
RRIF	Railroad Rehabilitation and Improvement Financing
RRP	Regional Rail Partners
RTD	Regional Transportation District

SAFETEA-LU	Safe, Accountable, Flexible, Efficient, Transportation Act
SBE	Small Business Enterprise
TIF	Tax Increment Financing
TIFIA	Transportation Infrastructure Financing and Innovation Act
TIGER	Transportation Investment Generating Economic Recovery
TOD	Transit Oriented Development
USDOT	United States Department of Transportation

Annex 1: University of Colorado A-Line Survey Administration Factors (Zip Codes Ranked Upon Transit-Dependent Variables and Transit-Dependent Statistics For Selected Zip Codes)

**Zip Codes Within A Line Service Ranked 1-10 Against Each Other Based on Ranking of
Transit Dependent Factors**

Zip Code Name

	West Denver	Aurora	RINO	Gateway	N Denver	Highlands	Park Hill	LoDo	DIA	Stapleton
Percent of Population in Poverty	1	3	2	5	4	8	6	7	9	10
Average Household Income	1	2	3	4	5	6	7	9	8	10
Average Family Income	1	2	3	4	5	6	8	9	7	10
Average Non-Family Income	1	2	3	4	8	6	5	9	7	10
Number of Transit Users	4	1	9	5	2	3	7	6	8	10
Percentage of Transit Users	1	4	3	7	5	6	8	2	9	10
Average Transit Dependent Factor Rating	1.5	2.3	3.83	4.83	5.6	5.83	6.83	7	8	10

Selected Zip Codes with Transit Dependent Variables

	West Denver - 80204	North Denver - 80205	Stapleton - 80238

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Percent of population under 18	26.60%	19.30%	35.20%
Percent of population 65+	9.70%	7.10%	4.50%
Average Income (Non-household)	\$26,544	53,514	\$83,877
Percent of population in Poverty	32.90%	20.60%	3%
Percent of people of color - Black, Asian, Native American Indian, Pacific Islander etc.)	24.3%	27%	3.9%
Percent of people of Hispanic- Any Origin	52%	28%	7.6%

*All data in Annex 1 is derived from the US Census Bureau's Census Transportation Planning Products Program (CTPP) conducted in 2014 or the US Census Bureau's American Community Survey (ACS) conducted in 2014

Annex 2: Semi-Structured Interview Questions

General Checklist semi-structured interviews

*Denotes baseline questions for understanding things - be specific, simple and clear -limit maybe the amount? Spend approximately an hour with every person you interview

*Name:

*Role/Position in Project:

*What was involvement:

*Can you tell me about the goals and objectives were for the project?

- How did these goals and objectives play out in the process?
- Were these goals and objectives achieved?

* What were the key activities that took place during the process of this project that influenced the outcomes of the University of Colorado A Line?

*What key activities that took place during the process of this project made sure that needs were met for all groups of society?

*What key activities that took place during the process of this project made sure there was full and equitable participation for all groups of society?

*What key activities that took place during the process of this project made sure that the rail line was an accessible service for all groups?

*What activities took place during the development of the consortium agreements (financial stage) that were key to encouraging (full and equitable participation) (needs were met of all groups of society) (rail line was an accessible service for all groups)?

General:

1. Tell me about your experience with the University of Colorado A Line project:
2. General background with transport/ppp projects:
3. What were the different PPP factors that influenced the outcomes of the University of Colorado A Line?
4. Of the factors that you explained, were there some factors that were more important than others?
5. Can you tell me what the goals and objectives were for the project?
 - How did these goals and objectives play out in the process?
 - Were these goals and objectives achieved? How?

Determinants of Needs/Project Planning Mechanisms:

6. Can you tell me more about who you involved in the development of this plan?
7. Tell me about how the project planning phase:
 - How did this phase assess the needs of societal groups:
8. How exactly did you engage those in the planning process to develop the project?
9. Were those engaged in the process able to give feedback? If so, how?
10. Can you tell me about any feasibility or impact studies that were conducted during the planning process before releasing the Request for Proposal?

Outcomes of Project Planning:

11. What do you believe was the level of satisfaction with the development of plans for the A Line from the public
12. Was the community generally supportive of the plan? How?

Consortium Details:

13. Can you elaborate on the PPP concession structure for the A Line?
14. What exactly was considered when drafting the concession agreement?
15. What were the terms of agreement for the concession when operating the rail line?
16. Can you elaborate on if the consortium is meeting these performance terms?
17. Who evaluates performance terms and how are they evaluated? How regularly are performance terms being evaluated?
18. Are users and people within the community allowed to provide feedback on the operation of the rail line? If so, how? Is this outlined in the agreement for operations?
19. To what extent was affordability considered in the consortium agreement?
20. To what extent was station distance considered for the community in the consortium agreement if at all? Was this determinant more evaluated in the planning process?
21. To what extent is passenger perceived safety of the rail considered in the consortium agreement?
22. To what extent is time travel reliability of the rail considered in the consortium agreement?

Outcomes of Rail:

23. Do you believe that the rail has met the transportation needs of the community? If so, why?
24. Can you explain how satisfied people are with the University of Colorado A Line?
25. Tell me about the support of the University of Colorado A Line currently
26. Could you elaborate on what you believe the outcome of the ppp, the commuter rail, has created for the community at large?
27. In your opinion can you tell me what you think is important to apply in PPP practice that establishes different outcomes for society as a whole, not just necessarily for the stakeholders in the PPP arrangement?

Documents Needed:

- **Can you share the Environmental Impact Assessment and Feasibility Studies (and other documents I may be unaware of)?**
- **Can you share records of project planning process, public communication mechanisms, meetings etc?**
- **Can you share the consortium agreement?**
- **Can you share the finalized plan that was put up for RFP?**

Annex 3: Community Survey (English)

Welcome to the research study!

Thank you for your interest. This 5-minute survey focuses on the University of Colorado A Line development and its services it provides to your zip code. Most questions simply ask about your experience with the University of Colorado A Line and have no right or wrong answer. Answer the questions carefully and provide your best answer.

The survey is for a graduate thesis project at the Institute of Housing and Urban Development Studies (IHS) at Erasmus University Rotterdam, the Netherlands. Responses will be used for educational purposes only. Your responses will remain anonymous. Please contact Joan Crockett Lyons at 489244jl@eur.nl or 720-645-5162 if you have any questions. The Principal Investigators for this study are Joan Crockett Lyons, Lori Porreca (lori.porreca@dot.gov) and Carley Pennink (pennink@ihs.nl).

You may contact IHS if you have questions about your rights as a research participant at ihs@ihs.nl or at +31 (0) 10 408 9825. To begin the survey, read the following text and confirm you agree with the statement.

By responding "I consent, begin the study" below, you will indicate that you live in the zip codes of 80204, 80205, and 80238 and you voluntarily consent to participate in this study. You can withdraw from the study at any time. You may decline response to any question for any reason. If you do not voluntarily consent to participating, please tell the survey administrator now.

- I consent, begin the study
- I do not consent, I do not wish to participate

University of Colorado A Line Community Survey

Please circle or elaborate on the following questions below. Thank you for your time and participation.

Q1: What Zip Code do you live in?

80204	80205	80238	Other
-------	-------	-------	-------

Q2: What Zip Code do you work in?

Q3: Were you aware of the planning process for the University of Colorado A Line before it was constructed?	Yes	No
--	-----	----

Q4: Did you participate in the planning process for the University of Colorado A Line?	Yes	No
---	-----	----

Q5: Did you receive any information about the line before it was constructed?	Yes	No
--	-----	----

Q6 If you responded to the 'YES' to Q4 or Q5, please explain how you participated and/or the form of information you received about the University of Colorado A Line?

Q7 Please rate your support of the University of Colorado A Line currently:

Strongly Favor	Somewhat Favor	Neutral	Somewhat Oppose	Strongly Oppose
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Q8 Please rate your experience with the University of Colorado A Line based upon the following statements:

The University of Colorado A Line is affordable for me

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Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
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It does not take me a lot of time to get to the University of Colorado A Line from where I live

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
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I consider the University of Colorado A Line to be a safe mode of travel (environment of the train, stations, interaction with other users, etc.)

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
----------------	-------	---------	----------	-------------------

I would consider the University of Colorado A Line to be a timely mode of transportation for me to get to where I need to go (for work, pleasure, etc.)

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
----------------	-------	---------	----------	-------------------

I feel as though the University of Colorado A Line meets the transportation needs of my community

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
----------------	-------	---------	----------	-------------------

Since the start of operation of the University of Colorado A Line, I now use the rail instead of using other forms of transport to get to where I need to go (for work, pleasure, etc.)

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
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The University of Colorado A Line has reduced my travel time for where I need to go

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
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Q9: Please rate the frequency of the following statement regarding communication or participation from 2016-present:

I have been asked to provide feedback on how the University of Colorado A Line operations can be continuously improved or modified

Never	Very Rarely	Rarely	Occasionally	Frequently
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Q8 Would you like to comment on anything else regarding the planning process or your experience using the University of Colorado A Line? If so, please explain here:

Q10: What is your gender?

Male	Female	Prefer Not To Answer
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Q11: Please choose one or more races or ethnic groups you consider yourself to be:

White	Black or African American	American Indian or Alaska Native	Asian	Native Hawaiian or Pacific Islander	Hispanic or Latino	Other
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If selected 'Other', please describe your race or ethnic group

Q12: What is your annual household income?

Under \$25,000	\$25,000 - \$49,999	\$50,000 - \$74,999	\$75,000 - \$100,000	Above \$100,000
----------------	---------------------	---------------------	----------------------	-----------------

Q13: Elaborate on your employment status:

Q14: What is your year of birth?

Annex 4: Community Survey (Spanish)

¡Bienvenido a la encuesta de investigación!

Gracias por su interés. Esta encuesta de 5 minutos se enfoca en el desarrollo de la Línea A de la Universidad de Colorado y los servicios que proporciona a su código postal. La mayor parte de las preguntas simplemente le consultan sobre su experiencia con la Línea A de la Universidad de Colorado y no tienen una respuesta correcta o incorrecta. Responda las preguntas cuidadosamente y brinde su mejor respuesta.

La encuesta es para un proyecto de tesis de posgrado en el Instituto de Estudios de Vivienda y Desarrollo Urbano (IHS, por sus siglas en inglés) en la Erasmus University Rotterdam, Países Bajos. Las respuestas se utilizarán solo con fines educativos. Sus respuestas permanecerán en forma anónima. Si tuviera alguna pregunta, comuníquese con Joan Crockett Lyons al 489244jl@eur.nl o al 720-645-5162. Los Investigadores Principales de este estudio son: Joan Crockett Lyons, Lori Porreca (lori.porreca@dot.gov) y Carley Pennink (pennink@ihs.nl).

Puede comunicarse con IHS si tuviera alguna pregunta sobre sus derechos como participante de investigación escribiendo a ihs@ihs.nl o llamando al +31 (0) 10 408 9825. Para comenzar la encuesta, lea el siguiente texto y confirme que está de acuerdo con la declaración.

Al responder a continuación, "Doy mi consentimiento para que empiece la encuesta", indicará que vive en los códigos postales: 80204, 80205 y 80238 y que acepta voluntariamente participar en esta encuesta. Puede retirarse de la encuesta en cualquier momento. Puede declinar responder cualquier pregunta por cualquier motivo. Si no acepta participar voluntariamente, hágase saber al administrador de la encuesta ahora.

- Doy mi consentimiento para que empiece la encuesta
- No doy mi consentimiento, no deseo participar

Encuesta de la Comunidad de la Línea A de la Universidad de Colorado

Por favor encierre con un círculo o escriba sus respuestas a las siguientes preguntas. Gracias por su tiempo y participación.

P1: ¿En qué código postal vive?

80204	80204	80238	Otro
-------	-------	-------	------

P2: ¿En qué código postal trabaja?

P3: ¿Tenía conocimiento sobre el proceso de planificación de la Línea A de la Universidad de Colorado antes de su construcción?	Sí	No

P4: ¿Participó usted en el proceso de planificación de la Línea A de la Universidad de Colorado?	Sí	No

P5: ¿Recibió alguna información sobre la línea antes de que se construyera?	Sí	No

P6: Si respondió 'Sí' a la P4 o P5, explique cómo participó y/o la información que recibió sobre la Línea A de la Universidad de Colorado.

P7: Califique su apoyo de la Línea A de la Universidad de Colorado actualmente:

Completamente a favor	Algo a favor	Neutral	Algo en contra	Completamente en contra
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P8 Califique su experiencia con la Línea A de la Universidad de Colorado en base a las siguientes declaraciones:

La línea A de la Universidad de Colorado es asequible para mí

Completamente de acuerdo	De acuerdo	Neutral	En desacuerdo	Completamente en desacuerdo
--------------------------	------------	---------	---------------	-----------------------------

No me toma mucho tiempo llegar a la Línea A de la Universidad de Colorado desde donde vivo

Completamente de acuerdo	De acuerdo	Neutral	En desacuerdo	Completamente en desacuerdo
--------------------------	------------	---------	---------------	-----------------------------

Considero que la Línea A de la Universidad de Colorado es un modo seguro de viajar (entorno del tren, estaciones, interacción con otros usuarios, etc.)

Completamente de acuerdo	De acuerdo	Neutral	En desacuerdo	Completamente en desacuerdo
--------------------------	------------	---------	---------------	-----------------------------

Considero que la Línea A de la Universidad de Colorado es un medio de transporte oportuno para llegar a donde tengo que ir (por trabajo, placer, etc.)

Completamente de acuerdo	De acuerdo	Neutral	En desacuerdo	Completamente en desacuerdo
--------------------------	------------	---------	---------------	-----------------------------

Pienso que la Línea A de la Universidad de Colorado cumple con las necesidades de transporte de mi comunidad

Completamente de acuerdo	De acuerdo	Neutral	En desacuerdo	Completamente en desacuerdo
--------------------------	------------	---------	---------------	-----------------------------

Desde que empezó el funcionamiento de la Línea A de la Universidad de Colorado, ahora utilizo el tren en lugar de usar otras formas de transporte para llegar a donde tengo que ir (por trabajo, placer, etc.)

Completamente de acuerdo	De acuerdo	Neutral	En desacuerdo	Completamente en desacuerdo
--------------------------	------------	---------	---------------	-----------------------------

La Línea A de la Universidad de Colorado redujo mi tiempo de viaje a donde tengo que ir

Completamente de acuerdo	De acuerdo	Neutral	En desacuerdo	Completamente en desacuerdo
--------------------------	------------	---------	---------------	-----------------------------

P9: Califique la frecuencia de la siguiente afirmación con respecto a la comunicación o participación desde el 2016 hasta el presente:

Se me ha pedido que proporcione comentarios sobre cómo se pueden mejorar o modificar continuamente las operaciones de la Línea A de la Universidad de Colorado

Nunca	Muy raramente	Raramente	De vez en cuando	Frecuentemente
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P10 ¿Desea comentar algo más sobre el proceso de planificación o su experiencia con la Línea A de la Universidad de Colorado? De ser así, por favor explíquelo a continuación:

P11: ¿Cuál es su género?

Masculino	Femenino	Prefiero no responder
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P12: Elija una o más razas o grupos étnicos al que considere que pertenece:

Blanco	Negro o afroamericano	Indio americano o nativo de Alaska	Asiático	Nativo de Hawai o de las Islas del Pacífico	Hispano o latino	Otro
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Si seleccionó 'Otro', describa su raza o grupo étnico

P13: ¿Cuál es su ingreso anual?

Menos de \$25,000	\$25,000 - \$49,999	\$50,000 - \$74,999	\$75,000 - \$100,000	Más de \$100,000
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P14: Explique con mayor detalle su estado laboral:

P15: ¿Cuál es su año de nacimiento?

Annex 5: Time Schedule

Month of March 2018	Monday 26	Tuesday 27	Wednesday 28	Thursday 29	Friday 30	Saturday 31	Sunday 1
Morning	Colloquium One	Colloquium One		Research Workshop Introduction	Finish Half of Chapter One	Finish Chapter One	Peer Review Chapter One
Afternoon							
Month of April 2018	Monday 2	Tuesday 3	Wednesday 4	Thursday 5	Friday 6	Saturday 7	Sunday 8
Morning	Send Chapter One to Lori	Discussing Literature	Identify Correct Literature to Include in Review	Identify Correct Literature to Include in Review	Panel Discussion	Identify Correct Literature to Include in Review	Identify Correct Literature to Include in Review
Afternoon							
Morning	Conceptual Framework	Write Chapter Two	Write Chapter Two	Write Chapter Two	Conceptual Framework Feedback	Finish Chapter Two	Peer Review Chapter Two
Afternoon	Write Chapter Two						
Morning		Colloquium Two	Revise information (if needed) after Colloquium		Send Chapter One and Two to Lori		
Afternoon		RMT Exam Review (11-30)					
Morning							
Afternoon							
Morning	Dutch Holiday						
Afternoon	Dutch Holiday						
Month of May 2018	Monday April 30	Tuesday 1	Wednesday 2	Thursday 3	Friday 4	Saturday 5	Sunday 6
Morning	Introduction to RMT II		RMT Q&A on Survey/Secondary Data	USD Research Strategy: Applied Examples	USD Research Strategy: Applied Examples		
Afternoon		RMT Q&A for Case Study					
Morning			RMT Workshop (Only need to attend two sessions this week)	Dutch Holiday			
Afternoon	RMT Workshop (Only need to attend two sessions this week)	RMT Workshop (Only need to attend two sessions this week)					
Morning							
Afternoon							
Morning	RMT Secondary Qualitative Data Collection	RMT Q&A Sessions	Write Chapter Three	Write Chapter Three	Giethoorn Trip	Write Chapter Three	Write Chapter Three
Afternoon		RMT Q&A Sessions					
Morning							
Afternoon							
Morning	Dutch Holiday	RMT Workshop (Only need to attend two sessions this week)	RMT Workshop (Only need to attend two sessions this week)	USD Data Collection: Sampling and Preparation		Finish Chapter Three	Peer Review Chapter Three
Afternoon							
Month of June 2018	Monday May 28	Tuesday May 29	Wednesday May 30	Thursday May 31	Friday 1	Saturday 2	Sunday 3
Morning	USD Data Visualization	Colloquium Three		Revise information (if needed) after Colloquium		Finish Draft Research Proposal (1-3)	Peer Review Chapters 1-3
Afternoon	RMT How to Conduct an Interview AND GIS WORKSHOP IN THE AFTERNOON	GIS WORKSHOP	GIS WORKSHOP	GIS WORKSHOP	RMT II Assignment Deadline		
Morning							
Afternoon							
Morning							
Afternoon							
Morning	Introduction to RMT III	Q&A for Quantitative/Qualitative Data Collection	SPSS/Atlas TJ Data Coding and Preparation Classes	SPSS/Atlas TJ Data Coding and Preparation Classes	SPSS/Atlas TJ Data Coding and Preparation Classes		
Afternoon							
Morning							
Afternoon							
Morning	SPSS/Atlas TJ Data Coding and Preparation Classes	SPSS/Atlas TJ Data Coding and Preparation Classes	SPSS/Atlas TJ Data Coding and Preparation Classes	Yenatively Fly to Colorado for Data Collection			
Afternoon							
Morning							
Afternoon							
Morning							Jul-01 8:30-12:30 Stapleton Farmer's Market
Afternoon				6:45 - Stapleton Library Event 6:30 - Stapleton Community Concert	Sunset - Stapleton Community Movie		



Month of July 2018	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Morning		Meeting with Brian Middleton at 11:00	9-11 4th of July Event Stapleton		5:30 First Fridays at Santa Fe 5:30 Fish Clayton Community Grilling		8:30-12:30 Stapleton Farmer's Market
Afternoon				6:30 Stapleton Community Concert			6-7:59 Cole Community Dinner
Morning	9	Bill Van der Meer at 2:00	Data Collection	12	13	14	15
Afternoon	5:30-7:30 Clayton Community Meeting		7:30-8:30 Sloans Lake Community Meeting	6:45-8:30 Stapleton Library Event 6:30-8:30 Stapleton Community Concert 6:15-8 Cole Neighborhood Association Meeting	5:30 Fish Clayton Community Grilling 6-8 Stapleton Wine Series Event	Lekshmy Wedding @ 4	8:30-12:30 Stapleton Farmer's Market
Morning	16	17	18	19	20	21	22
Afternoon			8 pm Whittier Neighborhood Meeting 6-7 Cole Neighborhood Planning Meeting	6:30-8:30 Stapleton Community Concert	5:30 Fish Clayton Community Grilling	8-8 Stapleton Beer Festival	8:30-12:30 Stapleton Farmer's Market
Morning	23	24	25	26	27	28	29
Afternoon			6:30-8 LPNA Monthly Meeting	6:45-8:30 Stapleton Library Event 6:30-8:30 Stapleton Community Concert	5:30 Fish Clayton Community Grilling	Keara's Bridal Shower 1-5 pm	8:30-12:30 Stapleton Farmer's Market
Month of August 2018	Monday July 30	Tuesday July 31	Wednesday 1	Thursday 2	Friday 3	Saturday 4	Sunday 5
Morning				Data Collection	Tonatively Fly to the Netherlands		Write Chapter Four
Afternoon				6:30 Curtis Park Neighborhood Meeting			
Morning	6	7	8	9	10	11	12
Afternoon	Write Chapter Four	Write Chapter Four	Write Chapter Five	Write Chapter Five	Write Chapter Five	Finish Draft Thesis	Peer Review Thesis
Morning	13	14	15	16	17	18	19
Afternoon	Colloquium Four	Colloquium Four	Revise information (if needed) after Colloquium		Submit Draft Thesis to Lori and Readers		
Morning	20	21	22	23	24	25	26
Afternoon						Ideally receive feedback from Lori/Readers on Thesis	
Morning	27	28	29	30	31	Sep-01	Sep-02
Afternoon	Work on Feedback from Readers/Director	Work on Feedback from Readers/Director	Work on Feedback from Readers/Director	Work on Feedback from Readers/Director	Work on Feedback from Readers/Director	Finish Final Thesis	Peer Review Final Thesis
Month of September 2018	Monday 3	Tuesday 4	Wednesday 5	Thursday 6	Friday 7	Saturday 8	Sunday 9
Morning			Submit Final Thesis to Lori and Readers				
Afternoon							
Morning	10	11	12	13	14	15	16
Afternoon			Thesis Defense Dates	Thesis Defense Dates	Thesis Defense Dates		
Morning	17	18	19	20	21	22	23
Afternoon						Graduation	Move back to US

Annex 6: Detailed Information on PPP Indicators and Social Justice Indicators Cross Tabulated From Secondary Data

PPP Factor	PPP Indicator	Social Justice Indicator	Times Mentioned
Public/Community Support	Host government reassures public of good, quality service, and reasonable user fees for the project	Needs met of all groups of society	5
		Satisfaction	2
		Support	1
		Use of rail line	2
	Awareness creation and public education about PPP	Needs met of all groups of society	1
Transparent Procurement	Government reassurance in public domain of project delivery to prevent negative public perception	Needs met of all groups of society	4
		Satisfaction	1
		Support	1
		Use of the rail line	1
	Information and reports for project publically available	Full and equitable participation	1
Clarity of Roles and Responsibilities Among Stakeholders	Public and private sector brings complementary skills together for project to provide public services, PPP, or the project	Full and equitable participation of all groups	1
		frequency of participation	1
Technology Innovation	Technological components provided by private sector experts so that facility designs can benefit users to the maximum capacity	Feedback mechanisms	1

Detailed Project Planning	Clear statement of objectives in contracts, clarity of technical plans and specifications	Feedback mechanisms	2
		Frequency of participation	1
		Type of participation method	1
		Use of the rail line	1
		Full and equitable participation of all groups of society	2
		Needs met of all groups of society	3

Annex 7: Detailed Information on PPP Indicators and Social Justice Indicators Cross Tabulated From Semi-Structured Interviews

PPP Factor	PPP Indicator	Social Justice Indicator	Times Mentioned
Appropriate Risk Allocation and Sharing	Clearly defined risks and allocation to parties that have better mitigation techniques for management	Satisfaction	2
		Support	1
	Risk not transferred solely to the private sector	Use of rail line	2
Political Support	Approval from state/federal government for public expenditure	Type of participation method	1
		Full and equitable participation of all groups in society	1
Public/Community Support	Awareness creation and public education about PPP	Frequency of participation	3
		Type of participation method	3
	Acceptance and understanding of general media (media, NGOs, civil society, general public etc.)	Frequency of participation	2
		Full and equitable participation of all groups in society	2
		Type of participation method	3
		Use of rail line	1
		Needs met of all groups of society	1

	Host government reassures public of good, quality service, and reasonable user fees for project	Feedback mechanism	1
		Frequency of participation	1
		Needs met of all groups of society	2
		Satisfaction	3
		Support	2
		Use of rail line	1
Transparent Procurement	Information and reports for project publically available	Type of participation method	1
		Frequency of participation	3
	Government reassurance in public domain of project delivery to prevent negative public perception	Needs met of all groups in society	1
		Satisfaction	1
Favorable Legal Framework	Change in tax regulation	Satisfaction	1
		Support	1
Strong Commitment By Both Parties	Unified vision from both public and private actors	Needs met of all groups in society	5
		Satisfaction	1
	Devotion of more than minimum resources to the project from both public and private actors (low turnover of jobs, construction allocations, etc.)	Feedback mechanism	1
Clarity of Roles and Responsibilities Among	Public and private sector brings complementary skills together	Needs met of all groups of society	1

Stakeholders	for project to provide public services, PPP, or the project	Type of participation method	1
		Use of rail line	1
Financial Capabilities of the Private Sector	Project is of financial interest to private sector	Satisfaction	2
		Support	1
Technology Innovation	Technological components provided by private sector experts so that facility designs can benefit users to the maximum capacity	Feedback mechanism	2
		Needs met of all groups of society	1
		Satisfaction	1
		Support	1
		Type of participation method	2
		Use of rail line	2
Good Feasibility Studies	Proper evaluation of PPP potential through study conduction	Needs met of all groups of society	2
		Support	2
		Type of participation method	2
		Feedback mechanism	1
Open and Constant Communication	Trust present to attain project objectives	Frequency of participation	1
		Type of participation method	2

Detailed Project Planning	Clear statement of objectives in contracts, clarity of technical plans and specifications	Feedback mechanism	2
		Needs met of all groups of society	5
		Satisfaction	1
		Type of participation method	4

Annex 8: IHS copyright form

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