USING INCLUSIVE TRANSPORTATION STRATEGIES TO CULTIVATE PLACE-MAKING IN VEHICULAR DOMINATED URBAN LOCATIONS

by

WEN SUN

(Under the Direction of Douglas Pardue)

ABSTRACT

This thesis examines the potential for inclusive transportation to support place-making in cities such as Athens, Georgia where automobile-dominance severely limits qualities of place: sociability, activities, accessibility, and comfort. For the purposes of this thesis, inclusive transportation is defined as a kind of transportation planning process which provide infrastructure and other conditions for all kinds of transportation modes. It can also provide accessibility and other conditions for all different kinds of users.

In this thesis, diagrams will be provided to show the relationship inside of inclusive transportation and place-making. Relevant case studies will be researched and used to guide the design application. At the very end of this thesis, a discussion about the suitability of this research and the future vision will be given

INDEX WORDS: Inclusive Transportation, Place-making, Transportation Oriented Development, Place-making Oriented Development, Limited Resources, Financial Support

USING INCLUSIVE TRANSPORTATION STRATEGIES TO CULTIVATE PLACE-MAKING IN VEHICULAR DOMINATED URBAN LOCATIONS

by

WEN SUN

BLA, Zhejiang University, China, 2007

A Thesis Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

MASTER OF LANDSCAPE ARCHITECTURE

ATHENS, GEORGIA

2014

USING INCLUSIVE TRANSPORTATION STRATEGIES TO CULTIVATE PLACE-MAKING IN VEHICULAR DOMINATED URBAN LOCATIONS

by

WEN SUN

Major Professor: Douglas Pardue

Committee: Alison Smith Bramlet
John Crowley
Lara Mathes

Electronic Version Approved:

Maureen Grasso
Dean of the Graduate School
The University of Georgia
May 2014

DEDICATION

I dedicate this thesis to my father Dexiu Sun and my mother Zhili Bao for the wonderful life they give to me and supporting me all the way of my life.

ACKNOWLEDGEMENTS

First and foremost I would like to express my warm and sincere thanks to my advisor, Professor Douglas Pardue, who instructed me and provided detailed constructive comments and support throughout the last year of my academic life. It has been an honor and privilege to work with him.

I would like to thank Professor Alison Smith Bramlet, the chair of my reading committee, for her detailed review and constructive advice on my thesis. I am also grateful to Professor John Crowley, one of my committee members from Environmental Planning & Design, for willing to offer his professional expertise and support throughout this work; Lara Mathes, another committee member of mine, for providing valuable advice and essential assistance in the Cappa works and data. I also want to thank my friends Mengmeng Zhang and Mr. Joseph Hamill, who gave me great support during the writing process. And most of all, I owe my loving thanks to my parents for all their love, encouragement and support.

TABLE OF CONTENTS

Page

LIST OF TABLES

Page

LIST OF FIGURES

Page

CHAPTER 1

INTRODUCTION

1.1 What is different about Athens, Georgia that requires different ways of approaching place-making?

Athens-Clarke County is located in the U.S. state of Georgia. According to the 2010 census, the total population of Clarke County is 116,714; 98.9% of it comes from Athens, which has the population of 115,452 (U.S. Census Bureau).According to the "Households with zero automobiles available" map (Figure 1.1) (Athens Transit), there are many people live in Athens who do not have their own cars and have to rely on walking, biking, and public transportation services. The only public transportation option for people who live in Athens is buses now. There are three different organizations which provide bus service in Athens: Athens Transit, UGA Campus Transit, and Southeastern Stages. Although there are existing rails in the city, there is no direct passenger rail service in Athens. Of the existing rail, part is abandoned, and part is served as freight rail which is provided by CSX and Athens Line. Because of the existing rail system, Athens has been proposed by The Georgia Department of Transportation (GDOT) as the terminus of a commuter line along the GA 316 corridor which connects Atlanta and Gwinnett County. Alternative transportation is proposed and encouraged in Athens now. Bike lanes are emerging on some major streets of the city. Athens is also trying to use the existing rail system to create a new connection between downtown and the east side of the city, which they

call “rail with trail redevelopment.” Now there are more and more bikes, skateboards and small scooters around the city. But the fact is, Athens is still a city with limited transportation options, vehicular dominated streets and less-nodal development patterns. Although there are bike lanes, people biking in those bike lanes still feel uncomfortable because of a lack of buffer zones. There is only a skinny white line between biking people and rapidly moving cars. It is dangerous and unfriendly to biking people. For those people who rely on buses, they have to spend 15 minutes to one hour waiting for their buses. Most bus stops have no necessary facilities to provide shade and resting area for people who would wait for buses there. Athens lies within the humid subtropical climate zone, with hot, humid summers and mild to moderately cold winters. If proper places and shade were provided, people would love to have more outdoor activities and people’s waiting time would be more comfortable. Into the foreseeable future, the automobile will still be the dominant transportation mode in Athens. How alternative and more inclusive transportation can be incorporated into vehicular dominated urban locations will be a practical and critical problem for Athens to solve. Developing inclusive transportation strategies can help Athens to solve that problem efficiently, and inclusive transportation strategies can also provide and cultivate great conditions and opportunities for place-making in Athens. Considering the limited resources and financial supports Athens has, economical models and phasing over time is practical and critical for the inclusive transportation development and place-making in Athens.

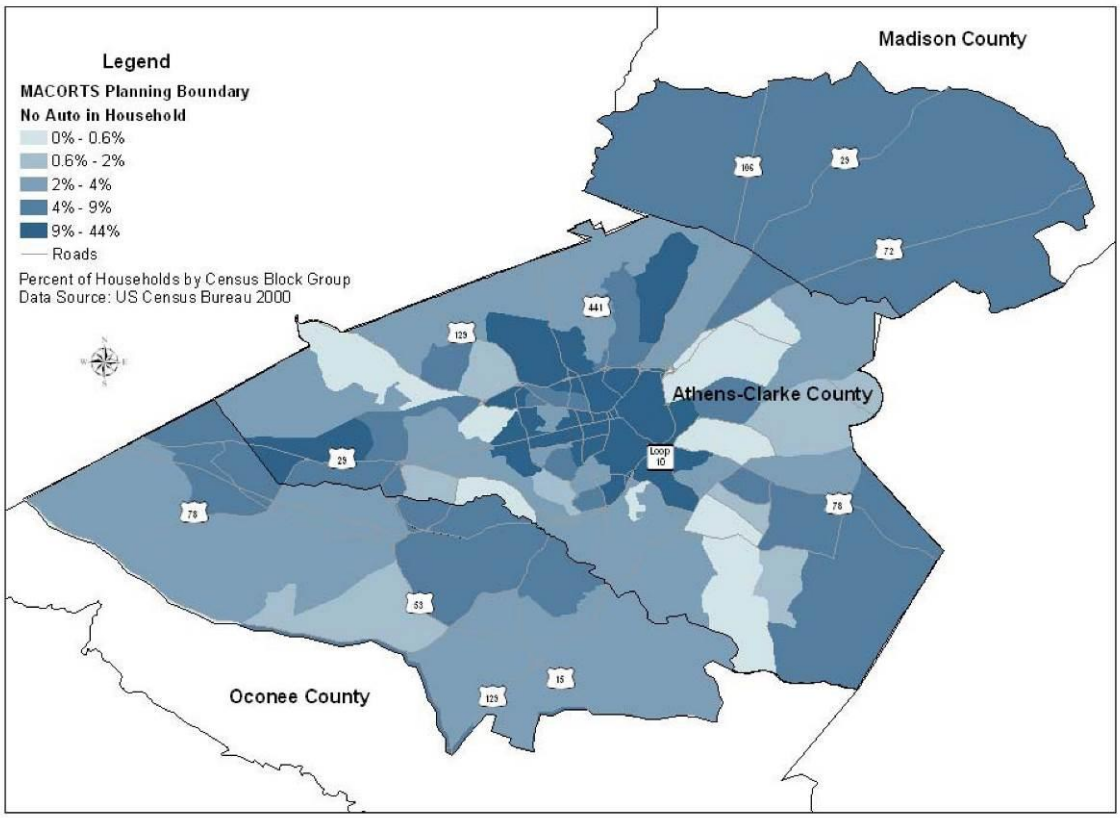


Figure 1.1 Households with zero automobiles available (Athens Transit)

1.2 Research Questions

This thesis examines the potential for inclusive transportation to support place-making in cities such as Athens where auto-dominance severely limits qualities of place: sociability, activities, accessibility, and comfort. For the purposes of this thesis, inclusive transportation is defined as a kind of transportation planning process which provides infrastructure and other conditions for all kinds of transportation modes. It can also provide accessibility and other conditions for all different kinds of users. Recognizing that Athens has limited resources and no inclusive transportation currently, the thesis goes further to generate the primary research question, **how can inclusive transportation strategies be used to catalyze and support place-making in cities such as Athens with limited resources and transportation options? Key**

sub questions include: (1) What are the problems posed to place-making by exclusive transportation strategies? (2) How does inclusive transportation support place-making? (3) How can cities with limited resources achieve short and long-term inclusive transportation goals? (4) How can inclusive transportation strategies anticipate future phases of urban place-making? (5) What are the policy needs and financial supports for inclusive transportation strategies and better urban place-making?

In this thesis, the appearances of inclusive transportation strategies and place-making are the core of the discussion bolstered by several arguments. A thesis scheme model illustrates the structure of the thesis (Figure 1.2). Chapter One introduces the research question, scope, assumptions, limitations, and delimitations. In Chapter Two, the key concepts of place, place-making, and inclusive transportation are introduced and discussed. The discussion begins with the definition of 'place' and 'place-making,' which drive place-making principles. The definitions and principles lead the discussion to generalized criteria for place-making. The chapter then discusses what inclusive transportation strategies are, how these strategies foster and support place-making, their limitations, and how to implement them.

Chapter Three includes relevant case studies that exemplify place-making supported by inclusive transportation strategies. Six cities were selected that illustrate a range of inclusive transportation phases, from almost-exclusive motor vehicle dominance to a rich variety of integrated transportation options. Austin, TX the first case study, has regional rail, a bus system, and limited bicycle routes but no metro, subway, or Bus Rapid Transit (BRT), and, through unconventional measures, is a

model of how to achieve place-making without using inclusive transportation strategies. Next, Kansas City, MO is in the first steps of implementing inclusive transportation strategies. In this way, it is much like Athens. Like Kansas City, Eugene, OR and Boulder, CO have regional rail and bus systems and no metro or subway. Both cities do have BRT, which acts as a critical link between transportation scales that can create nodal development and pave the way for more expensive transit options. Atlanta, GA is developing inclusive transportation in a mature city fabric, with the recent additions of the new ATL streetcar, the Beltline, which will support light rail and supplement Atlanta's limited metro, and innovative applications of Complete Street policies. In fact, Ponce De Leon Street serves as a model for this thesis's application site in Athens. Portland, OR is often used as a model of inclusive transportation with developed light rail and streetcars but no metro. In each of these cities, inclusive transportation strategies are evaluated for their role in supporting place-making, including funding considerations, development phases, and design patterns, and lessons are drawn for design and then used in the application site.

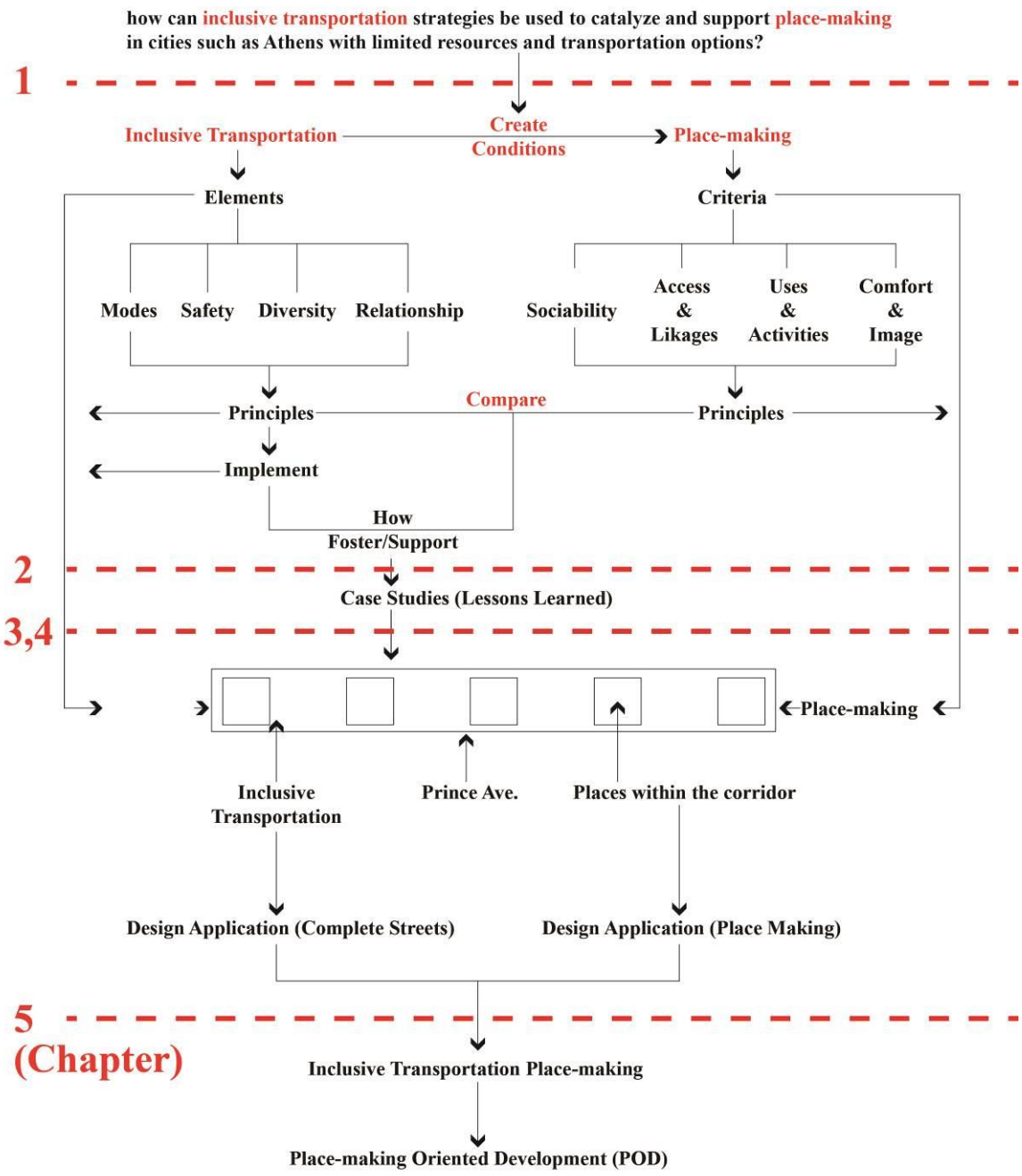


Figure 1.2 Scheme Model

Chapter Four examines the relationship of inclusive transportation strategies to place-making in the case studies to develop design lessons that may be used generally in considering the potential for inclusive transportation to foster place-making in cities. The chapter will draw out the key challenges of the case studies and discuss how they generated support for the project and implemented it. Lessons of phasing and future development are also listed in this chapter.

The general lessons are then applied to Athens's Prince Avenue in Chapter Five. Prince Ave. is a four-lane, vehicular-dominated road that connects Pulaski St. and Athens's perimeter highway and acts as a corridor for local and regional transportation. The corridor is inventoried and analyzed from the perspective of inclusive transportation needs and opportunities for place-making. Through this, five specific locations are chosen due to their range and unique potential for place-making. The design is trying to implement inclusive transportation strategies on Prince Ave. and use these strategies to support place-making. The site design of five chosen locations is inspired by the system design of Prince Ave., which in turn will promote the implementation of inclusive transportation strategies.

Chapter Six is a discussion of several questions generated through examining the case studies and the design process. Do inclusive transportation strategies offer opportunities for fostering pedestrian-oriented place-making in Athens? If they do, then how does Athens get support for the project and how does it implement it? And what other locations might inclusive transportation strategies be used in Athens? The chapter tries to discuss the possible answers of these questions. Chapter Seven is the conclusion chapter. A brief synopsis of future research needs is given in this chapter.

1.3 How to use phasing development to make sure inclusive transportation and place-making allow future sprawl of Athens?

As a college town besides Atlanta, Athens is still in the process of developing. Athens will become more dense and connected to Atlanta more readily just like Boulder connected to Denver. For now, Athens only has four transportation modes: pedestrian, bicycle, buses and automobile. For future development, Athens needs more alternative transportation modes, such as Bus Rapid Transit (BRT) and light rail. So inclusive transportation strategies for Athens must consider these new transportation modes and try to incorporate them into complete street design and place-making at the present stage. In addition to increased transportation modes, inclusive transportation strategies can also help Athens to create 'special' places by expanding Transportation Oriented Development (TOD) models into Place-making Oriented Development (POD) models, which integrate inclusive transportation strategies, and place-making to create more comfortable and efficient places. These PODs will act to stimulate and guide Athens' development, creating a virtuous circle, which anticipates and supports more advanced forms of inclusive transportation strategies.

CHAPTER 2

PLACE-MAKING AND INCLUSIVE TRANSPORTATION STRATEGIES

2.1 What is place?

The first known used of the word ‘place’ was in 13th century. In Anglo-French, the word means ‘open space’, in Latin it means ‘Broad Street’, in Greek it means ‘broad and flat.’ Merriam-Webster’s Dictionary defines it as ‘a building or area that is used for a particular purpose’ (Merriam-Webster). Concluded from these sources, the first impression of ‘place’ is ‘open space’ and ‘particular purpose.’ Except literal meanings, many landscape architects and urban planners have their own understandings of ‘place.’ Many designers and scholars of landscape have suggested that ‘place’ is a broad term, encompassing space, experience, cultural resources and natural resources, etc. As a geographer, Yi-Fu Tuan proposed that to define space, one must be able to move from place to place, at the same time, space is necessary for the existence of place (Tuan 1977). Thus, Tuan concluded that ‘place’ and ‘space’ are codependent while place is larger than simply space.

Lynne C. Manzo, professor in landscape architecture and Patrick Devine-Wright, professor in human geography describes ‘place’ as a series of experiential inquiries that integrates perception of environment, climate, and physical form, with insights gained from social and natural encounters, and understanding history of place over time (Manzo and Patrick 2013). The interesting thing is, these perceptions can be enabled by different modes of transit act, and the perceptions of transit can also be

related to place in turn. From Manzo and Devine-Wright's perspective, 'place' could be dialectics of different transportation modes, holistically arising from different transportation modes. In turn, the richness and complexity that multiple transportation modes create can also enrich the series of experiential inquiries and perceptions of a place. Then different modes of perceptions can create a whole experience of the place.

Other designers and researchers have started to identify key elements and ingredients that interlink to create place. The Project for Public Spaces (PPS) suggests that place has four key attributes: sociability, uses & activities, access & linkages, comfort & image (Project for Public Spaces). Although the PPS does not give a clear definition of 'place,' they definitely talk about what a good 'place' should be: "good public spaces that promote people's health, happiness, and wellbeing (Project for Public Spaces)." Ethan Kent, an authority in the practice of place-making, proposed the benefits of place in his lecture *Future of Place*: "nurtures & defines community identity, fosters frequent & meaningful contact, draws a diverse population, promotes sense of comfort, creates improved accessibility, builds & supports the local economy (University of Oklahoma)."

Concluded from all the above, the definition of 'place' in this thesis is: a public space which has many different programs, cultural and natural elements and ingredients. All these programs, elements and ingredients can work together harmonically as a gestalt to promote people's health, happiness, and wellbeing.

2.2 What is urban place-making?

While place-making has always been a task of design, the appearance of the term can be traced back to the 1960s, when almost all the cities in the United States

were designed just for cars. Then Jane Jacobs, journalist, author and activist and William H. Whyte, an American urbanist, first proposed that cities should be designed for people, not just for cars and shopping centers. They advocated that the neighborhoods should be lively and the public spaces should be inviting. Jane Jacobs proposed the idea of "eyes on the street" in her book to advocate citizen ownership of streets (Jacobs 1961). William H. Whyte proposed the essential elements which can create social life in public spaces in his book (Whyte 1961).

The first official use of the term 'place-making' was in the 1970s. The architects and planners back then tried to use the term to describe the process of creating pleasurable and interesting spaces which can attract people. These interesting and attractive spaces included streets, parks, plazas, waterfronts and squares. Today, the Project for Public Spaces (PPS) defined the term 'place-making' as a primary idea and a practical tool which can help a neighborhood, city or region to be improved. And this idea is expected to be one of the most important and innovative idea of this century (Project for Public Spaces). The PPS further proposed the characteristics of 'place-making' as a complementary of the definition. The PPS proposed that place-making is a process which should maximize the shared value of our public spaces through people's collective work. The foundation of this process is the participation of the community. The whole process should include design, planning, management and programming of public space (Project for Public Spaces). A place-making conference took place on April 3, 2013 on the University of Oklahoma campus. There were about 800 civic leaders, design professionals, and interested citizens who attended the conference. Many different experts shared their opinions about place-

making during the conference. Ethan Kent gave a clear definition of place-making in his lecture *Future of Place*: "place-making is the creation of a built environment that creates community, stimulates interaction, encourages entrepreneurship, fosters innovation and nurtures humanity (University of Oklahoma)." Starting from his definition, he proposed the disciplines of place-making, which include community engagement, civil society/democracy building, public health and the built environment, climate change sustainable communities, local food systems, transportation & land use, historic preservation, local economies and smart growth (University of Oklahoma). He believed that if the process of place-making can achieve all these principles or movements, then this process can turn an unpleasant place which you cannot wait to leave to a comfortable place which you never want to leave (University of Oklahoma).

From all above, the definition of place-making in this thesis is: a planning process which creates context and cultural-specific communities through design and programming of the built environment. The process itself is also a catalyzer for interaction, economy, creation and human's wellbeing. The product of this process can provide link between urban excellences, economic development, sustainability and public health.

2.2.1 Place-making criteria

Before talking about the criteria of place-making, it is necessary to do some research about walkability first. City planner and architectural designer Jeff Speck proposed ten steps of walkability which can be categorized into four key qualities in his book (Speck 2013):

- The useful walk

  Jeff speck argued that if you want to make your space more walkable, first you need to deal with your cars properly. Just put the cars in their place. Then you should consider about the mixed uses of the place and get the parking right. If you do all these right then the transit will work efficiently and properly.

- The safe walk

  To make people feel safe when they are walking in the place, you need to protect the pedestrian first, and then welcome the bikes.

- The comfortable walk

  To make a place comfortable, trees planted in the right place are always appreciated. And these trees are not only for good sights, they can also act as a tool to shape the spaces.

- The interesting walk

  Friendly and unique faces of the place are critical to create an interesting pedestrian area. Working with all the steps above, the interesting walkable space will convert a large segment of drivers into walkers.

After going through Jeff Speck's four key qualities of walkability, now we can compare them with the four key qualities of place-making which were proposed by PPS (Project for Public Spaces). (Figure 2.1)

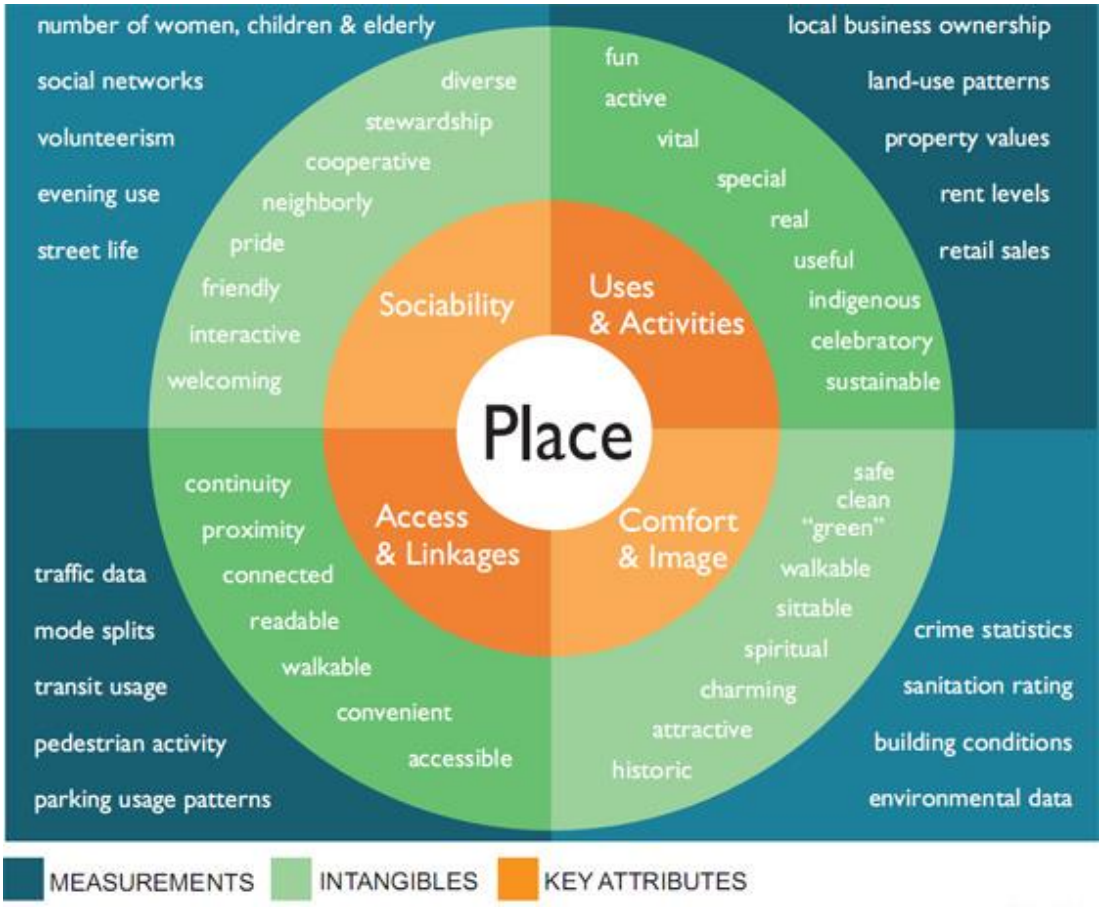


Figure 2.1 The Place Diagram made by PPS (Project for Public Spaces)

- Access & Linkages

  Access concerns not only the physical connections between a place and its surroundings, but also the visual connections. A successful public place must be sighted first, and then can be accessed easily. An accessible public place should also have convenient connections with parking and public transit.

- Comfort & Image

  Comfort & Image is the key quality to evaluate if a place will be used. It is very important for us to recognize that generally we underestimate that people themselves have the right to choose where they

want to sit and stay. Comfort & Image is the key quality which can allow people to use their rights. Safety, cleanness, and a place full of interesting context and charming characteristics will drive people to choose the place.

- Uses & Activities

  Uses & Activities is the quality which can give people reasons to visit a place and come back again later. Uses & Activities can also let a place have its own characteristics. In another words, place are unique because they have special activities. Community pride will be generated by this uniqueness. Programming is another essential element for Uses & Activities. Uses & Activities itself is an essential element for complete street.

- Sociability

  Sociability is an indispensable quality for a successful place. People need places to meet with friends and neighbors. This place should also provide a safe and comfortable environment for people to interact with strangers. To achieve this, a strong sense of place or attachment to their community will be really helpful.

By comparing with these two kinds of qualities, a lot of similarities can be found between them. In other words, a successful place must be a successfully walkable space as well. A successfully walkable space has the potential to be a successful place. From all of the above, in my opinion, the four key qualities of successful places proposed by PPS can best fit the criteria of place-making. So the criteria of place-making in this thesis will be:

Sociability, Access & Linkages, Uses & Activities and Comfort & Image.

2.3 What is inclusive transportation?

From a traditional view point, inclusive transportation is more concerned about the availability of transport services for the poor, women, persons with disability, the elderly, and those populations without reliable access to transport and related services. Nowadays, greenhouse gases (GHG) are recognized as a severe problem for human beings, and we also have more and more transportation modes and new technologies. So people give inclusive transportation a new definition today from the sustainable transportation view point. The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) proposed some new elements of inclusive transportation in a transport review report. (UNESCAP 2013) The UNESCAP argued that as a fast emerging issue, regional development of sustainable and inclusive transportation is getting more and more attention now. Much research is currently being undertaken to promote and advocate for sustainable transport policies. UNESCAP proposed that to be sustainable and inclusive, there are three goals for all transport policy and investments: "avoid unnecessary transport, shift to more sustainable modes and improve transport practices and technologies." (UNESCAP 2013) From a sustainable view point, inclusive transportation should be a tool which encourages alternative transportation modes and helps to reduce the emissions of GHGs by reducing unnecessary transport. As well as the emerging of complete street and better block, researchers and designers give a new definition of inclusive transportation. Barbara McCann, Executive Director of the National Complete Streets Coalition and Director of Information and Research at Smart

Growth America (SGA), proposed that a complete streets should help transportation agencies to find out the potential of their sites, projects, and limited financial support. Utilizing this potential achieves the safely service goal for all kinds of users, including those who are driving their cars, using a bus, riding a bicycle, or walking on their own feet. She points out that the streets must be safe for all kinds of people, including children, older adults and people with disabilities. She also emphasizes that complete streets is not a synonym for the bicycle and pedestrian features of a street. Complete streets should never exclude the consideration of the drivers. Complete Streets is not one of the simple elements of the framework of transportation, it is a system or a process which serves as a part of an inclusive transportation system. Now many transportation professionals and policy makers treat it just as an element which can be put into a category called 'bicycle and pedestrian', which is totally wrong, and this misunderstanding will lead to a separation of different transportation modes. McCann believed that a holistic consideration about how to make a street serving all kinds of users is required for complete streets (McCann 2013). Concluded from McCann's perspective, there should be four key elements of inclusive transportation: modes, safety, diversity, and relationship. Modes includes all different kinds of transportation modes; safety concerns about how to provide safe services for people; diversity means inclusive transportation should provide equal accessibilities and opportunities for all kinds of users to have transportation services; relationship means all different transportation modes and services should work together harmonically as a gestalt.

Concluded from all the research above, the definition of inclusive

transportation in this thesis is: inclusive transportation is a transportation planning process that provides infrastructure and other conditions for diverse transportation modes, accessibility, safety, and synergistic relationships between different transportation modes. From this definition, four key elements of inclusive transportation are selected to evaluate the relationship to place-making in the case studies: modes, safety, diversity and relationship. Inclusive transportation definitely should include freight, taxis, and student housing shuttles, but they won't be discussed in this thesis.

Modes

Inclusive transportation should involve as many different kinds of transportation modes as possible, including walking, bicycle, automobile, streetcar, commuter rail, Bus Rapid Transit (BRT), metro, light rail, etc. All these different modes should work more efficiently together in the inclusive transportation system than work separately.

Safety

From the inclusive transportation perspective, safety not only means providing safe environment for people who are in the process of moving, it should also be provided for those people who are in the process of waiting or having other activities related to inclusive transportation system, like resting areas, bus shelters, etc.

Diversity

Diversity of inclusive transportation mainly concerns providing different transport services for a variety of people, including older adults, children, and people with disabilities, etc. Inclusive transportation must provide equal opportunities for all

the kinds of people to have similar accessibility for different transport services.

Relationship

From the inclusive transportation perspective, relationship means the internal connections among all different transportation modes. This relationship is safe, positive and efficient. Inclusive transportation should keep the relationship which can help all different transportation modes work together as a gestalt perfectly.

2.4 How do inclusive transportation strategies foster and support place-making?

From the previous research, there are four qualities of place-making, which are sociability, access & linkages, uses & activities, and comfort & image. There are also four key elements of inclusive transportation, which are modes, safety, diversity and relationship. By treating the qualities of place-making given by PPS as goals and the key elements of inclusive transportation as means, more specific qualities of place-making enabled by inclusive transportation may be inferred. PPS gives several intangible qualities for each quality; I use these intangible qualities (Figure2.1) as the nexus between the key elements of inclusive transportation and the criteria of place-making. The method will test the elements of inclusive transportation to evaluate how these elements affect the quality of place-making.

2.4.1 The Matrix and diagrams

To compare all the qualities of place-making and elements of inclusive transportation clearly and directly, I make a matrix to show the internal relationship among them. In Table 2.1, the qualities of place-making are listed in each column while the elements of inclusive transportation are listed in each row. Then I input the intangible qualities into each cell created by the

intersection of each row and column to show how inclusive transportation elements influence the qualities of place-making. I made diagrams to explain Table 2.1. (Figure 2.2)

	Elements of Inclusive Transportation (Means)				
Qualities of Place-making (Goals)		**Modes**	**Safety**	**Diversity**	**Relationship**
	Sociability	Diverse Cooperative Interactive	Stewardship Neighborly Welcoming	Diverse Corporative Friendly Welcoming	Stewardship Cooperative Interactive
	Access & Linkages	Connected Walkable Convenient Accessible	Readable	Connected	Continuity Connected Convenient Accessible
	Uses & Activities	Useful Sustainable	Useful	Fun Active Special Useful Indigenous Celebratory	Useful Sustainable
	Comfort & Image	Walkable Sitable Charming Attractive	Safe Attractive	Spiritual Attractive	Safe Attractive

Table 2.1 Relationship of inclusive transportation and place-making

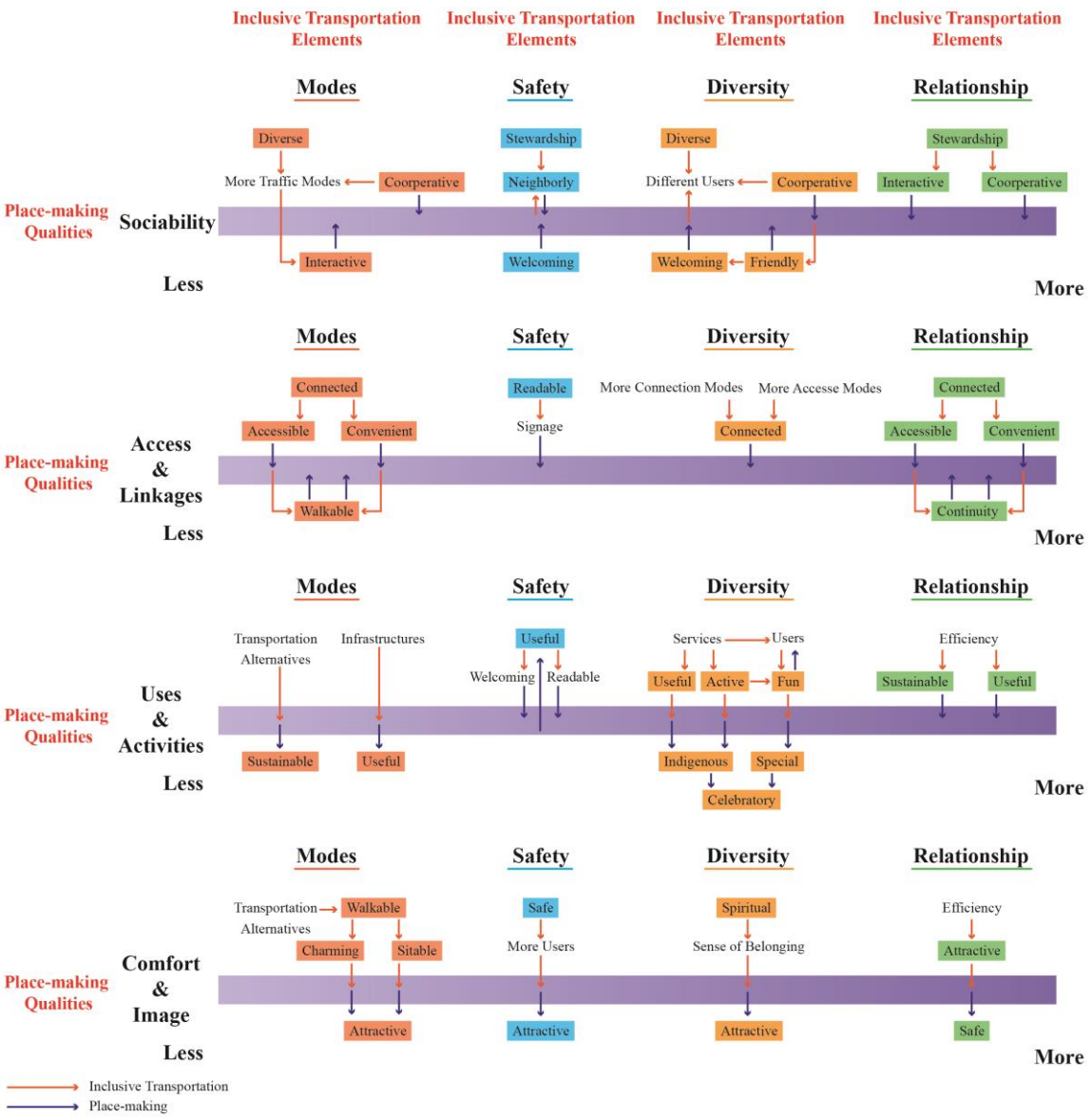


Figure 2.2 Diagrams made to explain Table 2.1

2.4.2 Sociability

To show how the elements of inclusive transportation initiating more needs and creating conditions for sociability of place-making, I made a diagram. (Figure 2.3)

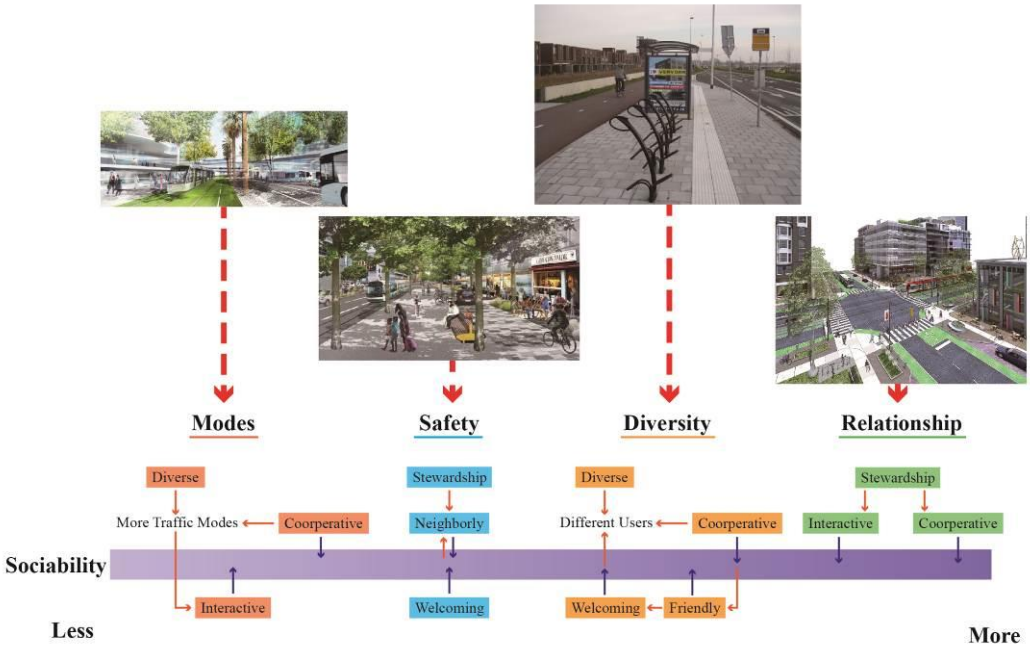


Figure 2.3 Inclusive transportation and Sociability

From a modes perspective, different transportation modes means different transportation users. If inclusive transportation can work efficiently, then all these users and transportation modes must cooperate with each other harmonically. More transportation modes also increase opportunities for these users to interact with different transportation choices. All these opportunities initiate more needs for place-making. Efficient inclusive transportation conducts more efficient transportation modes which create better conditions for place-making.

From safety perspective, to make sure that all the people related to inclusive transportation are safe, various and powerful stewardship is required. The most efficient way to achieve this is to involve the community then the place will be welcoming for all the people. In another words, if an inclusive transportation system is safe, it can provide a lot of basic resources and

conditions for a neighboring and community-oriented place-making.

From a diversity perspective, different kinds of people together with different kinds of transport services provide greater conditions to increase the diversity of place-making. Inclusive transportation organizes these different people and elements efficiently which can help to make the place-making more corporative. More and more people, transport services and programs will make the place more friendly and welcoming.

From relationship perspective, great relationship of inclusive transportation needs powerful stewardship which can also be used for place-making. Great relationship of inclusive transportation can also help place-making to organize different elements in places. Well organized elements in places will cooperate with each other efficiently and help the places to be more interactive.

2.4.3 Access & Linkages

To show how the elements of inclusive transportation initiate more needs and create conditions for access & linkages of place-making, I made a diagram. (Figure 2.4)

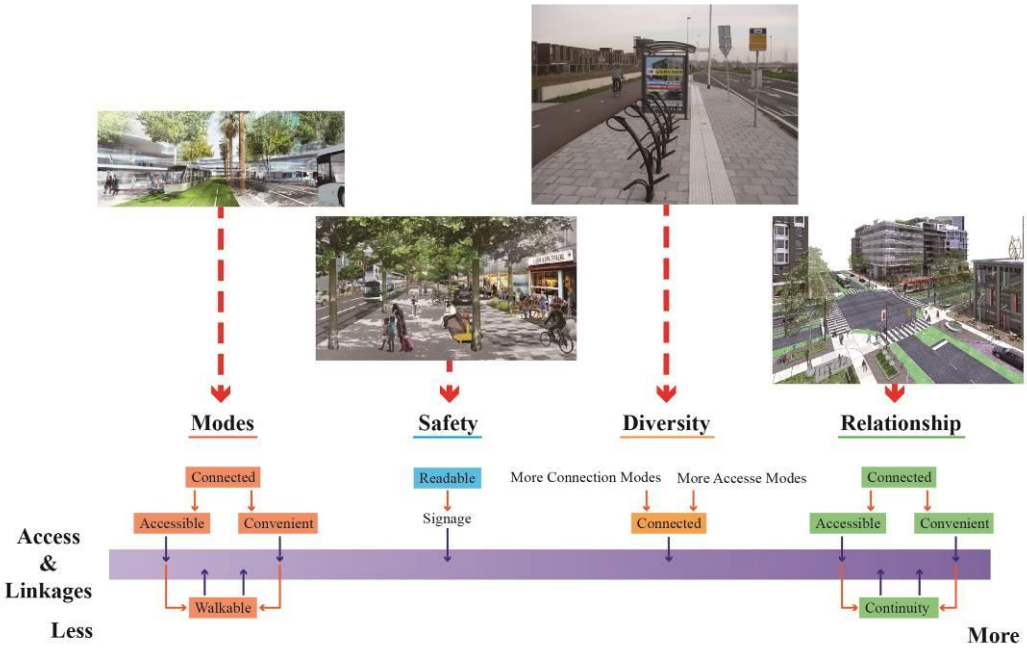


Figure 2.4 Inclusive transportation and Access & Linkages

From a modes perspective, different transportation modes provide more possibilities for different connections, most of which are walking friendly connections. More transportation options and different route choices make it more convenient for people to access the place. In other words, inclusive transportation modes create conditions for the accessibility of place-making.

From a safety perspective, a clear and readable signage system is indispensable for a safe inclusive transportation system. The signage system not only helps the inclusive transportation system to be readable, but also helps the place-making to be readable.

From a diversity perspective, diversity of inclusive transportation provides various accessible possibilities for various users, which also provides more possibilities and opportunities for place-making to have different kinds

of connections.

From a relationship perspective, the relationship of inclusive transportation aims to achieve a more efficient and fluent transportation system. For the places which attach to the inclusive transportation system, continuity and connection are the most basic requirements. From a people perspective, convenient and accessible is other two most basic requirements of place-making.

2.4.4 Uses & Activities

To show how the elements of inclusive transportation initiating more needs and creating conditions for uses & activities of place-making, I made a diagram. (Figure 2.5)

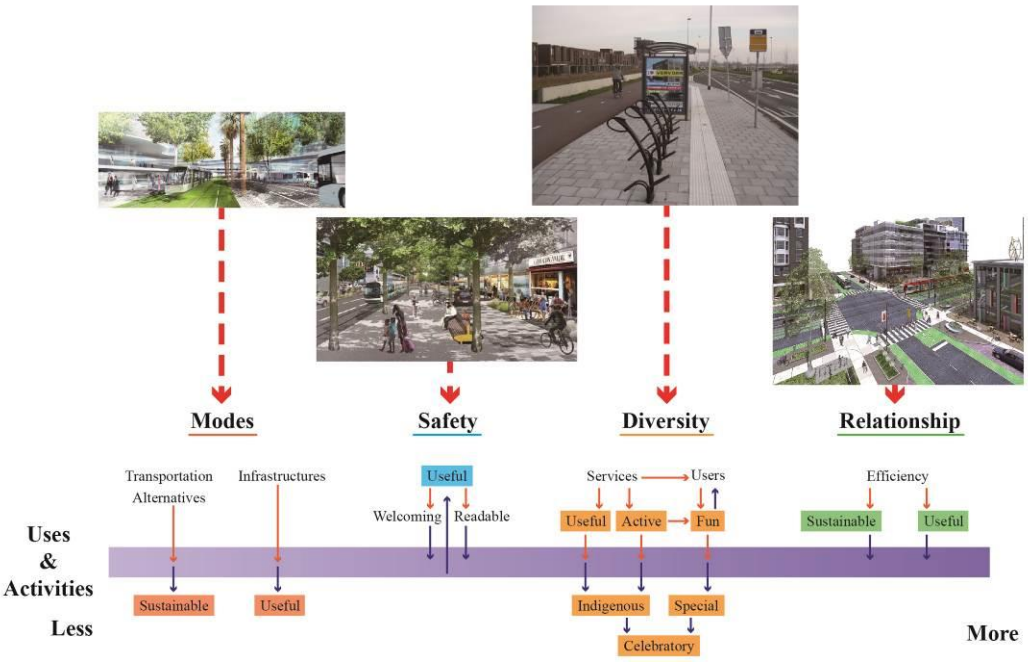


Figure 2.5 Inclusive transportation and Uses & Activities

From a modes perspective, different transportation modes need different infrastructures to support them. The most efficient way is to create a

place which can bundle these infrastructures and act as a useful space. Increasing different transportation modes can also reduce the usage of automobiles, and then reduce the emissions of GHGs. So inclusive transportation modes can remind and help place-making to be more useful and sustainable.

From a safety perspective, as mentioned before, safety of inclusive transportation can help place-making to be more welcoming and readable, which means that, the potential of the place to attract more people to use it will be increased. So the safety of inclusive transportation required the place-making to be more useful.

From a diversity perspective, diversity of people and transport services create diversity of needs. The needs come from all kinds of perspectives, natural, cultural, social, belonging, etc. Place-making lead by such a variety of needs can create an interesting and special space which has a lot of activities and fun. If the diversity of place-making can work with the diversity of inclusive transportation perfectly, then both of them will attract more and more people, at last, and the place and transportation will be celebratory.

From a relationship perspective, a better relationship of inclusive transportation system means higher efficiency of transportation usage which fosters the sustainable development of place-making attached to the inclusive transportation system. Place-making also has the responsibility to provide a safe environment for people who are trying to use transportation services.

2.4.5 Comfort & Image

To show how the elements of inclusive transportation initiating more needs and creating conditions for comfort & image of place-making, I made a diagram. (Figure 2.6)

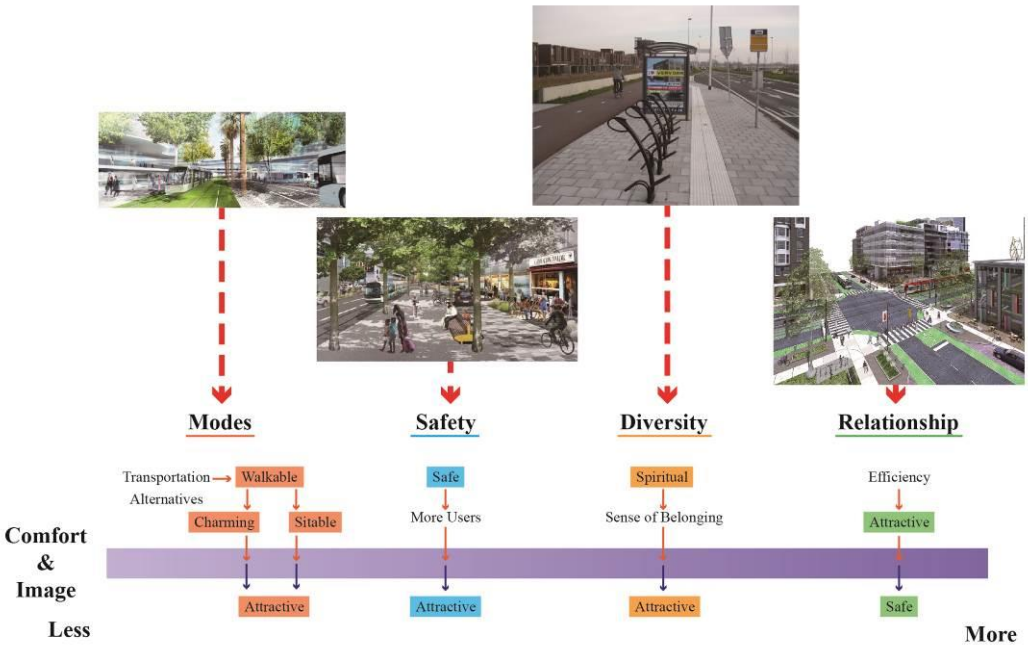


Figure 2.6 Inclusive transportation and Comfort & Image

From a modes perspective, as mentioned before, more inclusive transportation modes create more possibilities for walking friendly place-making. To support this kind of place-making, rest areas and charming elements are necessary. All these elements can help place-making to be more attractive.

From a safety perspective, safe inclusive transportation can definitely help the place-making to be safer. More and more people will come and use the place because of the safety, which will make the place more attractive.

From a diversity perspective, more and more people from different backgrounds will find the parts they are familiar with or have sense of

belonging by the diversity of inclusive transportation and place-making. The familiarity and sense of belonging will attract even more people to stay and use the place.

From a relationship perspective, as mentioned before, a better relationship of inclusive transportation provides more efficient transport services and at the same time, fosters the place-making to be safer. More and more people will use inclusive transportation and then be attracted by the safe and comfort place-making. An efficient and healthy relationship of inclusive transportation can also attract more users to use the transport services which can help to promote the safety of the places around it.

2.4.6 Conclusion

Concluded from above, inclusive transportation strategies foster and support place-making mainly by creating appropriate developmental conditions. For example, inclusive transportation modes can create more nodes which can be served as the potential sites for place-making. Different transportation modes around the places can also provide people different experiences of places. Including diverse modes such as skateboards and wheelchairs can engender experiential exchange and interaction and enrich the places. The safety of inclusive transportation can create resonance with surroundings. People will feel safe around the inclusive transportation and the environment around it, which is essential for creating a comfortable place. Different users of inclusive transportation create different kinds of needs and requests. Those needs and requests can be a powerful driving force for place-

making. Relationship in inclusive transportation can create complex but efficient flow system which can inspire interesting experiences for places around it.

2.5 Limitations of inclusive place-making

To achieve successful inclusive transportation and place-making, only great designs are not enough. There are many different limitations which can impact the development of inclusive transportation and place-making. Especially for implemention, government policy, diverse needs and financial support are all as critical as designs themselves. In some special situations, even inclusive transportation itself can be a limitation as well.

2.5.1 Government policy can conflict with inclusive transportation

Because of the scale and the complexity of inclusive transportation planning and place-making designing, they need a lot of support from government policies. But the fact is, nowadays most of the government policies are concerned more about creating a ‘great’ street which means clear, clean and fast, instead of a ‘complete’ street which means diversity, sustainability and pedestrian oriented. For example, Jason Roberts from The Better Block shared his experience during the 2013 Place-making Conference in his lecture *Better Block Project* (University of Oklahoma). In his lecture, he introduced a project The Better Block did in Dallas. Before the beginning of their design, they checked the Dallas Development Code and found out they had to break all the laws first. For instance, in SEC. 43-133, which regulates the use of sidewalk for display of merchandise, it clearly limits that “no

merchant or owner of a building, fronting on any street, shall be allowed the use of any portion of any sidewalk for the display of goods, wares or merchandise." (Dallas 1990) Sidewalks are one of the most important elements for inclusive transportation and place-making, there should be as many as programs appropriate on sidewalks, which is in total conflict with SEC. 43-133. SEC .43-129, which is about causing crowds to congregate on the sidewalk, limits that "no person shall occupy any space on the sidewalk or any space near the sidewalk where the same attracts any crowd or causes any crowd to congregate on the sidewalk or where the patrons or customers must remain on the sidewalk, for the purpose of carrying on any kind of business whether for amusement or profit." (Dallas 1990) No matter SEC. 43-133 or SEC. 43-129 or other development codes, they all try to keep the sidewalk as clean and clear as possible. In other words, these policies try to use the simplest way to keep the transportation system efficient, and most of them come from the automobile perspective.

2.5.2 Diverse needs and interests can be hard to integrate

Because of the scale and diversity of uses and conflicts between these uses and modes, the agreement among them can be difficult to achieve. If inclusive transportation planning is led by any one of them, then the outcome will lose balance and fail. For example, the most common misunderstanding about inclusive transportation is that inclusive transportation means more "pedestrian" and "bicycle lanes." Some urban planners may think that walkability is the only central key to achieve Complete Streets and inclusive

transportation. So some cities have begun to reverse their decades of developmental practice that put cars first, which means more and more space for sidewalks and high-quality crosswalks. Then the conflicts emerged. The first problem is the ignorance of connectivity. Some cities believe that the walkable problem can be easily solved by increasing safe and comfortable sidewalks and crosswalks, while they forget that the harder part is to create the connectivity that pedestrians need. Pedestrians systems can never work without the cut through. Another conflict by allocating more enthusiasm to pedestrians is the belief that it will decrease the efficiency of inclusive transportation by slowing down the cars too many times, because a walkable environment means that people should have time to cross the street and drivers have to move at slower and safer speeds.

2.5.3 Inclusive transportation is not always inclusive

Sometimes inclusive transportation is not always inclusive because it is hard to take equity into account. Because of the complexity and diversity of users, the development of inclusive transportation in urban areas may cause unequal situations for those users and transportation modes. For instance, the city of Portland, Oregon has invested a lot to create their alternative transportation system, which is now known as a very successful one in the United States. But if we look into how the transportation investments are distributed closely, then we can find out that the benefits of the transportation system are not shared by all the users equally. For the users who live in the central city, they have access to Portland's nice and dense network of

sidewalks, bikeways and transit connections. While for those users who live in the East Portland, which has experienced a sharp increase of residents since 2000, they have to accept a fact that they still live in an automobile dominated area. They have very limited access to public transportation and they still have wider roads with higher speeds. In other words, East Portland still has a high portion of transportation underserved populations, including children, older adults, people of color and immigrants (Clifton and Bronstein and Morrissey 2013).

2.5.4 Inclusive transportation can be expensive

Financial support is always a critical limitation for inclusive transportation planning and place-making, especially for those cities which have limited resources like Athens, because transportation funding is always tight, at both the federal and state levels. Talking about inclusive transportation and place-making, people always think about wide lanes and new features which will cost a lot of money. While in fact, an important strategy for efficient implementation of inclusive transportation is to look for opportunities to make changes as part of existing projects, particularly maintenance and repair projects. For example, most of the Salt Lake City, Utah bike lane expansion was achieved with existing maintenance funds (McCann 2013). Maybe for now, there will be a little cost for changing, but if we can think ahead, inclusive transportation and place-making will definitely save money and unlock new financial resources. From a long-term perspective, investing in inclusive transportation planning and place-making will add

lasting value to the streets and properties.

2.6 How to implement inclusive transportation strategies?

From all the research I have done before, I concluded five principles for inclusive transportation: Start with temporary design; Get community's supports; Collaborate between local, state and federal agencies; Balance needs and preferences of users; Plan in phases and for future development. PPS proposed eleven principles for place-making: The community is the expert; Create a place, not a design; Look for partners; You can see a lot just by observing; Have a vision; Start with the petunias; Triangulate; They always say "it can't be done"; Form supports function; Money is not the issue; You are never finished (Project for Public Spaces). I make a matrix to compare these two different kinds of principles. (Table 2.2)

Principles for place-making	**Principles for inclusive transportation**
Start with the Petunias: Lighter, Quicker, Cheaper	Start with Temporary Design
Form Supports Function	
The Community Is The Expert	Get Community's Support
Look for Partners	
They Always Say "It Can't Be Done"	Collaboration Between Local, State and Federal
Triangulate	
Money Is Not the Issue	
Create a Place, Not a Design	Balance Needs and Preferences of Users
You Can See a Lot Just By Observing	
Have a Vision	Phases and Future Development
You Are Never Finished	

Table 2.2 Principles for inclusive transportation and place-making

I listed the principles for place-making in the left column and the principles for inclusive transportation in the right column. I ordered the principles for place-making corresponding to the principles for inclusive transportation by arranging the cells on the left along with the cells on the right. From the table, we can tell clearly that PPS's principles for place-making and principles for inclusive transportation suggest convergent principles for inclusive transportation-based place-making. For instance, "start with the petunias" and "form supports function" in PPS could apply to "start with temporary design" in inclusive transportation. "The community is the

expert" and "look for partners" in PPS could apply to "get community's support" in inclusive transportation, etc. All these convergent relationships can be observed easily from the table.

If appropriate strategies can be implemented, limitations can also be treated as opportunities. Guided by the fusion of those two kinds of principles, Combined with the definition, characteristics, and limitations of inclusive transportation strategies discussed before, I concluded several key phases for the implementation of inclusive transportation strategies.

2.6.1 Start with temporary design – try to introduce more inclusive transportation modes into existing streets

As mentioned before, an important strategy for efficient implementation of inclusive transportation is to look for opportunities to make changes as part of existing projects, particularly maintenance and repair projects. No matter from the financial perspective or needs of users' perspective, temporary designs and constructions are always the most appropriate strategy for the starting of inclusive transportation. Drawing some lines and putting some simple furniture on the streets will not cost a lot of money, but this can easily create the sense of inclusive transportation and place-making for people. Only one white line on the side of the traffic lane can give you a reason for bicycle riding. During this phase, what needs to be done is to introduce as many as transportation modes into existing streets by using the most economical options.

2.6.2 Find and fill in gaps in transportation modes

Inclusive transportation aims to let all kinds of users have equal accessibility to all kinds of transport services. To achieve this, all kinds of transportation modes are needed firstly. Then finding the gaps in different transportation modes will be a very important strategy for the development of inclusive transportation strategies. The gaps in transportation modes can also represent the gaps in users' needs. Letting the people and community know that fixing these gaps can also improve their experience of transport services will also help the development of inclusive transportation by getting more communities' supports. Then on the basis of the temporary design, new infrastructures can be installed to create the conditions for new transportation modes which will fill in the gaps.

2.6.3 Use interactions between modes as a fulcrum or locus point of place

After having a relatively well organized inclusive transportation system, the next step is trying to input place-making into the existing inclusive transportation system. As more and more transportation modes emerge, there must be many interactions between all those different transportation modes. These intersections can be treated as the nodes of the city, which have the potential to be a great site for inclusive place-making. Because these nodes are on the intersections of different transportation modes, there will be many different kinds of users who have many different kinds of needs. These needs can act as the catalyst and guidance for place-making. To achieve this, the collaboration between local, state and federal is indispensable. Inclusive transportation and place-making include different scales, from large-scale

collaborative schemes to small-scale place-making designs. The collaboration between local, state and federal will be very important for the implementation of inclusive transportation strategies. For example, local may mostly focus on specific place-makings along with the inclusive transportation system, while state will work on the Bus Rapid Transit (BRT) or light rail which may connect from county to county or county to city. Then the collaboration between local and state will achieve a Complete street project. After this, the introduction of federal will help them with the future development of the local and state. At last, ideally, the whole United States will be a huge place-making oriented development project which connected and leaded by inclusive transportation strategies.

2.6.4 Integrate transportation options into place

When the nodes of the city become comfortable and interesting places, it should look back and figure out how these places can help to improve inclusive transportation further. As users increase in these places, more and more needs for transport services will come with those users. To meet those needs, more and new transportation options should be integrated into places. But it must be done very carefully and the balance among all kinds of transportation modes and all kinds of users must be bared in mind all the time. As mentioned before, inclusive transportation tries to provide equal opportunities for all kinds of users to enjoy convenient transport services. For example, if in a place that automobiles still occupy more resources and considerations than other users, then the needs between cars and people

should be considered firstly. That does not mean we should exclude cars from inclusive transportation system, conversely, cars should always be a very important part of inclusive transportation system. Because the dominance of automobiles, now most people will choose to or in some cases must use a car a lot. No matter from function perspective or sustainability perspective, inclusive transportation strategies should try to provide more alternative transportation modes for people. For future development, the aim and criteria of the balancing needs and preferences of users will change according to the practical situation.

2.6.5 Phases and future development – always think ahead

The consideration of phases is another critical strategy for the implementation of inclusive transportation strategies. For example, if Athens, GA wants to develop inclusive transportation system, then a temporary designing which mainly focuses on maintenance and improvement of existing roads will be a good start. When Athens gets enough support, then the next step can be started as a Complete Streets design. Future development should always be under considerations through the whole process of Complete Streets design. Design of some spots along with the streets may be impacted by these considerations. The next phase will be inclusive transportation planning, which is supported by Complete Streets design. In this phase, the consideration of future development will be a critical strategy. Because Athens has the needs to connect to Atlanta more readily in future development, BRT or light rail maybe developed in future. So where to put the new transportation

modes, routes and their stations will be decided in this phase. These new elements will also create great conditions and opportunities for place-making. Generally speaking, from a time perspective, phasing acts like a connector, which connects now and future; from a function perspective, phasing acts like an assembler, which assemble different functions and elements efficiently and economically.

CHAPTER 3

CASE STUDIES

3.1 Introduction to Case Study

To answer the question, how inclusive transportation strategies can catalyze and support place-making in cities such as Athens with limited resources and transportation options, this thesis uses the case study method to evaluate other locations that can provide insight and lessons. Mark Francis, landscape scholar and educator, has proposed that case studies have been used a lot for landscape architecture design and research. For professionals, case study method is also a very effective tool to improve practical landscape architecture projects (Francis 2001). In "Related to landscape architecture," Francis states, "case study is a well-documented and systematic examination of the process, decision-making and outcomes of a project that is undertaken for the purpose of informing future practice, policy, theory and/or education." (Francis 2001) Concluded from Francis's definition, case studies can be a source of practical information on potential solutions to the problems during my designing process. Case studies can also help me to develop useful evaluation criteria and strategies.

As this thesis explores inclusive transportation's relationship to place-making, the case studies I selected demonstrate (1) a commitment to inclusive transportation strategies; and (2) increased place-making referenced in literature, popular journals, or first-hand knowledge. The criteria I used to choose the case studies are: (1) all the

cities are located in the United States; (2) selected cities are in different sizes; (3) selected cities have various financial situations, but the financial supports for transportation are very limited. To be specific, for this thesis, I choose Austin, Kansas City, Eugene, Boulder, Atlanta, and Portland as my case studies. Austin, TX, the first case study, has regional rail, a bus system, and limited bicycle routes but no metro, subway, or BRT, and, through unconventional measures, is a model of how to achieve place-making without using inclusive transportation strategies. Next, Kansas City, MO is in the first steps of implementing inclusive transportation strategies. In this way, it is much like Athens. Like Kansas City, Eugene, OR and Boulder, CO have regional rail and bus systems and no metro or subway, but both cities do have BRT, which acts as a critical link between transportation scales that can create nodal development and pave the way for more expensive transit options. Atlanta, GA is developing inclusive transportation in mature city fabric, with the recent additions of the new ATL streetcar, the Beltline, which will support light rail and supplement Atlanta's limited metro, and innovative applications of Complete Street policies. In fact, Ponce De Leon Street serves as a model for this thesis's application site in Athens. Portland, OR is often used as a model of inclusive transportation with developed light rail and streetcars but no metro. In each of these cities, inclusive transportation strategies are evaluated for their role in supporting place-making, including funding considerations, development phases, and design patterns, and lessons are drawn for design and then used in the application site. The locations I choose in these case studies are ranged according to the level of development of inclusive transportation. (Figure 3.1)

Figure 3.1 Case Study Spectrum of Chosen Locations

For each case study, I make a diagram to show the relationship between inclusive transportation and place-making. There are several different legends in the diagram. (Figure 3.2) The purple line shows the main corridor in each case study, which acts as the main source of the traffic in the research location. The green line represents the existing connections, which means there are no gaps between existing programs in the site. The blue line shows the new connections which can be promoted or created by Complete Street design. The orange box means the main attractions in the site, such as art, education, recreation, etc. The red box represents the existing programs, such as bars, restaurants, stores, etc. The blue box shows the existing bus stops in the site. The red dash box shows the location which will be enlarged and researched in detail in the place-making diagram. The red dash line shows the gap between existing programs and attractions, which needs to be fixed and filled by inclusive transportation strategies.

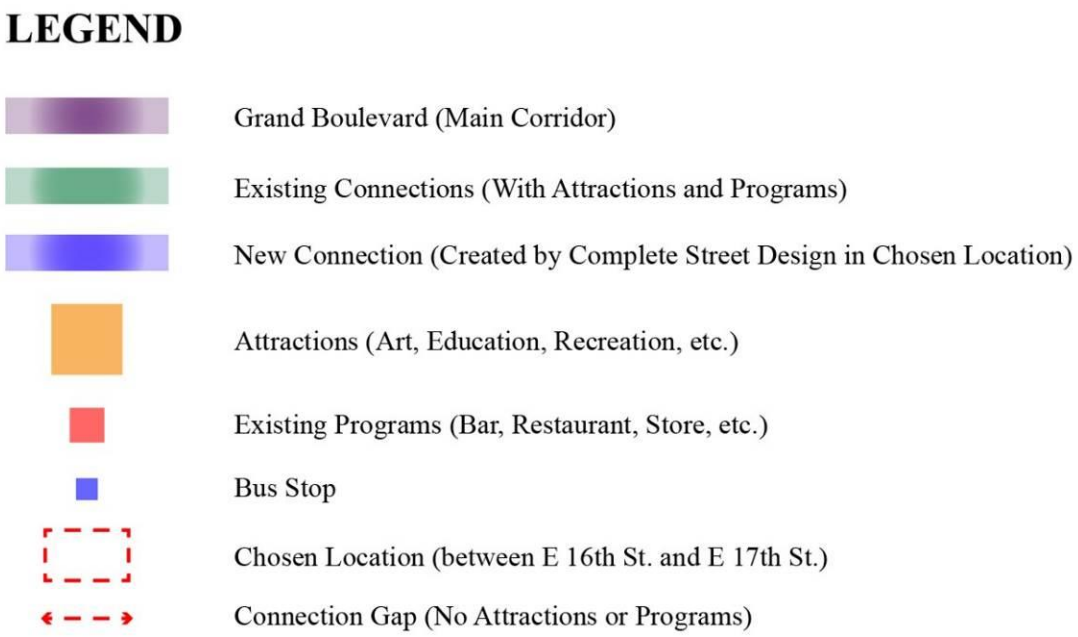


Figure 3.2 Legends in the case study diagram

3.2 Case Studies

3.2.1 Austin, TX

Austin, located in central Texas, is the capital of Texas and the seat of Travis County. In the United States, Austin is the 11th-largerst city, with a population of 842,592 (U.S. Census Bureau). The area of Austin is about 272 square miles.

About 71% of people who work in Austin drive themselves, 13% will use the carpool. 4% use taxi, motorcycle or bike, 5% take the public transportation, 2% by walking. (Find the Best) The public transportation service in Austin is primarily by bus, and provided by the Capital Metropolitan Transportation Authority (Capital Metro). Now Capital Metro is planning to develop some "Rapid Lines" to replace part of the existing bus routes (Figure 3.3). The buses running on these "Rapid Lines" will be train-like and high-tech buses. Capital

Metro of course will not forget the charming existing rail system in Austin. On March 22, 2010, Capital Metro opened a commuter rail system which is 32-miles long they call the Capital MetroRail (Figure 3.3). The commuter rail system is totally based on the existing freight rail system and connects Leander and Downtown Austin. Capital Metro now is planning to expand the commuter rail system into two directions, one is going to connect Manor and another is going to connect Round Rock (Figure 3.3). Except buses and commuter rail system, Capital Metro is also trying to develop a streetcar circulation system which will mainly connect Downtown, the University of Texas at Austin and the Mueller Airport Redevelopment communities (Figure 3.3). The new commuter rail line will also connect to the streetcar system by the key destinations in Central Austin. The state is planning to develop a passenger rail corridor as an alternative to Interstate 35 which has a severe problem of traffic congestion. The new rail corridor will be an Amtrak route and the segments of the route which are between Austin and San Antonio will have a station called Amtrak Texas Eagle station which will be located in the west of downtown Austin. Austin is well-known for its Silver-level rating from the League of American Bicyclists, and Car2Go, a car sharing program is also very popular in Austin. Concluded from above, now the transportation options in Austin include bicycles, cars, buses, and a commuter rail system. In the future Austin will have streetcars and more commuter rail lines. As mentioned before, about 71% of people who work in Austin drive themselves, 13% will use the carpool. 4% use taxi, motorcycle or bike, 5% take the public transportation, 2% by walking. (Find the Best)

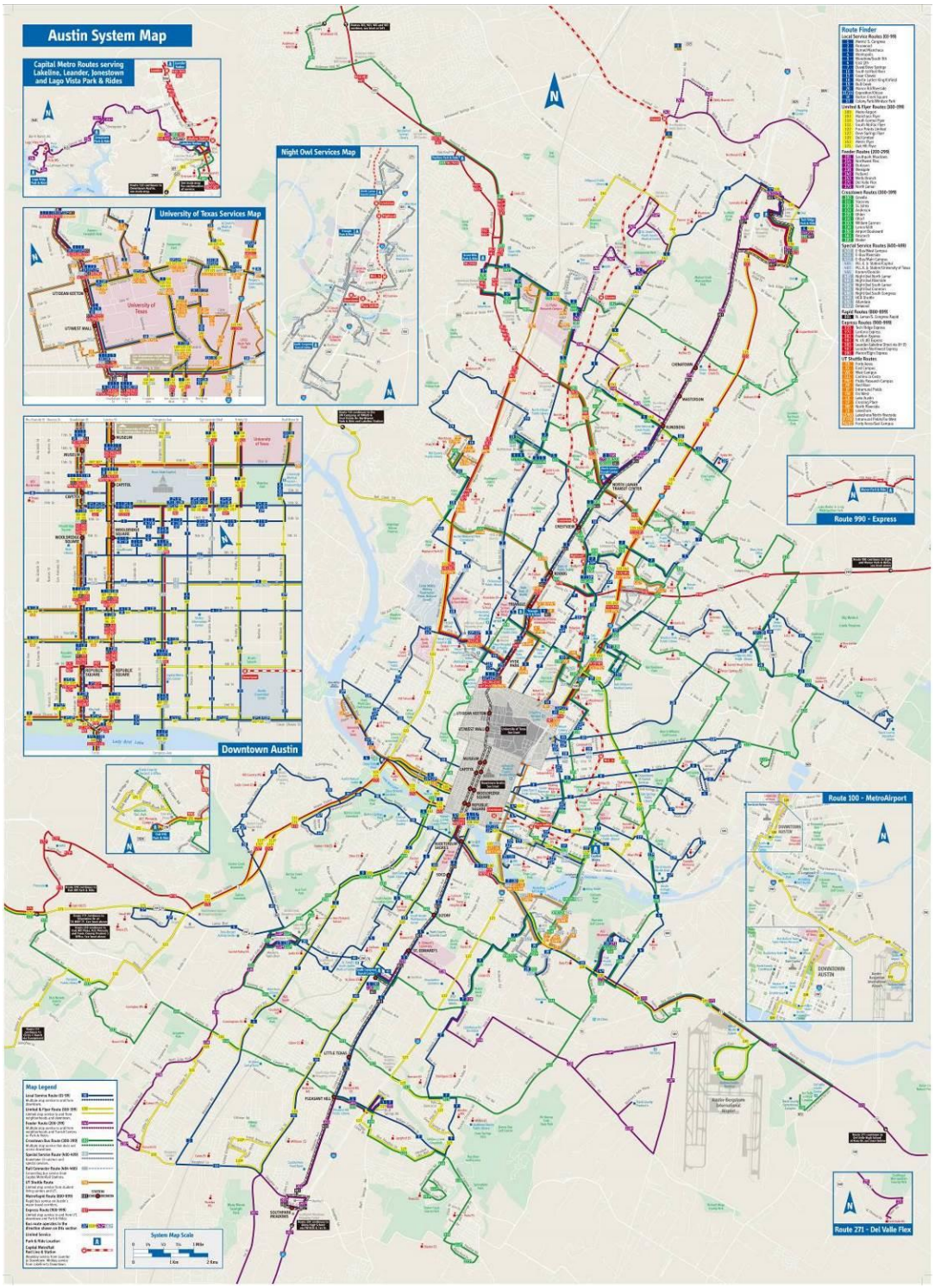


Figure 3.3 Austin System Map (Capital Metro)

The location I choose to study in Austin, TX is the intersection of E 7th St. and US 35 interregional Hwy (Figure 3.4). I choose here because this is a perfect

case study which can show how to create the sense of inclusive transportation without inclusive transportation. E 7th St. in Austin is a four-lane street which is definitely automobile-dominated. US 35 interregional Hwy is one of the most traffic congestion highways in Austin. E 7th St. goes under the US 35 interregional Hwy, and at both sides of the street are parking lots. So the intersection of E 7th St. and US 35 Hwy is definitely a horrible space for people to walk and bike. It is a place which totally oversteps the human scale. To relieve the uncomfortable scale and create the sense of place, Austin recently added some structures to the intersection (Figure 3.5). Coincidentally, the shape of the structures are like ox horns, which is the symbol of Texas. The structures divides the space into segments which can be felt by human scale, and the shape also gives people the feeling of familiarity (Figure 3.6). Except to create the sense of place, the structures can also act as streetlight at night, which can improve the safety of the place. I make a diagram to show the relationship between inclusive transportation and place-making directly and clearly (Figure 3.7).

Figure 3.4 Location of the intersection

Figure 3.5 Structures added

Figure 3.6 Human scale

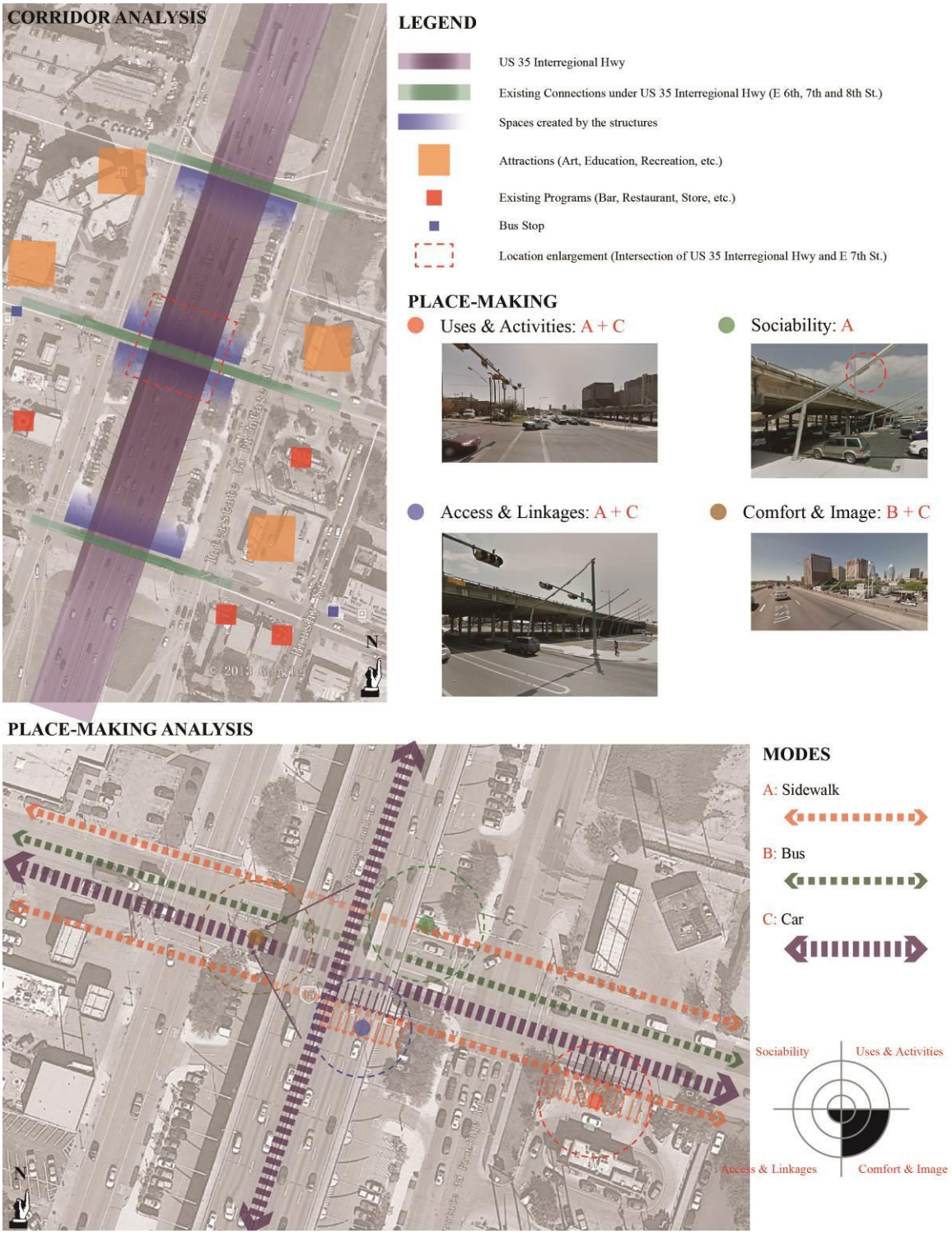


Figure 3.7 Corridor analysis diagram & place-making analysis diagram

From corridor perspective, US 35 Interregional Hwy is the main and busiest corridor in the site. E 6th St., E 7th St. and E 8th St. are three sub corridors

which go under the US 35 Hwy. The special situation here is that the main corridor is an overhead highway, which is hard to be connected to the environment around it directly. Although there are attractions and programs along the E 6th St., E 7th St. and E 8th St., US 35 Hwy is like a huge gap which stretches the site far beyond human scale. From the diagram we can tell that the structures added are like a kind of cohesion power which emphasize the connections on the three sub corridors. From place-making perspective, there is a major problem at the intersection of US 35 Hwy and E 7th St., the scale. The structures added not only solve the problem from a sensible perspective, but also create various possibilities and potential for place-making at the intersection. From uses & activities perspective, the structures create the sense of place which will attract more people to use the sidewalks. Increasing usage of sidewalks creates conditions for more programs along the street. From a sociability perspective, the structures can act as streetlight at night, which will encourage evening use of the street. From an access & linkages perspective, the parking lots under the US 35 Hwy provide opportunities for future programing. From a comfort & image perspective, people who drive on the US 35 Hwy will notice the structures and be curious about what they are and what is happening under the highway. In other words, the structures can act as a kind of attraction which provides potential for place-making around the US 35 Hwy.

3.2.2 Kansas City, MO

Kansas City is located in the state of Missouri; it is also the largest city in the state. The area of Kansas City is 316 square miles and in 2012, the population

of Kansas City was 464,310 (U.S. Census Bureau).

About 79% of people who work in Kansas City drive themselves, 12% will use the carpool. 4% use motorcycle or bike, 1% take the public transportation, and 2% by walking. (Find the Best) Kansas City's transportation system was originally based on its rail system. Before 1957, there was an electric trolley network which ran through the city. Then because of the rapid sprawl of the city, the trolley system had to be shut down. On December 28th, 1965, the Kansas City Area Transportation Authority (KCATA) was established. KCATA owns and operates all the passenger transportation system of the seven counties in Kansas City. KCATA also has the responsibility to maintain all the facilities and infrastructures of the transportation system. Except running the existing transportation system, KCATA also needs to do the planning and construction work for the city's future development. During the long history of Kansas City's transportation system, street cars and trolleys are definitely the most popular transportation modes. From 1870 to 1957, there were over 300 miles of street car track in the city. Then the city decided to abandon the street cars system, so many of those street cars have to be sent to other cities in the U.S. For decades, until 2007, the city began to think about adding trolley lines and fast streetcars to its downtown. The first Bus Rapid Transit (BRT) line, the Metro Area Express (MAX) was launched by KCATA in July, 2005. The MAX connects downtown, River Market, Crown Center, Union Station, and the Country Club Plaza. In 2010, another MAX line on Troost Avenue was added. For the future, the city plans to construct a new 2-mile modern streetcar line which will be in use by 2015. This

line will run mostly on Main Street. To manage the new streetcar line, a new organization called the Kansas City Streetcar Authority (KCSA) was founded. KCSA is a non-profit organization which is made of private sector stakeholders and city appointees. KCATA is planning a new light rail system for Kansas City now. Concluded from above, the transportation options in Kansas City now include bicycles, cars, buses (Figure 3.8) and BRT (Figure 3.9). For the future, the city will have streetcars lines (Figure 3.10) and light rail. From the data, we can tell that for inclusive transportation development, Kansas City has very limited financial support and that's why for now Kansas City is still in the first step of development for inclusive transportation: the temporary design.

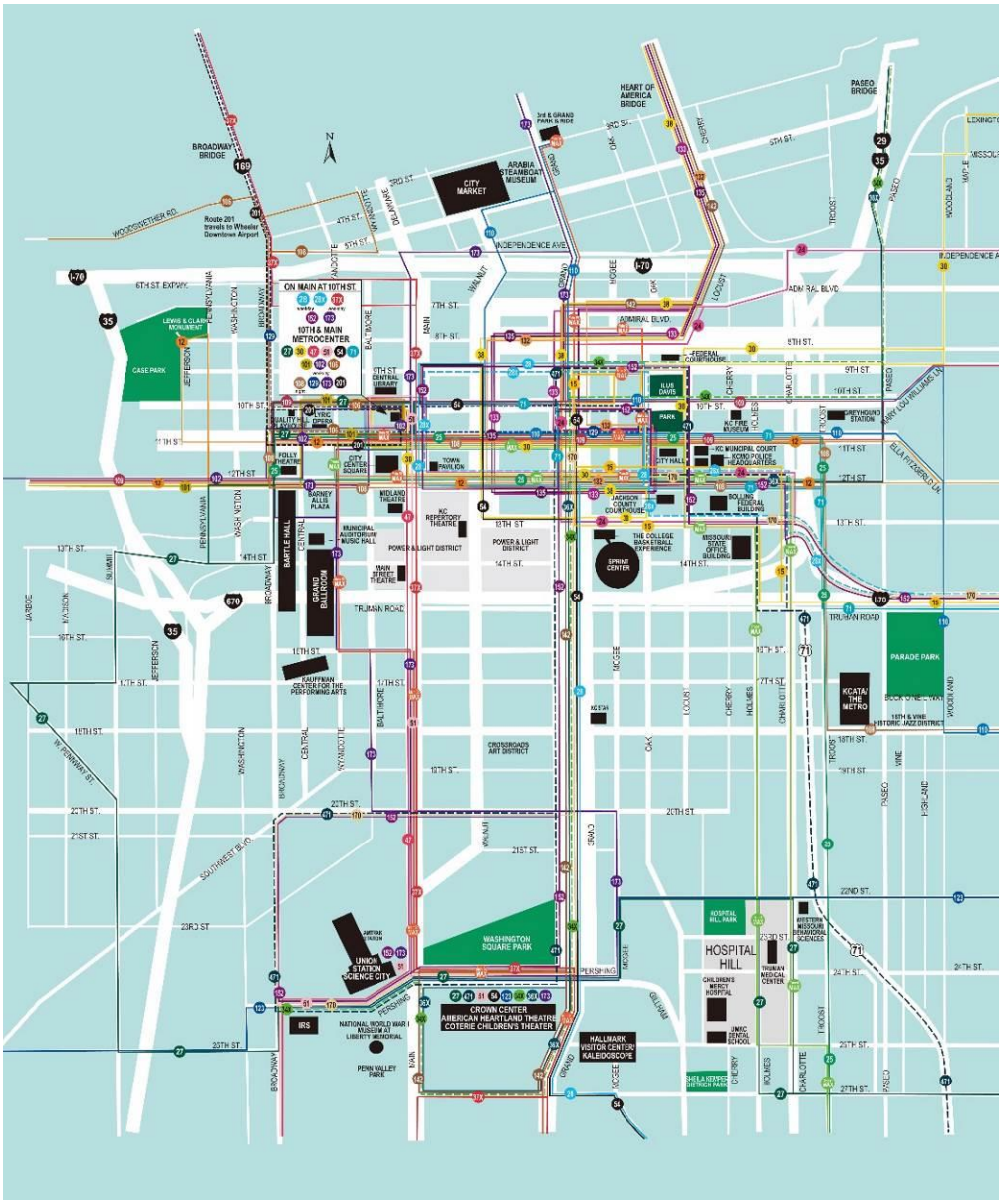


Figure 3.8 Bus Routes Map of Kansas City (KCATA)

Figure 3.9 BRT Routes Map of Kansas City (KCATA)

Figure 3.10 Streetcar Route Map of Kansas City (KC Downtown Streetcar)

The location I choose to study in Kansas City is Grand Boulevard (between E 16th St. and E 17th St.). Kansas City made a plan for Grand Boulevard in 2011 which tried to make Grand Boulevard a complete, livable and green street.

This plan also considered improvements to the environment of the public spaces along the corridor and sense of community. Then the Better Block used the most temporary materials and strategies to change one block of Grand Boulevard (between E 16th St. and E 17th St.) to a complete street for one day to show how Complete Streets looks like in Kansas City. There are two reasons why I choose Grand Avenue. The first reason is that the situation of Grand Avenue now is pretty similar to the Prince Avenue in Athens now. Grand Avenue is a six-lane traffic street which is definitely automobile dominated. The second reason is that the Better Block made a demonstration about what a complete street in Kansas City looks like on Grand Avenue and the demonstration is also a perfect representation of the first steps for development of inclusive transportation, which is "start with the temporary design." Because the Better Block only had one day time to show how Complete Streets looks like on Grand Avenue, they had to use the most temporary materials and the fastest methods to achieve that. So they just used tape and chalk to show the lines on the street (Figure 3.11), flowers and trees in pots to show on-street greening and border trees (Figure 3.12), erosion waddles to show the temporary curbs (Figure 3.13). They also put some temporary furniture on the street to show different programing areas (Figure 3.14). Grand Avenue is a very wide street which has too many traffic lanes and no bike lanes or sidewalks. The existing situation makes Grand Avenue a street which is vehicular dominated, and unfriendly for walking and biking. To transform the huge six-lane avenue to a vibrant, pedestrian and bike friendly street which can attract tourists and residents around to create a vivid neighborhood, the Better Block put a two-way bike lane

on one side of the street firstly. Then they used on-street parking and on street greening as a buffer between bike lanes and traffic lanes. In the middle of the street is two-way traffic with a turning lane in the middle. On the other side of the street they also put on street parking and greening as buffer, but this time they put different programs instead of bike lanes. (Figure 3.14) They also took full advantage of the width of sidewalks, and put as many programs as possible without prejudice to the benefits of walking people. (Figure 3.14) By comparing the photos taken before and after the transformation (Figure 3.15), we can tell clearly the significance change caused by very limited resources and materials. I make a diagram to show the relationship between inclusive transportation and place-making on Grand Boulevard directly and clearly (Figure 3.16).

Figure 3.11 Crosswalk made if tapes and chalks (Better Block KC)

Figure 3.12 Flowers and trees in pots (Better Block KC)

Figure 3.13 Temporary furniture on streets (Better Block KC)

Figure 3.14 Programs take advantages from sidewalks (Better Block KC)

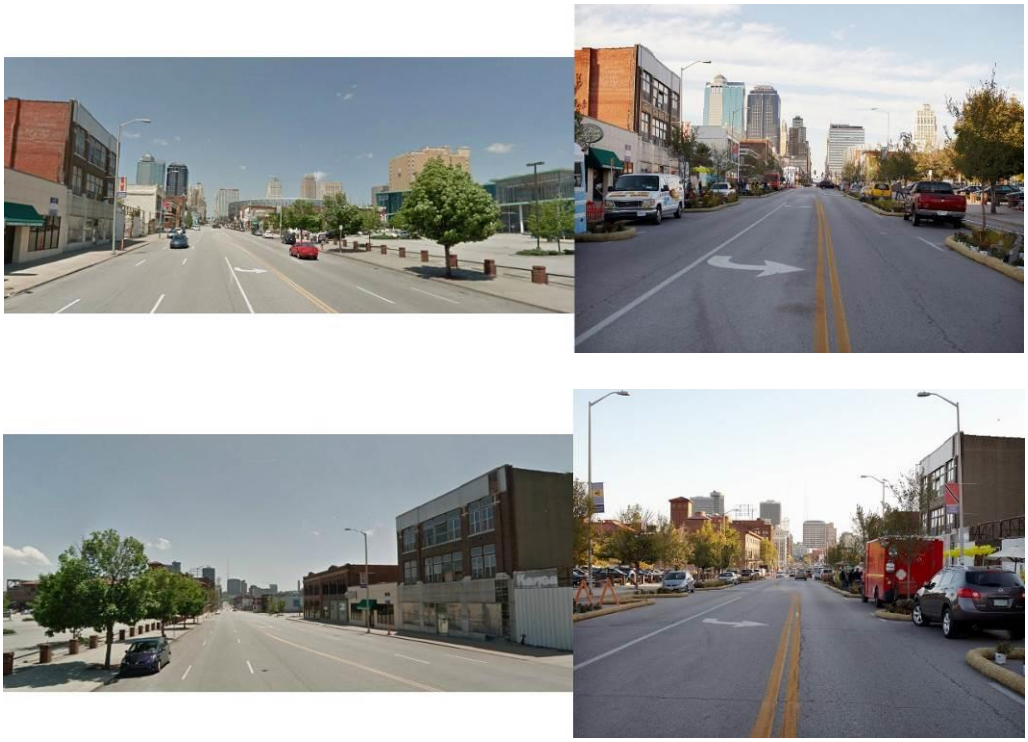


Figure 3.15 Comparison of before (left) and after (right) (Better Block KC)

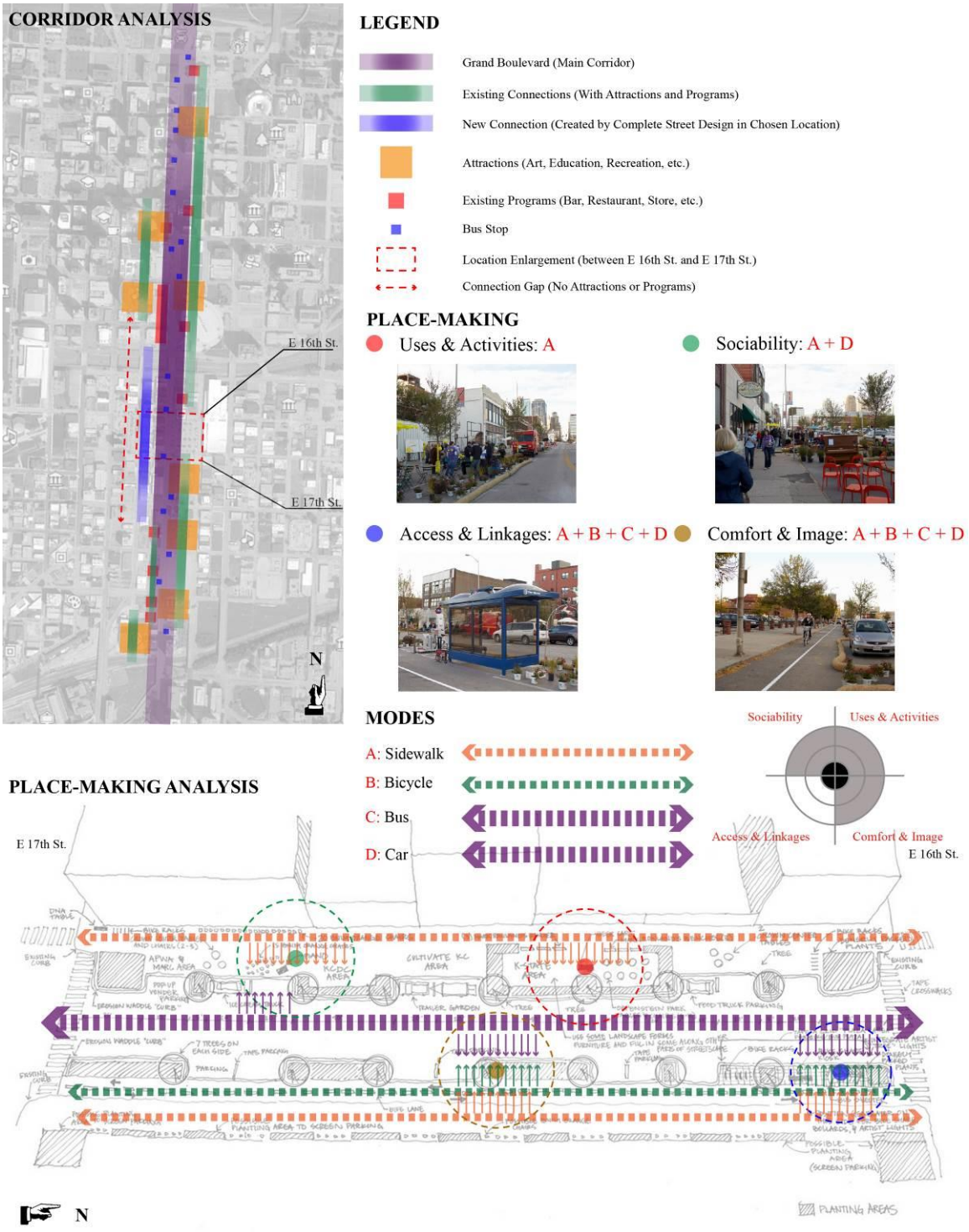


Figure 3.16 Corridor analysis diagram & place-making analysis diagram

From the diagram we can tell clearly that all the attractions along the corridor can be connected by the existing programs or traffic lines except the

block between E 16th St. and E 17th St, because there are no attractions or programs right now. So the Better Block tried to fill the gap by create Complete Streets in the block, even just for one day. The second diagram is based on the design plan by the Better Block. In the diagram, the spaces which can represent four criteria of place-making mostly are listed by different colored dots. The dash circle around those dots are the areas which have potential of successful place-making. All kinds of transportation modes in the block are also listed as the catalyst for each criterion. From a uses & activities perspective, there are different small business areas in the block which can be supported by people on the sidewalks and on street parking. From a sociability perspective, there are many on-street resting areas and events areas in the block, which can be supported by the sidewalks and on street parking. From an access & linkages perspective, there are on street parking, bus shelters and bike racks in the block, which can be supported by all four transportation modes. From a comfort & image perspective, there are many planting areas in the block, some of them act as a screen, some of them act as shade provider and some of them act as environment builder. They can also be supported by all four transportation modes in the block.

3.2.3 Eugene, OR

Eugene is a major city of the U.S. state of Oregon. The city is located at the south end of the Willamette Valley and in its one hundred-year history it has always been the second-largest city in Oregon. By 2010, the population in Eugene is 156,185 (U.S. Census Bureau) and the area of the city is 43.74 square miles.

About 66% of people who work in Eugene drive themselves, 9% will use

the carpool. 8% use motorcycle or bike, 7% take the public transportation, and 6% by walking. (Find the Best) In 1970, the Lane Transit District (LTD) was formed as a public transportation agency. LTD owns and operates all the bus services in Eugene (Figure 3.17). LTD also runs a BRT line which called Emerald Express (EmX) and connects Eugene with Springfield (Figure 3.17). People who live in Eugene love bicycles, and many people go to work by bicycle every month of the year. There are also many bicycle events and festivals which will have three hundred or more bikes on the streets. Eugene was awarded the "Gold-level" rating from the League of American Bicyclists in 2009.

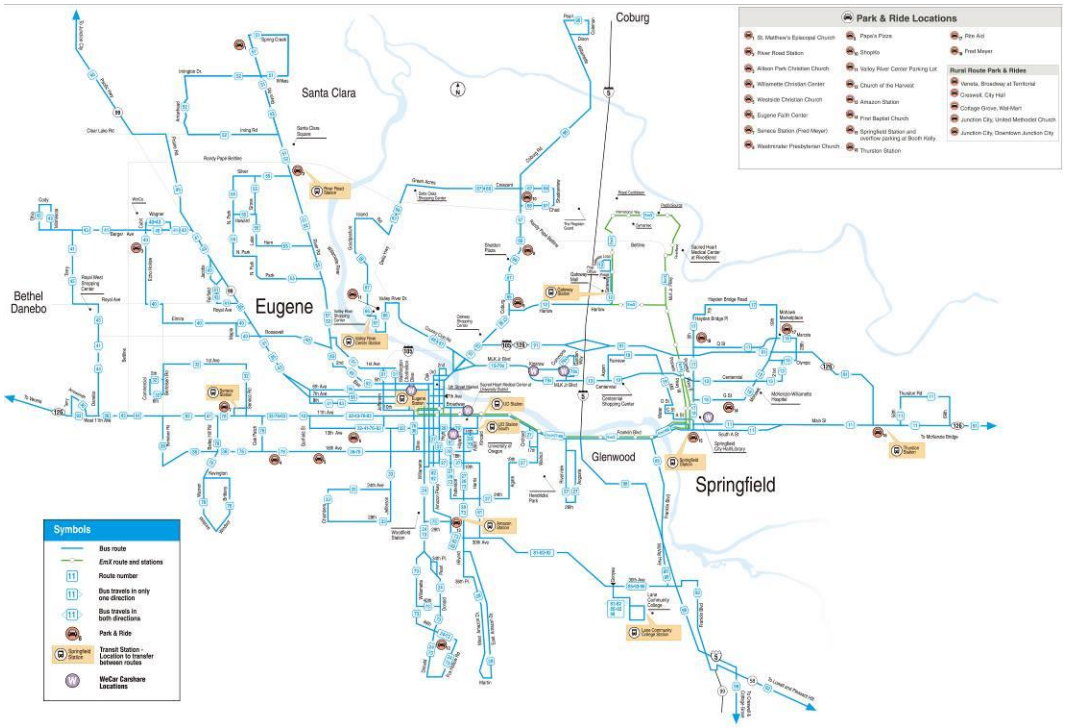


Figure 3.17 Eugene System Map (LTD)

The location in Eugene I choose to study is part of South Willamette Street, between 24th Avenue and 32nd Avenue. I choose this part because the situation of South Willamette Street now is pretty similar to the Prince Avenue in Athens, and

Eugene is trying to improve this part to be more easy and safe for people to walk, bike, take transit services and drive. They call it the South Willamette Street Improvement Plan. I mainly focus on the process of how the plan developed and all the different transportation alternatives the plan suggests. The development of the Plan was guided by the collaboration of all the different ideas and feedback from various public agencies, key stakeholders and community members (Figure 3.18). The project team believed that a broad level of public involvement is critical and vital, so the team encouraged participation from the community. The public input mainly came from phone calls, emails and letters. After the whole process of public participation, the project team began to analyze the existing conditions of South Willamette Street. The team divided the existing conditions into two parts: existing transportation facilities and existing travel conditions. Existing transportation facilities is about all the physical conditions of the street, which include roadway configuration, number of driveways, sidewalks, etc. Existing travel conditions is mainly about the evaluation of traffic patterns, collision data, intersection operations and quality of travel. After the analysis, the team gave a concept plan for alternative transportation system (Figure 3.19). Then the team made a table called Evaluation Criteria Scoring of Alternatives (Table 3.1), which I think is the most important part of the design process. Guided by the table, the team chose three solutions to do further research. They refined each of the solutions, and proposed potential changes by segment (Figure 3.20) and intersections. Then the team estimated the cost and considered the impact caused by transportation. At last, the team had the conclusion that Alternative 3 (3-lane

with bike lanes) represents the best solution for South Willamette Street (Eugene). I make a diagram to show the relationship between inclusive transportation and place-making directly and clearly (Figure 3.21).

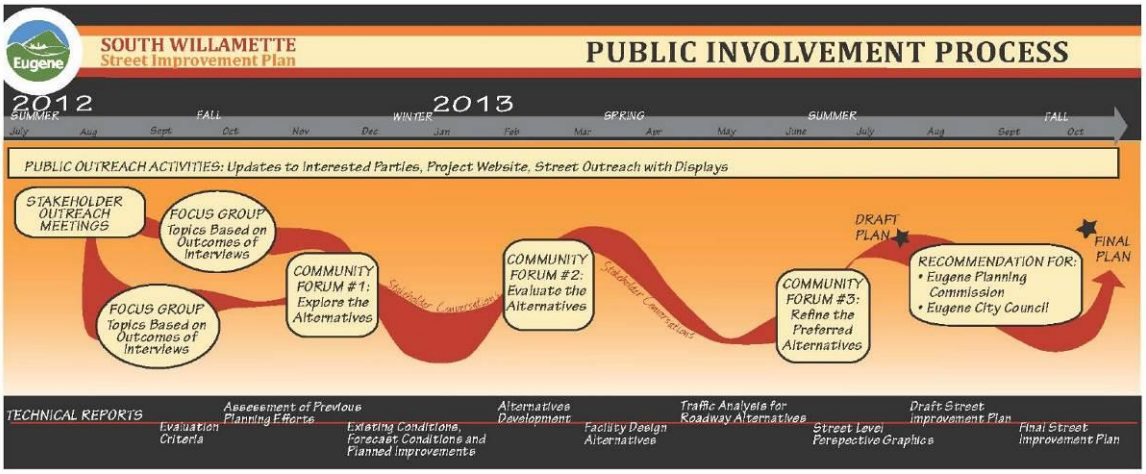


Figure 3.18 South Willamette Public Involvement Process Diagram (Eugene, OR)

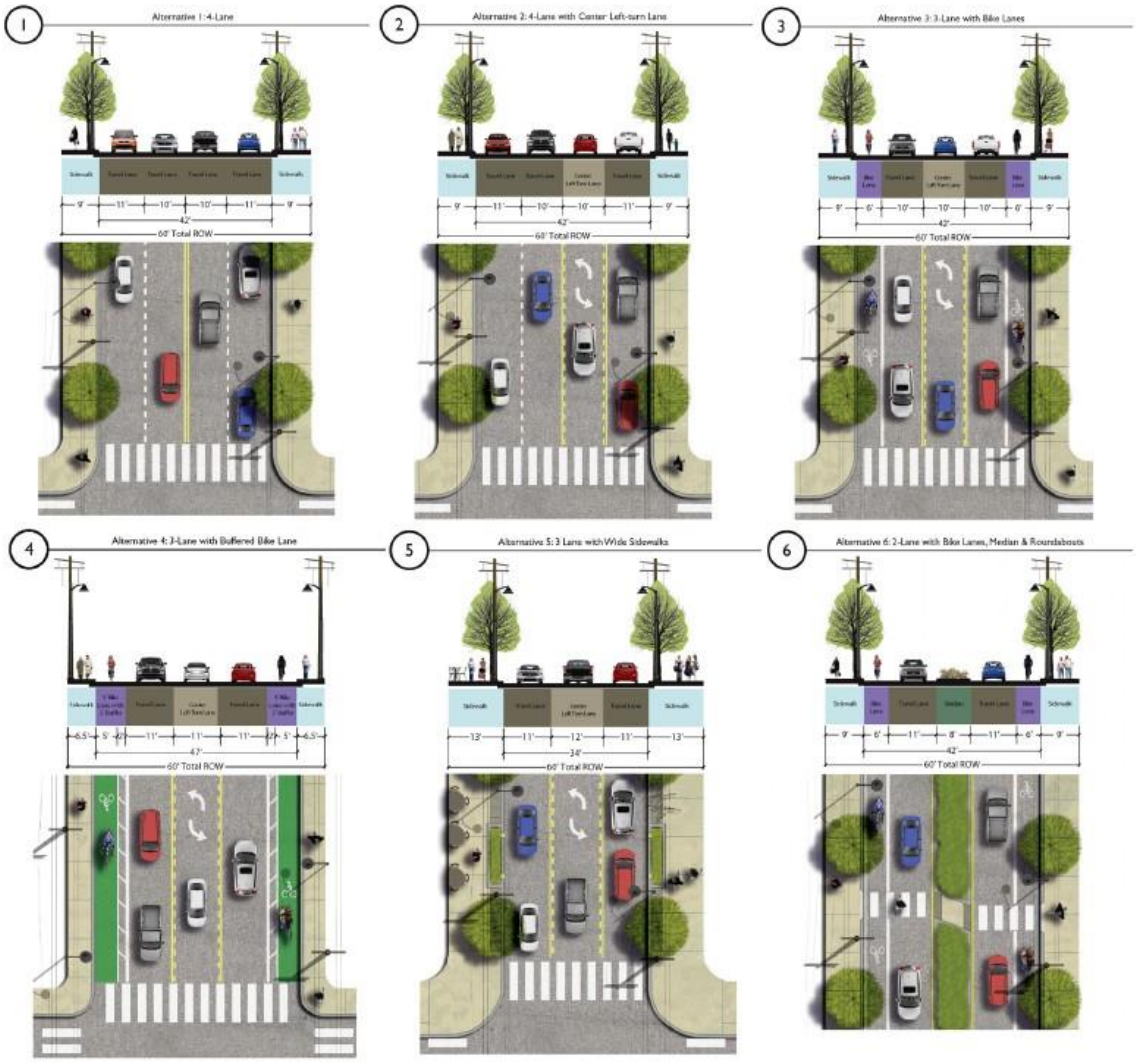


Figure 3.19 Conceptual Alternatives for South Willamette (Eugene, OR)

Alternative		#1 4-Lane	#2 4-Lane with Center Left-turn Lane	#3 3-Lane with Bike Lanes	#4 3-Lane with Buffered Bike Lanes	#5 3-Lane with Wide Sidewalks	#6 2-Lane with Bike Lanes, Median & Roundabouts
Access & Mobility	Reliability (For All Modes)	0	0	0	0	0	0
	Neighborhood Connectivity	0	0	1	1	0	1
	Motor Vehicle Travel Time	0	0	-1	-1	-1	-1
	Active Mode Travel Time	0	0	1	1	0	1
Safety & Health	Safety	0	0	1	1	1	1
	Security	0	0	1	1	1	1
	Emergency Response	0	0	-1	-1	-1	-1
Social Equity	Equity	0	0	1	1	1	1
	Economic Access	0	0	1	1	1	1
Economic Benefit	Freight Mobility	0	0	-1	-1	-1	-1
	Walkable/Bikeable Business District	0	0	1	1	1	1
	Business Vitality	0	1	0	0	0	-1
Cost Effective-ness	Fundability	1	0	0	-1	-1	-1
	Asset Management	1	1	1	1	1	1
	Project Benefits	1	1	1	1	1	1
Climate & Energy	Reduce Vehicle Miles Traveled	0	0	0	0	0	0
	Pedestrian Facilities	0	0	0	-1	1	0
	Bicycle Facilities	0	0	1	1	0	1
	Transit Facilities	0	0	0	0	1	0
Ecological Function	Stormwater Design	0	0	0	0	0	0
	Landscape Design	0	0	0	0	0	0
Community Context	Community Vision and Land Use	0	0	0	-1	1	0
	Transportation Planning Compatibility	0	0	0	0	0	0
TOTAL		3	3	7	4	6	5

Table 3.1 Evaluation Criteria Scoring of Alternatives for South Willamette (Eugene, OR)

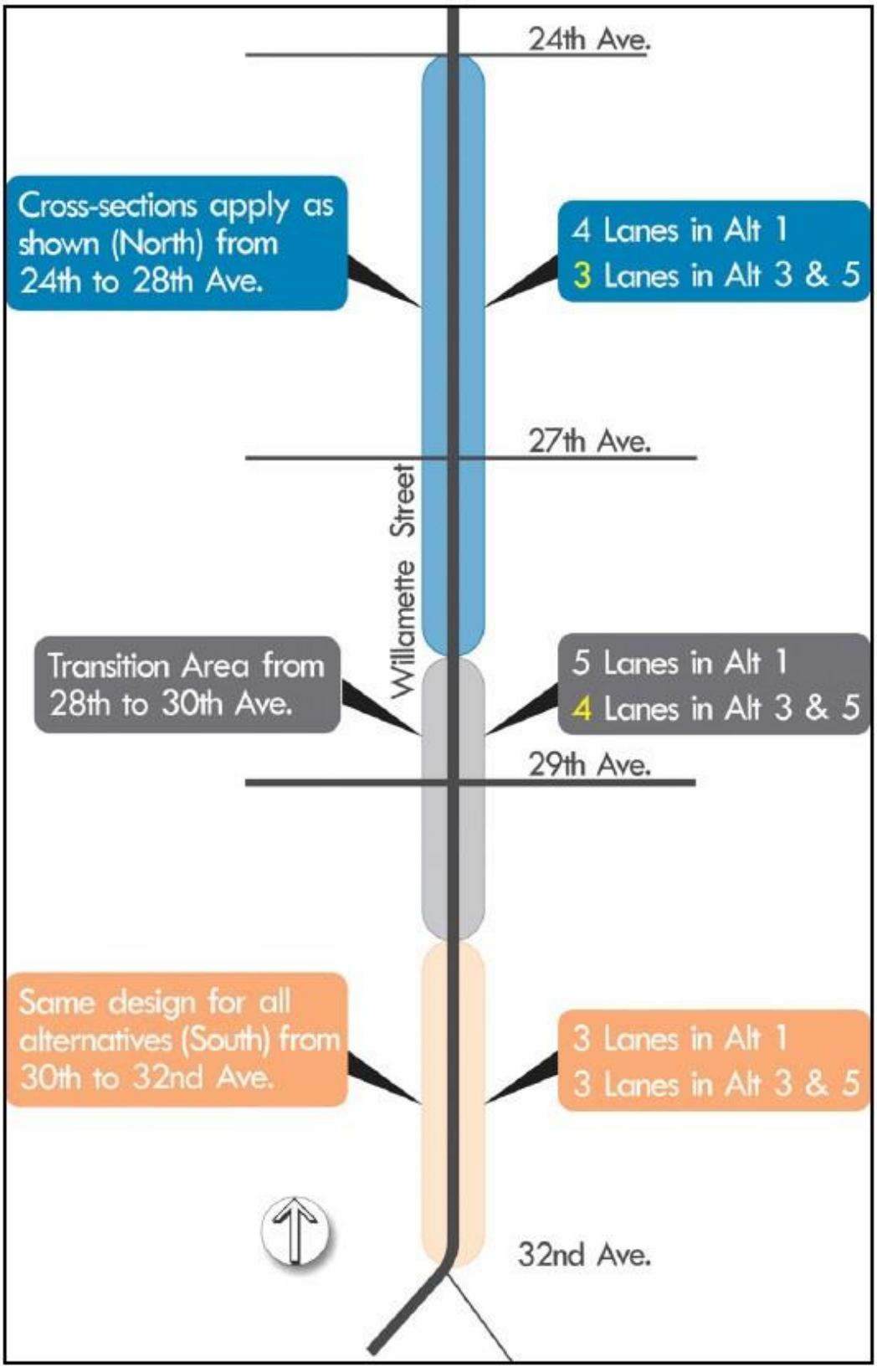


Figure 3.20 Potential Cross-Section Changes by Segment (Eugene, OR)

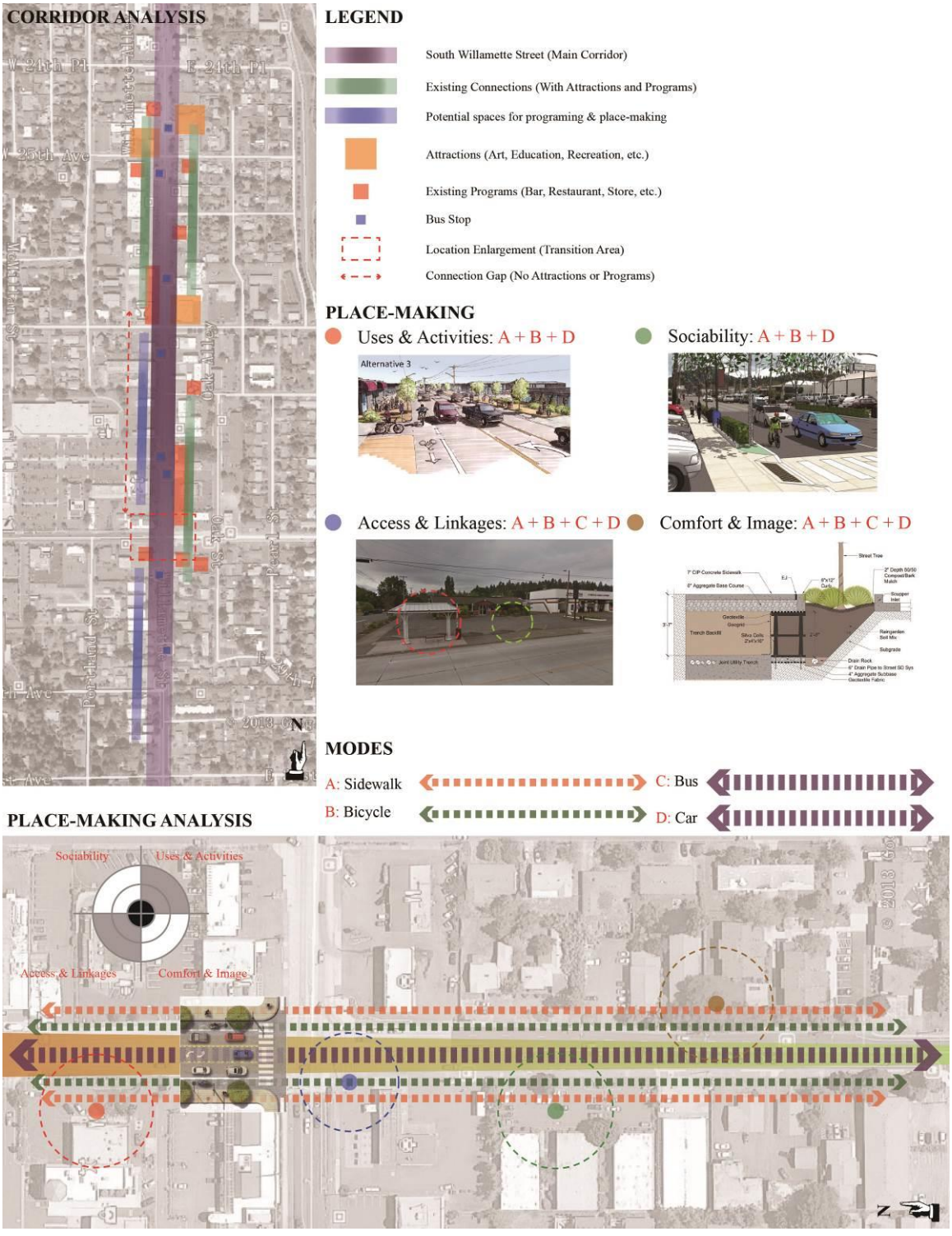


Figure 3.21 Corridor analysis diagram & place-making analysis diagram

Because the south part of the corridor is mainly surrounded by residential areas, there are nearly no programs. There are many parking lots along the south

part of the corridor which have great potentials to become programing places. After the development of Complete Streets, more on-street programing will be needed as well as the increasing of walking and biking people. The intersection in the place-making analysis diagram is special because it is the start point of a transition area. The 4-lane street will become 3-lane during the block between this intersection and the next intersection. From a place-making perspective, for uses & activities, the introduction of bike lanes will connect the surrounding neighborhoods with the local business more directly and tightly. For sociability, the parking lots along the street provide a lot of spaces for street life, which can be made more safe and comfortable by Complete Streets. For access & linkages, by adding bike lanes, the bus stop can be expended as a resting area with bikes. For comfort & image, the buffer between bike lanes and sidewalks provide opportunities to enhance environmental saturations, like storm water management.

3.2.4 Boulder, CO

Boulder is located in the U.S. state of Colorado and is the 11th most populous city of the state. The elevation of Boulder is 5,430 feet which is located at base of the Rocky Mountains. The city is also very near to Denver, which is 25miles southeast of Boulder. By 2010, the population of Boulder was 97,385 and the area of the city is 25.7 square miles (U.S. Census Bureau).

About 54% of people who work in Boulder drive themselves, 6% will use the carpool. 11% use motorcycle or bike, 10% take the public transportation, and 10% by walking. (Find the Best) The Regional Transportation District (RTD) owns and operates the extensive bus system of Boulder. The bus routes not only

run throughout the city, but also runs between Boulder and nearby cities. Over 100 scheduled bus trips run between Boulder and Denver every weekday (Figure 3.22). Now Boulder is planning to develop a BRT system which will connect Boulder to downtown Denver and the BRT is expected to be completed by 2015 (Figure 3.23). RTD is also planning to run a commuter rail route called Northwest Rail Line from Denver through Boulder to Longmont (Figure 3.24). There will be a station in the city of Boulder. The BRT and the commuter rail project are both a part of FasTracks, a RTD transit improvement plan. The plan will be financially supported by the 0.4% increase in the sales tax throughout the Denver metro area. Boulder is also well known for its bicycle friendly culture. There are hundreds of miles of bicycle-pedestrian routes in Boulder, and there are also appropriate facilities and infrastructures corresponding to the routes (Figure 3.25). Concluded from above, the transportation options in Boulder mainly include bicycles, cars and buses. In the future Boulder will have BRT and commuter rail system.

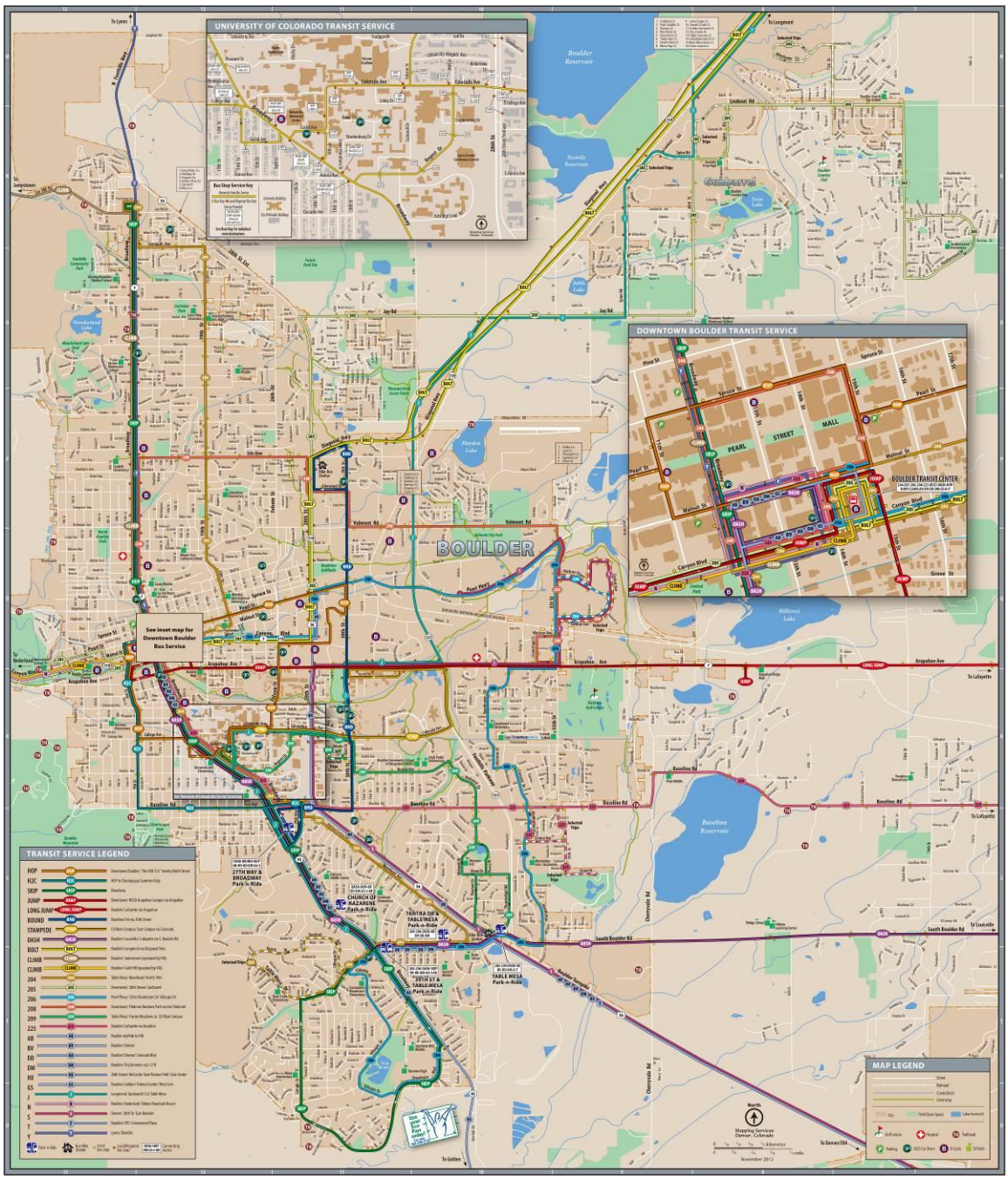


Figure 3.22 Boulder Bus Routes Map (City of Boulder)

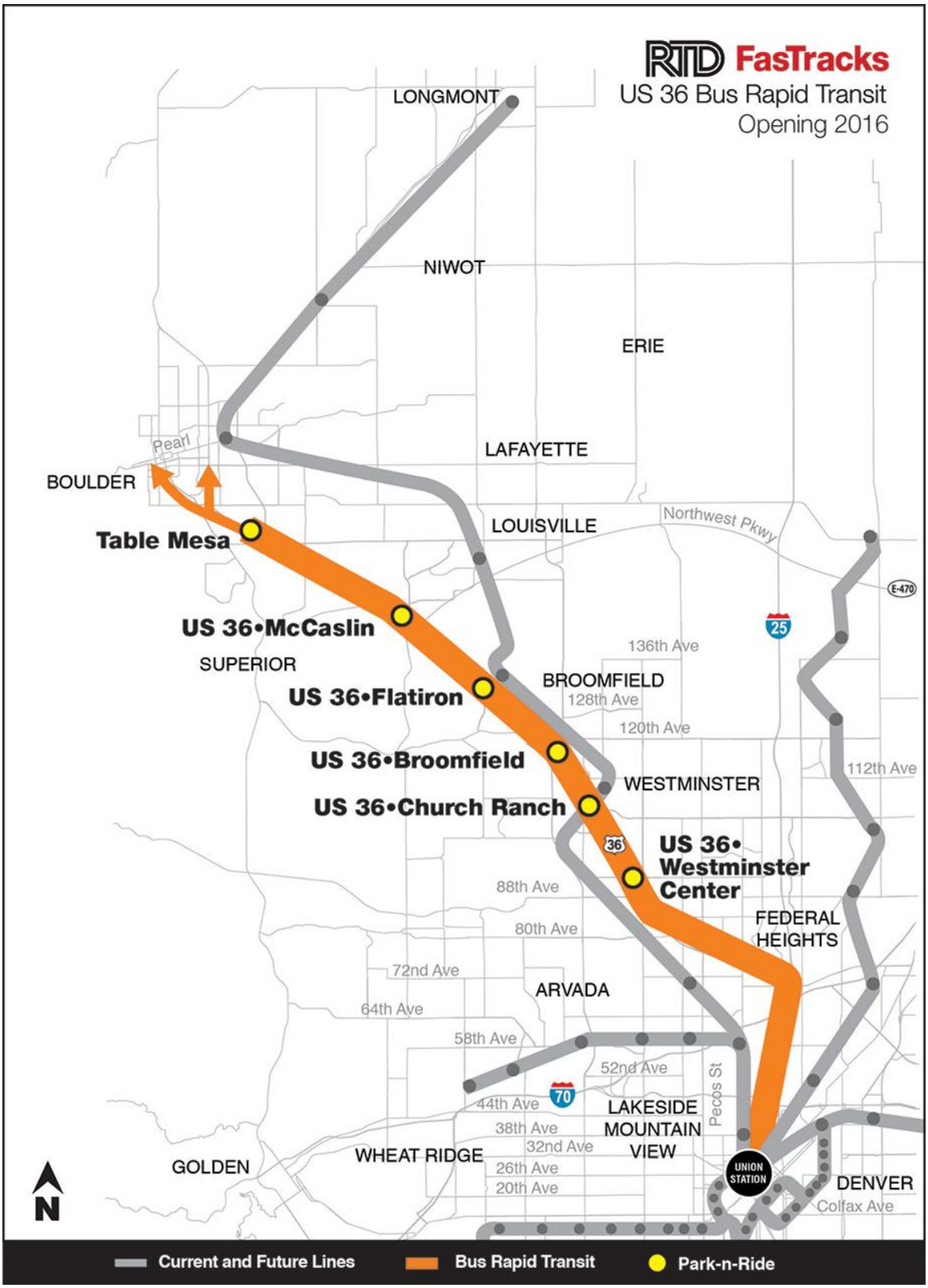


Figure 3.23 US 36 Bus Rapid Transit Map (RTD)

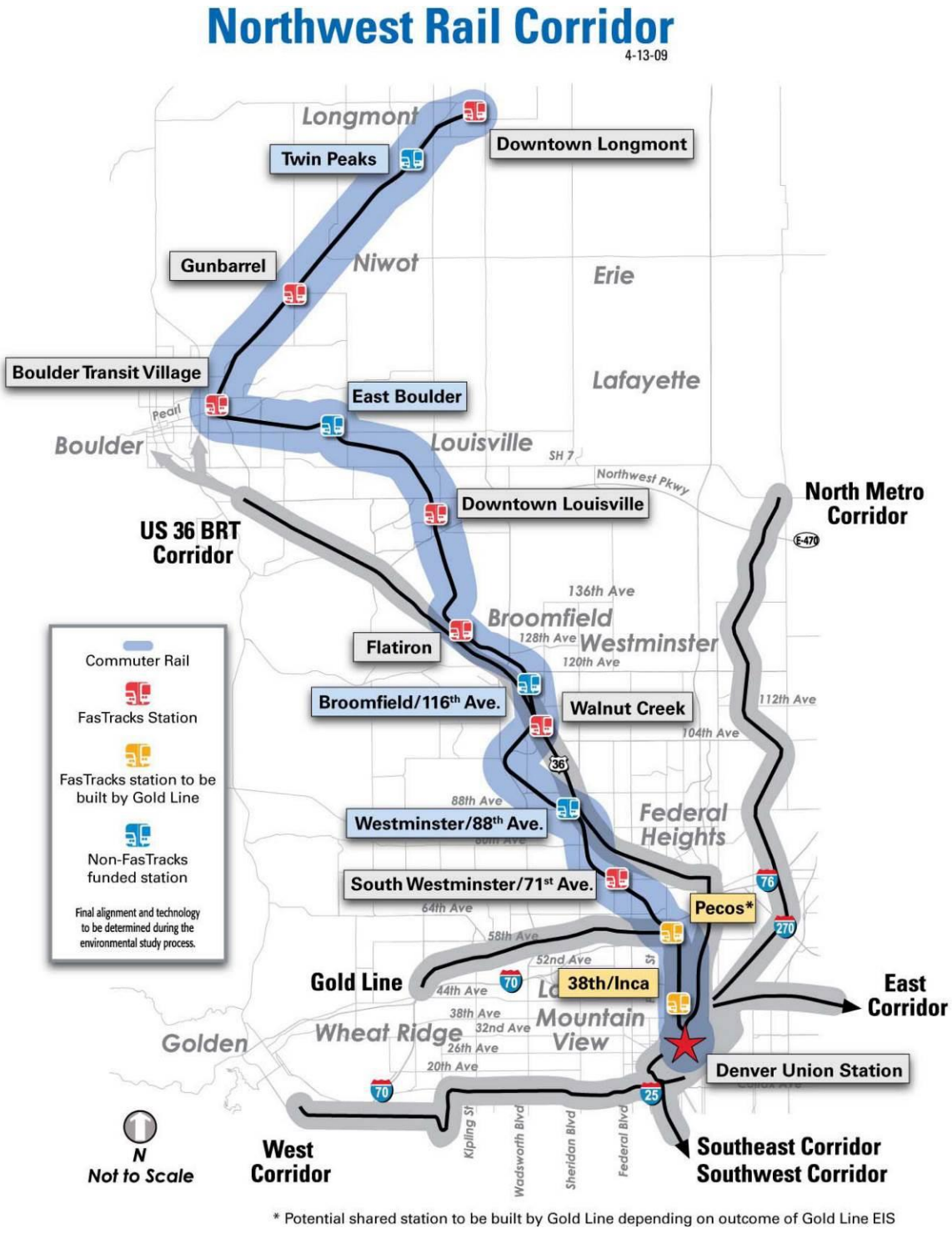


Figure 3.24 Northwest Rail Corridor Map (RTD)

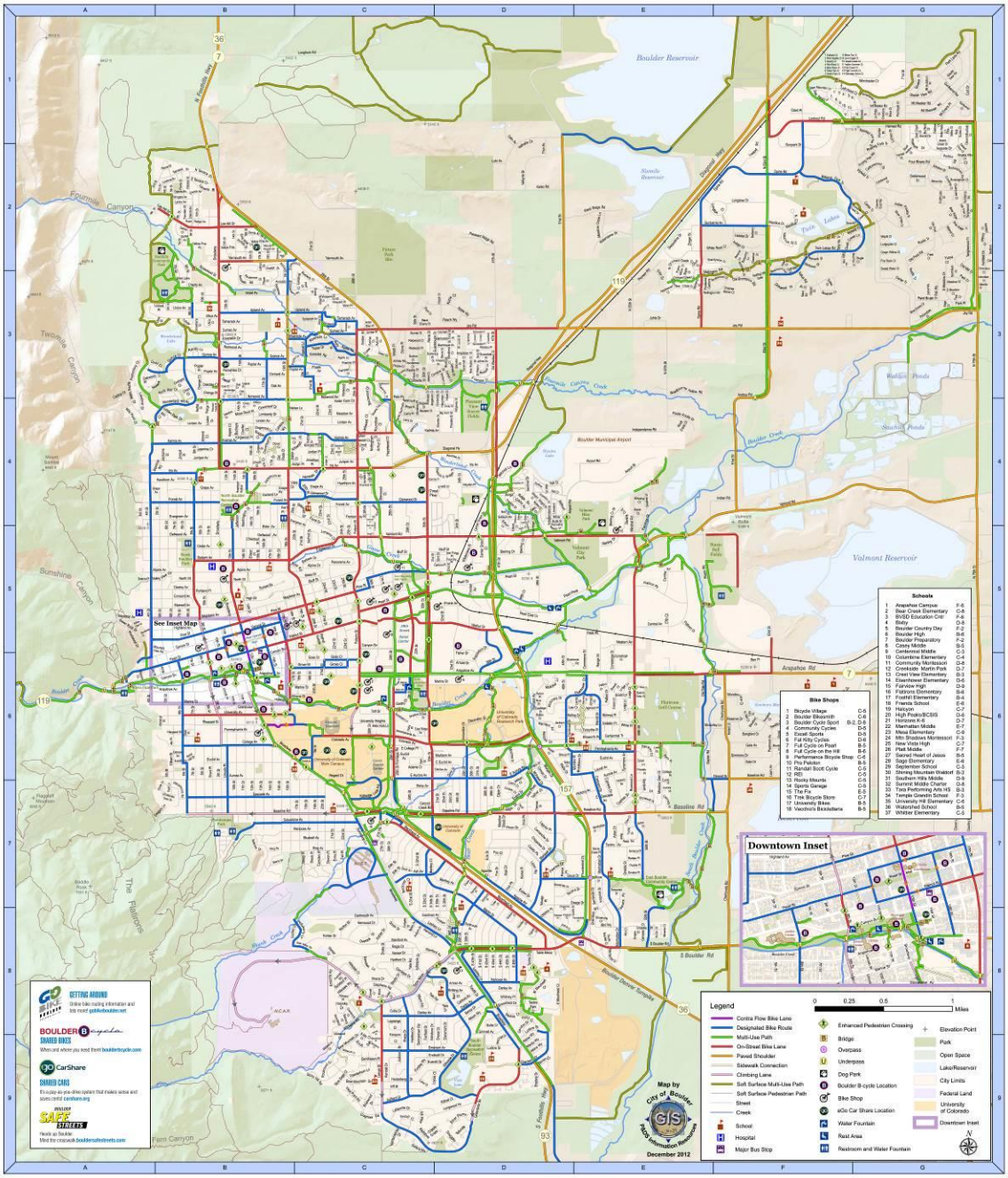


Figure 3.25 Boulder Bike & Pedestrian Map (City of Boulder)

The location I choose to study in Boulder is the East Boulder Station and the Boulder Transit Village. Both of these two are under construction now, I choose them because they can show how inclusive transportation acts as a fulcrum or locus point for place-making. If we take a close look at the location of

the East Boulder Station, we can find out that the station is located at the nearest section of the rail to Arapahoe Ave. Then from the first phase plan of the East Boulder Station (Figure 3.26) we can find out that the station is not only for the train, but bus loading is also another function binding to it. If I draw a half-mile circle around the station (Figure 3.27), then I can find out that there are many activities around the station which include education, automobile services, arts, reservoir, marsh and churches. All of these make of the potentials for the station to become a vibrant community in the future. For the Boulder Transit Village, it seems like the location choice is only because of the rail (Figure 3.28). But if I also draw a half-mile circle, the corner which is located at the north of Pearl St. and the east of 30th St. will be in the circle. And the corner will be the BRT station in the future. Then let us look at the section which is defined by the two stations (Figure 3.29) and all the activities happening in the circle, we can clearly tell the potential of the area to become a great mixed-use space promoted by the inclusive transportation. The situation in Boulder is special because there is nothing yet, not even designs. So I make a diagram to show the potentials of place-making which existing around the space of the Boulder Transit Village. (Figure 3.30) Another specialty of Boulder is that the main corridor of the site is rail, which is hard connected to the surroundings. So the diagram focuses on the visual connection between the corridor and the surroundings.

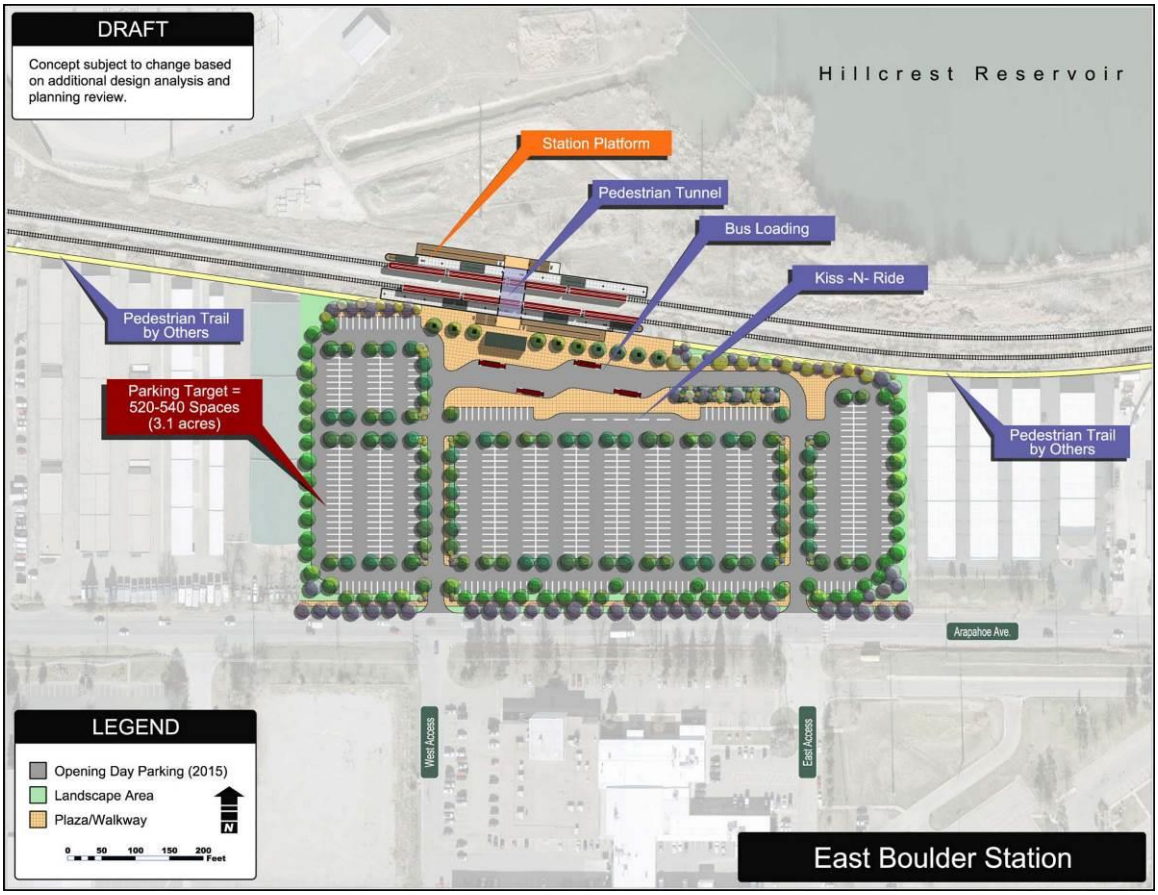


Figure 3.26 Conceptual Plan of East Boulder Station (RTD)

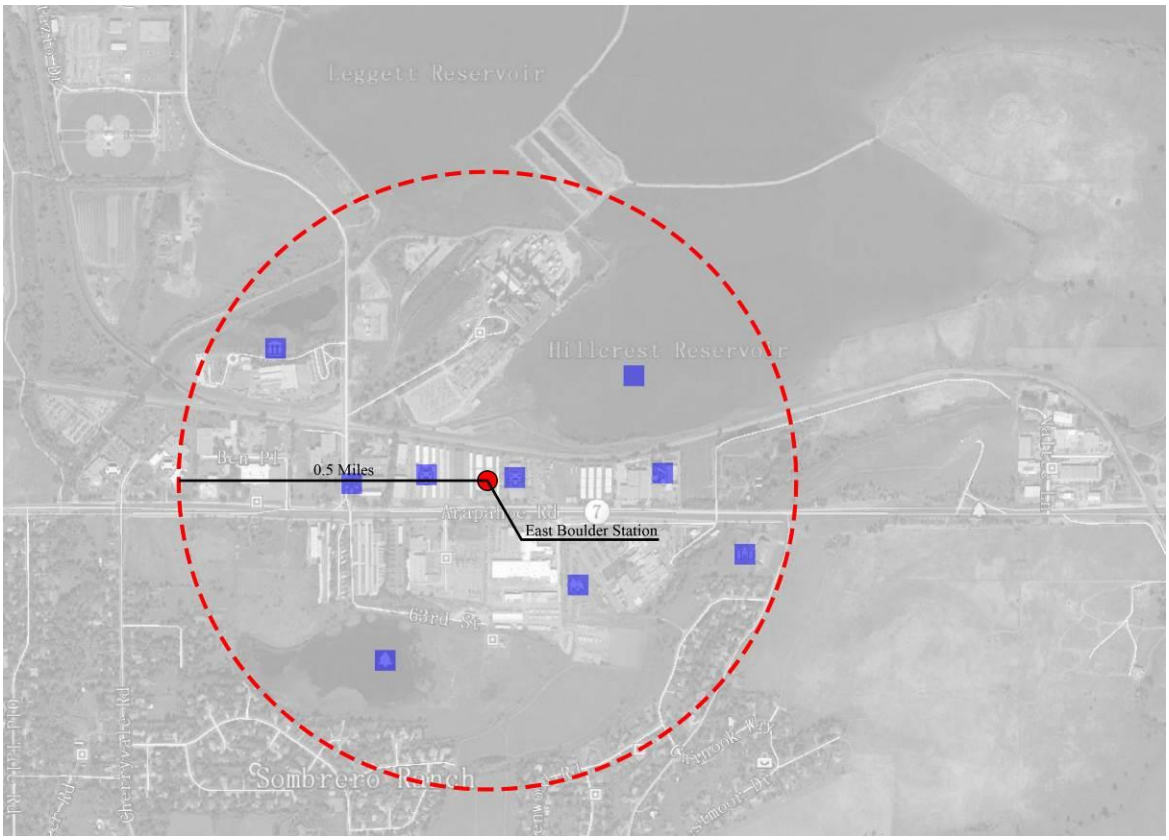


Figure 3.27 Service Radius Analysis Map

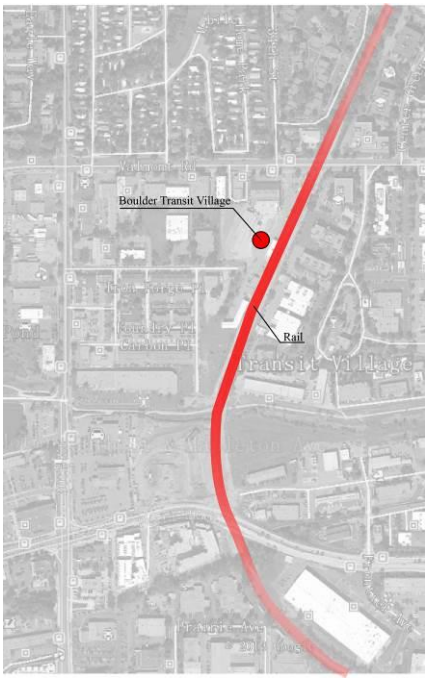


Figure 3.28 Location of Boulder Transit Village

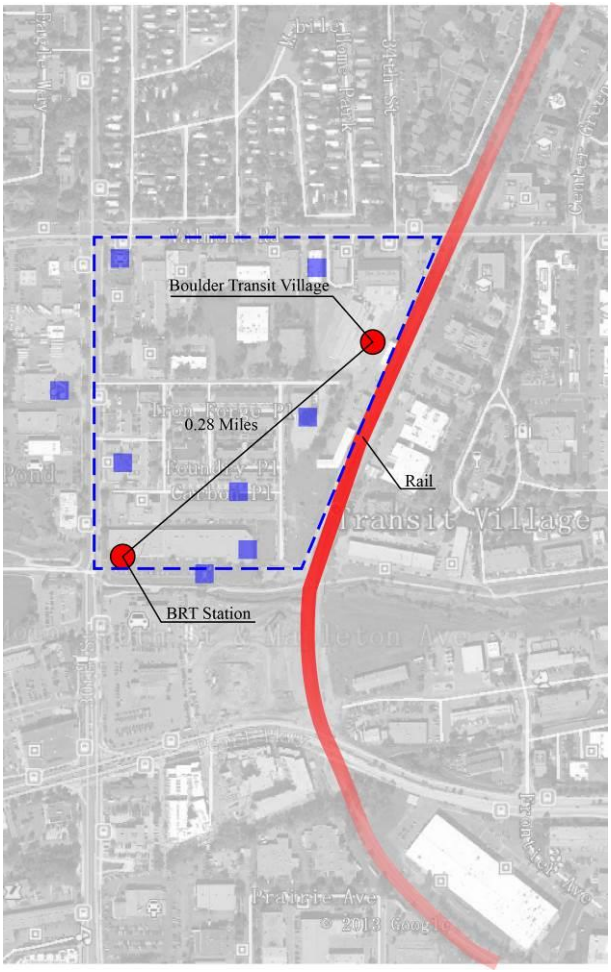


Figure 3.29 Boulder Transit Surrounding Analysis Map

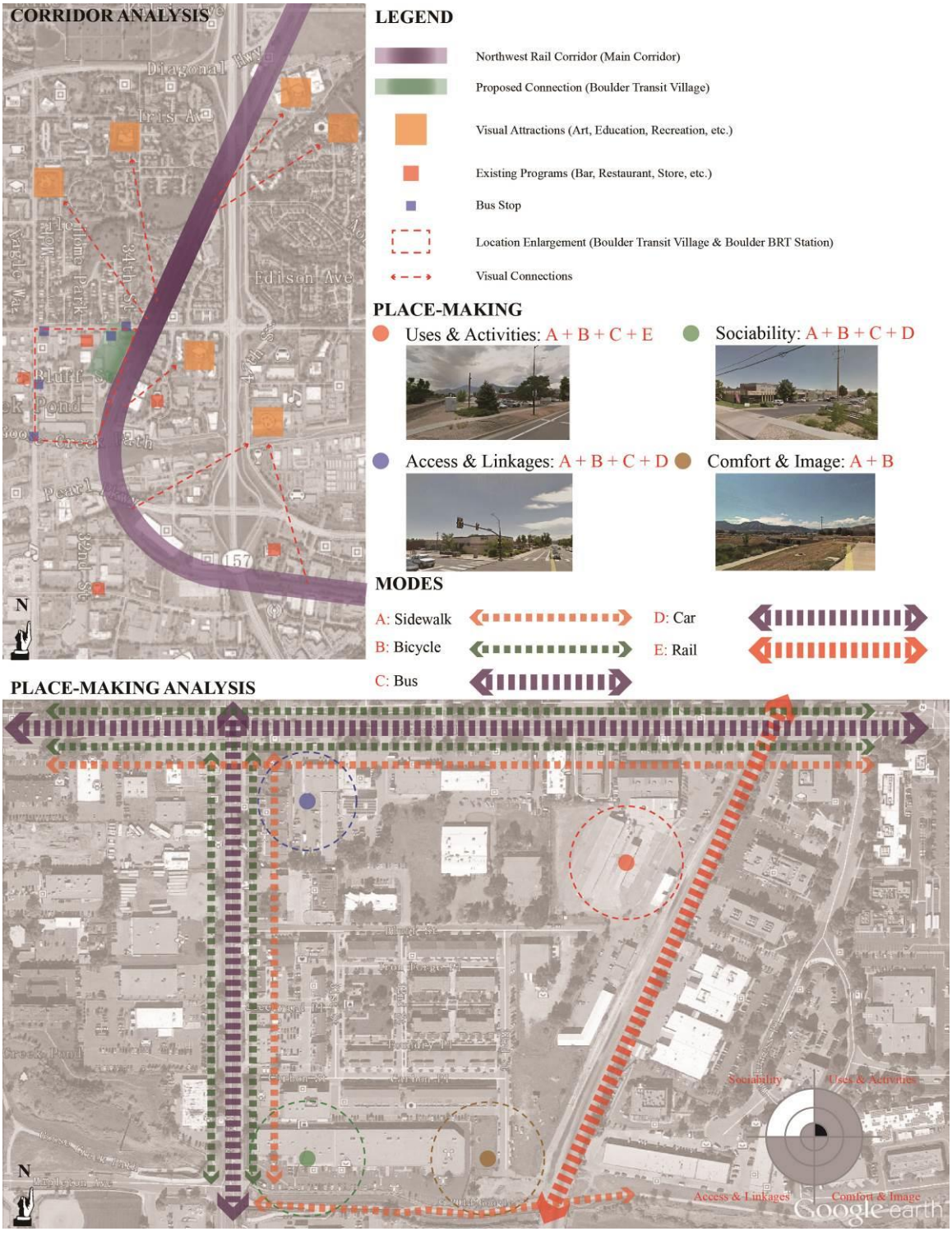


Figure 3.30 Corridor analysis diagram & place-making analysis diagram

From the diagram, although the main corridor is hard to be connected to the surroundings physically, there are still a lot of potentials for place-making.

Including the rail system, the site has five different transportation modes, which provide a lot of opportunities and possibilities. The Boulder Transit Village not only provides the opportunity for the connection between the rail road and the surroundings, the village itself also has great potential to be a huge mixed-use place. There are five bus stops around the site, and there is also a BRT station, existing bike lanes and sidewalks, all of these create perfect conditions for street life if appropriate places can be provided. There is also a green path in the south of the site, which can help to enhance the environmental condition of the place.

3.2.5 Atlanta, GA

Atlanta is the capital of the U.S. state of Georgia. It is also the most populous city in the state, which had the population of 432,427 in 2011 (U.S. Census Bureau). The area of Atlanta is 132.4 square miles.

About 66% of people who work in Atlanta drive themselves, 8% will use the carpool. 2% use motorcycle or bike, 14% take the public transportation, and 4% by walking. (Find the Best) Atlanta is the 25th city with the most homes without cars, and 14.85% of workers in Atlanta use public transportation to get to work (Forbes). The public transportation services in Atlanta are mainly provided by the Metropolitan Atlanta Rapid Transit Authority (MARTA). There are two public transportation options in Atlanta: heavy rail rapid transit system (Figure 3.31) and bus transit system (Figure 3.31). For the heavy rail, there are 47.6 miles of rail tracks and 38 rail stations along them. The tracks are a combination of underground, ground-level and elevated tracks. Before 2009, MARTA named the

lines by their terminal stations' names. After 2009, MARTA began to use a color-based identification system. The services' area of bus system is wider than the heavy rail system. By 2010, MARTA had 544 buses running on 91 bus routes. All the bus lines feed into or intersect with heavy rail lines as well. Bicycles are just at their first step to become popular in Atlanta now. In 2009, they just took 1.1% of all transportation means. The idea of Atlanta Beltline came from a thesis written by Ryan Gravel in 1999. The aim of the Beltline is to improve transportation, add more green spaces and promote transportation alternatives in Atlanta. By 2013, the Beltline started to be implemented. For the future, MARTA is planning to add several streetcar routes along with parts of the Beltline trail (Figure 3.32). Now only one streetcar line is under construction, called the Downtown Loop, or Atlanta Streetcar (Figure 3.33). MARTA is also trying to introduce light rail to Atlanta called the Clifton Corridor. Concluded from above, now the transportation options in Atlanta include bicycles, cars, buses, heavy rails. For the future, Atlanta will have Beltline trails, streetcars and light rails.

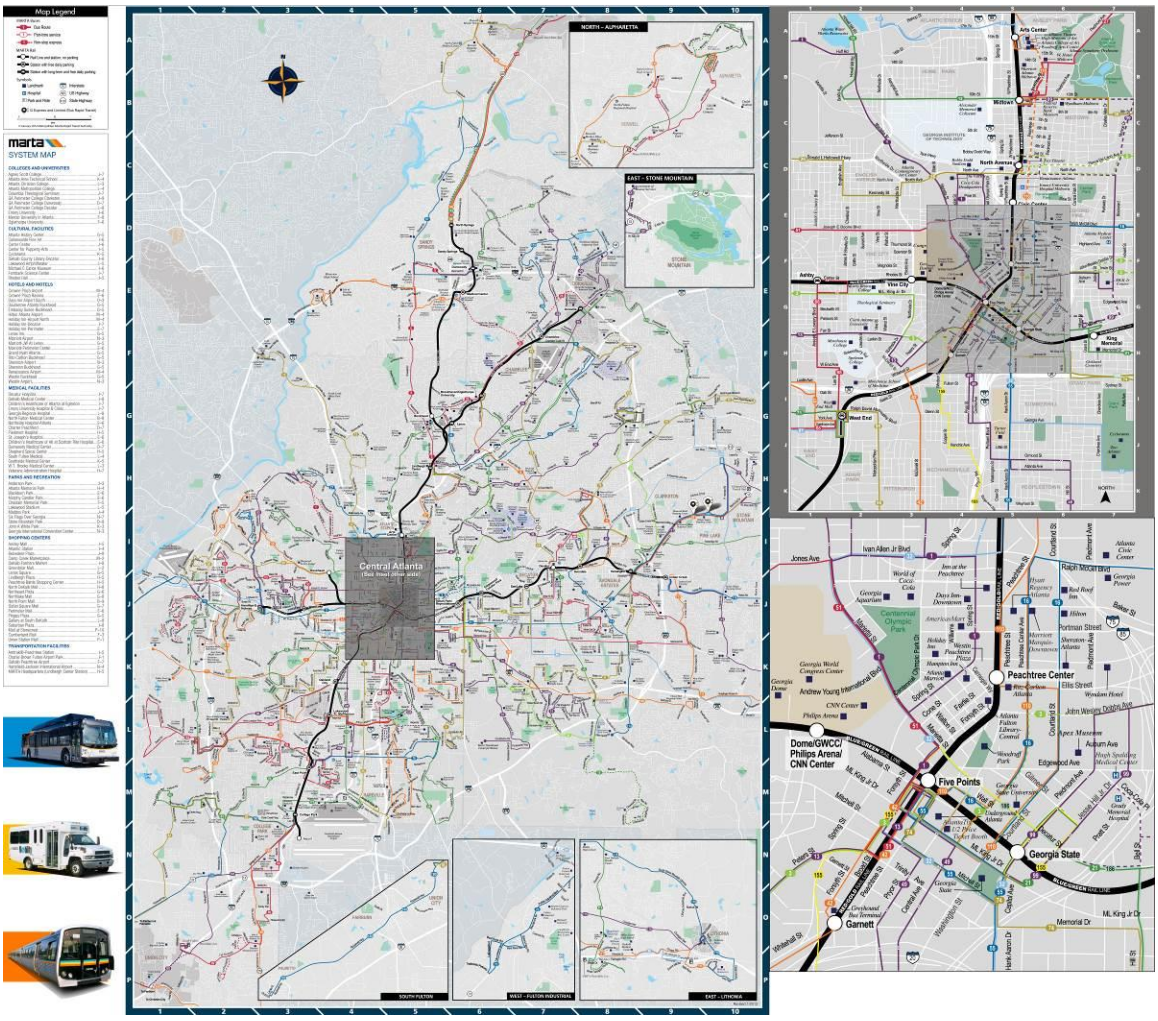


Figure 3.31 Atlanta System Map (MARTA)

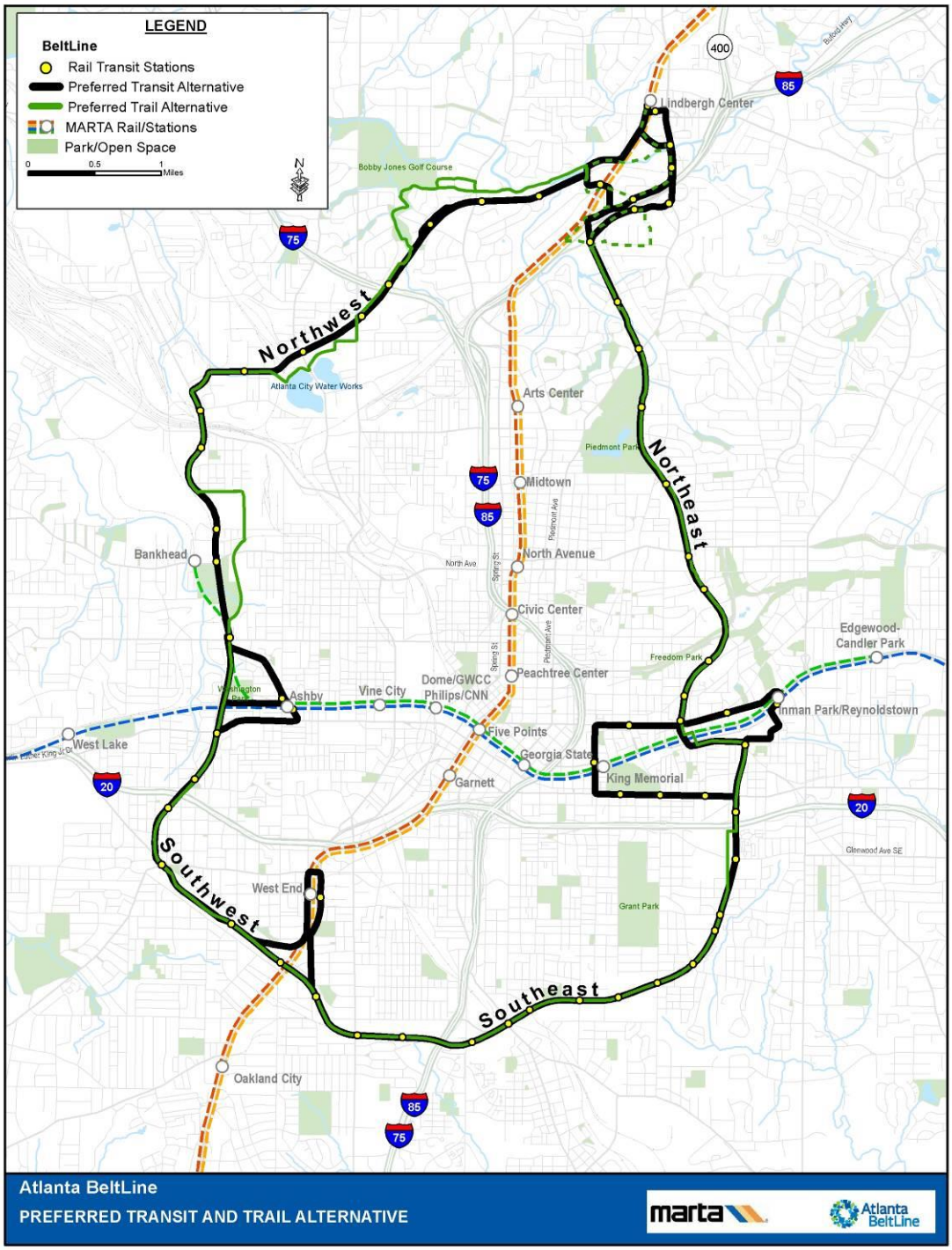


Figure 3.32 Atlanta Preferred Transit and Trail Alternative Map (Atlanta Beltline)

Figure 3.33 Atlanta Streetcar Map (Atlanta Streetcar)

The location I choose to study in Atlanta is the Ponce De Leon Avenue. The reason why I choose here is that the Georgia Department of Transportation (GDOT) and Atlanta Beltline, Inc. (ABI) just began to implement several projects on the Ponce De Leon Avenue to improve the safety and comfort issue of the avenue. Another reason I choose this one is that, as a funded transportation project, I can study from this project when I have enough money, what can I do to the streets. There are four projects, GDOT is in charge of two of them, and ABI is in charge of the other two. (Figure 3.34) The first project is the milling/resurfacing project run by GDOT. This project is trying to restripe the lanes and crosswalks according to the lane changes associated with the GDOT Pedestrian Safety Project. (Figure 3.35) It will take about one year to complete the project. The second

project is the safety improvement project which is also run by GDOT. This project mainly focused on the safety issue. GDOT is trying to solve the safety problem by increasing the pedestrian lighting and adding the pedestrian countdown signalization. The third project is the Ponce De Leon Avenue pedestrian facilities and Atlanta Beltline intermodal connections which is run by ABI. This project is trying to improve the bus shelters, add buffered bicycle lanes, and add more lighting and planting to the pedestrian. Besides the facilities, the ABI is considering to add vertical connections between Ponce De Leon Avenue and the Atlanta Beltline. The last project is the transportation, community, and system preservation grant PCM plaza interface project. This project is a perfect representation for the place-making which is catalyzed and supported by the inclusive transportation strategies. The aim of the project is to create a pedestrian plaza which can provide pedestrian connection between the Atlanta Beltline and the Ponce City Market. There will be various elements in this project, which include a plaza, connections for bike lanes and pedestrians, and sidewalks or ramps (Atlanta Beltline). I make a diagram to show the relationship between inclusive transportation and place-making along Ponce de Leon Avenue NE directly and clearly (Figure 3.36).

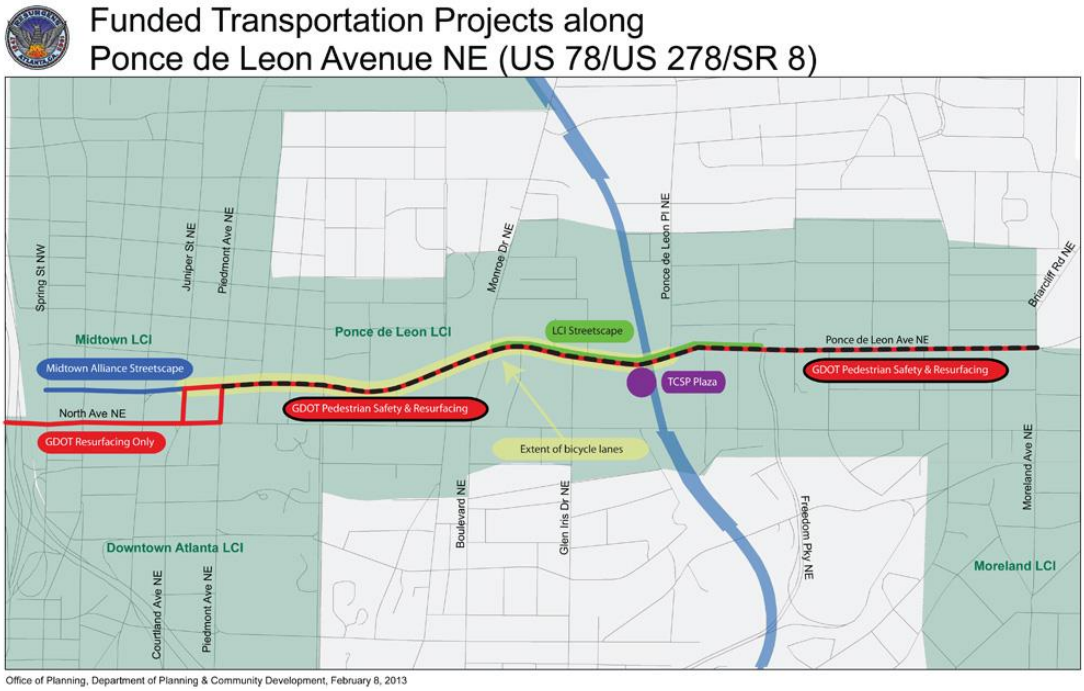


Figure 3.34 Funded Transportation Projects along Ponce de Leon Avenue NE (Atlanta Beltline)

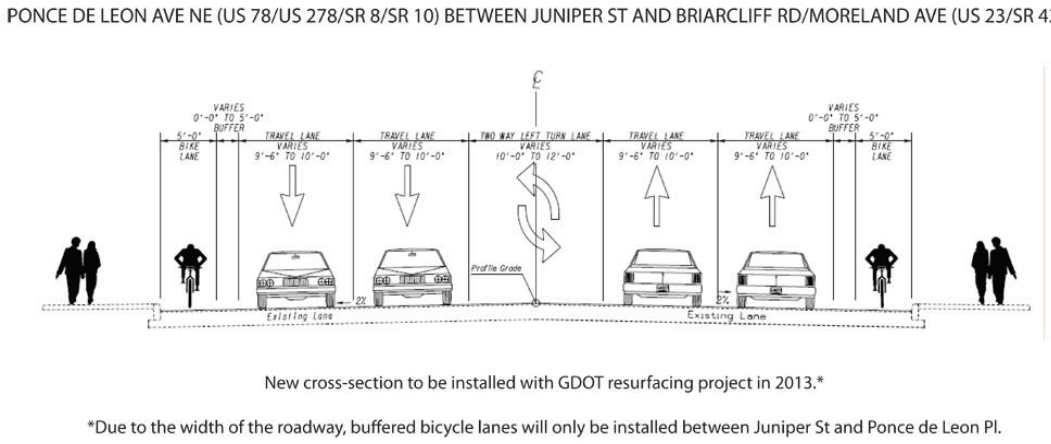


Figure 3.35 Section of Ponce de Leon Avenue NE (Atlanta Beltline)

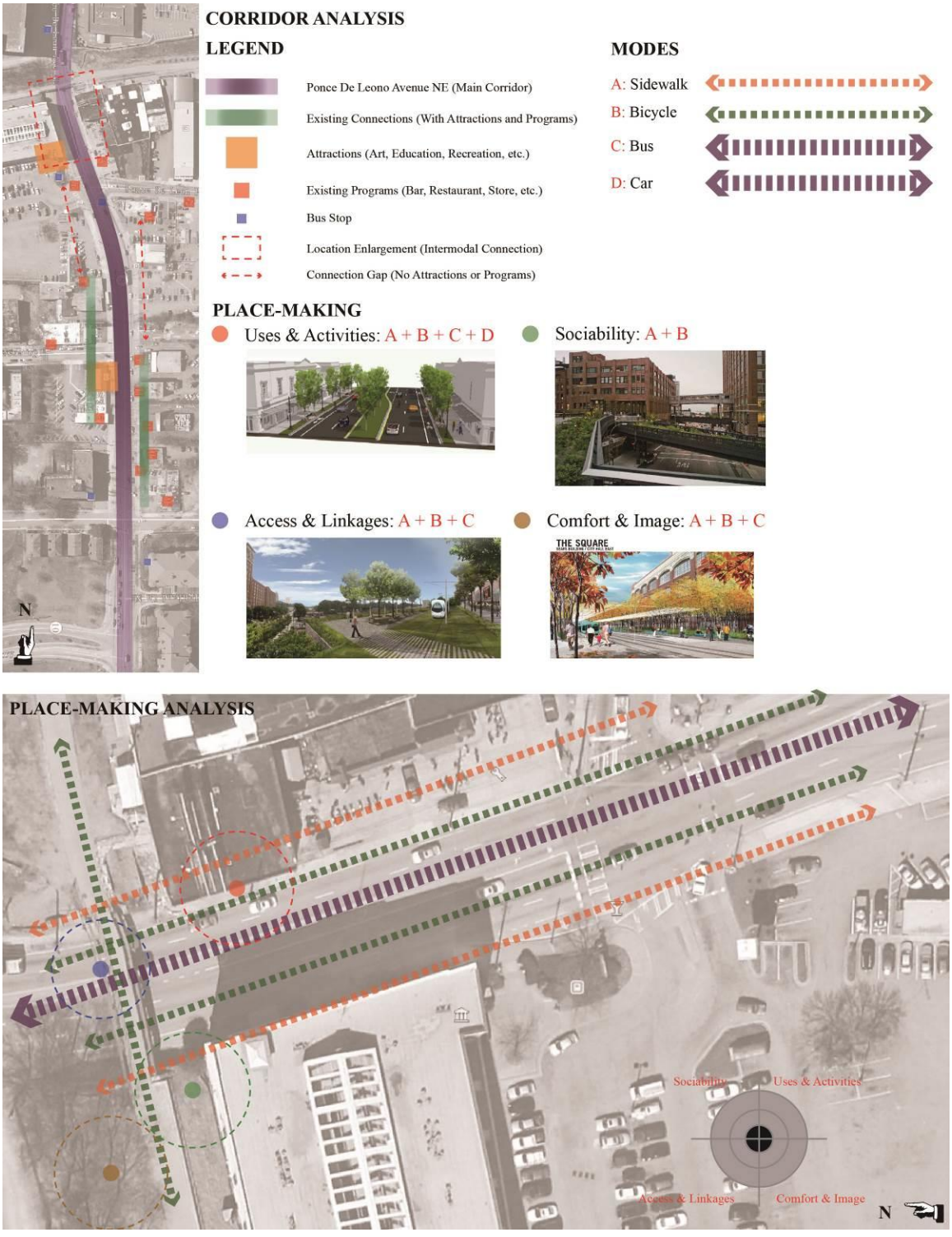


Figure 3.36 Corridor analysis diagram & place-making analysis diagram

I choose a special area of Ponce De Leon Avenue NE to analyze. This area is special because there is an intersection of Atlanta Beltline and Ponce De Leon

Avenue here. The intersection is not an actual intersection because the Atlanta Beltline goes over the Ponce De Leon Avenue. The special situation provides special opportunities for inclusive transportation and place-making. GDOT and Atlanta Beltline obviously noticed that and they are trying to make their efforts to take advantages from that. Now they are trying to create an intermodal connection between the beltline and Ponce De Leon, which include all different kinds of transportation modes. There will also be a plaza as mentioned before coming along with the intermodal connection. By creating the connection and plaza, they look forward to re-activate and re-develop the Ponce City Market (Former City Hall East).

3.2.6 Portland, OR

Portland is located in the U.S. state of Oregon. By 2010, the population of the city was 583,776 and the area of the city is about 145.09 square miles (U.S. Census Bureau).

About 62% of people who work in Portland drive themselves, 9% will use the carpool. 6% use motorcycle or bike, 12% take the public transportation, and 5% by walking. (Find the Best) Portland has an inclusive transportation system. The Tri-Met runs all the bus and rail systems. By 2008, 12.6% of people who live in Portland choose to use public transit (U.S. Census Bureau). There is a main transit corridor in downtown Portland called the Portland Transit Mall, and many buses and light rail converge there. There are 617 buses and 79 bus routes in Portland, 12 of them are defined as “Frequent Service” bus routes, which have more frequent schedules (Figure 3.37). Portland started to have its own light rail

system since September 2009, and there are four lines named by colors (Figure 3.38). Portland's streetcar system only serves downtown Portland and the areas immediately around it. There are only two streetcar lines. The first one was opened in 2001 and the second one was opened in 2012 (Figure 3.39). There is also a part of a commuter rail system in Portland called Westside Express Service, which connects the cities of Beaverton, Tigard, Tualatin and Wilsonville. The improved facilities make Portland's bicycle rider numbers increase rapidly. About 8% of people who live in Portland choose to bike to work, which is the highest proportion in the United States (Dougherty 2009). Portland is also the first city which developed a pedestrian master plan (The City of Portland). Portland is a typical Transportation Oriented Development (TOD) city. There are many mixed-use and high-density development areas around the light rail stops and transit centers. Concluded from above, the transportation options in Portland include bicycles, cars, buses, streetcars, light rails, and commuter rails. For the future, Portland will extend the light rail lines.

Figure 3.37 Portland System Map (Tri-Met)

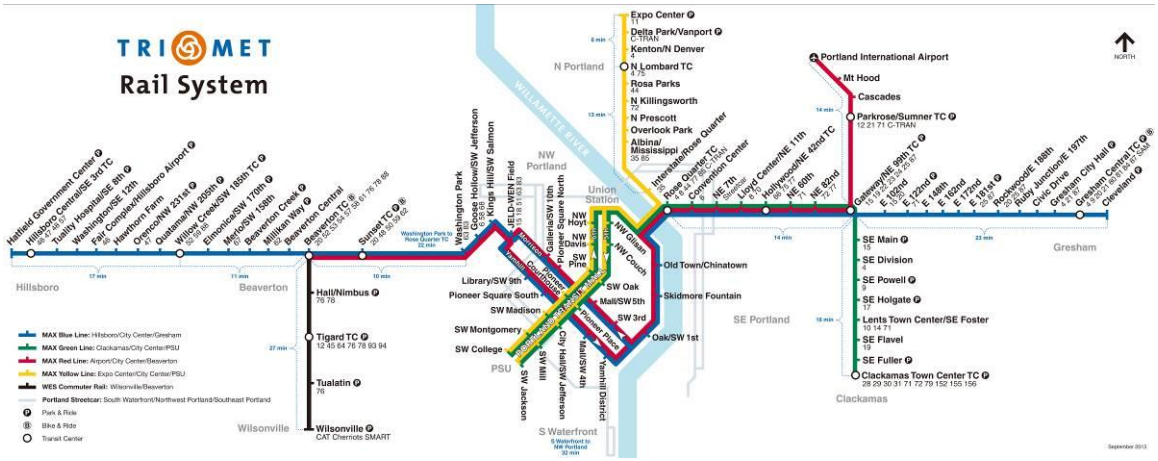


Figure 3.38 Portland Rail System Map (Tri-Met)

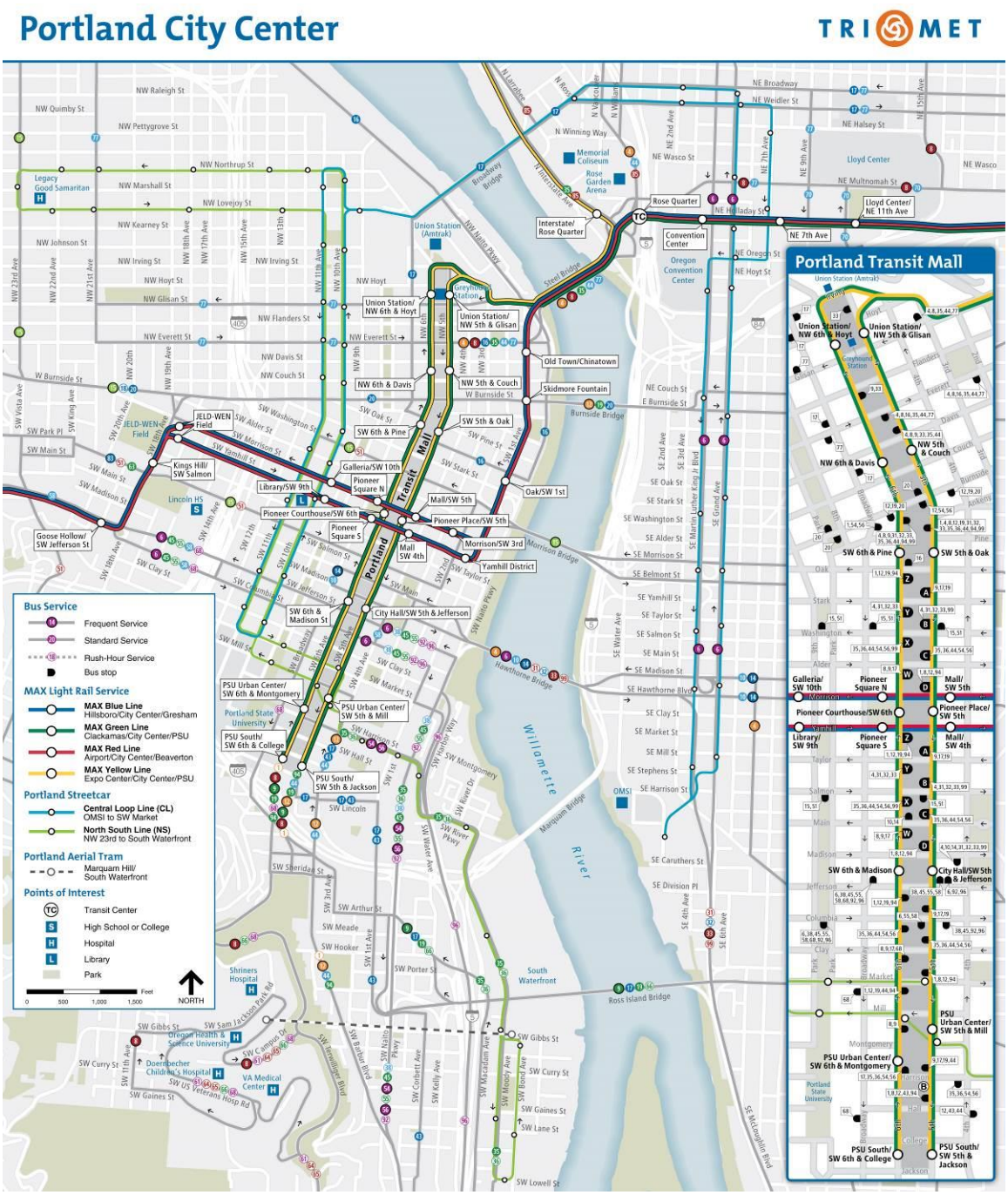


Figure 3.39 Portland Streetcar Route Map (Tri-Met)

The location I choose to study in Portland is the Pioneer Courthouse Square, which has another name as “Portland’s living room” (Figure 3.40). I choose here because the square is a successful place-making precedent which is

catalyzed and supported by inclusive transportation. The idea of the Pioneer Square can be traced back to the 1950s. But because of the lack of financial supports, the site had to be a big parking lot for a very long time period. The Tri-Met played an essential role in the creation of the square. Tri-Met financially supported the square by taking part of its funding for an information center and transit stops to help with the implementation of the square. Tri-Met did this because the square is part of their new Metropolitan Area Express (MAX) light rail system plan. Then the square was built with the support of the Tri-Met and public, and opened on April 6th, 1984. About two years later, the light rail system started to work in 1986, and then the square was not only a city center located in downtown Portland, it was also a lively center of transportation for buses and light rails. There was also a new main information center for Tri-Met in the square. The design elements of the square include different kinds of amenities, public arts (Figure 3.41), trees, flowers, waterfall fountain (Figure 3.42), and stairs which can also act as seats (Figure 3.43). There are over 300 programmed events happening in the square each year and more than 26,000 people using the square each day. Two streets beside the square are the main public transportation corridors called Portland Transit Mall. Four transportation lines surround the square (Figure 3.44). (Pioneer Courthouse Square) I make a diagram to show the relationship between inclusive transportation and place-making directly and clearly (Figure 3.45).

Figure 3.40 Location of Pioneer Courthouse Square

Figure 3.41 Public Arts on Pioneer Courthouse Square (Pioneer Courthouse Square)

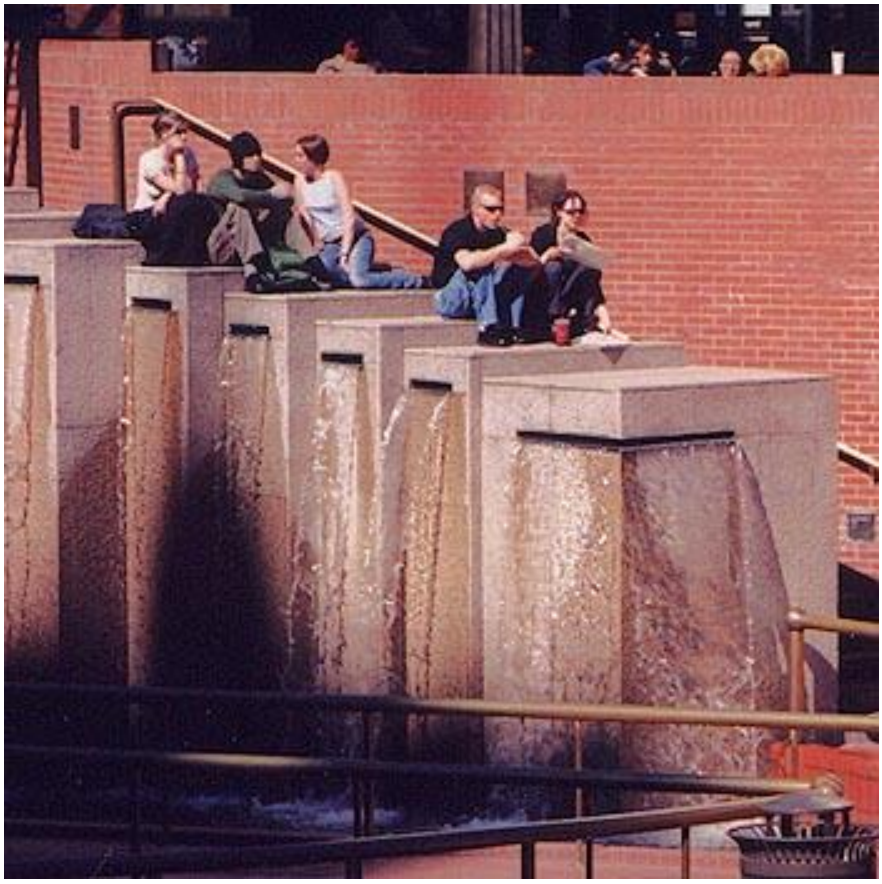


Figure 3.42 Waterfall Fountain on Pioneer Courthouse Square (Pioneer Courthouse Square)

Figure 3.43 Stair-seats on Pioneer Courthouse Square (Pioneer Courthouse Square)

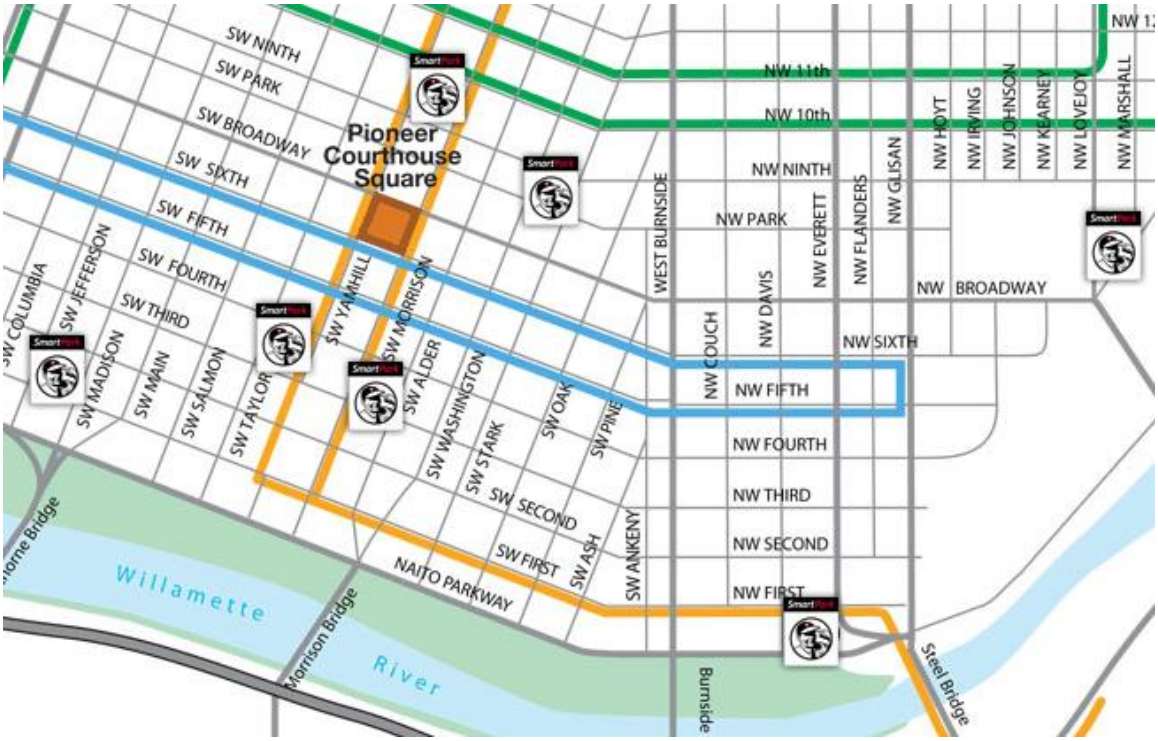


Figure 3.44 Transportation options around Pioneer Courthouse Square (Pioneer Courthouse Square)

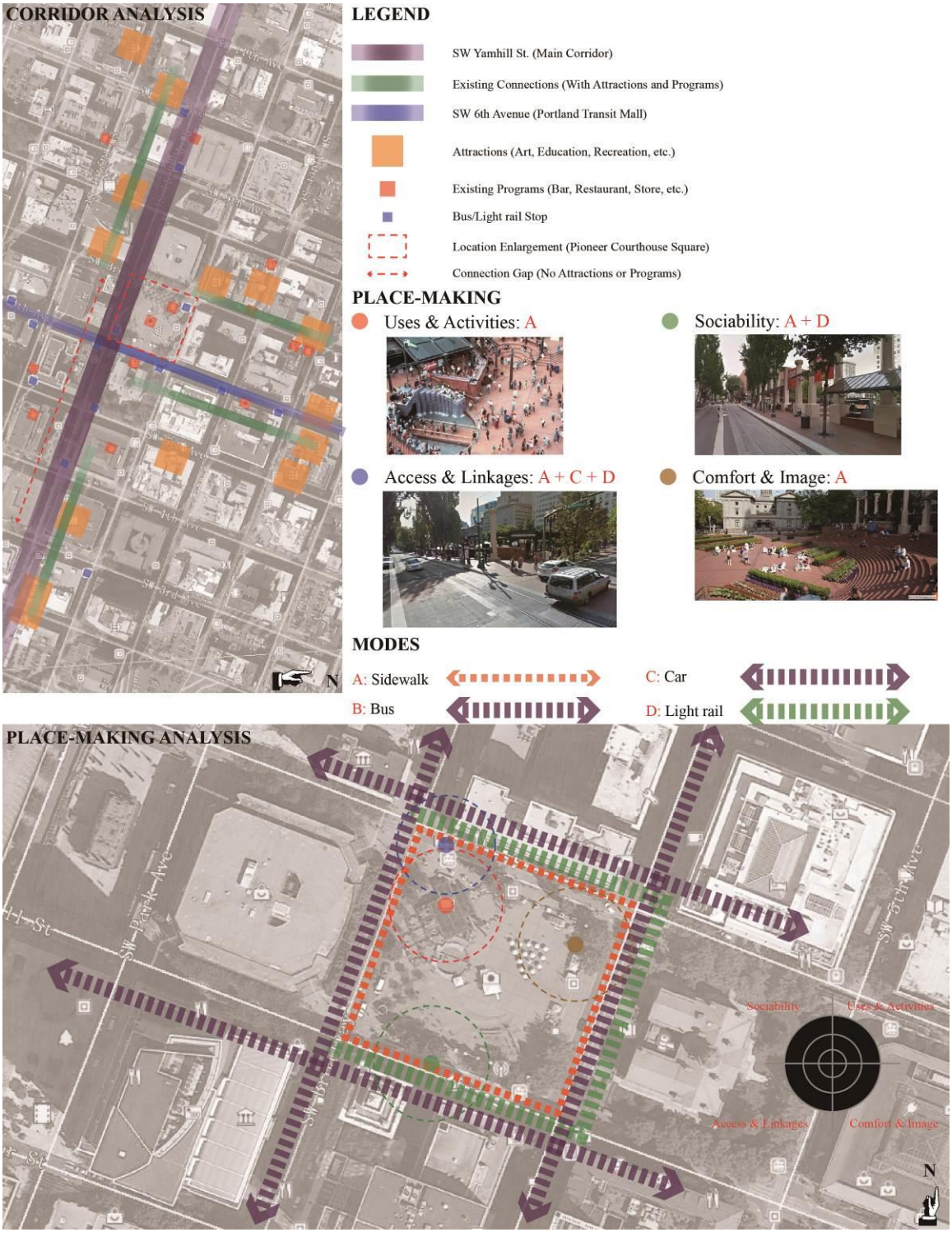


Figure 3.45 Corridor analysis diagram & place-making analysis diagram

There are bus lanes, automobile lanes and light rail lanes surround the square, I choose the light rail lane as the main corridor because there are three

light rail stations around the square. Pioneer Courthouse Square is special because the square itself is a huge aggregation of many different programs and events. From a corridor perspective, the square acts as a port which provides people a place to wait for their buses or light rails. At the same time, from a place-making perspective, people who get off from their buses or light rails continually reload the square which can keep and support all the programs and events. The current situation of the square and the inclusive transportation system around it can partly represent the advanced phase of the development of inclusive transportation. Of course there are still many problems needing to be solved, like there is no bike lanes, but the Pioneer Courthouse Square is definitely a successful example of place-making catalyzed and supported by inclusive transportation.

CHAPTER 4

Lessons Learned

4.1 Lessons learned from case studies

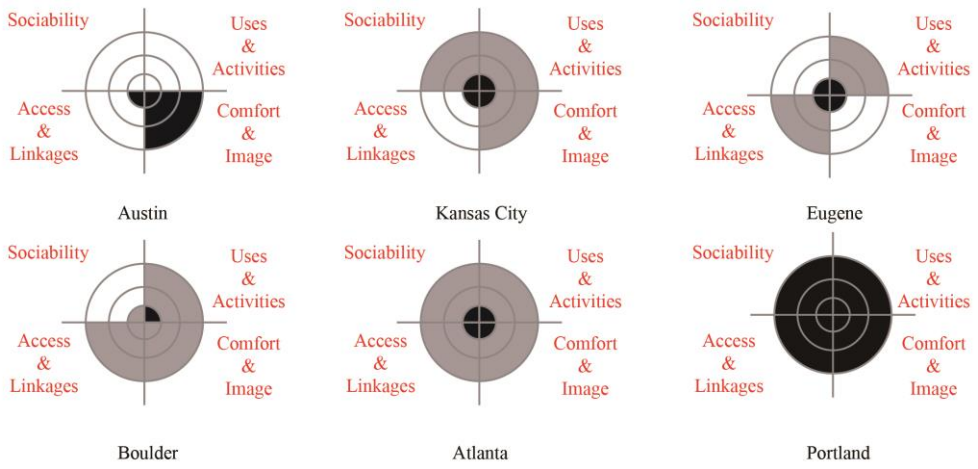


Figure 4.1 Place-making Evaluation diagram

For each case study, I made an evaluation diagram (Figure 4.1). The diagram shows the level of contributions for place-making which is made by inclusive transportation strategies. The more black areas the more contributions made by inclusive transportation strategies. There are four quadrants in the diagram: each quadrant represents one criteria of place-making.

The intersection of E 7th St. and US 35 interregional Hwy in Austin provides a special way to create the sense of inclusive transportation without inclusive transportation strategies, which can be treated as a complementariness of the first steps for the implementation of inclusive transportation strategies. One of the reasons why inclusive transportation makes people feel safe and comfortable is the scale. The

scale of automobile dominated streets makes people feel the street they are walking on is out of their control. Because of various reasons, sometimes even the temporary design can only be done on parts of a street at the very beginning of the implementation of inclusive transportation strategies. During this process, if some facilities or structures can be provided to help to create the sense of human scale, people will feel relatively safe and comfortable. The structures can be temporary and economic, the really important thing is the shape and materials used for these structures, and they must have quite emotional relationships with people. From the place-making diagram, we can tell that the structures in Austin provide more opportunities for sociability and comfort & image of place-making, while relatively providing less opportunities for access & linkages and uses & activities. The structures can only provide visual connections, especially for US 35 Hwy. And it is hard to create activities and programs just by using temporary structures.

Grand Avenue in Kansas City gives a great example of the first step for the implementation of inclusive transportation strategies: "start with the temporary design." The lesson I learned from Kansas City is that during the process of temporary design, the really important issue which should be considered thoroughly is how to involve as many as people into the place and programming designs. Because the structures and materials used for temporary designs are all very limited, it's impossible to create mature inclusive transportation and really delicate places which can attract people to use. Usually at this phase, inclusive transportation may only have some white lines to simply separate bike lanes from traffic lanes. It is hard to say if the design is comfortable for people. But if appropriate programs can be

provided and all the programs can have corresponding raw-spaces to support them, then people will still be attracted just because of the programs or events. People will decorate the spaces themselves based on the programs they are interested in, and most of these decorations are temporary too. The programs and activities can help to improve the safety and comfort of the inclusive transportation system. From the evaluation diagram, we can tell that the temporary design can contribute a lot to sociability and uses & activities, but relatively less for access & linkages and comfort & image. Because more people will use the site, this also means more traffic pressures for the site. For a temporary design, it is hard to relieve the pressures and give people appropriate access for transport services.

The South Willamette Street Improvement Plan in Eugene provides a great precedent for how to choose the suitable alternative transportation plan for inclusive transportation system. In other words, the improvement plan shows me how to fill the gaps in transportation modes correctly. There are two essential strategies I learned in this case study. The first one is how to collect, analyze and assimilate different feedback from all different kinds of users. Before the design process, as much public participation should be encouraged. Then analyze all the feedback with stakeholders and community members by holding meetings and forums. The second essential strategy is the evaluation criteria system they created which is called Evaluation Criteria Scoring of Alternatives. It is hard for people to understand which design is better only by showing them the plan renderings. But if you have appropriate evaluation criteria and scores, then people can know the difference clearly and directly. One thing should be pointed out: the criteria and scores can only generally

evaluate the designs and help people to choose relatively better designs. The final choice cannot be made only by scores, an advanced choosing process should be taken after the scoring process. From the evaluation diagram, we can tell that the new South Willamette Plan is still hard to meet the sociability, comfort and accessibility needs. Because along the South Willamette Street there are mostly residential areas, it is hard to input programs in private areas. So the intersections on the street will be very important and should incorporate as many usages as possible. As with the transition area, I think it is better if the street can put the transition area at the intersection before it.

The location choice of the East Boulder Station and the Boulder Transit Village is a perfect example showing how to use interactions between modes as a fulcrum or locus point of place. During the implementing process of inclusive transportation strategies, the choice of the locations of those stations or stops is a very important step. The first principle for choosing the location of the stations or stops is that it must be along the line where the corresponding transportation modes are. Then the distance between each station and stop should be considered. The potential of the stations and stops should be considered after those two basic considerations. The potential here are the possibilities of place-making and programming. The service radius of the station or stop should be confirmed first, then how many programs existing and how many new programs can be created in the service radius should be confirmed, too. The bigger the service radius or the more programs in it, the station or stop has more potential. Sometimes there may be more than one stations or stops nearby, they should be considered together. From the evaluation diagram, we can tell

that because the rail system in Boulder is hard to be connected to the surroundings directly, the inclusive transportation there contributes relatively less to the sociability and comfort & image of place-making.

Ponce De Leon Avenue in Atlanta represents a phase that a city tries to develop inclusive transportation strategies and start to consider the possibilities and opportunities for place-making which is catalyzed and supported by the inclusive transportation. From the four projects, we can clearly tell the gradual process from inclusive transportation to place-making. The procedure of this is like a ground-surround-ground process: Start from surfacing the street, then add more facilities and infrastructures, then back to the connections among streets, and finally consider different kinds of lanes and trails. At last a place is created like an augment of those connections. From the evaluation diagram, we can tell that the inclusive transportation designs for Ponce De Leon Avenue is relatively mature, it almost provides opportunities for all the criteria of place-making. But because the connection between the avenue and Atlanta Beltline is a vertical connection, there are still limits for the accessibility and activities.

The Pioneer Courthouse Square in Portland perfectly represents a successful place catalyzed and supported by inclusive transportation system. The square not only acts as a city center for people to rest and enjoy various events and programs, it also acts as a transit center for buses and light rails. The square itself also stimulates more alternative transportation needs which will promote the development of inclusive transportation further. To achieve this, the choice of the location, programs in and around the square, and various events and Portland Transit Mall are all essential

elements. Appropriate facilities and infrastructures are also indispensable for the success of the square. From the diagram, we can tell that the inclusive transportation here creates great conditions for all the criteria for place-making. At the same time, place-making here is also promoting the development of inclusive transportation.

4.2 Key challenges of case studies

The key challenge of Austin is scale. From the perspective of people, everything on the E 7th St. and US 35 interregional Hwy are out of control. The buildings around the street also seem to be built from a 'car' scale. The US 35 interregional Hwy goes overhead of the E 7th St. which is hard to be connected to the surroundings. The gap between the high way and the street is another representation of the scale challenge.

Kansas City is a little better because the buildings along the sidewalk can help people to 'control' the scale, but the parking lot across the street and the traffic lanes still make the space unpleasant. The key challenge of Kansas City is lack of programs. People do not want to use the place because they have nothing to do with the place. There are only sidewalks and the width of the sidewalks is not enough for programing the street.

The key challenge of Eugene is the transition area, where the four lanes turns into three lanes. Another key challenge of Eugene is the residential areas. It is hard to put programs on private areas. The change of the widths of the street is also hard to cooperate with the programs and accessibilities. If it is possible, to use the intersection before the transition area maybe can solve the problem.

The key challenge of Boulder is the connections. Not like Portland, Boulder's

rail road is on the ground, which is hard to be connected with the surroundings. Even if the visual connections can be created, it is still hard to make the sense of inclusive transportation and place-making.

The key challenge of Atlanta is also connection, but the connections here focus more on the vertical connection. Although the design has already made great effort to input many programs there, and provide corresponding spaces for the programs, the gap of the elevation is still hard to mediate.

The key challenge of Portland is cooperation. There are so many functions and elements attached to the Pioneer Courthouse Square, how to incorporate them and make the whole system work efficiently is the essential problem for Portland to solve. The various events themselves can be a key challenge as well. The events will attract more people than usual, and the people will bring more needs and activities. How to cooperate them with the existing conditions and environment is a problem difficult to be solved.

4.3 What do the case studies and lessons learned suggest for Athens?

Now Athens is still at the beginning phase of development of inclusive transportation and place-making. From the lessons learned from the case studies, I think the development of inclusive transportation and place-making in Athens can also be considered from two perspectives: the corridor and the place-making. Athens can be called vehicular dominated because now the main function of those major corridors of Athens is automobile connection. Whether the focus is Prince Ave., Broad St. or Baxter St., all of them are planned and designed for convenient automobile connection. If Athens wants to develop inclusive transportation and place-

making, there are many gaps of transportation modes and programs along the corridors needing to be filled. Like Grand Boulevard in Kansas City, Athens has many existing attractions which have a lot of potential to become great places. But the lack of programs between the attractions makes them hard to connect with each other. For the current situation in Athens, it is impossible to develop a perfect inclusive transportation system right away. But we can still try to do something to create the sense of inclusive transportation by using the most temporary means, like what Austin did. Now the only public transportation option is bus, so there are only several simple bus stops along the corridors. As the development of Athens, there must be more and more transportation modes showing up. Choosing the locations of the stations for those new transportation modes will be one of the most important things to do. I think Athens can learn from Boulder for how to choose the location of the stations. Transportation is not the only issue which should be considered: the potentials and opportunities of place-making should also be considered all the time. How to arrange all the new transportation modes on Athens's existing transportation framework will be another important issue to be considered. There can be as many conceptual plans as possible, but how to choose the best one? Eugene's experience can provide a great method to solve the problem. Athens needs its own evaluation criteria. Atlanta tells Athens that all the connections can be creative. Each creative connection has a huge potential to be a great place. Portland shows Athens the way to the future. People in Athens should consider how to achieve Portland's situation before the development of inclusive transportation system gets to a relatively mature stage.

CHAPTER 5

Design Application

5.1 Backgrounds

Prince Avenue in Athens, GA is the location I choose for the design application of this thesis. After researching all the case studies, I have accumulated a lot materials and precedents for the development of inclusive transportation and place-making in a city with limited resources like Athens. Now I need to focus on the design location – Prince Ave. There is already much research involving Prince Ave. So I start my research of Prince Ave. by studying this research first.

5.1.1 CAPPA

There are three missions for the Community Approach to Planning Prince Avenue (CAPPA). The first one is collecting information and data of the vehicular use on Prince Ave.; the second one is, by analyzing the collection of data and information, to figure out what is good and what is bad for Prince Ave., and what should be done for Prince Ave.; the third one is to hold a design charrettes which can convert all the researches, opinions and facts into a presentation.

There are five sections in the presentation which includes all the information, data and development suggestions of CAPPA's researches. They are landscape, historic resources, planning, design and traffic. In the landscape section, CAPPA mainly tries to find solutions for the existing landscape

problems on Prince Ave. They proposed that Prince Ave. should change its role as a gateway to a green and pedestrian friendly neighborhood place. To achieve this, the utilities should be buried and more trees and planting should be put on Prince Ave. The plantation should be added to the sidewalks, the medians, crosswalk safe islands and parking lots. The protection and enhancement of the existing landscape should also be considered. In the historic resources section, the CAPPA proposed three different treatments to the historic resources on Prince Ave. The first one is preservation, which mainly focuses on the small businesses in Normaltown, the properties owned by churches, and some local designations. The second one is build, which mainly focuses on the new buildings and development in the Bottleworks area, central Prince, Navy School, Normaltown and west Prince. The last but not the least one is celebrate, which tries to let people know the value of those historic resources. The methods CAPPA suggested include using the bus shelter displays, historical interest signs, heritage walk brochure, holding open-door days and neighborhood events. In the planning section, CAPPA proposed to promote the right mix uses on Prince Ave. There are four strategies to achieve this goal, creating higher intensity activity centers, creating connections between different uses (Figure 5.1), solving the parking problem (Figure 5.2), and creating more green spaces. In the design section, CAPPA tries to add more public facilities like parks, art, and pedestrian refuges to Prince Ave. The designs should also consider the balance between different spaces and the future development of Prince Ave. In the traffic

section, CAPPA mainly considered three issues: how should Prince Ave. act as a corridor of Athens, the safety issues on Prince Ave. and the accessibility of the street.

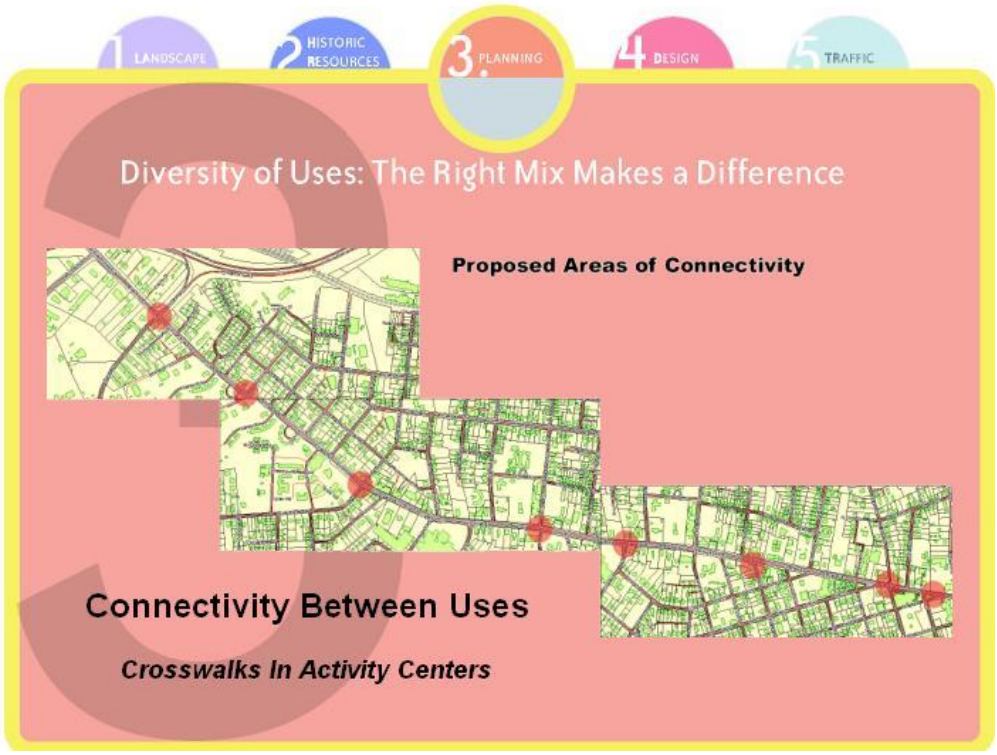


Figure 5.1 Connectivity between uses (Boulevard Neighborhood Association)

Figure 5.2 Parking Solutions (Boulevard Neighborhood Association)

There are many great ideas and design suggestions provided by CAPPA's researches for Prince Ave. I think the most important ideas are those suggestions for the street design of Prince Ave. (Figure 5.3). According to the existing situation of Prince Ave., CAPPA proposed many practical and implementable suggestions which can and should be done on Prince Ave. (Boulevard Neighborhood Association).

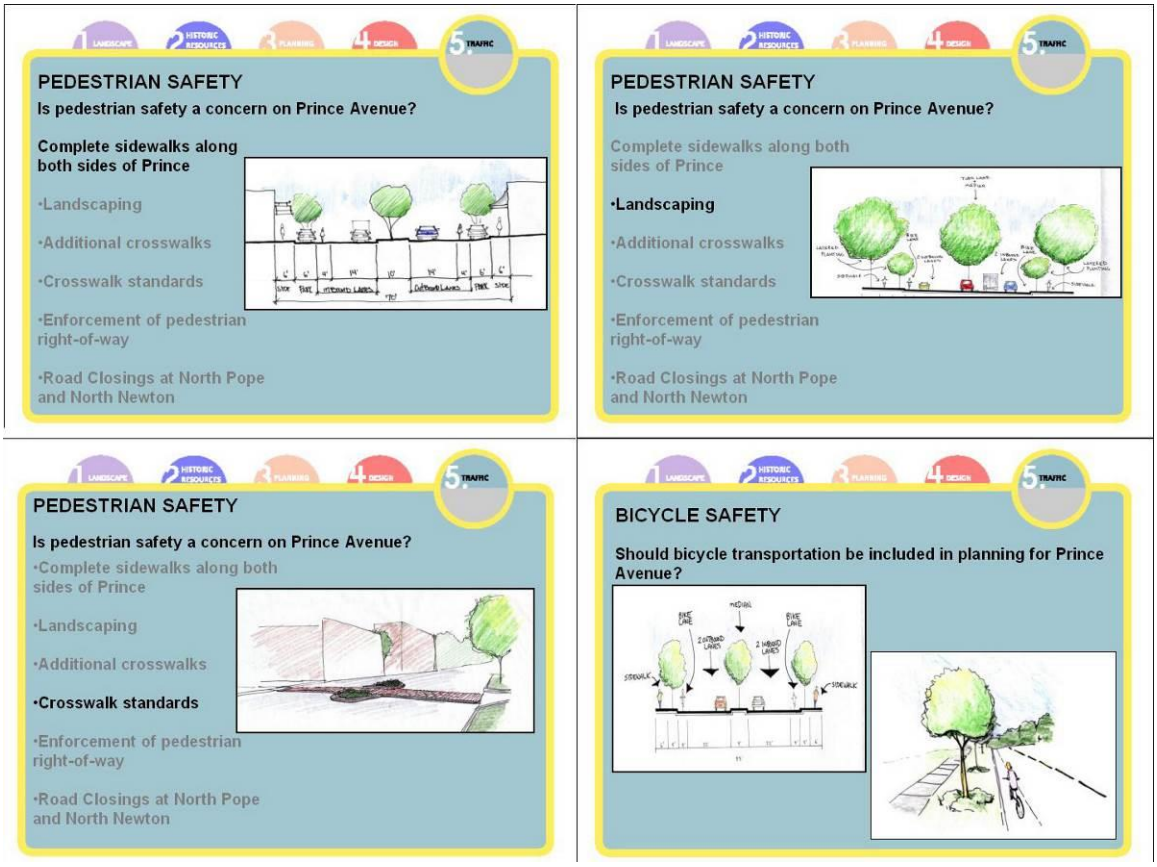


Figure 5.3 CAPPA's designs (Boulevard Neighborhood Association)

5.1.2 ACC Corridor Studies

Athens – Clarke County (ACC) did a corridor study for Prince Ave. in 2012. The corridor study for Prince Ave. was proposed by the Mayor and Commission of Athens – Clark County and conducted by the Planning Department. There are two corridor studies for two primary gateway corridors of Athens, one is for Prince Ave. and the other one is for Oak/Oconee Streets. The goal of this corridor study is to evaluate, conserve and enhance the situation of Prince Ave. from both a function and appeal perspective. The study includes nine categories: demographics, land use, protection of resources, storm water management, development form, right-of-way design,

transportation, parking, and lighting & signage. The study proposed that there are three main functions of Prince Ave.: a gateway into Athens, a transportation route for all different kinds of users and a vibrant conduit for commerce and culture. After the study, ACC proposed an implementation schedule for Prince Ave. The schedule provides all the implemental strategies for the street, and these strategies are organized into two phases. The considerations of phasing are based on the immediacy, cost resources required to achieve the recommended strategies (Athens-Clarke County 2012).

The most helpful sections in the ACC corridor study of Prince Ave. for this thesis are the right-of-way design, transportation, parking, and lighting & signage. In the right-of-way design section, ACC proposed that the minimum width of right-of-way should be 60 feet. And ACC also proposed that the average daily vehicle trips on Prince Ave. between Milledge Ave. and downtown qualified the street for a "road diet." In the transportation section, ACC proposed that they will support transportation policies which will encourage more transportation alternatives. The ACC also listed all the crosswalks on the Prince Ave. (Table 5.1) and proposed to construct sidewalks along both sides of the street. In the parking section, ACC pointed out that most of the parking lots along Prince Ave. are "stand-along" parking lots. Future design and development should consider adding more mixed use areas around these parking lots. On-street parking is also needed, and they should be put on the right locations along the corridor. In the lighting & signage section, ACC proposed that the establishment of lighting ordinances is very important

and the lighting infrastructure along the corridor should be improved and increased (Athens-Clarke County 2012).

PRINCE AVENUE PEDESTRIAN CROSSINGS			
Location	Distance to Next Crosswalk to the West	Type	Number of Striped Crosswalks per Existing Street Crossings
Pulaski-Dougherty	510 feet	Signalized	2/4
Newton-The Grit	484 feet	Midblock	1
Barber-Finley	490 feet	Signalized	4/4
Daily-N. Pope	490 feet	Midblock	1
Piedmont-Water Business	1000 feet	Midblock	1
Milledge	860 feet	Signalized	2/3
Chase-Prince Place	1000 feet	Signalized	4/4*
King	500 feet	Signalized	2/3*
Talmadge-Park	1150 feet	Signalized	3/4
Oglethorpe-Satula	2788 feet	Signalized	4/4*
Sunset	1290 feet	Signalized	2/4
Hawthorne	Beyond corridor	Signalized	2/3*

Table 5.1 Prince Avenue Pedestrian Crossings (Athens-Clarke County 2012)

Concluded from the research done before, Prince Ave. now is at the beginning stage of the development of inclusive transportation strategies, which is the most important stage. The process of the introduction of new transportation modes should be considered very carefully. The phasing problems must be considered through the whole process of designing and implementing.

5.2 NACTO

The National Association of City Transportation Officials (NACTO) is an association which makes great efforts to find better solutions for the transportation issues in the large cities. Most of the time NACTO acts as a combination of city transportation departments. NACTO tries to enhance the practice for street designs of cities. I think the most useful ideas from NACTO are the urban street design guide

which is edited by NACTO and can be used for Athens' Complete Streets design. In the guide, NACTO proposed many design suggestions for streets and intersection design. I choose some of them to guide my design for Athens (NACTO 2012). The first thing I learned from the NACTO guide is the width of the bike lane cannot be less than 5 feet, and the buffer must be more than 2 feet. (Figure 5.4) Then for the areas where there will be conflicts between bike lanes and traffic lanes, there must be painted green to remind the automobile drivers. (Figure 5.5) At intersections, there should be green boxes for the biking people to wait for the traffic lights, and the green boxes should extend in front of the traffic lanes. (Figure 5.6)

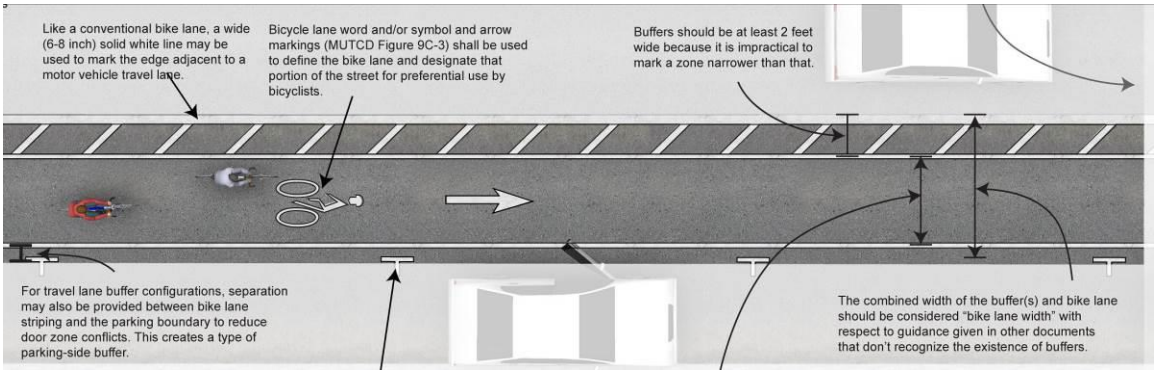


Figure 5.4 NACTO Bike Lane Design Guide (NACTO 2012)

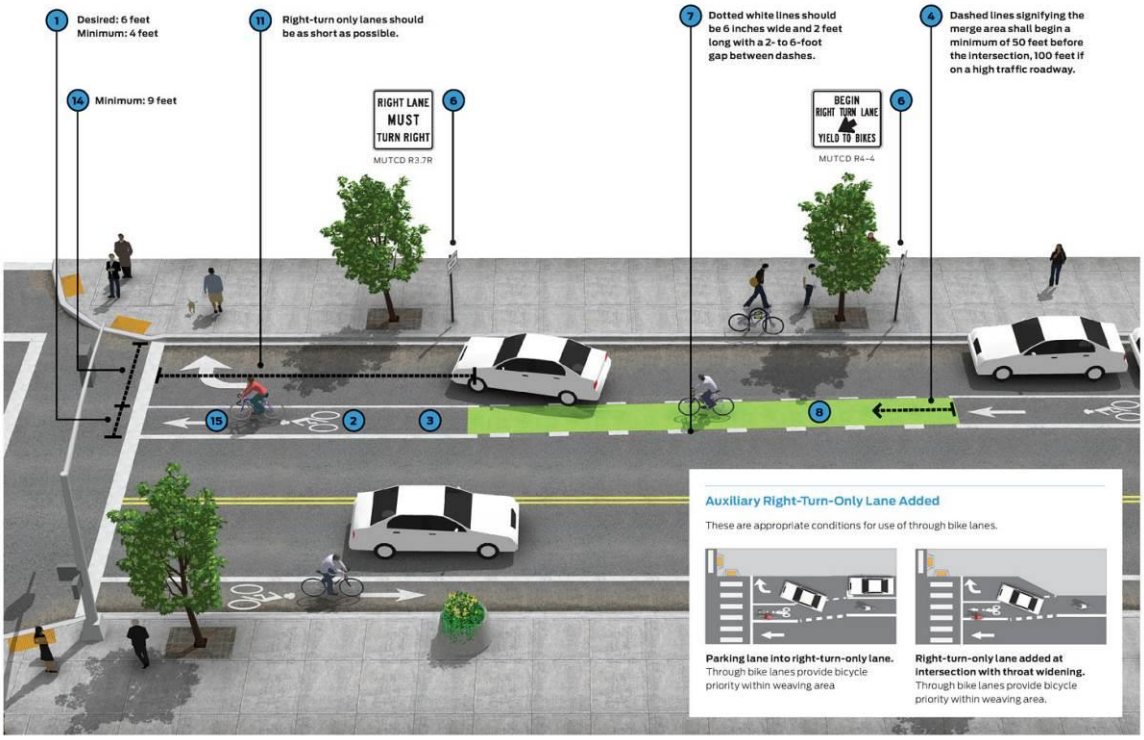


Figure 5.5 NACTO Through Bike Lanes Design Guide (NACTO 2012)

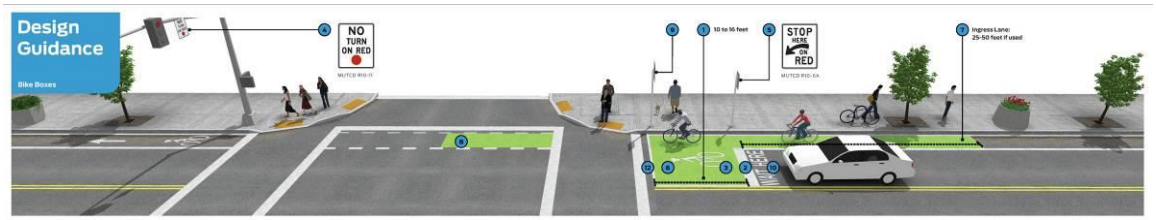


Figure 5.6 NACTO Bike Boxes Design Guide (NACTO 2012)

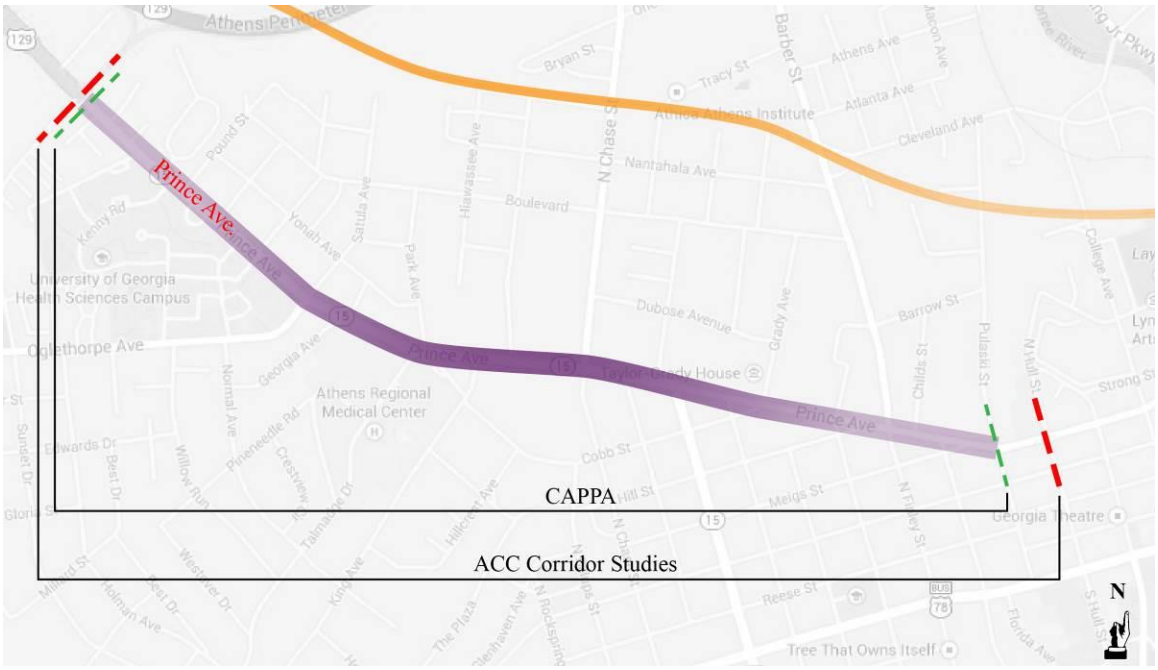


Figure 5.7 Boundaries of CAPPA research and ACC Corridor Studies

CAPPA*	ACC Corridor Studies	NACTO	For Design
Refuge islands needed	Data for bus stops	Design guide line for refuge islands and bus bays	Add refuge islands and bus bays according to design guide lines
Landscape solutions	Data for land use	Design guide line for sidewalks and intersections	Design according to potential of future place-making
Recommendations for traffic lanes	Data for transportation	Design guide line for traffic lanes	Design for traffic lanes

* CAPPA was a "community input process" that was not official but many of its recommendations were adopted by ACC Corridor Studies.

Table 5.2 Key recommendations from former research

5.3 Current challenges of Prince Avenue

Although CAPPA's research is not implemented yet, they definitely raised awareness of the needs for inclusive transportation on Prince Ave. and provided design and planning guidance for future efforts, including this thesis. Prince Ave. poses key challenges to inclusive transportation and consequently place-making

supported by inclusive transportation. As mentioned before, Prince Ave. is not only a main corridor of Athens, but also a primary gateway. Compared to its functions, Prince Ave. obviously does not have enough space. If developing inclusive transportation strategies on Prince Ave., the width of the street is hardly able to meet the functional needs. As a main corridor, there are many intersections on Prince Ave. These intersections themselves are one of the key challenges of Prince Ave. Some roads intersect with Prince Ave. from a very weird angle, so the intersection here is hard to be designed as a comfortable place. The ambulance is another key challenge of Prince Ave., especially at the intersection of Prince Ave. and the King Ave. To keep a lane for ambulance, now the intersection is really complicated and unreasonable. There was some caution exhibited by adjacent neighborhoods to adopt CAPPA because of fear of increased traffic on neighborhood streets. The current challenge to Prince Ave. is: what is a diversion rate that is acceptable? For context, 10% on Baxter St. was not a problem, but 10% on Hawthorne Ave. created problems. Will 10% on Prince Ave. be acceptable or create problems? Understanding the diversion rate and its perception in the neighborhood is a challenge. The bus stops on Prince Ave. should also be a key challenge. How to make the stops safe and comfortable without affecting the efficiency of the traffic lanes beside them is a problem needing to be considered earlier. Limited resources and financial support are another key challenge of Prince Ave. How to improve the situation of Prince Ave. at the current stage with limited resources and money should be considered during the design process.

5.4 Site Analysis

Prince Ave. starts from Pulaski St. and ends at Athens's perimeter highway.

There are several streets and avenues connecting to Prince Ave., such as Pulaski St., Barber St., Chase St., King Ave., Oglethorpe Ave., etc. There is an existing rail track in the north of Prince Ave.

From a transportation perspective, now there are only traffic lanes on Prince Ave. From Pulaski St. to Finley St., the street is mainly composed of four traffic lanes without a turning lane, and the width of the street is 40 – 45 feet. From Finley St. to N. Milledge Ave., the street is mainly composed four traffic lanes, parts of the street have turning lanes, and the width of the street is 45 – 50 feet. From N. Milledge Ave. to Talmadge Dr., the street has five lanes, which include four traffic lanes and a turning lane, and the width of the street is around 55 feet. From Talmadge Dr. to Oglethorpe Ave., the street still has four traffic lanes and a turning lane, but the width of the street is around 70 feet. After the Oglethorpe Ave., most of the street only has four traffic lanes, and the width of the street is around 55 feet (Figure 5.8).

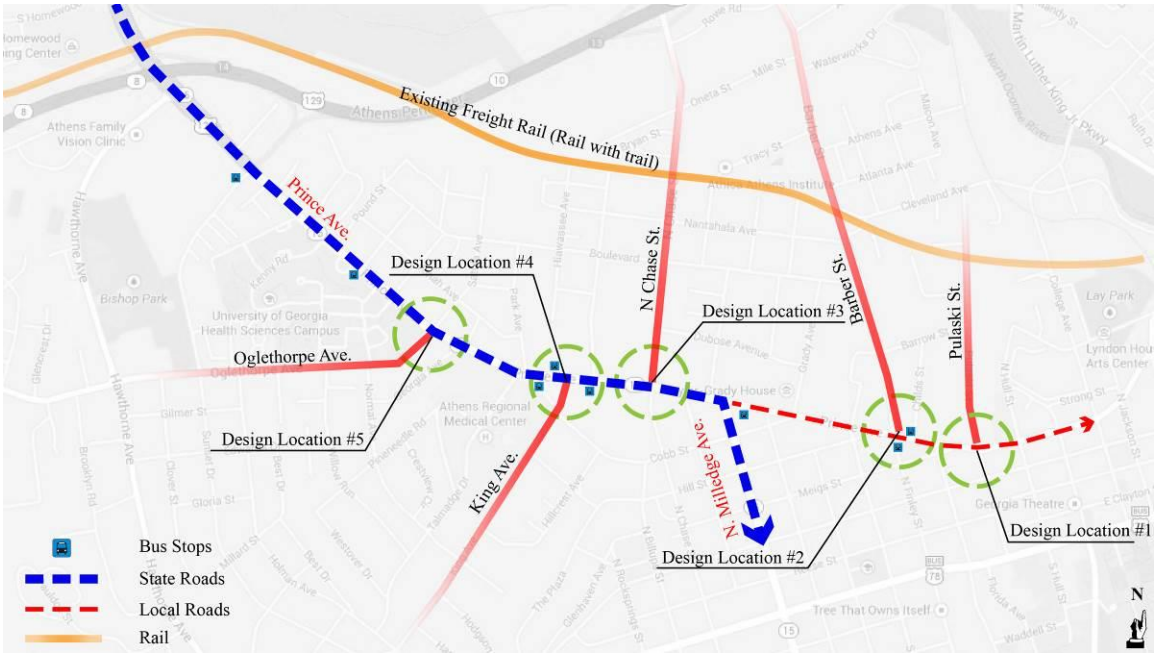


Figure 5.8 Existing conditions on Prince Ave.

5.5 Design Applications

Several community members and organizations are currently engaged in bringing inclusive transportation to Prince Ave. Their work has generated a series of recommendations. Those recommendations include (1) Because the street between Pulaski St. and Finley St. is relatively narrow, there should be arranged two traffic lanes and one turning lane for cars, and two bike lanes without buffer for bikes. (2) There are more spaces between the Finley St. and the N. Milledge Ave., and there are also more programs along the south side of the street. So instead of the buffer for bike lanes there should be created some on-street parking along the south side of the street. For this section, there should be arranged two traffic lanes and one turning lane for cars, two bike lanes without buffer for bikes and on street parking for the existing programs. (3) From N. Milledge Ave. to Talmadge Dr., there should be arranged four traffic lanes and two bike lanes with buffers. (4) The section between Talmadge Dr. and Oglethorpe Ave. is the widest one, and there are also many programs along both sides of the street, so there should be arranged four traffic lanes, bike lanes with buffers, central greening and on street parking in this section. (5) The part after Oglethorpe Ave. there should be arranged 4 traffic lanes and two bike lanes without buffer. I made a diagram to show all these recommendations (Figure 5.9).

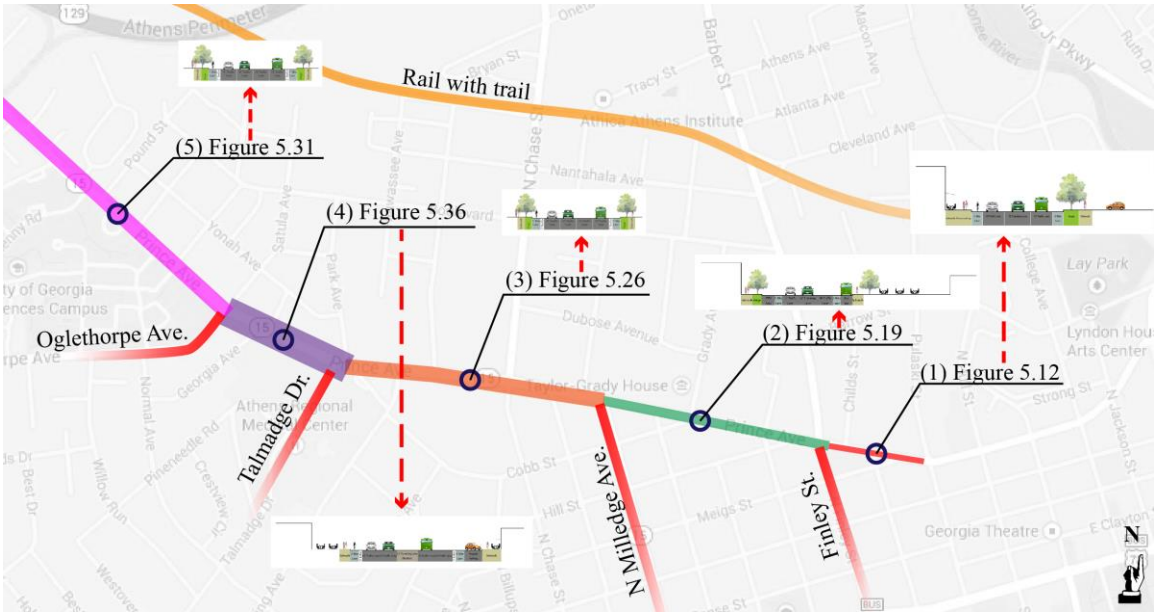


Figure 5.9 General Proposed Inclusive Transportation Plan

Existing Section	Lanes	Pavement Width	Right of Way Width	Average Daily Traffic Counts (GDOT)	Existing Transportation Strategies	Proposed Lanes	Inclusive Transportation Strategies
(1)	4	40-45	60-65	16140	Vehicles primary Bus with no bays Inadequate bike Lack of marking Exposed sidewalks	2+1+2	Bus bays Bike lanes with 2' buffer Planted median Center turning lanes
(2)	4	45-50	65-70	16990		2+1+2	
(3)	5	55	75	25890		4+2	
(4)	4	70	90	24210		4+2	
(5)	4	55	75	21550		4+1+2	

Table 5.3 Existing condition and design analysis

After the general plan, I focus on detailed design for five different locations on Prince Ave. That does not mean I focus only on five locations, like the analysis I did for case studies before, each design location should also include corridor design and place-making evaluation. Combining the considerations of the current situation

and resources available to Athens, the design I did now is just like a transition phasing design for Prince Ave. The goal is to use as little resources as possible to achieve inclusive transportation strategies on Prince Ave. and create conditions for future place-making in Athens. I also made a diagram to generally show what is the future will look like in Athens if inclusive transportation strategies and place-making can be implemented (Figure 5.10).

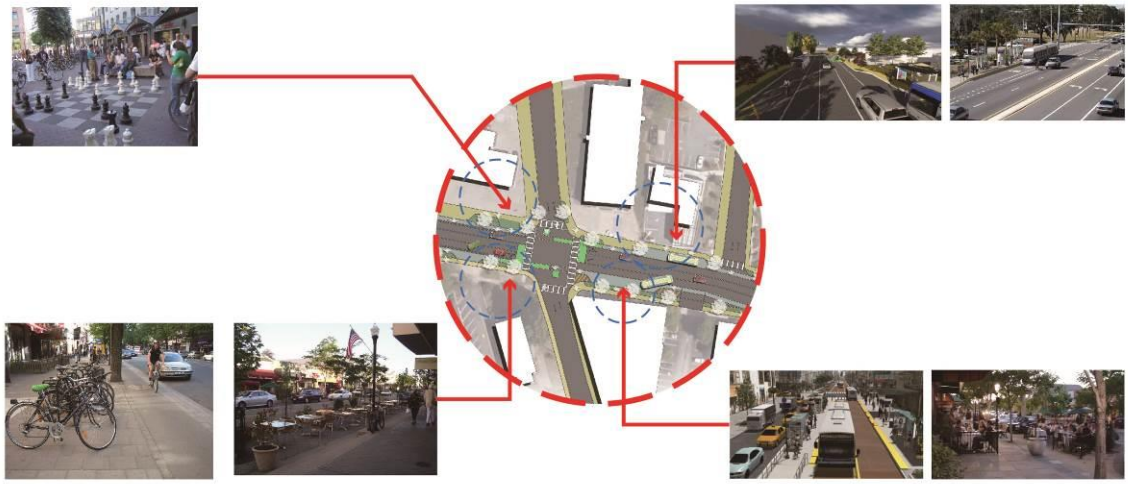


Figure 5.10 Future development diagram

5.5.1 Design Location # 1

The first location I choose is the intersection of Pulaski St. and Prince Ave., and part of the streets between Pulaski St. and Finley St. From the master plan (Figure 5.11) and section (Figure 5.12), we can tell that except traffic lanes, turning lanes and bike lanes, I also design a special area for the bus stop, which will not affect the running cars on the traffic lane when a bus needs to stop on the street. I also design some green areas where bike and automobiles maybe conflict with each other, the green reminds the drivers to notice that bikes will share the area with them. The green box at the

intersection is used for the bikes waiting for the traffic light and turning. I made two renderings to compare the situation of the street before and after design (Figure 5.13, Figure 5.14, Figure 5.15, and Figure 5.16).

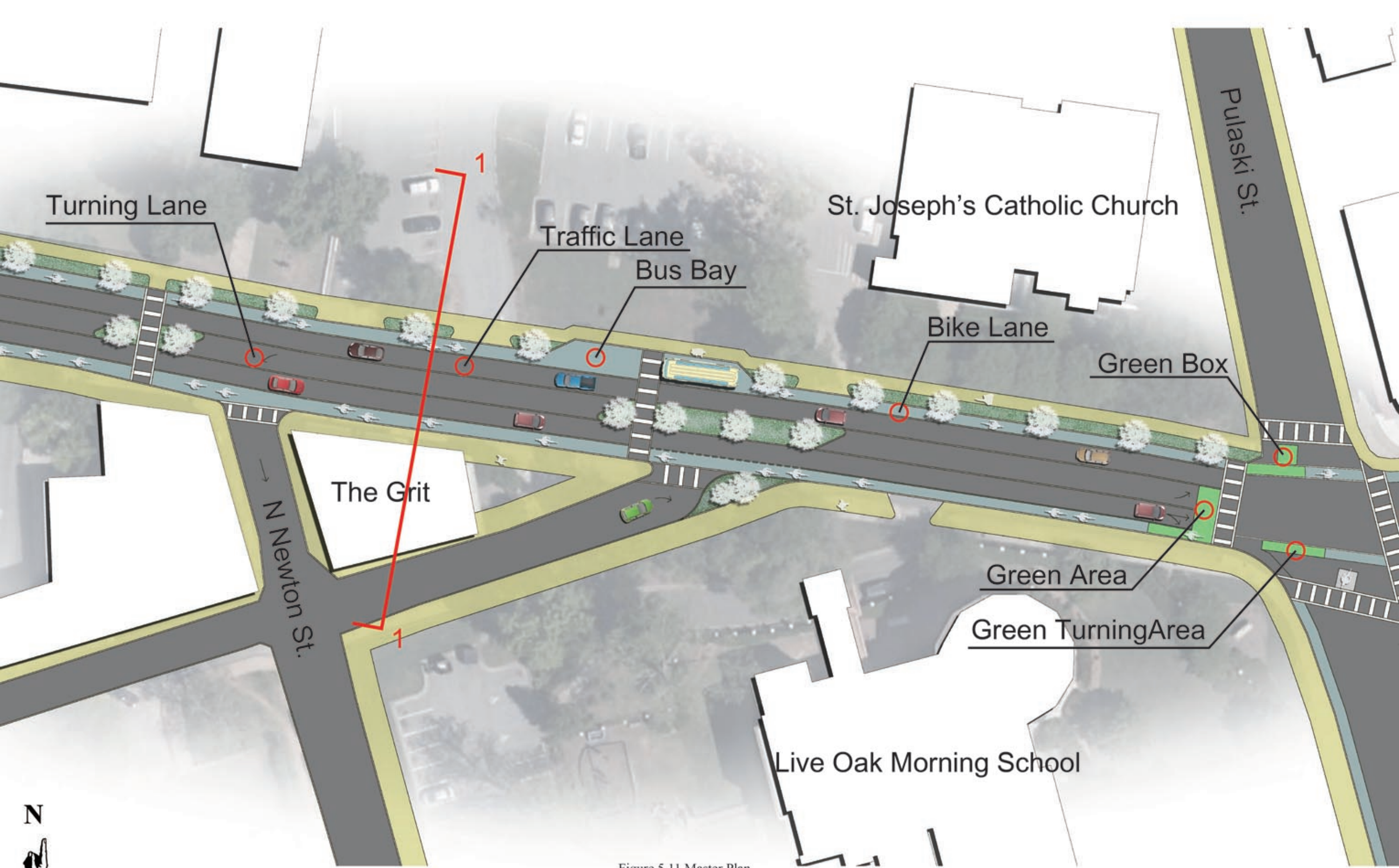


Figure 5.11 Master Plan

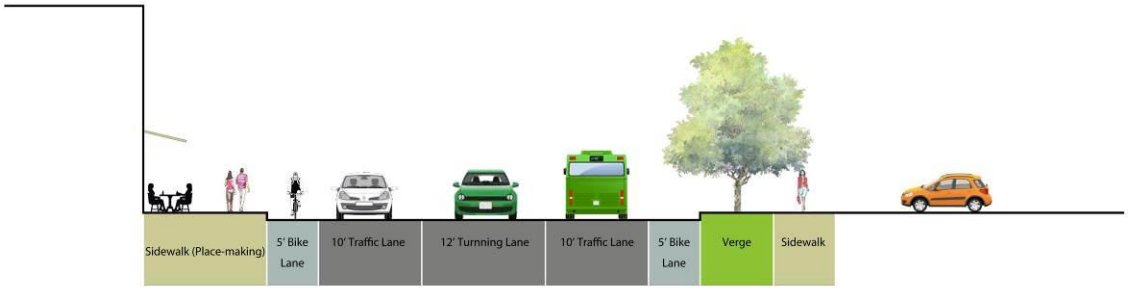


Figure 5.12 Section 1-1

Figure 5.13 Compare with rendering

Figure 5.14 Compare with rendering

Figure 5.15 Rendering

Figure 5.16 Rendering

As what I did in case studies, I also made a diagram to evaluate the potential of place-making on Prince Ave. which created by inclusive transportation (Figure 5.17).

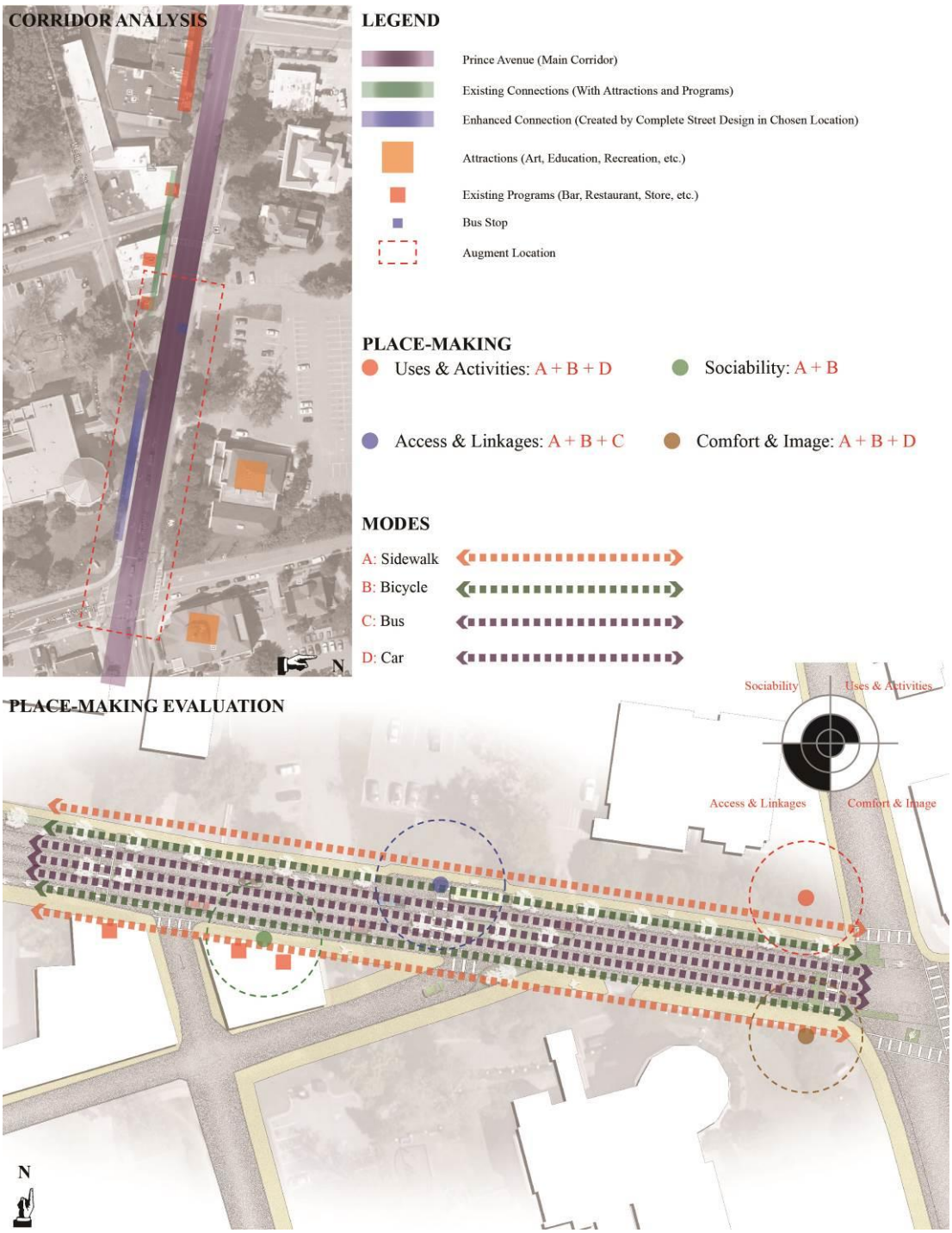


Figure 5.17 Corridor and place-making evaluation diagram

From the diagram, we can tell that the inclusive transportation strategies provide great opportunities for place-making as a gateway at the intersection of Pulaski St. and Prince Ave. As analyzed before, there is an existing rail track in the north of Prince Ave., and Pulaski St. has a very tight relationship with the rail track, so there is also a great opportunity for the connection between the intersection and future development of the rail system, similar to what Boulder did. The south of the street has a lot of existing programs and more aesthetic spaces, the introduction of bike lanes will increase the comfort and the sociability of the street. The new bus stop also provides great conditions for access & linkages.

5.5.2 Design Location # 2

The second location I choose is the intersection of Barber St. and Prince Ave., and part of the street of both sides of the intersection. From the master plan (Figure 5.18) and sections (Figure 5.19), the road design of this part is similar to the location #1, two traffic lanes, one turning lane and two bike lanes. The difference is that between traffic lane and bike lane, I add a two foot buffer. I also put some on street parking when there are needs and enough space. I move the north curb between the Childs St. and Barber St. two feet back to have enough space for the new bus stop. I made two renderings to compare the situation of the street before and after design (Figure 5.20, Figure 5.21, Figure 5.22, and Figure 5.23).

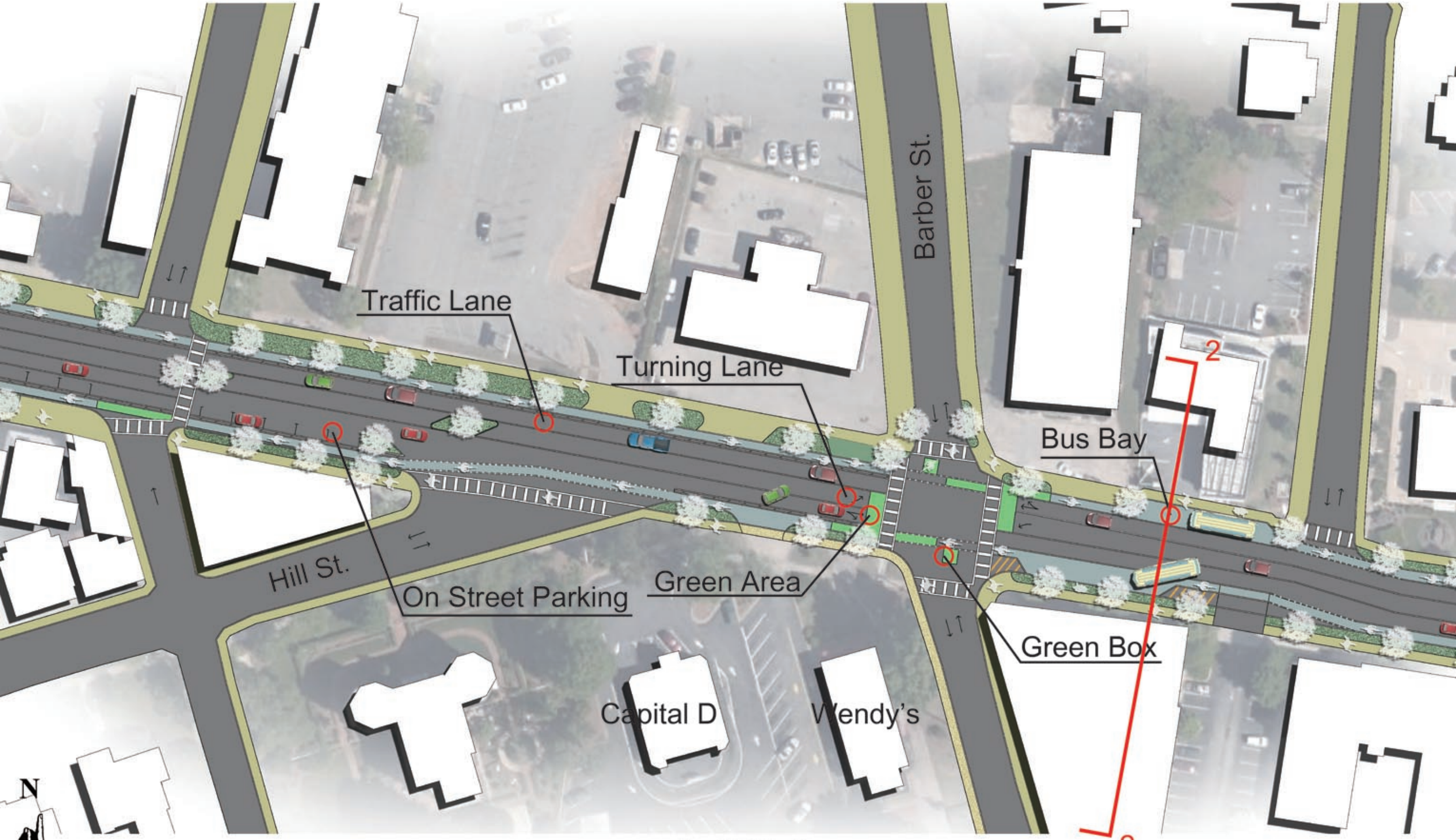


Figure 5.18 Master Plan

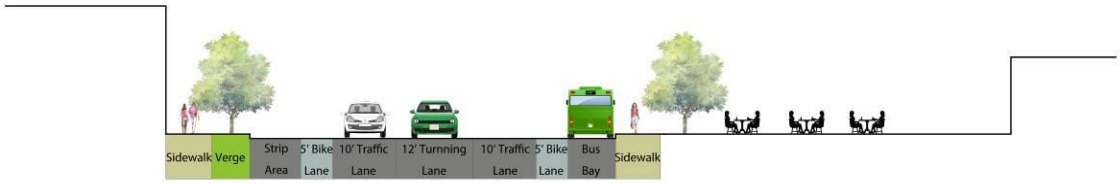


Figure 5.19 Section 2-2

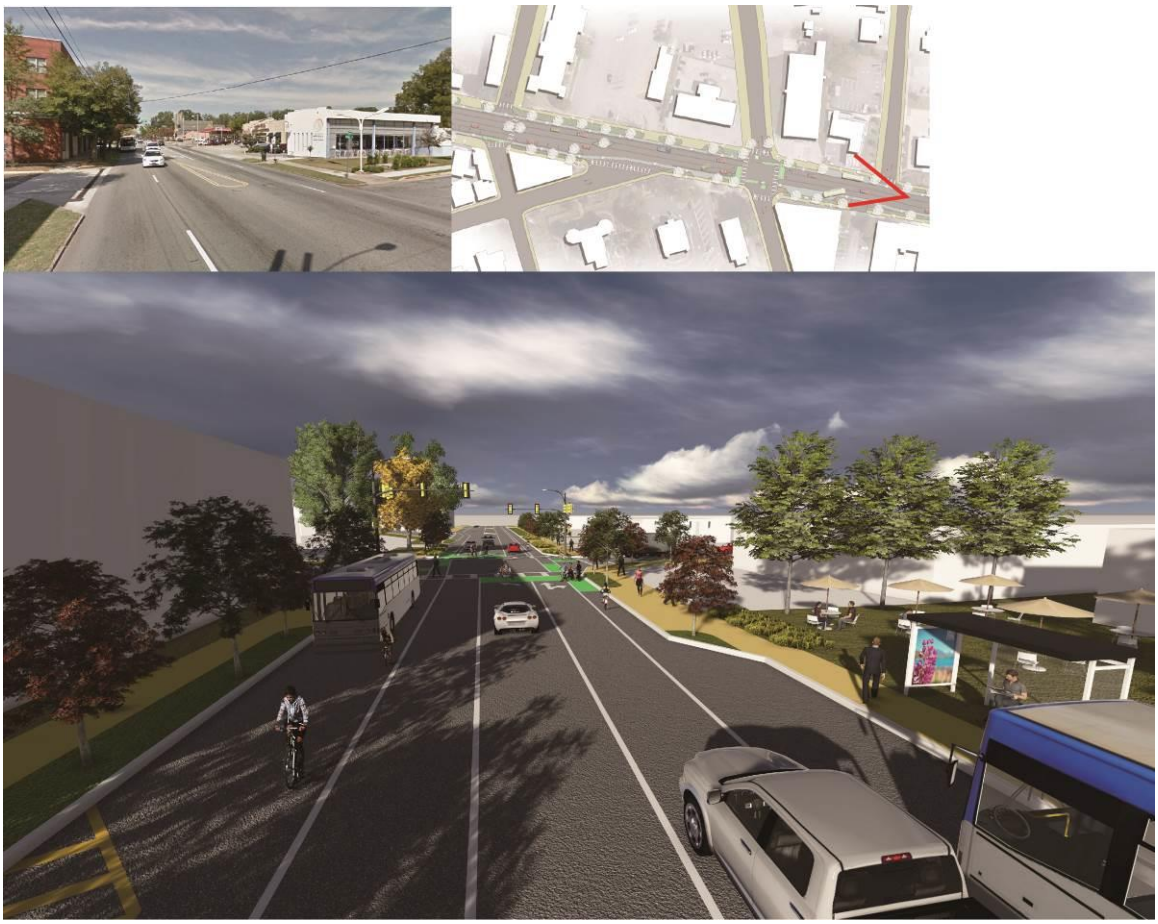


Figure 5.20 Compare with rendering

Figure 5.21 Compare with rendering

Figure 5.22 Rendering

Figure 5.23 Rendering

As what I did in the case studies, I also made a diagram to evaluate the potential of place-making on Prince Ave. created by inclusive transportation (Figure 5.24).

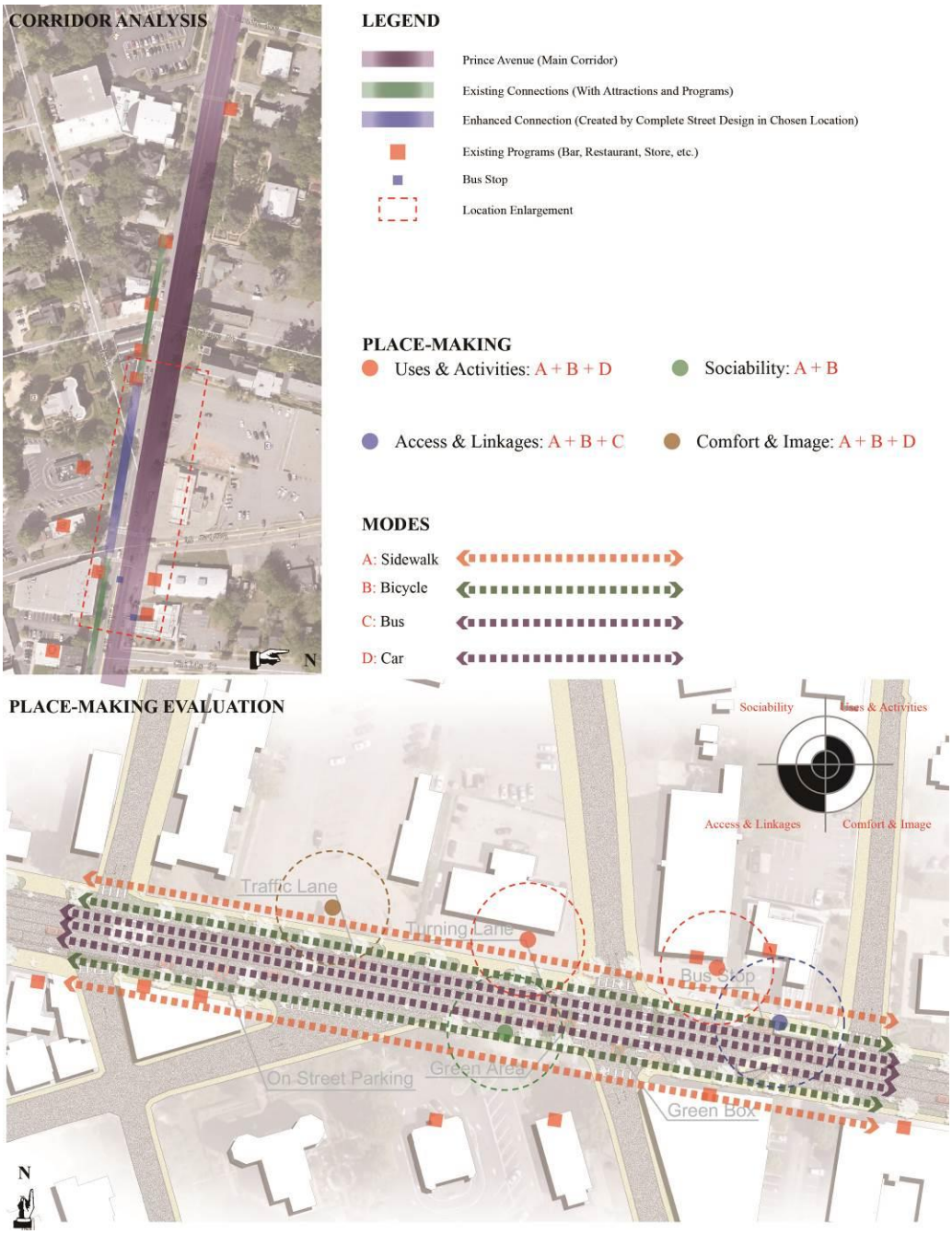


Figure 5.24 Corridor and place-making evaluation diagram

From the diagram, we can tell that the south of the street already has many existing programs, while the most of the north part is only pavement. By including bike lanes and providing more verge and comfortable sidewalks, I try to connect the existing programs more tightly and provide more active and comfortable space for those programs. For the north part, the new bus stop will provide more opportunities for people to use the space, which will be the driving force for the place-making. Like what Kansas City did, if some temporary furniture or structures can be provided, the space will be really attractive.

5.5.3 Design Location # 3

The third location I choose is the intersection of Chase St. and Prince Ave., and part of the street of both sides of the intersection. From the master plan (Figure 5.25) and sections (Figure 5.26), the road has four traffic lanes, two bike lanes and two feet buffers. I made a rendering to compare the situation of the street before and after design (Figure 5.27, Figure 5.28).

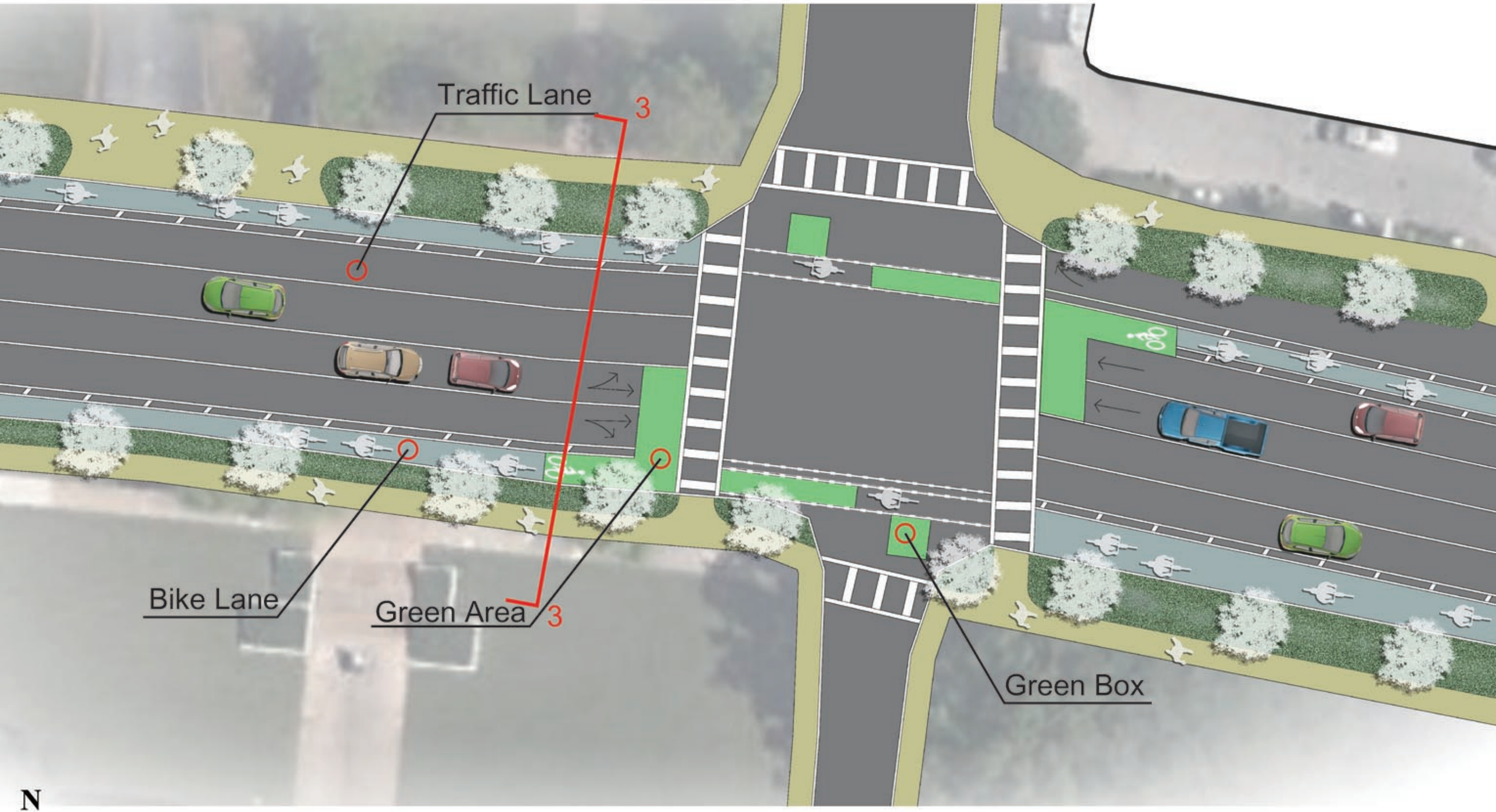


Figure 5.25 Master Plan

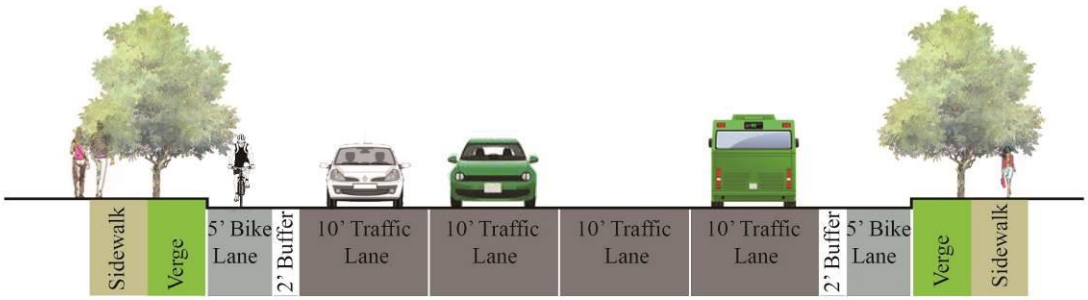


Figure 5.26 3-3

Figure 5.27 Compare with Rendering

Figure 5.28 Rendering

As what I did in the case studies, I also made a diagram to evaluate the potential of place-making on Prince Ave. created by inclusive transportation (Figure 5.29).

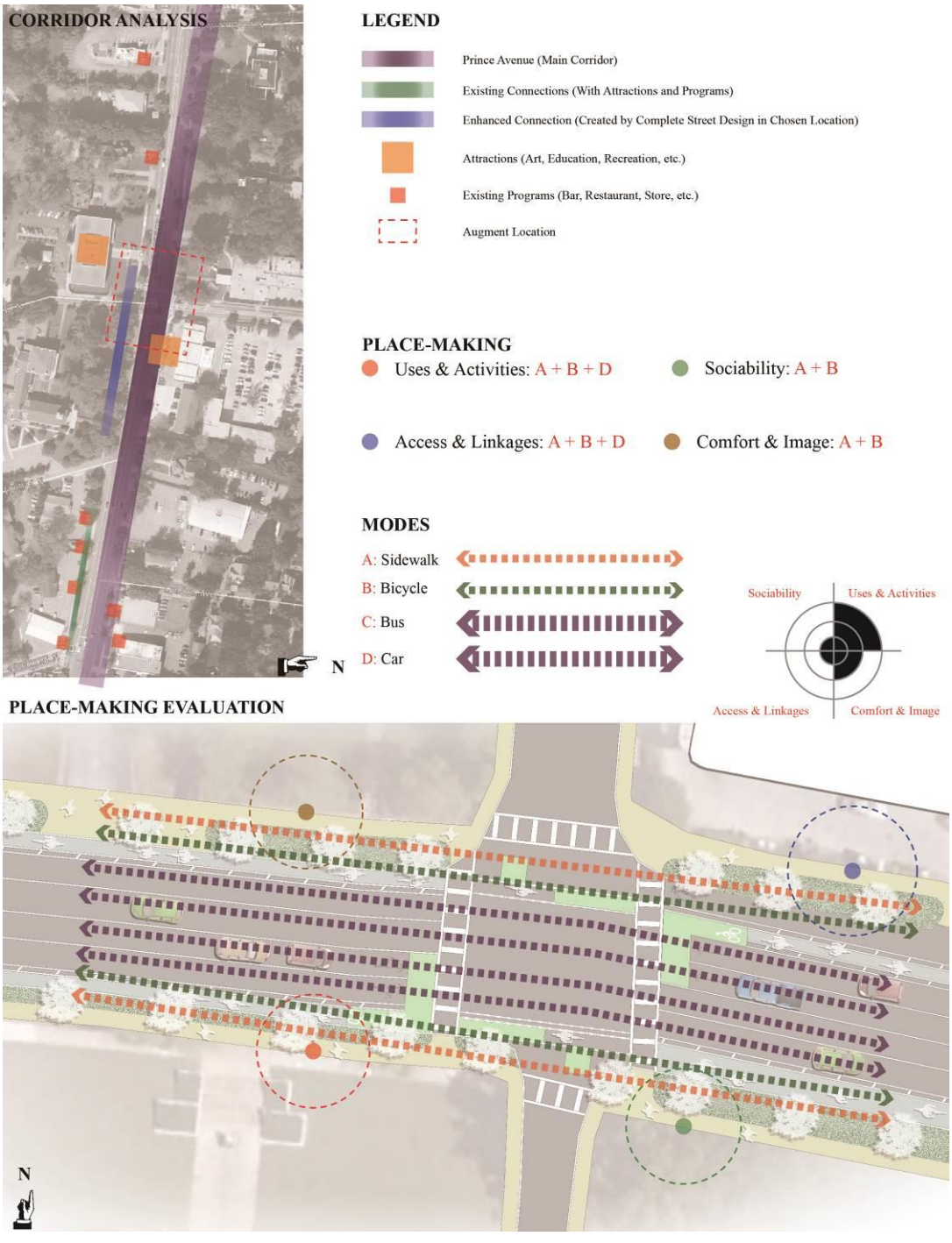
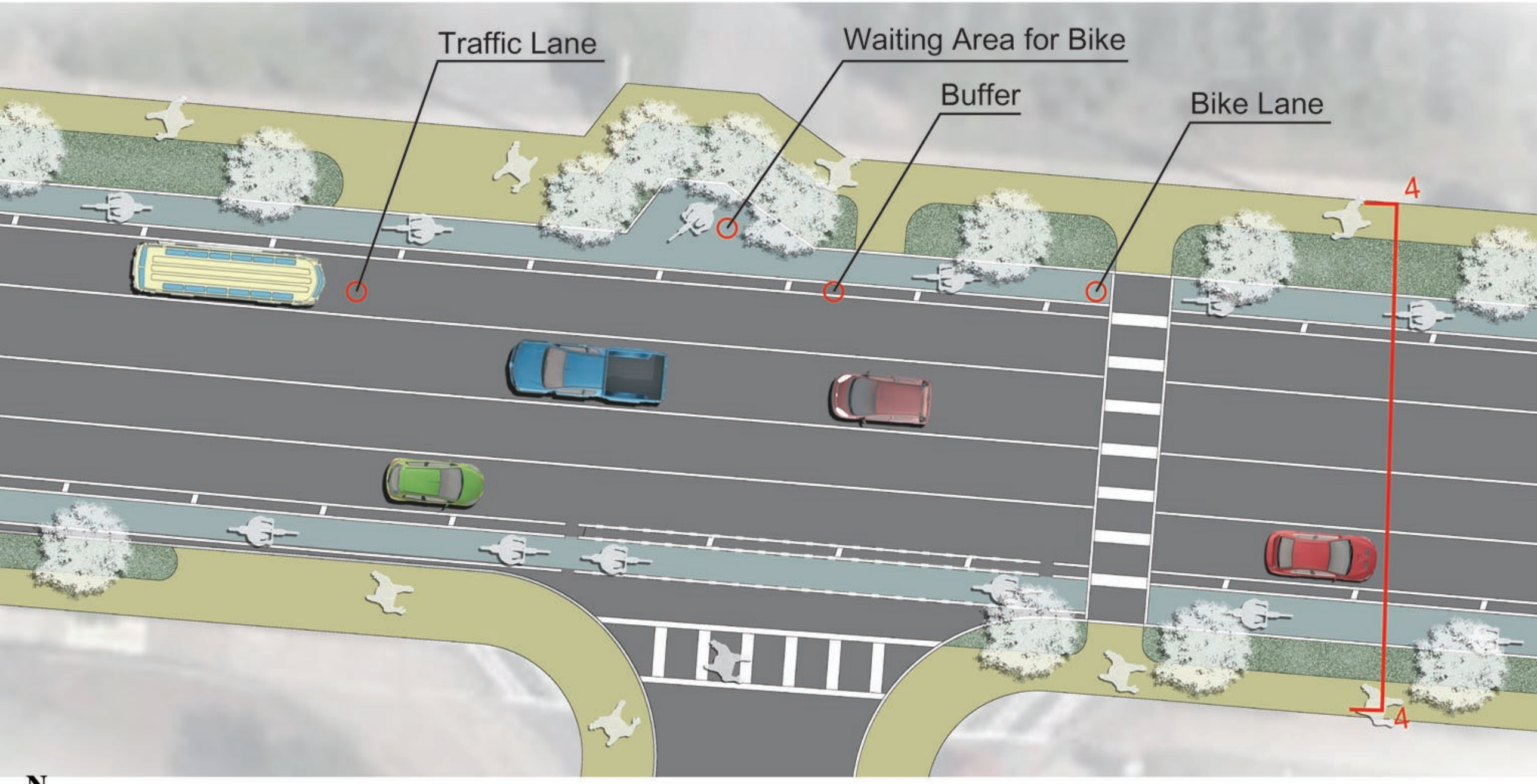


Figure 5.29 Corridor and place-making evaluation diagram

From the diagram, we can tell that there are many existing green spaces along the street, especially in front of Georgia Power. But no people are using them because they are just beside the traffic lane, which make the space really uncomfortable. Bike lanes and buffers can act as a separation between the traffic lane and the green spaces, which enhance the potential of the place-making in the site.

5.5.4 Design Location # 4

The fourth location I choose is the intersection of King Ave. and Prince Ave., and part of the street of both sides of the intersection. From the master plan (Figure 5.30) and sections (Figure 5.31), the road has four traffic lanes, two bike lanes and two foot buffers. The current situation of the intersection is very complicated because of the ambulance. I try to make it simple and clear. I made a rendering to compare the situation of the street before and after design (Figure 5.32, Figure 5.33).



N

Figure 5.30 Master Plan

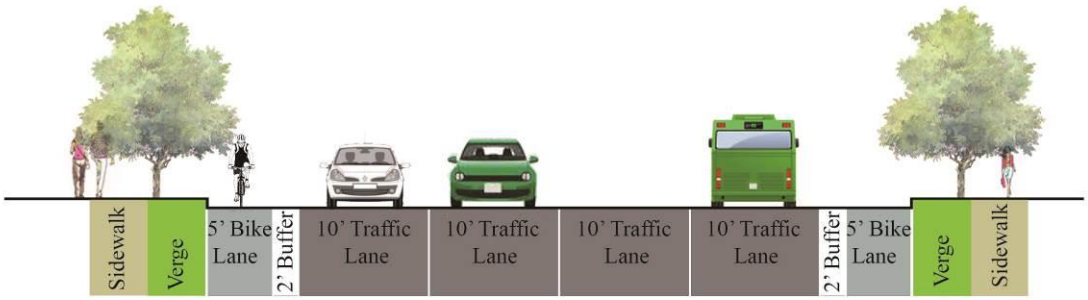


Figure 5.31 Section 4-4

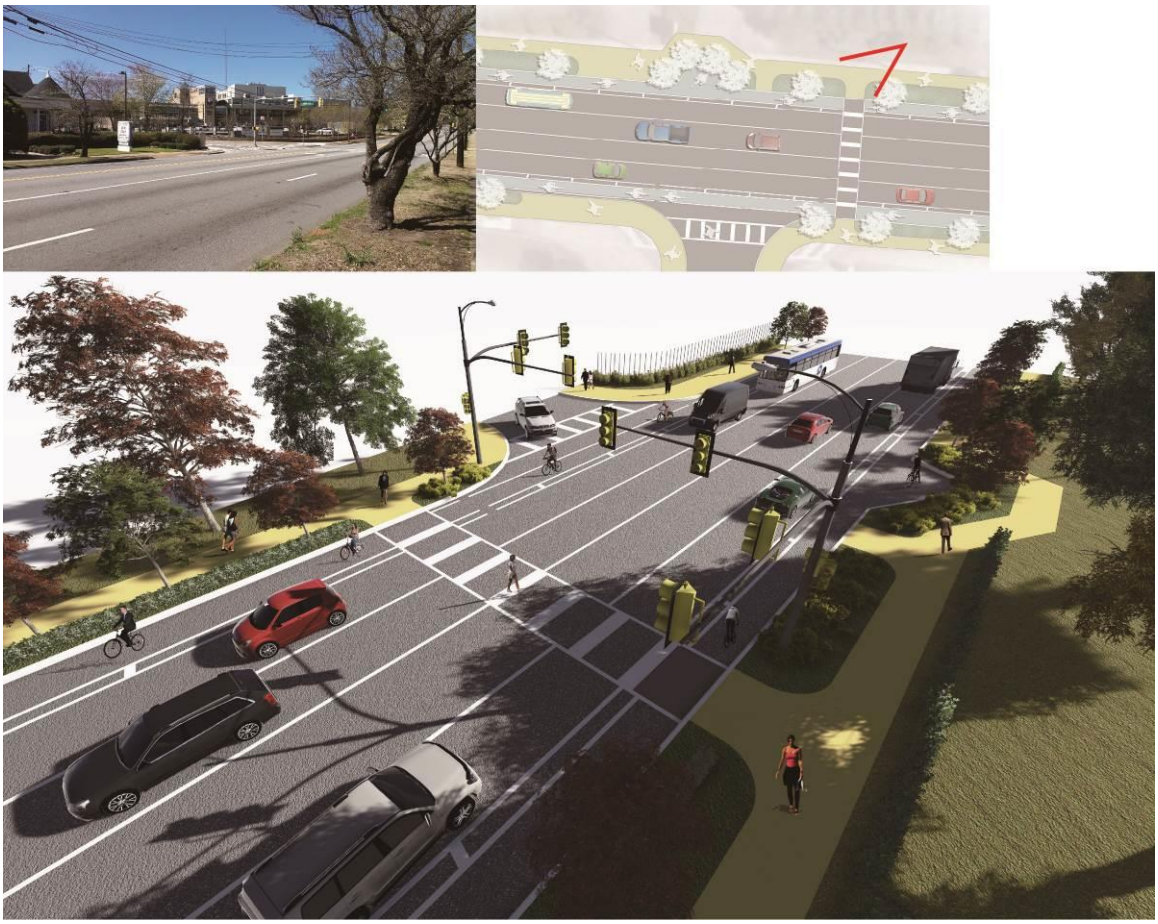


Figure 5.32 Compare with Rendering

Figure 5.33 Rendering

As what I did in the case studies, I also made a diagram to evaluate the potential of place-making on Prince Ave. created by inclusive transportation (Figure 5.34).

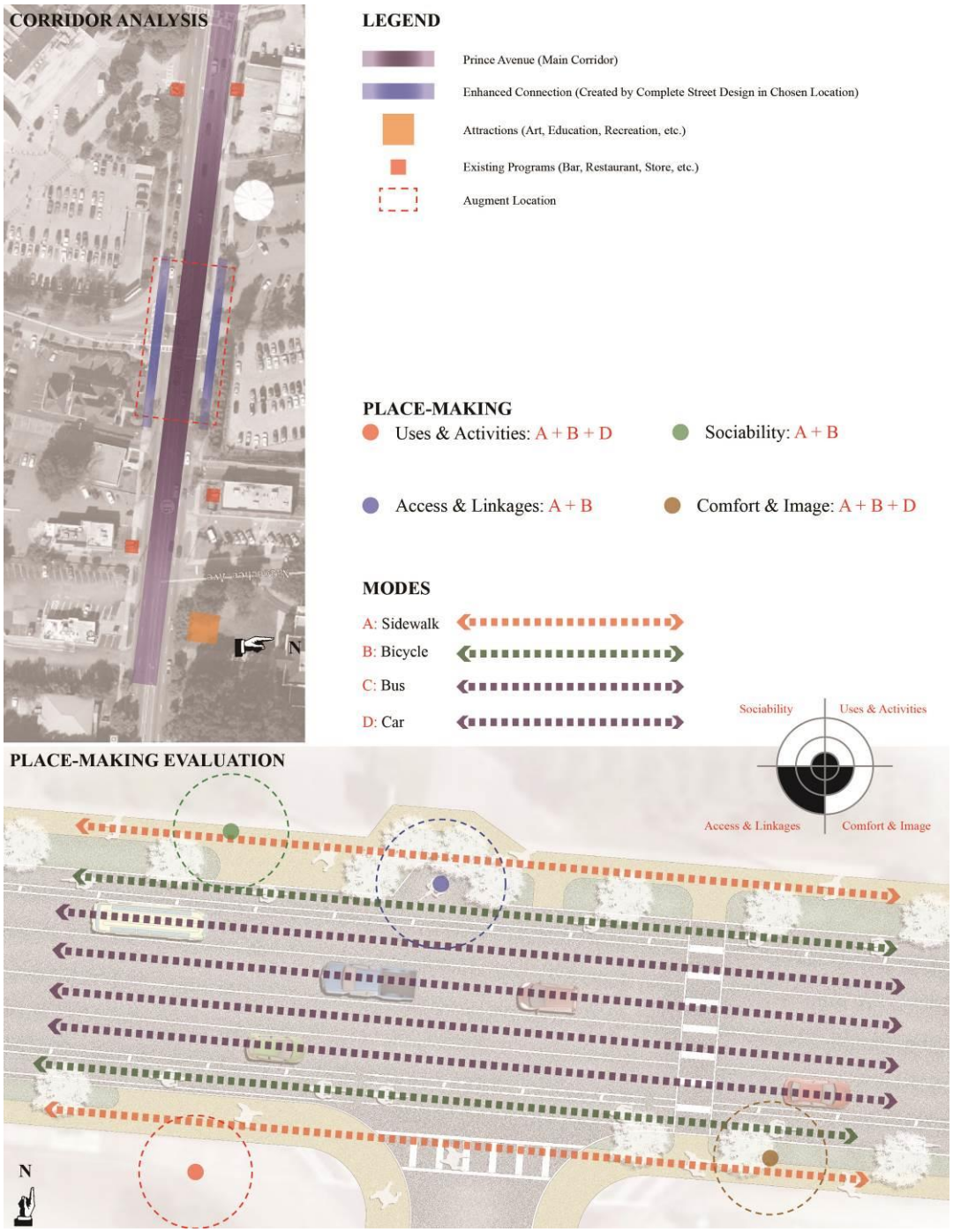


Figure 5.34 Corridor and place-making evaluation diagram

From the diagram, we can tell that by getting rid of those two existing refuge islands, the intersection become clearer. And the distance of the crosswalk also becomes shorter, which makes it more comfortable for people to walk through. The little space created for the bike to wait for turning creates more opportunities for the interaction of people walking and biking.

5.5.5 Design Location # 5

The fifth location I choose is the intersection of Park Ave. and Prince Ave., and part of the street between Park Ave. and Oglethorpe Ave. From the master plan (Figure 5.35) and sections (Figure 5.36), the road has four traffic lanes, two bike lanes and two feet buffers. There is also a median in the middle of the street. Because this section of the street has enough space, I put on-street parking and angular parking on the street. I made a rendering to compare the situation of the street before and after design (Figure 5.37, Figure 5.38, Figure 5.39, and Figure 5.40).

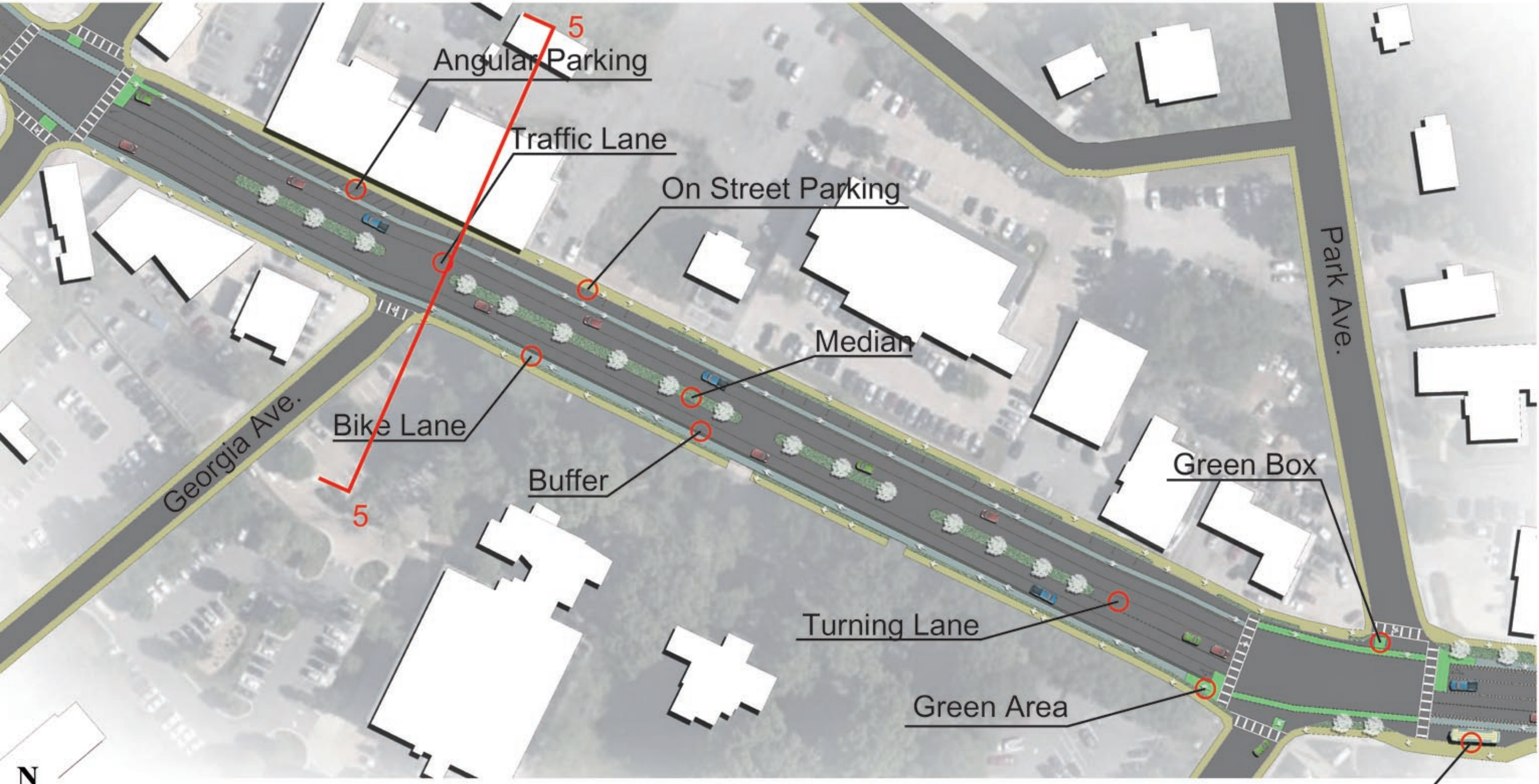


Figure 5.35 Master Plan

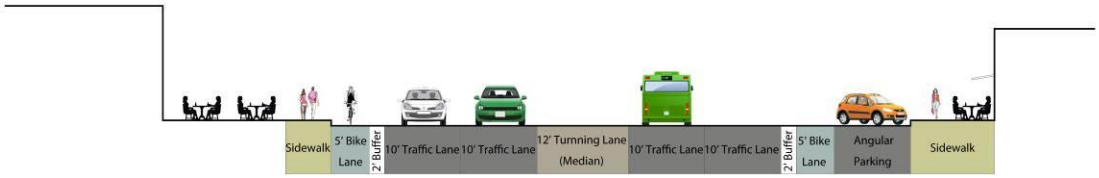


Figure 5.36 Section 5-5

Figure 5.37 Compare with Rendering

Figure 5.38 Compare with Rendering

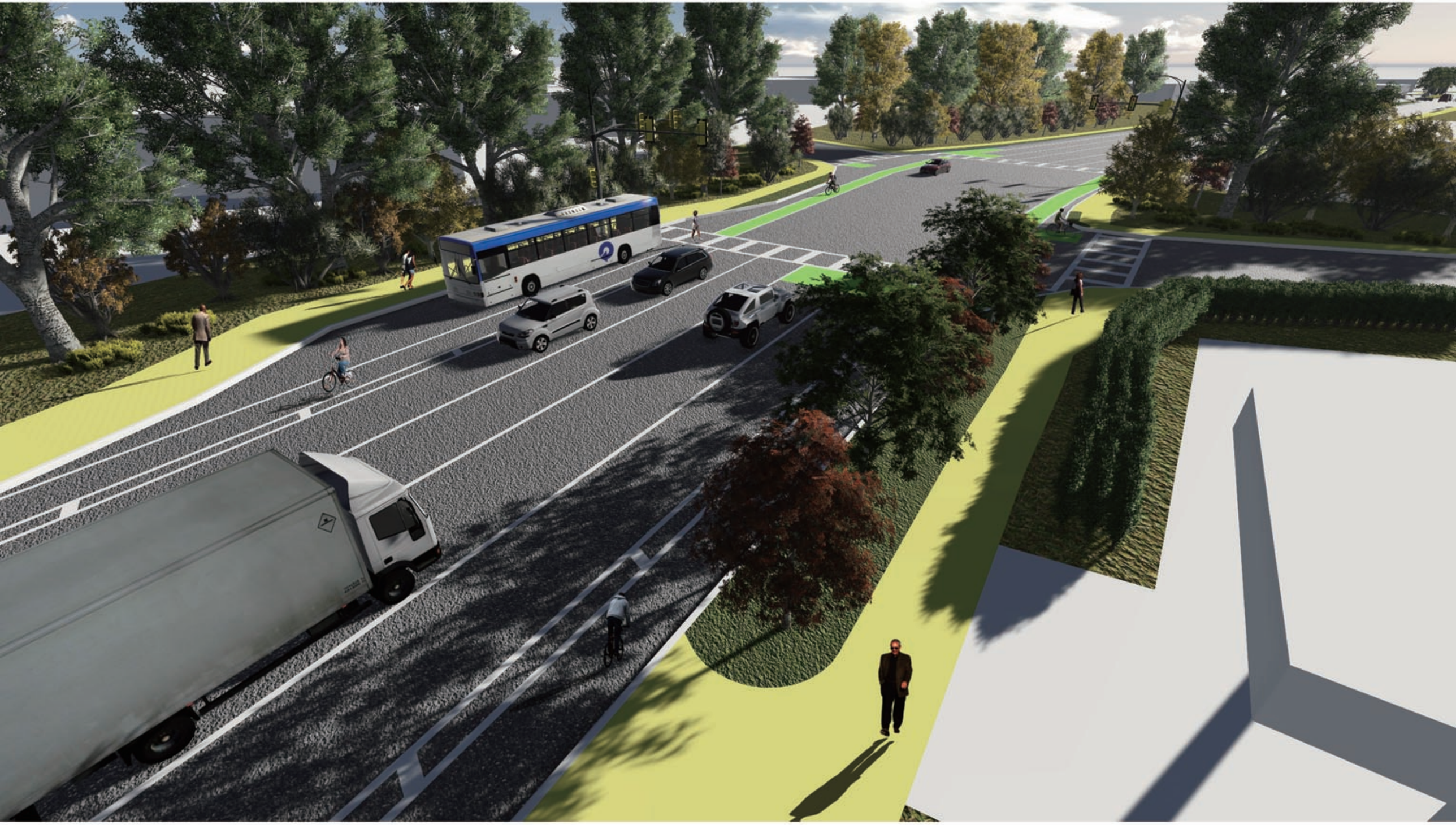


Figure 5.39 Rendering

Figure 5.40 Rendering

As what I did in the case studies, I also made a diagram to evaluate the potential of place-making on Prince Ave. created by inclusive transportation (Figure 5.41).

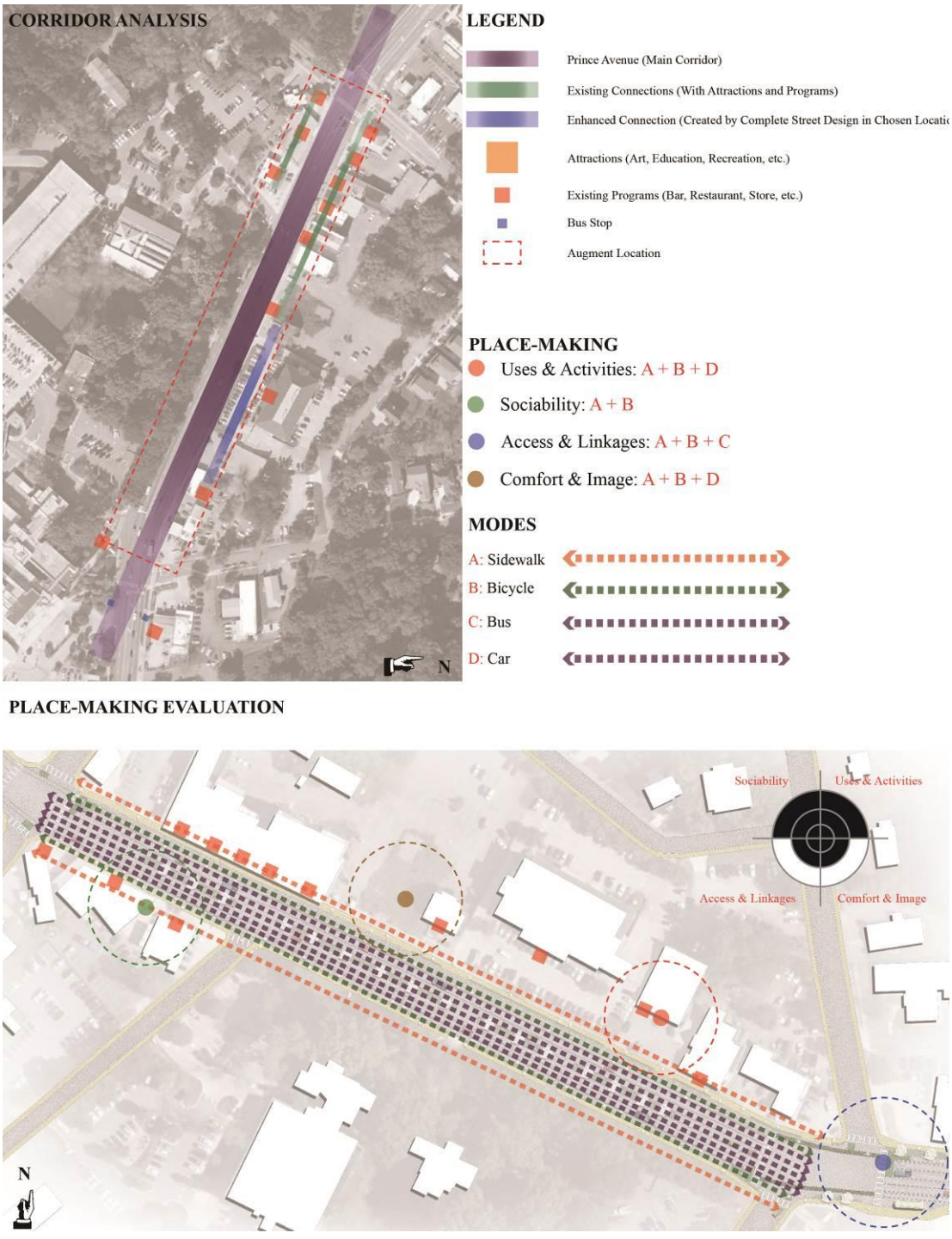


Figure 5.41 Corridor and place-making evaluation diagram

From the diagram, we can tell that this section of the street already has many programs; the problem is the sidewalks cannot provide enough space for those programs, especially when they are just beside the traffic lanes. By adding on-street parking and bike lanes, the sidewalks can be safer and more comfortable. They can also help to create the sense of place. At last I made a diagram to compare the potential of place-making before and after design (Figure 5.42).

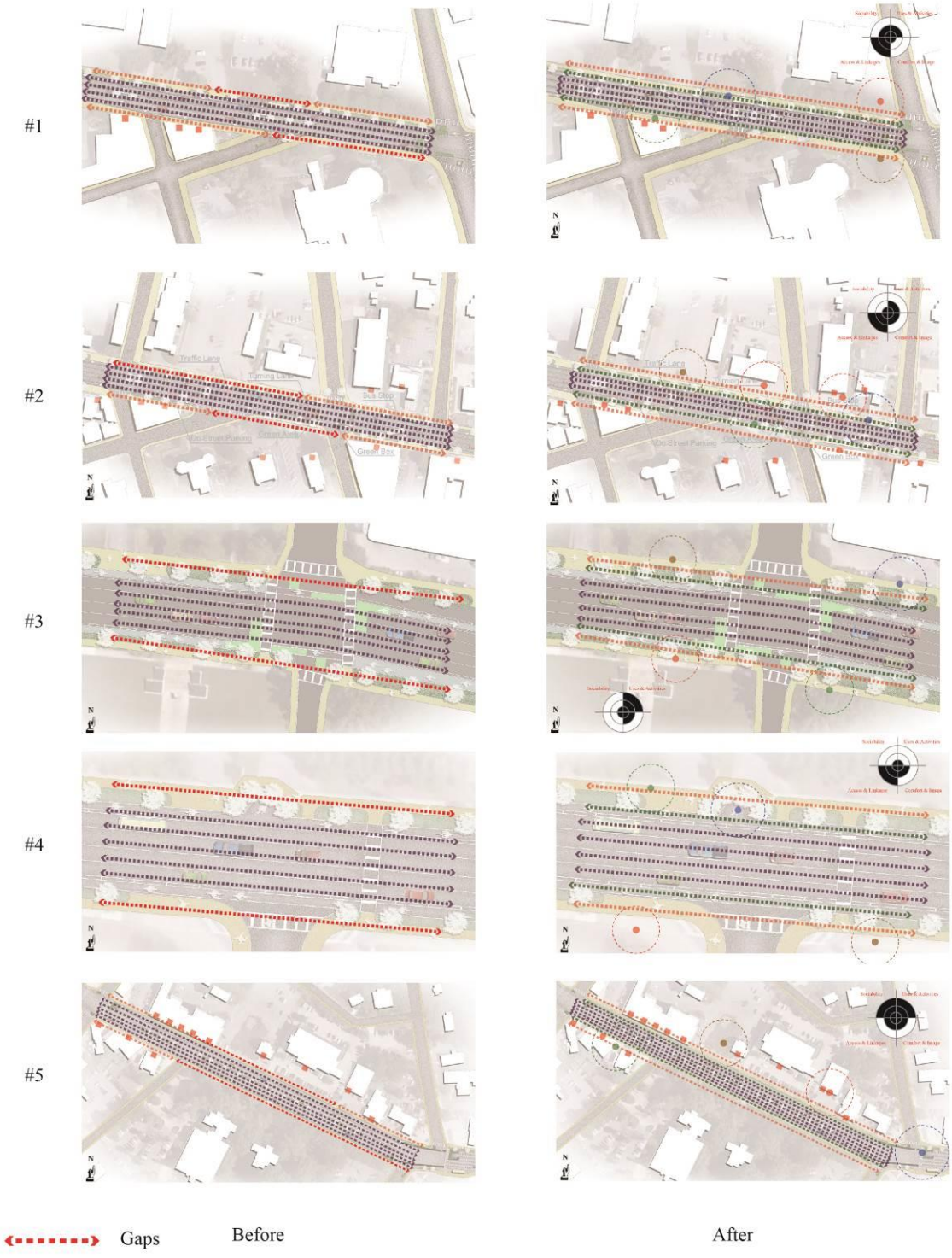


Figure 5.42 Compare diagram

CHAPTER 6

Discussion

6.1 Can inclusive transportation strategies offer opportunities for fostering pedestrian-oriented place-making in Athens?

As mentioned before, many people who live in Athens rely on walking, biking and public transportation. Now Athens obviously does not provide appropriate opportunities and conditions for those 50% people to have transport services. They have to share the very limited sidewalks and bike lanes with the fast automobiles. Sometime they even have to use the same lane with those automobiles. Pedestrian-oriented place-making is necessary for Athens. But how? We cannot throw a park or green space in the middle of Prince Ave. and ask people to use it. Even if people want to use it, they still do not have appropriate public transportation options for them to get there. If inclusive transportation strategies can be provided, and there are safe and comfortable sidewalks, and bike lanes, more people in Athens will spend more time outdoors and on the streets. Then more spaces can be provided for them to stay and rest. And these spaces can also act as special terminal for different transportation modes. Inclusive transportation provides a corridor for different transportation modes, while place-making fills the gaps between those modes. Then you can put programs into the system to activate the virtuous cycle. Inclusive transportation strategies does offer opportunities for fostering pedestrian-oriented place-making in Athens, but to keep the places playing the right role in the system, appropriate programs are

indispensable.

From a sociability perspective, inclusive transportation provides more opportunities for people to enjoy the street life. Bike lanes and buffers can separate the sidewalks from the traffic lanes perfectly. To some extent, inclusive transportation strategies enlarge the sidewalks and include more programs on the sidewalks. All these contributions create great opportunities and possibilities for place-making.

From an access & linkages perspective, inclusive transportation connects or combines different transportation modes efficiently. The new bus bay provides more comfortable space for people to get on the buses, and at the same time, enhances the efficiency of the transportation by keeping the continuity of the traffic lanes. The bike waiting areas and bus bays provide great opportunities for interaction with pedestrian activities.

From a uses & activities perspective, inclusive transportation acts as a driving force which promotes the integration of existing attractions and programs. The better sidewalk environment also encourages the development of local business. All these programs and local business create an interesting and attractive vision which will help the community become more vibrant and special.

From a comfort & image perspective, inclusive transportation provides more transportation alternatives for people to use. By reducing the car usages, inclusive transportation helps to increase the sustainability of the streets. Inclusive transportation also makes the street safer which is a basic condition for place-making.

6.2 How does Athens get support for the project and how does it implement it?

I think Athens can get support from three resources. The first one is the

government, including financial support and policy support. ACC and GDOT can provide technical support and help with the public feedback. Like what Eugene did, Athens needs its own evaluation criteria and scores. CAPPA, ACC and GDOT can play an important role to collect all the information and data, then try to make the criteria and score categories. The second one is the community and volunteers, which are essential for the implementation of inclusive transportation and place-making. Their anticipation must be encouraged. All the feedback should be analyzed carefully. The third one is the University of Georgia (UGA), which has a lot of academic and social resources.

The implementation of inclusive transportation and place-making in Athens should be achieved by phasing. Athens has very limited resources and it is impossible for Athens to implement the whole inclusive transportation system at once. Phasing can help Athens to complete the goal with fewer resources step by step. Athens has existing rail system, which should be considered for re-development later. For now, Athens cannot support a passenger used rail system. BRT should come first in Athens. It is also very important to consider the special situations of Athens, such as game day issues.

6.3 What other locations might inclusive transportation strategies be used in Athens?

I think those main corridors should develop inclusive transportation strategies first. Baxter St., which is another main corridor running west to east of Athens, needs a road diet first. Many people go across Baxter St. while there are not enough crosswalks on the street. So a road diet and more crosswalks with refuge islands should be considered first, then bike lanes and other new transportation modes can be

added later. Lumpkin St. is a north to south corridor of Athens. There are many people biking on Lumpkin St. while the existing bike lane is not safe and comfortable. So Lumpkin St. is also an appropriate site for the development of inclusive transportation strategies. Broad St. (US 78) is another west to east corridor of Athens, and the situation on Broad St. is more complicated than other streets, which means Broad St. has more possibilities and opportunities for the development of inclusive transportation strategies.

6.4 How can inclusive transportation strategies support place-making in other locations which with limited resources?

I think the question can be answered from four perspectives, which are sociability, access & linkages, uses & activities, and comfort & image.

From a sociability perspective, inclusive transportation can provide equal opportunities for all kinds of users to have accessibilities to different transport services. Different transportation modes can attract various users, and the interaction of these users provides great opportunities for place-making. By adding on-street furniture and lighting, inclusive transportation can promote better street life which is essential for the social networks of place-making.

From an access & linkages perspective, inclusive transportation can enhance the continuity of different transportation modes on the same corridor. Complete Streets can also create conditions for parking and pedestrian activity. No matter from a practical or economical perspective, it is always better to build a mixed-use port for different transportation modes in the inclusive transportation system. Then the port will be a great foundation for the place-making.

From a uses & activities perspective, except promoting local business and programs, inclusive transportation can also act as a driving force for the development of land-use patterns. Just like the Pioneer Courthouse Square in Portland, a big parking lot can become a successful place if inclusive transportation can be introduced appropriately. Property values, rent levels and retail sales will follow the development of land-use patterns.

From a comfort & image perspective, by making the street greener and safer, inclusive transportation can make the street more walkable and attractive. The crime rate will be lower and the building conditions along the street will be enhanced.

CHAPTER 7

Conclusion

This thesis mainly focuses on the integration of inclusive transportation and place-making. By researching the definitions of both concepts, I try to include the key elements of inclusive transportation and place-making. Through researching these two concepts' definitions, strategies, and connections, I created new criteria for integrating these three concepts in the design of places, especially in cities with limited transportation options such as Athens. Generally speaking, inclusive transportation can promote place-making from four perspectives: sociability, uses & activities, access & linkages, and comfort & image. To apply the research to Athens, I studied six urban case study locations, which range from having very little inclusive transportation to having in-depth inclusive transportation. By comparing the key challenges of the case studies and Athens, I finally concluded the lessons learned and used them to guide my designs for Prince Avenue. The design applications mainly focused on how to help Athens implement inclusive transportation and evaluate the potentials of place-making which is fostered and supported by the inclusive transportation strategies.

At the very beginning I was trying to design the places and inclusive transportation at the same time for Athens. Then I found that if I did that, there will be a huge change of the surroundings and existing buildings. Considering the limited resources and financial support Athens has, it is impossible for me to design both the place and also inclusive transportation Athens currently. Instead, I focused on the

development of inclusive transportation in Athens, while keeping the place-making in my mind during the whole process of my designs. In my design, I always tried to find and evaluate conditions for future place-making which were created by inclusive transportation. After the design, I was taught that sometimes the simpler is better.

After all the research and designs, I believe that Transportation Oriented Development (TOD) is just a transition period of urban development. The future of the urban development should be Place-making Oriented Development (POD), which can be promoted be inclusive transportation development or TOD. For now, place-making acts as a complement of the development of transportation, it is constrained and limited by transportation. My design is trying to consider place-making during the process of transportation development. In the future, the whole urban area should be considered a huge "place," and the development of transportation should be part of place-making. At last, the virtuous circle will be created which means inclusive transportation and place-making will promote each other spontaneously and healthily.

BIBLIOGRAPHY

Atlanta Beltline, "Atlanta Beltline Preferred Transit and Trail Alternative Map," Atlanta Beltline, http://www.itsmarta.com/uploadedFiles/About_MARTA/Planning/Beltline_Corr/Study%20Update%206_FINAL_31Oct12.pdf

Atlanta Beltline, "Details on Ponce de Leon Avenue Improvement Projects," Atlanta Beltline, https://beltline.org/2013/02/26/details-on-ponce-de-leon-avenue-improvement-projects/

Atlanta Streetcar, "Route Map," Atlanta Streetcar, http://streetcar.atlantaga.gov/

Athens-Clarke County. 2012. *Athens-Clarke County Corridor Study.* Athens: Athens-Clarke County.

Athens Transit, "Athens Transit System Transit Development Plan," Athens Transit, http://www.bikeathens.com/issues/2005/2005_10TDP_2005-2010.pdf

Better Block KC, "Better Block KC," Better Block KC, http://betterblockkc.tumblr.com/

Boulevard Neighborhood Association, "CAPPA Presentation," Boulevard Neighborhood Association, http://www.historicboulevard.org/information/cappa/slidepresentation/index.htm

Capital Metro, "Austin System Map," Capital Metro, https://www.capmetro.org/uploadedfiles/Capmetroorg/Schedules_and_Maps/System_Map.pdf

City of Boulder, "Bus Fares, Maps, Routes & Schedules," City of Boulder, https://bouldercolorado.gov/goboulder/bus-fares-maps-routes-and-schedules

City of Boulder, "Map of Bike & Pedestrian Routes," City of Boulder, https://www-static.bouldercolorado.gov/docs/current-bike-pedestrian-map-1-201309051102.pdf

Clifton, Kelly. and Bronstein, Sarah. and Morrissey, Sara. 2013. *The Path to Complete Streets in Underserved Communities.* Portland: Portland State University.

Conor, Dougherty. 2009. 'Youth Magnet' Cities Hit Midlife Crisis. *The Wall Street Journal.* http://online.wsj.com/news/articles/SB124242099361525009

Dallas City Hall. 1990. *Dallas Development Code.* Dallas: Dallas City Hall.

Department of Finance of Boulder. 2012. *City of Boulder Comprehensive Annual Financial Report.* Department of Finance of Boulder.
Eugene Finance Division. 2012. *City of Eugene, Oregon Comprehensive Annual Financial Report.* Eugene: Eugene Finance Division.

Eugene, OR, "South Willamette Street Improvement Plan," Eugene, OR, https://www.eugene-or.gov/SWillametteStreet

Financial Services Department of Austin. 2012. *City of Austin, Texas Comprehensive Annual Financial Report.* Austin: Financial Services Department of Austin.

Find the Best, "How many people ride a bike to work in Atlanta," Find the Best, http://transportation-modes-city.findthebest.com/q/657/2041/How-many-people-ride-a-bike-to-work-in-Atlanta-Georgia

Find the Best, "How many people ride a bike to work in Boulder," Find the Best, http://transportation-modes-city.findthebest.com/q/429/2041/How-many-people-ride-a-bike-to-work-in-Boulder-Colorado

Find the Best, "How many people ride a bike to work in Eugene," Find the Best, http://transportation-modes-city.findthebest.com/q/1641/2041/How-many-people-ride-a-bike-to-work-in-Eugene-Oregon

Find the Best, "How many people ride a bike to work in Kansas City," Find the Best, http://transportation-modes-city.findthebest.com/q/915/2041/How-many-people-ride-a-bike-to-work-in-Kansas-City-Kansas

Find the Best, "How many people ride a bike to work in Portland," Find the Best, http://transportation-modes-city.findthebest.com/q/1655/2041/How-many-people-ride-a-bike-to-work-in-Portland-Oregon

Find the Best, "How many people use public transportation to commute in Austin," Find the Best, http://transportation-modes-city.findthebest.com/q/1774/1033/How-many-people-use-public-transportation-to-commute-in-Austin-Texas

Forbes, "Best and Worst Cities for Commuters," Forbes, http://www.forbes.com/2008/04/24/cities-commute-fuel-forbeslife-cx_mw_0424realestate.html

Francis, Mark. 2001. A Case Study Method for Landscape Architecture. *Landscape Journal* 20 (1): 15-29

GDOT, "Georgia's State Traffic and Report Statistics," GDOT, http://www.dot.ga.gov/informationcenter/statistics/stars/Pages/default.aspx

Jacobs, Jane. 1992. *The Death and Life of Great American Cities.* New York: Random House LLC.

Kansas City Finance Department. 2013. *City of Kansas City, MO. Comprehensive Annual Financial Report.* Kansas City: Kansas City Finance Department.

Kasim Reed. and J. Anthony Beard. 2013. *The City of Atlanta, Georgia Comprehensive Annual Financial Report.* Atlanta: Financial Office.

KCATA, "Downtown System," KCATA, http://www.kcata.org/documents/uploads/DowntownSystem.pdf

KCATA, "Troost Max," KCATA, http://www.kcata.org/documents/routes/maps/MaxTroostmwk.gif

KC Downtown Streetcar, "State of the Project," KC Downtown Streetcar, http://www.kcstreetcar.org/

LTD, "System Map," LTD, https://www.ltd.org/pdf/routes/interactive%20system%20map.pdf

Manzo, Lynne C., and Patrick Devine-Wright. 2013. *Place Attachment: Advances in Theory, Methods and Applications.* New York: Routledge.

MARTA, "System Map," MARTA, http://www.itsmarta.com/system-map.aspx

McCann, Barbara. 2013. *Completing Our Streets: The Transition to Safe and Inclusive Transportation Networks.* Washington: Island Press.

Merriam-Webster, "Definition of place," Merriam-Webster, http://www.merriam-webster.com/dictionary/place

NACTO. 2012. *Urban Street Design Guide.* New York: NACTO.

Office of Management and Finance of Portland. 2013. *The City of Portland, Oregon Comprehensive Annual Financial Report.* Portland: Office of Management and Finance of Portland.

Pioneer Courthouse Square, "Visitor Information," Pioneer Courthouse Square, http://thesquarepdx.org/design_features.htm

Project for Public Spaces, "Eleven Principles for Creating Great Community Places," Project for Public Spaces, http://www.pps.org/reference/11steps/

Project for Public Spaces, “It takes a place to create a community, and a community to create a place,” Project for Public Spaces, http://www.pps.org/reference/what_is_placemaking/

Project for Public Spaces, “Key Principles of Place-making,” Project for Public Spaces, http://www.pps.org/reference/what_is_placemaking/

Project for Public Spaces, “What if we built our communities around places,” Project for Public Spaces, http://www.pps.org/reference/what_is_placemaking/

Project for Public Spaces, “What is Place-making,” Project for Public Spaces, http://www.pps.org/reference/what_is_placemaking/

RTD, “Northwest Rail Line Home,” RTD, http://www.rtd-fastracks.com/nw_1

RTD, “US 36 Bus Rapid Transit Project Home,” RTD, http://www.rtd-fastracks.com/us36_1

Speck, Jeff. 2013. *Walkable City: How Downtown Can Save America, One Step at a Time.* New York: Macmillan.

The City of Portland, “Portland Pedestrian Master Plan,” The City of Portland, http://www.portlandoregon.gov/transportation/article/90244

Tri-Met, “Portland City Center Map,” Tri-Met, http://trimet.org/maps/citycenter.htm

Tri-Met, “Rail System Map,” Tri-Met, http://trimet.org/maps/railsystem.htm

Tri-Met, “System Map,” Tri-Met, http://ride.trimet.org/?tool=routes#/

Tuan, Yi-Fu. 1977. *Space and Place: The Perspective of Experience.* Minneapolis: Univ of Minnesota Press.

UNESCAP. 2013. Promoting Sustainable Transport for Inclusive Development. In *Transport Review 2013,* 84-108. Bangkok: UNESCAP.

University of Georgia, “UGA by numbers,” University of Georgia, https://www.uga.edu/profile/facts/

University of Oklahoma, “2013 Place-making Conference,” University of Oklahoma, http://iqc.ou.edu/conference/

U.S. Census Bureau, “Athens-Clarke County (balance) QuickFacts,” U.S. Census Bureau, http://quickfacts.census.gov/qfd/states/13/1303440.html

U.S. Census Bureau, “Atlanta (City) QuickFacts,” U.S. Census Bureau, http://quickfacts.census.gov/qfd/states/13/1304000.html

U.S. Census Bureau, “Austin (City) QuickFacts,” U.S. Census Bureau, http://quickfacts.census.gov/qfd/states/48/4805000.html

U.S. Census Bureau, “Boulder (City) QuickFacts,” U.S. Census Bureau, http://quickfacts.census.gov/qfd/states/08/0807850.html

U.S. Census Bureau, “Eugene (city) QuickFacts,” U.S. Census Bureau, http://quickfacts.census.gov/qfd/states/41/4123850.html

U.S. Census Bureau, “Kansas City (City) QuickFacts,” U.S. Census Bureau, http://quickfacts.census.gov/qfd/states/20/2036000.html

U.S. Census Bureau, “Portland (City) QuickFacts,” U.S. Census Bureau, http://quickfacts.census.gov/qfd/states/41/4159000.html

Whyte Jr, William H. 1961. *Securing open spaces for urban America: Conservation easements.* Soil Science 92 (2): 153.