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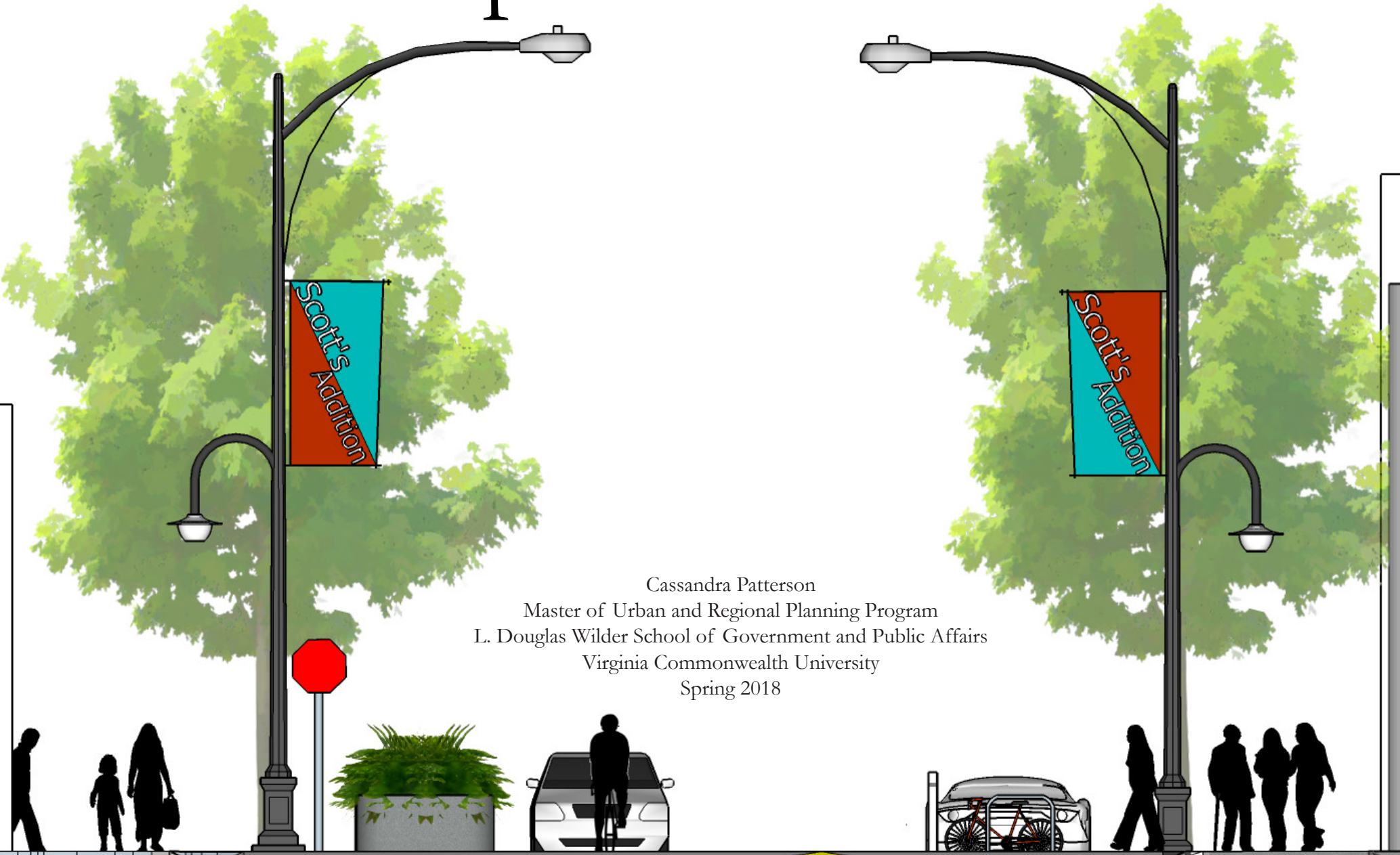
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The Scott's Addition Complete Streets Plan



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Spring 2018

The Scott's Addition Complete Streets Plan

Prepared For

Bike Walk RVA

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Dr. Shriar	Mr. Selleck

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Executive Summary

The Scott's Addition Complete Streets Plan was prepared for Bike Walk RVA. This plan fulfills the requirements of the Master of Urban & Regional Planning program in the L. Douglas Wilder School of Government and Public Affairs at VCU.

Scott's Addition was once an industrial neighborhood. In recent years, however, the neighborhood has experienced a rapid transition of uses. It has become a growing residential and commercial neighborhood that features numerous breweries as its most popular attractions. Regrettably, the streets and sidewalks of the neighborhood have not seen a transition and still reflect the industrial uses of the past. The neighborhood is virtually devoid of bicycle infrastructure. The pedestrian infrastructure is incomplete and unsafe. The neighborhood is car-centric with little effort to provide for other modes of transportation. As new apartment buildings enter the neighborhood, the transportation issues facing Scott's Addition are expected to worsen.

The purpose of this plan is to provide Scott's Addition with a set of recommendations for Complete Streets additions to service multiple modes of transportation and address foreseeable problems. A survey conducted during the preparation of the plan revealed that a majority of responders accessed Scott's Addition via personal car. There was a significant group of responders, however, that cycle or walk in spite of the missing infrastructure. Furthermore, the survey revealed that the majority of responders would be inclined to bike into the neighborhood if proper infrastructure was implemented.

Aside from the weaknesses the neighborhood currently faces, there are many strengths that can aid the implementation of Complete Streets. The neighborhood has a growing young professional population, which could strengthen the need and call for active transportation infrastructure and a more livable environment. The City of Richmond is also showing an initiative to increase multi-modal transportation, with the development of new plans that have a focus on developing multi-modal infrastructure and policy. The city seems to be motivated to change and become a more sustainable and progressive city.

The final recommendations were formed by referencing the stakeholder outreach, best practices, and precedent plans. The recommendations strive to improve the pedestrian environment, increase bicycle infrastructure, create a safer and more efficient vehicle thoroughfare, and develop a more livable neighborhood.

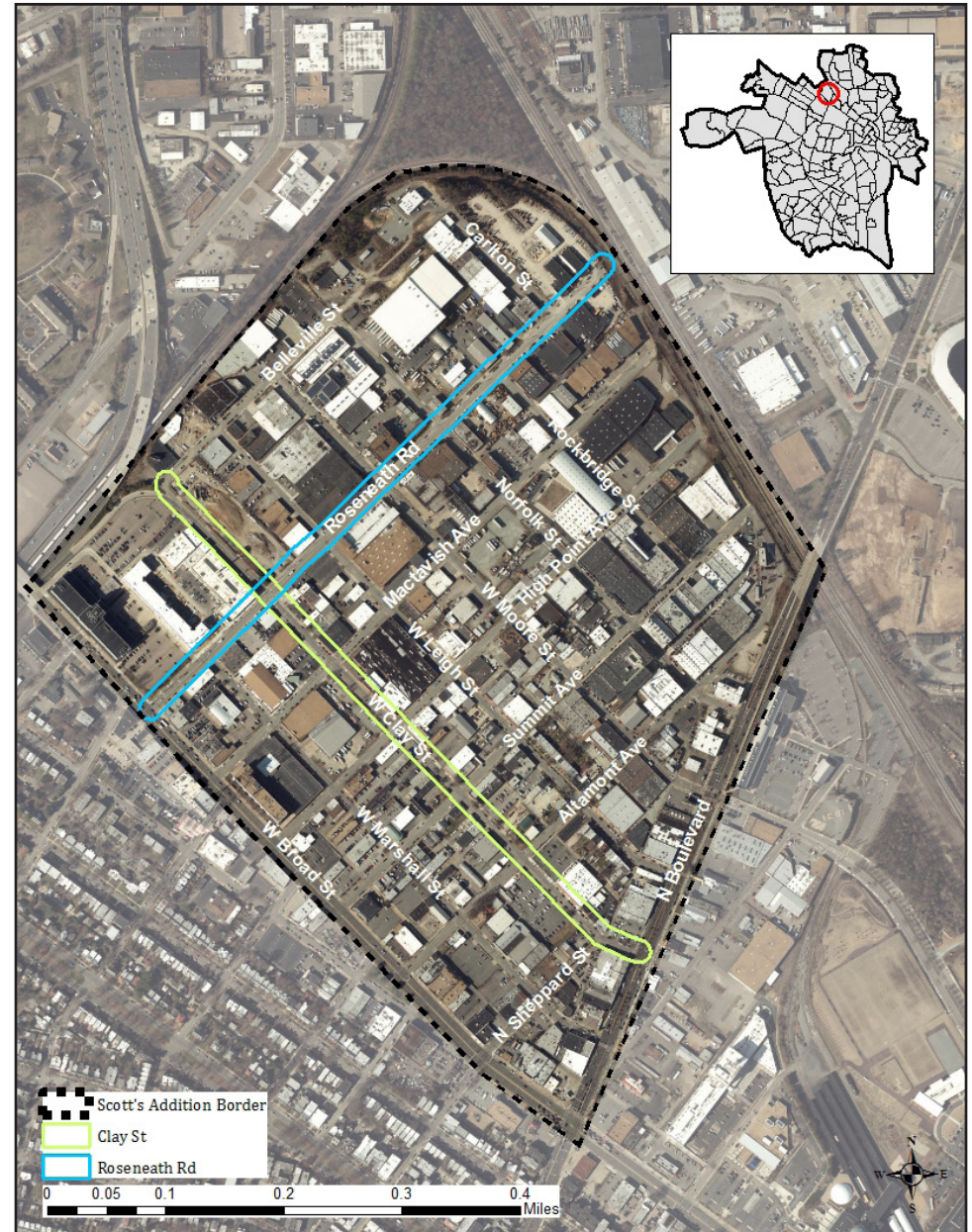
INTRODUCTION

Plan Purpose

The purpose of the Scott's Addition Complete Streets Plan is to form recommendations for the development of Complete Streets within Scott's Addition. "Complete Streets" are defined as streets "designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities."¹ Designing and incorporating Complete Streets is a method many cities across the US and the world are using to increase livable and active streets. The City of Richmond is also starting to look for new methods to prioritize active transportation in order to decrease the dependence on cars and increase accessibility for all transportation modes. Some of the methods can be found in the city's Bike Master Plan, the Richmond Connects Plan, and the Pulse Corridor Plan. The City of Richmond is also working to make biking and walking safer through the development of the Safe & Healthy Streets Commission, which is drafting the Richmond Vision Zero Action Plan. Vision Zero is a "strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all."² The Scott's Addition Complete Streets plan will promote the ideals of Vision Zero to support the goals of a safer city for all modes of transportation.

With the possible addition of wide sidewalks, dedicated bike lanes, and traffic calming methods put in place, the new Complete Streets Plan will allow for safe access to local amenities through active transportation, which has not always been a safe option in Scott's Addition. The Complete Streets Plan will form a sense of place for the neighborhood by improving street features and access to the neighborhood amenities. The addition of Complete Streets can also benefit the neighborhood economically. Smart Growth America has gathered findings on how Complete Streets relate to economic gains and found that Complete Streets can increase property values and employment. Complete Streets can financially benefit a neighborhood by decreasing the cost of collisions. Smart Growth American found that the "safer conditions created by Complete Streets projects avoided a total of \$18.1 million in collision and injury costs in one year alone."³ However, these benefits may not have as much an impact in Scott's Addition due to the neighborhood's size and already increasing property values. The Complete Streets could still have economic benefits by updating the streets to be more attractive and welcoming to visitors and potential new residents.

Figure 1: Scott's Addition Complete Street Plan Study Area and Streets



Source: City of Richmond GIS
ESRI 2011. ArcGIS Desktop. Release 10.5.1.
Redlands, CA. Environmental Systems Research
Institute



Client Description

As shown in Figure 1, the plan will focus on forming recommendations for two streets within Scott's Addition: West Clay Street and Roseneath Road. W Clay St was chosen because of its lack of sidewalks, narrow roadway, and inconsistent traffic pattern. Roseneath Rd was chosen because of its widerset Right of Way (R-O-W) and new label as a "priority street" that will be described in greater detail later in the plan. If accepted, the recommendations provided for W Clay St and Roseneath Rd can then be used for future use as guidelines and premises for additional Complete Streets within Scott's Addition.

The reasoning behind forming the plan came from a goal in the Pulse Corridor Plan. The Pulse Corridor Plan, developed in 2015, describes the future land use and design recommendations around the developing 7.6-mile Pulse Corridor bus rapid transit (BRT) route. When the BRT is finished it will extend from Rocketts Landing to Willow Lawn. The main goal of the plan is to "support a walkable urban environment around Pulse stations through the adoption of goals, principles and targeted recommendations."⁴ Throughout the plan, each Pulse station is given an 'area vision,' which reviews goals and recommendations for the area around the station once the Pulse Corridor stations have been installed. The station that would serve the Scott's Addition area is called the Cleveland Station. One of the goals for Scott's Addition is:

SA.19 Complete a comprehensive Complete Streets transportation and circulation plan for Scott's Addition that addresses two-way street conversions, truck routing, bicycle facilities, lighting, and other needs.⁵

The primary client for this plan is Bike Walk RVA, whose mission is to "advocate for comfortable and connected places to bike and walk for people of all ages and abilities."⁶ The organization was formed in 2012 as a program of the Metropolitan Richmond Sports Backers and has since been a leader throughout the Richmond region on advocating for the growth of biking and walking infrastructure and trying to normalize biking and walking as a transportation mode. The director of Bike Walk RVA is Max Hepp-Buchanan, who is also a member of the city's Safe & Healthy Streets Commission, which is currently overseeing the development of Richmond's Vision Zero Action Plan. He is also a member on the city's planning commission board, which adopted the Pulse Corridor Plan on May 15, 2017. Bike Walk RVA's involvement with the Scott's Addition Complete Streets Plan is vital for working with the public, connecting with stakeholders, and advocating for the implementation of the plan.



Outline of the Plan

Section 2 of this plan provides background on the plan context and theoretical framework. The plan context reviews the study area's history, path to how it came to be today, demographics and existing conditions. The theoretical framework section discusses which planning theories the plan references. Section 2 concludes with a review of the best practices and precedent plans being referenced in the plan.

Section 3 discusses the methodology of the plan. The section begins with an outline of the plan's research questions. The paragraphs following the questions go over what sources of research, data, and stakeholder outreach methods are used to answer each research question.

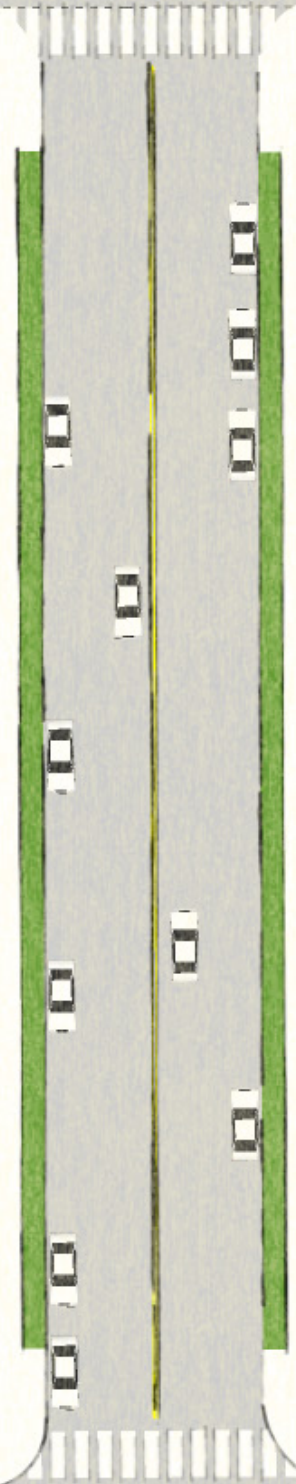
Section 4 discusses and analyzes the findings of the research and stakeholder outreach.

Section 5 provides recommendations for the plan through listing goals, objectives, and actions.

Section 6 delivers an implementation plan. The plan divides actions into 3 phases and shows a chart of the length of time of each phase. This section provides a cost table for the recommended infrastructure and lists possible funding sources.



BACKGROUND



Plan Context

Scott's Addition has a long history that has led to the land uses and zoning districts that are present today. In the early 1900s the land was mainly undeveloped except for minimal residential uses, with churches and some commercial sites along West Broad St and North Boulevard. A second wave of construction between the 1930s and the 1950s brought large industrial plants, commercial buildings, and warehouses.⁷ What really changed the course of development from residential to large industrial businesses was the addition of the railroad being built adjacent to the neighborhood. This development prompted the 1927 Zoning Ordinance to designate the area for industrial use.⁸ Today, Scott's Addition has a much different look and feel, due to an increase in residential buildings, breweries, and commercial activity. The recent development influenced the city to update the zoning ordinance in the neighborhood the area for industrial use.⁸ Today, Scott's Addition has a much different look and feel, due to an increase in residential buildings, breweries, and commercial activity. The recent development influenced the city to update the zoning ordinance in the neighborhood.

In 2017 the new zoning ordinance was adopted, which updated the Scott's Addition's district to reflect the current use of the area. The new zoning ordinance also labeled some streets within Scott's Addition as "Priority Streets," which are defined within the ordinance as "a new designation in the zoning map that would require buildings with multiple street frontages to provide for the fenestration requirements of windows, put parking behind buildings, and limit curb cuts for access on these streets, in addition to the principle street frontage."⁹ These new requirements for the priority streets can aid in designing and accommodating Complete Streets. The priority streets can also provide safer access to active transportation users due to the fewer curb cuts for vehicle access to the streets. Each zone's fenestration requirements have detailed requirements for windows and doors on different floors of buildings, as well as for different types of building uses, such as dwelling or nondwelling. An example of a fenestration requirement that is shared between each zoning ordinance requires the street level story of nondwelling buildings to have:

"A minimum of 60 percent of the building façade between two and eight feet in height along the street frontage shall be comprised of windows or glass doors or both that allow views into and out of the interior building space."¹⁰

Figure 2: Fenestration Example



Main Street, Bellevue, Kentucky

Figure 2 shows an example of a pedestrian friendly street with fenestration that allows passerby people to view into the buildings. The fenestration rules allow for more interesting and livable streets, with more interaction with what's occurring inside.

The new zoning ordinance also identifies a completely new zoning district in the neighborhood. As shown in Figure 3, prior to making any zoning changes, the majority of Scott's Addition is labeled as M-1, with some residential sections along the edge closest to Broad St M-1 is defined as "Variety of auto-oriented commercial and industrial uses including manufacturing, drive thrus, auto-sales and auto service centers as well as adult entertainment, retail, offices and restaurants."¹¹ This zoning district no longer accommodates the neighborhood use as more residents and various commercial businesses move into the neighborhood. The updated zoning districts, shown in Figure 4, designate the main two districts within the neighborhood as B-7 and TOD-1. B-7 is defined as "Multifamily, variety of commercial and light industrial uses including breweries, service businesses, retail, offices, and restaurants."¹² TOD-1 is a new type of zoning district in Richmond, and is defined as "Multifamily, variety of pedestrian-oriented commercial uses including breweries, retail, offices, and restaurants."¹³

The specific mention of breweries is new to the zoning ordinance. All across the US, light and heavy industrial neighborhoods are seeing a rise in craft breweries. This is due to the unique services and requirements this style of business needs and offers. Breweries are seen as manufacturers, restaurants, and entertainment, which pose the questions of where they should be placed within city limits. The post-industrial neighborhoods provide a generous amount of space for the breweries' large equipment and allow a close distance to customers. One article on breweries in urban settings saw that these post-industrial neighborhoods also tend to see clustering of breweries, which allow for competition among the breweries and provides easier access for residents to reach multiple breweries in a short distance.¹⁴ The article also discusses how this benefits the neighborhoods by stating "Although many of these areas experienced economic decline during the second half of the twentieth century, they are now on the rebound thanks to both public and private investments."¹⁵ Scott's Addition is no exception when experiencing the cluster of breweries. With multiple breweries, two cideries, and a meadery, there are many options for customers to choose from. Scott's Addition is also seeing an economic increase, partly due to the recent brewery proliferation in the neighborhood. The evolution Scott's Addition has experienced in recent years has allowed for more opportunity to continue the growth and progress, which can be a great environment for Complete Streets.



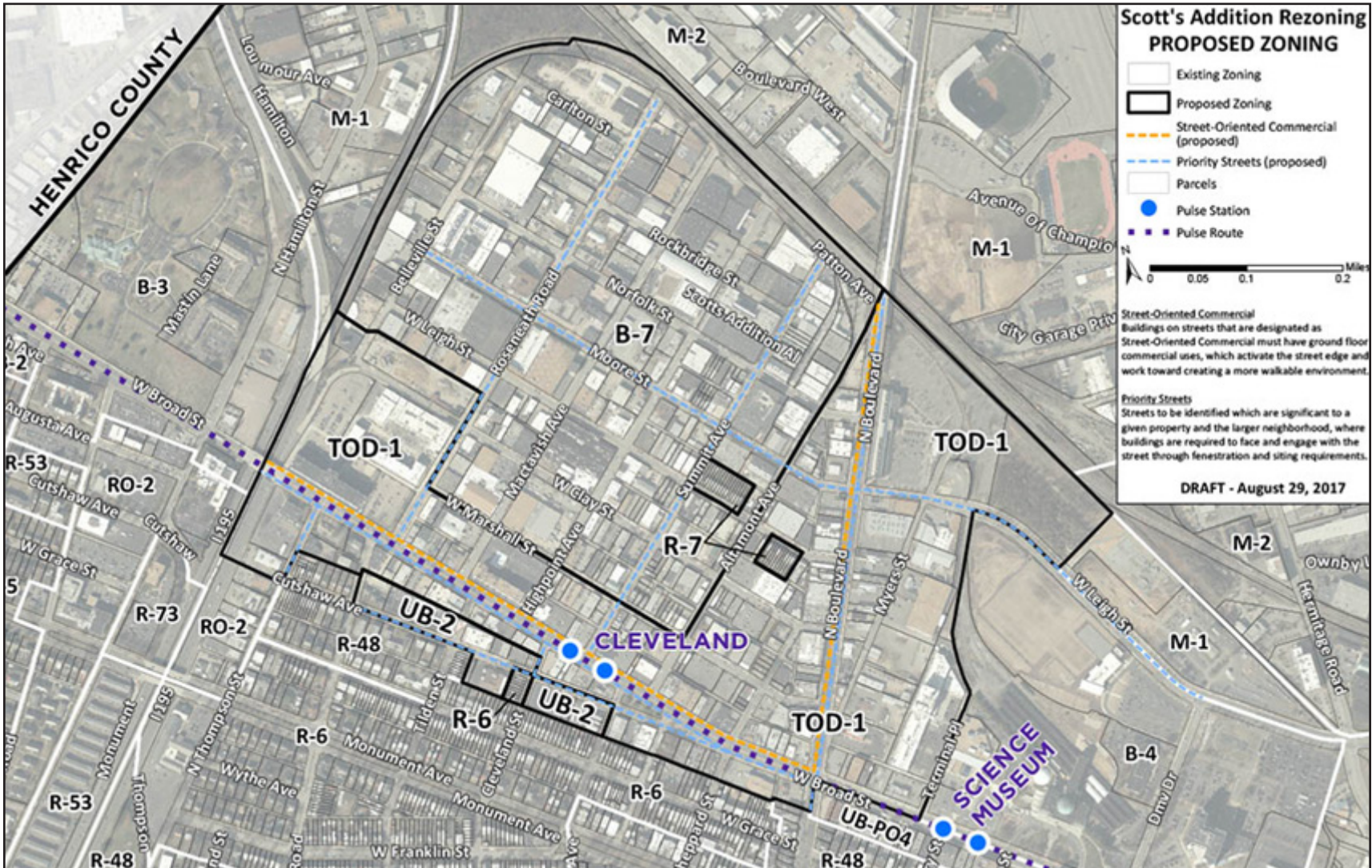
Figure 3: Scott's Addition Original Zoning



(City of Richmond 2017 Zoning Ordinance)



Figure 4: Scott's Addition Adopted Zoning, 2017



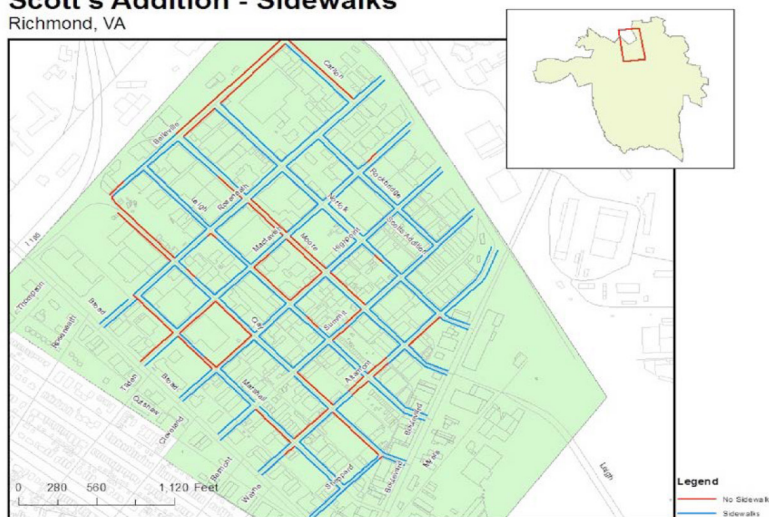
(City of Richmond 2017 Zoning Ordinance)

Study Area Existing Conditions

With an increase in residents, mixed-use zoning, and commercial activity coming into the neighborhood, the streets in Scott's Addition should be better suited for higher levels of activity by implementing proper infrastructure for walking and cycling.

Currently, the neighborhood is listed as having a Walkscore of 57,¹⁶ with some increase in score approaching W Broad St. and N Boulevard. The score is a reflection of Scott's Addition's walking problems. One problem being large sections of blocks have no sidewalk, which promotes unsafe situations including walking in the street, crossing mid-block, or potentially falling on the unpaved ground. Figure 5 is a map of the missing sidewalks in Scott's Addition, taken from a 2013 report on Scott's Addition, titled "Scott's Addition Workshop Report", completed by Storefront for Community Design. The map shows the missing sections of sidewalk in red and the existing sidewalks in blue. The missing sidewalks also form barriers for those with disabilities. The American's with Disabilities Act (ADA) provides standards for sidewalks, curb ramps, and general accessibility for those with disabilities in the 2010 Standards for Accessible Design.¹⁷ This plan will identify the ADA shortcomings of the neighborhood to properly design streets that will provide for those with disabilities.

Figure 5: **Scott's Addition - Sidewalks**
Richmond, VA



(Storefront for Community Design, 2013)

There is also scarce bike infrastructure in the neighborhood, which deters people from choosing to bike to the neighborhood. The infrastructure that is in the neighborhood consists of bike racks, which are adjacent to a few of the businesses. However, resulting from the recently implemented RVA Bike Share initiative, there is now a bike share loading dock in Scott's Addition located on E Leigh St. The Complete Streets, along with the new zoning, and the RVA Bike Share, will service the growing need for active transportation infrastructure by decreasing the dependency of cars and encouraging transit and active transportation in the neighborhood. The Scott's Addition Complete Streets Plan will also reference and support the Richmond Bike Master Plan in increasing the amount of bike infrastructure within the city. The Scott's Addition Complete Streets Plan will also reference the Bike Master Plan by using the recommendations for how to analyze a street's suitability for bike infrastructure and what considerations should be looked at for different kinds of streets.¹⁸ This will help to form the methodology for designing the streets in Scott's Addition.

Bike Walk RVA has been involved with many bike related projects in the city. They advocate for the development of new styles of infrastructure that have successful results in other cities, such as a Bike Boulevard. Yet, introducing new forms of bicycle infrastructure is a topic that receives a lot of attention and passionate responses from residents in the city. One project that Bike Walk RVA had an influence on was the Bike/Walk Street on Floyd Ave.¹⁹ This type of project was new to the city. Many people were worried that parking spots would be eliminated in making way for traffic calming methods and others were worried the plan was being too "watered-down" as the design of the street changed throughout the extended planning process. The project was implemented in 2016 and has opened the door to new infrastructure ideas and projects, which can aid in supporting the implementation of the Complete Streets Plan in Scott's Addition. The Floyd Ave project also provides some examples of traffic calming that could occur on the Scott's Addition streets, such as curb bump outs. Figure 6 shows the original plan for Floyd Ave, which had more traffic calming methods proposed than the final plan.

Figure 7 is the final plan for Floyd Ave.

Figure 6: Floyd Avenue Bike/Walk Street Original Design ¹⁹

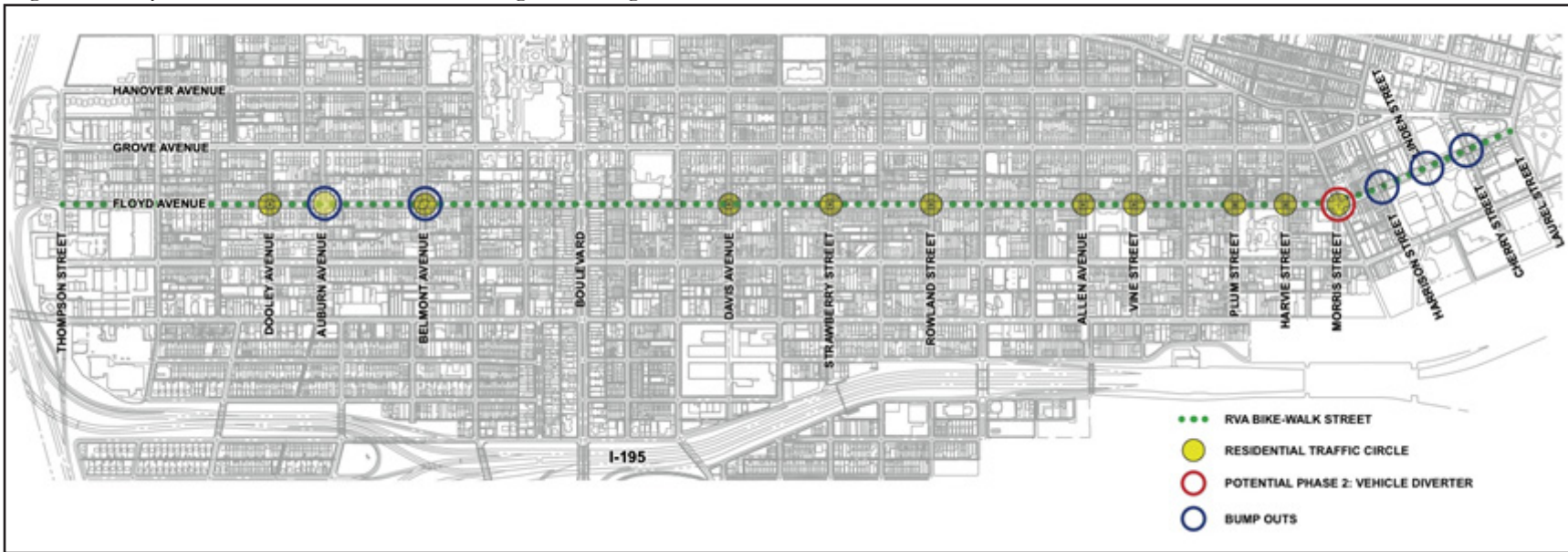
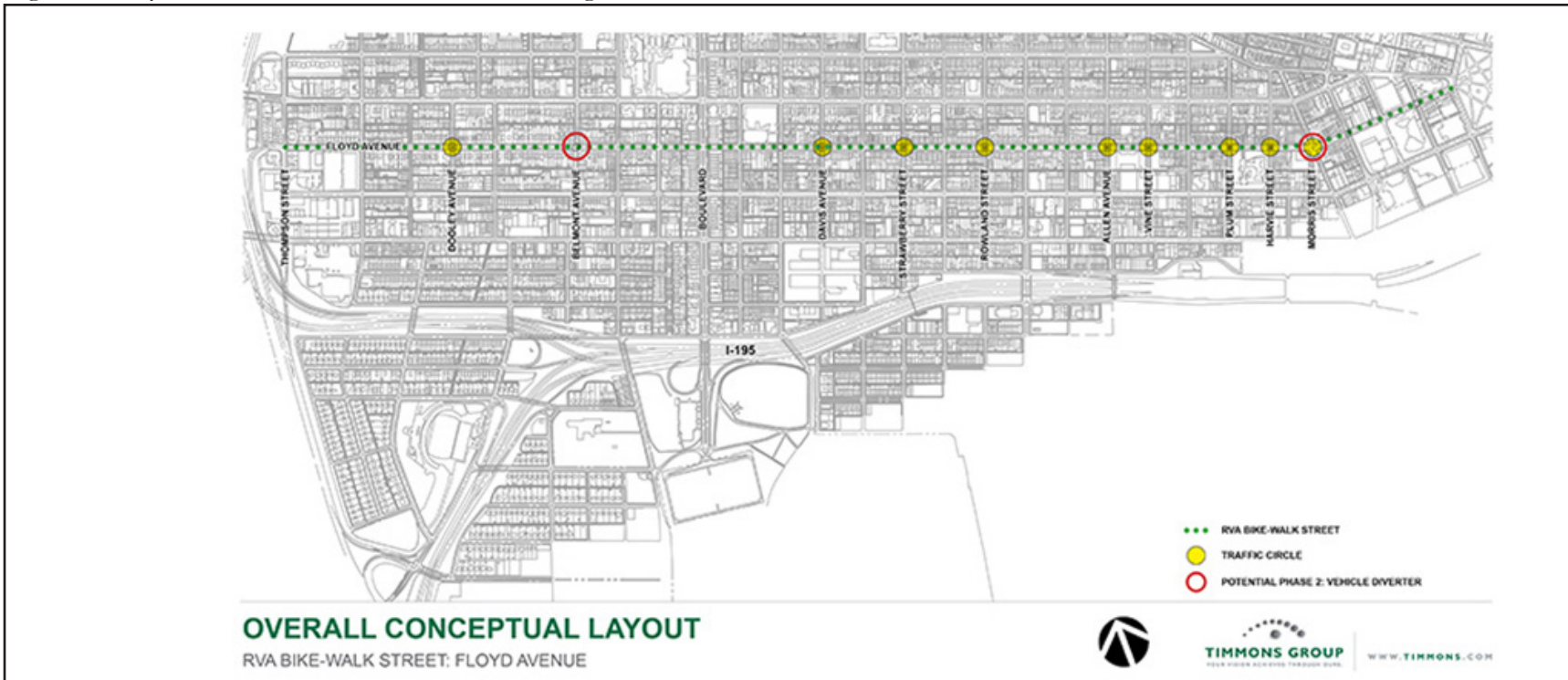


Figure 7: Floyd Avenue Bike Walk Street Final Design Recommendations ²⁰



Theoretical Framework

The theories that help shape the Scott's Addition Complete Streets Plan the Communicative Action theory, Complete Street theory, Placemaking theory, and the Context Sensitive Solutions theory.

Theories of Planning

The theory of planning this project incorporates is the Communicative Action Planning theory. The main idea of the theory is to focus on “the notion that carefully designed, participatory processes involving multiple stakeholders can help create consensus on critical social issues and foster the political will to bring about change.”²¹ This theory intersects the voices and thoughts of the people with the expert knowledge. The theory allows a platform for planners and stakeholders to collaborate and come to an agreed outcome. It also requires the planner to be transparent about the planning process and to keep stakeholders well informed through meetings and other sources. While the theory is still top-down and will ultimately use guidelines and rules from plans and related documents, the aim is to incorporate the opinions of the people with the guidelines to form an ideal outcome.

The Communicative Action theory helps shape this plan through defining the role of the planner and the amount of input needed from the stakeholders. This theory requires continuous stakeholder participation and input, as well as keeping the stakeholders informed throughout the whole process of the plan. The methodology section was built from this theory and is reflective of the theory. The methodology section shows varying ways stakeholders are being kept informed and ways their input is directly influencing the plan.

Theories in Planning

The Complete Streets theory describes why a city should implement Complete Streets and what the expected results could be if properly implemented. In theory, Complete Streets encourage active and healthy lifestyles, while also expanding transportation options and improving safety, which forms a more livable and active street.²² The Complete Streets theory goal is not only to slow down traffic but to also provide for all users including the oldest and the youngest residents, making sure pedestrian crossings meet city standards, and to create real and perceived safety for the entirety of the street. Complete Streets are meant to be unique and not be standard in design. For the Scott's Addition Complete Streets Plan, the two chosen roads will be completely different with varying additions and amenities. Where one street could have separated bike infrastructure another could take on the shared space concept. This is meant to create aesthetically pleasing streetscapes and allow for appropriate infrastructure for a street's R-O-W.

The Complete Streets theory incorporates multiple modes of transportation within the streetscape design including cyclists and pedestrians. The complete street theory shows that shifting from prioritizing cars to active transportation reduces crashes and contributes to sustainable transportation objectives, healthier lifestyles, more maintained areas, and reduction of traffic and pollution.²³ To form an outcome where people choose to walk and cycle, the designs of Complete Streets should have shorter travel distances, street furniture, nice places to walk or bike to, and higher-density dwellings that include commercial amenities.²⁴ With these additions people will feel more inclined to walk, bike, or use transit, instead of driving.

Complete Streets in some cases have separated mode infrastructures while other cases featured a shared space concept. The shared space concept theorizes, “if you take away the types of signal you can mechanically follow, drivers become more alert, and drive much more slowly.”²⁵ This method can increase safety on the street while also possibly deterring drivers from wanting to drive on the street. The shared space concept and the Complete Streets theory guides the methodology of this plan by providing suggestions for best practices and ways in which to design a Complete Street.

The Placemaking theory “strengthens the connection between people and the places they share.”²⁶ In order to strengthen a community’s space, the community needs to be involved in the planning process of a space in order to maximize shared value. This theory aids the Scott’s Addition Complete Streets Plan by developing the streets through community engagement and making the streets destinations. In order for a street to be a place, the street must “Augment and complement surrounding destinations, including other public spaces such as parks, reflect a communities identity, invite physical activity through allowing and encouraging active transportation and recreation, and promote social and economic equity.”²⁷ Designing the streets with the Placemaking theory in mind provides space for people to comfortably walk, interact with others, feel safe, and get to where they need to go.²⁸ Utilizing the theory also impacts the designs of the streets and how to incorporate the community to create a space that they will use and enjoy.

The principles of the Context Sensitive Solutions (CSS) theory promote a:

“collaborative, multidisciplinary process that involves all stakeholders in planning and designing transportation facilities that: meet the needs of users and stakeholders, are compatible with their setting and preserve scenic, aesthetic, historic, and environmental resources, respect design objectives for safety, efficiency, multimodal mobility, capacity and maintenance, and integrate community objectives and values relating to compatibility, livability, sense of place, urban design, cost and environmental impacts.”²⁹

Applying the CSS principles enhances the planning and design process. The process identifies objectives and issues based on the input from stakeholders and the community “starting at the regional planning process and continuing through each level of planning and project development.”³⁰ Involving the community early on develops community interest and identifies user needs and wants from the Complete Streets. The CSS principles provide a guide for how to connect the community to the Scott’s Addition Complete Street Plan and provide expected outcomes of success if the principles are used. The CSS principles also impact the methods of the plan by requiring early involvement with the stakeholders, and continuing that relationship by keeping the stakeholders informed and able to have a voice in the plan’s outcome. The CSS theory, similar to the Communicative Action Theory in stakeholder outreach, differs by focusing on transportation projects.



Best Practices

The Scott's Addition Complete Streets Plan references many plans and guidelines to form best practices when designing the recommendations for the Complete Streets. This plan utilizes guidelines from the National Association of City Transportation Officials (NACTO). Such guidelines are the Urban Street Design Guide, Urban Bikeway Design Guide, and the Complete Streets, Complete Networks series. These guidelines provide references and ideas for designing the streets of Scott's Addition. The plan also uses elements from Smart Growth America, which provides design and recommendation guidelines for Complete Streets. As stated previously, the plan also utilizes design guidelines created by the ADA, including regulation crosswalks and sidewalk widths. The plan uses the design guidelines from Richmond's Bike Master Plan, and Richmond Connects. The plan also references design guidelines from the Institute of Transportation Engineers (ITE) and their document titled "Designing Walkable Urban Thoroughfares: A Context Sensitive Approach."³¹ While Richmond's Vision Zero plan is still being drafted, this plan looks to other cities' Vision Zero plans, such as New York and San Francisco to gather best practices that would work in Scott's Addition. All of these best practices can lead to successfully implementing Complete Streets with proper infrastructure built to support the multiple uses and users.

Precedent Plans

The plan's methodology is supported by the "Southeast Baltimore Complete Streets Plan," which provides an outline for steps to take on the planning process. This plan's final recommendations, as seen in Figure 8, are also referenced for how to present and write the recommendations for the Scott's Addition Complete Streets Plan. The "South Baltimore Gateway Complete Streets Plan" involves implementing Complete Streets in a neighborhood that is similar to Scott's Addition through their shared history of industrial businesses and an expanded residential population.³² This plan provides cost estimates and maps that help the final stage of this plan.

Figure 8: Recommendation from the Southeast Baltimore Complete Street Plan³³

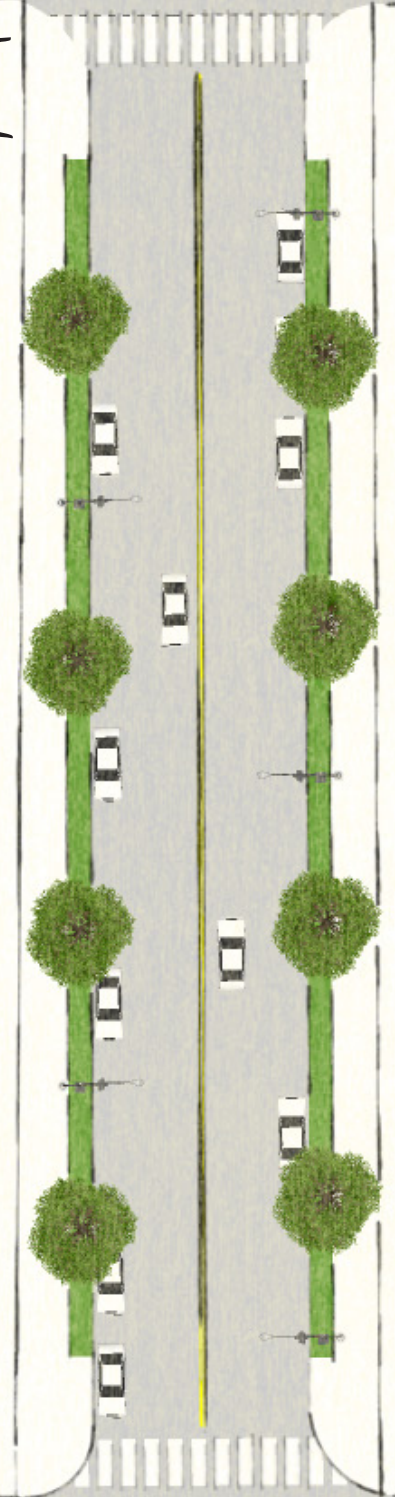


The plan will also reference the City of Los Angeles Complete Streets Design Guide. This design guide provides process and design recommendations for different types of streets. These plans can impact what design recommendations are suggested due to their success or spatial feel of the streets.

This plan's final recommendations will inevitably fluctuate as plans being currently developed that affect either Scott's Addition or the streets for the entire city, are finalized. Those plans are the Richmond 300 Master Plan, Scott's Addition Parking and Circulation study, Richmond's Vision Zero Action Plan, and the Vanasse Hangen Brustlin Inc (VHB) Complete Street Policy Guide for the City of Richmond. The Richmond 300 Master Plan is looking for ways to increase and support multi-modal transportation. The Scott's Addition Parking and Circulation study will be studying the parking problem and the traffic congestion problem Scott's Addition is currently having. Richmond's Vision Zero Action Plan is developing policies and plans to form safer streets for all users of the road and to prevent traffic related fatalities. VHB Complete Street Policy Guide is developing guidelines and parameters for specific types of street and neighborhoods in Richmond. Due to the Scott's Addition Complete Streets Plan's results being recommendation based, the actual Complete Streets Plan will follow designated parameters and guidelines provided in the plans just discussed.



RESEARCH



Research Questions

The plan consisted of three main research questions to support the plan and recommendations:

1. What Complete Street additions and changes will be appropriate for the two corridors?
2. What designs and Complete Street additions do the stakeholders want to see implemented in the streets?
3. What designs will provide for all users and skill levels?

Question 1 involved collecting data on the streets' R-O-W. Measurements were taken at varying spots along each street. This question also collected the Annual Average Daily Traffic (AADT), Crash Data, and Complete Street parameters from ADA and NACTO.

Question 2 included stakeholder outreach to gather appropriate data and recommendations. There were multiple methods of stakeholder outreach used to gather varying types of data.

Question 3 utilized the precedent plans and best practices described previously.

Table 1: Summary Table

Research Questions	Methods
What Complete Street additions and changes will be appropriate for the two corridors?	<ul style="list-style-type: none"> • Measure streets using a measuring wheel • AADT • Crash Data • Parameters for infrastructure in Best Practices
What designs and Complete Street additions do the stakeholders want to see implemented in the streets?	<ul style="list-style-type: none"> • Public meeting • Surveys • Interviews
What designs will warrant the most utilization and provide for all users and skill levels?	<ul style="list-style-type: none"> • ADA Guidelines • NACTO Guidelines • Precedent plans



Analytical Methods Overview

To reach the final recommendations and designs, the analytical methods described below were used:

Maps developed using GIS displayed the AADT and crash data, which applied shapefiles of the AADT and crash data, to two separate maps of the Scott's Addition neighborhood. GIS was also used to provide visuals of current land and surface uses in the neighborhood. Neighborhood land and surface use patterns were gathered using Richmond City data.

Precise measurements of the two roads were taken using a measuring wheel of varying locations along the two streets. To graphically show the locations of the measurements taken, satellite images, graphic operations and charts provided a visual aid.

Starting early communication with the stakeholders was vital for the recommendations. Attending and hosting community meetings, interviewing local leaders, and distributing surveys, which will be discussed more in-depth in the stakeholder outreach section, were used to gather stakeholder input. The results that came from the stakeholder input guided the design recommendations to provide for the people and deliver what they felt would make the street a highly utilized corridor.

Graphs showed past and current demographics of the neighborhood as well as the results of the survey.

In order to provide safe access for all users of all abilities, the design recommendations referenced the "2010 ADA Standards for Accessible Design."³⁴ Smart Growth America's Urban Street Design Guide and Complete Street recommendations helped to inform and develop successful designs that were appropriate along the streets. ADA and NACTO Complete Street guidelines provided appropriate design widths for specific types of infrastructure, such as sidewalk widths and bike lane widths.

Lastly, SketchUp was used to create digital visual aids and a representation of spatial feel for the recommendations.

Stakeholder Outreach Methods

The Scott's Addition Complete Streets Plan engaged with stakeholders early on through an online survey, a presentation, interviews, and a public meeting.

The survey was created through the online website, SurveyMonkey.com. In order to reach a variety of participants, the survey was distributed through the Bike Walk RVA and SABA listservs, as well as in person. On Saturday, January 27th, 2018, four people went to Scott's Addition to survey participants for 2.5 hours. To reach more people, two of the people stood at the intersection of W Leigh St & Altamont Ave, while the other two people stood at the intersection of Roseneath Rd & W Marshall St. As people walked and biked down the streets the surveyors would distribute the surveys to willing participants. The survey had questions related to demographics, perceptions of walking and biking, and what their priorities were for Complete Streets in Scott's Addition.

As a way to engage with Scott's Addition residents, business owners, and employees, an informational presentation was given at a SABA monthly membership meeting. The presentation included an overview of the plan, possible recommendations, and visual aids to show existing conditions. To gather more feedback, local leaders were also contacted for interviews to understand their priorities for Complete Streets within Scott's Addition. Those who were interviewed included SABA board members, past President Mike Cline and current President Trevor Dickerson, and Kim Gray, the 2nd District councilmember who represents Scott's Addition.

Another method to engage with the stakeholders was to hold a public meeting/ facilitated design workshop, with the stakeholders. The meeting involved an initial presentation, followed by a breakout session of groups made up of 4-5 participants. This breakout session was designed to have the groups discuss what they thought the strengths and weaknesses of Scott's Addition were, their priorities on the street and pedestrian zones, and how they would design the Complete Streets through a street designing activity. This information provided specific feedback that could be used for recommendations.

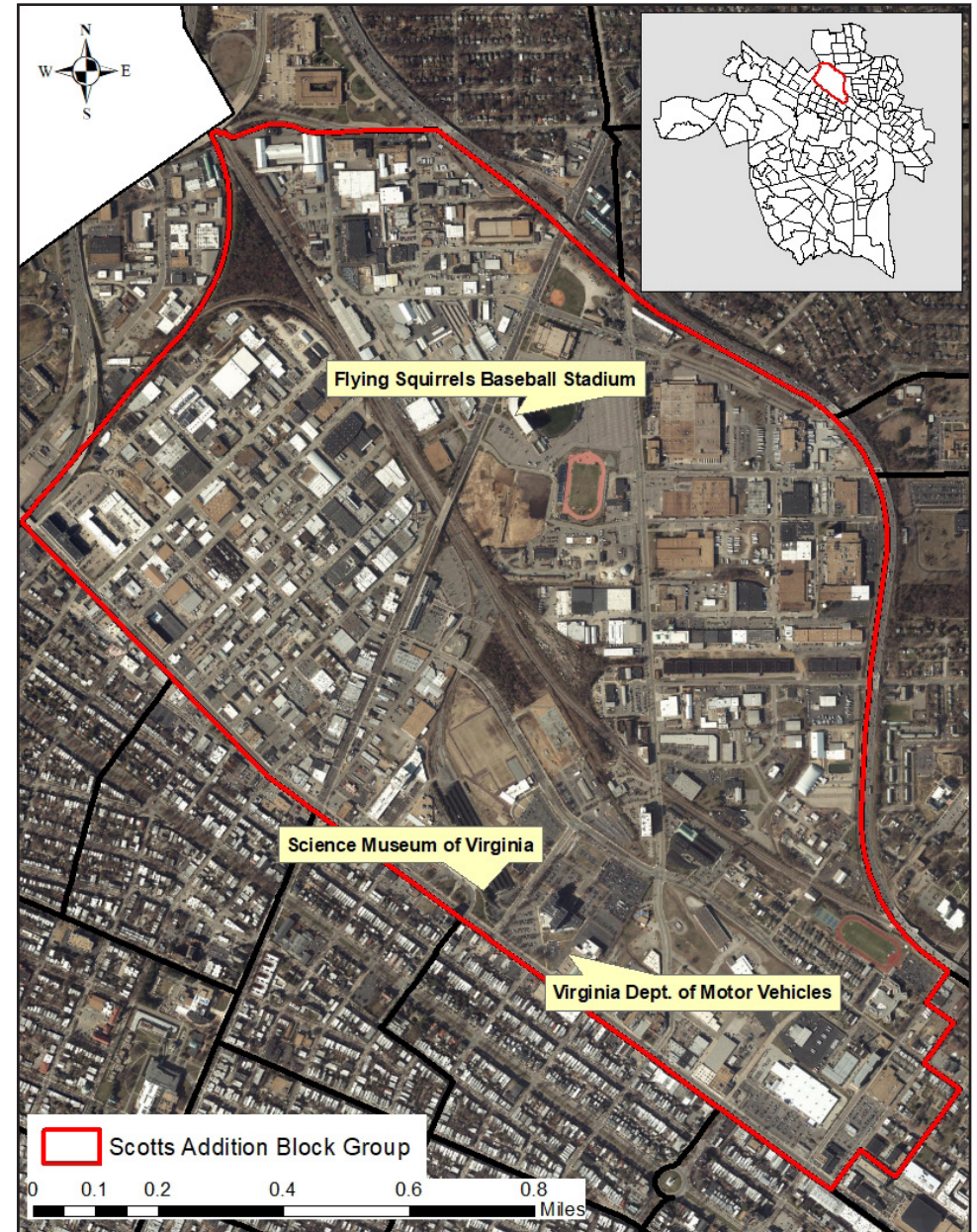
Once the data on the case studies, best practice guidelines, and stakeholder desires, were aggregated, it was time to analyze the data and form it into final designs and recommendations. The designs used the existing R-O-W of the selected streets to make calculated design recommendations that would fit in with the desires of the stakeholders. The designs were created through SketchUp.

Focus Area Today

This section includes the demographics and current land use of the Scott's Addition area. Data was gathered on the demographic groups: age, race, and gender. The City of Richmond's Census Tract 402 has two block groups; the one that contains Scott's Addition is labeled as Block Group 2. Figure 9 shows the block group highlighted in red. With Scott's Addition making up about 1/4th of the entire block group, the data will not be specific to Scott's Addition. To show how the neighborhood has changed over time, years 2000 and 2016 data was collected.

Between the years 2000 to 2016, the population in the block group has increased significantly. In 2000 the population was 536 people. By 2016 the population rose to 1,513 people. This increase can be partially attributed to the repurposing of industrial buildings into new apartment buildings.³⁵ Along with the increase in amenities, such as breweries and restaurants, there are more young adults moving into the neighborhood.

Figure 9: Scott's Addition Block Group



Source: City of Richmond GIS, ESRI 2011. ArcGIS Desktop. Release 10.5.1. Redlands, CA. Environmental Systems Research Institute

Figure 10: 2000 Age and Gender Population Pyramid

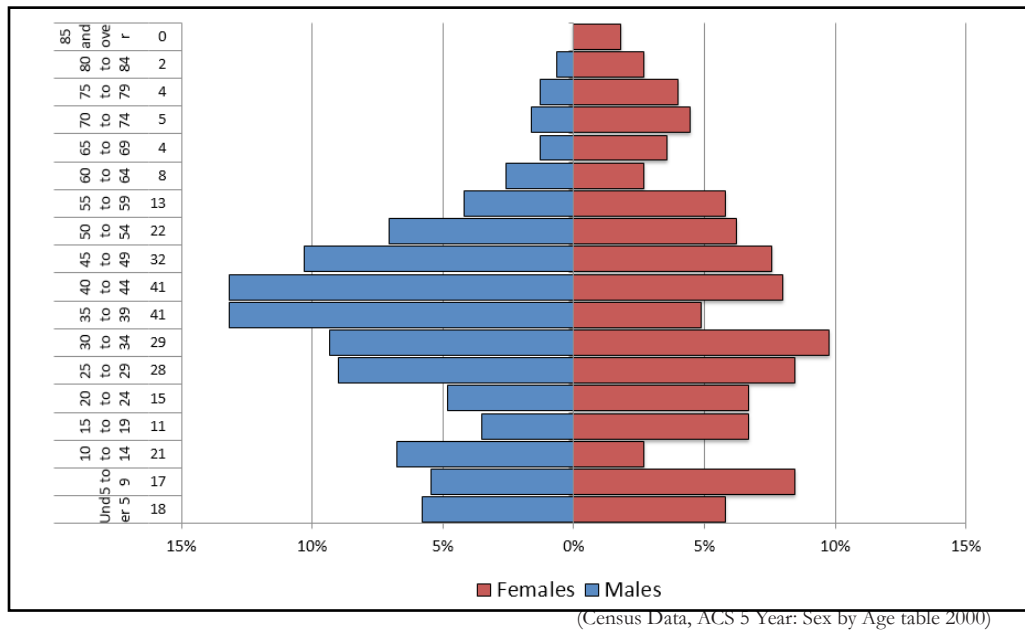
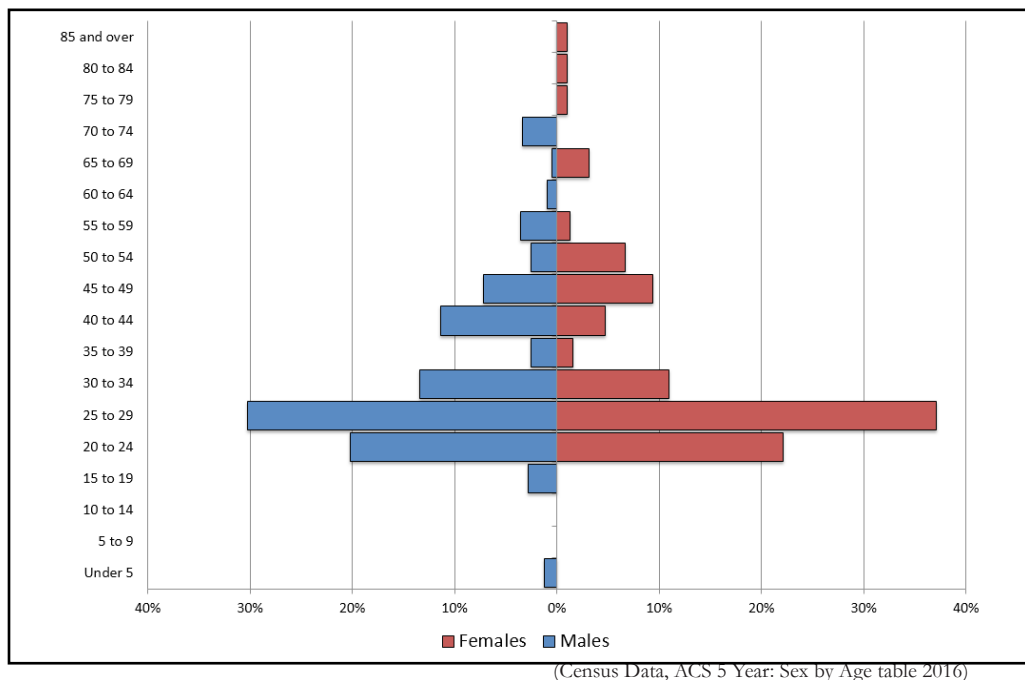


Figure 10 shows the age range in 2000 with males on the left and females on the right. Within the block group there were approximately 311 males and 225 females. The range in Figure 10 is not too heavily weighted on one age with males having the greatest numbers in the age range of 35 to 44. Each of those age ranges makes up about 13 percent of the total population in the block group. Females are more evenly dispersed with the greatest numbers being 30 to 34 years of age, which makes up approximately nine percent of the population.

Figure 11 shows a huge change in age distribution. In 2016 the majority of people living in the Scott's Addition area were 25 to 29. This change also shows that older people and people with families and younger kids in 2000 moved out of the area. This could be the result of the significant increase in younger adults, which changed the dynamic and cost of living in the neighborhood and how it functions and develops.

Figure 11: 2016 Age and Gender Population Pyramid



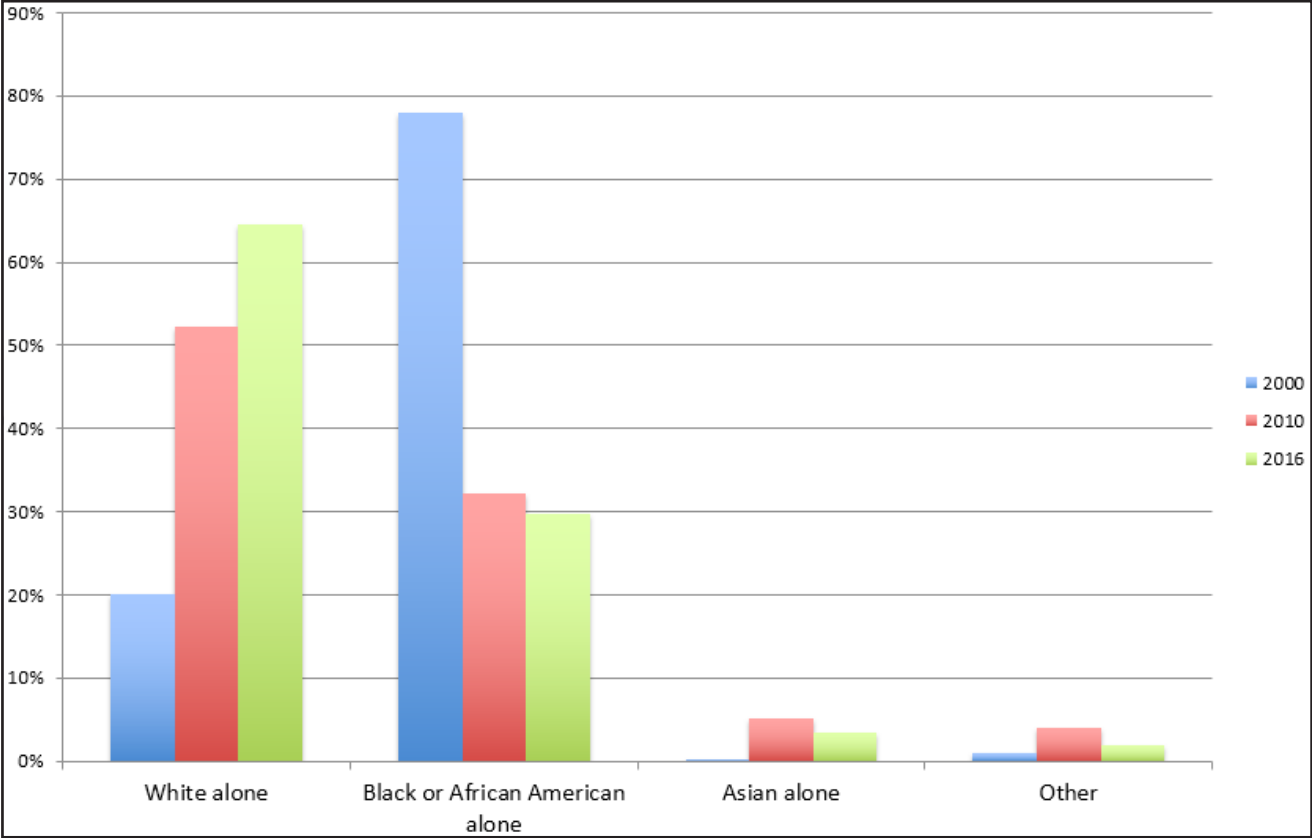
This data across the 16 years shows how the populations have changed and will continue to change as Scott's Addition continues to renovate and attract new people to the area.

Figure 12 shows the change in racial makeup of Scott’s Addition throughout the years 2000, 2010, and 2016. In 2000 the majority race was African American, making up close to 80 percent of the population. The African American population declined to around 32 percent in 2010, at the same time the Caucasian population rose from 20 percent in 2000 to 53 percent in 2010. The trend continued as the Caucasian population rose to 65 percent of the population and the African American population declined to 30 percent of the population. The Asian population rose from making up 0 percent of the population in 2000 to around 4 percent in 2016.

These age, gender, and race graphs show how much Scott’s Addition has changed in the past 16 years. The evolution of being a primarily industrial neighborhood to a primarily residential and businesses neighborhood has impacted who lives there. As stated previously, breweries are creating economic vitality for once declining industrial neighborhoods. They are also attracting younger people to take advantage of the unique atmosphere. The introduction of the new majority and drastic changes can make the new minorities feel misplaced.

Yet, with all the changes to the demographics and land use throughout the years, the streets and sidewalks have remained stagnant and reflect the industrial past of the neighborhood.

Figure 12: 2000 Racial Makeup of Scott’s Addition



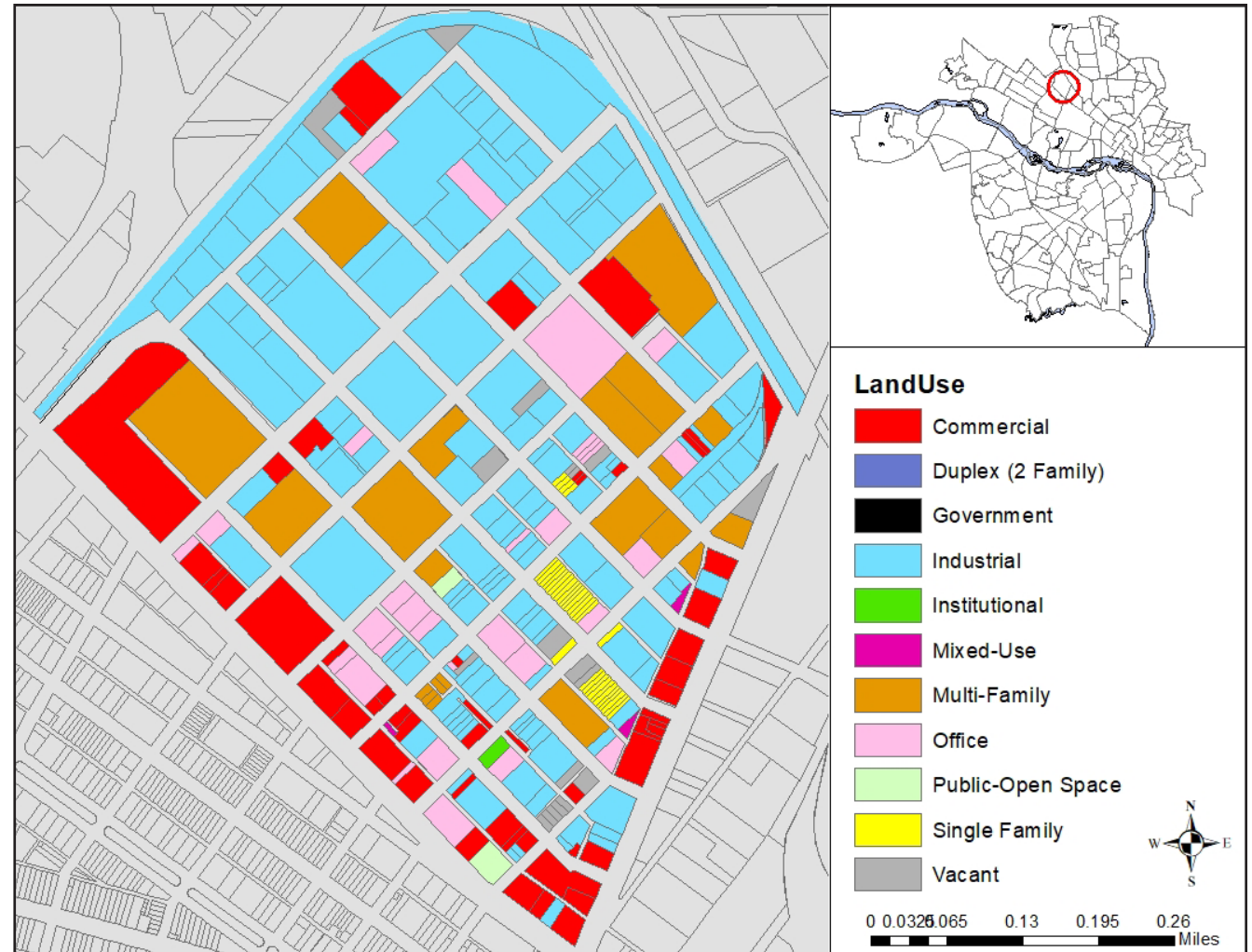
Source: Census data, ACS 5 Year: Race 2000, 2010, 2016



Scott's Addition Neighborhood Makeup

As stated previously, there are many factors that contribute to making a successful complete street. To make appropriate recommendations for the Complete Streets, land use, daily traffic average, crash reports, transportation surfaces, street directions, and street measurements must be gathered and analyzed. The land use in Scott's Addition is unique among the neighborhoods in Richmond, with a mix of industrial, commercial, residential, and offices. Figure 13 shows large areas of Industrial use, with large apartment buildings also taking up significant sections of blocks. Along Broad street and North Boulevard is the most commercial heavy in the neighborhood with the northern section along Roseneath Road being mostly industrial. The rest of the neighborhood is fairly mixed.

Figure 13: Scott's Addition Land Use, 2018



Source: City of Richmond GIS, ESRI 2011. ArcGIS Desktop. Release 10.5.1. Redlands, CA. Environmental Systems Research Institute

Similar to land use is the transportation surface type, shown in Figure 14. This data, sourced from the City of Richmond GIS department, shows parking lots in dark grey, alleyways in yellow, and sidewalks in black. The neighborhood has approximately 4,500 parking spaces with almost 1,700 on-street spaces and 2,750 lot spaces.³⁶ Responses from the survey and interviews with key stakeholders state that parking is a big issue, with too few for the residents during peak business times and weekends. Many complained that visitors are causing parking demand to rise and that there needs to be something put in place to limit the amount of visitor parking.

During February 2018, Lyft, an on-demand car service, offered a discount for those customers traveling to parts of the Pulse Corridor line. This occurred because some businesses said the Pulse Corridor construction hurt their revenue. This idea of teaming up with on-demand car services, the BRT, or the RVA bike share for those who do not drive into Scott's Addition could be a way to ease the pressure off of parking demand.

Figure 14: Scott's Addition Transportation Surface Type



Source: City of Richmond GIS,
 ESRI 2011. ArcGIS Desktop. Release 10.5.1.
 Redlands, CA. Environmental Systems Research
 Institute

Scott's Addition's streets make up a grid pattern, which creates an organized street makeup. However, the traffic circulation within Scott's Addition create unorganized situations, which can lead to accidents, confusion, and congestion. Figure 15 shows the street directions and traffic lights within and around Scott's Addition. The intersection of W Clay St and Roseneath Rd provides an example of a confusing street design with W Clay St flipping the one-way street direction once it crosses Roseneath Rd. At the intersection there can be high speed traffic coming from the west, with cars exiting I-195 using the W Clay St Ramp. On street directional markings at the intersection's traffic light, shows the drivers which directions they must turn. However, with some drivers traveling at high speeds or not paying attention, they could miss the markings and minimal "no entry" signs on the opposing side and carry on through to W Clay St. traveling the opposite direction. Forcing the drivers to turn onto Roseneath Rd. leads to congestion at the intersection of Roseneath Rd. and Broad St. Another reason for congestion is the limited number of options to turn left from Scott's Addition onto Broad St, which has been a side effect of the Pulse Corridor construction on Broad St.

Figure 15 shows that many of the east-west streets that connect to N Boulevard are one-way, excluding W Leigh St. Many of the north-south streets connecting to W Broad St are two-way, excluding N Sheppard St. Currently, there is a traffic circulation study underway to identify challenges and ways to improve the efficiency of traffic within the neighborhood.

Figure 15: Scott's Addition Traffic Circulation



Source: City of Richmond GIS, ESRI 2011. ArcGIS Desktop. Release 10.5.1. Redlands, CA. Environmental Systems Research Institute

Existing Conditions

The following photographs show the current conditions of Scott's Addition.

The sidewalk conditions in Scott's Addition vary tremendously. While some segments of sidewalk have adequate space and are lined with street trees (See Figure 16), others are excessively wide with opportunity to use the space for alternate uses (See Figure 17).

The sidewalks in Scott's Addition are also a major topic of discussion due to many of the sidewalks being in poor condition (See Figure 19) or completely missing (See Figure 18 & Figure 20). The sidewalk conditions can cause serious issues within the neighborhood. The incomplete sidewalk network makes it very difficult for someone who is not able-bodied to access all the amenities in the neighborhood. The abrupt sidewalk endings create unsafe circumstances where a person would need to choose to either walk in the street, continue on the grass path where there could be holes or bumps, or cross the road where there are limited crosswalks, speeding cars, and blind spots.

Figure 16: Sidewalk with space and trees



Figure 17: Sidewalk with excessive, bare space



Figure 18: Sidewalk ending abruptly



Figure 19: Poor Sidewalk Condition



Figure 20: Missing Sidewalk



Figure 21: Wide road with no crosswalk



Figure 23: Confusing traffic patterns



Figure 22: Side street with no crosswalk



Figure 24: Lack of adequate lighting



As stated previously, crosswalks are very scarce in Scott’s Addition (See Figure 21 & Figure 22). Wide roads, speeding cars, and high pedestrian activity, can cause potentially life-threatening circumstances. Adding to the danger, cars and trucks have been known to park too close to the intersections, which create blind spots for drivers and people trying to cross the street.

Along with the lack of crosswalks, there are confusing traffic patterns. The majority of the east-west streets are one-way, while the majority of the north-south streets are two-way. W Clay St. in particular has had problems with its traffic pattern (See Figure 23). When entering W Clay St. from N Boulevard it is a one-way street heading west, until it intersects with Roseneath Rd. At that intersection a driver is forced to turn either left or right because straight-ahead is the Clay St off-ramp from I-195, which is a one-way street heading east. The road converges on itself and with inadequate signage, there have been crashes, close calls, and drivers traveling the wrong way down the one-way street.

There is also poor lighting in certain areas of the neighborhood (See Figure 24). Where there is street lighting, it is typically shining on the street and not on the pedestrian zone. During the evenings, the lack of proper lighting can cause dangerous situations with pedestrians not able to see where potential hazards are in the walkway. This can also prevent cars from seeing people crossing the street and lead to negative perceptions of safety in the neighborhood.

Throughout Scott's Addition there is an inconsistency with street trees. Where one block is well lined, another has a few scattered trees, and another block is completely bare (See Figure 25). Street trees help to shade pedestrians, create a natural barrier between cars and people, can be an indication of speed to drivers, and can ease the amount of runoff into the storm drains. In 2015 SABA earned \$23,000 from grants to plant 85 trees, which would fill 16 percent of the existing planting areas (See Figure 27). The neighborhood also has many mature trees (See Figure 26), which in some instances, are in the middle of a walkway where a potential sidewalk connection could be implemented (See Figure 28).

Figure 25: Lack of Trees



Figure 26: Mature Trees



The neighborhood has scarce bike infrastructure, which includes a few bike parking racks (See Figure 29), and the bike share station located on E Leigh St

Figure 28: Mature Tree Blocking a Pathway



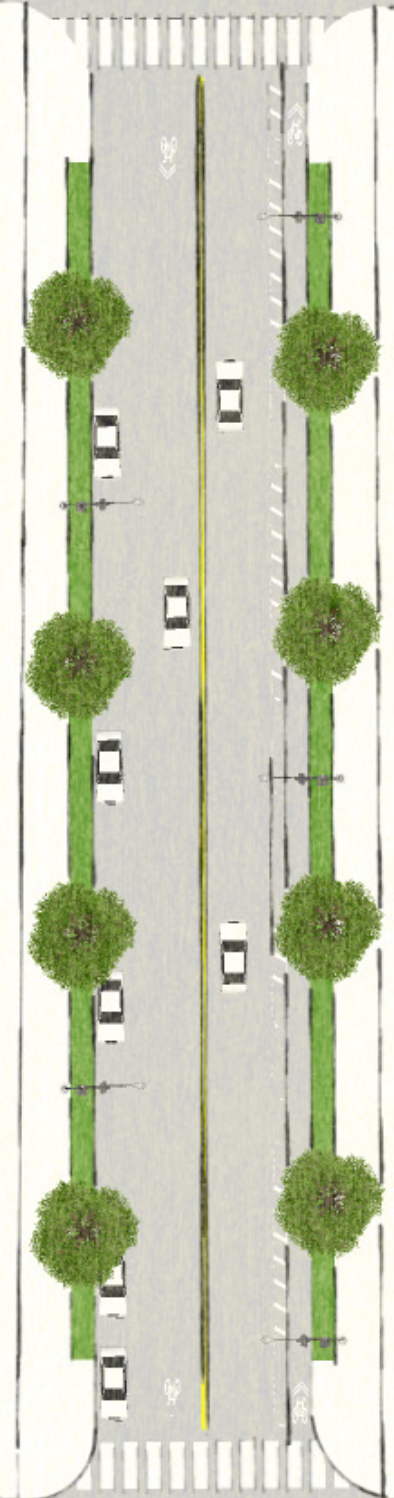
Figure 27: Newly Planted Trees



Figure 29: One of the Few Bike Racks in the Neighborhood



FINDINGS

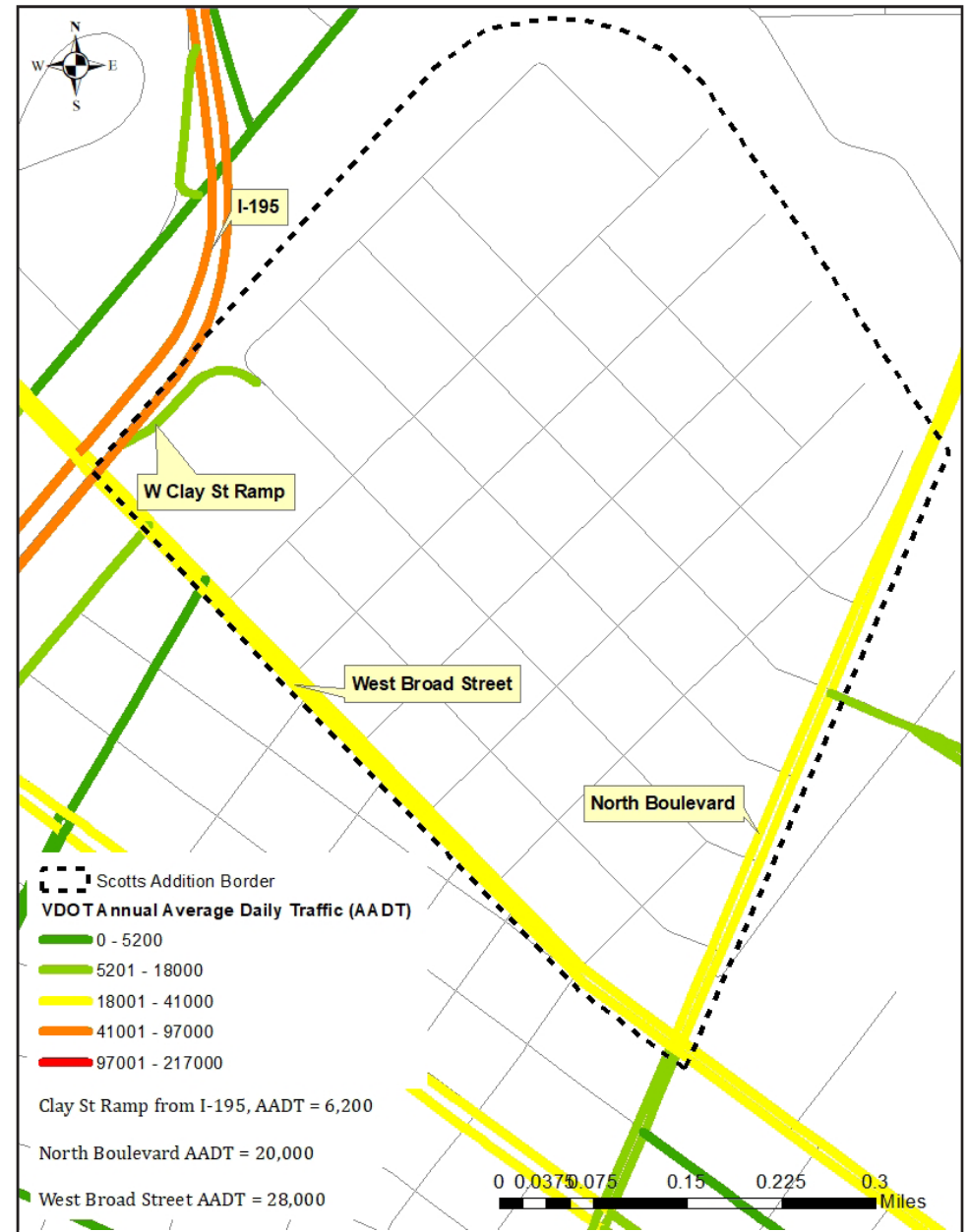


Street Data

The average annual daily traffic (AADT) calculates the average daily traffic a road segment experiences. The data comes from the Virginia Department of Transportation (VDOT). Unfortunately, VDOT cannot calculate every road in Virginia and the only roads that were calculated in Scott's Addition were North Boulevard, West Broad St, and the Ramp leading into Scott's Addition from I-195. Figure 30 shows the roads that had data and colors that represent the amount of traffic that flows on the road daily. According to VDOT the segment of W Broad St. adjacent to Scott's Addition saw 28,000 cars/day in 2016. The N Boulevard segment adjacent to Scott's Addition saw 20,000 cars/day in 2016. The ramp leading into Scott's Addition from I-195 saw 6,200 cars/day in 2016.

The data shown in Figure 30 represents a traffic barrier around Scott's Addition, which can make safely accessing Scott's Addition difficult for those not in cars.

Figure 30: Scott's Addition AADT



Source: City of Richmond GIS,
VDOT,
ESRI 2011. ArcGIS Desktop. Release 10.5.1. Redlands, CA.
Environmental Systems Research Institute



Figure 32: W Clay St Measurements

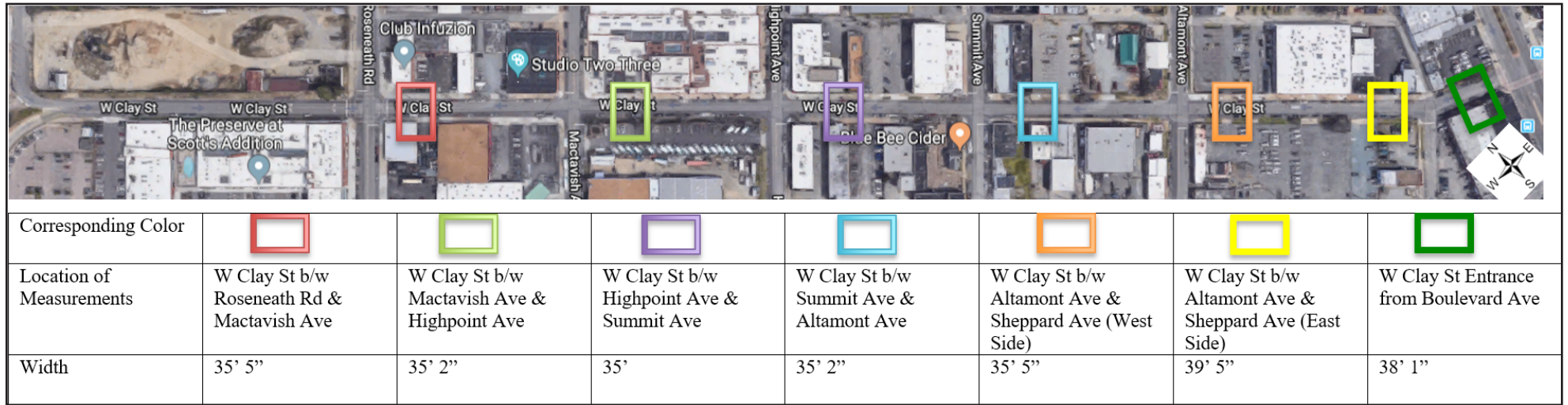
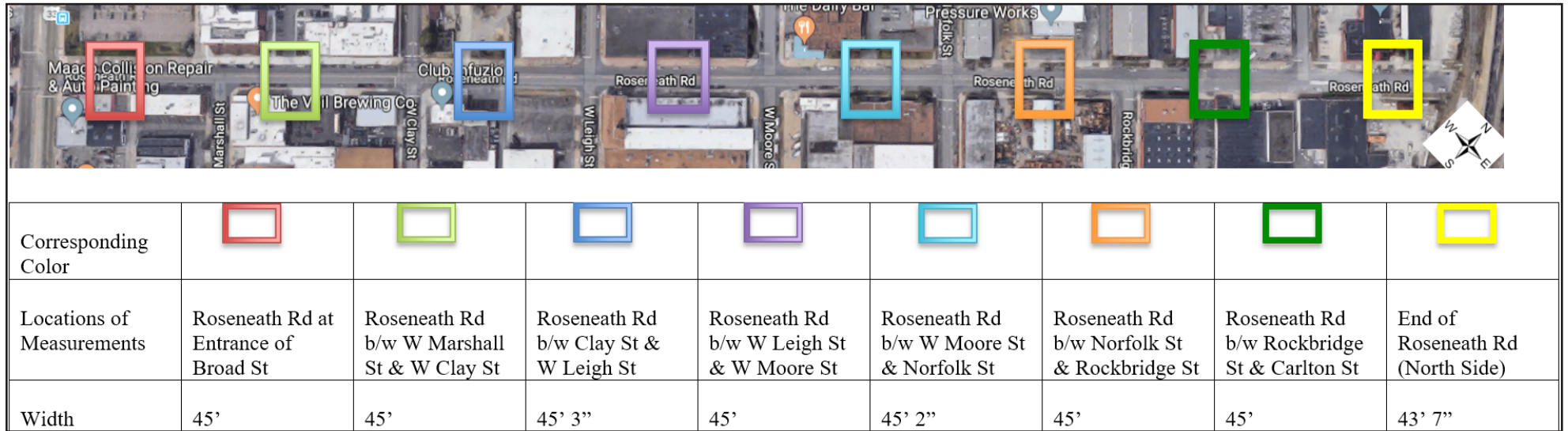


Figure 33: Roseneath Rd Measurements



Survey Results

The survey included 15 questions (Appendix A). The first set of questions was used to gather demographic data, including participant's home zip code, age, gender, and race. The questions then focused on Scott's Addition, asking what the participant's relationship was with the neighborhood and their primary mode of transportation to access the neighborhood. The survey included questions on Complete Streets, walking, and biking in Scott's Addition to gather more data on the participants' priorities and perceptions of the neighborhood. The final question asked how inclined the participant would be to use the BRT once it is running. This question was included to gauge potential usage of the BRT and how the BRT could impact modes of travel to the neighborhood. The survey ended with the option to include contact information to keep informed of upcoming meetings on the plan.

(For more raw data on survey responses look at Appendix B)

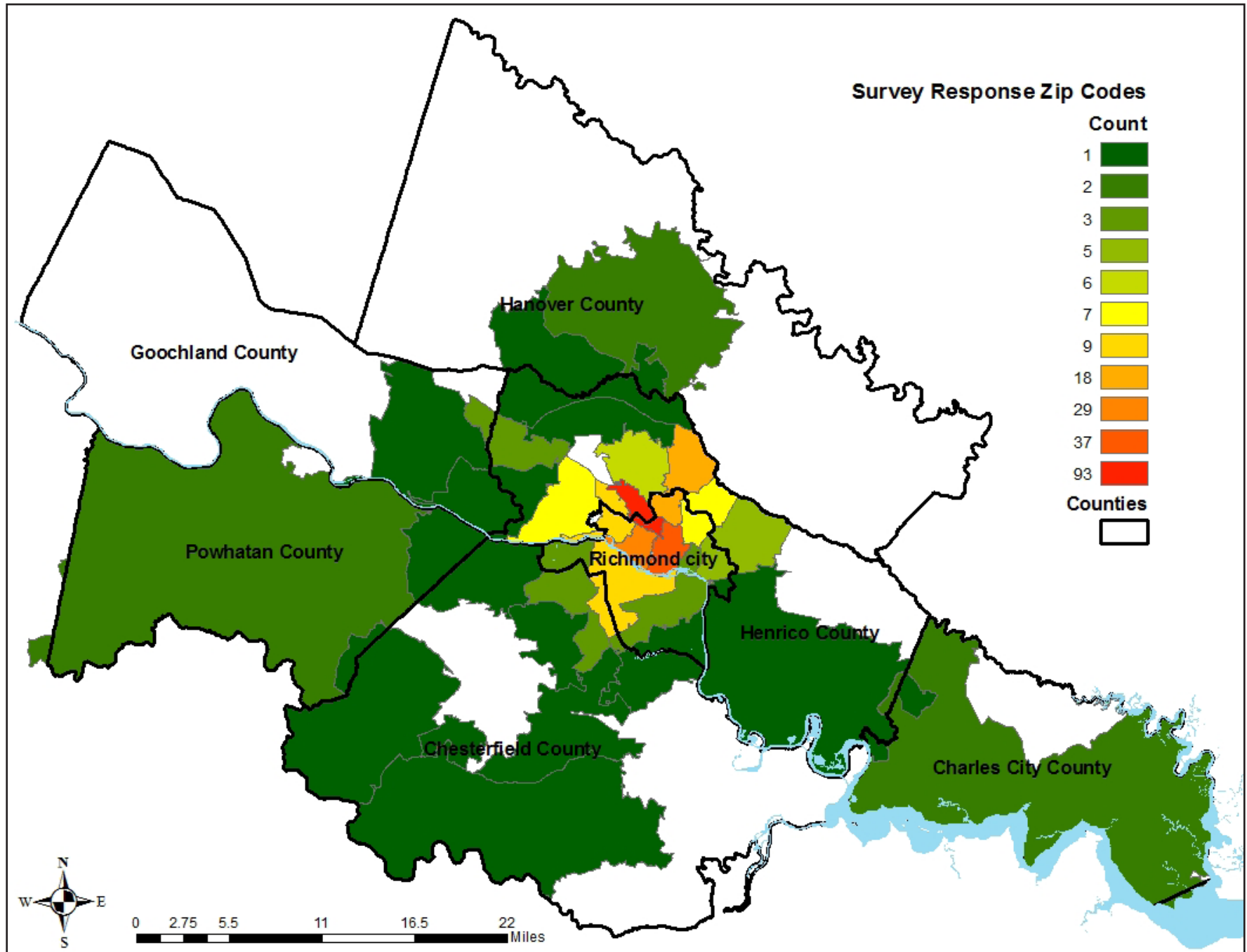
The survey was open for 2 weeks and received **257** responses, with 233 of the responses coming from online distribution and 24 of the responses coming from the in-person surveying.

The zip codes shown in Figure 34 represent where the participant taking the survey lives. The majority of the zip codes were located within the Richmond region.

Approximately 10 zip code responses of the total 257 were further from what is seen in Figure 34, representing visitors from varying areas of Virginia. Those survey results were still included in the analysis.

Figure 33 shows the zip codes with the greatest frequency in responses are in red, orange, and yellow. These colors are all surrounding the Scott's Addition neighborhood in the map. The cluster of high response zip codes show that the surveys were primarily distributed to and taken by those who live in and around Scott's Addition.

Figure 34: Survey Participants' Home Zip Code



ESRI 2011. ArcGIS Desktop. Release 10.5.1. Redlands, CA.
Environmental



Figure 35: Survey Participants' Ages

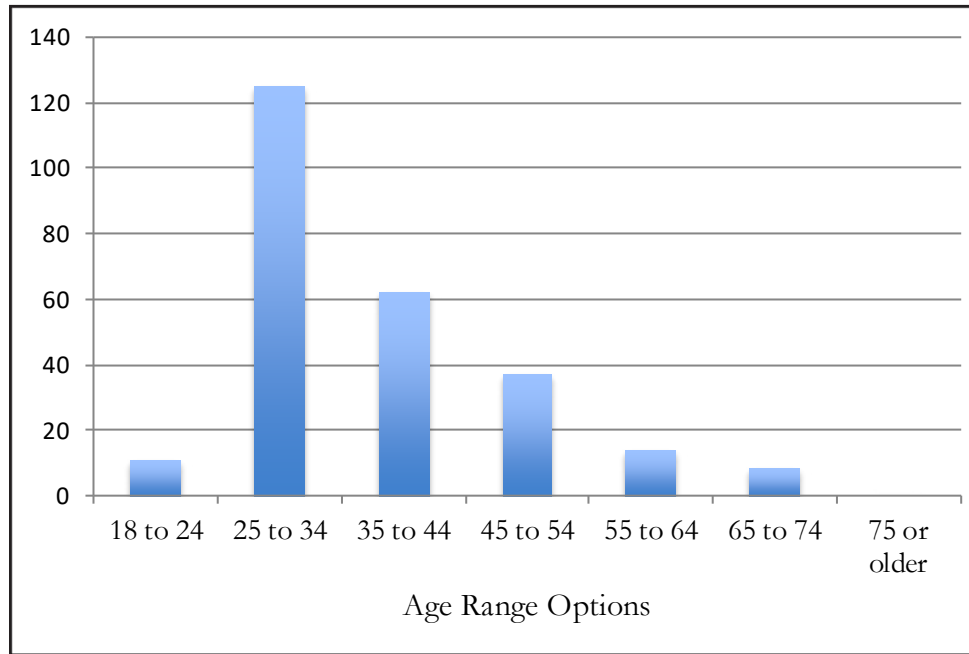
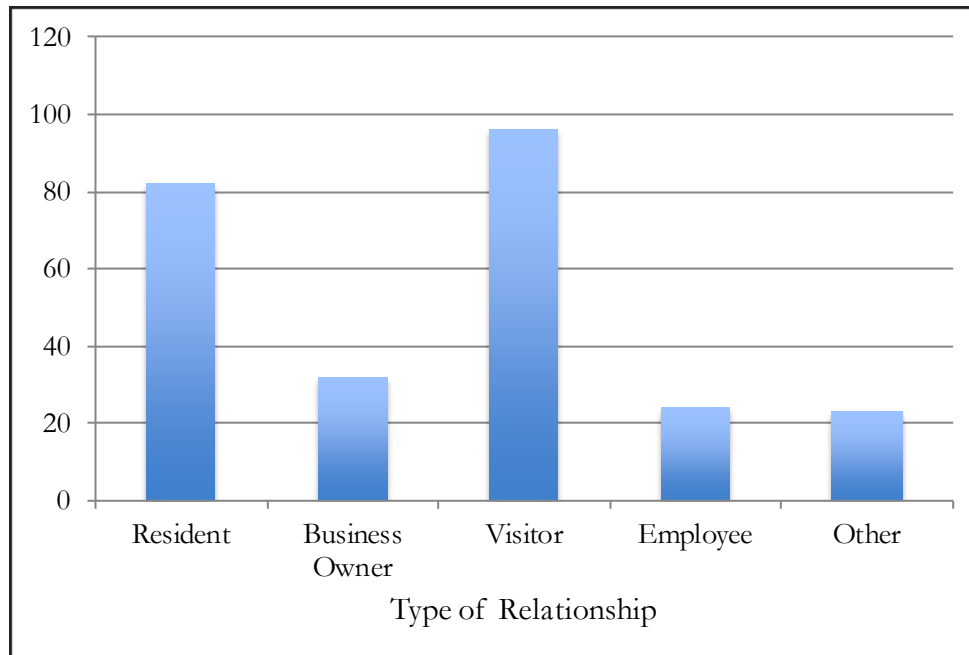


Figure 35 shows the ages of the survey participants. The majority of participants were between the ages of 25 to 34. This response reflects the current age majority within Scott's Addition's block group. Other demographics collected by the survey were race and gender of the participant. Responses were roughly evenly split between males and female. The vast majority of participants were Caucasian.

Figure 36 shows the distribution of the participants' relationship with Scott's Addition. All of the participants who took a survey in-person were visitors, which could be reflective of the time and day the survey was administered. The survey was administered on a Saturday afternoon, which is when a lot of people around the city visit Scott's Addition to access the breweries, restaurants, and other amenities.

With the two greater responses being residents and visitors, the rest of the survey offers interesting and valuable feedback on perceptions of the neighborhood and desires for the future of Complete Streets.

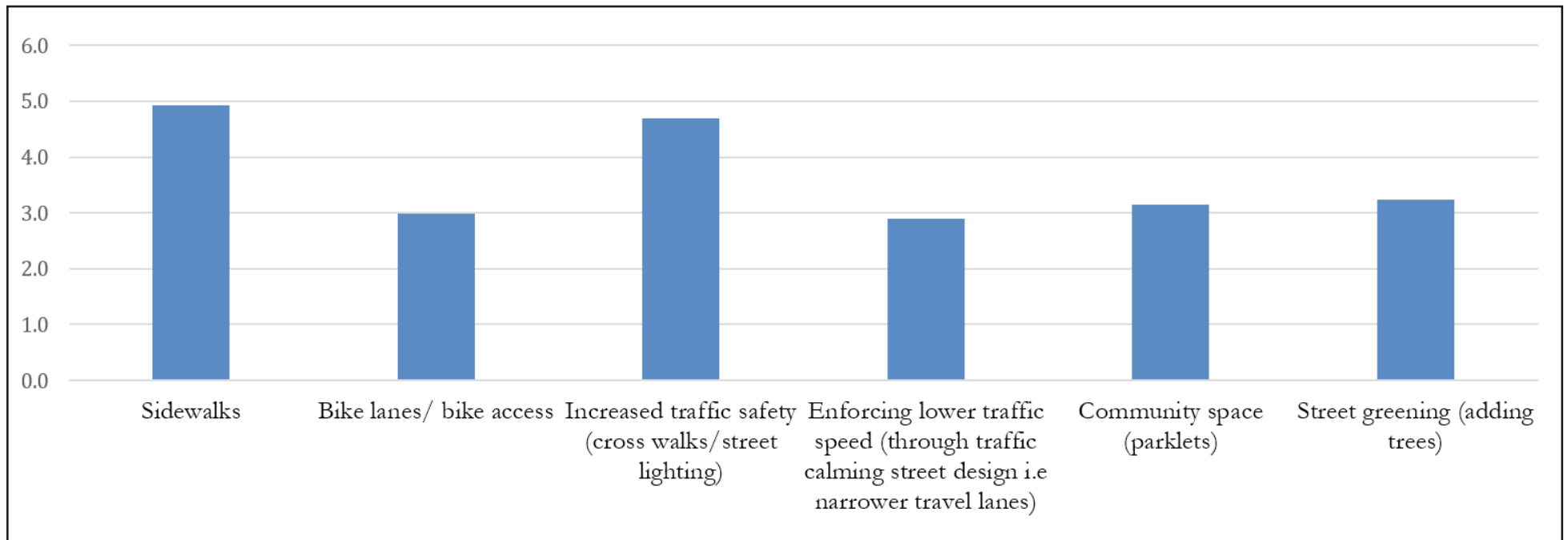
Figure 36: Participants' Relationship with Scott's Addition



The participants were asked what their priorities were for Complete Streets. They were asked to rank typical Complete Street additions from six (most prioritized) to one (least prioritized). The question also offered an option to “not implement complete streets.” Six out of the 257 responders chose that option. The remaining six priority options were then weighted to the total of 251 responders. Figure 37 shows the results of the question.

Figure 37 shows how the participants prioritize the individual additions. This question is critical to developing recommendations for the Complete Streets Plan, because if more participants prioritize sidewalks over all other additions then the plan will also prioritize that addition.

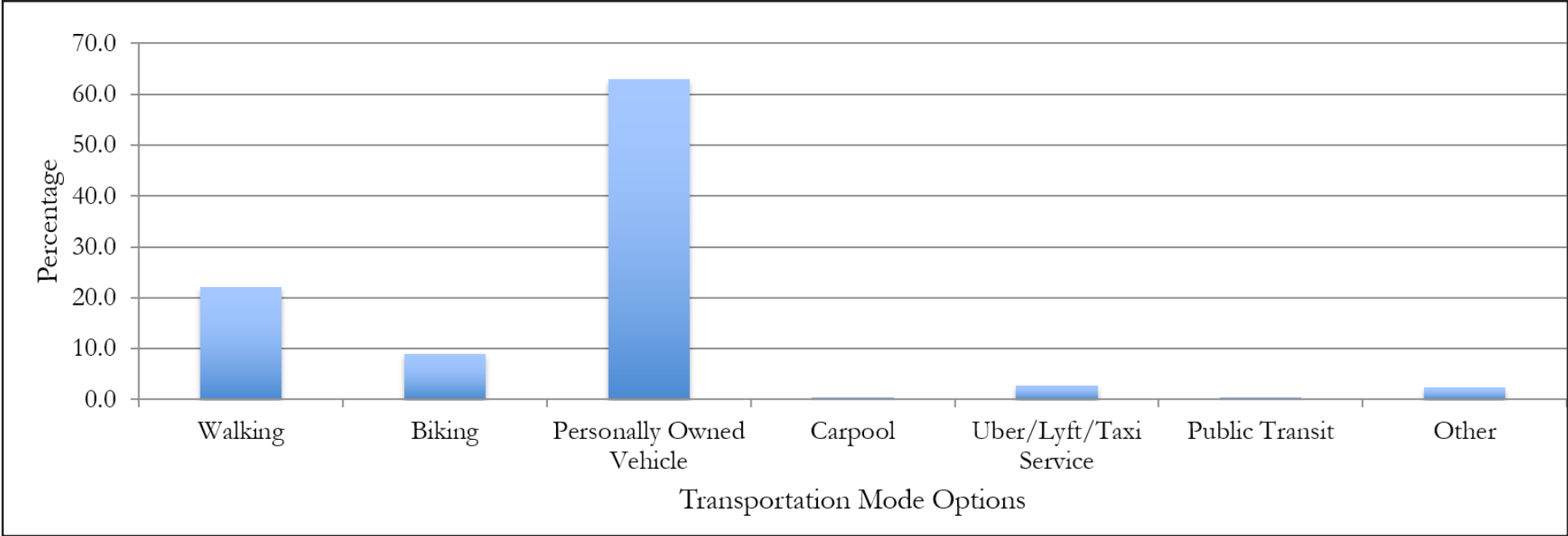
Figure 37: Participants' Priorities



Another question on the survey asked what the participants' main mode of transportation was to access Scott's Addition.

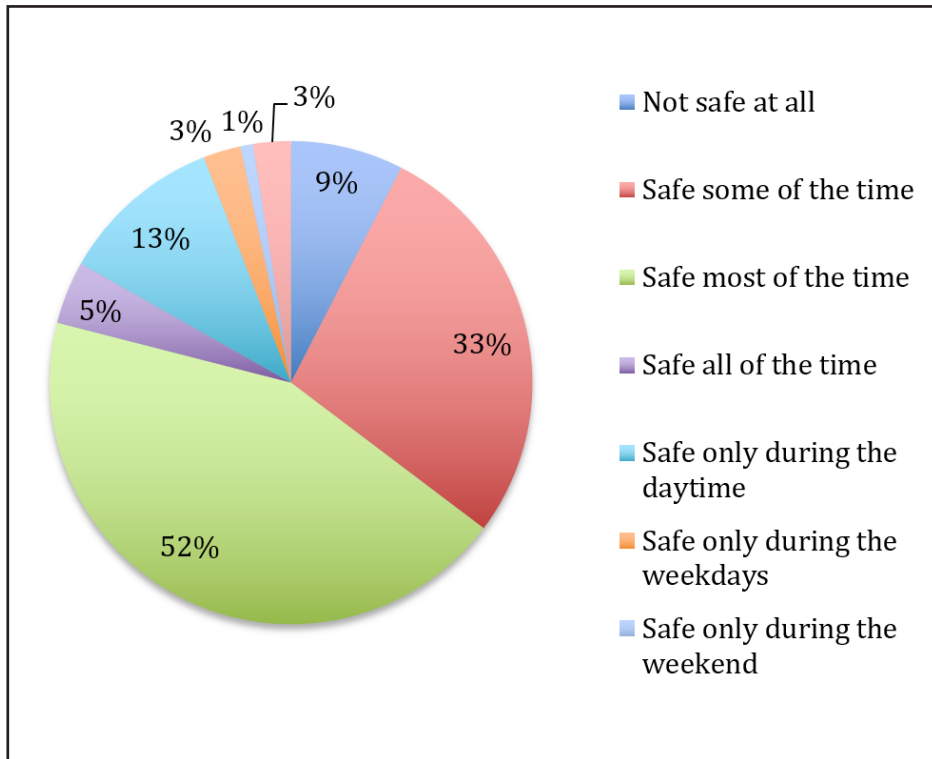
The information shown on Figure 37 is important because the high use of a personally owned vehicles provides evidence of why the neighborhood is having traffic congestion and parking demand problems, especially during peak times of work and visitation. This information also shows that over 30 percent of the participants are already biking and walking to the neighborhood, which can justify the need to build proper infrastructure for those users. Building infrastructure will promote the existing users to continue biking and walking, and hopefully incentivize those driving to the neighborhood to walk or bike instead. This information also shows that the participants are choosing to not take advantage of the Uber/Lyft car service and are instead choosing to drive themselves to the neighborhood. With so few respondents using the Uber/Lyft car service, the plan needs to present incentives to users where it could increase the cost effectiveness and efficiency to take a car service over driving their own vehicle.

Figure 38: Survey Participants' Transportation Modes Used to Access Scott's Addition



The next few survey questions focused on walking in Scott's Addition. The first question asked how the participant feels about walking in Scott's Addition. The majority of participants' responded by saying they felt "Good" about walking in the neighborhood. After hearing why residents and visitors enjoy walking in the neighborhood, despite not always having a sidewalk to walk on, it was clear that the participants feel it is a very walkable neighborhood due to the close proximity of amenities.

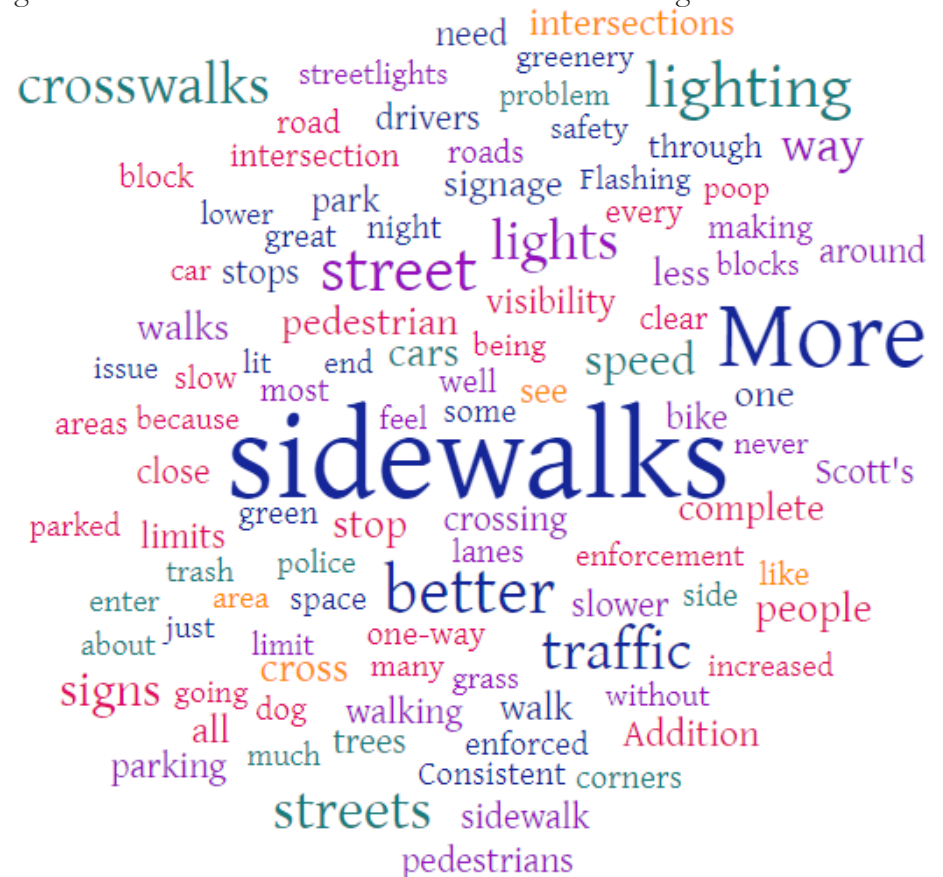
Figure 39: How Participants Feel About Walking in Scott's Addition



The responses from figure 39 are important because they show that people feel relatively safe walking in Scott's Addition, which can only be improved with better sidewalks and safety measures. However, there is a large population that does not feel safe all the time or at only certain times a week, while walking in Scott's Addition. These fears could be rectified by adequate light infrastructure, crosswalks, and sidewalk connections.

The final question regarding walking was an open-ended question, which asked how the participant would improve walking in Scott's Addition. The responses that occurred repeatedly were "a complete and improved sidewalk system" and "better lighting." Other responses included: crosswalks, trees, improved traffic patterns, lower speed limits, 4-way stop signs, better visibility, more spaces to sit, traffic enforcement, signage, eliminating the blind spots near intersections, and bike infrastructure to provide space between cars and pedestrians. While many of the responses involved improving the sidewalk conditions, a significant amount discussed how the cars affect walking and how improving the conditions of the roadway to make sure cars don't speed or have blind spots can improve the pedestrian experience. Figure 40 shows a word cloud of the responses from the question, showing the most repeated answers in larger text.

Figure 40: What Would Make Feel Better About Walking in Scott's Addition?



Following the walking questions, the subject shifted to biking in Scott's Addition. The first question asked, if there were adequate bike infrastructure (bike lanes and bike parking), how inclined would the participant be to choose biking as their mode of transportation into the neighborhood.

Figure 41: How Inclined would you be to Bike into Scott's Addition if Proper Bike Infrastructure was Implemented?

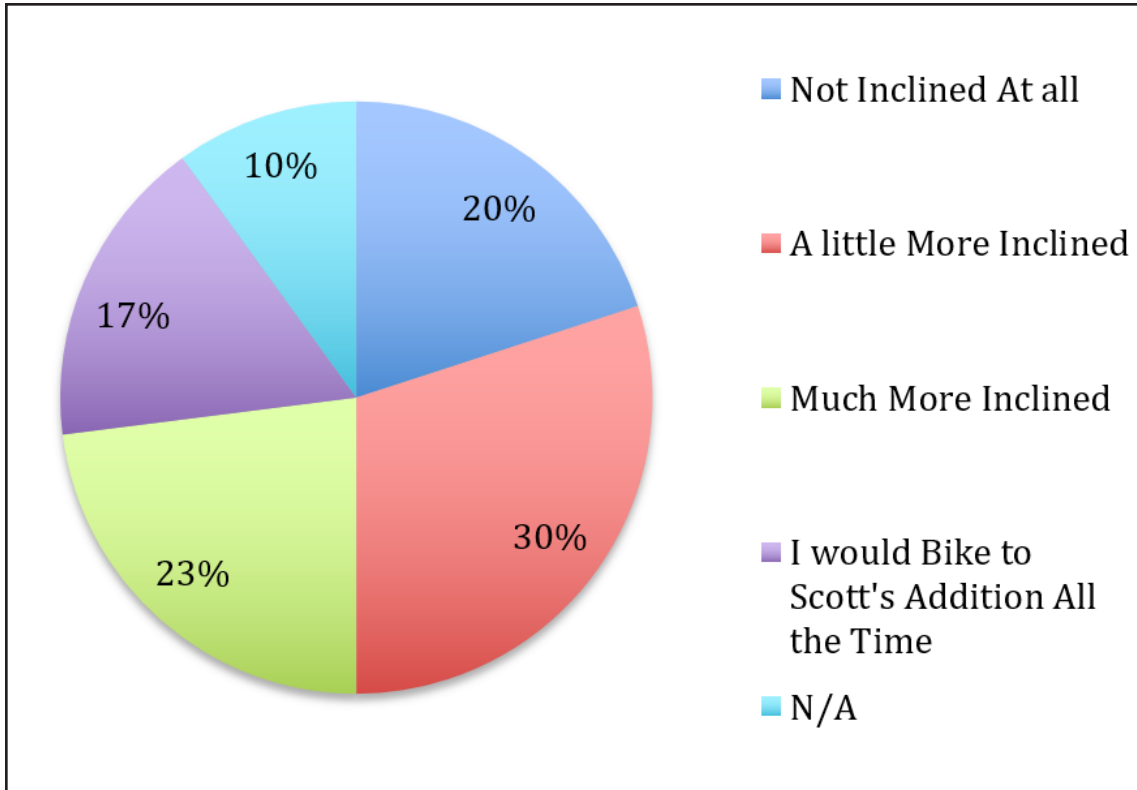


Figure 39 provides evidence that people will make transportation mode choice changes when they see adequate infrastructure that provides safe access for the other modes.

The next question was about potentially expanding the bike share in Scott's Addition. The question asked the participant "if there were more bike share stations in the neighborhood, would they use the RVA Bike Share system to access Scott's Addition?" From all of the participants, 44 percent responded with "not likely", however when asked why, the majority of the answers were "they already had a bike" or "lived close enough to walk." Of the responders, 15 percent said they would be "a little more inclined", and 14 percent said "much more likely." These two factors show that providing infrastructure has the potential to change behaviors. The final question on biking asked the participants where in Scott's Addition they would put a bike share station. There was a substantial mix of answers, yet there was a repetition of placing a new station near Urban Farmhouse and along either Broad St or N Boulevard. Other respondents suggested adjacent to the BRT station, which could help to promote biking and gain users for both services. With that, the final question on the survey asked how inclined the participant would be to use the Pulse Corridor BRT once it was running. Of the responders, 42 percent said they would never use the BRT, however when asked why, many of the answers said they already lived in Scott's Addition, were too close to the neighborhood to use it, or they wanted to see how it ran before using it themselves. Among the participants, 21 percent said they would "sometimes use the BRT", while nine percent said they would "often use the BRT."

The survey responses provide helpful insight and feedback. The responses can help justify Complete Street recommendations. The responses can also provide insight into how people's behaviors will change and adapt to an implemented Complete Street.

Informing the Stakeholders/ Interviews

Using the communicative action theory involves keeping the stakeholders informed. As discussed previously, interviews were conducted with local leaders of the Scott's Addition area to gather information and to inform them of the plan. In early January, 2-18, a meeting was held with two of the SABA board members, past president Mike Cline, and current president Trevor Dickerson. This was a time to hear what they thought was the most pressing need in Scott's Addition. They mentioned the congestion on Roseneath Rd near Broad St., as well as the problems with the sidewalks, intersection blind spots, parking demand issues, and travel patterns. They also mentioned an apartment complex being developed on the northern side of the neighborhood. The developer of the apartment complex is working on a bike/ped trail along the CSX railroad path, which runs behind the apartment complex. Once completed the trail will connect to the eastern side of North Boulevard where a movie theater, restaurants, and a grocery store are located. This development could be a great incentive to add more bike infrastructure to the street to connect the bike/ped trail to safe infrastructure in the neighborhood.

Two interviews, one on February 15th and another on March 8th were conducted with Councilwoman Gray. The first meeting was intended to inform her of the plan and to understand what she values in Scott's Addition and what she would like to be improved. She expressed that one of her main concerns was with the sidewalks in the neighborhood. She said she receives complaints from her constituents about the missing sidewalks and the impact the missing sidewalks are having on the businesses. She also said there have been serious falls that have resulted in injury due to the poor sidewalk conditions. The conversation moved to traffic and parking. She repeated the weaknesses the SABA board members discussed and how congestion and parking problems are big issues.

The second meeting with Councilwoman Gray involved discussing the responses and recommendations produced during the public meeting held on March 1st that will be discussed in the next section. Another topic of travel patterns, to better mitigate congestion without implementing another travel lane, was also discussed. Opening Clay to two-way travel is an option to help ease the pressure from Roseneath Rd, which would have car traffic able to continue down Clay St. and use another side street to access Broad St. She seemed eager to decrease the blind spots at intersections through bike corrals and bump outs, as well as increasing police enforcement.

As discussed previously, an informational presentation was given during a SABA monthly meeting to inform members of the plan and explain what has occurred so far. The presentation was also a means to provide information as to how the members could get involved and participate in the plan's development. Figure 42 shows a photo of the event.

Figure 42: SABA Presentation Photo



Public Meeting Outcomes

The final method of Stakeholder Outreach was through a public meeting, which occurred on March 1st in the conference room of the Dominion Payroll building in Scott's Addition. The meeting was advertised through a flyer (Appendix B), contacting the survey participants who added their contact information, social media websites such as Facebook.com and NextDoor.com, as well as through SABA's monthly newsletter. There were 13 attendees.

The meeting began with a presentation, detailing why Complete Streets are important and how they can benefit a neighborhood. The presentation also reviewed existing conditions and survey results. The group was then broken up into 3 smaller groups to have breakout discussions and to complete activities. Once the activities were complete the 3 groups came together to discuss what they came up with and why.

Three facilitators were brought on to help with the breakout group discussions and activities. After the groups were formed and assigned to a table, they were told to write down what they thought were Scott's Addition's main weaknesses and strengths.

Activity 1 asked the participants to list what they considered the top strengths and weaknesses of Scott's Addition. The participants discussed their thoughts as a group. The activity gave background on what the groups and individuals viewed as strengths and weaknesses, which showed repetition and also new ideas to consider. The activity was also meant to support Activity 3.

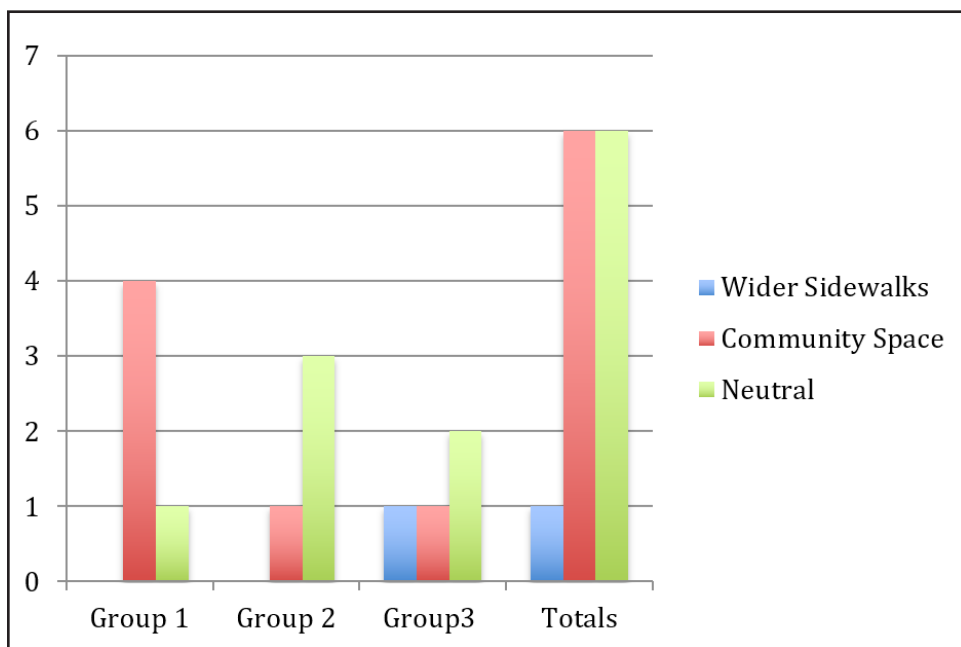
Some of the commonly mentioned strengths among all three groups were walkability, transportation friendly, and opportunity for growth. Some of the commonly mentioned weaknesses were lack of sidewalks, poor traffic designs, car speeds, intersection blind spots, and the lack of green space. These strengths and weaknesses were meant to start people thinking about what is desired for the streets of Scott's Addition and what needs to change.

Table 2: Activity 1 Strengths and Weaknesses

Group	Strengths	Weaknesses
Group 1	a reason to be here throughout the day, proximity- walkability and easy to wonder, accessible via bikes – easy to get all around town, opportunity for sufficient parking – avoids issues apparent in other neighborhoods	lack of multi-modal access – lack of sidewalks, visibility, poor design speed traffic patterns – speeding, accidents due to lack of visibility and drivers running stop signs, traffic pattern – confusing, buses and tractor trailers parking too close to the intersection, unsafe for pedestrians – lack of lighting
Group 2	good grid streets, close proximity/connectivity, compact grid, transportation – bus stops (N Boulevard), good access to the interstate, infill development/ adaptive reuse, walkable, lots of activity and businesses	intersections, crosswalks, limited visibility – one-way, east/west streets – fast moving lanes, design speed issues, loading zones, truck access, sidewalks (lack of), parking – lack of monitoring and enforcement, lack of green space – no park nearby, park space (pets), consistent street lighting (lack of).
Group 3	opportunity for walkability, the people – invested- interested, mix of residential/commercial/retail – uses that are transit supported, architecture – art deco buildings, amount of space on streets & sidewalks, open space, location, businesses that are a destination, BRT	green space, lack of complete sidewalk network, human scale infrastructure, safety overall, lack of adaptability – transition issues in uses/ conflict between users, one way streets, lack of neutral space – park, quality of sidewalk varies, there are no parking signs at intersections, lack of support from the city (safety, maintenance).

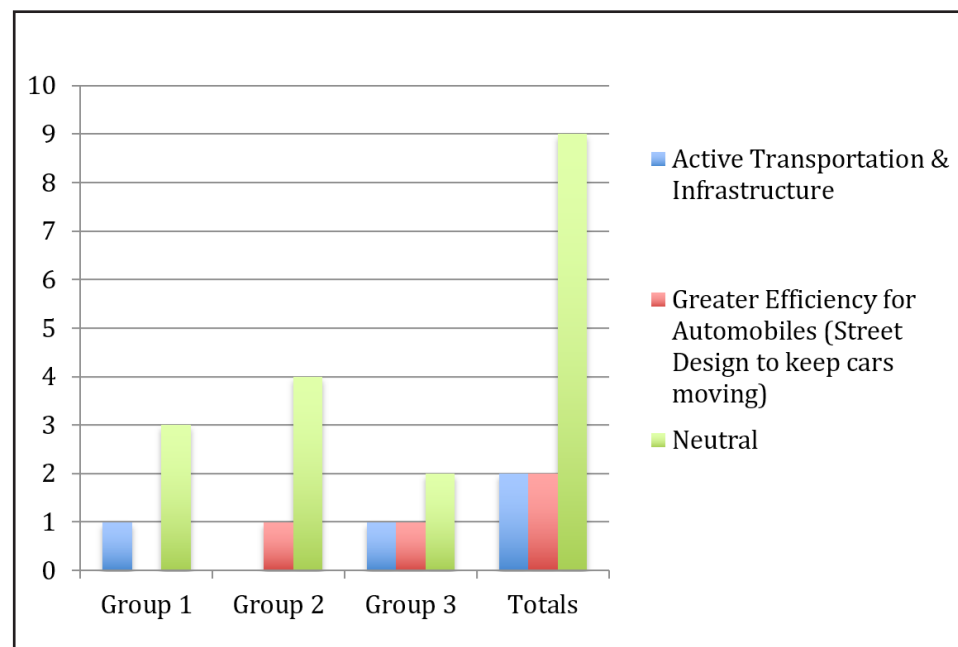
The second activity was titled “How do You Prioritize?” It involved each group getting two large pieces of paper with a triangle on it with different possibilities (green space, bike lanes, wider sidewalks) on each point of the triangle. The participant was to place a sticker on where they stood on how much they prioritize a possibility. The first triangle was meant to see what the participants prioritized in the pedestrian zone. The top of the triangle was the “keep things the same as they are” option, the lower left point was “wider sidewalks,” and the lower right point was “community space (benches, green space that could take up some sidewalk).” The participant could also place a sticker in the middle of the two additions, which would list them as “neutral.” Figure 43 shows the results from the three groups.

Figure 43: Triangle 1, Wider Sidewalks & Community Space



The second triangle was designed to see what the participants prioritized for the street. The top of the triangle was “keep it the same as it is,” the bottom left point was “active transportation access & infrastructure,” and the bottom right point was “greater efficiency for automobiles (street design to keep cars moving, speed requirement).” Figure 44 shows the results of the three groups.

Figure 44: Triangle 2, Active Transportation & Automobile Efficiency



The first two activities were designed to start discussion, establish priorities, and to facilitate the third activity.



For the third activity, each group was assigned a street. Group 1 was assigned W Clay St, Group 2 was assigned unconstrained W Clay St with no given curb-to-curb measurements, and Group 3 was assigned Roseneath Rd. The streets were cut to scale and made up about 130' of an actual block, which makes up less than half of the 400' block. The expected outcome of the activity was to see what the groups came up with and to see what additions would fit within the streets. Each group was given cut out sections of potential additions, such as bike lanes, parallel parking lanes, back in parking lane, sidewalks, trees, and street lights. The cut-out additions were cut to scale for accurate additions. The groups were then asked to work together to form a street that would help reduce the discussed weaknesses and maintain the strengths.

Shown on Figure 46, Group One had W Clay St with the existing street measurements. The intersection at the bottom of the design is W Clay St and Summit Ave. The group added a pedestrian bridge at the top of the image, a right side bike lane, parallel parking on the left side with a buffer to create more space between parked cars and bicyclists. The lane without the adjacent bike lane would have a sharrow marking. Group 1 also converted W Clay St from one-way to two-way. They added streets trees, streetlights, and a crosswalk with bump outs.

Figure 46: Group 1- Constrained W Clay St.

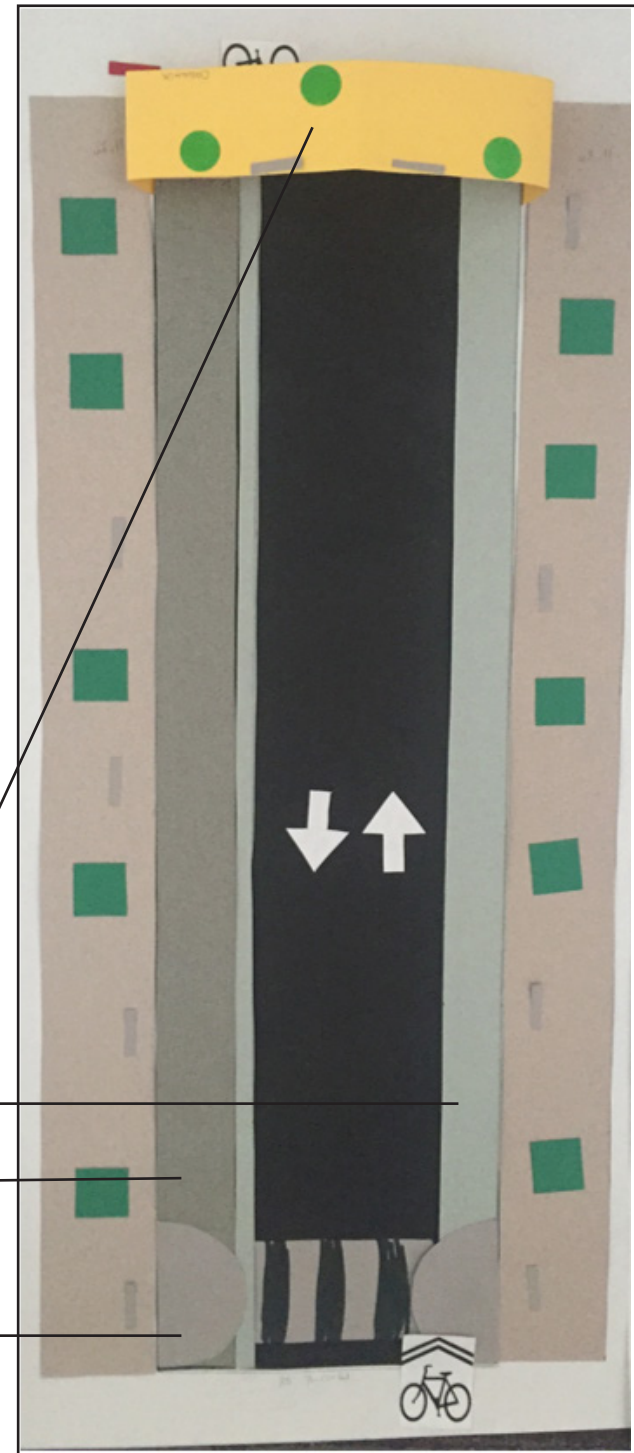


Figure 45: Public Meeting Break Out Group



Pedestrian Bridge

Bike Lane

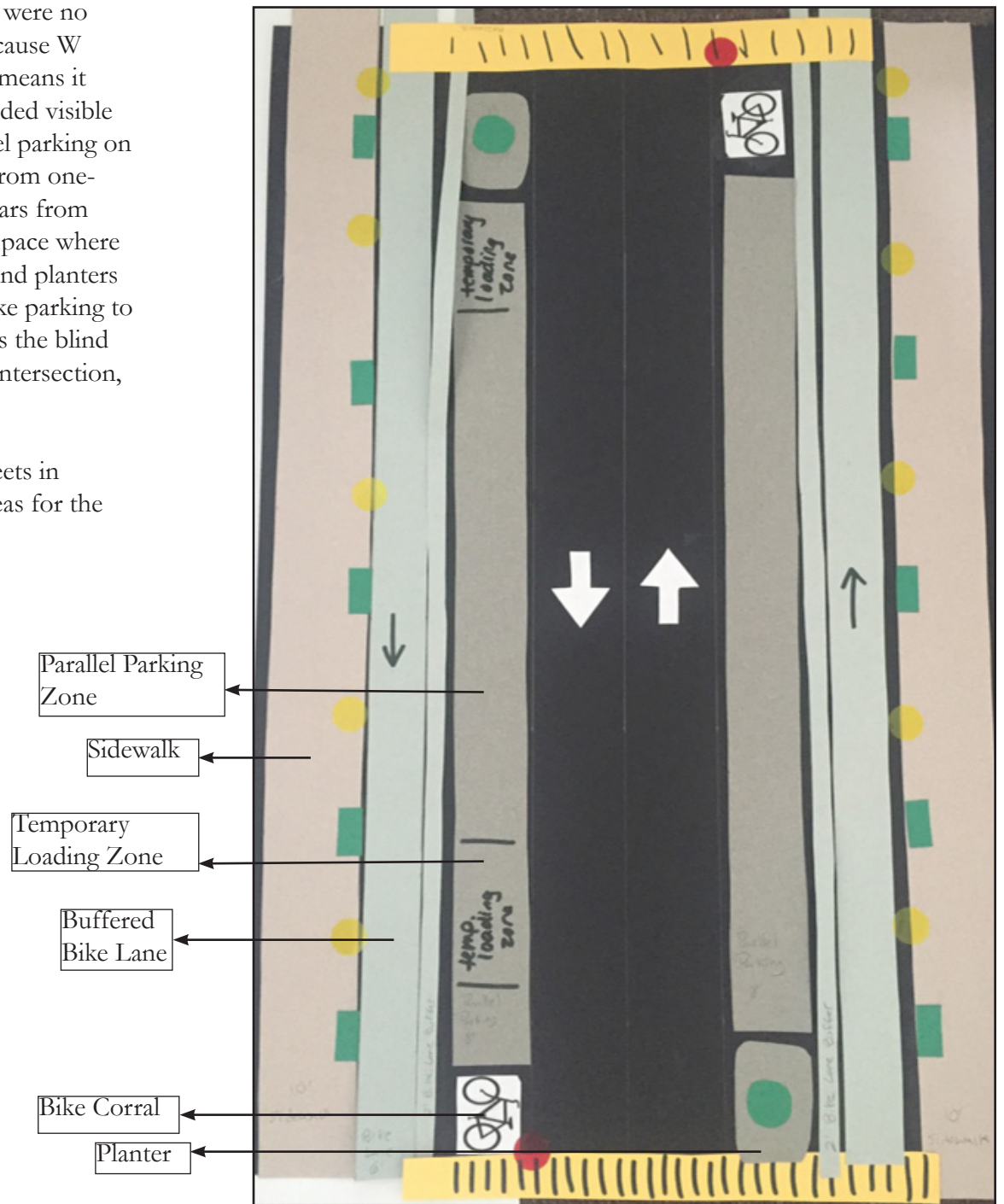
Parallel Parking

Curb Bump Out

Shown on Figure 47, Group Three had the unconstrained W Clay St. This was mainly to see what the group came up with when there were no restrictions to what they could design. This was also assigned because W Clay St. is up for a grant to reconfigure the curb distance, which means it could be made wider than what it currently is now. The group added visible crosswalks, buffered bike lanes to both sides of the street, parallel parking on either side, a temporary loading zone, and converted W Clay St from one-way to two-way. The group also came up with a way to prevent cars from parking too close to the intersections, which was to build in the space where they would park. Bike corrals can be seen at either intersection, and planters with low shrubs could be another option. This would provide bike parking to those who bike and to promote more bike activity. It also reduces the blind spots at intersections. The group also added stop signs at either intersection, street trees, and streetlights.

While this street design would not physically fit in any of the streets in Scott's Addition, it still produced great recommendations and ideas for the Complete Streets.

Figure 47: Group 2- Unconstrained W Clay St.



Shown on Figure 48, Group Two had Roseneath Rd. The bottom of the road represents the intersection with Roseneath Rd. and Broad St. The group had an intense conversation about how to design for the high traffic amount and the trucks that frequently use the road. A traffic engineer was part of this group and mentioned the issue of trucks getting caught on a telephone pole that is too close to the intersection. When trucks are turning right their turning radius is too tight and the trucks get stuck on the pole. The group wanted to try to fix this problem and brainstormed how to make the turn work with trucks. The group came up with pushing traffic out by implementing back-in parking on the western side of the street, and at the intersection they tapered off the parking with a green space that would widen the turning radius. Figure 48 shows an example of how pushing the radius out can affect turning right. The back-in parking would need 18' of the 45' road, leaving 27' for travel lanes. If the road wanted to continue having three travel lanes at the entrance of Roseneath Rd. at Broad St., then each lane could still have 9' and then widen to two lanes. The group also added street trees and streetlights.

The public meeting was a great way to hear from the participants and to see what they prioritized and would like to see in a street.

Figure 48: Group 3 - Roseneath Rd.

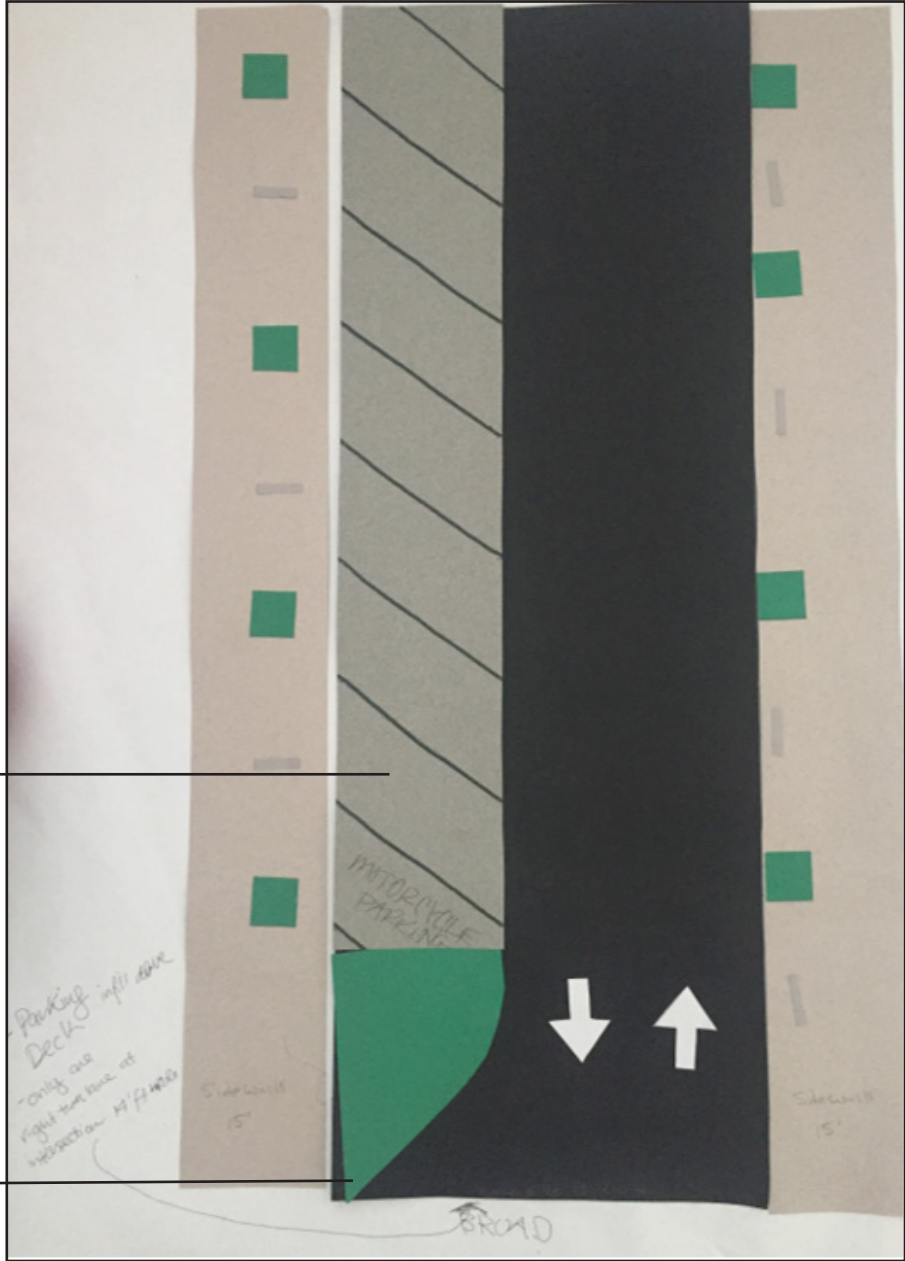
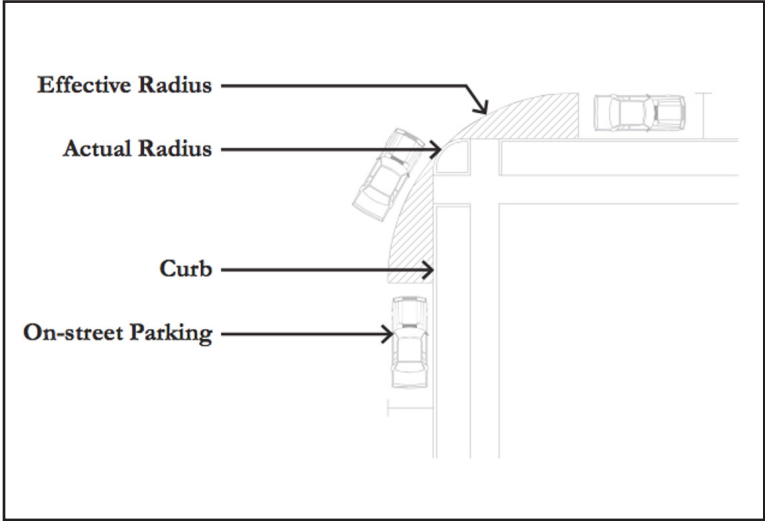


Figure 49: Widened Turning Radius Image

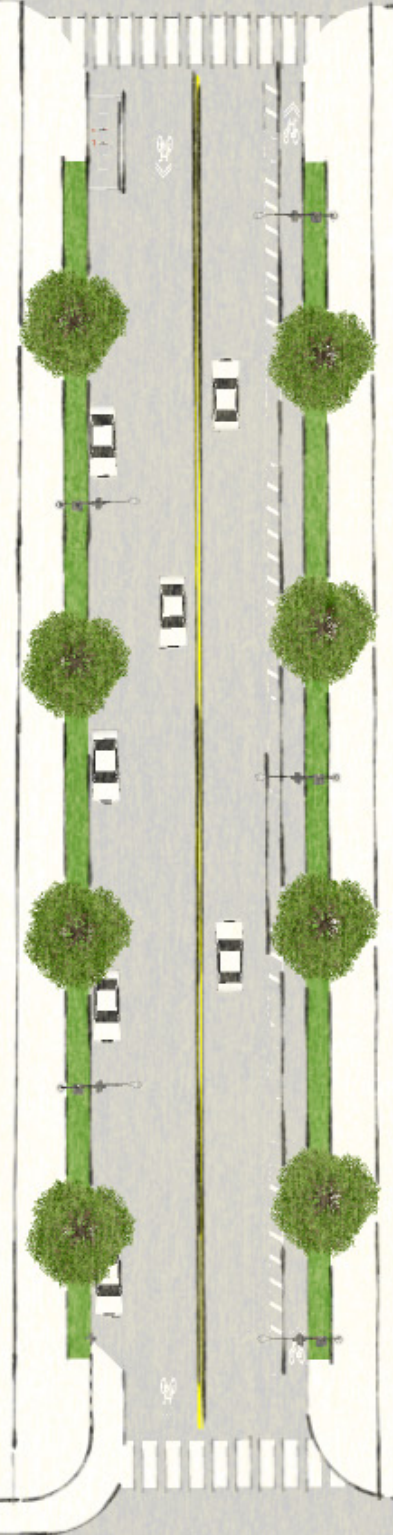


Source: Town of Norwell, MA. Complete Street Prioritization Plan

Back-in Parking

Bump-Out

RECOMMENDATIONS



Vision

The Scott's Addition Complete Street Plan promotes a livable, multi-modal, and safe neighborhood, designed with every user of any age and ability in mind. If the recommendations are put into action, Scott's Addition residents, visitors, business owners and employees, will have safer and easier access to the neighborhood amenities, regardless of mode choice. The implementation of the plan will allow the street and pedestrian zones to finally reflect the growth and progress the neighborhood has experienced over the years. The final designs reflect the desires and voices of the stakeholders, who were surveyed, interviewed, and listened to. The Complete Streets Plan will promote all forms of transportation to create a more accessible, healthy, and safe neighborhood.

Goals, Objectives, and Actions

Goals, objectives, and actions were established to provide an outline for how to achieve the vision.

Goal 1 – Create a safer pedestrian environment for all users.

Goal 2 – Increase bike accessibility and infrastructure throughout the neighborhood.

Goal 3 – Improve street design for safety and efficiency.

Goal 4 – Design the streets to have their own sense of place and livability.

Goal 1: Create a Safer Pedestrian Environment for All Users

Objective 1.1 - Create a safe and complete sidewalk network

Scott's Addition is extremely car-centric with improper pedestrian zones. After years of change and development occurring with the land use and amenities in the neighborhood, little has changed with street and pedestrian zones. The current sidewalk network within Scott's Addition is incomplete and unsafe. This goes against the Complete Street Theory, which insists all streets be usable and safe for all users. The incomplete network is not conducive for all users, especially those who are not able-bodied and of old age. These users need structurally sound sidewalks that are supportive and continuous to be able to reach each amenity. The increasing population, businesses, and visitors to the neighborhood make this a precedent issue that needs to be prioritized. The stakeholder outreach led to definitive proof that the stakeholders want a continuous network throughout the neighborhood. This proof was gathered from the survey participants ranking sidewalk improvements top priority and Councilwoman Gray stating the incidents that have come about in recent years due to a missing sidewalk and how there needs to be a change.

Action 1.1.1 – Gather community support.

To influence the local elected officials, advocacy groups such as Bike Walk RVA and SABA, can motivate and gather residents, visitors, employees, and business owners of Scott's Addition to demand better sidewalks through speaking at City Hall meetings and contacting their local officials.

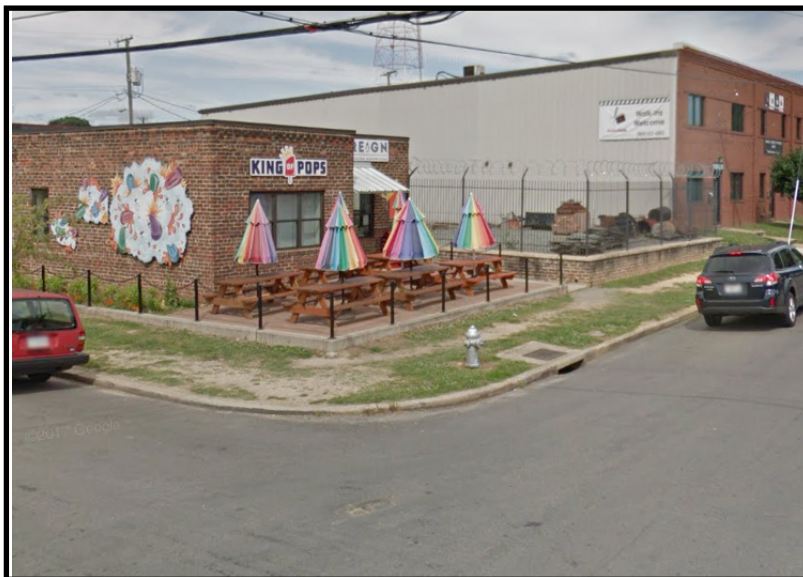
Action 1.1.2 – Implement a continuous sidewalk network.

“What would make you feel better about walking in Scott's Addition?”

“If the sidewalks would continue and not suddenly end (definitely a problem on Clay)”

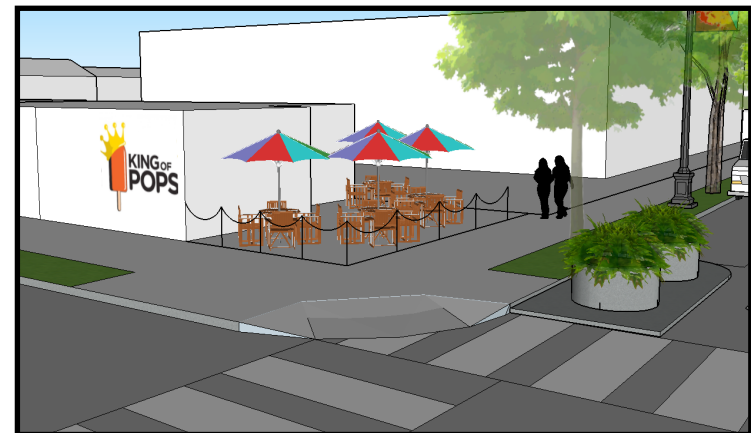
- Survey Responder

Figure 50: Lack of Sidewalk in Front of Commercial Space



Googlemaps.com

Figure 51: Image Showing a Connected Sidewalk Network



Goal 1: Create a Safer Pedestrian Environment for All Users

Objective 1.2 – Implement crosswalks at every intersection.

The lack of crosswalks presents a major hazard by failing to alert motorists to potential pedestrians crossing. There is also an issue with blind spots near intersections, which increases the danger due to poor visibility. There needs to be designated areas for pedestrians to cross the streets safely. The Urban Street Design Guide by NACTO states that “Safe and frequent crosswalks support a walkable urban environment.”³⁷ This importance of adding crosswalks was listed as a priority for stakeholders during both the survey and the public meeting. It is also listed as an ADA standard for streets.

Action 1.2.1 – Design a plan for specific types of crosswalks throughout the neighborhood depending on location.

The City of Richmond’s Transportation Engineering Division would lead this effort because the Division is in charge of supporting neighborhood livability and viability.³⁸ Fixed-time signaled crosswalks should be planned for wider, busier streets. This will promote safer street crossing and fewer traffic related injuries.

Figure 52: ADA Compliant Crosswalk for Wide Streets



Source: Cottingham, n/d

Figure 53: ADA Wheelchair Ramp Crosswalk



Source: ADAstepsafe.com, New York Crosswalk

Action 1.2.2 – Implement raised crosswalks at 4-way stop intersections.

The City of Richmond’s Transportation Engineering Division will be in charge of implementing raised crosswalks. Raised crosswalks “maintain a safe travel speed and reinforce residential uses of the neighborhood.”³⁹ The raised crosswalks will increase driver awareness of their speeds and make drivers slow down when approaching crosswalks.

Action 1.2.3 – Follow ADA guidelines when developing crosswalks.

The implemented crosswalks will include proper tactile paving and noise alerts to provide for those who are hearing or visually impaired. The Transportation Engineering Division will be in charge of these additions as well.

(See Figure 72)

Goal 1: Create a Safer Pedestrian Environment for All Users

Objective 1.3 – Implement proper street lighting

Proper street lighting is necessary for safe streets at night. The poor lighting in certain sections throughout the neighborhood provide pedestrians little safety when walking. Lack of lighting also prevents cars from seeing pedestrians crossing streets and increases threat of crime and assault if pedestrian zones are not illuminated. The survey results showed that increasing safety through street lighting was one of the top priorities and desired additions from the stakeholders. NACTO's Complete Street, Complete Networks document states "lighting creates safe and desirable streetscapes at night and during daytime. Lighting selection can add value and aesthetic character to neighborhoods and commercial districts."⁴⁰

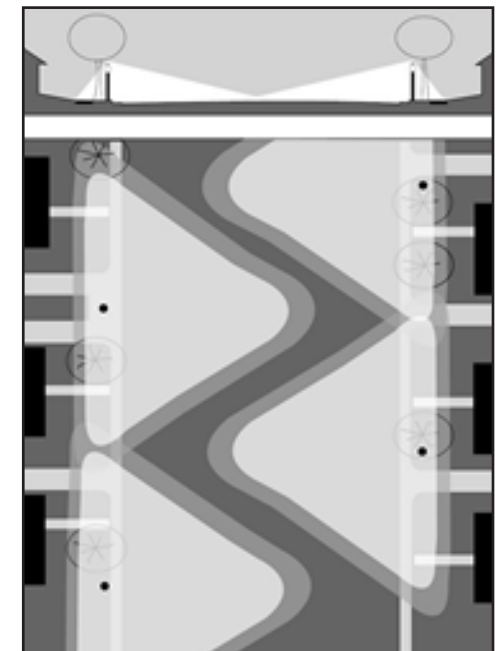
Action 1.3.1 – Improve streetlights to illuminate both the street and pedestrian zone.

The Department of Public Utilities (DPU) will work to improve the street lighting in the neighborhood. Along with the DPU, the Police Department's Environmental Policing Initiative "works with DPU's Streetlight Division to improve public safety and security in neighborhoods across the city, determining where locating a light and trimming trees would enhance crime reduction."⁴¹ Utilizing both of these forces to form a safer neighborhood at night is important because the neighborhood has a lively nightlife most days of the week. The new lights will be along a designated network, which will provide light to all users. The lights will also be low light-polluting to continue the progress of Scott's Addition. Figure 54 shows a proper network to provide adequate spacing of the lights to illuminate the entire street.

Action 1.3.2 – Implement in-pavement lights along crosswalk.

The Dept. of Public Utilities will install in-pavement lights to illuminate crosswalks at night.

Figure 54: Example of a Street Light Network



SF Better Streets

“What would make you feel better about walking in Scott’s Addition?”

“I would really like to see sidewalks in all areas of Scott’s addition, and would also like more street lighting since we walk our dogs at night.”

- Survey Responder

“More lighted crosswalks”

- Survey Responder

“Crossing the streets at night is terrifying.”

- Survey Responder



Goal 2: Increase Bike Accessibility & Infrastructure in the Neighborhood

Objective 2.1 – Increase bike parking along the two corridors.

The neighborhood currently lacks proper bike infrastructure, which discourages many potential bike users from riding into the neighborhood. The lack of bike parking also promotes illegal parking from cyclist or parking that infringes on the pedestrian zones. During the public meeting many participants said bike infrastructure was a priority. Bike parking is also listed as an amenity in NACTO's Complete Streets, Complete Networks document.

“What would make you feel better about walking in Scott's Addition?”

“Eliminating parking on the last 20 ft of each block. Seems as if drivers and pedestrians both cannot adequately see whats coming.”

- Survey Responder

“Also the cars park too close to intersections and visibility when crossing is low until you're in the middle of the street. People speed through the streets. I have a friend that was hit along Roseneath near dairy bar”

- Survey Responder

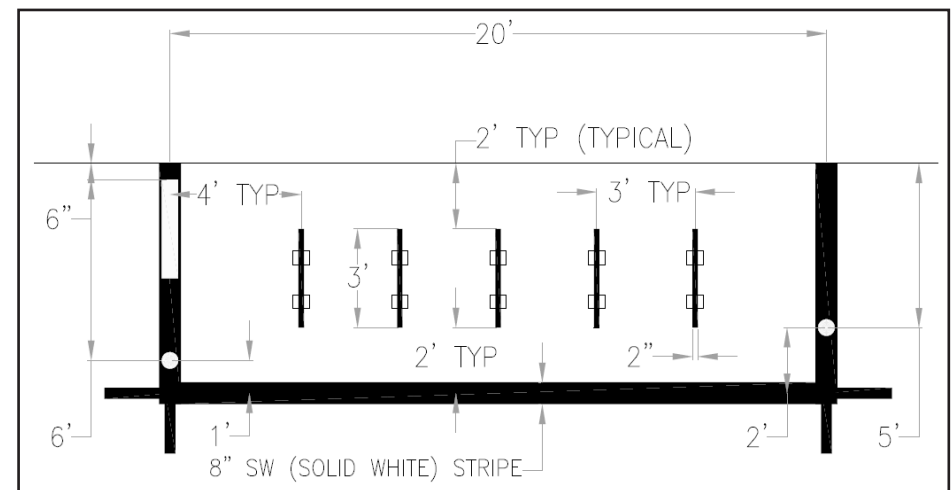
Action 2.1.1 – At selected intersections place bike corrals to prevent cars from parking too close to the intersection and creating a blind spot.

The City's Bike and Trails Coordinator, Traffic Engineering Division, and advocacy groups, such as Bike Walk RVA will develop plans and spread information about the bike corrals. The bike corrals will provide much more bike parking, reduce blind spots at intersections, and prevent illegal parking too close to intersections. This idea was brought to the attention of Councilwoman Gray and she was very supportive.

Action 2.1.2 – Request and incentivize businesses to implement bike parking in front of their business.

Advocacy groups such as Bike Walk RVA and citizen advocates can speak to business owners and inform them of the benefits of providing proper bike parking in front of their business. Handouts of Best Practices for bike parking can be distributed. The Bike and Trails Coordinator will be responsible for putting in the bike rack/parking request.

Figure 55: Bike Corral Measurements



SFMTA Short-Term Sidewalk Bicycle Parking Installation

Goal 2: Increase Bike Accessibility & Infrastructure in the Neighborhood

Objective 2.2 – Create safer and more welcoming streets for bikes along W Clay St and Roseneath Rd.

W Clay St has the potential to be a great bikeway. It leads to many amenities and popular destinations and has the possibility to see great improvement. The current width of the street may not warrant enough room for a bike lane, however if W Clay St. expands its curb-to-curb width, which is currently in the works of being funded through the Traffic Engineering Division, then a bike lane may be a possibility. Currently, parking is too scarce to take away an entire side of parallel parking along the corridor. Until there are fewer cars entering Scott's Addition or there are new places to park, the feasibility of a bike lane on W Clay St. is unlikely. However, creating a more visible and friendly space for bikes along the street is a current possibility. Taking methods from Floyd Avenue and increasing signage and bump-outs at certain intersections can develop slower automobile traffic and create a safer space for bikes. Roseneath Rd. is wide enough to accommodate a buffered bike lane, adequate width for travel lanes, and back-in on-street parking.

Action 2.2.1 – Implement similar visibility methods as Floyd Ave, such as a large sharrow marker and street signage

The City's Bike and Trails coordinator and the city's Traffic Engineering Division will be in charge of devising the traffic calming methods and signage. The signage and markings bring awareness to drivers that bikes are to be expected on the road. (See Figure 59)

Action 2.2.2 – Paint a buffered bike lane on the eastern side of Roseneath Rd.

The Bike and Trails Coordinator and Traffic Engineering Division will lead to implement the bike lane. The one-way bike lane will be five-feet with a three-foot buffer. The bike lane will lead to the CSX Bike/Ped trail leading to Meyers St across N Boulevard, currently being discussed and planned. This will offer cyclists a safe space to access the trail as well as create a buffer for pedestrians from automobiles. (See Figure 60 for measurements)



Goal 2: Increase Bike Accessibility & Infrastructure in the Neighborhood

Objective 2.3 – Implement another bike share station in the neighborhood.

Action 2.3.1 – Find a viable location for a bike share station, with an adequate supply of electricity and space.

The City's Bike and Trails Coordinator will be in charge of locating and implementing the new bike share station. This will increase the network of bike share stations in the city and allow for more bike share users to access Scott's Addition. A location close to the Cleveland St BRT station was mentioned frequently as a survey response to where the survey participants would place a new bike share station.

Action 2.3.2 – Promote the use of bike share in conjunction with the BRT.

Advocate groups such as Bike Walk RVA, along with GRTC and the bike and trails coordinator will be in charge of promoting and creating user-friendly information on how to use both.

“Once the Pulse Corridor Bus Rapid Transit (BRT) line is running, how inclined are you to use it to access Scott's Addition? Why or why not?”

“Broad street at Scott's Addition will be the closest BRT stations to my home and I'll primarily use them to get downtown and further East, but could see it as a valuable link for me to connect plans in Scott's addition to others elsewhere in the city”

-Survey Responder

Goal 3: Create Safer & More Efficient Vehicular Thoroughfares

Objective 3.1 – Change the street design to promote slower speeds and more consistent traffic patterns.

Changing the street designs can impact driver speed. Increasing awareness and caution will cause drivers to slow down. Figure 56 shows the effects of drivers slowing down, with fewer chance of fatality and a wider field of vision. This concept is discussed in the NACTO Urban Street Design Guide and LA Complete Street Design Guide, where high speeds can result in high fatality numbers. This was also brought up in many stakeholder outreach sessions, where participants expressed frustration over speeding.

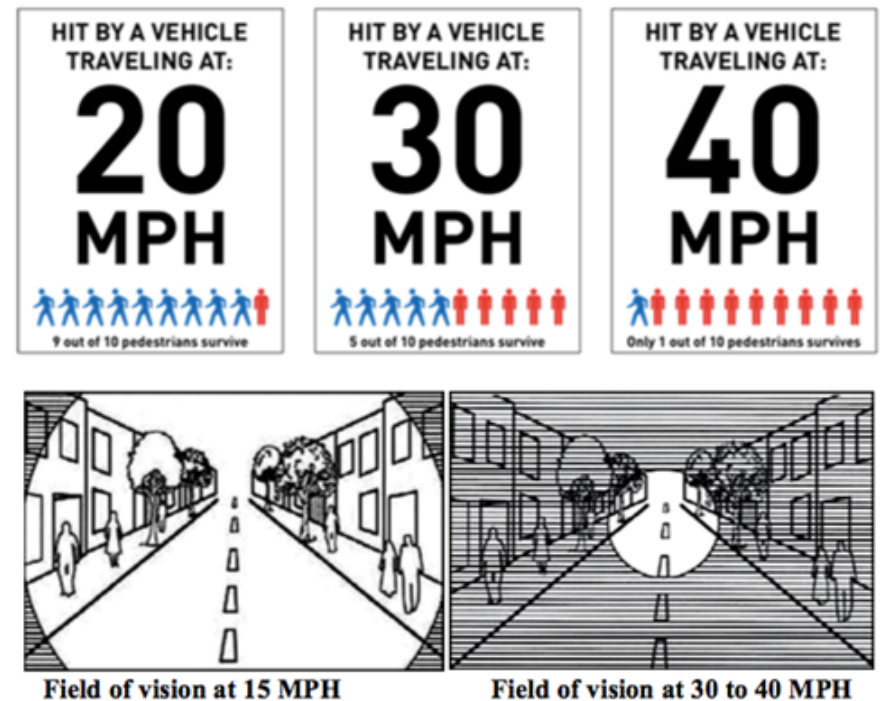
Action 3.1.1 – Convert W Clay St from a one-way street to a two-way street.

The change will slow cars down due to being more cautious with adjacent opposing vehicular flow and mitigate traffic congestion at Roseneath Rd. The City's Traffic Engineer will lead. This change will also allow for safer pedestrian and cycling activities due to cars traveling at slower speeds.

Action 3.1.2 – Incorporate appropriate traffic calming methods, such as curb bump-outs and on-street planters at intersections, to slow down cars and reduce blind spots.

The Traffic Engineering Division will lead the force on implementing appropriate traffic calming methods. Figure 56 illustrates how reduced speed impacts fatality risk.

Figure 56: The Impacts of Automobile Speeds on Field of Vision and Fatality Risk



Source: Vision Zero, Seattle, SDOT

Goal 3: Create Safer & More Efficient Vehicular Thoroughfares

Objective 3.2 – Find methods that ease parking demand but also increase efficiency and safety for other modes.

Parking demand in the neighborhood has been brought up with multiple stakeholders who say it as a big problem, especially for residents who lose parking to visitors.

Action 3.2.1 – Incorporate back-in parking along the majority of Roseneath Rd.

City of Richmond's Traffic Engineering Division will lead. This will provide parking for one side of the corridor and keep the rest of the street open for automobile flow and potential for a bike lane or an 8 ft parallel parking lane if there is not enough support for a bike lane. Parallel parking will remain closest to the Broad St. and Roseneath Rd. intersection to provide space for two travel lanes to turn onto Broad St. Parallel parking will also be located closest to the warehouses near the northern section of Roseneath Rd. (North of Norfolk Ave), to allow space for trucks to load and unload. An example of how back-in parking would affect the parking demand; a 284' section of street is able to fit 21 back-in parking spots, whereas 13 parallel parking spots would occupy that same space. However, parallel parking would be present on either side of the street where back-in parking would only be on one side of the street. While implementing back-in parking may not increase parking along the corridor, it would make room for active transportation infrastructure. Action 3.2.4 identifies another opportunity to increase parking.

Action 3.2.2 – Offer partnership or incentives to nearby businesses with large, often vacant, parking lots to see if they would be willing to lease parking spots.

The City's Department of Public Works will lead with devising an incentive plan and presenting it to possible businesses.

Action 3.2.3 – Collaborate with Lyft and Uber to create discounted fare or credit system if visitors choose to ride with their service to Scott's Addition.

During February 2018, Lyft provided discounted rates for users traveling to businesses along Broad St. during the construction of the BRT, to incentivise citizens to visit the businesses affected by the construction. Similar to what Lyft did for Broad St, an incentive program can be implemented in Scott's Addition to encourage visitors to choose Lyft/Uber instead of driving their own personal vehicles into the neighborhood. SABA can take the lead on approaching Lyft or Uber to see if either would be interested in collaborating on the project.

Action 3.2.4 – Add parallel parking on either side of the W Clay St. Ramp, from intersection to about 100 ft into ramp.

Adding parking will offset some of the removed parking, but will also slow cars down as they approach the W Clay St, Roseneath Rd. intersection. The Department of Public Works will lead the initiative to add more parking.

Goal 3: Create Safer & More Efficient Vehicular Thoroughfares

Objective 3.3 – Increase police activity to ensure safety measures are being practiced and continued.

Action 3.3.1 – Increase police patrolling and enforcement in the neighborhood to ticket illegally parked cars and stop intoxicated drivers.

Increasing ticket and police consistency within the neighborhood will likely decrease the amount of illegal parking and speeding that is occurring. The Richmond Police Dept. (RPD) will lead this effort, along with SABA to inform residents.

Action 3.3.2 – Add speed radar signs to streets that frequently experience speeding.

RPD will be the point of contact for the signs. The NACTO Urban Street Design Guide states “Speed enforcement cameras have proven highly effective at reducing speeds and increasing compliance with the speed limit.”⁴²



Goal 4: Design the Streets to have Their Own Sense of Place and Livability

Objective 4.1 – Add a line of trees at the edge of streets adjacent to sidewalk

Action 4.1.1 – Designate locations along sidewalks for greenery, including trees and shrubs.

This will provide a natural barrier to pedestrians and automobiles, shade, a sense of enclosure, and also make drivers slow down, as the feeling of trees quickly passing shows the drivers how fast they are going. The Richmond Tree Stewards can lead.

Action 4.1.2 – Designate the truck radius bump-out at the corner of Roseneath Rd and Broad St as a green space for trees and low shrubs.

Traffic Engineer Division, tree stewards, and the Department of Public works will work on this project.

Goal 4: Design the Streets to have Their Own Sense of Place and Livability

Objective 4.2 - Form a sense of place along streets.

Action 4.2.1 – Incorporate street furniture on sidewalks to attract people to stop.

The Department of Public Works is in charge of street furniture. In order to promote people to stop, furniture should be added to create a welcoming corridor for sitting and gathering.

Figure 57: Natural and Interesting Pieces of Street Furniture



Source: ArchDaily, Trevor Dykstra

Action 4.2.2 – Develop a Scott’s Addition Banner Project

The banners will allow people to always know where they are and to show a strong sense of community. SABA will be the head of the project. Figure 58 shows an example of a banner on a light post.

Figure 58: Neighborhood Banner Project Example



Source: Austintexas.gov

W Clay St. Recommended Measurements

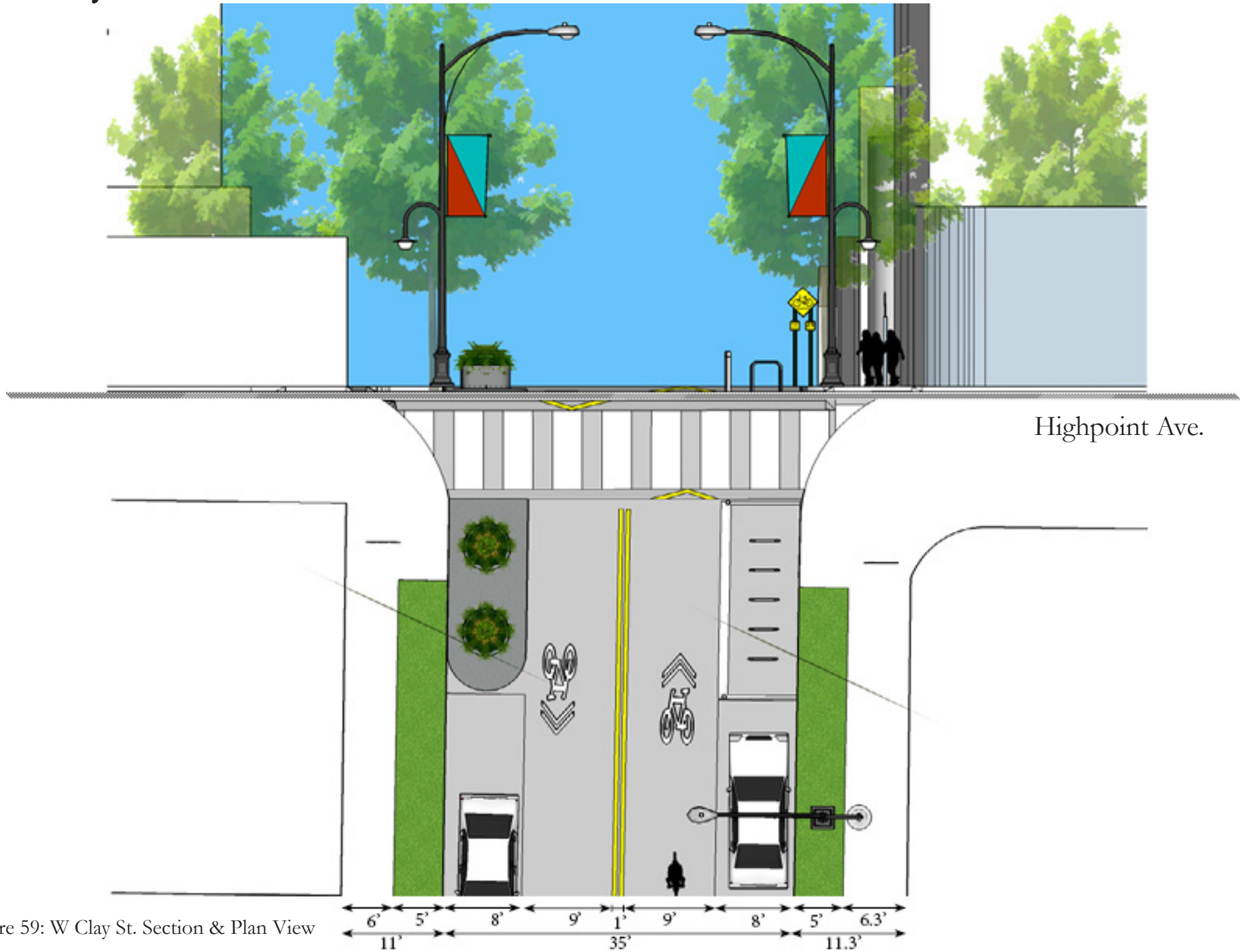


Figure 59: W Clay St. Section & Plan View

Roseneath Rd. Recommended Measurements

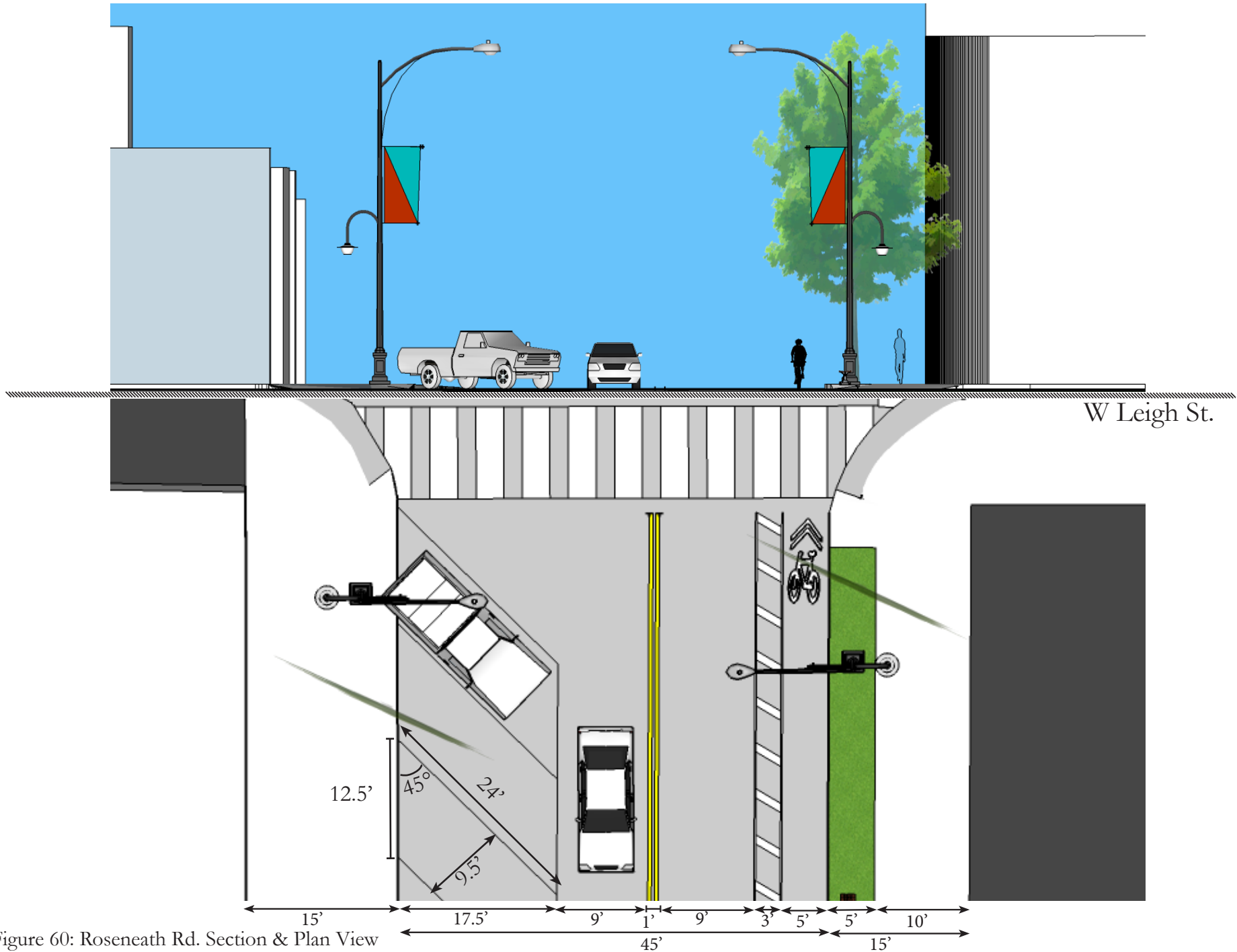


Figure 60: Roseneath Rd. Section & Plan View

Before and After Images

W Clay St. & Mactavish Ave Before and After

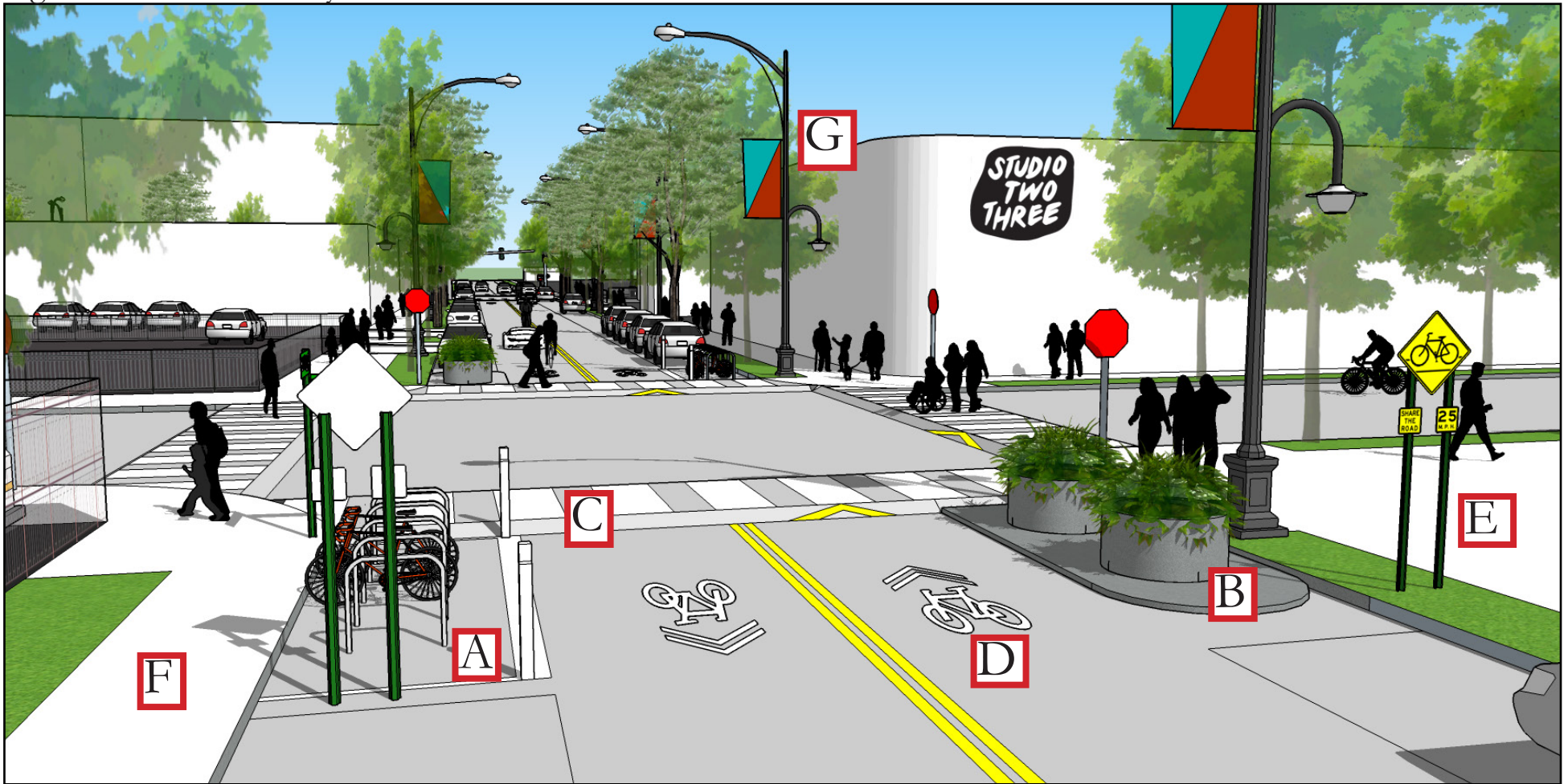
Figure 61 shows the before image of the W Clay St and Mactavish Ave intersection. There are wheelchair ramps, however no crosswalks. The path on the southern side of the intersection is missing a sidewalk. Cars are also seen parking too close to the intersection, which can cause blind spots.

Figure 62 illustrates recommendations of ways to fix the issues of the intersection. The legend on the bottom of page 61 identifies the changes.

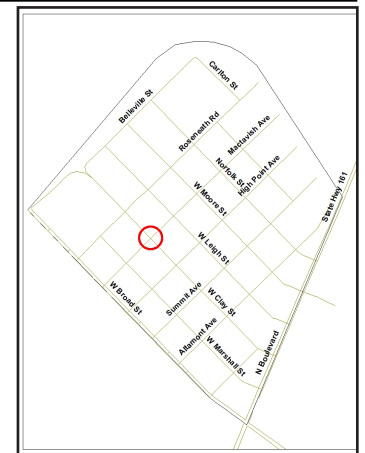
Figure 61: Before- W Clay St. and Mactavish Ave



Figure 62: After - W Clay St. and Mactavish Ave



- A - On Street bike corral to provide bike parking and reduce blind spots intersections
- B - On Street planter to provide vegetation and reduce blind spots at intersections
- C - Raised crosswalk
- D - On street bike markings
- E - Bike signs
- F - Complete sidewalk
- G - Streetlights that illuminate both the pedestrian and street zones



W Clay St. Before and After

Figure 63 shows the before image of W Clay St. The street is one-way with two lanes and parallel parking on either side. The sidewalk is also missing on the southern pathway. Figure 64 illustrates how the street could look with some alterations. Figure 64 shows the conversion of W Clay St. from one-way to two-way. There is also now a sidewalk on the southern pathway.

The legend below Figure 64 indicates the changes that were addressed.

Figure 63: Before - W Clay St.



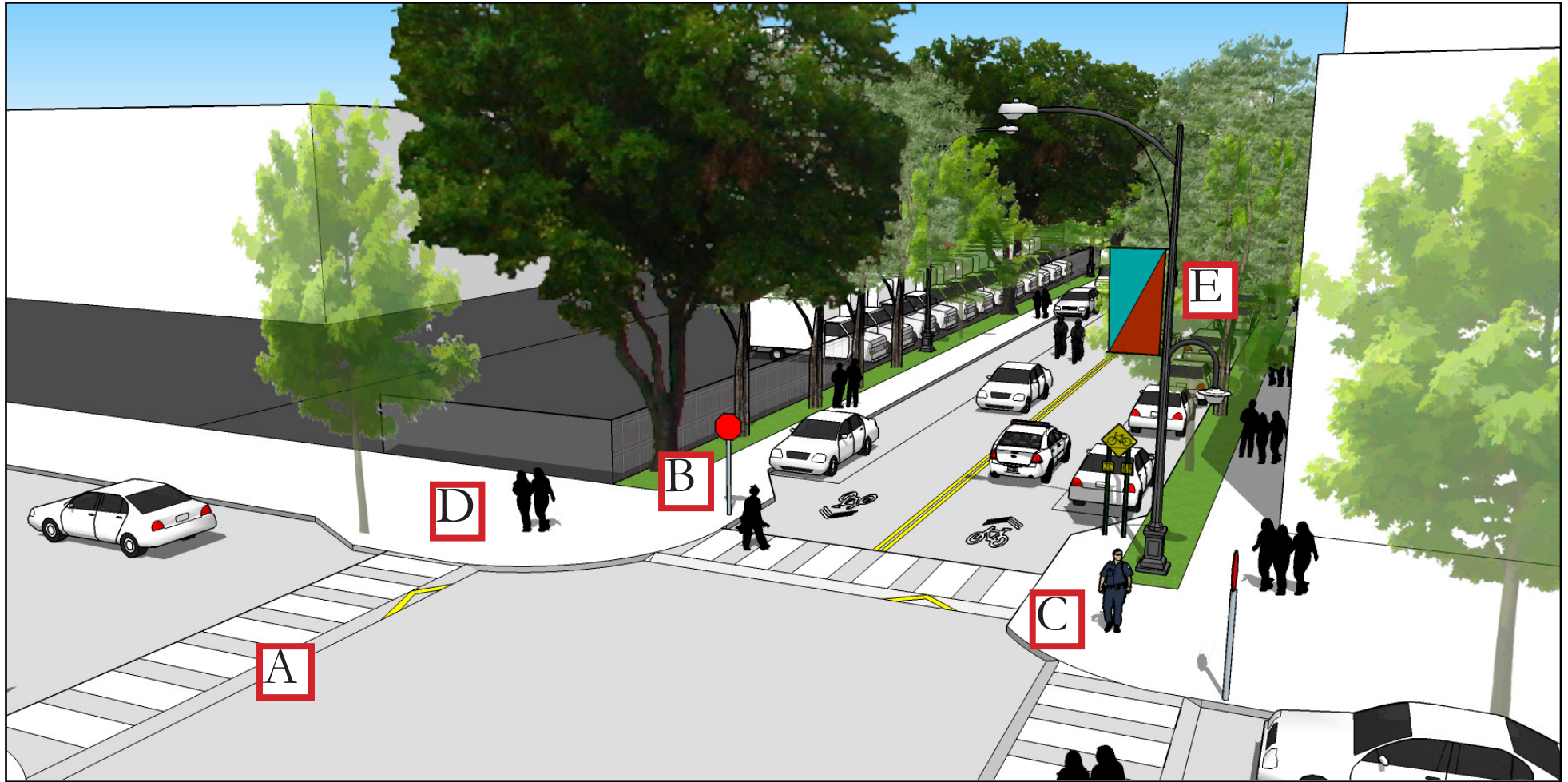
W Clay St. & Highpoint Ave Before and After

Figure 65 shows the before image of the intersection of W Clay St. and Highpoint Ave. There are wheelchair ramps, however no crosswalks. The southern side is also not pedestrian friendly. Figure 66 illustrates what the street would look like if the recommendations were implemented.

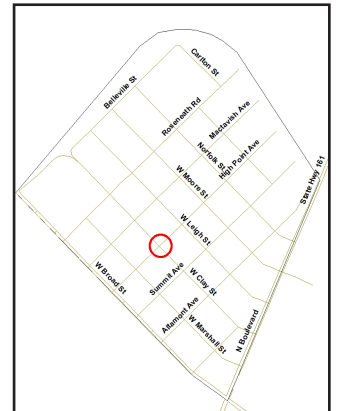
Figure 65: Before - W Clay St and Highpoint Ave



Figure 66: After - W Clay St. and Highpoint Ave



- A - Raised crosswalk
- B - Stop signs
- C - Police activity
- D - Curb bump outs
- E - Banner project



Roseneath Rd. and W Clay St. Intersection Before and After

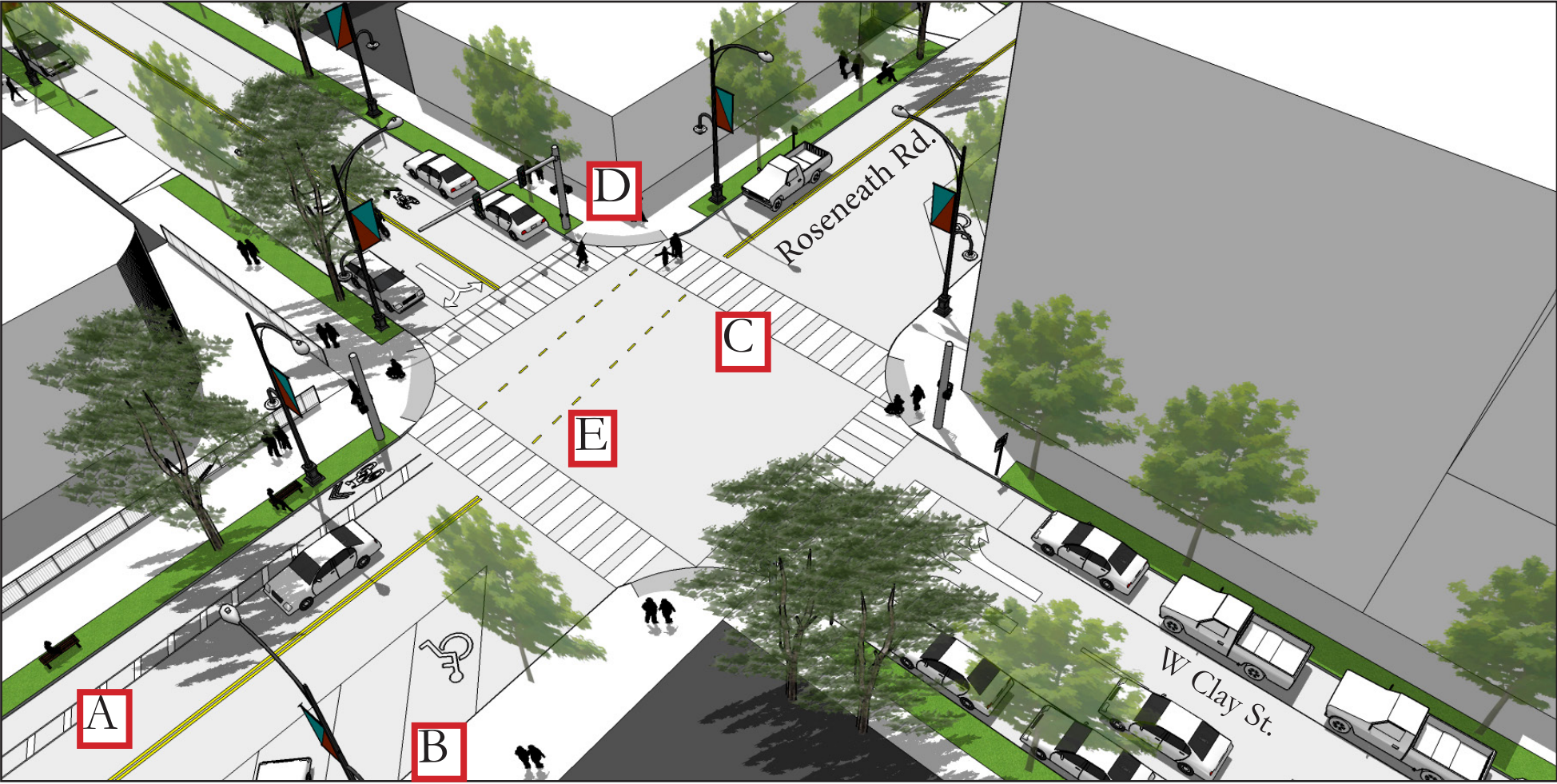
Figure 67 shows the before image of the W Clay St. and Roseneath Rd. intersection. The before image shows the confusing traffic pattern of W Clay St.

Figure 68 shows what the intersection could look like if the recommendations are implemented. A bike lane north of W Clay St, more visible crosswalks, back-in parking along the western side of Roseneath Rd., and crosswalks with timers.

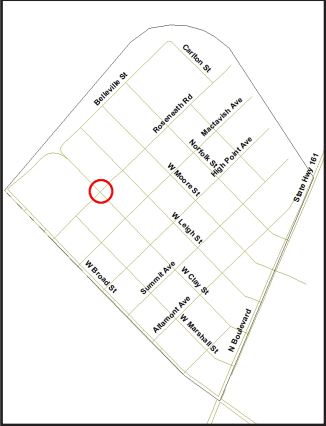
Figure 67: Before - Roseneath Rd. and W Clay St.



Figure 68: After - Roseneath Rd. and W Clay St.



- A - Bike lane
- B - Back-in parking
- C - Visible crosswalks
- D - Timed crosswalks
- E - Street painting to indicate where lane leads



Roseneath Rd. & Broad St. Before and After

Figure 69 shows the problem intersection of Roseneath Rd. and Broad St. Figure 70 illustrates what a bump out could provide for the intersection.

Figure 69: Before - Roseneath Rd. and Broad St.



Looking North on Roseneath Rd. Before and After

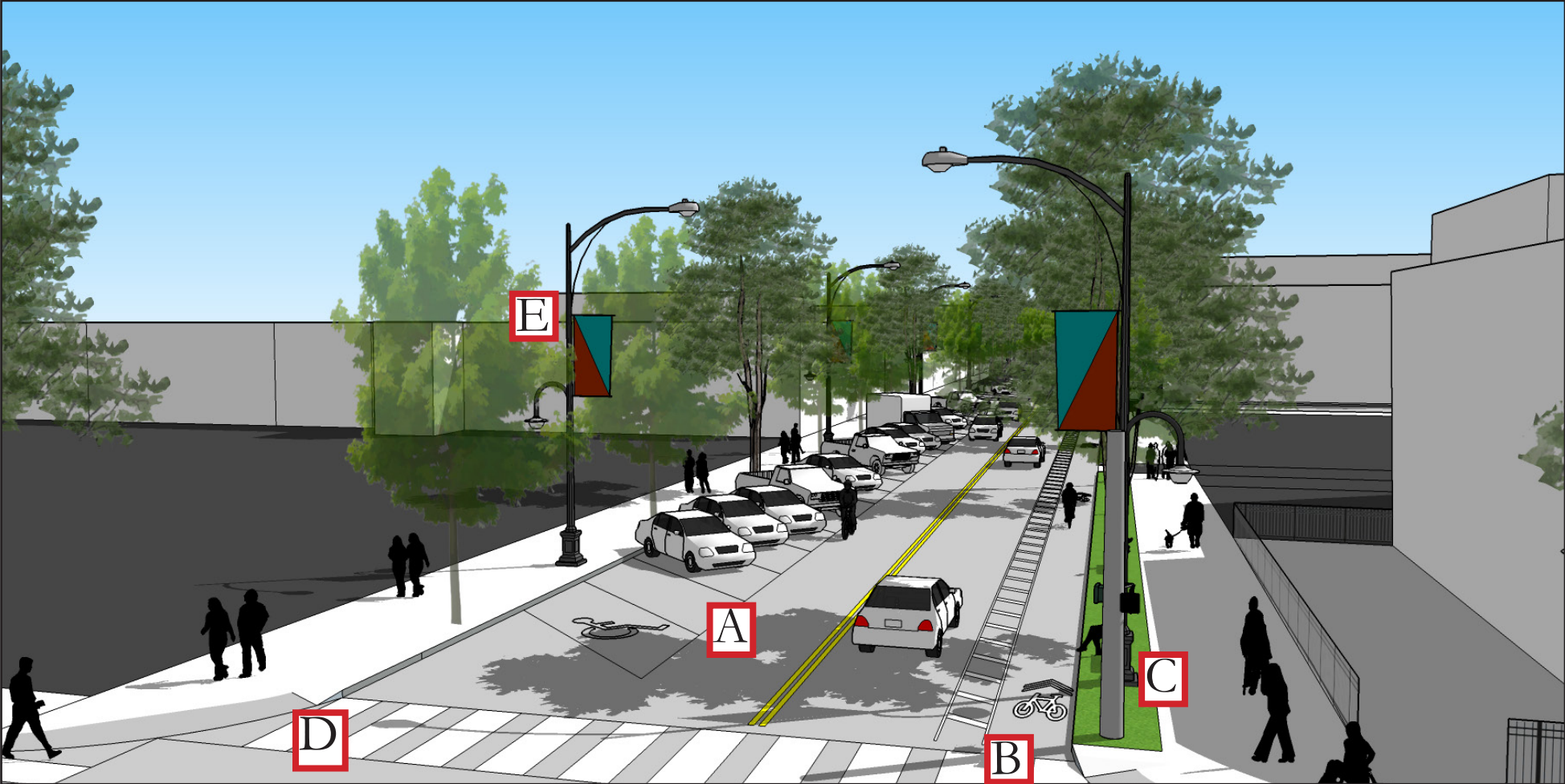
Figure 71 shows the before image of Roseneath Rd. Some of the issues the image shows are wide sidewalks with lacking trees and proper street lights.

Figure 72 illustrates the plan's recommendations. Back-in parking, consistent tree lining and a buffered bike lane.

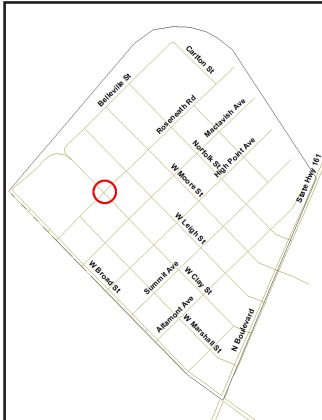
Figure 71: Before - Looking North on Roseneath Rd.



Figure 72: After - Looking North on Roseneath Rd.



- A - Back-in parking
- B - Buffered bike lane
- C - Added vegetation with a green strip and trees
- D - ADA wheelchair ramps
- E - Streetlight network



W Clay St. Ramp, Before and After

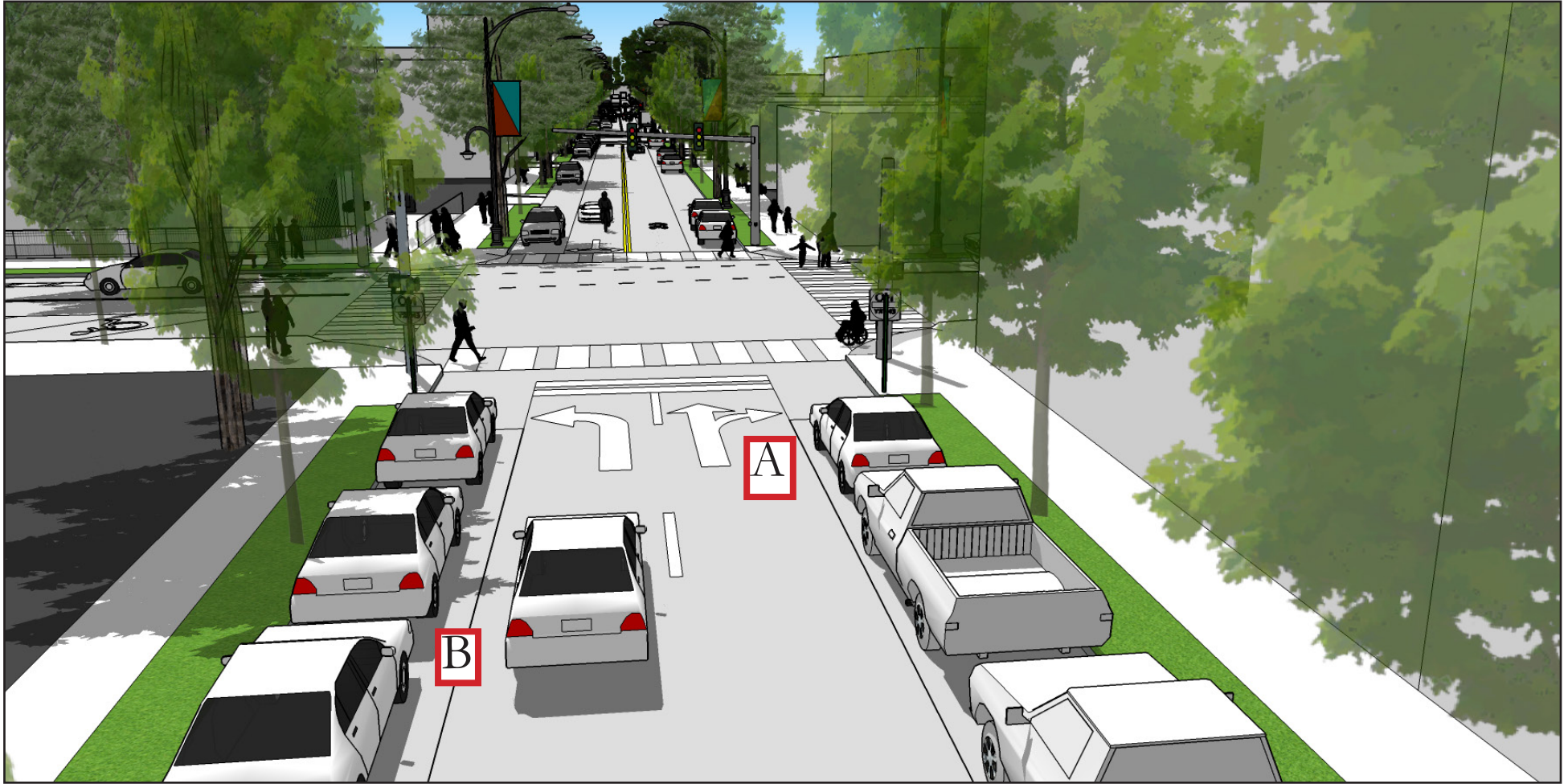
Figure 73 illustrates what being on the W Clay St ramp looks like. The other side of the intersection has minimal signs showing no entry.

Figure 74 illustrates what the intersection could look like if the recommendations were implemented. The recommendations implement a new traffic pattern allowing the cars on the ramp to go straight down W Clay St. The recommendations also add parking on either side of the ramp to slow cars down as they approach the intersection.

Figure 73: Before - W Clay St. Ramp

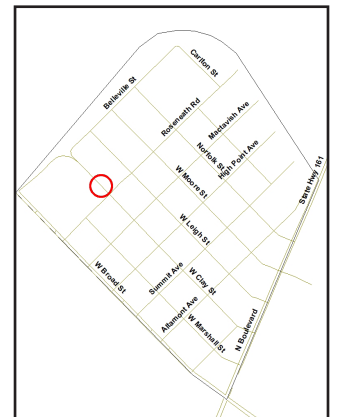


Figure 74: After - W Clay St. Ramp



A - New traffic pattern

B - Added parking



Roseneath Rd. Before and After

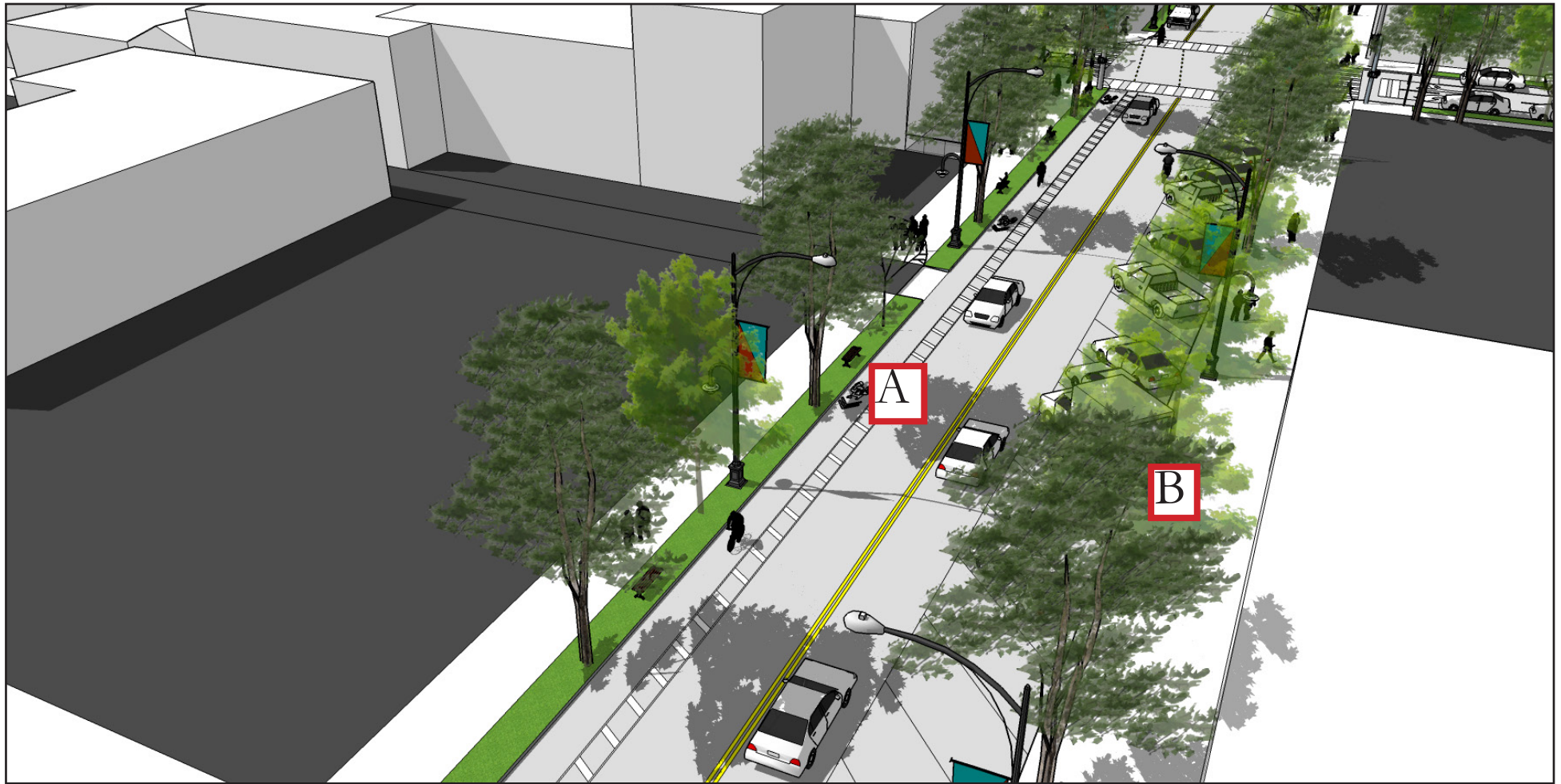
Figure 75 shows Roseneath Rd. and the issues it faces. The road has no sense of place and isn't identifiable. However, Figure 76 shows how the recommendations could rectify that and better the street. The recommendations add street furniture, and take out the parallel parking on the eastern side, which could open up the street to be more welcoming. The bike lane provides a buffer between vehicles and pedestrians and the street trees provide shade and prevent runoff.

Figure 75: Before - Roseneath Rd.

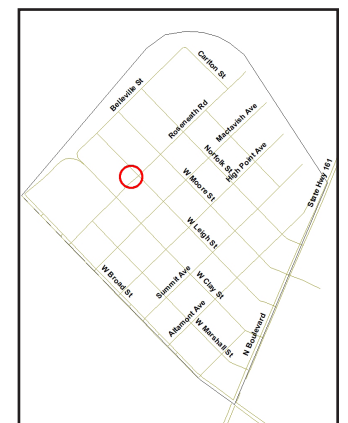


To view a full animation video of the recommendations, go to this link:
<https://vimeo.com/user84840762/scottsadditioncompletestreetsplan>

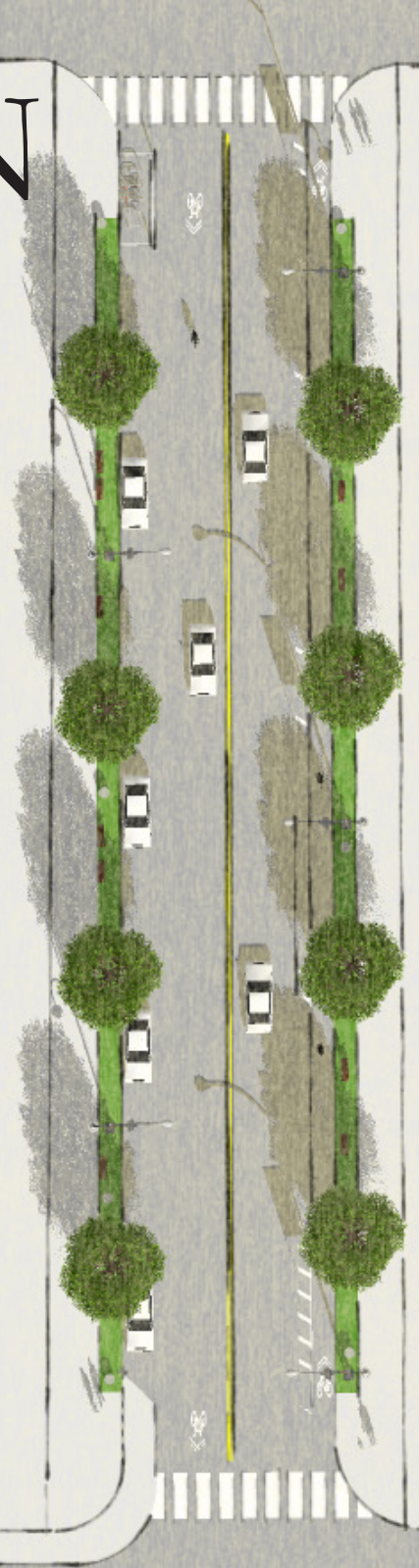
Figure 76: After - Roseneath Rd.



- A - Added street furniture
- B - Increased street trees



IMPLEMENTATION



The implementation of the Scott's Addition Complete Streets Plan will be broken down into three phases, as seen in Tables 3, 4, and 6. Before the plan can begin implementation a series of plans, studies, and steps need to be completed. The plans that need to be completed first are the Richmond 300 Master Plan and the Richmond Complete Street Guide Ordinance. The studies that need to finish first are the Parking study and Traffic Circulation study. The steps that need to occur prior to the Complete Streets Plan being initiated are funding for sidewalk repair, and developing a complete street group to see the projects through and maintain communication with all the departments and groups involved. Funding sources have been identified, Table 5 shows costs of the infrastructure recommended. Most of the costs are in ranges, to show how little and how much a specific infrastructure implementation could cost, depending on material and amount used. Most of the infrastructure cost will land somewhere in the middle of the ranges.

As shown in Table 5, the first phase is being allotted 2 years. The actions that begin in the first phase and second phase may overlap with the following phases due to extensive planning and time needed for construction. However, the actions that begin in the first phase are top priority and planning and construction should begin early on in the plan implementation. The following phases should each take 1 year.



Table 3: Implementation Table - Goals 1 & 2

Goals/Objectives/Actions			Leadership/Support	Phase
Goal 1 : Create a safer pedestrian environment for all users.				
Objective 1.1 - Create a safe pedestrian zone				
	Action 1.1.1	Gather community support	Advocacy Groups, SABA	I
	Action 1.1.2	Implement a continuous sidewalk network	Richmond Transportation Engineering Division	I
Objective 1.2 - Implement crosswalks at every intersection				
	Action 1.2.1	Design a plan for specific types of crosswalks throughout the neighborhood depending on location	Richmond Transportation Engineering Division	I
	Action 1.2.2	Implement raised crosswalks at 4-way stop intersections	Transportation Engineering Division	II
	Action 1.2.3	Follow ADA guidelines when developing crosswalks	Transportation Engineering Division	I
Objective 1.3 Implement proper street lighting				
	Action 1.3.1	Improve streetlights to illuminate both the street and pedestrian zone.	Department of Public Utilities (DPU)	I
	Action 1.3.2	Install in-pavement lighting along crosswalks	DPU	II
Goal 2 : Increase bike accessibility and infrastructure in the neighborhood				
Objective 2.1 Increase bike parking along the two corridors				
	Action 2.1.1	At selected intersections place bike corrals to prevent cars from parking too close to the intersection and creating blind spots	The City Bike and Trails Coordinator, Traffic Engineering Division, Advocacy Groups	I
	Action 2.1.2	Request and incentivize businesses to implement bike parking in front of their business	Advocacy Groups (BikeWalkRVA), City Bike and Trails Coordinator	I
Objective 2.2 Create a safer and more welcoming street for bikes along W Clay St				
	Action 2.2.1	Implement similar visibility methods as Floyd Ave, such as large sharrow markers and street signage	City Bike and Trails Coordinator, Traffic Engineering Division	I
	Action 2.2.2	Paint a buffered bike lane on the eastern side of Roseneath Rd	City Bike and Trails Coordinator, Traffic Engineering Division	II
Objective 2.3 Implement another bike share station in the neighborhood				
	Action 2.3.1	Find a viable location for a bike share station, with an adequate supply of electricity and space	City Bike and Trails Coordinator	III
	Action 2.3.2	Promote the use of bike share in conjunction with the BRT	Advocacy Groups (Bike Walk RVA), Greater Richmond Transit Company	III



Table 4: Implementation Table - Goals 3 & 4

Goals/Objectives/Actions			Leadership/Support	Phase
Goal 3 : Create safer and more efficient vehicular thoroughfares				
Objective 3.1 Change the street design to promote slower speeds and more consistent traffic patterns				
	Action 3.1.1	Convert W Clay St from a one-way street to a two-way street	Traffic Engineering Division	I
	Action 3.1.2	Incorporate appropriate traffic calming methods, such as curb bump-outs and on-street planters at intersections, to slow down cars	Traffic Engineering Division	II
	Action 3.1.3	Increase amount of stop signs at intersections.	DPU	I
Objective 3.2 Find methods that ease the parking demand but also increase efficiency and safety for other users				
	Action 3.2.1	Incorporate back-in parking along the majority of Roseneath Rd.	Traffic Engineering Division	I
	Action 3.2.2	Offer partnership or incentives to close by businesses with large, often vacant, parking lots to see if they would be willing to lease parking spots.	DPU	II
	Action 3.2.3	Collaborate with Lyft and Uber to create discounted fare or credit system if visitors choose to ride with their service to Scott's Addition	SABA	I
Objective 3.3 Increase police activity to ensure safety measures are being practiced and continued				
	Action 3.3.1	Increase police patrolling and enforcement in the neighborhood to ticket illegally parked cars and stop intoxicated drivers	Richmond Police Department (RPD)/City Council	I
	Action 3.3.2	Add speed radar signs to streets that frequently experience speeding	RPD	II
Goal 4 : Design the streets to have their own sense of place and livability				
Objective 4.1 Designate locations along sidewalks for greenery, including trees and shrubs				
	Action 4.1.1	Designate locations along sidewalks for greenery, including trees and shrubs	The Richmond Tree Stewards	II
	Action 4.1.2	Designate the truck radius bump-out at the corner of Roseneath Rd and Broad St as a green space for trees and low shrubs	DPU, Traffic Engineering Division, The Richmond Tree Stewards	I
Objective 4.2 Form a sense of place along streets				
	Action 4.2.1	Incorporate street furniture on sidewalks to attract people to stop	Department of Public Works (DPW)	III
	Action 4.2.2	Develop a Scott's Addition Banner Project	SABA	III



Table 5: Implementation Cost Table

Actions		Actors	Cost
1.1.2	Implement a continuous sidewalk network	The Public Works Department of the City of Richmond (DPW)	Concrete Sidewalk: \$2.09 - \$410/ Linear Foot
1.2.1	Implement crosswalks	Richmond Transportation Engineering Division	Striped Crosswalk: \$1.06 - \$31/Sq Foot Flashing Beacon: \$4,520 - \$52,310/Each
1.2.2	Raised crosswalk	Transportation Engineering Division	Raised Crosswalk: \$1,290 - \$30,880/Each
1.2.3	ADA Crosswalk improvements'	Transportation Engineering Division	Tactile markers: \$6.18 - \$260/Sq foot Wheelchair ramp: \$89 - \$3,600/each Audible Pedestrian Countdown: \$550 - 990/Each Countdown Timer Module: \$190 - \$1,930/Each
1.3.1	Streetlight improvements/installation	Department of Public Utilities (DPU)	Streetlight: \$310 - \$13,900/Each
1.3.2	Install in-pavement lighting along crosswalks	DPU	In-pavement lighting: \$6,480 - \$40,000/Total
2.1.1	Implement bike corrals at intersections within street. Size of one parking space.	The City Bike and Trails Coordinator, Traffic Engineering Division, Advocacy Groups (Bike Walk RVA)	Bike Corral: \$3,000/Each
2.1.2	Implement more bike racks outside of neighborhood businesses	Advocacy Groups, City Bike and Trails Coordinator	Bicycle rack: \$64 to \$3,610
2.2.1	Bike Boulevard Signage/Markings	City Bike and Trails Coordinator, Traffic Engineering Division	Shared Lane/Bicycle Marking: \$22 - \$600/Each
2.2.2	Paint a buffered bike lane on the eastern side of Roseneath Rd	City Bike and Trails Coordinator, Traffic Engineering Division	5 foot Bicycle Lane \$5,000 - \$535,000/mile
3.1.1	Convert W Clay St from a one-way street to a two-way street	Traffic Engineering Division	Costs vary depending on length of street.
3.1.2	Incorporate Traffic Calming methods.	Traffic Engineering Division	Curb Bump Out : \$1,070 - \$41,170
3.1.3	Increase Stop Sign Amount	DPU	Stop Sign: \$200/Each
4.1.1	Implement Street Trees	The Richmond Tree Stewards	Street Trees: \$54 - \$940/Each
4.2.1	Implement Street Furniture	DPW	Bench: \$220 - \$5,570/Each

Source: Bikepedinfo.org, Activelivingresearch.org

Funding Sources

The Public Works Department of the City of Richmond lists ways in which sidewalks can be implemented. The Richmond Public Works website states, “for a project smaller than ½ block (or 1800 square feet), Roadway Maintenance takes care of it.”⁴³ When a larger project is requested, it is then assigned to Capital Projects Management. The staff members who review projects for funding are within the Capital Projects Division, which covers a wide range of projects from small and large sidewalk repair, roadway widening, and new road construction.⁴⁴ Projects are brought to the attention of the Capital Projects Division through staff based goals, the Mayor’s goals, City Council Recommendations, and through the Citizen Request System. Sidewalk projects would most likely utilize city funds, which are backed by government obligation bonds.⁴⁵

Another way to gain funds to complete the sidewalk network is to apply for a federal grant. The Surface Transportation Block Grant Program offers funding for on- and off-road pedestrian and bicycle facilities, historic preservation, vegetation management, safe routes to school projects, etc. In the past, the grant has obligated \$835 million for projects, that number is expected to grow to \$850 million in 2019 and 2020.⁴⁶

A grant from the U.S. Department of Transportation is called the BUILD Discretionary Grants Program, which replaces the pre-existing TIGER Discretionary Grants Program. This grant allocates \$1.5 billion to “help communities revitalize their surface transportation systems while also increasing support for rural areas to ensure that every region of our country benefits.”⁴⁷

The Transportation Alternatives Program (TAP) could provide funding for the Complete Streets Plan because the Complete Streets promote and provide infrastructure for transportation alternatives. The grant specifically provides funding for “construction of on-road and off-road facilities for pedestrians, bicycles and other non-motorized transportation users. Construction of infrastructure-related projects and systems that will provide safe routes for non-drivers to access daily needs.”⁴⁸

The Congestion Mitigation and Air Quality Improvement (CMAQ) Program is another funding option that could help pay for the costs of the Complete Streets Plan. CMAQ is a grant administered by the U.S. Department of Transportation, Federal Highway Administration. The money is apportioned to states by a formula. The program was implemented to “support surface transportation projects and other related efforts that contribute air quality improvements and provide congestion relief.”⁴⁹



Table 6: Implementation Time Table

		Phase	P1 Winter	P1 Spring	P1 Summer	P1 Fall	P1 Winter	P1 Spring	P1 Summer	P1 Fall	P2 Winter	P2 Spring	P2 Summer	P2 Fall	P3 Winter	P3 Spring	P3 Summer	P3 Fall			
Goal 1																					
Objective 1.1																					
	Action 1.1.1	1	█																		
	Action 1.1.2	1		█							█										
Objective 1.2																					
	Action 1.2.1	1	█																		
	Action 1.2.2	2									█				█						
	Action 1.2.3	1	█																		
Objective 1.3																					
	Action 1.3.1	1		█																	
	Action 1.3.2	2									█										
Goal 2																					
Objective 2.1																					
	Action 2.1.1	1	█																		
	Action 2.1.2	1	█																		
Objective 2.2																					
	Action 2.2.1	1		█																	
	Action 2.2.2	2									█										
Objective 2.3																					
	Action 2.3.1	3													█						
	Action 2.3.2	3													█						
Goal 3																					
Objective 3.1																					
	Action 3.1.1	1	█																		
	Action 3.1.2	2									█										
	Action 3.1.3	1	█																		
Objective 3.2																					
	Action 3.2.1	1	█																		
	Action 3.2.2	2									█										
	Action 3.2.3	1		█																	
Objective 3.3																					
	Action 3.3.1	1	█																		
	Action 3.3.2	2									█										
Goal 4																					
Objective 4.1																					
	Action 4.1.1	1	█																		
	Action 4.1.2	1		█																	
Objective 4.2																					
	Action 4.2.1	3													█						
	Action 4.2.2	3													█						

Phase 1
 Phase 2
 Phase 3
 * Each season = 3 months **Winter starts with January
 P1 = Phase 1 P2 = Phase 2 P3 = Phase 3

Future Recommendations

The Scott's Addition Complete Streets Plan will not be implemented for some time as it waits for other plans to finalize. In order to continue data collection and stakeholder outreach, another survey should be administered in about a year. The same survey or one very similar as the one in this plan, should be administered. The updated data will present any changes in opinion or priority. By Spring 2019, the BRT will have been functioning for about 9 months, which will give people enough time to have an opinion on the functionality of the BRT and to see how it impacts Scott's Addition. Hopefully phase 2 of the bike share will be functioning as well and also give people new opinions on the bike share and increasing multi-modal access. New apartment buildings, residents, and businesses will be in Scott's Addition as well, which will have an impact on the current problems the neighborhood is facing with congestion and parking. Readministering the survey will show how those changes are impacting people and their opinion on priority.

More interviews should be conducted as well. Interviews with more of SABA board members, long-term and new residents to Scott's Addition, prominent business owners in Scott's Addition, and the Mayor, will be helpful for a broader range of information about Scott's Addition. These interviews can also shine light on problems seen on varying levels of relationship with the neighborhood.

Continuing stakeholder outreach and education on what Complete Streets can bring to Scott's Addition is key to one day successfully implementing the Complete Streets Plan.

Conclusion

The Scott's Addition Complete Streets Plan has the ability to create a safer and more welcoming neighborhood for all users. Currently, the neighborhood is steadily rising with new businesses, breweries, apartment buildings, and population. However, the streets are falling behind with a lack of improvements and maintenance. The missing sidewalks create unsafe walking conditions. The intersection blind spots form hazards that put all users of the road at risk of a crash. The lack of bike infrastructure creates an unwelcoming environment for cyclists. The demand for more parking space within the neighborhood shows the need to promote other modes of transportation.

Implementing the Scott's Addition Complete Streets Plan can rectify the major issues the neighborhood is facing. Designing a safer pedestrian and bicyclist environment will promote multi-modal access, as people will feel more secure riding and walking throughout the neighborhood. Implementing traffic calming methods will prevent cars from speeding and increase driver field of vision, which can lower the risk of a crash and create a safer environment for everyone. Designing streets to be more appealing and to have a sense of place can strengthen the community, encourage social interaction, and attract more people to visit and live in the neighborhood. All in all, the Complete Streets Plan can drastically change the neighborhood for the better by transforming the streets to match the progress the rest of the neighborhood has seen.



References/Notes

1. Smart Growth America. (2017) What are Complete Streets? Smart Growth America. <https://smartgrowthamerica.org/program/national-complete-streets-coalition/what-are-complete-streets/>
2. Vision Zero Network. (2017) What is Vision Zero? VisionZeroNetwork. <https://visionzeronetwork.org/about/what-is-vision-zero/>
3. Smart Growth America. (2015) Safer streets, stronger economies. <https://smartgrowthamerica.org/resources/evaluating-complete-streets-projects-a-guide-for-practitioners/?download=yes&key=44380045>
4. The City of Richmond. (2017) The Pulse Corridor Plan. Richmond City Council. <http://www.richmondgov.com/PlanningAndDevelopmentReview/documents/PulseCorridorPlan/PulseCorridorPlan-July2017.pdf>
5. The City of Richmond. (2017) The Pulse Corridor Plan.
6. Bike Walk RVA. Sports Backers. <https://www.sportsbackers.org/program/bike-walk-rva/>
7. National Park Service. Scott's Addition Historic District. U.S. Department of the Interior. <https://www.nps.gov/nr/travel/richmond/ScottsAdditionHD.html>
8. National Park Service. Scott's Addition Historic District. U.S. Department of the Interior. <https://www.nps.gov/nr/travel/richmond/ScottsAdditionHD.html>
9. City of Richmond Zoning Ordinance. (2017) Zoning Summary for Possible Rezoning in Scott's Addition & West Broad Street. City of Richmond. <http://www.richmondgov.com/PlanningAndDevelopmentReview/documents/PulseCorridorPlan/RezoningMaps.pdf>
10. Planning and Development Review Board. (2017) Proposed Text Amendments to Create New TOD-1 (B-7) District, Including Subsequent Text Amendments to Other Sections. City of Richmond. http://www.richmondgov.com/PlanningAndDevelopmentReview/documents/PulseCorridorPlan/TOD-1_Proposed_Zoning_Text-20170607.pdf
11. City of Richmond Zoning Ordinance. (2017)
12. City of Richmond Zoning Ordinance. (2017)
13. City of Richmond Zoning Ordinance. (2017)
14. Nilsson, I. Reid, N. Lehnert, M. (2017) Geographic Patterns of Craft Breweries at the Intraurban Scale. *The Professional Geographer*. <http://www.tandfonline.com.proxy.library.vcu.edu/doi/pdf/10.1080/00330124.2017.1338590?needAccess=true>
15. Nilsson, I. Reid, N. Lehnert, M. (2017) Geographic Patterns of Craft Breweries at the Intraurban Scale
16. Walkscore.com. <https://www.walkscore.com/score/scott%27s-addition>
17. Department of Justice. (2010) 2010 ADA Standards for Accessible Design. <https://www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards.htm>
18. City of Richmond. (2014) Richmond Bicycle Master Plan. <http://www.richmondgov.com/BikePed/documents/RichmondBicycleMasterPlan.pdf>
19. RVA News Staff. (2015) Construction Set to Begin on Floyd Avenue Bike Boulevard. RVA News. <https://rvanews.com/news/two-proposed-bike-projects-would-make-rva-bike-friendly/103648>
20. Timmons Group. Project Summary. <http://www.timmons.com/projects/floyd-avenue-bike-walk-boulevard>
21. Irazábal, C. and Neville, J. (2007) 'Neighborhoods in the Lead: Grassroots Planning for Social Transformation in Post-Katrina New Orleans?', *Planning Practice and Research* 22(2): 131–53.
22. Baltimore City Department of Transportation. (2012) Southeast Baltimore Complete Streets Plan. <http://completedstreets.com/wp-content/uploads/2016/11/SE-complete-streets-plan-FINAL-6-11-12.pdf>
23. Salleh, B. Rahmat, R. Ismail, A. (2015) Expert System on Selection of Mobility Management Strategies Towards Implementing Active Transportation. *Procedia Social and Behavioral Sciences*. https://ac-els-cdn-com.proxy.library.vcu.edu/S1877042815038951/1-s2.0-S1877042815038951-main.pdf?_tid=455fbbf0-c49c-11e7-a294-0000aab0f27&acdnat=1510156291_b370b71a1d11d44bf3a9feb5741cf4d8
24. Friedman, A. (2015) *Fundamentals of Sustainable Neighbourhoods*. Springer International Publishing. Book. DOI: 10.1007/978-3-319-10747-9
25. Speed, B. (2015) "Shared Spaces": A Clever Trick for Safer Roads or a Step Backwards into Chaos? *City Metric*. <http://www.citymetric.com/skylines/shared-spaces-clever-trick-safer-roads-or-step-backwards-chaos-981>
26. Project for Public Spaces. (2009) What is Placemaking? https://www.pps.org/reference/what_is_placemaking/
27. Baltimore City Department of Transportation. (2012)
28. Baltimore City Department of Transportation. (2012)
29. Institute of Transportation Engineers. (2010) An ITE Recommended Practice: Designing Walkable Urban Thoroughfares: A Context Sensitive Approach. <http://library.ite.org/pub/e1cff43c-2354-d714-51d9-d82b39d4dbad>
30. Institute of Transportation Engineers. (2010)
31. Institute of Transportation Engineers. (2010) An ITE Recommended Practice: Designing Walkable Urban Thoroughfares: A Context Sensitive Approach
32. Carroll-Camden Chapter. (2017) South Baltimore Gateway Complete Streets Plan. Department of Transportation. http://transportation.baltimorecity.gov/sites/default/files/Carroll-Camden_2-17-2017rev.pdf
33. Baltimore City Department of Transportation. (2012) Southeast Baltimore Complete Streets Plan
34. Department of Justice. (2010) 2010 ADA Standards for Accessible Design. <https://www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards.htm>
35. Holmberg, M. (2017) Scott's Addition's Amazing Transformation Through the Eyes of a Former Resident. *WTVR.com*. <http://wtvr.com/2017/11/16/scotts-additions-amazing-transformation-through-the-eyes-of-a-former-resident/>
36. VCU Urban and Regional Planning Studio 1. (2010) Scott's Addition; A Master Plan. VCU.
37. Source: ADAstepsafe.com, New York Crosswalk
38. Public Works. Transportation Engineering Division. City of Richmond.
39. NACTO. *Urban Street Design Guide*. Island Press, Book. Pg.16

40. NACTO. Complete Streets, Complete Network. Active Transportation Alliance. <http://atpolicy.org/resources/design-guides/complete-streets-complete-networks-design-guide/>
41. Department of Public Utilities. Streetlight Utility. City of Richmond. <http://www.richmondgov.com/PublicUtilities/StreetlightUtility.aspx>
42. NACTO. Urban Street Design Guide. Island Press, Book. Pg.141
43. Public Works. Street Maintenance. City of Richmond. <http://www.richmondgov.com/PublicWorks/StreetMaintenance.aspx>
44. Public Works. Capital Projects Management. City of Richmond. <http://www.richmondgov.com/PublicWorks/CapitalProjects.aspx>
45. Public Works. Capital Projects Management. City of Richmond.
46. U.S. Department of Transportation. (2017) Transportation Alternatives. Federal Highway Administration.
47. Department of Transportation.(2018) BUILD Discretionary Grants. <https://www.transportation.gov/BUILDgrants>
48. Virginia Department of Transportation. (2016) Transportation Alternatives Program Guide. http://www.virginiadot.org/business/resources/transportation_enhancement/Transportation_Alternatives_Program_Guide.pdf
49. Federal Highway Administration. (2017) Congestion Mitigation and Air Quality Improvement (CMAQ) Program. U.S Department of Transportation. https://www.fhwa.dot.gov/environment/air_quality/cmaq/

Appendix A

Survey Questions

- 1) **In what ZIP code is your home located?**
(Fill in Answer)
- 2) **What is your age?**
(choose one) 18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75 or older
- 3) **To which gender do you most identify?**
(choose one) Female, Male, Transgender Female, Transgender Male, Gender Variant/Non-conforming, Prefer Not to Answer, Other
- 4) **Which race/ethnicity best describes you?**
(choose one) American Indian or Alaskan Native, Asian/ Pacific Islander, Black or African American, Hispanic, White/Caucasian, Multiple Ethnicity/Other
(please specify)
- 5) **What is your relationship with Scott's Addition?**
(choose one) Resident, Business Owner, Visitor, Employee of Scott's Addition based Business, Other (please specify)
- 6) **What is your typical mode of transportation to access Scott's Addition?**
(choose one) Walking, Biking, Personally Owned Vehicle, Carpool, Uber/Lyft/Taxi Service, Public Transit, Other (please specify)
- 7) **If Complete Streets were implemented in Scott's Addition, which additions would you prioritize most?**
 - a. Sidewalks
 - b. Bike lanes/ bike access
 - c. Increased traffic safety (cross walks/street lighting)
 - d. Enforcing lower traffic speed (through traffic calming street design i.e narrower travel lanes)
 - e. Community space (parklets)
 - f. Street greening (adding trees)
- 8) **How do you feel about walking in Scott's Addition?**
(choose one) Horrible, Poor, Neutral, Good, Great, N/A
- 9) **If you were walking in Scott's Addition how safe from traffic would you feel? (Check all that apply)**
Not safe at all, Safe some of the time, Safe most of the time, Safe only during the daytime, Safe only during the weekdays, Safe only during the weekend, Other (Please Specify)
- 10) **What would make you feel better about walking in Scott's Addition?**
(Open Ended Question)
- 11) **If there were adequate biking infrastructure (bike lanes and bike parking) in Scott's Addition, how inclined would you be to bike into Scott's Addition?**
Not inclined at all, a little more inclined, much more inclined, I would bike into Scott's Addition All the Time, N/A
- 12) **If there were more bike share stations in Scott's Addition would you use the RVA Bike Share to access Scott's Addition?**
Not likely, A little more likely, Neutral, Much more likely, I would use the RVA Bike Share Frequently, N/A (COMMENT SECTION)
- 13) **If you could put a bike share station anywhere in Scott's Addition, where would you want it located?**
(Open Ended Question)
- 14) **Once the Pulse Corridor Bus Rapid Transit (BRT) line is running, how inclined are you to use it to access Scott's Addition?**
Will never use the BRT, Will Sometimes use the BRT, Neutral, Will often use the BRT, Will always use the BRT, N/A (COMMENT SECTION)
- 15) **If you are interested in being involved with either a focus group (5-10 people/ meeting for greater discussion) or a public meeting regarding Complete Streets in Scott's Addition, please write your email and I will contact you with meeting information.**

Appendix B

Survey Response Data

What is your age	Total Responses
18-24	11
25-34	124
35-44	62
45-54	38
55-64	15
65-74	9
75 or older	0

What is your relationship with Scott's Addition?	Total Responses
Resident	82
Business Owner	35
Visitor	97
Employee	23
Other	22

To which gender do you most identify?	Total Responses
Female	122
Male	129
Transgender Male	0
Transgender Female	0
Gender Variant/ Non-Conforming	3
Prefer Not to Answer	2
Other	1

What is your typical mode of transportation to access Scott's Addition?	Total Responses
Walking	59
Biking	23
Personally Owned Vehicle	157
Carpool	2
Uber/Lyft/Taxi Service	9
Public transit	1
Other	6

Which race/ethnicity best describes you?	Total Responses
American Indian or Alaskan native	0
Asian/ Pacific Islander	3
Black or African American	13
Hispanic	1
White/Caucasian	225
Multiple ethnicity/other	15

How do you feel about walking in Scott's Addition?	Total Responses
Horrible	11
Poor	65
Neutral	68
Good	97
Great	16
N/A	0

Survey Response Data

If Complete Streets were implemented in Scott's Addition, which additions would you prioritize most? (6 being most prioritize)	6	5	4	3	2	1	0	Score
Sidewalks	94 (40%)	61 (26)	30 (13%)	19 (8%)	17 (7%)	11 (5%)	1 (.43%)	4.9
Bike lanes/access	22 (10%)	15 (6%)	35 (15%)	56 (24%)	44 (18%)	58 (25%)	3 (1%)	3
Increased traffic safety (cross walks/street lighting)	67 (29%)	73 (31%)	33 (14%)	29 (12%)	22 (10%)	8 (3%)	1 (.43%)	4.7
Enforcing lower traffic speed (through traffic calming street design)	10 (4%)	33 (14%)	44 (19%)	26 (11%)	45 (19%)	71 (30%)	4 (2%)	2.9
Community Space (parklets)	12 (5%)	24 (10%)	47 (20%)	56 (24%)	52 (22%)	42 (18%)	0	3.1
Street greening (adding trees)	22 (9%)	26 (11%)	44 (19%)	44(19%)	51 (22%)	43 (18%)	3 (1%)	3.1
Mark this one as top priority if you do not want Complete Streets	6 (3%)	1 (.43%)		0 3 (1%)	2 (.86%)		0 221 (95%)	1.2

If you were walking Scott's Addition how safe from traffic would you feel? (Check all that apply)	Total Responses
Not safe at all	25
Safe some of the time	81
Safe most of the time	130
Safe all of the time	13
Safe only during the daytime	36
Safe only during the weekdays	8
Safe only during the weekend	4
Other	7

If there were adequate biking infrastructure (bike lanes and bike parking) in Scott's Addition, how inclined would you be to bike into Scott's Addition?	Total Responses
Not inclined at all	51
A little more inclined	78
much more inclined	59
I would bike to Scott's Addition all the time	43
N/A	26

Survey Response Data

If there were more bike share stations in Scott's Addition would you use the RVA Bike Share to access Scott's Addition?	Total responses
Not likely	113
a little more likely	38
Neutral	36
Much more likely	33
I would use the RVA Bike Share frequently	6
N/A	27

Once the Pulse Corridor Bus Rapid Transit (BRT) line is running, how inclined are you to use it to access Scott's Addition?	Total Responses
Will never use the BRT	108
Will sometimes use the BRT	54
Neutral	50
Will often use the BRT	20
Will always use the BRT	3
N/A	15

