SEATTLE NEIGHBORHOOD GREENWAY EVALUATION

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A thesis submitted in partial fulfillment of the
requirements for the degrees of:

Master of Landscape Architecture
Master of Urban Planning

University of Washington
2017

Committee:
Rachel Berney, co-chair
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Programs Authorized to Offer Degrees:
Department of Landscape Architecture
Department of Urban Design and Planning

University of Washington

Abstract

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Seattle's neighborhood greenways are calm, non-arterial streets that are prioritized for people walking and biking. Using traffic-calming and pedestrian and bicycle friendly design elements, they provide safe and pleasant neighborhood connections, so that people can reach their local parks, schools, libraries, shops, cafés and transit options without needing to use a car. The goal of this study is to determine if the existing neighborhood greenways in Seattle are sufficiently calming traffic to create family-friendly walking and biking routes. From that evaluation, this study recommends four tiers of potential upgrades to the routes, as well as overall design recommendations.

Before and after comparisons of vehicle speeds, vehicle volumes, bicycle volumes, and pedestrian volumes along the routes show that the neighborhood greenways are working to create better routes for people walking and biking. Installation of these routes lowered vehicle speeds, dramatically lowered the number of high-end speeders, and lowered car volumes, while increasing the number of people walking and biking. Individual evaluations show where improvements can still be made, and what lessons can be incorporated as Seattle continues to build neighborhood greenways.

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FOREWARD

This urban planning and landscape architecture master's thesis draws from work done for the Seattle Department of Transportation (SDOT) in 2016 and 2017. During that time I worked first as a graduate intern and later as a transportation planner for SDOT's Neighborhood Greenways and Safe Routes to Schools team in the Project Development Division.

Part of that work was a new data-based evaluation of the existing neighborhood greenways. That evaluation, the SDOT 2017 Neighborhood Greenway Evaluation, was led by me under the direction of Neighborhood Greenways Program Manager Summer Jawson, and I was assisted in data gathering and organization by Joshua Hoff. My contributions included the bulk of the work, including but not limited to the writing, the data analysis, the graphics, the map style development, the map making, the layout, and the organization of the document.

As an official SDOT document, the evaluation was also reviewed by a number of senior staff, including Brian Dougherty, Dawn Schellenberg, and Darby Watson, who each provided valuable edits and suggestions. Mayumi Thompson providing graphics feedback and support.

That evaluation is a piece of this master's thesis in landscape architecture and urban planning, but has been heavily added to and edited for academic purposes and therefore does not represent the views of the City of Seattle or SDOT, but of the author alone.

Many thanks to all those who helped along the way, including Professors Rachel Berney, Lynne Manzo, and Ken Yocom at the University of Washington, and for the love and support of my family and my partner Rebecca Sorensen throughout this long journey.

The University District Neighborhood Greenway

CONTENTS

INTRODUCTION

Seattle's neighborhood greenways are calm, non-arterial streets that are prioritized for people walking and biking. They can include:

- Posted 20 mph speed limits
- Speed humps
- Stop-controlled cross streets
- Identifying signage
- Wayfinding signage
- Improved crossings of arterial streets

By calming traffic and helping people cross busy streets, they provide safe and pleasant neighborhood connections, so that people can reach their local parks, schools, libraries, shops, cafés and transit options by walking or biking.

These routes are a vital piece of Seattle's growing family friendly biking and walking network and support Vision Zero, Seattle's plan to end traffic deaths and serious injuries by 2030.

The City of Seattle started the Neighborhood Greenway program in 2012. As of December 2016, Seattle has built 14 neighborhood greenways spanning over 27 miles throughout the city. The treatments along these routes can vary substantially, depending on the year they were built, area topography, and the neighborhoods they access.

This thesis seeks to determine if these existing neighborhood greenways are sufficiently calming traffic and are "family-friendly" walking and biking routes. From that evaluation, this thesis recommends four tiers of potential upgrades to the routes, as well as overall design recommendations. This comprehensive evaluation will also inform how we can best design our new neighborhood greenways going forward.

Organization of the Study

The **Introduction** to this study introduces the design elements, goals, and vital statistics of Seattle's existing neighborhood greenways, as well as the goals of this thesis. The **Background** section gives more information on the role of neighborhood greenways within the overall plans and goals of the Seattle Department of Transportation (SDOT) and the City of Seattle. The **Literature Review** reviews past studies that show the importance of transportation planning in city design, and how neighborhood greenways can help improve our cities. The **Methodology** section defines many of the term and parameters used in the data gathering and processing for this study. The **General Finding** section summarizes the overall story the data tells us about how the neighborhood greenways program is functioning as a whole. What follows is the **individual findings** for each neighborhood greenway, presented as two-page spreads that allow the reader to quickly gain an understanding of each neighborhood greenway and how it is functioning. **Recommendations**, both general and specific, follow the findings, and finally the conclusion and **next steps** section looks forward at other ways the neighborhood greenway program can improve.

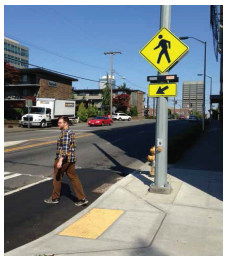
GREENWAY DESIGN ELEMENTS

Slow Speeds and Stop Signs

- Calm traffic entering and crossing the greenway
- Drivers better able to stop and prevent collisions

Safer Crossings at Busy Streets

- Easier for seniors and children to cross
- Make motorists aware of people walking and biking



Speed Humps

- Slow motorists and people riding bikes
- Reduce cut-through traffic

Placemaking

- Promote the activation of public space

Signs and Markings

- Direct people walking and biking to and along the greenway
- Help motorists know people walking and biking are present

Smooth Sidewalks and Pavement

- Safer for you and your family to walk and ride bikes
- Help people in wheelchairs or with strollers

www.seattle.gov/transportation/g reenways.htm

SDOT Seattle Department of Transportation

The Levy to MOVE SEATTLE

SDOT outreach materials describing neighborhood greenway elements (courtesy of SDOT)

BACKGROUND

Neighborhood Greenways as part of Seattle's Planning Process

Neighborhood greenways can be part of the solution to a number of issues arising both globally and in the City of Seattle. As our nation and world becomes more urban, our cities are growing more crowded. Transportation systems that in the past catered only to people driving cars are being forced to change. Meanwhile, there is a movement towards enhanced traffic safety in cities around the world. That movement refuses to accept that death and serious injury are necessary by-products of transportation. Finally, there is an acknowledgment that burning fossil fuels contributes to global climate change, and cities need to develop cleaner transportation options. The City of Seattle is planning towards solutions to these problems, and sees neighborhood greenways as part of those solutions.

Seattle, tucked up in the far northwest corner of the United States, is one of the fastest growing cities in the US (US Census Bureau). Bound by the Puget Sound and Elliott Bay to the west and Lake Washington to the east, the geographically constrained city added almost 80,000 residents between 2010 and 2016 (Washington State Office of Financial Management). Currently, the city and it's citizens are struggling with real questions about this growth; including, where will all of these people live, and how will they move about the city? The question of housing is a huge one and not unrelated to transportation, but is outside the scope of this study. In addressing the latter question however, the Seattle Department of Transportation (SDOT) is making difficult choices is addressing how these people will move around.

Those choices facing SDOT all include trade-offs. With tunneling and elevating transportation mostly out of scope and budget, the city is working with a limited amount of land dedicated to public life and mobility; the SDOT-owned right-of-way (ROW). This "space between buildings" is made up of mostly streets, sidewalks, alleys, and planting strips. In the constrained space of Seattle, that ROW is facing numerous pressures: people driving cars want to move quickly through the city, buses need to move people efficiently, people need to be able to walk and bike safely, and commerce demands the ability to move goods throughout the city and region. Moreover, that ROW also makes up the majority of our public space within the city and over 25% of the city's entire acreage (City of Seattle) and it's quality largely defines the quality of Seattle's public spaces and Seattle as a whole.

It is under these pressures that SDOT is planning its limited ROW space to accommodate that future growth, with various plans and programs in place to plan towards the best and most efficient use of space:

- SDOT's Transit Master Plan focuses on growing Seattle's bus and streetcar service, increasing service hours but also calling for dedicated transit lanes in some areas to move buses more quickly through our limited and increasingly congested ROW.
- The Bicycle Master Plan lays out a network of enhanced bicycle facilities in the ROW across the city, with the goal of making biking a safe and viable means of transportation for more Seattleites, not just strong and experienced cyclists.
- The Pedestrian Master Plan focuses on building and improving Seattle's sidewalks and street crossings, so those walking can reach their destinations safely and comfortably.
- The Freight Master Plan, predictably, addresses ROW and programmatic needs to maximize freight mobility and safety through the city (City of Seattle Freight Master Plan).
- SDOT's Public Space Management Program works towards using the ROW to "encourage social activity, help local businesses thrive,

and create safer, more attractive streets" (Public Space Management Program).

Additionally, the pressures of the status quo; using streets mainly for single-occupancy vehicle travel, remains a heavy force upon SDOT.

Neighborhood greenways are a key piece of these plans. As part of both the Bicycle Master Plan and the Pedestrian Master Plan, the neighborhood greenways focus on providing people walking and biking safe and comfortable routes to neighborhood destinations, so that people have the choice to walk or bike to their neighborhood school, park, library, cafe or transit stop. While other aspects of SDOT's plans, including protected bike lanes and dedicated transit lanes, focus on moving people between neighborhoods along Seattle's already-crowded arterial street network, neighborhood greenways use traffic calming measures to promote walking and biking on much quieter and calmer non-arterial streets. Used in conjunction with these other measures and plans, neighborhood greenways are a key piece of Seattle's growing bicycle and pedestrian network.

Neighborhood greenways are also an important part of Vision Zero, Seattle's plan to end traffic fatalities and serious injuries by 2030. This goal is related to a worldwide Vision Zero movement that, at its core, deems death and serious injury from traffic violence unacceptable. First implemented in Sweden in 1997, Vision Zero's roadway design guidelines have led to an 80% reduction in fatalities along redesigned streets (Johansson 2009). Many aspects of the plan work to protect the most vulnerable users, people walking and biking, who make of less than 5% of total crashes in Seattle, but nearly 50% of the fatalities (SDOT/SPD Vision Zero). A key component to Vision Zero is separating people walking and biking from fast moving vehicles, and designing roads to keep vehicle speeds below 30 kilometers per hour where people driving, walking, and biking do mix (SDOT/SPD Vision Zero). Those shared streets with traffic calming designs are Seattle's neighborhood greenways.

Additionally, the City of Seattle adopted its Climate Action Plan in 2013. That plan calls for an 82% reduction in passenger vehicle emissions and a 20% reduction in vehicle miles travelled by 2030. To meet these goals, the plan calls for increased walking, biking, and transit infrastructure and specifically prioritizes transit, bicycle, pedestrian, and freight mobility over passenger vehicles. By giving people the option to safely walk and bike to reach transit and their neighborhood destinations, neighborhood greenways are a part of helping Seattle reach the goals put forward in the Climate Action Plan.

In summary, Seattle's neighborhood greenways serve as part of the solution to many issues facing the city. They are key parts of Seattle's Bicycle Master Plan and Pedestrian Master Plan, helping mobility as more and more people move into the city. And while many solutions look to improve commute times or long-distance connectivity, neighborhood greenways are about connecting people to their neighborhood destinations, including schools, parks, shopping districts and transit stops. The neighborhood greenways also serve Vision Zero, Seattle's goal to end traffic deaths and serious injuries by 2030. And finally, they are part of Seattle's Climate Action Plan, as the city strives to reduce greenhouse gas emissions. In all of these ways neighborhood greenways are embedded as part of Seattle's planning process as the city works towards a growing, cleaner, safer, more sustainable city.

LITERATURE REVIEW

The background section of this study explains the goals of neighborhood greenways and how they are an important piece of SDOT's transportation planning. They are a key piece of future ROW goals, and part of the Bike Master Plan, the Pedestrian Master Plan, the Climate Action Plan, and Vision Zero. This section, the literature review, will use past research to show the usefulness of neighborhood greenways, and why they are an effective tool for Seattle to use as it plans for the future. It will discuss the past and how transportation choices have always been a driving force in shaping cities, and how those choices have helped shaped Seattle, and discuss current ideas about using transportation to shape how our cities grow towards the future. This literature review does not include all of the studies and writings relevant to the subject, but is rather a selection of works that together shapes and bridges the academic context of this thesis.

How transportation shapes cities

Transportation has always played an outsized role in the development and form of cities. Hans Blumenfeld argued in his 1967 collection, *The Modern Metropolis,* that transportation was one of the leading influences on how cities gained their form throughout history (Blumenfeld 1967). While defense and parcel formation also played major roles, transportation affected the site and layout of cities both ancient and modern. Moreover, he argued that developments in transportation were some of the main factors that began the global shift from an agrarian society to an urban one, as more efficient transportation systems allowed large factories to both gather the necessary raw materials for industry, and then ship the goods to a larger market (Blumenfeld 1967, 42). He goes on to add that limits in transportation kept early-industrial cities compact, as people's movements were restricted to those "by foot or hoof," but shortly before the end of the 19th century the development of electric transportation systems and the automobile allowed people to spread out and "do what they always wanted to do: live in more spacious surroundings with some green, some fresh air, and sunshine, but work and seek work in the great metropolitan labor market" (Blumenfeld 1967, 43). Interestingly, Blumenfeld never predicted a return to the "foot or hoof" (or bike) in how transportation planning shapes cities. In his chapter *Transportation in the Modern Metropolis*, Blumenfeld argues how automobiles, trains, buses, and even monorails all have shaped or could shape cities, but barely mentions the viability of walking and biking.

Howard Chudacoff, Judith Smith, and Peter Baldwin's work, *The Evolution of American Urban Society*, originally published in 1975, is an expansive history of urbanization in the United States. With a more specific topic, the authors are able to take a more holistic and in-depth view of the urbanization processes than Blumenfeld's work. They too, however, attribute much of the blame and credit for the present-day form of American cities to the automobile and highways. They write that, "Suburban expansion in the 1920's owed much to the automobile and its related industries" (Chudacoff, Smith, and Baldwin 1975, 180). They go on to highlight the role of government in this expansion: "Highway building has been subsidized by government in a way that mass transit, considered a private investment, has never been" (Chudacoff, Smith, and Baldwin 1975, 181). Chudacoff, Smith, and Baldwin also credit land-use policies, technologies, and economic advances with a major role in shaping our cities, but cite the automobile and government subsidized highways for much of the auto-centric sprawl (Chudacoff, Smith, and Baldwin 1975).

Kenneth Jackson's 1985 history of American

suburbs, *Crabgrass Frontier*, further connects transportation and city formation, focusing specifically on the formation of suburbs in the United States. According to Jackson, until the turn of the 19th century America's cities were "walking cities." These were congested, compact urban areas with clear boundaries between city and county, with the richest people living close to the center of town (Jackson 1985, 13). That arrangement began to rapidly change with the development of various forms of mass transit, including the steam ferry, omnibus, commuter railroad, and cable car (Jackson 1985, 20). Like Blumenfeld and Chudacoff et al, Jackson is careful to note that other factors also played a major role in the suburbanization of the US, including housing and land use policies, and importantly, a strong desire for a family life centered around large houses with yards (Jackson 1985, 46). Jackson also notes that later, especially in the post-war period, government housing policies and subsidies also greatly contributed to suburban expansion, but that the breadth of that expansion would not have been possible without the highway building frenzy that accompanied it (Jackson 1985, 190). In the end, Jackson is critical of this automobile focused expansion, lamenting the human and environmental costs of our new cities, writing that with 50,000 traffic deaths annually, "it was as if a Pearl Harbor attack took place on the highways every two weeks" (Jackson 1985, 247). In fact, the final chapter of his 1985 book is titled *The Loss of Community in Metropolitan America*. To Jackson, a car and highway focused transportation system helped lead the US towards an acceptance of death and injury, environmental degradation, and a weakened sense of community.

Another urban history that focuses on the central role of transportation is Sam Bass Warner's study *Streetcar Suburbs: The Process of Growth in Boston, 1870 - 1900*. In this study, Warner focuses on the growth of three Boston suburbs, West Roxbury, Roxbury, and Dorchester in the later part of the 19th century. His work explains how new streetcar lines expanded the city, creating linear suburbs along the new routes. He attributes much of this movement to middle-class families reaching towards a rural ideal that was both fashionable and desirable, but is clear that the street railway is what allowed this suburban expansion of the metropolis (Warner 1980, 33).

A more contemporary take on the role of transportation in city form is Robert Cervero's 1995 case-study *The Transit Metropolis: A Global Inquiry*. This well-regarded work is less about how transportation has shaped our cities past growth than about how it can shape our cities' future growth. Using transportation as a lens, Cervero describes how transit has shaped "adaptive cities," where rail systems guided urban growth to compact, mixed use communities centered around transit nodes, helping to preserve both open space and affordable housing (Cervero 1995, 8). Cervero also studies "adaptive transit" where transportation technologies allow transit to remain successful in more sprawling urban areas, and "hybrid cities" that respond to an existing, sprawling city form while also shaping future growth (Cervero 1995, 6). Notably, his later writings, such as his 2013 coauthored article in *The Journal of Public Transportation*, "Bike-and-Ride; Build it and They Will Come," delve much deeper into how systematic walking and biking connections to transit options can increase transit ridership while offering economic, ecologic, and health benefits to the cities and communities they serve (Cervero, Caldwell, and Cuellar 2013).

Although this section argues the strong connection between transportation systems and the development of American cities, it would be a mistake to ignore Dolores Hayden's 2003 book *Building Suburbia: Green Fields and Suburban*

Growth, 1820-2000 that downplays that connection. In fact, she is critical of other works, including Jackson's *Crabgrass Frontier*, that suggest that improvements in transportation technology made residential growth inevitable (Hayden 2003, 4). She instead focuses on American culture and the idealization of single-family houses with yards, the role of governmental subsidies, and the tremendous profits the growth gave to bank and developers as the main drivers of suburbanization. Nevertheless, she does still point to the federal government's role in highway building as one of the main spurs of post-war suburbanization, conceding that transportation cannot be wholly ignored (Hayden 2003, 161).

It is also important to mention Hayden's feminist approach to this history, and her insight that "categorizing places by commuter's choices - railroad suburb, streetcar suburb, automobile suburb - also leads to a focus on middle-class and upper-class male breadwinners and their housing" (Hayden 2003, 4). So although Hayden downplays the influence of transportation planning on American urban development, she does recognize how our focus on commute choice has framed these discussions in a manner that focuses on male dominant culture. Neighborhood greenways, with their focus on neighborhood connections, can help challenge that dominance as well.

As these studies have shown, transportation planning has influenced cities since their inception, and have had a major influence in shaping our sprawling urban areas today. Although there have been other complex cultural, economic, and governmental influences as well, it cannot be argued that transportation choices and the type of cities we are left with are not inextricably linked. This suggests that transportation planning remains an important piece towards how we shape Seattle as it grows.

The Value of Neighborhood Connections and Active Transportation Options

If transportation planning is about more than simply moving people and has a major effect on the type of city we choose, why are neighborhood greenways a good option as we plan for growth in Seattle? From Jane Jacob's 1961 groundbreaking classic *Death and Life of Great American Cities* to Jan Gehl's 2010 *Cities for People*, the contemporary planning and urban design fields promote future transportation planning that is no longer based on only automobiles. This section will review a few of these works and how they relate to Seattle's neighborhood greenway program.

When Jane Jacobs published *Death and Life of Great American Cities* in 1961, she lacked formal urban planning or design training and was refuting years of established doctrine in the male-dominated urban planning field. What she *had* done, however, was lead the fight against plans to build a highway straight through her New York neighborhood of Greenwich Village (Paletta 2016). Her now-famous fight with New York planner Robert Moses was essentially the fight for small people-scaled urban streets and parks with lively mixed-uses versus the prevalent modernist ideas of single use zones, high-rise residential towers, and highways connecting everything (Paletta 2016). Her take on Moses' modernity is best summarized in her introduction to *Death and Life of Great American Cities*:

> *"But look at what we have built with the first several billions: Low-income projects that become worse centers of delinquency, vandalism and general social hopelessness than the slums they were supposed to replace. Middle-income housing projects which are truly marvels of dullness and regimentation, sealed against any buoyancy or vitality of city life. Luxury*

housing projects that mitigate their inanity, or try to, with a vapid vulgarity. Cultural centers that are unable to support a good bookstore. Civic centers that are avoided by everyone but bums, who have fewer choices of loitering place than the others. Commercial centers that are lackluster imitations of standardized suburban chain-store shopping. Promenades that go from no place to nowhere and have no promenaders. Expressways that eviscerate great cities. This is not the rebuilding of cities. This is the sacking of cities." (Jacobs 1961, 6)

Interestingly, in *Death and Life of Great American Cities*, Jacobs carefully avoids blaming automobiles themselves for the destruction of the city. In her chapter *Erosion of Cities or Attrition of Automobiles* she argues that automobiles were blamed too much, and that if another form of speedy, comfortable, convenient mass transit system were in place instead, with the same modern planning policies, the results for the city would be much the same (Jacobs 1961, 440). What Jacobs argues in that chapter is for the attrition of automobiles: the layering of friction and small obstacles that do not encourage unrestricted automobile use and encourage pedestrian and other uses. Neighborhood greenways follow that small approach by using traffic calming measures to slow automobile through movements while allowing for more free use of the street by other users.

With a similar critique of the US's post-war approach to cities, but from much more of a design perspective, landscape architect Anne Whiston Spirn comes to many of the same conclusions as Jacobs concerning traffic calming and mixed use streets. Her first book, 1984's *The Granite Garden; Urban Nature and Human Design*, was a groundbreaking study showing the importance of considering, planning for, and cultivating natural processes in our urban environments. In it, she promotes the Dutch *woonerf*, a little known street typology at the time, that mixes cars, people walking, people biking, gardens, and play space (Spirn 1984, 67-74). With cars allowed but no longer dominant on the street, Spirn argues that these *woonerfs* create safe, clean, popular streets that help the city become a suitable human habitat. Although they lack the designed playing, planting, and living space of early *woonerfs*, SDOT's neighborhood greenways are an extension of the base concept; shared streets where car travel and parking is still allowed, but secondary to use by people walking and biking.

A much more contemporary argument for shared streets come from Danish architect Jan Gehl's well-received 2010 book *Cities for People*. Gehl's book furthers the argument that cities should be designed, first and foremost, for people. Gehl writes that cities should have four goals: to be lively, safe, sustainable, and healthy. With these four goals Gehl presents the single solution of designing a city for people in urban spaces (Gehl 2010, 6-7). He argues that "a lively city is strengthened when more people are invited to walk, bike, and stay in city space" (Gehl 2010, 6). Meanwhile, a safe city means both safe from traffic violence and safe from crime. To be safe from traffic violence, Gehl advocates for keeping bicycles and pedestrians separate from cars in high-use areas, while advocating for shared space where it can be made clear that the street is prioritized for walking and biking (Gehl 2010, 93). He writes that a sustainable city promotes people walking, biking, and taking public transportation, mainly due to the high pollution and climate threat associated with the vehicular travel and traffic. He also argues that pedestrian and bicycle travel do not crowd the city nearly the same amount as car travel: a 23' wide pedestrian street can handle 20,000 people per hour, two six foot bike paths can take 10,000 bikes per

hour, while a standard 2-lane 2-way car street is only sufficient for 2000 peak cars per hour (Gehl 2010, 105). Additionally, a sustainable city includes "social sustainability" that the increased interactions between people that walking and biking encourages, as well as social equity, so that people without cars still have full access to all their city offers (Gehl 2010, 109). Finally, Gehl discusses the healthy city that rejects the sedentary life of car travel for the health benefits of walking and biking (6-7). He argues that a society such as suburban America, where people must seek exercise outside their daily life, is inherently unhealthy. To counteract this, walking and biking must become part of daily life for more citizens, and by encouraging walking and biking through city design, cities can improve people's overall health and quality of life (Gehl 2010, 115).

It is important to note that Jan Gehl's arguments linking urban sprawl and car-based transportation to poor public health echo what many scholars in the public health community argue. Howard Frumkin and Richard Jackson, both physicians specializing in public health, and Lawrence Frank, a landscape architect and urban planner, co-wrote the 2004 study *Urban Sprawl and Public Health: Designing, Planning, and Building for Healthy Communities*. This book connects the urban sprawl that has defined post-war development in the US to rising physical and mental health issues among the populace (Frumkin, Jackson, and Frank 2004). Specifically, it connects the sedentary, car-based travel patterns of today's suburbs with rising rates of obesity and associated illnesses (Frumkin, Jackson, and Frank 2004, 90). They also connect increased driving with an increase in mental health issues (Frumkin, Jackson, and Frank 2004, 137), respiratory issues due to air pollution (Frumkin, Jackson, and Frank 2004, 65), and the steady increase in death and serious injury to vehicular violence (Frumkin, Jackson, and Frank 2004, 109). They argue that increased walkability and bikeability, safety, and good neighborhood connections can help mitigate these detrimental health effects of today's urban environment (Frumkin, Jackson, and Frank 2004, 204-213). Neighborhood greenways are a piece of helping Seattle work towards each of those solutions.

From these studies and many others, it is clear that neighborhood greenways are part of a large and necessary solution to many of the issues facing our cities today. By adding people to the street, they increase the liveliness and sense of community in the neighborhoods. By calming automobile traffic, they are adding the necessary friction that keeps cars from completely taking over public space. Neighborhood greenways increase public safety by both making walking and biking a safer endeavor, and reducing crime by adding eyes to the street. As a street that prioritizes people walking and biking, neighborhood greenways can be a more efficient use of space than streets designed solely for cars, and they encourage travel that does not pollute the air or emit greenhouse gases that dangerously warm the earth. And finally, neighborhood greenways can help encourage healthier lifestyles, leading to lower healthcare costs, better mental health, and a higher quality of life.

This study examines Seattle's existing neighborhood greenways to determine if they are working. By examining traffic data collected before and after construction of the neighborhood greenways, we can determine to what extent greenways are calming car traffic and therefore prioritizing people walking and biking, and if this has led to an increase in people walking and biking along these routes. From these determinations, this evaluation will make recommendations for further improvements that may be needed along the studied routes.

Bike dots help direct bikes as the Central Area Neighborhood Greenway crosses E Cherry St. (image courtesy of SDOT)

METHODOLOGY

As Seattle's neighborhood greenway network grows, SDOT is invested in monitoring how these routes are functioning. Accordingly, a neighborhood greenway should have:

- Low speeds, generally 20mph or lower
- Light traffic, generally less than 1500 cars per day
- Arterial crossing treatments consistent with current standards
- Safety for people walking and biking
- More people walking and biking

To evaluate these characteristics, we focused on a **data-driven** approach that will be easily and consistently repeatable as SDOT continues to build its neighborhood greenway network. This documented and consistent process will allow SDOT to continue to monitor new and existing routes in a comparable manner going forward.

To determine if the routes are carrying **reduced car traffic and speeds**, we collected the following data over 7 days, mid-block, in between each arterial street along the neighborhood greenway route:[1]

- **Average Daily Traffic (ADT)** – Average number of vehicles per day
- **85th percentile speed (85% speed)**– This is the industry standard for measuring average speeds. It reflects speed that 85% of vehicles were traveling at or below along the route
- **Percent of vehicles traveling over 30MPH -** This measurement of vehicles exceeding the speed limit by 10MPH or more, is an industry standard indication of amount of excessive speeding

To determine if the routes were carrying **increased bicycle and pedestrian activity**, we collected the following data:

- **Average daily bicycle counts** – Collected over 7 days, mid-block, in between each arterial street along the neighborhood greenway route. In cases where we are comparing before and after data, we only compared data from similar times of the year.[2]
- **Bicycle and pedestrian intersection counts** – Collected as part of a turning movement study where arterials cross the route. Counts are collected on a midweek day from 7 am to 7 pm and sorted for morning, midday, and afternoon peaks. From this data we can see how many bikes are either going straight, turning onto, or turning off of the neighborhood greenway.[3]

To determine if **crossing treatments are consistent with current standards**, we gathered vehicle speed and volume data for the crossing arterial streets. That data is then entered into a chart that gives recommendations for arterial crossing treatments. The treatments can include: marked crosswalk with geometric enhancements, rectangular rapid flashing beacons (RRFB), to half or full traffic signals. The recommendations are then compared to the arterial crossing treatment in place. See Appendix A for the arterial crossing recommendation graph.

To study safety **for people walking and biking**, we examined available collision data collected from city sources through October 2016. This included bicycle and pedestrian collision data from the Seattle Police Department with complete reports, and bicycle collision data from the Seattle Fire Department that gives location and injury severity. We collected the locations and circumstances of

these collisions along or intersecting the studied routes.

This study focused on 9 of the 14 existing neighborhood greenways. The remaining 5 routes were excluded either because they were less than a year from completion, or had undergone significant updates or changes within the past year.

A key part of each neighborhood greenway evaluation is a **data map**. These maps show a quick synopsis of the before and after data collected along the route, along with arterial crossing treatments and a color coded system that shows how those streets and crossings functioned before and after greenway installation.

[1] This data was collected using automatic pneumatic tube counters placed across the roadway. These counters can count the number, speed, and type of vehicles traveling over them.

[2] These count were collected with SDOT owned automatic pneumatic tube counters placed across the road. These counters are specially calibrated to count the number of bicycles passing over them.

[3] This data is collected as part of an automatic turning movement count. These counts use specially placed cameras to record the intersection for a set amount of time. Those video feeds are then run though a software program that count all bicycle, pedestrian, and vehicle movements through the intersection.

GENERAL FINDINGS

To evaluate Seattle's existing neighborhood greenways, we determined if the greenways were meeting current design and operational guidelines. We asked five key questions:

- Are our efforts to reduce speeds working?
- Are we maintaining low traffic volumes?
- Are the routes safer for people walking and biking?
- Are people using the routes to walk and bike in their neighborhoods?
- Do the designs meet current guidelines for new routes?

WHAT WE FOUND

Cars are moving slower

- Across the nine neighborhood greenways we studied, people driving were travelling an average of 17% slower than before building the greenway.
- The average 85% speed for the nine studied greenways was 21 mph.
- The amount of high-end speeding was also down on these routes, with 88% fewer incidents of people driving faster than 30MPH.
- In areas where we did not install new speed humps the average 85% speed was 24 mph, where speed humps were installed to current standards that average was 21 mph.

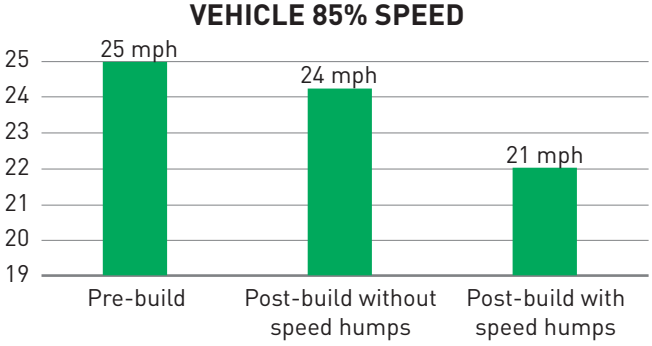
Traffic remains low

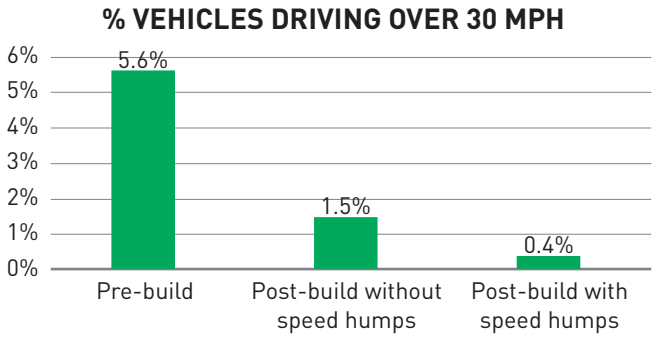
- The average daily traffic has not increased on these routes when comparing before and after data, and remain well below the neighborhood greenway design threshhold of 1500 vehicles per day.
- Only two neighborhood greenways include segments over the 1500 vehicles per day threshold:
  - The University District, where construction has temporarily closed a nearby parallel arterial, Brooklyn Ave NE.
  - Jackson Place, where the one block section of S Dearborn St sees high volumes of traffic. A 2017 diverter is expected to reduce volumes on this segment.

Collisions remain rare*

- There have been zero serious or fatal bicycle or pedestrian collisions along the studied neighborhood greenways.
- Only one location with multiple bicycle or pedestrian collisions.

*Data collected prior to December 2016





More people are walking and biking

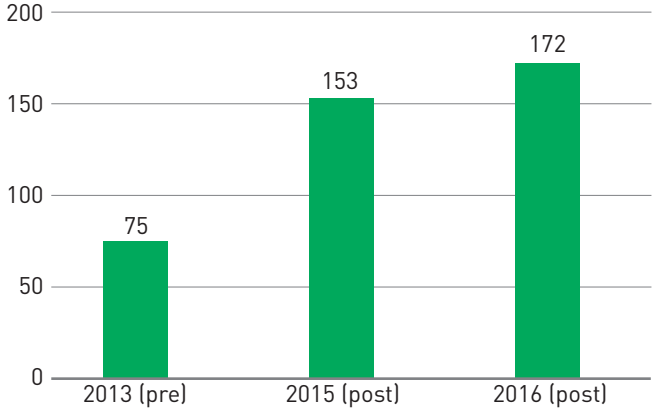
- In the locations where we had comparable data both before and after the completion of the neighborhood greenway, the number of people biking along the route increased.
- In the locations where we had comparable data both before and after completion of the neighborhood greenway, more people people walking and biking used the route to cross busy arterial street.

Most routes meet current standards

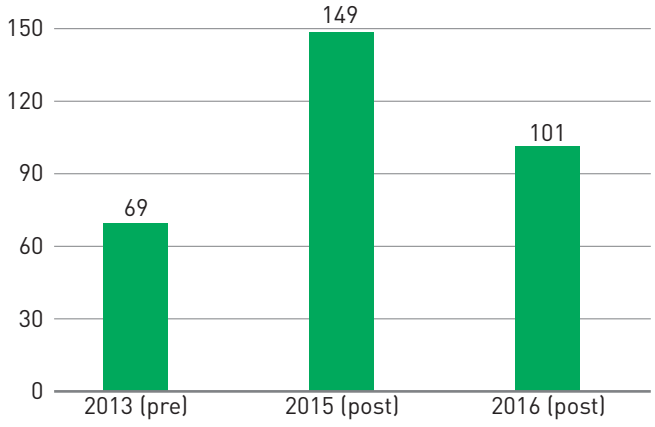
Consistency and legibility are both important components of neighborhood greenway safety and success. Our evaluation determined that most greenways meet current design standards both along the greenway and at arterial crossings. Those locations that did not meet current guidelines are recommended for Tier 1 or 2 upgrades. See Appendix A for Seattle's current neighborhood greenway guidelines.

NUMBER OF PEOPLE BIKING*

Ballard Greenway (April)

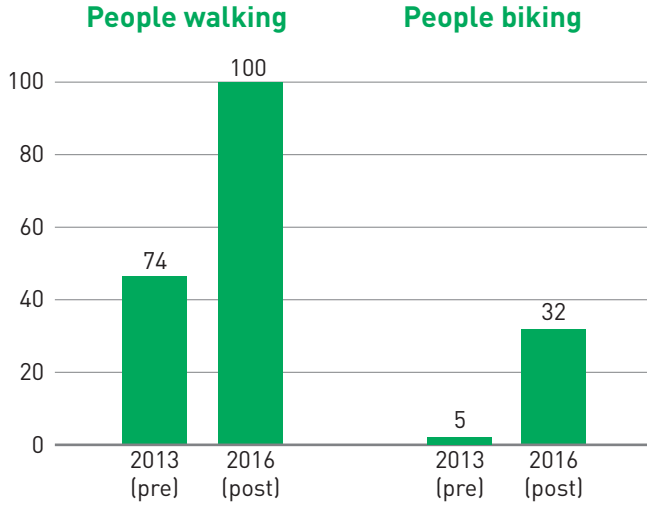


Delridge Greenway (May)



*People biking per day (7 day average)

NUMBER OF PEOPLE CROSSING ARTERIALS**



**Peak hour # of people crossing NE 50th St at 12th Ave NE

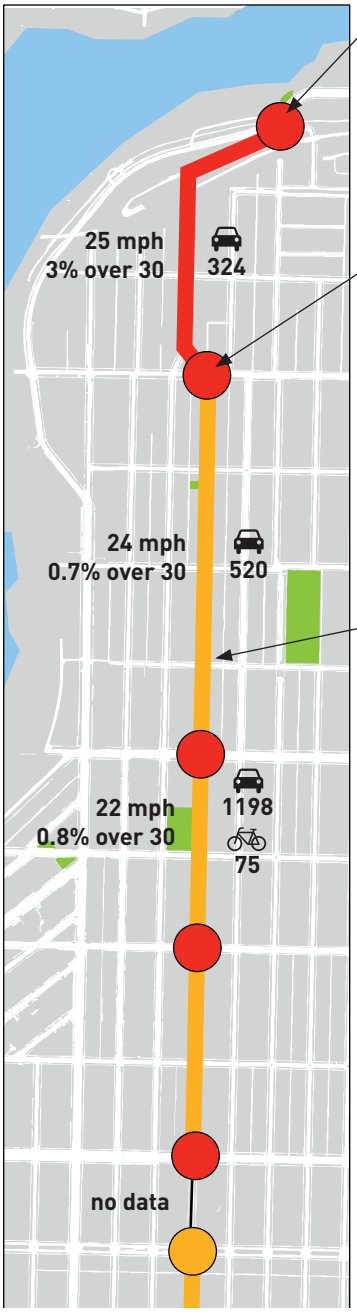
KEY: READING THE MAPS

PRE-BUILD

This map shows the speeds, car volumes, and bike volumes before installation of the neighborhood greenway.

POST-BUILD

This map shows the speeds, car volumes, and bike volumes after installation of the neighborhood greenway.



ARTERIAL STREET CROSSINGS

This center portion details the arterial crossing treatments of the route, and if it was installed with the neighborhood greenway or was pre-existing.

COLORED CIRCLES

The colored circles represent the arterial crossings along the route:

- **GREEN**: Treatment meets current crossing guidelines
- **ORANGE**: Meets current guidelines, but improvements recommended
- **RED**: Does not meet current guidelines and improvements recommended.

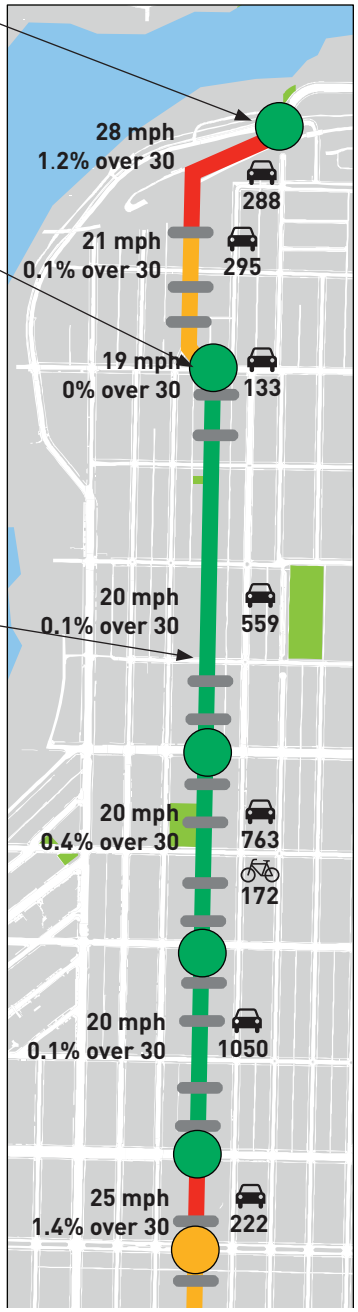
COLORED LINES

The colored lines show the 85% speed ranges along the route:

- **GREEN**: 20 MPH or less
- **ORANGE**: 21-24 MPH
- **RED**: 25 MPH or greater.
- **BLACK**: No data for this segment

KEY:

X MPH = 85th percentile car speed
X% over 30 = percent of cars over 30 MPH
= speed hump location
= ADT collection location
= Average daily bike count location
NGW = Neighborhood Greenway
= School
= Library
= Community center
= Light rail station
= Existing family friendly route



EVALUATED GREENWAYS

BALLARD 58TH

This neighborhood greenway connects Shilshole Bay to the heart of Ballard and the surrounding residential areas. It links the Burke-Gilman Trail, the 17th Ave Neighborhood Greenway, and the heavily used bike lanes on 8th Ave NW.

- Constructed in 2013
- 2.1 miles long
- 7 arterial crossings
- 2 park connections
- 2 school connections

image credit: SDOT

HIGHLIGHTS

- Less speeding:
  - 11% reduction in speeds.
  - People driving over 30MPH dropped by 69%.
- More people biking, increasing from 75 to 172 bikes per day.

OPPORTUNITIES

- Install additional traffic calming where speeds are above 24 mph.
- Upgrade the 8th Ave NW arterial crossing: add bicycle activation to the existing half signal, and add a crossing on the north leg of the intersection.
- Upgrade the 14th Ave NW arterial crossing by adding crossing treatments and a south leg median refuge island.


PRE-BUILD
POST-BUILD
SEAVIEW AVE NW
Connection to BG Trail installed with NGW
32ND AVE NW
Marked crosswalk installed with NGW
24TH AVE NW
RRFB installed with NGW
20TH AVE NW
All-way stop installed with NGW
15TH AVE NW
Full signal and partial diverter installed with NGW
14TH AVE NW
Pre-existing single crosswalk and median island
Future Opportunity
Add crossing on south leg of intersection
8TH AVE NW
Pre-existing single crosswalk and half-signal
Future Opportunity
Add crossing, bicycle detection, and median island to north leg of intersection
25 mph
3% over 30
324
24 mph
0.7% over 30
520
22 mph
0.8% over 30
1198
75
no data
24 mph
0.4% over 30
328
28 mph
1.2% over 30
288
21 mph
0.1% over 30
295
19 mph
0% over 30
133
20 mph
0.1% over 30
559
20 mph
0.4% over 30
763
172
20 mph
0.1% over 30
1050
25 mph
1.4% over 30
222
24 mph
0.9% over 30
310
20 mph
0% over 30
371

BEACON HILL

image credit: SDOT

This neighborhood greenway connects the I-90 trail to Beacon Hill. The trail through Jefferson Park that links the Northern and Southern portions was completed in 2016 through Safe Routes to School.

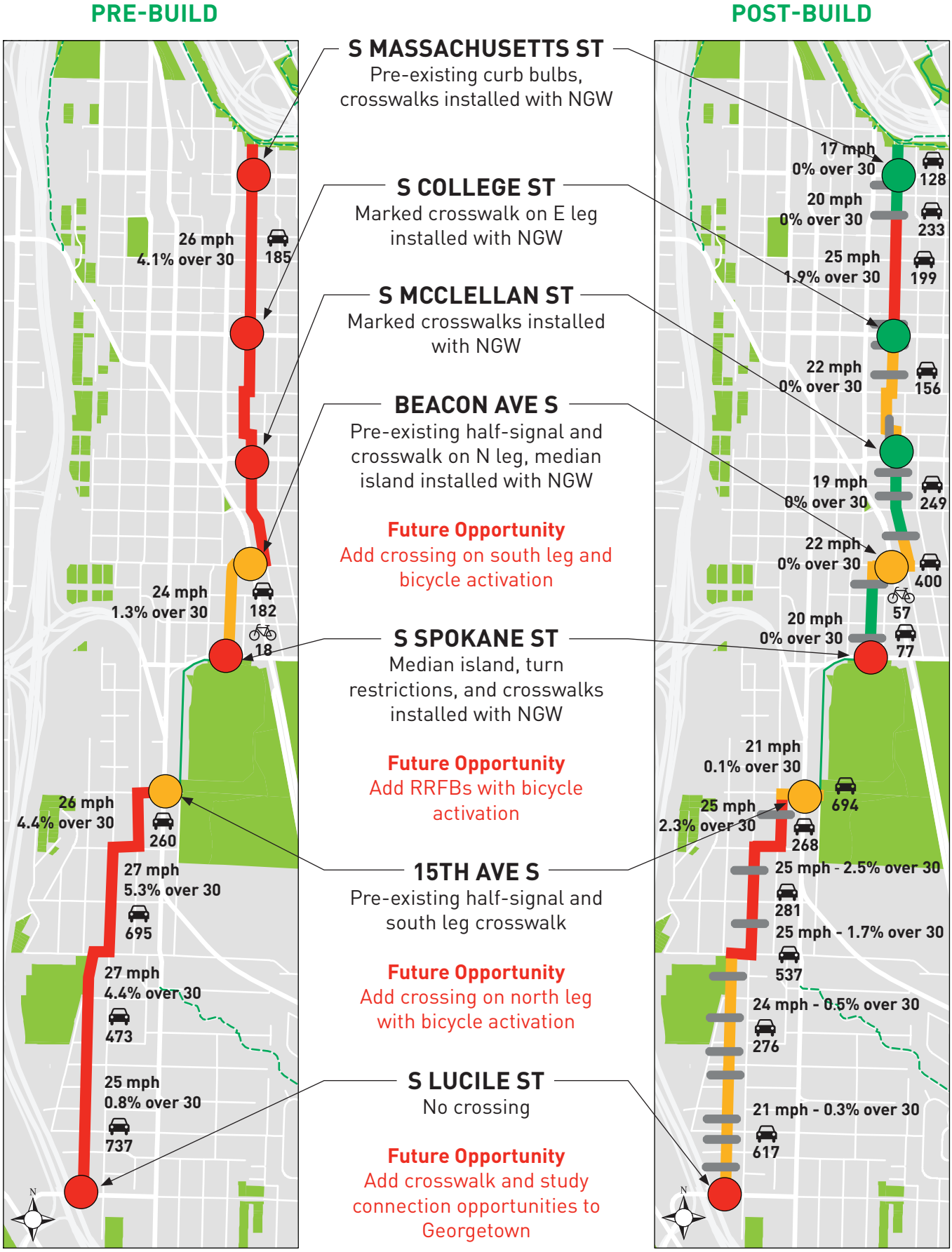
- Constructed 2013
- 3.3 miles long
- 7 arterial crossings
- 2 park connections

HIGHLIGHTS

- Lower speeds:
  - 17% reduction in speeds along route.
  - People driving over 30MPH dropped by 78%.

OPPORTUNITIES

- Install additional traffic calming measures in segments where speeds exceed 24 mph.
- Add flashing beacon at crossing of S Spokane St to meet crossing guidelines.
- Upgrade arterial street crossings to include bike activation at Beacon Ave S as well as bike activation and a north leg crossing at 15th Ave S.


PRE-BUILD
POST-BUILD
S MASSACHUSETTS ST
Pre-existing curb bulbs, crosswalks installed with NGW
S COLLEGE ST
Marked crosswalk on E leg installed with NGW
S MCCLELLAN ST
Marked crosswalks installed with NGW
BEACON AVE S
Pre-existing half-signal and crosswalk on N leg, median island installed with NGW
Future Opportunity
Add crossing on south leg and bicycle activation
S SPOKANE ST
Median island, turn restrictions, and crosswalks installed with NGW
Future Opportunity
Add RRFBs with bicycle activation
15TH AVE S
Pre-existing half-signal and south leg crosswalk
Future Opportunity
Add crossing on north leg with bicycle activation
S LUCILE ST
No crossing
Future Opportunity
Add crosswalk and study connection opportunities to Georgetown
26 mph
4.1% over 30
185
24 mph
1.3% over 30
182
18
26 mph
4.4% over 30
260
27 mph
5.3% over 30
695
27 mph
4.4% over 30
473
25 mph
0.8% over 30
737
17 mph
0% over 30
128
20 mph
0% over 30
233
25 mph
1.9% over 30
199
22 mph
0% over 30
156
19 mph
0% over 30
249
22 mph
0% over 30
400
57
20 mph
0% over 30
77
21 mph
0.1% over 30
694
25 mph
2.3% over 30
268
25 mph - 2.5% over 30
281
25 mph - 1.7% over 30
537
24 mph - 0.5% over 30
276
21 mph - 0.3% over 30
617
N
N

DELRIDGE 26TH

image credit: SDOT

This neighborhood greenway connects the Delridge neighborhood to parks and trails along Longfellow Creek and the W Seattle Bridge Trail via the 2015 Delridge Connector Trail.

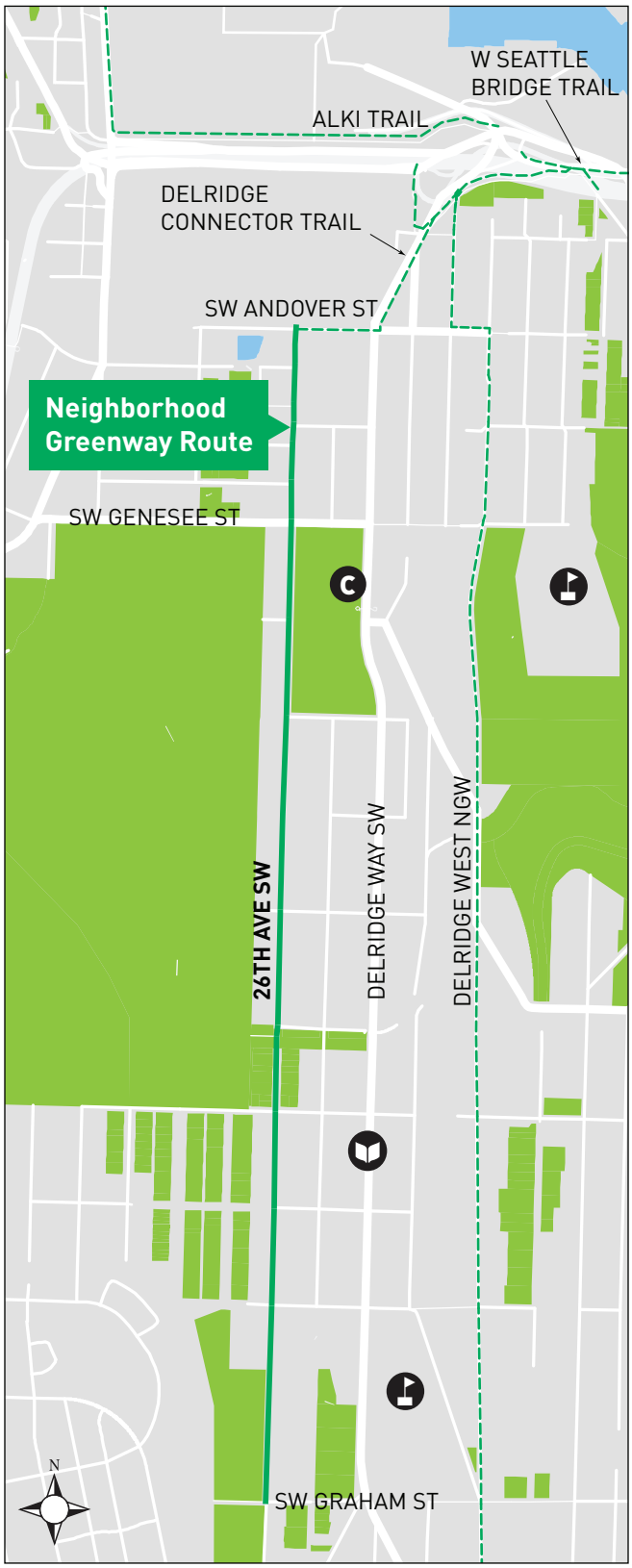
- Constructed 2013
- 1.3 miles long
- 1 arterial street crossing
- 4 park connections

HIGHLIGHTS

- Lower speeds:
  - 26% reduction in speeds along route.
  - 50% reduction in number of vehicles travelling over 30 mph along route.
- More people biking, increasing 32% after the route was constructed.

OPPORTUNITIES

- Add bike dots to direct bikes onto widened sidewalk along Delridge Way SW north of SW Andover St.
- Add wayfinding under W Seattle Bridge directing bikes / peds to NGW from Alki, Duwamish, and W Seattle Bridge trails.
- Install additional traffic calming measures in segments where speeds exceed 24 mph.



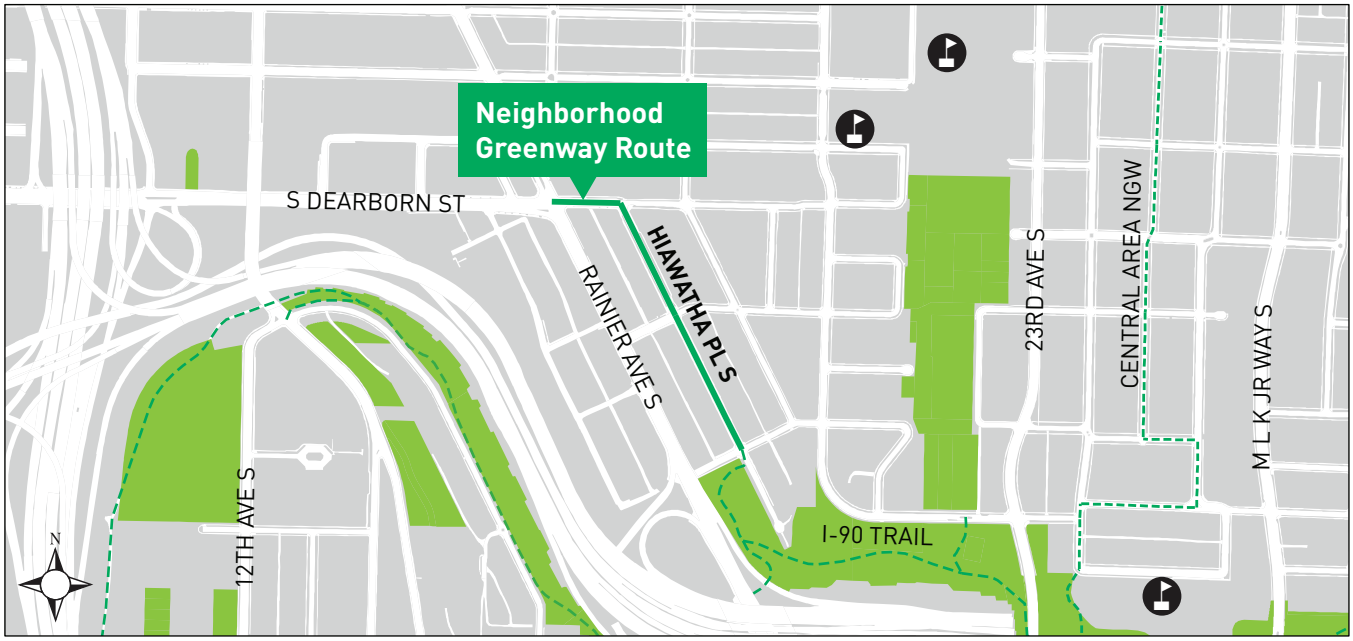

PRE-BUILD
POST-BUILD
SW GENESEE ST
Marked crosswalks installed with NGW
25 mph
1.3% over 30
925
29 mph
11.9% over 30
525
25 mph
2.6% over 30
772
19 mph
0.2% over 30
701
22 mph
0.3% over 30
868
25 mph
1.5% over 30
820
118
25 mph
1.8% over 30
591
24 mph
1.5% over 30
460
25 mph
1.8% over 30
361
N
N

JACKSON PLACE

This neighborhood greenway serves as a short connection from the 1-90 Trail to the future Dearborn protected bike lanes (2017-2018), serving as a vital connection for people biking from SE Seattle to Chinatown/ International District and Downtown Seattle.

- Constructed in 2014
- 0.4 miles long
- 1 park connection

image credit: SDOT



HIGHLIGHTS

- Lower speeds:
  - 34% reduction in speeds.
  - People driving over 30MPH dropped 99% where speed humps were installed on S Dearborn St.

OPPORTUNITIES

- Add speed humps along Hiawatha to reduce speeds to 20 mph and discourage cut-through traffic (2017).
- Monitor traffic data after installation of Rainier Ave S intersection changes and Dearborn protected bike lane, to ensure Hiawatha Pl S remains below 1,500 average daily vehicles.


PRE-BUILD
POST-BUILD
RAINIER AVE S
Pre-existing full signal and crosswalks
32 mph
26% over 30
(EB only)
15 mph
0% over 30
(NEB only)
No data
No data
2485
263
23 mph
1.7% over 30
23 mph
0.9% over 30
561
300
23 mph
1.5% over 30
538
317

MCGILVRA

image credit: SDOT

This neighborhood greenway connects McGilvra Elementary School to E Madison St. It was constructed in response to neighborhood concerns over congestion and excessive speeds along 37th Ave E.

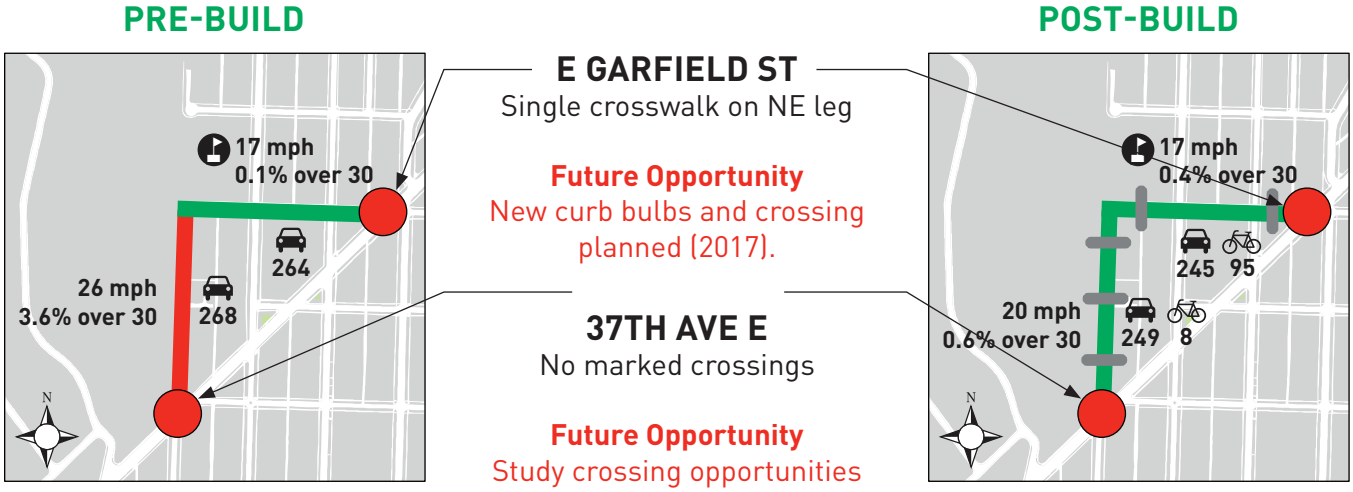
- Constructed in 2014
- 0.4 miles long
- 1 school connections

HIGHLIGHTS

- Lower speeds:
  - 23% reduction in speeds.
  - People driving over 30MPH dropped by 83%.

OPPORTUNITIES

- Construct crossings of E Madison St at 37th Ave E and E Garfield St.
- Standardize speed humps to every 300' along E Garfield St to further reduce speeds.


PRE-BUILD
POST-BUILD
E GARFIELD ST
Single crosswalk on NE leg
Future Opportunity
New curb bulbs and crossing planned (2017).
37TH AVE E
No marked crossings
Future Opportunity
Study crossing opportunities
17 mph
0.1% over 30
264
26 mph
3.6% over 30
268
N
17 mph
0.4% over 30
245
95
20 mph
0.6% over 30
249
8
N

OLYMPIC HILLS

image credit: SDOT

This neighborhood greenway connects the northern border of Seattle with the commercial and community core of Lake City.

- Constructed 2014
- 1.3 miles long
- 2 arterial crossings

HIGHLIGHTS

- Lower speeds:
  - 18% reduction in speeds.
  - People driving over 30MPH dropped by 91%.

OPPORTUNITIES

- Support community-driven plans for improvements to walkway connecting 27th Ave E and 28th Ave E at NE 133rd St.
- Upgrade crossing of NE 125th St to double-half signal and two crosswalks.
- Install greenway connection to Olympic Hills Elementary School at NE 130th St and 20th Ave NE (2017).


PRE-BUILD
POST-BUILD
NE 145TH ST
Pre-existing full signal and crosswalks
319
26 mph
3% over 30
310
24 mph
1.2% over 30
30 mph
15.6% over 30
844
25 mph
1.4% over 30
27 mph
4.7% over 30
826
669
NE 125TH ST
Pre-existing half signal and single crosswalk
Future Opportunity
Add crossing on east leg and bicycle activation
276
20
21 mph
0.6% over 30
291
25
22 mph
0% over 30
23 mph
1.2% over 30
689
36
20 mph
0% over 30
23 mph
0.7% over 30
937
573
66
46
N
N

PHINNEYWOOD

image credit: SDOT

This neighborhood greenway connects the neighborhoods of Phinney Ridge, Greenwood, and Broadview. The route is signed as the Interurban North, and connects with the Interurban multi-use trail at N 110th St.

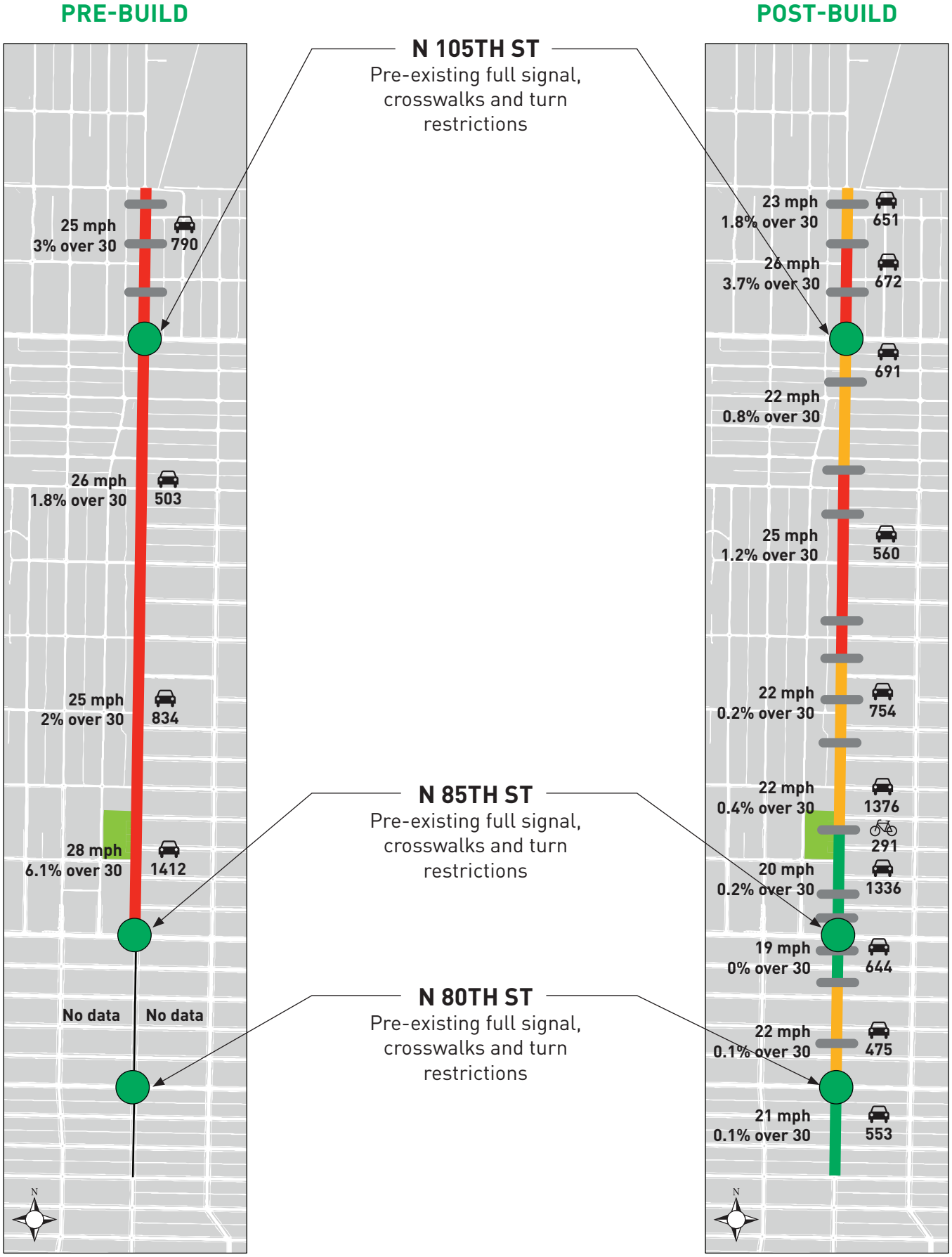
- Constructed 2014
- 1.4 miles long
- 3 arterial street crossings
- 1 park connection

HIGHLIGHTS

- Lower speeds south of N 105th St:
  - 15% reduction on speeds.
  - People driving over 30MPH dropped by 86%.
- More people walking, with peak hour crossings increasing 52% at N 80th St.

OPPORTUNITIES

- Upgrade old speed humps north of N 105th St and install speed humps on blocks without to reduce speeds (planned 2017).
- Add traffic calming to N 90th St, the location of 2 bicycle collisions (2017).
- Add bike turn boxes at signalized crossings to facilitate cue jump (2017).


PRE-BUILD
POST-BUILD
N 105TH ST
Pre-existing full signal, crosswalks and turn restrictions
25 mph
3% over 30
790
26 mph
1.8% over 30
503
25 mph
2% over 30
834
28 mph
6.1% over 30
1412
No data
No data
N 85TH ST
Pre-existing full signal, crosswalks and turn restrictions
N 80TH ST
Pre-existing full signal, crosswalks and turn restrictions
23 mph
1.8% over 30
651
26 mph
3.7% over 30
672
691
22 mph
0.8% over 30
25 mph
1.2% over 30
560
22 mph
0.2% over 30
754
22 mph
0.4% over 30
1376
291
20 mph
0.2% over 30
1336
19 mph
0% over 30
644
22 mph
0.1% over 30
475
21 mph
0.1% over 30
553
N
N

RAINIER VALLEY EAST-WEST

This neighborhood greenway connects the New Holly neighborhood and John C. Little Park to Lake Washington and Martha Washington Park. While the greenway has several steep slopes, it provides vital arterial crossings of MLK Jr. Way S, Rainier Ave S, and Seward Park Ave S.

- Constructed in 2015
- 1.6 miles long
- 3 arterial crossings
- 2 park connections
- 2 school connections

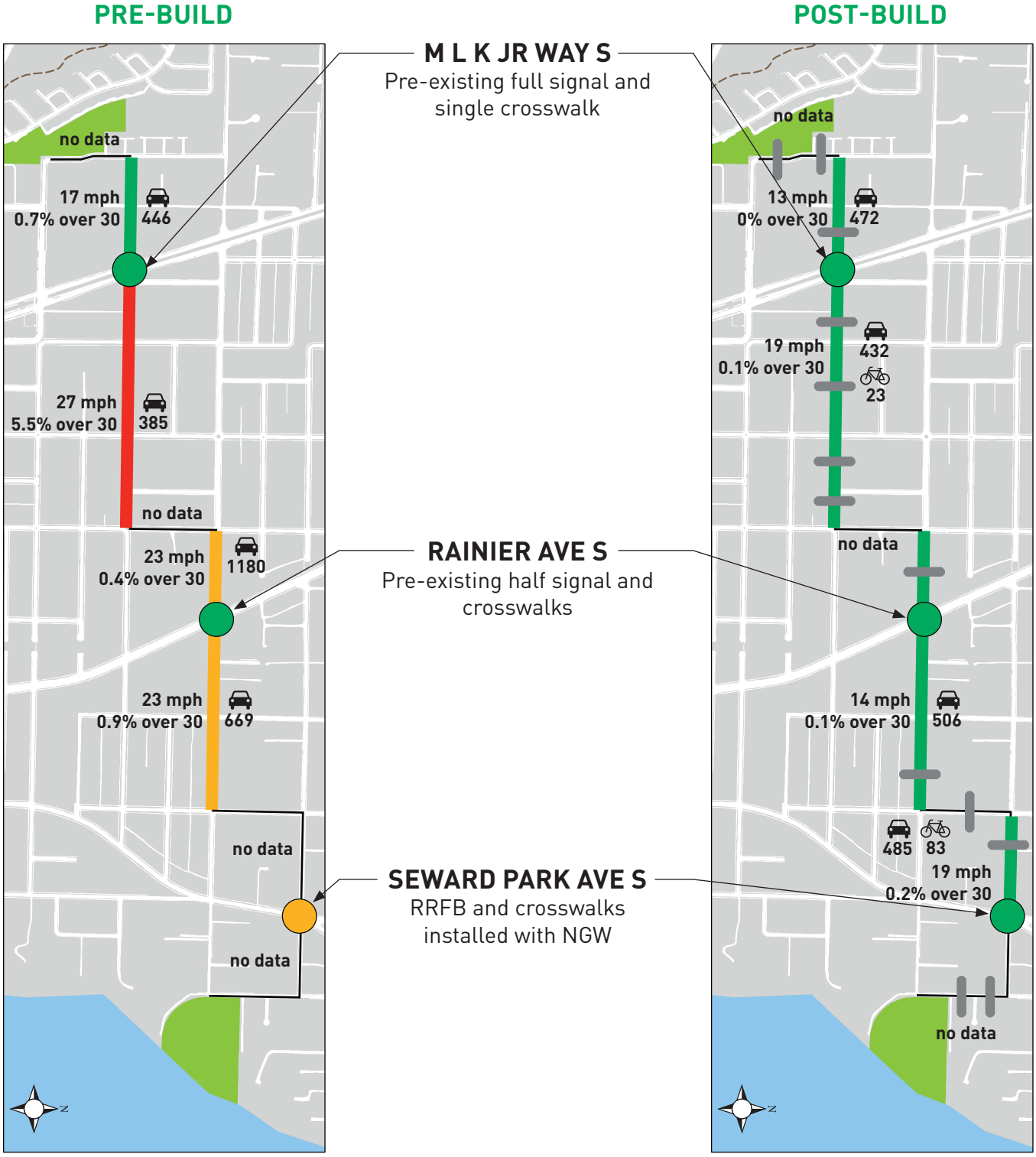
image credit: SDOT

HIGHLIGHTS

- Lower speeds:
  - 34% reduction in speeds.
  - People driving over 30MPH dropped by 95%.
- 2016 Art Interruptions program featured emerging artists along this route.
- Enhanced landscaping at the S Willow St and 46th Ave S diverter encourages compliance.
- Upgraded connection through John C Little Park by Seattle Parks Department (2016).

OPPORTUNITIES

- Add bike parking and enhanced visibility at park destinations.
- Work with community and Seattle City Light to enhance connection to Chief Sealth Trail.
- Improve crossing of Rainier Ave S with possible bike box and cue jump.


PRE-BUILD
POST-BUILD
M L K JR WAY S
Pre-existing full signal and single crosswalk
RAINIER AVE S
Pre-existing half signal and crosswalks
SEWARD PARK AVE S
RRFB and crosswalks installed with NGW
no data
17 mph
0.7% over 30
446
27 mph
5.5% over 30
385
no data
23 mph
0.4% over 30
1180
23 mph
0.9% over 30
669
no data
no data
no data
13 mph
0% over 30
472
19 mph
0.1% over 30
432
23
no data
14 mph
0.1% over 30
506
485
83
19 mph
0.2% over 30
no data

U-DISTRICT

This neighborhood greenway connects the University of Washington's West Campus to the Ravenna neighborhood business district.

- Constructed 2014
- 1.1 miles long
- 1 park connection
- 2 PBL connections

HIGHLIGHTS

- Lower speeds north of NE 50th St:
  - 25% reduction in speeds.
  - People driving over 30MPH dropped by 95%.
- More people biking, increasing 473% after construction of the route.
- More people walking are using the intersection of NE 50th St during the peak hour, increasing from about 60 to 100 people.

OPPORTUNITIES

- Work with Olmsted Boulevard and Parks and Recreation Department to improve the connection between the greenway and Ravenna protected bike lanes.
- Re-evaluate the greenway after U-District LINK station completion and Brooklyn Ave NE reopens.
- Assess results of 2017 signal upgrade at NE Campus Plwy on greenway connections.


PRE-BUILD
POST-BUILD
NE RAVENNA BLVD
No crossing improvement
Future Opportunity
Add crossings and improve access to Ravenna protected bike lanes
24 mph
1.4% over 30
255
24 mph
1.2% over 30
459
23 mph
0.8% over 30
701
NE 50TH ST
Full signal, crosswalks, and turn restrictions installed with NGW
24 mph
1.7% over 30
1284
NE 47TH ST
All-way stop and crosswalks installed with NGW
27
NE 45TH ST
Full signal and crosswalks pre-existing. Bike activation installed with NGW.
56
NE 43RD ST
All-way stop installed with NGW
24 mph
0.4% over 30
1782
NE CAMPUS PKWY
Pre-existing marked crosswalks. Full signal installed 2017.
17 mph
0% over 30
252
20 mph
0% over 30
587
16 mph
0.2% over 30
995
120
22 mph
1.7% over 30
1562
273
22 mph
1% over 30
3865
N
N

OVERALL RECOMMENDATIONS

The following recommendations are based upon this evaluation of nine neighborhood greenways.

- **Continue monitoring and evaluating neighborhood greenways.** As the network grows it remains important to evaluate existing routes to ensure uniformity and compliance to current standards. Additionally, further evaluation and study can inform future best-practices for creating useful and safe routes for walking and biking.
- **Continue to collect more robust data.** As we continue to build new greenways, it is important to collect robust "before" data, particularly for those walking and biking. With that data, we can gain a more complete understanding of how neighborhood greenways can increase the number of people walking and biking along the route. Additionally, continue to monitor the permanent bicycle counters to gain an understanding of long-term bicycle trends along greenway.
- **Study compliance and effectiveness of rectangular rapid flashing beacons (RRFB).** As these beacons become more common throughout Seattle, a comprehensive study of their effectiveness is needed. Planned for 2017.
- **Study compliance and effectiveness of various types of diverters.** To discourage cut-through traffic, some routes employ various types of diverters along the route. These include sign-only diverters at full-signals, as well as planned right-in right-out diverters with bicycle pass through at half-signal locations. Study compliance among the various types of diverters, and how effective they are at reducing cut-through traffic and making the arterial crossing safer.

TIERED RECOMMENDATIONS

TIER 1 RECOMMENDATIONS

Opportunities where greenway treatments are not meeting current crossing guidelines or collision pattern identified.

Beacon Hill

- Upgrade crossing of S Spokane St to current standards - install flashing beacon.

Phinneywood

- Add traffic calming to N 90th St, the location of 2 bicycle collisions.

TIER 2 RECOMMENDATIONS

Opportunities where greenway treatments are not meeting current speed guidelines.

Ballard 58th

- Install additional traffic calming measures in segments where speeds exceed 24 mph.

Beacon Hill

- Install additional traffic calming measures in segments where speeds exceed 24 mph.

Delridge 26th

- Install additional traffic calming measures in segments where speeds exceed 24 mph.

Phinneywood

- Install additional traffic calming measures in segments where speeds exceed 24 mph.

TIER 3 RECOMMENDATIONS

Opportunities where greenway treatments meet current guidelines, but improvements recommended.

Ballard 58th

- Upgrade the 8th Ave NW arterial crossing: add bicycle activation to existing half signal, and add a crossing on north leg of intersection.
- Upgrade the 14th Ave NW arterial crossing by adding crossing treatments and a median refuge island on south leg of intersection.

Beacon Hill

- Add south leg crossing and bike activation to the signalized crossing at Beacon Ave S.
- Add north leg crossing and bike activation to the existing signalized crossing at 15th Ave S.

Delridge 26th

- Add wayfinding to direct bikes onto widened sidewalk along Delridge Way SW north of SW Andover St.
- Add wayfinding to direct bikes onto widened sidewalk on south side of SW Andover St.
- Conduct speed and volume studies of SW Andover St west of Delridge Way SW for compliance with greenway standards.

Jackson Place

- Add speed humps along Hiawatha to reduce speeds to 20 mph and discourage cut-through traffic (2017).

McGilvra

- Standardize speed humps to every 300' to further reduce speeds.

Olympic Hills

- Support community-driven plans for improvements to walkway connecting 27th Ave E and 28th Ave E at NE 133rd St.
- Upgrade crossing of NE 125th St to double-half signal and two crosswalks.
- Install greenway connection to Olympic Hills Elementary School at NE 130th St and 20th Ave NE (2017).

TIER 4 RECOMMENDATIONS

Opportunities to improve network bicycle and pedestrian connections and continued monitoring of new changes.

Beacon Hill

- Add crossing of S Lucille St.

Jackson Place

- Monitor traffic data after installation of Rainier Ave S intersection changes and Dearborn protected bike lane, to ensure Hiawatha Pl S remains below 1,500 average daily vehicles.

McGilvra

- Add crossing of E Madison St at intersection of 37th Ave E.

Olympic Hills

- Support community-driven plans for improvements to walkway connecting 27th Ave E and 28th Ave E at NE 133rd St.
- Install greenway connection to Olympic Hills Elementary School at NE 130th St and 20th Ave NE (2017).

University District

- Add crossings of NE Ravenna BLVD and improve connection to the Ravenna bike.
- Re-evaluate the greenway after U-District LINK station completion and Brooklyn Ave NE reopens.
- Assess results of 2017 signal upgrade at NE Campus Plwy on greenway connections.

Jackson Place Neighborhood Greenway
image credit: SDOT

NEXT STEPS: QUESTIONS

This neighborhood greenway evaluation master's thesis, based on a study done for SDOT in 2016 - 2017, is an important step as Seattle plans its transportation system towards the future. By conducting a data-based study, SDOT is laying the groundwork for an on-going neighborhood greenway monitoring program that will help ensure the routes are safe and comfortable bicycle and pedestrian prioritized streets. This is especially important as Seattle grows and our streets become more crowded with all types of users.

By measuring vehicle volumes, vehicle speeds, bicycle volumes, and pedestrian volumes, SDOT is able to get a good sense of both how comfortable the route is, and how useful the route is for people walking and biking. This evaluation groundwork, along with more robust pre-installation data gathering, will set the stage for more in-depth, complex, and informative data evaluation as the amount of collected pre-and post implementation data grows.

As the general findings show, the neighborhood greenways are working. Cars are moving slower, traffic remains low, and collisions are very rare on the studied neighborhood greenways. Additionally, the data suggests that the neighborhood greenways do encourage people to walk and bike along the route, with higher numbers of people walking and biking after a neighborhood greenway was constructed than before. By all measures taken with this study, the routes are working.

However, what the general findings don't show, and the data collected cannot tell us, is a much more complex story. Are the routes encouraging new people to walk and bike, or are they rerouting existing walkers and bikers onto these safer and more comfortable streets? How navigable are the routes? Can new users find their way around their neighborhoods and onto other great bicycle and pedestrian streets? How many potential users even know these routes exist, and if the routes were more identifiable, would more people walk and ride along their neighborhood greenways? And finally, what is the experience of these streets? Are we building great streets for people to walk and bike along, or are they merely better than the streets adjacent?

These are all questions that arose during the process of planning, collecting data, analyzing data, and writing this study. However, as the first SDOT published neighborhood greenway evaluation, it was important to keep the focus on our main questions, and leave these other questions for a different study down the road.

There was one question, however, that I want to explore further. How can we make the neighborhood greenways more identifiable? When talking to friends, neighbors, and people at public meetings, it is not uncommon for people to be unfamiliar with neighborhood greenways. They may want to walk and bike more in their neighborhood, but have no idea they live near a neighborhood greenway. With subtle design clues of speed humps, signage, sharrows and bike dots, it is not surprising many Seattleites have no idea that neighborhood greenways exist. For this program to become more successful, it is important these routes gain more of an identity in Seattle's conscience.

NEXT STEPS: ART INTERRUPTIONS

One program that is already striving to increase the identity and visibility of our neighborhood greenways is an SDOT and Seattle Office of Arts and Culture partnership called *Art Interruptions.* Funded by the neighborhood greenways contribution to Seattle's 1% for the Arts Program, this annual staging and artwalk showcases temporary art installations along a different neighborhood greenway every summer or fall, with the partnership going into its third year in 2017.

As art installations, this program is designed to "offer ephemeral moments of surprise and relection" along the route (Office of Arts and Culture). For SDOT, this program offers the additional benefit of increasing awareness and identity of our neighborhood greenways. The 2017 Art Interruptions will take place along the Delridge 26th Neighborhood Greenway and its connection to the Alki and West Seattle Bridge Trails via the Delridge Connector Trail. By placing temporary art installations linking these four family-friendly walking and biking routes, SDOT hopes to increase awareness of these connections and neighborhood greenways in general.

Vikram Madan's *Mini-Murals* created whimsical vignettes behind neighborhood greenway street signs all along the Rainier Valley East-West Neighborhood Greenway route for Art Interruptions 2016.
Image credit: SDOT

Ulises Mariscal's exhibit, *Greatness Starts Here,* showcased stencil representations of neighborhood community members along the Rainier Valley East-West Neighborhood Greenway for Art Interruptions 2016, including this one at the corner of Martin Luther King Jr Blvd and S Willow St.
Image credit: SDOT

NEXT STEPS: GREENWAY IDENTITY AND WAYFINDING

The Art Interruptions program is a great partnership that fosters public art and neighborhood greenway identity together. However, because it is both temporary and limited to one route per year, it remains difficult for it to have a large program-wide impact on increasing the identity and visibility of neighborhood greenways.

I would like to conclude this thesis with a small and simple proposal to enhance the identity, visibility, and wayfinding of Seattle's neighborhood greenways. The proposal is to, quite literally, turn a small portion of the neighborhood greenways green. A simple wide dashed green stripe in the middle of a neighborhood greenway street and green arterial crosswalks could:

- Add identity, as those walking, biking, or driving would notice that these streets are different than others, which could pique their curiosity.
- Add meaning, as those who picture a greenway somehow green or natural would be able to make an identifying connection.
- Add wayfinding, as routes may turn several times, these painted lines would be more noticeable than the current wayfinding signage.
- Add visibility, as those driving along the routes or crossing at arterials would have an additional visual cue that these roads are prioritized for people walking and biking.

EXISTING

A typical neighborhood greenway street with speed humps and sharrows along the route.

A typical neighborhood greenway street with identifying and wayfinding signage at a turn.

A typical neighborhood greenway arterial crossing with temporary enhancements.

PROPOSED

The small and simple solution. A wide dashed line running down the center of the neighborhood greenway immediatly identifies it as a different type of residential street.

Where neighborhood greenways turn, the dashed line acts like a guide bringing the person walking or biking along the route. Without the dashed line, a user could easily miss the wayfinding signage posted before the corner.

At arterial crossings, the green-backed crosswalks are immediatly apparent to drivers as an enhanced crossing. Additionally, where appropriate, the crosswalks could be customized to represent the local neighborhood or community.

BIBLIOGRAPHY

"About Seattle." *About Seattle - Land Use - Seattle Office of Planning and Community Development*. City of Seattle, n.d. Web. 21 Apr. 2017. <http://www.seattle.gov/dPd/cityplanning/populationdemographics/aboutseattle/landuse/default.htm>.

"Art Interruptions 2016." *Art Interruptions 2016 - Arts*. Seattle Office of Arts and Culture, Aug. 2017. Web. Aug. 2017. <http://www.seattle.gov/arts/art-interruptions-2016>.

Blumenfeld, Hans. *The Modern Metropolis; Its Origins, Growth, Characteristics, and Planning*. Selected Essays. Edited by Paul D. Spreiregen. Montreal: Harvest House, 1971. Print.

Cervero, Robert, Benjamin Caldwell, and Jesus Cuellar. "Bike-and-Ride: Build It and They Will Come." *Journal of Public Transportation* 16.4 (2013): 83-105. Web.

Cervero, Robert. *The Transit Metropolis: A Global Inquiry*. Washington, D.C.: Island, 1998. Print.

Chudacoff, Howard P., Peter C. Baldwin, and Judith E. Smith. *The Evolution of American Urban Society*. Upper Saddle River, NJ: Prentice Hall, 2010. Print.

City of Seattle. Department of Transportation. *Bicycle Master Plan*. SDOT, Apr. 2014. Web. Sept. 2016. <http://www.seattle.gov/transportation/docs/bmp/apr14/SBMP_21March_FINAL_full%20doc.pdf>.

City of Seattle. Department of Transportation. *Freight Master Plan*. SDOT, Sept. 2016. Web. 22 Apr. 2017. <http://www.seattle.gov/transportation/docs/fmp/FMP_Report_2016E.pdf>.

City of Seattle. Department of Transportation, Seattle Police Department. *Vision Zero, Seattle's Plan to End Traffic Deaths and Serious Injuries by 2030*. SDOT, SPD, Feb. 2015. Web. 20 Apr. 2017. <http://www.seattle.gov/Documents/Departments/beSuperSafe/VisionZeroPlan.pdf>.

City of Seattle. Office of Sustainability and Environment. *Seattle Climate Action Plan*. City of Seattle, June 2013. Web. 20 Apr. 2017. <http://www.seattle.gov/Documents/Departments/OSE/2013_CAP_20130612.pdf>.

City of Seattle. Seattle Department of Transportation. *City of Seattle Pedestrian Master Plan*. SDOT, Apr. 2017. Web. 22 Apr. 2017. <http://www.seattle.gov/transportation/docs/SeattlePedestrianMasterPlan.pdf>.

City of Seattle. Seattle Department of Transportation. *Transit Master Plan*. SDOT, 1 Feb. 2016. Web. 21 Apr. 2017. <http://www.seattle.gov/transportation/tmp_final.htm>.

Five of the Nation's Eleven Fastest-Growing Cities Are in Texas, Census Bureau Reports. Rep. no. CB16-81. United States Census Bureau, 19 May 2016. Web. 21 Apr. 2017. <https://www.census.gov/newsroom/press-releases/2016/cb16-81.html>.

Frumkin, Howard, Lawrence Frank, and Richard J. Jackson. *Urban Sprawl and Public Health Designing, Planning, and Building for Healthy Communities*. Washington: Island, 2013. Kindle Edition.

Gehl, Jan. *Cities for People*. Washington DC: Island, 2010. Print.

Hayden, Dolores. *Building Suburbia, Green Fields and Urban Growth 1820 - 2000*. New York: Vintage, n.d. Kindle Edition.

Jackson, Kenneth T. *Crabgrass Frontier: The Suburbanization of the United States.* N.p.: Oxford Univ Pr, 2008. Kindle Edition.

Jacobs, Jane. *The Death and Life of Great American Cities*. New York: Modern Library, 1993. Print.

Johansson, Roger. "Vision Zero: Implementing a Policy for Traffic Safety." *Safety Science* 47.6 (2009): 826-31. Web.

Paletta, Anthony. "Story of Cities #32: Jane Jacobs v Robert Moses, Battle of New York's Urban Titans." *The Guardian*. Guardian News and Media, 28 Apr. 2016. Web. 29 Apr. 2017.

"Public Space Management Program." *SDOT Public Space Management Program*. Seattle Department of Transportation, n.d. Web. 22 Apr. 2017. <https://www.seattle.gov/transportation/publicspacemanagement.htm>.

Spirn, Anne Whiston. *The Granite Garden: Urban Nature and Human Design*. New York: Basic, 1984. Print.

Warner, Sam Bass. *Streetcar Suburbs: The Process of Growth in Boston (1870-1900)*. Cambridge, Mass: Harvard U, 1980. Kindle Edition.

Washington State. Office of Financial Management. *Population Change and Rank.* N.p., 1 Apr. 2016. Web. 21 Apr. 2017. <http://www.ofm.wa.gov/pop/april1/>.

APPENDIX CONTENTS

APPENDIX A - ARTERIAL CROSSINGS

Appendix A shows the data and analysis for each arterial crossing along the neighborhood greenway routes.

For each route, the appendix contains a table showing the vehicle speeds and volumes for arterial routes at or near the neighborhood greenway crossing, along with the collection location and date. This data was used to gain a better understanding of the traffic characteristics of the arterial crossings, and the challenges neighborhood greenway users might experience in crossing these busier streets.

This arterial crossing data is also displayed on the arterial crossing graphs that serve as guidelines for crossing treatments. Developed by SDOT, these graphs are meant to provide a basic understanding of the types of crossing treatments as related to vehicle speeds, vehicle volumes, and street channelization. These graphs recommend three levels of treatment:

1. **Crosswalk improvements** - The area left of the orange line recommends the signs and markings of crosswalk improvements as the minimum recommended treatment.
2. **RRFB** - The area between the orange and red lines recommends rectangular rapid flashing beacons (RRFB) as the minimum recommended treatment.
3. **Geometric enhancements with RRFB or signal** - The area right of the red line recommends signalizing the intersection, or adding geometric enhancements such as median islands or curb bulbs along with an RRFB as the minimum recommended treatment.

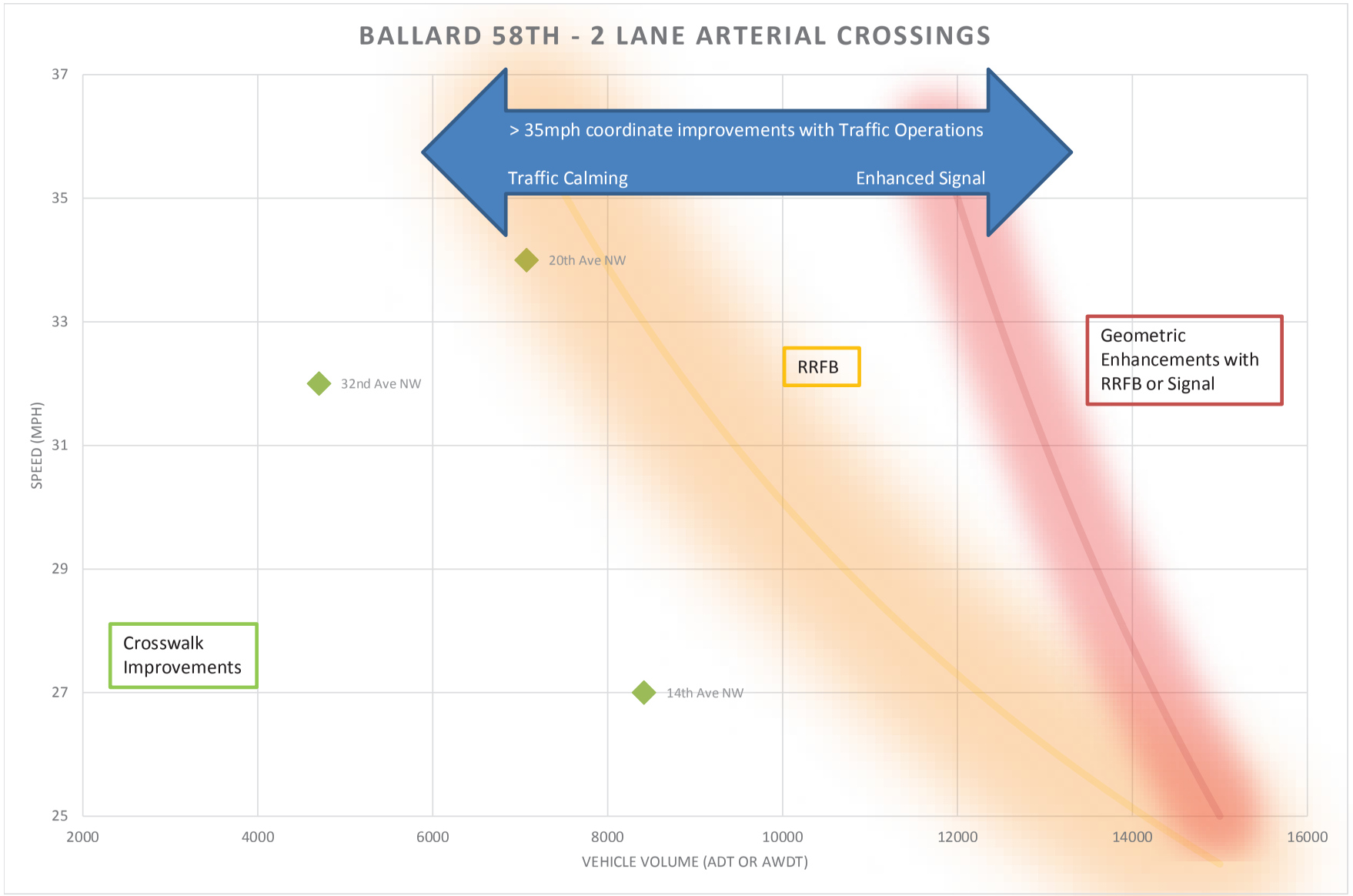
These graphs were then used to determine if the arterial crossings of the studied neighborhood greenways meet current design standards

Notes:

- Where possible, the study used existing data for the arterial crossings.
- In some cases, data may not have been available for certain arterial streets. However, in all cases where data is lacking, the arterial crossing treatment is signalized, which is the maximum level of treatment. In the U District, data is lacking for areas surrounding construction and street closures.
- In some locations, data was obtained from internal SDOT GIS systems, which does not give exact data collection points, but uses consistent methods to project the extents of data along arterials.

Ballard 58th - Arterial Crossing Data

Arterial Cross St	Location / Direction	Date	AWDT	Date	85% speed
Seaview Ave NW	from GIS	2014	3,200	2014	27.9
32nd Ave NW	from GIS	2014	4,700	2014	32.2
24th Ave NW	from GIS	2014	11,100		25.3 NB 21.8 SB
20th Ave NW	NO Market	2013	7,072	2012	33.1 NB 34.9 SB
15th Ave NW	from GIS	2014	30,300	2016	32
14th Ave NW	NO Market	2014	8,416	2014	27
8th Ave NW	from GIS	2014	14,000	2011	27


BALLARD 58TH - 2 LANE ARTERIAL CROSSINGS
> 35mph coordinate improvements with Traffic Operations
Traffic Calming
Enhanced Signal
20th Ave NW
32nd Ave NW
14th Ave NW
RRFB
Geometric Enhancements with RRFB or Signal
Crosswalk Improvements
SPEED (MPH)
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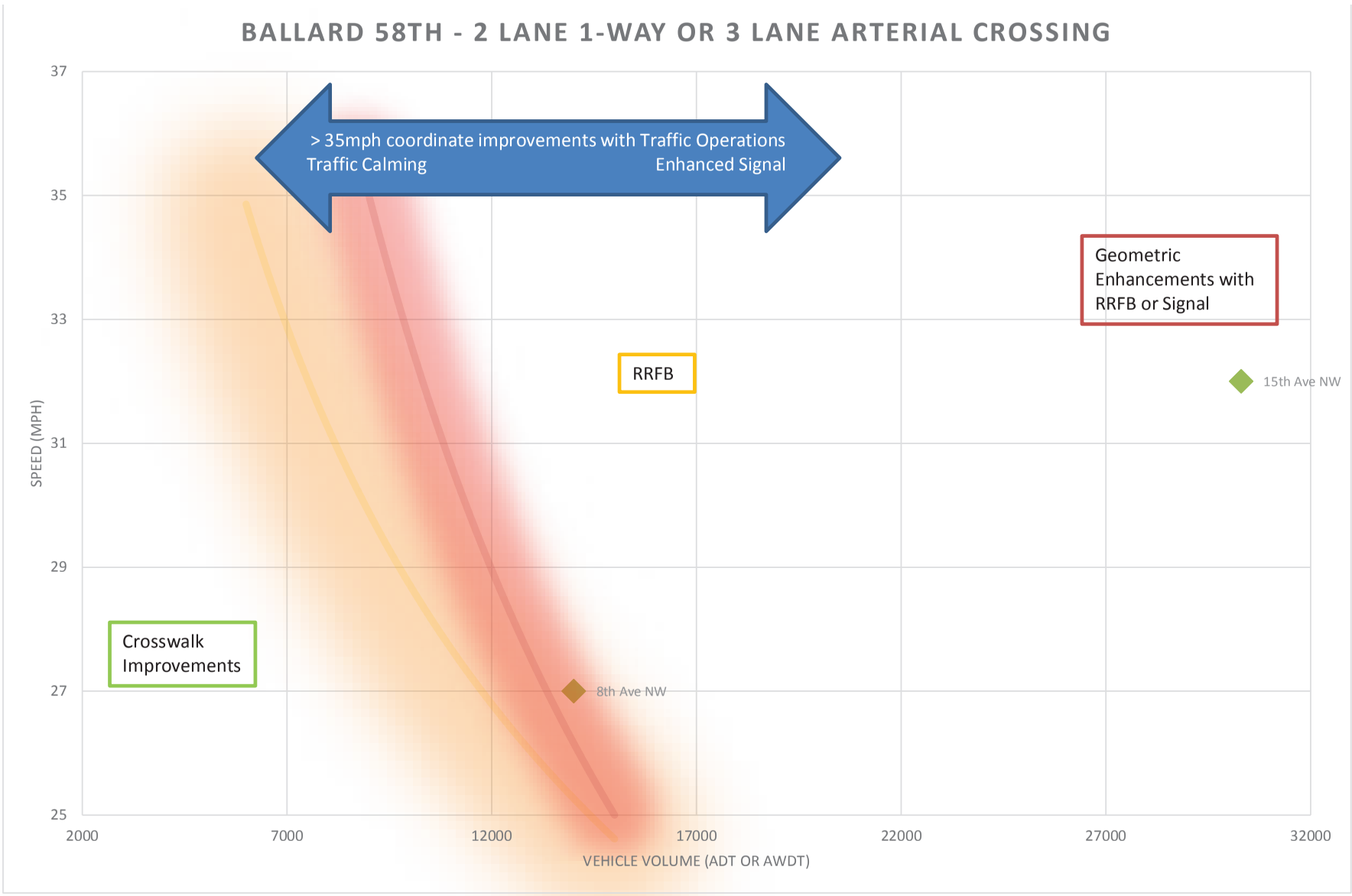
12000
14000
16000
VEHICLE VOLUME (ADT OR AWDT)


BALLARD 58TH - 2 LANE 1-WAY OR 3 LANE ARTERIAL CROSSING
> 35mph coordinate improvements with Traffic Operations
Traffic Calming
Enhanced Signal
Geometric Enhancements with RRFB or Signal
RRFB
15th Ave NW
Crosswalk Improvements
8th Ave NW
SPEED (MPH)
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27
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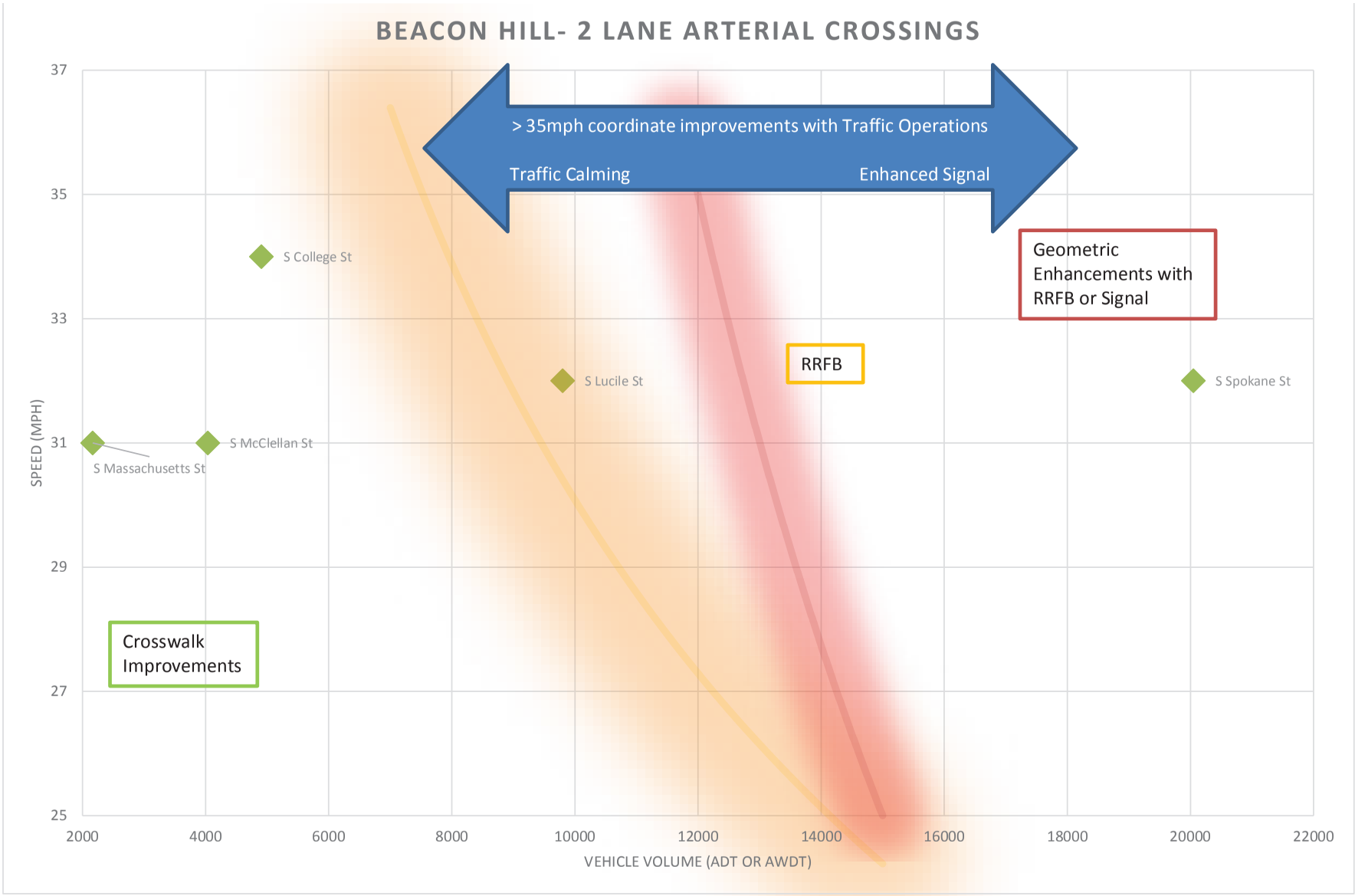
2000
7000
12000
17000
22000
27000
32000
VEHICLE VOLUME (ADT OR AWDT)

Beacon Hill - Arterial Crossing Data

Arterial Cross St	Location / Direction	Date	AWDT	85% Speed
S Massachusetts St	EO 18th	2012	2,166	31 mph
S College	EO 18th	2012	4,907	34.4 mph
S McClellan St	EO 18th	2012	4,034	30.8 mph
Beacon Ave S	GIS	2014	11,300	33.1 mph
S Spokane St	EO 16th E Flow, EO 17th W flow	2014	20,016	32.1 mph
15th Ave S	from GIS	2014	14,100	37.8 mph
S Lucile St	from GIS	2014	9,800	32.1 mph


BEACON HILL- 2 LANE ARTERIAL CROSSINGS
> 35mph coordinate improvements with Traffic Operations
Traffic Calming
Enhanced Signal
Geometric Enhancements with RRFB or Signal
RRFB
Crosswalk Improvements
S College St
S Lucile St
S Spokane St
S McClellan St
S Massachusetts St
SPEED (MPH)
VEHICLE VOLUME (ADT OR AWDT)
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18000
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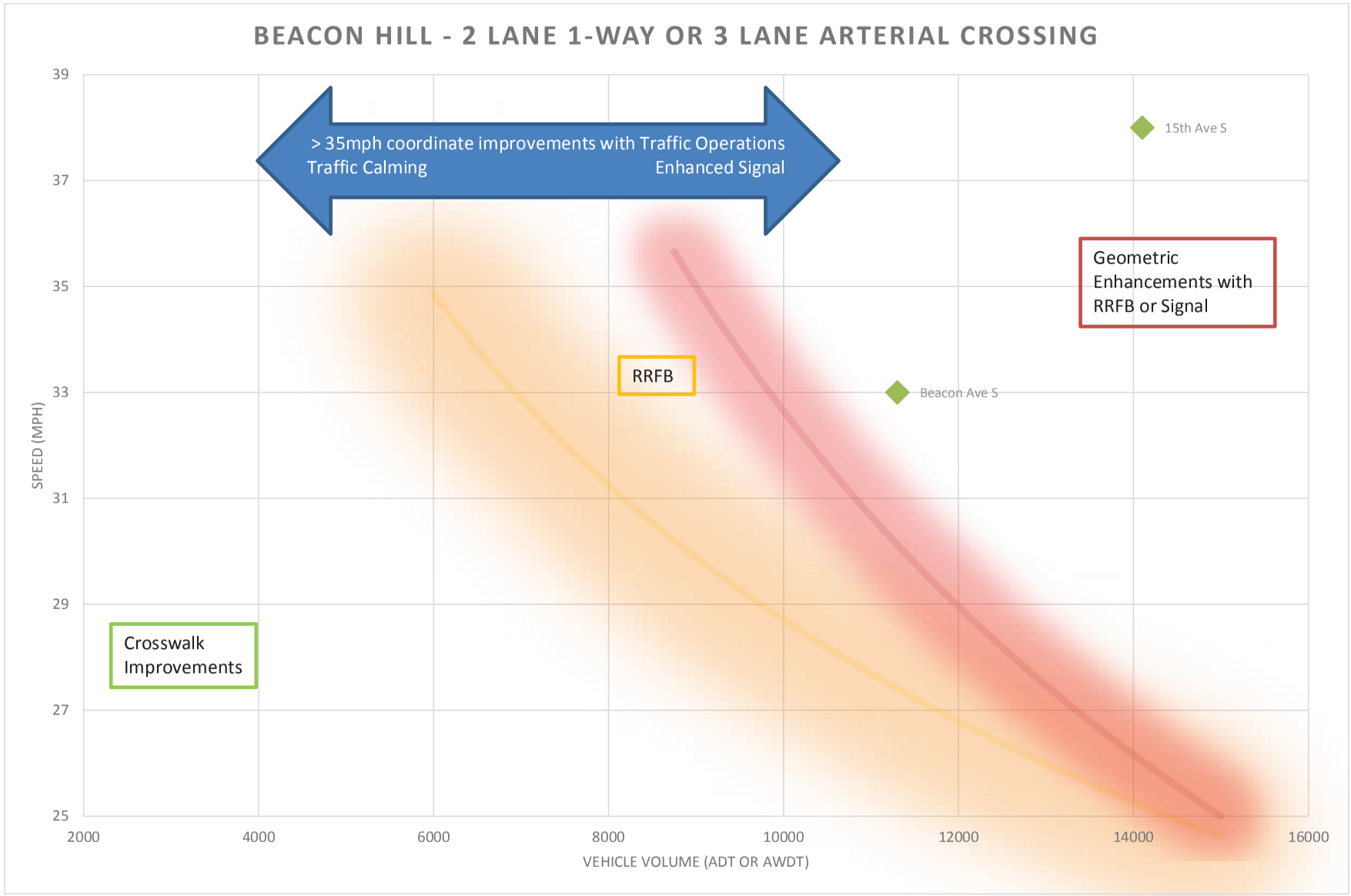
BEACON HILL - 2 LANE 1-WAY OR 3 LANE ARTERIAL CROSSING
> 35mph coordinate improvements with Traffic Operations
Traffic Calming
Enhanced Signal
15th Ave S
Geometric Enhancements with RRFB or Signal
RRFB
Beacon Ave S
Crosswalk Improvements
SPEED (MPH)
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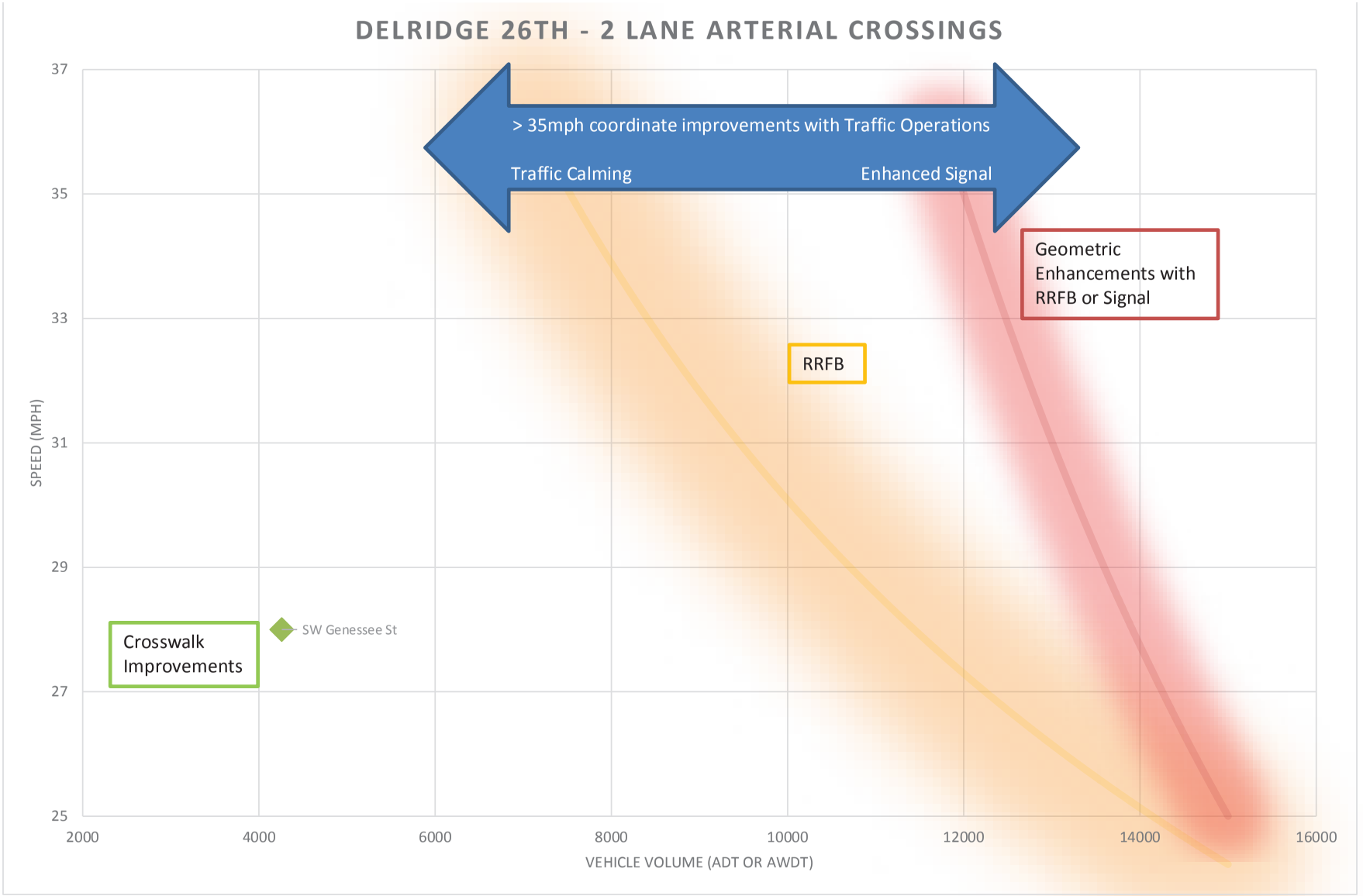
12000
14000
16000
VEHICLE VOLUME (ADT OR AWDT)

Delridge 26th - Arterial Crossing Data

Arterial Cross St	Location / Direction	Date	AWDT	85% Speed
SW Genesee	WO Delridge Way SW	2015	4,259	28.3 mph


DELRIDGE 26TH - 2 LANE ARTERIAL CROSSINGS
> 35mph coordinate improvements with Traffic Operations
Traffic Calming
Enhanced Signal
Geometric Enhancements with RRFB or Signal
RRFB
Crosswalk Improvements
SW Genessee St
SPEED (MPH)
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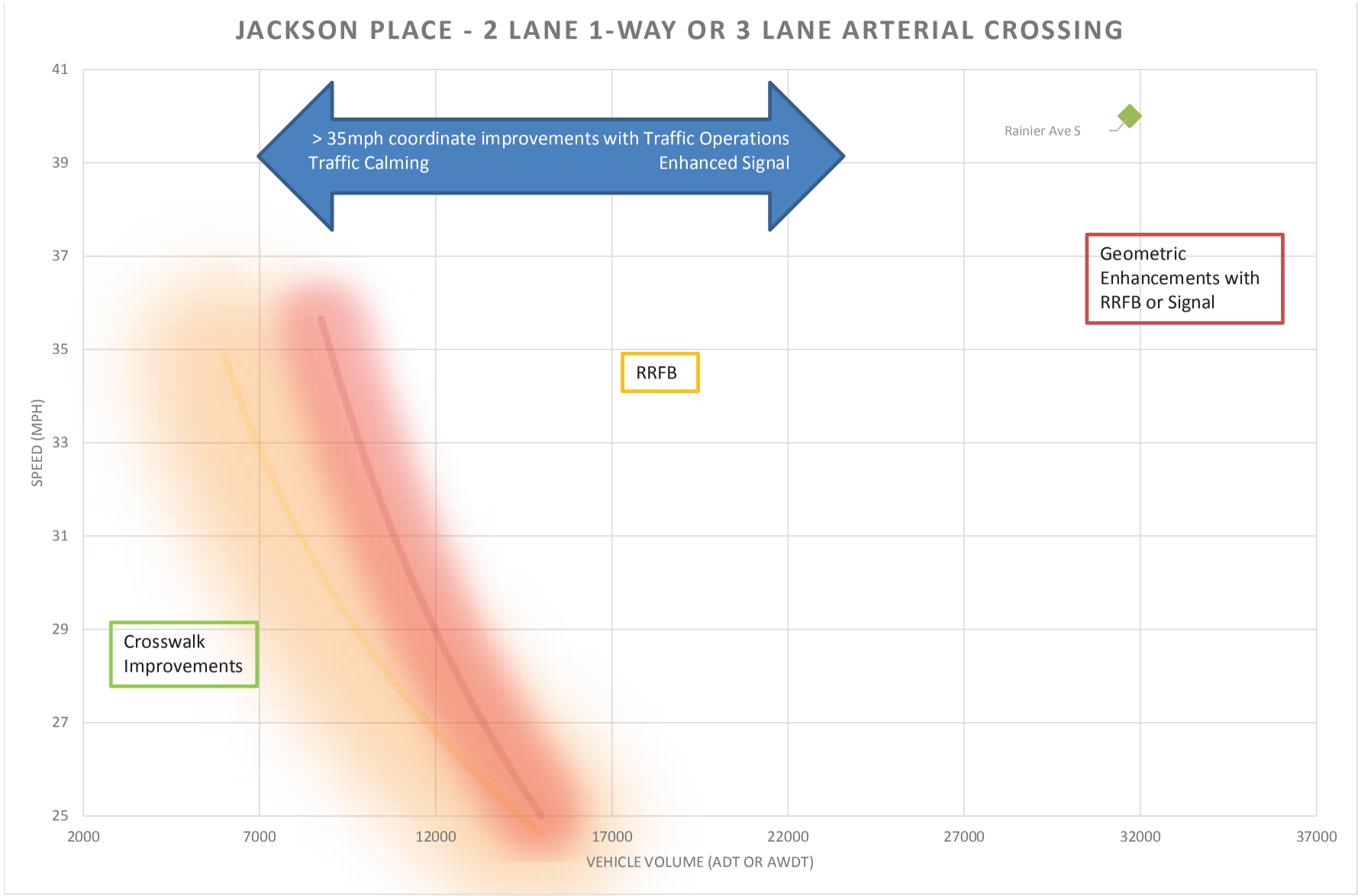
16000
VEHICLE VOLUME (ADT OR AWDT)

Jackson Place - Arterial Crossing Data

Arterial Cross St	Location / Direction	Date	AWDT	85% speed
Rainier Ave S	from GIS	2016	31,700	40 mph


JACKSON PLACE - 2 LANE 1-WAY OR 3 LANE ARTERIAL CROSSING
> 35mph coordinate improvements with Traffic Operations
Traffic Calming
Enhanced Signal
Rainier Ave S
Geometric Enhancements with RRFB or Signal
RRFB
Crosswalk Improvements
SPEED (MPH)
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22000
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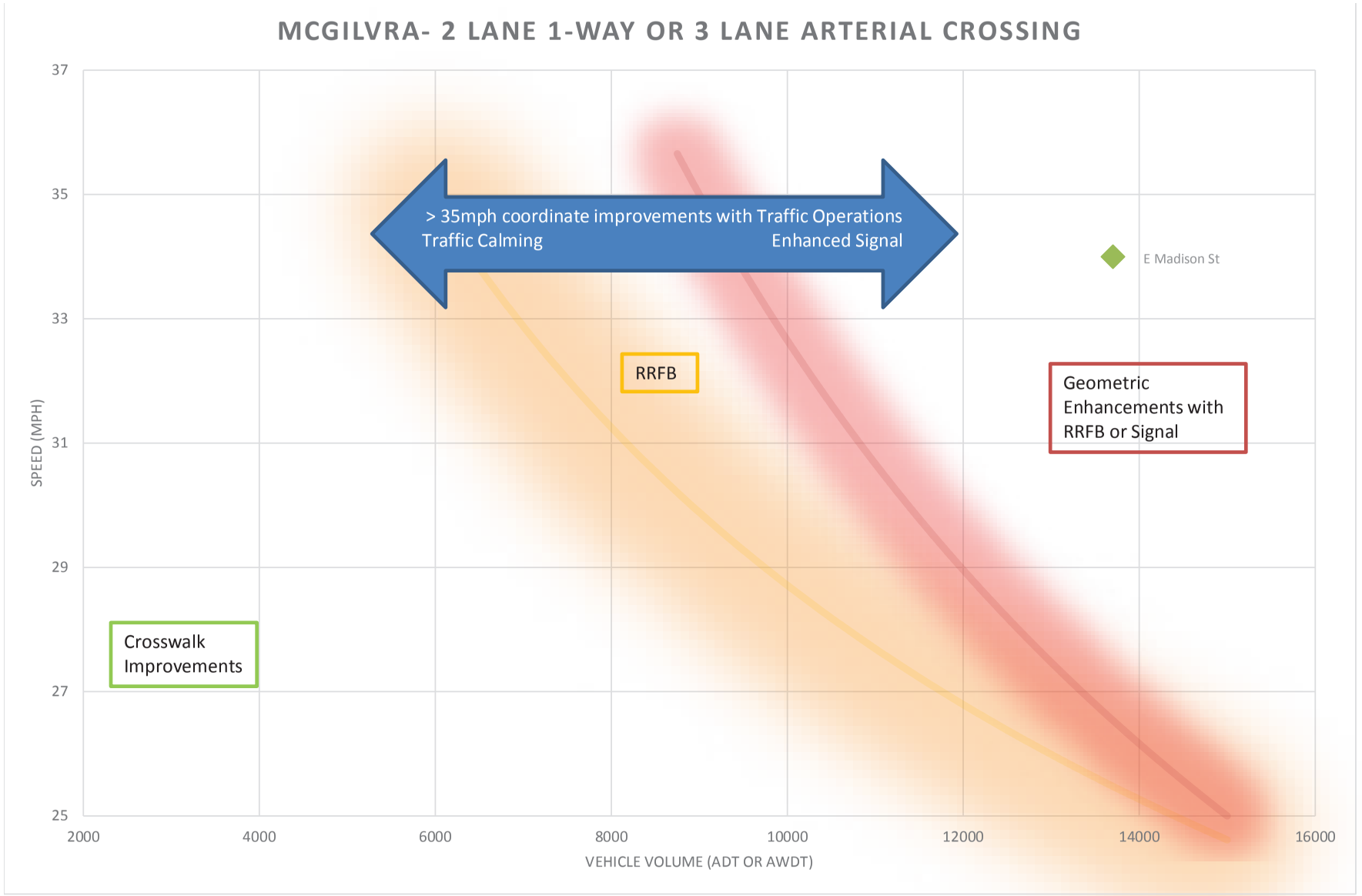
32000
37000
VEHICLE VOLUME (ADT OR AWDT)

McGilvra - Arterial Crossing Data

Arterial Cross St	Location / Direction	Date	AWDT	85% SPEED
E Madison St	from GIS	2014	13,700	34
E Madison St	eo 38th	2015	13,438	34


MCGILVRA- 2 LANE 1-WAY OR 3 LANE ARTERIAL CROSSING
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SPEED (MPH)
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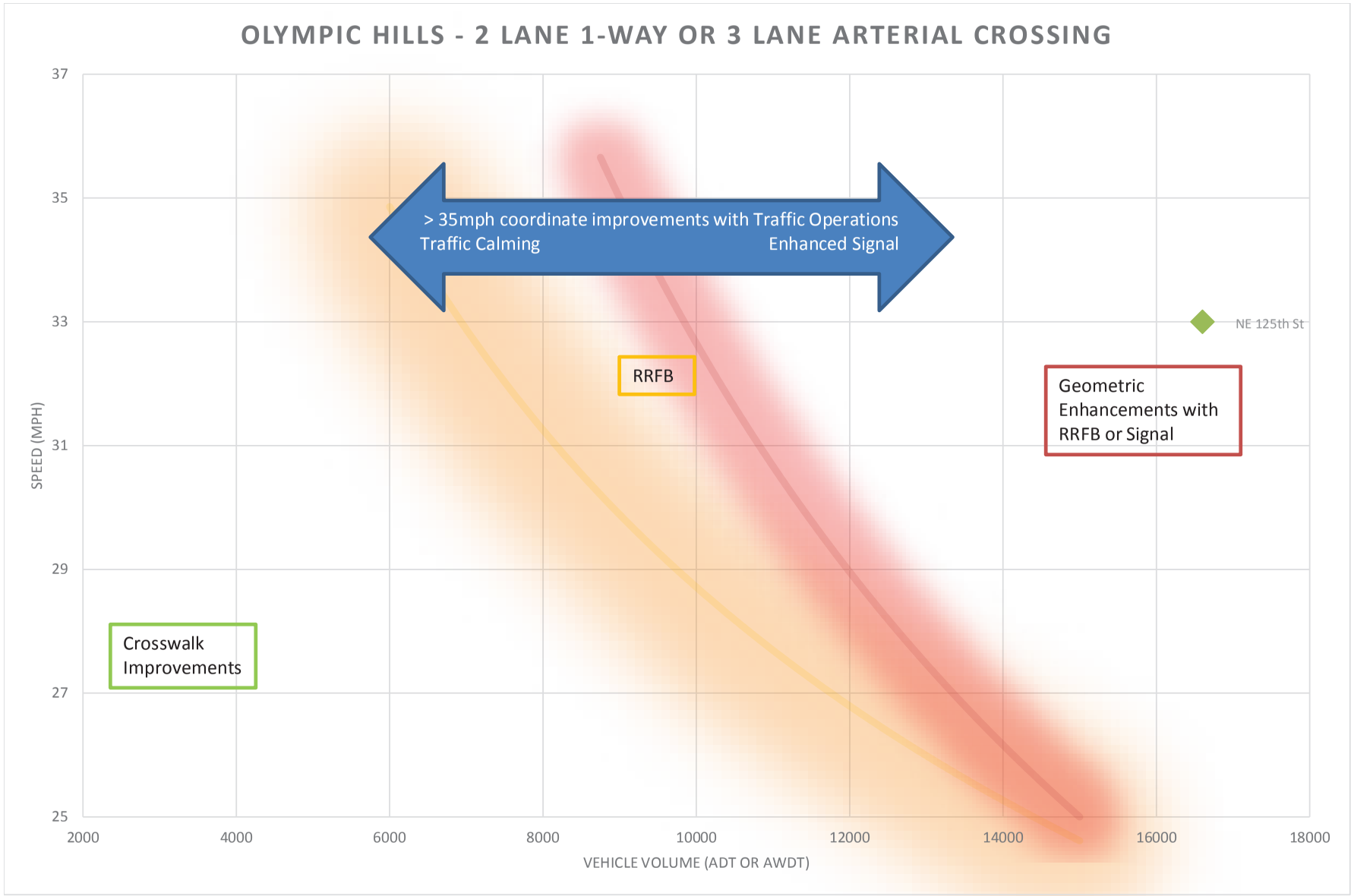
16000
VEHICLE VOLUME (ADT OR AWDT)
> 35mph coordinate improvements with Traffic Operations
Traffic Calming
Enhanced Signal
E Madison St
RRFB
Geometric Enhancements with RRFB or Signal
Crosswalk Improvements

Olympic Hills - Arterial Crossing Data

Arterial Cross St	Location / Direction	Date	AWDT	85% Speed
NE 125th St	from GIS	2014	16,600	33.4 mph
NE 145th St.	from GIS	2014	28,000	no data


OLYMPIC HILLS - 2 LANE 1-WAY OR 3 LANE ARTERIAL CROSSING
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VEHICLE VOLUME (ADT OR AWDT)
> 35mph coordinate improvements with Traffic Operations
Traffic Calming
Enhanced Signal
NE 125th St
RRFB
Geometric Enhancements with RRFB or Signal
Crosswalk Improvements

Phinneywood - Arterial Crossing Data

Arterial Cross St	Location / Direction	Date	AWDT	Date	85% speed
N 80th St	from GIS	2014	14,300	2013	30
N 85th St	from GIS	2014	25,300	2014	33.4
N 105th St	from GIS	2014	15,400	2015	36.4


PHINNEYWOOD - 2 LANE ARTERIAL CROSSINGS
> 35mph coordinate improvements with Traffic Operations
Traffic Calming
Enhanced Signal
Geometric Enhancements with RRFB or Signal
RRFB
Crosswalk Improvements
N 80th St
SPEED (MPH)
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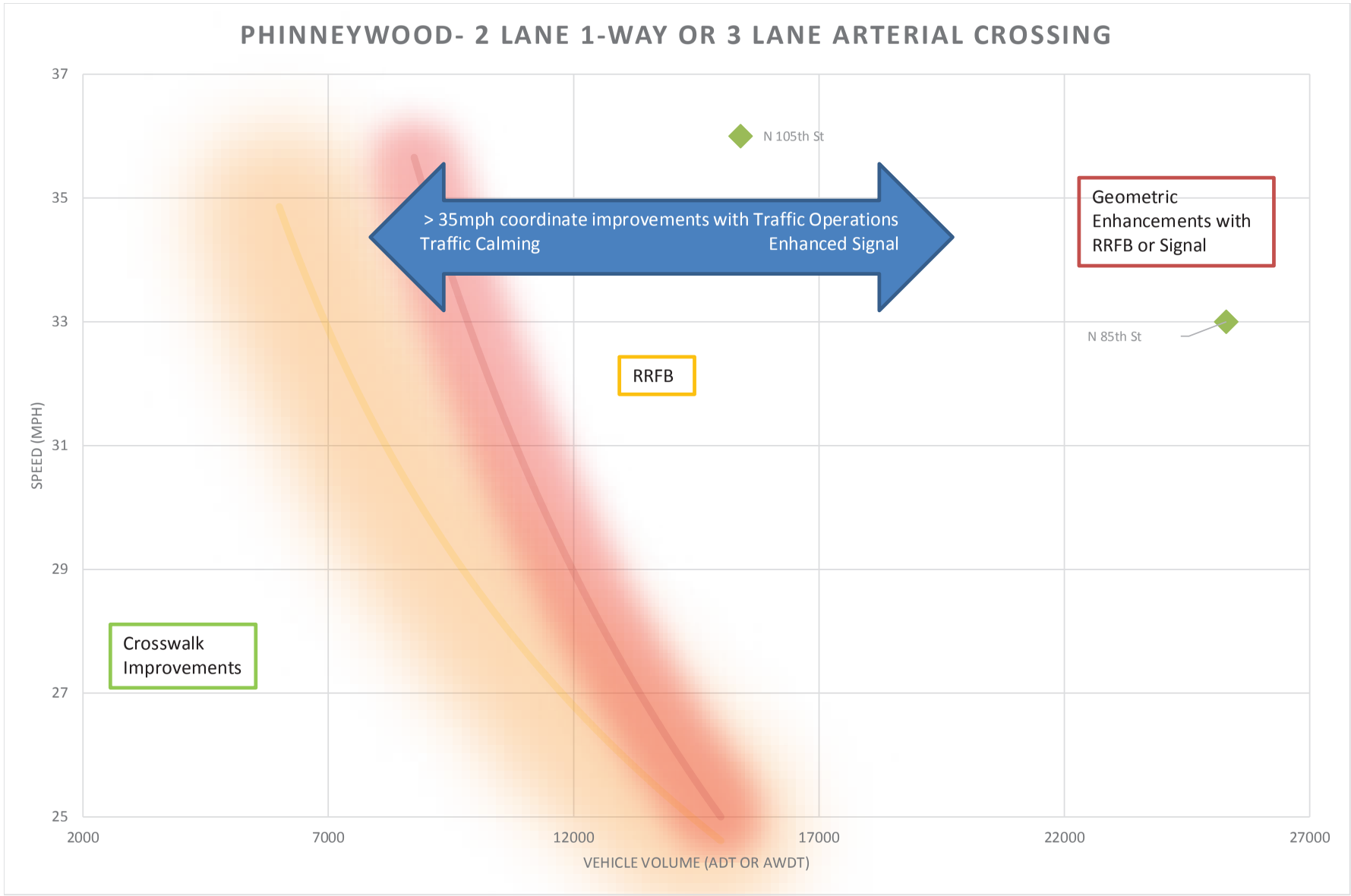
VEHICLE VOLUME (ADT OR AWDT)


PHINNEYWOOD- 2 LANE 1-WAY OR 3 LANE ARTERIAL CROSSING
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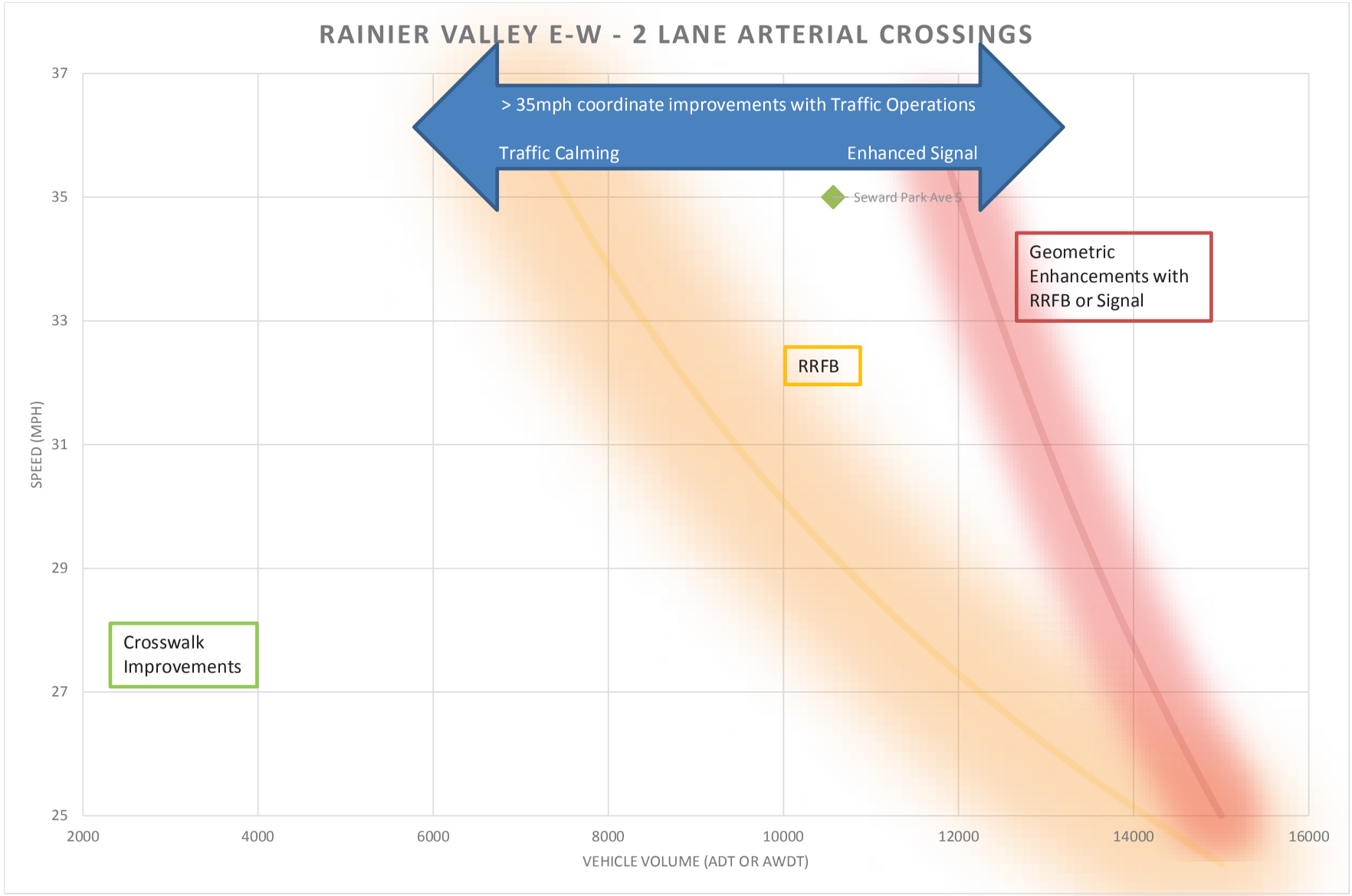
27000
VEHICLE VOLUME (ADT OR AWDT)
N 105th St
N 85th St
> 35mph coordinate improvements with Traffic Operations
Traffic Calming
Enhanced Signal
Geometric Enhancements with RRFB or Signal
RRFB
Crosswalk Improvements

Rainier Valley - Arterial Crossing Data

Arterial Cross St	Location / Direction	Date	AWDT	85 % Speed
Seward Park Ave S	S/O S Myrtle St.	2009	10,569	35 mph
Rainier Ave S	from GIS	2014	21,600	37 mph
MLK Jr Way S	from GIS	2014	25,500	34 mph


RAINIER VALLEY E-W - 2 LANE ARTERIAL CROSSINGS
> 35mph coordinate improvements with Traffic Operations
Traffic Calming
Enhanced Signal
Seward Park Ave S
Geometric Enhancements with RRFB or Signal
RRFB
Crosswalk Improvements
SPEED (MPH)
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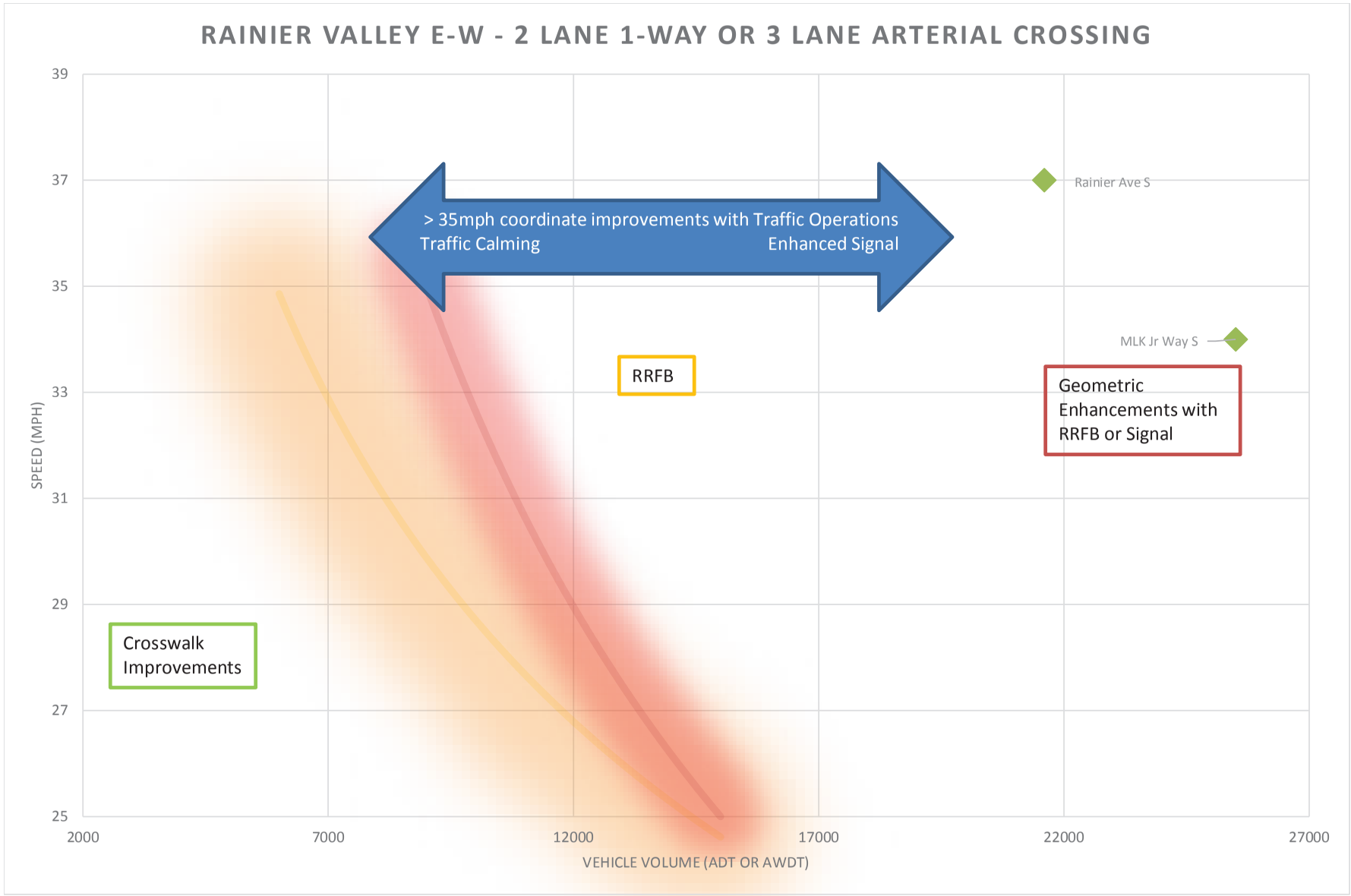
VEHICLE VOLUME (ADT OR AWDT)


RAINIER VALLEY E-W - 2 LANE 1-WAY OR 3 LANE ARTERIAL CROSSING
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SPEED (MPH)
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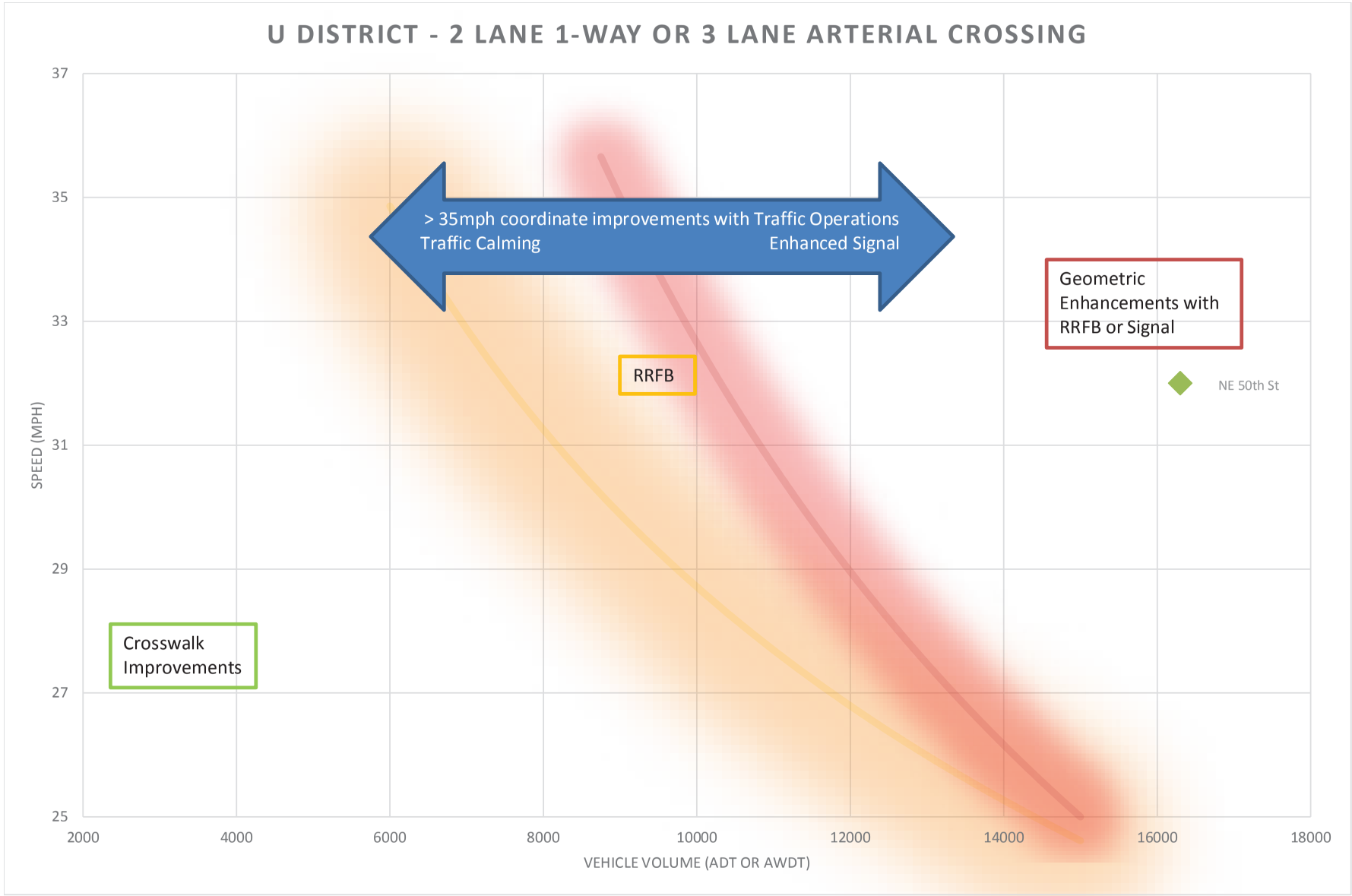
VEHICLE VOLUME (ADT OR AWDT)
> 35mph coordinate improvements with Traffic Operations
Traffic Calming
Enhanced Signal
Rainier Ave S
MLK Jr Way S
RRFB
Geometric Enhancements with RRFB or Signal
Crosswalk Improvements

U District - Arterial Crossing Data

Arterial Cross St	Location / Direction	Date	AWDT	85% Speed
NE Campus Pkwy	E/O 12th	2012	8,191	29 mph
NE 43rd St (construction)	Univ Way (W and E combined)	2012	3,737	no data
NE 45th St	from GIS	2014	33,300	no data
NE 47th St	Univ Way (W and E combined)	2008	4,391	no data
NE 50th St	from GIS	2014	16,300	32 mph
NE Ravenna Blvd	at Roosevelt (WE combo)	2014	7,732	24 mph


U DISTRICT - 2 LANE 1-WAY OR 3 LANE ARTERIAL CROSSING
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SPEED (MPH)
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12000
14000
16000
18000
VEHICLE VOLUME (ADT OR AWDT)
> 35mph coordinate improvements with Traffic Operations
Traffic Calming
Enhanced Signal
Geometric Enhancements with RRFB or Signal
RRFB
NE 50th St
Crosswalk Improvements

APPENDIX B - DATA ALONG THE ROUTES

Appendix B displays spreadsheets showing all data collected and analyzed for this study. That data includes:

- Vehicle speeds and volumes along the routes
- Bike volumes along the routes
- Pedestrian crossing volumes at arterial crossings
- Bicycle crossing volumes at arterial crossing, including bikes in the crosswalk and in the road.
- Date of substantial completion.

The spreadsheets are organized as follows:

- Rows show the various studies, organized by type of study and year, running chronologically from top to bottom.
- Columns display the locations of the data. Alternating columns show intersections along the route, running left to right. Data displayed in those columns was collected at those crossings.
- Arterial crossings are displayed in red text.
- Blank columns in between the intersection columns show data collected mid-block, between the two intersections on either side.

BALLARD 58th

		Seaview and 38th		NW 57th and 37th		57th and 34th		57th and and 58th (split)		58th and 32nd		58th and 30th		58th and 28th		58th and 26th	
	Bike Crossing Methods																
2015	**85% Speed**																
	ADT Volumes																
	Speed above 30%																
	Year																
	Source																
2015	**85% Speed**																
	ADT Volumes																
	% of people going over 30 MPH																
	Year																
	Source																
2014	**85% Speed**		27.9						20.8		19						19.8
	ADT Volumes		288						295		133						559
	% of people going over 30 MPH		1.20%						0.10%		0						0.10%
	Year		6/26-7/3/2014						6/26-7/3/2014		6/26-7/3/2014						6/26-7/3/2
	Source		Link						Link		Link						Link
2014	**85% Speed**								20.5		19.5						
	ADT Volumes								248		134						
	% of people going over 30 MPH								0		0						
	Year								9/23-9/29/2014		9/23-9/30/2014						
	Source								Link		Link						
2012	**85% Speed**				25.3												24
	ADT Volumes				324												520
	% of people going over 30 MPH				3%												0.70%
	Year				2/27-3/5/2012												2/27-3/5/2
	Source				Link												
2016	***Bike Volume***																
	Bike AWDT																
	Source																
	Year																
2014	***Bike Volume***																
	Bike AWDT																
	Source																
	Year																

BALLARD 58th

		Seaview and 38th		NW 57th and 37th		57th and 34th		57th and and 58th (split)		58th and 32nd		58th and 30th		58th and 28th		58th and 26th	
	Bike Crossing Methods																
2013	***Bike Volume***																
	Bike ADT																
	Source																
	Year																
2016	***Ped Volume - Peak Hour***																
	AM									5							
	MID																
	PM																
	Year																
	Source																
2016	***Bike Volume - Peak Hour***																
	AM									26							
	MID																
	PM																
	Year																
	Source																
2014	***Bike Volume on Road - Peak Hour***																
	AM																
	MID																
	PM																
	Year																
	Source																
2014	***Bike in Crosswalk Volume - Peak Hour***																
	AM																
	MID																
	PM																
	Year																
	Weather																
14	**Ped in Crosswalk Volume - Peak Hour**																
	AM																
	MID																

	BALLARD 58th	Seaview and 38th		NW 57th and 37th		57th and 34th		57th and and 58th (split)		58th and 32nd		58th and 30th		58th and 28th		58th and 26th	
	Bike Crossing Methods																
20	PM																
	Year																
	Source																
2014	**ALL BIKES**																
	AM TOTAL																
	MID TOTAL																
	PM TOTAL																
2012	***Bike Volume on Road - Peak Hour***																
	AM																
	MID																
	PM																
	Year																
	Source																
2012	**Ped in Crosswalk - Peak Hour**																
	AM																
	MID																
	PM																
	Year																
	Source																
	Weather																

	BALLARD 58th	58th and 24th		58th and 22nd	58th and 20th	58th and 17th	58th and 15th	58th and 14th	58th and 11th
	Bike Crossing Methods	Bike & Ped Push Button					Bike & Ped Push Button		
2015	85% Speed		19.2		20.5	19.27			
	ADT Volumes			722	618	1390			
	Speed above 30%		0.1%		0.10%				
	Year		1/21-2/10/2015	1/14-1/21/2015	6/26-7/3/2014	1/14-1/21/2015, 1/21-2/10/2015			
	Source		Link		Link	Link			
2015	85% Speed								
	ADT Volumes		924			735			
	% of people going over 30 MPH								
	Year		1/14-1/20/2015			1/14-1/21/2015			
	Source								
2014	85% Speed		19.8	19.8	20.5	19.3	25.3	19.8	23.8
	ADT Volumes		763	644	712	1050	222	231	310
	% of people going over 30 MPH		0.40%	0.10%	0.10%	0.10%	2.30%	0.10%	1.10%
	Year	014	6/26-7/3/2014	6/26-7/3/2014	6/26-7/3/2014	6/26-7/3/2014	6/26-7/3/2014	6/26-7/3/2014	7/29-8/5
	Source		Link	Link	Link	Link	Link	Link	Link
2014	85% Speed								
	ADT Volumes								3
	% of people going over 30 MPH								
	Year								10/27-1
	Source								
	Substantial Completion 7/9/2013								
2012	85% Speed		21.6						24.3
	ADT Volumes		1198						328
	% of people going over 30 MPH		0.80%						0.40%
	Year	012	2/27-3/5/2012						3/7-3/14
	Source		Link						Link
2016	*Bike Volume*								
	Bike AWDT								
	Source								
	Year								
2014	*Bike Volume*								
	Bike AWDT		641						
	Source		link						
	Year		Mar-Apr, 2014						

BALLARD 58th

		58th and 24th		58th and 22nd	58th and 20th	58th and 17th	58th and 15th	58th and 14th	58th and 11th
	Bike Crossing Methods	Bike & Ped Push Button					Bike & Ped Push Button		
	Substantial Completion 7/9/2013								
2013	***Bike Volume***								
	Bike ADT		66						
	Source		link						
	Year		Mar - Apr,2013						
2016	***Ped Volume - Peak Hour***								
	AM						27		
	MID	25							
	PM				21			21	
	Year								
	Source								
2016	***Bike Volume - Peak Hour***								
	AM	203			68		63	34	
	MID								
	PM								
	Year								
	Source								
2014	***Bike Volume on Road - Peak Hour***								
	AM	7							
	MID	3							
	PM	6							
	Year	12/4/2014							
	Source	Link							
2014	***Bike in Crosswalk Volume - Peak Hour***								
	AM	0							
	MID	0							
	PM	1							
	Year	12/4/2014							
		Link							
	Weather	Rain							
14	**Ped in Crosswalk Volume - Peak Hour**								
	AM	43							
	MID	87							

	BALLARD 58th	58th and 24th		58th and 22nd		58th and 20th		58th and 17th		58th and 15th		58th and 14th		58th and 11th	
	Bike Crossing Methods	Bike & Ped Push Button								Bike & Ped Push Button					
20	PM	121													
	Year	12/4/2014													
	Source														
2014	ALL BIKES														
	AM TOTAL	7													
	MID TOTAL	3													
	PM TOTAL	7													
		Substantial Completion 7/9/2013													
2012	*Bike Volume on Road - Peak Hour*														
	AM	7				5				8		5			
	MID	3				22				4		2			
	PM	2				34				6		8			
	Year	5/2/2012				5/9/2012				4/12/2012		5/9/2012			
	Source	Link				Link				Link		Link			
2012	Ped in Crosswalk - Peak Hour														
	AM	84				16				25		21			
	MID	84				9				43		31			
	PM	105				24				43		64			
	Year	5/2/2012				5/9/2012				4/12/2012		5/9/2012			
	Source	Link				Link				Link		Link			
	Weather	Sun				Rain				Sun		Rain			

BALLARD 58th

		58th and 9th		58th and 8th		58th and 7th	58th and 6th	58th and 5th	58th and 4th	AVERAGES
	Bike Crossing Methods			Ped Push Button						
2015	85% Speed									19.65555556
	ADT Volumes									910
	Speed above 30%									0.001
	Year									
	Source									
2015	85% Speed									
	ADT Volumes									
	% of people going over 30 MPH									
	Year									
	Source									
2014	85% Speed		21.3		20					21.06666667
	ADT Volumes		252							523
	% of people going over 30 MPH		0.10%		0					0.004777778
	Year	014	6/26-7/3/2014		8/27-9/3/2014					
	Source		Link		Link					
2014	85% Speed				20.2					20.2
	ADT Volumes				371					352
	% of people going over 30 MPH				0.1%					0.001
	Year	/2014			9/23-9/30/2014					
	Source				Link					
2012	85% Speed									
	ADT Volumes									
	% of people going over 30 MPH									
	Year	012								
	Source									
2016	***Bike Volume***									
	Bike AWDT									
	Source									
	Year									
2014	***Bike Volume***									
	Bike AWDT									
	Source									
	Year									

BALLARD 58th		58th and 9th	58th and 8th	58th and 7th	58th and 6th	58th and 5th	58th and 4th	AVERAGES
Bike Crossing Methods			Ped Push Button					
2013	***Bike Volume***							
	Bike ADT							
	Source							
	Year							
2016	***Ped Volume - Peak Hour***							
	AM							
	MID		18					
	PM							
	Year							
	Source							
2016	***Bike Volume - Peak Hour***		28					
	AM							
	MID							
	PM							
	Year							
	Source							
2014	***Bike Volume on Road - Peak Hour***							
	AM							
	MID							
	PM							
	Year							
	Source							
2014	***Bike in Crosswalk Volume - Peak Hour***							
	AM							
	MID							
	PM							
	Year							
	Weather							
4	**Ped in Crosswalk Volume - Peak Hour**							
	AM							

	BALLARD 58th	58th and 9th		58th and 8th		58th and 7th		58th and 6th		58th and 5th		58th and 4th		AVERAGES	
	Bike Crossing Methods			Ped Push Button											
20	PM														
	Year														
	Source														
2014	**ALL BIKES**														
	AM TOTAL														
	MID TOTAL														
	PM TOTAL														
2012	***Bike Volume on Road - Peak Hour***														
	AM			1											
	MID			1											
	PM			4											
	Year			Feb.,2012											
	Source			Link											
2012	**Ped in Crosswalk - Peak Hour**														
	AM			31											
	MID			No Data											
	PM			32											
	Year			2012											
	Source			Link											
	Weather			Sun											

Beacon Hill

		12th and Lucile	12th and Bennett	12th and Dawson	12th and Pearl	12th and Hudson	12th and Shelton	12th and Ferdinand	12th and Angeline	Corson and Snoqualmie	13th and Snoqualmie	13
	Bike Crossing Method											
2014	85% Speed		21.3				20.3			24.1					17.6		24.6	
	ADT Volumes		617				427			276					572		537	
	% of people going over 30 MPH		0.31%				0.23%			0.46%					0		1.65%	
	Year		7/23-8/1/2014				7/23-7/30/2014			7/30-8/4/2014					7/23-7/30/2014		7/23-7/30/2014	
	Source		Link				Link			Link					Link		Link	
2013	85% Speed																23.3	
	ADT Volumes																668.9	
	% of people going over 30 MPH																0.70%	
	Year																4/22-4/29/2013	
	Source																Link	
2012	85% Speed		24.8							26.9					25.3		26.5	
	ADT Volumes		737							473					836		695	
	% of people going over 30 MPH		0.80%							4.40%					1.80%		5.30%	
	Year		3/15-3/22/2012							2/28-3/6/2012					2/28-3/6/2012		6/11-6/18/2012	
	Source									Link					Link		Link	
2016	*Bike Volume - Peak Hour*																	
	Bike ADT																	
	Source																	
	Year																	
2015	*Bike Volume - Peak Hour*																	
	Bike ADT																	
	Source																	
	Year																	
2014	*Bike Volume - Peak Hour*																	
	Bike AWDT																	
	Source																	
	Year																	
2013	*Bike Volume*																	
	Bike AWDT																	
	Source																	
	Year																	
201	*Bike Volume - Peak Hour*																	
	AM																	
	MID																	
	PM	9																
	Weather																	

Beacon Hill

		12th and Lucile	12th and Bennett	12th and Dawson	12th and Pearl	12th and Hudson	12th and Shelton	12th and Ferdinand	12th and Angeline	Corson and Snoqualmie	13th and Snoqualmie	13
5	Year											
	Source											
2016	*Pedestrian Volume - Peak Hour*											
	AM											
	MID											
	PM	12										
	Year											
	Source											
	Weather											
	Picture											
2012	*Bike Volume - Peak Hour*											
	AM											
	MID											
	PM											
	Weather											
	Year											
	Source											
2012	*Pedestrian Volume - Peak Hour*											
	AM											
	MID											
	PM											
	Year											
	Source											
	Weather											
	Picture											

Beacon Hill

		th and Oregon	13th and Nevada	14th and Nevada	14th and Dakota	Dakota and 15th	Dakota and 16th	Lafayette and Spokane	Lafayette and Hinds	Laf and Horton	Laf and Hanford	Hanford and Beacon
	Bike Crossing Method					Ped Push Button		Flages				Ped Push Button
2014	**85% Speed**	25.1		25.4	21.3	18.4		19.7			21.5	21.3
	ADT Volumes	281		268	694	557		77			400	423
	% of people going over 30 MPH	2.56%		2.39%	0.12%	0.09%		0			0%	0.22%
	Year	7/23-7/30/2014		7/23-7/30/2014	7/23-7/30/2014	7/23-7/30/2014		7/22-7/29/2014			7/22-7/29/2014	7/22-7/29/
	Source	Link		Link	Link	Link		Link			Link	Link
2013	**85% Speed**							23.5				
	ADT Volumes							206.5				
	% of people going over 30 MPH							0.70%				
	Year							4/22-4/29/2013				
	Source							Link				
		Substantial Completion: 11/12/2012										
2012	**85% Speed**			26.4				24				
	ADT Volumes			260				182				
	% of people going over 30 MPH			4.4				1.30%				
	Year			2/28-3/6/2012				2/23-3/1/2012				
	Source							Link				
2016	***Bike Volume - Peak Hour***											
	Bike ADT								20			
	Source								1/15-1/29/2016			
	Year								Link			
2015	***Bike Volume - Peak Hour***											
	Bike ADT											
	Source											
	Year											
2014	***Bike Volume - Peak Hour***											
	Bike AWDT							57				
	Source							8/7-8/14/2014				
	Year							Link				
		Substantial Completion: 11/12/2012										
2013	***Bike Volume***											
	Bike AWDT							18				
	Source							Link				
	Year							4/22-5/10/2013				
201	***Bike Volume - Peak Hour***											
	AM											7
	MID						0					
	PM				11							
	Weather											

Beacon Hill

		th and Oregon	13th and Nevada	14th and Nevada	14th and Dakota	Dakota and 15th	Dakota and 16th	Lafayette and Spokane	Lafayette and Hinds	Laf and Horton	Laf and Hanford	Hanford and Beacon
5	Year											
	Source											
2016	*Pedestrian Volume - Peak Hour*											
	AM							37				
	MID											
	PM					24						53
	Year											
	Source											
	Weather											
	Picture											
		Substantial Completion: 11/12/2012										
2012	*Bike Volume - Peak Hour*											
	AM											2
	MID											0
	PM											0
	Weather											Clear
	Year											2/16/2012
	Source											Link
2012	*Pedestrian Volume - Peak Hour*											
	AM											50
	MID											28
	PM											41
	Year											2/16/2012
	Source											
	Weather											Clear
	Picture											

Beacon Hill

		18th and Hanford	18th and Stevens	18th and Forest	18th and McClellan	18th and Lander EL	18th and Lander WL	18th and Waite	18th and Bayview	18th and College	18th and Walker	18
	Bike Crossing Method											
2014	**85% Speed**			18.9	20.7				22.2	20.7	25	
	ADT Volumes			249	203				156	206	199	
	% of people going over 30 MPH			0	0.76%				0%	0.800%	1.94%	
	Year	2014		7/22-7/29/2014	7/11-7/21/2014				7/11-7/18/2014	7/11-7/21/2014	7/11-7/18/2014	
	Source			Link	Link				Link	Link	Link	
2013	**85% Speed**										26.6	
	ADT Volumes										193.6	
	% of people going over 30 MPH										4.30%	
	Year										4/22-4/29/2013	
	Source										Link	
2012	**85% Speed**										26.2	
	ADT Volumes										185	
	% of people going over 30 MPH										4.10%	
	Year										2/23-3/1/2012	
	Source										Link	
2016	***Bike Volume - Peak Hour***											
	Bike ADT								42			
	Source								1/15-1/29/2016			
	Year								Link			
2015	***Bike Volume - Peak Hour***											
	Bike ADT								30			
	Source								Link			
	Year								9/4-9/11/2015			
2014	***Bike Volume - Peak Hour***											
	Bike AWDT								54			
	Source								link			
	Year								8/7-8/14/2014			
2013	***Bike Volume***											
	Bike AWDT											
	Source											
	Year											
201	***Bike Volume - Peak Hour***											
	AM											
	MID											
	PM				17					24		
	Weather											

Beacon Hill

		18th and Hanford	18th and Stevens	18th and Forest	18th and McClellan	18th and Lander EL	18th and Lander WL	18th and Waite	18th and Bayview	18th and College	18th and Walker	18
6	Year											
	Source											
2016	*Pedestrian Volume - Peak Hour*											
	AM									13		
	MID											
	PM				15							
	Year											
	Source											
	Weather											
	Picture											
2012	*Bike Volume - Peak Hour*											
	AM				6							
	MID				3							
	PM				4							
	Weather											
	Year				3/6/2012							
	Source				Link							
2012	*Pedestrian Volume - Peak Hour*											
	AM				15							
	MID				11							
	PM				5							
	Year				3/6/2012							
	Source				Link							
	Weather				Snow							
	Picture											

Beacon Hill

		ch and Hill	18th and Plum	18th and Holgate	18th and State	18th and Massachusetts	AVERAGES
	Bike Crossing Method						
2014	85% Speed				20.3	17.1	21.34
	ADT Volumes				233	128	342.26
	% of people going over 30 MPH				0%	0	0.64%
	Year				7/11-7/18/2014	7/11-7/18/2014	
	Source				Link	Link	
2013	85% Speed						24.47
	ADT Volumes						356.33
	% of people going over 30 MPH						1.90%
	Year						
	Source						
2012	85% Speed						
	ADT Volumes						
	% of people going over 30 MPH						
	Year						
	Source						
2016	*Bike Volume - Peak Hour*						
	Bike ADT						
	Source						
	Year						
2015	*Bike Volume - Peak Hour*						
	Bike ADT						
	Source						
	Year						
2014	*Bike Volume - Peak Hour*						
	Bike AWDT						
	Source						
	Year						
2013	*Bike Volume*						
	Bike AWDT						
	Source						
	Year						
201	*Bike Volume - Peak Hour*						
	AM					21	
	MID						
	PM						
	Weather						

Beacon Hill

		th and Hill	18th and Plum	18th and Holgate	18th and State	18th and Massachusetts	AVERAGES
6	Year						
	Source						
2016	*Pedestrian Volume - Peak Hour*						
	AM						
	MID						
	PM					28	
	Year						
	Source						
	Weather						
	Picture						
2012	*Bike Volume - Peak Hour*						
	AM						
	MID						
	PM						
	Weather						
	Year						
	Source						
2012	*Pedestrian Volume - Peak Hour*						
	AM						
	MID						
	PM						
	Year						
	Source						
	Weather						
	Picture						

	Delridge 26th	26th & Andover		26th and Yancy		26th and Dakota		26th & Adams		26th and Nevada		26th and Genesee		26th & O
Bike Crossing Method														
2014	85% Speed		25.2								19.2		21.7	
	ADT Volumes		772								701		868	
	% of people going over 30 MPH		2.60%								0.24%		0.32%	
	Year		6/30-7/7/2014								6/30-7/8/2014		6/30-7/7/2014	
	Source		Link								Link		Link	
		Substa												
2012	85% Speed													
	ADT Volumes										842			
	% of people going over 30 MPH													
	Year										3/22-3/29/2012			
	Source													
2012	85% Speed										24.8			
	ADT Volumes										925			
	% of people going over 30 MPH										1.30%			
	Year										10/15-10/23/2012			
	Source										Link			
2016	*Bike Volume*													
	Bike ADT													
	Source													
	Year													
2015	*Bike Volume*													
	Bike ADT													
	Source													
	Year													
2014	*Bike Volume*													
	Bike ADT													
	Source													
	Year													
		Substa												
2013	*Bike Volume*													
	Bike ADT												92	
	Source												Link	
	Year												5/16-5/29/2013	
2016	TMCs													

	Delridge 26th	26th & Andover		26th and Yancy		26th and Dakota		26th & Adams		26th and Nevada		26th and Genesee		26th & O
														Substa
2012	*Bike Volume - Peak Hour*													
	AM	0										2		
	MID	0										0		
	PM	1										5		
	Year	5/16/2012										5/21/2012		
	Source	Link										Link		
2012	*Pedestrian Volume - Peak Hour*													
	AM	9										10		
	MID	1										7		
	PM	3										16		
	Year	5/16/2012										5/21/2012		
	Source	Link										Link		
	Weather	Sun										Rain		
	Picture													

	Delridge 26th	regon	26th and Alaska	26th and Hudson	26th and Puget	26th and Brandon	26th and Findlay	26th and Juneau
	Bike Crossing Method							
2014	85% Speed	25	24.6		24.1	24.6		
	ADT Volumes	820	591		460	361		
	% of people going over 30 MPH	1.49%	1.76%		1.50%	1.78%		
	Year	6/30-7/7/2014	6/30-7/7/2014		7/24-7/31/2014	7/24-7/31/2014		
	Source	Link	Link		Link	Link		
		ntial Completion: 6/7/2013						
2012	85% Speed		30.5			29.7		
	ADT Volumes							
	% of people going over 30 MPH		17.10%			14%		
	Year		3/22-3/29/2012			3/22-3/29/2012		
	Source		Link			Link		
2012	85% Speed					29.2		
	ADT Volumes		843			525		
	% of people going over 30 MPH					11.90%		
	Year		10/15-10/23/2012			10/15-10/23/2012		
	Source					Link		
2016	*Bike Volume*							
	Bike ADT	96.4						
	Source	Link						
	Year	5/16-5/29/2016						
2015	*Bike Volume*							
	Bike ADT	140						
	Source	Link						
	Year	5/16-5/29/2015						
2014	*Bike Volume*							
	Bike ADT	574						
	Source	Link						
	Year	5/16-5/29/2014						
		ntial Completion: 6/7/2013						
2013	*Bike Volume*							
	Bike ADT	85						
	Source	Link						
	Year	5/16-5/29/2013						
2016	TMCs							

	Delridge 26th	regon	26th and Alaska		26th and Hudson		26th and Puget		26th and Brandon		26th and Findlay		26th and Juneau	
		ntial Completion: 6/7/2013												
2012	*Bike Volume - Peak Hour*													
	AM								1					
	MID								3					
	PM								13					
	Year								5/2/2012					
	Source								Link					
2012	*Pedestrian Volume - Peak Hour*													
	AM								15					
	MID								22					
	PM								8					
	Year								5/2/2012					
	Source								Link					
	Weather								Sun					
	Picture													

Delridge 26th		26th and Graham	AVERAGES	
Bike Crossing Method				
2014	85% Speed		23.49	
	ADT Volumes		653.29	
	% of people going over 30 MPH		1.38%	
	Year			
	Source			
2012	85% Speed		30.1	
	ADT Volumes		842	
	% of people going over 30 MPH		15.55%	
	Year			
	Source			
2012	85% Speed			
	ADT Volumes			
	% of people going over 30 MPH			
	Year			
	Source			
2016	*Bike Volume*			
	Bike ADT			
	Source			
	Year			
2015	*Bike Volume*			
	Bike ADT			
	Source			
	Year			
2014	*Bike Volume*			
	Bike ADT			
	Source			
	Year			
2013	*Bike Volume*			
	Bike ADT			
	Source			
	Year			
2016	TMCs			

	Delridge 26th	26th and Graham	AVERAGES	
	Bike Volume - Peak Hour			
2012	AM			
2012	MID			
2012	PM			
2012	Year			
2012	Source			
	Pedestrian Volume - Peak Hour			
2012	AM			
2012	MID			
2012	PM			
2012	Year			
2012	Source			
2012	Weather			
2012	Picture			

Jackson Place

		Hiawatha and Bush	Hiawatha and Charles	Hiawatha and Dearborn	Dearborn and Rainier	AVERAGES
					Ped Button	
2016	85% Speed	22.5	22.9	23.1		22.8333333
	ADT Volumes	281	564	2856		
	% of people going over 30 MPH	1.50%	0.86%	1.68%		1.35%
	Year	7/14-7/21/2016	7/14-7/21/2016	7/14-7/21/2016		
	Source	Link	Link	Link		
		Substantial Completion 7/22/2014				
2014	85% Speed		15	32		23.5
	ADT Volumes					
	% of people going over 30 MPH		0%	26%		
	Year		1/2/2014	1/2/2014		
	Source		Link	Link		
2013	85% Speed					
	ADT Volumes					
	% of people going over 30 MPH					
	Year					
	Source					
2016	Bike AWDT	317.4	300	263		
	Source	Link	Link	Link		
	Year	7/18-7/25/2016	7/14-7/21/2016	7/14-7/21/2016		
2016	Bike AWDT		300	263		
	Source		Link	Link		
	Year		7/18-7/25/2016	7/18-7/25/2016		
		Substantial Completion 7/22/2014				
2014	Bike AWDT	335.4				
	Source	Link				
	Year	4/25-5/7/2014				
2014	Bike AWDT	411				
	Source	Link				
	Year	5/30-6/6/2014				
2014	Bike AWDT	411				
	Source	Link				
	Year	6/2-6/6/2014				
	Road Bike Volume - Peak Hour					

Jackson Place

		Hiawatha and Bush		Hiawatha and Charles		Hiawatha and Dearborn		Dearborn and Rainier	AVERAGES	
2016	AM	49				58				
	MID	no data				no data				
	PM	63				71				
	Year	8/10/2016				8/10/2016				
	Source	Link				Link				
2016	**Ped in Crosswalk - Peak Hour**									
	AM	16				8				
	MID	no data				no data				
	PM	14				14				
	Year	8/10/2016				8/10/2016				
	Source	Link				Link				
	Weather	Sun				Sun				
2016	***Bike in Crosswalk Volume - Peak Hour***									
	AM	1				0				
	MID	no data				no data				
	PM	17				1				
	Year	8/10/2016				8/10/2016				
	Source	Link				Link				
2016	***All Bike - Peak Hour***									
	AM	50				58				
	MID	No Data				No Data				
	PM	80				72				
2015	***Road Bike Volume - Peak Hour (Count Through)***									
	AM							47		
	MID							3		
	PM							32		
	Year							2/3/2015		
	Source							Link		
2015	**Bike & Ped in Crosswalk - Peak Hour**									
	AM							40		
	MID							66		
	PM							85		
	Year							2/3/2015		
	Source							Link		
	Weather							Fog, Rain		

Jackson Place

		Hiawatha and Bush		Hiawatha and Charles		Hiawatha and Dearborn		Dearborn and Rainier	AVERAGES	
		Substantial Completion 7/22/2014								
2014	***Road Bike Volume - Peak Hour***									
	AM					No Data				
	MID					No Data				
	PM					No Data				
	Year									
	Source									
2014	**Ped in Crosswalk - Peak Hour**									
	AM					27				
	MID					No Data				
	PM					19				
	Year					1/2/2014				
	Source									
	Weather					Rain				
2008	***Road Bike Volume - Peak Hour***									
	AM							74		
	MID							no data		
	PM							80		
	Year							8/7/2008		
	Source							Link		
2008	**Bike & Ped in Crosswalk - Peak Hour**									
	AM							32		
	MID							no data		
	PM							6		
	Year							8/7/2008		
	Source							Link		
	Weather							Sun		

McGilvra

		Garfield and Madison		Garfield and 39th		Garfield and 38th		Garfield and 37th		37th and Madison		AVERAGES	
Bike Crossing Methods													
2016	**85% Speed**					17		19.5				18.25	
	ADT Volumes					245		249					
	% of people going over 30 MPH					0.40%		0.60%				0.005	
	Year					9/22-9/28/2016		9/22-9/28/2016					
	Source												
		Substantial Completion: 9/16/2014											
2013	**85% Speed**					17		26.2				21.6	
	ADT Volumes					264		268					
	% of people going over 30 MPH					0.1		3.60%				6.80%	
	Year					10/22-10/29/2013		10/22-10/29/2013					
	Source					Link		Link					
2016	**Bike AWDT**					95		8					
	Source					Link		Link					
	Year					9/13-9/19/2016		9/13-9/19/2016					
		Substantial Completion: 9/16/2014											
2016	***Road Bike Volume - Peak Hour***												
	AM						10		1				
	MID						No Data		3				
	PM						0		1				
	Year						9/13/2016		9/13/2016				
	Source								Link				
2016	***Bike on Crosswalk Volume - Peak Hour***												
	AM						1		0				
	MID						No Data		0				
	PM						0		0				
	Year						9/13/2016		9/13/2016				
	Source								Link				
2016	**Ped in Crosswalk - Peak Hour**												
	AM						9		0				
	MID								0				
	PM						10		0				
	Year						9/13/2016		9/13/2016				
	Source								Link				
	Weather												
	ALL BIKES												

	McGilvra	Garfield and Madison		Garfield and 39th		Garfield and 38th		Garfield and 37th		37th and Madison	AVERAGES	
2016	**AM TOTAL**							11		1		
	MID TOTAL							No Data		3		
	PM TOTAL							0		1		
		Substantial Completion: 9/16/2014										
2013	***Road Bike Volume - Peak Hour***											
	AM							No Data				
	MID							No Data				
	PM							No Data				
	Year											
	Source											
2013	**Ped in Crosswalk - Peak Hour**											
	AM							17				
	MID							No Data				
	PM							53				
	Year							12/11/2013				
	Source											
	Weather							Fog				

Olympic Hills

		25th and 147th	25th and 145th	25th and 143rd	25th and 140th	140th and 26th - West	140th and 26th - East	27th and 140th	27th and
Bike Crossing Method			Ped Push Button						
2016	85% Speed			20.7			22.3		
	ADT Volumes			276			291		
	% of people going over 30 MPH			0.60%			0.01%		
	Year			7/12-7/19/2016			7/12-7/19/2016		
	Source			Link			Link		
Substatial Completion 10/16/2014									
2013	85% Speed			26.4			24.1		
	ADT Volumes			319			310		
	% of people going over 30 MPH			3%			1.20%		
	Year			5/20-5/28/2013			5/20-5/28/2013		
	Source	Traffic Study Links		Link			Link		
2016	*Bike Volume - Peak Hour*								
	Bike AWDT			20			25.4		
	Source			Link			Link		
	Year			7/19-7/26/2016			7/19-7/26/2016		
2015	*Bike Volume - Peak Hour*								
	Bike AWDT								
	Source								
	Year								
Substatial Completion 10/16/2014									
2014	*Bike Volume - Peak Hour*								
	Bike AWDT								
	Source								
	Year								
2014	*Bike Volume - Peak Hour*								
	Bike ADT								
	Source								
	Year								
2016	*Bike Volume - Peak Hour*								
	AM		3						
	MID		No Data						
	PM		4						
	Year		7/19/2016						
	Source		link						
2016	*Pedestrian Volume - Peak Hour*								
	AM		8						
	MID		7						
	PM		12						
	Year		7/19/2016						
	Source		link						
	Weather		Sun						
Substatial Completion 10/16/2014									
2013	*Bike Volume - Peak Hour*								
	AM								
	MID								
	PM								
	Year								

	Olympic Hills	25th and 147th	25th and 145th	25th and 143rd	25th and 140th	140th and 26th - West	140th and 26th - East	27th and 140th	27th and
	Source								
2013	*Pedestrian Volume - Peak Hour*								
	AM								
	MID								
	PM								
	Year								
	Source								
	Weather								
	Picture								
2012	*Bike Volume - Peak Hour*								
	AM								
	MID								
	PM								
	Year								
	Source								
2012	*Pedestrian Volume - Peak Hour*								
	AM								
	MID								
	PM								
	Year								
	Source								
	Weather								
	Picture								
2010	*Bike Volume - Peak Hour*								
	AM		No Data						
	MID		No Data						
	PM		No Data						
	Year								
	Source		Link						
2010	*Pedestrian Volume - Peak Hour*								
	AM		3						
	MID		0						
	PM		8						
	Year		6/16/2010						
	Source		Link						
	Weather		Rain						
	Picture								

Olympic Hills

		138th	27th and 137th	27th and 136th	27th and 135th	27th and 134th	27th and 133rd	27th and 130th	27th and 127th	26th and
Bike Crossing Method										
2016	85% Speed					23				
	ADT Volumes					689				
	% of people going over 30 MPH					1.20%				
	Year					1/6-1/13/2016				
	Source					Link				
2013	85% Speed					30.1				
	ADT Volumes					844				
	% of people going over 30 MPH					15.60%				
	Year					3/25-4/1/2013				
	Source					Link				
2016	***Bike Volume - Peak Hour***									
	Bike AWDT					36				
	Source					Link				
	Year					7/19-7/26/2016				
2015	***Bike Volume - Peak Hour***									
	Bike AWDT						78			
	Source						Link			
	Year						7/2-7/9/2015			
2014	***Bike Volume - Peak Hour***									
	Bike AWDT					56	50.8			
	Source					Link	Link			
	Year					4/25-5/8/2014	7/18-7/25/2014			
2014	***Bike Volume - Peak Hour***									
	Bike ADT						56			
	Source						Link			
	Year						4/25-5/6/2014			
2016	***Bike Volume - Peak Hour***									
	AM					3				
	MID					No Data				
	PM					7				
	Year					7/19/2016				
	Source					Link				
2016	***Pedestrian Volume - Peak Hour***									
	AM					3				
	MID					5				
	PM					5				
	Year					7/19/2016				
	Source					Link				
	Weather					Sun				
2013	***Bike Volume - Peak Hour***									
	AM					4				
	MID					No Data				
	PM					9				
	Year					5/20/2013				

Olympic Hills

		138th	27th and 137th	27th and 136th	27th and 135th	27th and 134th	27th and 133rd	27th and 130th	27th and 127th	26th and
	Source						Link			
2013	***Pedestrian Volume - Peak Hour***									
	AM						16			
	MID						No Data			
	PM						10			
	Year						5/20/2013			
	Source						Link			
	Weather						Overcast			
	Picture									
2012	***Bike Volume - Peak Hour***									
	AM									
	MID									
	PM									
	Year									
	Source									
2012	***Pedestrian Volume - Peak Hour***									
	AM									
	MID									
	PM									
	Year									
	Source									
	Weather									
	Picture									
2010	***Bike Volume - Peak Hour***									
	AM									
	MID									
	PM									
	Year									
	Source									
2010	***Pedestrian Volume - Peak Hour***									
	AM									
	MID									
	PM									
	Year									
	Source									
	Weather									
	Picture									

Olympic Hills		127th	25th and 127th	25th and 125th	AVERAG
Bike Crossing Method				Ped Push Button	
2016	85% Speed	19.5	23.4		21.78
	ADT Volumes	573	937		553.2
	% of people going over 30 MPH	0%	0.60%		0.48%
	Year	1/6-1/13/2016	1/6-1/13/2016		
	Source	Link	Link		
2013	85% Speed	24.6	27.3		26.5
	ADT Volumes	669	826		593.6
	% of people going over 30 MPH	1.40%	4.70%		5.18%
	Year	3/25-4/1/2013	4/16-4/23/2013		
	Source	Link	Link		
2016	*Bike Volume - Peak Hour*				
	Bike AWDT	66	46		
	Source	Link	Link		
	Year	7/19-7/26/2016	7/19-7/26/2016		
2015	*Bike Volume - Peak Hour*				
	Bike AWDT				
	Source				
	Year				
2014	*Bike Volume - Peak Hour*				
	Bike AWDT				
	Source				
	Year				
2014	*Bike Volume - Peak Hour*				
	Bike ADT				
	Source				
	Year				
2016	*Bike Volume - Peak Hour*				
	AM			0	
	MID			no data	
	PM			2	
	Year			7/19/2016	
	Source			Link	
2016	*Pedestrian Volume - Peak Hour*				
	AM			6	
	MID			12	
	PM			9	
	Year			7/19/2016	
	Source			Link	
	Weather			Sun	
2013	*Bike Volume - Peak Hour*				
	AM				
	MID				
	PM				
	Year				

	Olympic Hills	127th	25th and 127th	25th and 125th	AVERAG
	Source				
2013	*Pedestrian Volume - Peak Hour*				
	AM				
	MID				
	PM				
	Year				
	Source				
	Weather				
	Picture				
2012	*Bike Volume - Peak Hour*				
	AM			4	
	MID			2	
	PM			2	
	Year			6/26-7/17/2012	
	Source			Link	
2012	*Pedestrian Volume - Peak Hour*				
	AM			6	
	MID			13	
	PM			9	
	Year			6/26-7/17/2012	
	Source			Link	
	Weather			Sunny/Overcast	
	Picture				
2010	*Bike Volume - Peak Hour*				
	AM			No Data	
	MID			No Data	
	PM			No Data	
	Year				
	Source			Link	
2010	*Pedestrian Volume - Peak Hour*				
	AM			12	
	MID			3	
	PM			11	
	Year			6/16/2010	
	Source			Link	
	Weather			Rain	
	Picture				

PHINNEYWOOD

		Fremont and 77th		Fremont and 78th		Fremont and 79th		Fremont and 80th		Fremont and 81st		Fremont and 82nd		Fremont
	Bike Crossing Methods							In-Ground Bike Puck						
2014	85% Speed						20.7		21.8					
	ADT Volumes						553		476					
	% of people going over 30 MPH						0.05%		0.12%					
	Year						7/10-7/17/2014		7/10-7/17/2014					
	Source						Link		Link					
2011	85% Speed													
	ADT Volumes													
	% of people going over 30 MPH													
	Year													
	Source													
2016														
	Bike AWDT													
	Source													
	Year													
2015														
	Bike AWDT													
	Source													
	Year													
2014	Bike AWDT													
	Source													
	Year													
2015	Bike Volume - Peak Hour													
	AM							13						
	MID							4						
	PM							8						
	Year							4/28/2015						
	Source							Link						
2015	Pedestrian Volume - Peak Hour													
	AM							17						
	MID							12						
	PM							21						
	Year							4/28/2015						
	Source							Link						
	Picture													
	Weather							Rainy						

PHINNEYWOOD		Fremont and 77th	Fremont and 78th	Fremont and 79th	Fremont and 80th	Fremont and 81st	Fremont and 82nd	Fremont
2009/11	Bike Volume - Peak Hour				SUNNY			
	AM				13			
	MID							
	PM				16			
	Year				6/10/2009			
	Source				link			
2009/11	Pedestrian Volume - Peak Hour				SUNNY			
	AM				10			
	MID							
	PM				8			
	Year				6/10/2009			
	Source				link			

PHINNEYWOOD

		and 83rd	Fremont and 84th	Fremont and 85th	Fremont and 86th	Fremont and 87th - South	Fremont and 87th - North	Fremont and 88th
	Bike Crossing Methods			In-Ground Bike Puck				
2014	**85% Speed**		18.9	20.2	21.9			
	ADT Volumes		643	1338	1378			
	% of people going over 30 MPH		0.02%	0.22%	0.43%			
	Year		7/10-7/17/2014	7/10-7/17/2014	7/10-7/17/2014			
	Source		Link	Link	Link			
2011	**85% Speed**				27.7			
	ADT Volumes				1412			
	% of people going over 30 MPH				6.1%			
	Year				8/22-8/29/2011			
	Source				link			
2016								
	Bike AWDT				295			
	Source				Link			
	Year				4/8-4/15/2016			
2015								
	Bike AWDT				394			
	Source				Link			
	Year				8/7-8/14/2015			
2014	**Bike AWDT**				330			
	Source				Link			
	Year				7/10-7/17/2014			
2015	**Bike Volume - Peak Hour**							
	AM			49				
	MID			6				
	PM			32				
	Year			4/28/2015				
	Source			Link				
2015	**Pedestrian Volume - Peak Hour**							
	AM			43				
	MID			43				
	PM			34				
	Year			4/28/2015				
	Source			Link				
	Picture							
	Weather			Rainy				

PHINNEYWOOD		and 83rd	Fremont and 84th	Fremont and 85th	Fremont and 86th	Fremont and 87th - South	Fremont and 87th - North	Fremont and 88th
2009/11	Bike Volume - Peak Hour							SUNNY
	AM							31
	MID							11
	PM							53
	Year							10/18/2011
	Source							link
2009/11	Pedestrian Volume - Peak Hour							SUNNY
	AM							2
	MID							2
	PM							6
	Year							10/18/2011
	Source							link

PHINNEYWOOD

		Fremont and 89th		Fremont and 90th		Fremont ande 91st		Fremont and 92nd SL		**Fremont and 92nd NL**		Fremont and 94th		Fremont
	Bike Crossing Methods													
2014	**85% Speed**										21.5			
	ADT Volumes										755			
	% of people going over 30 MPH										0.19%			
	Year										7/10-7/17/2014			
	Source										Link			
	Substantial Completion 10/1/2013													
2011	**85% Speed**										24.9			
	ADT Volumes										834			
	% of people going over 30 MPH										2%			
	Year										8/1/2011			
	Source										link			
2016														
	Bike AWDT													
	Source													
	Year													
2015														
	Bike AWDT													
	Source													
	Year													
2014	**Bike AWDT**													
	Source													
	Year													
	Substantial Completion 10/1/2013													
2015	**Bike Volume - Peak Hour**													
	AM													
	MID													
	PM													
	Year													
	Source													
2015	**Pedestrian Volume - Peak Hour**													
	AM													
	MID													
	PM													
	Year													
	Source													
	Picture													
	Weather													

PHINNEYWOOD		Fremont and 89th		Fremont and 90th		Fremont ande 91st		Fremont and 92nd SL		**Fremont and 92nd NL**		Fremont and 94th		Fremont
Substantial Completion 10/1/2013														
2009/11	**Bike Volume - Peak Hour**			SUNNY										CLEAR
	AM			21								39		29
	MID			10								30		9
	PM			27								38		35
	Year			10/19/2011								9/8, 9/10, 9/14/2011		10/25/2011
	Source			link										link
2009/11	**Pedestrian Volume - Peak Hour**			SUNNY										CLEAR
	AM			6								No Data		7
	MID			5								No Data		5
	PM			19								No Data		11
	Year			10/19/2011										10/25/2011
	Source			link										link

PHINNEYWOOD

		and 95th	Fremont and 96th	Fremont and 97	Fremont and 98th	Fremont and 100th	Fremont and 101st	Fremont and 102nd
	Bike Crossing Methods							
2014	**85% Speed**			24.8				
	ADT Volumes			562				
	% of people going over 30 MPH			1.23%				
	Year			7/10-7/17/2014				
	Source			Link				
2011	**85% Speed**			25.8				
	ADT Volumes			503				
	% of people going over 30 MPH			1.83%				
	Year			8/30-9/6/2011				
	Source			link				
2016								
	Bike AWDT							
	Source							
	Year							
2015								
	Bike AWDT							
	Source							
	Year							
2014	**Bike AWDT**							
	Source							
	Year							
2015	**Bike Volume - Peak Hour**							
	AM							
	MID							
	PM							
	Year							
	Source							
2015	**Pedestrian Volume - Peak Hour**							
	AM							
	MID							
	PM							
	Year							
	Source							
	Picture							
	Weather							

PHINNEYWOOD		and 95th	Fremont and 96th	Fremont and 97	Fremont and 98th	Fremont and 100th	Fremont and 101st	Fremont and 102nd
2009/11	Bike Volume - Peak Hour							
	AM							
	MID							
	PM							
	Year							
	Source							
2009/11	Pedestrian Volume - Peak Hour							
	AM							
	MID							
	PM							
	Year							
	Source							

PHINNEYWOOD

		Fremont and 103rd		Fremont and 104th		Fremont and 105th		Fremont and 107th SL		Fremont and 107th NL		Fremont and 109th		Fremont
	Bike Crossing Methods					In-Ground Bike Puck								
2014	**85% Speed**				21.6		26.3				23.4			
	ADT Volumes				692		672				651			
	% of people going over 30 MPH				0.83%		3.77%				1.79%			
	Year				7/10-7/17/2014		7/10-7/17/2014				7/10-7/17/2014			
	Source				Link		Link				Link			
2011	**85% Speed**										25			
	ADT Volumes										790			
	% of people going over 30 MPH										3%			
	Year										8/22-8/29/2011			
	Source										link			
2016														
	Bike AWDT													
	Source													
	Year													
2015														
	Bike AWDT													
	Source													
	Year													
2014	**Bike AWDT**													
	Source													
	Year													
2015	**Bike Volume - Peak Hour**													
	AM					41								
	MID					7								
	PM					25								
	Year					4/28/2015								
	Source					Link								
2015	**Pedestrian Volume - Peak Hour**													
	AM					15								
	MID					14								
	PM					16								
	Year					4/28/2015								
	Source					Link								
	Picture													
	Weather					Rainy								

PHINNEYWOOD		Fremont and 103rd		Fremont and 104th		Fremont and 105th		Fremont and 107th SL		Fremont and 107th NL		Fremont and 109th		Fremont
2009/11	**Bike Volume - Peak Hour**					CLEAR						Overcast		
	AM					30						35		
	MID					5						18		
	PM					31						28		
	Year					10/26/2011						9/7,9/15,9/17/2011		
	Source					link								
2009/11	**Pedestrian Volume - Peak Hour**					CLEAR								
	AM					6						No Data		
	MID					7						No Data		
	PM					15						No Data		
	Year					10/26/2011								
	Source					link								

PHINNEYWOOD		and 110th AVERAGES	
	Bike Crossing Methods		
2014	85% Speed	22.11	
	ADT Volumes	772	
	% of people going over 30 MPH	0.00866726	
	Year		
	Source		
2011	85% Speed	25.85	
	ADT Volumes	884.75	
	% of people going over 30 MPH	0.032325	
	Year		
	Source		
2016			
	Bike AWDT		
	Source		
	Year		
2015			
	Bike AWDT		
	Source		
	Year		
2014	Bike AWDT		
	Source		
	Year		
2015	Bike Volume - Peak Hour		
	AM		
	MID		
	PM		
	Year		
	Source		
2015	Pedestrian Volume - Peak Hour		
	AM		
	MID		
	PM		
	Year		
	Source		
	Picture		
	Weather		

PHINNEYWOOD		and 110th AVERAGES	
2009/11	Bike Volume - Peak Hour		
	AM		
	MID		
	PM		
	Year		
	Source		
2009/11	Pedestrian Volume - Peak Hour		
	AM		
	MID		
	PM		
	Year		
	Source		

Rainier Valley East-West

		57th and Holly	57th and Warsaw	57th and Morgan	Morgan and Seward Park	Morgan and 52nd	52nd and Holly	51st and Holly	49th and Holly	Rainier and
2016	Bike Crossing Methods				Bike Push Button					
	85% Speed				19		14			
	ADT Volumes				485		385			
	% of people going over 30 MPH				0.002		0.10%			
	Year				10/20-10/26/2016		9/13-9/19/2016			
	Source				Link		link			
										Subst
2014										
	85% Speed								22.5	
	ADT Volumes								669	
	% of people going over 30 MPH								0.87%	
	Year								1/21-1/27/2014	
	Source								Link	
2008	85% Speed									
	ADT Volumes									
	% of people going over 30 MPH									
	Year									
	Source									
2016	Bike AWDT						9			
	Source						9/9-9/19/2016			
	Year						Link			
2015	Bike AWDT				83					
	Source				Link					
	Year				6/19-6/26/2015					
										Subst
2016	*Ped/Bike on Crosswalk - Peak Hour*									
	AM				11					35
	MID				14					21
	PM				12					31
	Year				9/13/2016					9/13/2016
	Source				Link					Link
20	*Road Bike Volume - Peak Hour*									
	AM				1					1
	MID				3					6

Rainier Valley East-West

		57th and Holly	57th and Warsaw	57th and Morgan	Morgan and Seward Park	Morgan and 52nd	52nd and Holly	51st and Holly	49th and Holly	Rainier and
16	PM				1					1
	Year				9/13/2016					9/13/2016
	Source				Link					Link
2016	*Pedestrian Volume - Peak Hour*									
	AM									
	MID									
	PM									
	Year									
	Source									
		Subst								
2014	*Road Bike Volume - Peak Hour*									
	AM									0
	MID									No data
	PM									0
	Year									1/14/2014
	Source									Link
2014	*Pedestrian Volume - Peak Hour*									
	AM									36
	MID									No data
	PM									38
	Year									1/14/2014
	Source									Link
	Weather									Sun
2014	*Crosswalk Bike Volume - Peak Hour*									
	AM									No data
	MID									No data
	PM									No data
	Year									
2014	All Bikes									
	AM									0
	MID									No Data
	PM									0

Rainier Valley East-West

		Holly	46th and Holly	46th and Brighton	46th and Willow	Willow and 45th	Willow and 44th	Willow and 42nd	Willow and MLK	Willow and 39th	Willow and 38th
2016	Bike Crossing Methods								Ped Button		
	85% Speed						19			13	
	ADT Volumes						432			472	
	% of people going over 30 MPH						0.10%			0	
	Year						9/13-9/19/2016			9/13-9/19/2016	
	Source						link			link	
	tantial Completion: 12/15/2015										
2014	85% Speed		23				26.5			17	
	ADT Volumes		1180				385			446	
	% of people going over 30 MPH		0.42%				5.48%			0.70%	
	Year		1/21-1/27/2014				3/15-3/21/2014			3/15-3/21/2014	
	Source		Link				link			Link	
2008	85% Speed						25.9				
	ADT Volumes						487.6				
	% of people going over 30 MPH						4%				
	Year						2/25-3/3/2008				
	Source						Link				
2016	Bike AWDT						10			9	
	Source						Link			Link	
	Year						9/9-9/19/2016			9/9-9/19/2016	
2015	Bike AWDT						23				
	Source						Link				
	Year						6/19-6/26/2015				
	tantial Completion: 12/15/2015										
2016	*Ped/Bike on Crosswalk - Peak Hour*										
	AM								54		
	MID								70		
	PM								52		
	Year								9/13/2016		
	Source								Link		
20	*Road Bike Volume - Peak Hour*										
	AM								4		
	MID								1		

Rainier Valley East-West

		Holly	46th and Holly	46th and Brighton	46th and Willow	Willow and 45th	Willow and 44th	Willow and 42nd	Willow and MLK	Willow and 39th	Willow and 38th
16	PM								2		
	Year								9/13/2016		
	Source								Link		
2016	***Pedestrian Volume - Peak Hour***										
	AM										
	MID										
	PM										
	Year										
	Source										
	tantial Completion: 12/15/2015										
2014	***Road Bike Volume - Peak Hour***										
	AM								0		
	MID								No data		
	PM								0		
	Year								3/18/2014		
	Source								Link		
2014	***Pedestrian Volume - Peak Hour***										
	AM								3		
	MID								No data		
	PM								7		
	Year								3/18/2014		
	Source								Link		
	Weather								Sun		
2014	***Crosswalk Bike Volume - Peak Hour***										
	AM								No data		
	MID								No data		
	PM								No data		
	Year										
2014	All Bikes										
	AM								0		
	MID								No Data		
	PM								0		

Rainier Valley East-West		Willow and 37th		37th and Myrtle	AVERAGES	
2016	Bike Crossing Methods					
	85% Speed				16.25	
	ADT Volumes					
	% of people going over 30 MPH				0.001	
	Year					
	Source					
2014						
	85% Speed				22.25	
	ADT Volumes					
	% of people going over 30 MPH				1.87%	
	Year					
	Source					
2008	85% Speed					
	ADT Volumes					
	% of people going over 30 MPH					
	Year					
	Source					
2016						
	Bike AWDT					
	Source					
	Year					
2015						
	Bike AWDT					
	Source					
	Year					
2016	*Ped/Bike on Crosswalk - Peak Hour*					
	AM					
	MID					
	PM					
	Year					
	Source					
20						
	Road Bike Volume - Peak Hour					
	AM					
	MID					

	Rainier Valley East-West	Willow and 37th		37th and Myrtle	AVERAGES	
16	PM					
	Year					
	Source					
2016	*Pedestrian Volume - Peak Hour*					
	AM					
	MID					
	PM					
	Year					
	Source					
2014						
	Road Bike Volume - Peak Hour					
	AM					
	MID					
	PM					
	Year					
	Source					
2014	*Pedestrian Volume - Peak Hour*					
	AM					
	MID					
	PM					
	Year					
	Source					
	Weather					
2014	*Crosswalk Bike Volume - Peak Hour*					
	AM					
	MID					
	PM					
	Year					
2014	All Bikes					
	AM					
	MID					
	PM					

University District		12th and Ravenna		12th and 58th	12th and 56th	12th and 55th	12th and 52nd	12th and 50th		12th and 47th	12th and 45th	12th and 43rd	12th
Bike Crossing Methods								Bike Push Button/Bike Puck			Bike & Ped Push Button		
2016	85% Speed			17		20	16		22			22	
	ADT Volumes			252		587	995		1562			3865	
	% of people going over 30 MPH			0.00%		0.00%	0.20%		1.70%			1%	
	Year			5/31-6/06/2016		5/31-6/06/2016	5/31-6/06/2016		5/31-6/06/2016			5/31-6/06/2016	
	Source			Link		link	Link		Link			Link	
		Substantial Completion: 10/16/2014											
2014	85% Speed			23.8		23.7							
	ADT Volumes												
	% of people going over 30 MPH			0.60%		1.70%							
	Year			1/30-2/6/2014		1/22-1/29/2014							
	Source			Link		Link							
2013	85% Speed			23.9		23.8	22.8		24			22.9	
	ADT Volumes			255		459	701		1284			1782	
	% of people going over 30 MPH			1.40%		1.20%	0.08%		1.70%			0.4%	
	Year			10/14-10/21/2013		10/14-10/21/2013	10/31-11/7/2013		9/23-9/29/2013			9/23-9/29/2013	
	Source			Link		Link	Link		Link			link	
2016	Bike ADT								46				
	Source								Link				
	Year								2/12/2016				
2015	Bike AWDT						120		273				
	Source						link		link				
	Year						7/2-7/9/2015		7/2-7/9/2015				
2014	Bike AWDT						117						
	Source						link						
	Year						10/24-11/21/2014						
		Substantial Completion: 10/16/2014											
2013	Bike ADT									27		56	
	Source									Link		Link	
	Year									9/27-10/25/2013		9/27-10/25/2013	
2013	Bike AWDT									50		22	
	Source									link		link	
	Year									10/3-10/24/2013		9/25-10/25/2013	
2016	*Road Bike Volume - Peak Hour*												
	AM							31					
	MID							22					
	PM							45					
	Year							9/20/2016					
	Source							Link					
2016	*Pedestrian Volume - Peak Hour*												
	AM							82					
	MID							212					
	PM							193					
	Year							9/20/2016					
	Source							Link					

University District

		12th and Ravenna		12th and 58th		12th and 56th		12th and 55th		12th and 52nd		12th and 50th		12th and 47th		12th and 45th		12th and 43rd		12th
	Weather											Rain								
2016	*Crosswalk Bike Volume - Peak Hour*																			
	AM											3								
	MID											1								
	PM											11								
	Year											9/20/2016								
	Source											Link								
2016	*Road Bike Volume - Peak Hour*																			
	AM	0										21		22		33		36		
	MID	0										9		12		10		13		
	PM	0										31		27		32		41		
	Year	5/25/2016										5/25/2016		5/25/2016		5/25/2016		5/25/2016		
	Source																			
2016	*Pedestrian Volume - Peak Hour*																			
	AM	3										57		88		93		81		
	MID	3										71		96		181		117		
	PM	4										100		126		158		126		
	Year	5/25/2016										5/25/2016		5/25/2016		5/25/2016		5/25/2016		
	Source																			
	Weather	Sun										Sun		Sun		Sun		Sun		
2016	*Crosswalk Bike Volume - Peak Hour*																			
	AM	0										3		0		5		1		
	MID	0										4		1		3		3		
	PM	0										2		2		2		2		
	Year	5/25/2016										5/25/2016		5/25/2016		5/25/2016		5/25/2016		
	Source																			
2016	ALL BIKES																			
	AM TOTAL	0										24		22		38		37		
	MID TOTAL	0										13		13		13		16		
	PM TOTAL	0										33		29		34		43		
		Substantial Completion: 10/16/2014																		
2013	*Pedestrian Volume - Peak Hour*																			
	AM											35		72		161		30		
	MID											55		68		343		68		
	PM											74		71		361		62		
	Year											9/17/2013		10/15/2013		9/17/2013		10/15/2013		
	Source											Link				Link		Link		
	Weather											Sun		Sun		Sun		Sun		
2013	*Road Bike Volume - Peak Hour*																			
	AM											6		4		6		7		
	MID											2		3		2		2		
	PM											5		4		4		9		
	Year											9/17/2013		10/15/2013		9/17/2013		10/15/2013		
	Source											Link				Link		Link		

University District		12th and Ravenna		12th and 58th		12th and 56th		12th and 55th		12th and 52nd		12th and 50th		12th and 47th		12th and 45th		12th and 43rd		12th a
2013	*Crosswalk Bike Volume - Peak Hour*																			
	AM											0		Not Specified		1		Not Specified		
	MID											0		Not Specified		1		Not Specified		
	PM											1		Not Specified		0		Not Specified		
	Year											9/17/2013				9/17/2013				
	Source											Link				Link				
2013	ALL BIKES																			
	AM TOTAL											6		4		7		7		
	MID TOTAL											2		3		3		2		
	PM TOTAL											6		4		4		9		

University District		nd 42nd	12th and 41st		12th and Campus	AVERAGES	
Bike Crossing Methods							
2016	85% Speed					19.4	
	ADT Volumes					1452.2	
	% of people going over 30 MPH					0.0058	
	Year						
	Source						
2014	85% Speed					23.75	
	ADT Volumes						
	% of people going over 30 MPH					1.15%	
	Year						
	Source						
2013	85% Speed						
	ADT Volumes						
	% of people going over 30 MPH						
	Year						
	Source						
2016							
	Bike ADT						
	Source						
	Year						
2015							
	Bike AWDT						
	Source						
	Year						
2014							
	Bike AWDT						
	Source						
	Year						
2013							
	Bike ADT						
	Source						
	Year						
2013							
	Bike AWDT						
	Source						
	Year						
2016	*Road Bike Volume - Peak Hou*						
	AM						
	MID						
	PM						
	Year						
	Source						
2016	*Pedestrian Volume - Peak Hour*						
	AM						
	MID						
	PM						
	Year						
	Source						

University District		nd 42nd	12th and 41st	12th and Campus	AVERAGES	
	Weather					
2016	*Crosswalk Bike Volume - Peak Hour*					
	AM					
	MID					
	PM					
	Year					
	Source					
2016	*Road Bike Volume - Peak Hou*					
	AM			0		
	MID			0		
	PM			0		
	Year			5/25/2016		
	Source			Link		
2016	*Pedestrian Volume - Peak Hour*					
	AM			383		
	MID			510		
	PM			406		
	Year			5/25/2016		
	Source					
	Weather			Sun		
2016	*Crosswalk Bike Volume - Peak Hour*					
	AM			5		
	MID			9		
	PM			15		
	Year			5/25/2016		
	Source			Link		
2016	ALL BIKES					
	AM TOTAL			5		
	MID TOTAL			9		
	PM TOTAL			15		
2013	*Pedestrian Volume - Peak Hour*					
	AM			69		
	MID			191		
	PM			83		
	Year			9/17/2013		
	Source			Link		
	Weather			Sun		
2013	*Road Bike Volume - Peak Hou*					
	AM			1		
	MID			0		
	PM			0		
	Year			9/17/2013		
	Source			Link		

University District		nd 42nd	12th and 41st	12th and Campus	AVERAGES	
2013	*Crosswalk Bike Volume - Peak Hour*					
	AM			0		
	MID			1		
	PM			1		
	Year			9/17/2013		
	Source			Link		
2013	ALL BIKES					
	AM TOTAL			1		
	MID TOTAL			1		
	PM TOTAL			1		