

# Northgate Non-Motorized Access to Transit and Education



*Project Location: Seattle, King County, Washington, Congressional Districts 7 and 9*

*Project Type: Capital Project*

*Applicant Type: Local Government*

*Amount: \$25 million*

*City of Seattle DUNS: 9483561*

*Partners: Washington State Department of Transportation, Puget Sound Regional Council,  
Sound Transit, North Seattle College*



City of Seattle

# Table of Contents

## p1. Project Description

- Overview of TIGER Grant Request (p.1)
- Existing Conditions (p.3)
- The Project Vision (p.9)
- Ladders of Opportunity (p.9)

## p10. Partners

## p12. Primary Selection Criteria / Long Term Benefits

### Economic Competitiveness (p.12)

- ✓ Connects people to centers of education, employment, and services
- ✓ Promotes workforce development
- ✓ Promotes business opportunities
- ✓ Supports job creation and retention
- ✓ Reduces travel time

### Livability (p.17)

- ✓ Creates affordable and convenient transportation choices
- ✓ Improves access to transit
- ✓ Improves pedestrian and bicycle access
- ✓ Supports existing communities
- ✓ Promotes land use/transportation integration
- ✓ Provides access to affordable housing

## p24. Secondary Criteria

### Innovation (p.24)

- ✓ Deploys new pedal assist technology on a large scale
- ✓ Orca Lift/Student Discounts for students and low-income residents
- ✓ Employs bikeshare as a tool to promote equity
- ✓ Leverages significant new investments in the Northgate area
- ✓ Builds according to the best practices of sustainable infrastructure

## p27. Project Readiness

- Project Readiness and NEPA
- Financial Feasibility and Sources of Funds
- Risk Mitigation Plan
- Environmental Approvals
- Legislative Approvals
- State and Regional Planning Approvals

### Environmental Sustainability (p.22)

- ✓ Supports energy efficiency, air quality, and climate protection
- ✓ Creates opportunities for new environmental education
- ✓ Promotes best practices in sustainable infrastructure

### State of Good Repair (p.23)

- ✓ Reduces infrastructure maintenance costs by over \$160,000 each year
- ✓ Promotes best practices in asset management

### Safety and Healthy Communities (p.23)

- ✓ Provides safer pedestrian and bicycle networks
- ✓ Promotes active transportation

### Partnerships (p.26)

- ✓ Builds on a long history of regional collaboration
- ✓ Demonstrates strong neighborhood and business support

Go to [http://www.seattle.gov/transportation/northgate\\_tiger2.htm](http://www.seattle.gov/transportation/northgate_tiger2.htm) to download copies of all materials, including letters of support and relevant planning documents

# Project Description

## OVERVIEW OF TIGER GRANT REQUEST

The City of Seattle is seeking \$25 million in FY 2015 TIGER funds to match approximately \$29.5 million in local and private investments to connect transit, jobs and education. The Northgate Non-Motorized Access to Transit and Education project will:

- Build a pedestrian and bicycle bridge across I-5 linking North Seattle College to a new Light Rail station
- Create a host of pedestrian and bicycle safety improvements in the Northgate station area
- Launch a 250-station, citywide electric-assist bikeshare expansion to provide first-mile/last mile access to the region's light rail and Rapid Ride system
- Improve access to all of the region's education centers

Completion of the project would deliver the following benefits:

- **Reduced Travel Time:** Reduces walk time from North Seattle College and the surrounding neighborhood to Light Rail Station by 20 minutes, and saves typical bikeshare users citywide 1.6 minutes per trip
- **First-Mile/Last Mile Connections:** 181% increase in residents with access to transit service that comes every 10 minutes, from 26% of population to 73% of population
- **Increased Transportation Access to Education:** Every Seattle college (110,000 students) within a 10-minute walk or bikeshare ride of 10 minute transit
- **Safety:** Eliminates dangerous crossings for pedestrians and people on bikes
- **Creating Jobs/Ladders of Opportunities:** An apprenticeship program offering ladders of opportunity for youth employment and creating 35-40 permanent FTEs to operate bikeshare
- **Social Equity:** Low-income residents and students will receive reduced rates for bikeshare memberships

**Net economic benefits of these projects, monetized within the attached Benefit-Cost Analysis, total well over \$250 million.** The Northgate Non-Motorized Access to Transit and Education project is expected to generate verifiable benefits that outweigh the sum of costs by at least a 3-to-1 ratio. This sum does not include qualitative benefits of the project, which are further described in the Benefit-Cost Analysis.

### TIGER Funding Request

The requested \$25 million TIGER funds would be used to:

- Complete the construction of the Northgate Bridge, a key project that will reconnect a neighborhood separated by a major freeway and improve safety for all travelers, particularly those walking, biking, and accessing transit
- Expand and increase access to the city's bikeshare system, which involves purchasing and installing bikeshare stations, including cutting-edge implementation of electric-assist bikes (stations incorporate bike share docks, kiosks, platforms, solar systems, and helmet-dispensing units)
- Match substantial local funds and a variety of state and regional partnerships

### Local Match

Local investments of approximately \$29.5 million will be used to:

- Complete the funding package for the bridge and build an extensive network of non-motorized infrastructure in Northgate
- Purchase the bikes for a planned bikeshare expansion

### Seattle Vision and Leadership

- One of six cities selected to participate in People for Bikes' [Green Lane Project](#), showing cutting-edge leadership in developing protected bikeways (2014)
- Awarded [Climate Action Champion](#) status by the White House, honoring on-going commitments to greenhouse gas reductions (2014)
- Joined Secretary Foxx's [Mayor's Challenge for Safer People and Safer Streets](#) to improve safety for all roadway users through a Complete Streets approach and context-sensitive street designs (2015)

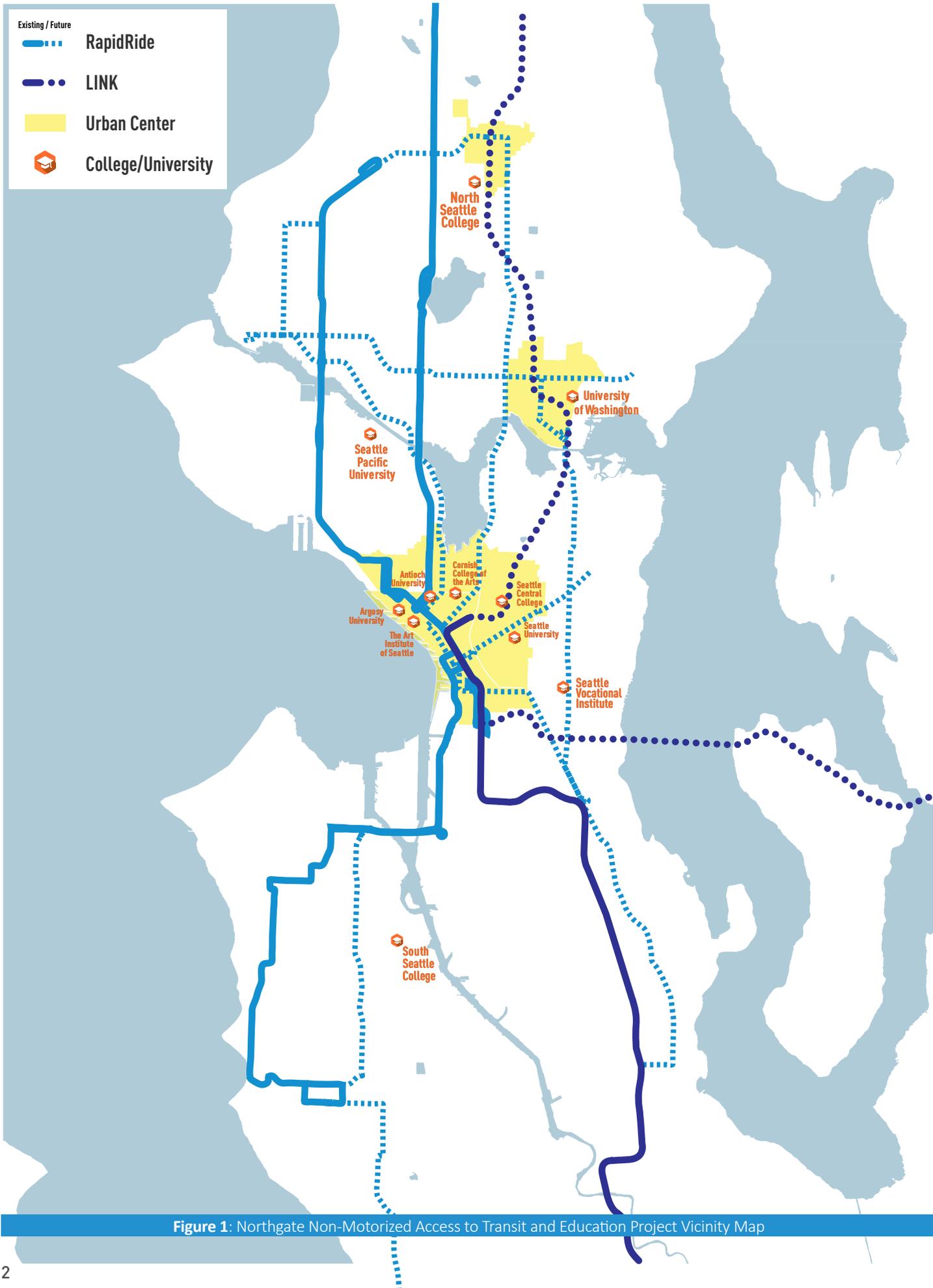


Figure 1: Northgate Non-Motorized Access to Transit and Education Project Vicinity Map

## EXISTING CONDITIONS — Transportation Challenges and Opportunities

The City of Seattle is one of the fastest growing big cities in the country, growing by 10% from 2010 to 2014 and adding 60,000 residents. Two thirds of the growth has taken place in Seattle's Urban Centers and Villages, a success of our long-range planning to focus growth and transportation investments in these areas. Seattle is a linear north/south city with only two main arteries in and out (I-5 and SR-99). Congestion, health, and climate pollution are major concerns of Seattleites. And as the city grows, residents are demanding more and better transportation options. Seattle is now investing in transit, walking and biking to build a more resilient system. In the past decade Seattle voters have approved three funding levies to increase transit:

- **Sound Transit 1** (new service started 2009): Building 16.3 miles of light rail
- **Sound Transit 2** (new service starts 2021 and 2023): Building 36 new miles of light rail
- **Proposition 1** (new service starts 2015): Increasing local bus service by 15% in the City of Seattle

In addition, voters will be asked to fund \$930 million in transit and transportation investments in 2015 (Levy to Move Seattle) and will likely be asked to vote on a Sound Transit 3 funding levy to increase investment in Light Rail and Bus Rapid Transit. The Levy to Move Seattle will fund 50 miles of protected bike lanes, 60 miles of neighborhood greenways, and over \$100 million in pedestrian improvements.

Seattle's investments in transit, walking, and biking are paying off (Figure 2). Over the decade and a half between 2000 and 2014, drive-alone rates dropped by 7%. This is important not only for the efficiency of the transportation system but also to support Seattle's economic and cultural diversity. As the City has grown, housing has become less affordable. Transportation is the second biggest out of pocket expense of Seattle households (Figure 3) and improving access to education and investing in transit, walking, and biking will help maintain Seattle's affordability.

Although transit is quickly improving, Seattle still faces significant challenges with first and last mile connectivity:

- **I-5 Bisects the City:** I-5 ranges from 10 to 15 lanes wide as it passes through the Seattle (350 to over 650 feet). One of its widest points is at the Northgate Way interchange. This separates residents from transit, critical services, education, and jobs.
- **High-Capacity/High-Frequency Transit Shortage:** Seattle is investing huge sums in frequent transit (10 minute frequency or better), but only 43% of the city will be within a 10 minute walk of Rapid Ride bus or Link light rail in September 2015.
- **Topography:** Seattle is extremely hilly. Seattle has invested in improving the quality of its bike infrastructure but the topography limits biking to individuals that feel athletic enough to tackle the hills.
- **Concentration of Vulnerable Populations:** Seattle's vulnerable populations (low-income and minority) are concentrated in a few neighborhoods at the periphery of the city and in southeast Seattle (Rainier Valley). Further, Seattle's shift workers are more likely to need more affordable transportation options during off-peak transit hours.
- **Location of Colleges:** Two of the Seattle College District's three main campuses are not accessible via high frequency transit (Figure 1).

### Seattle's Frequent Transit

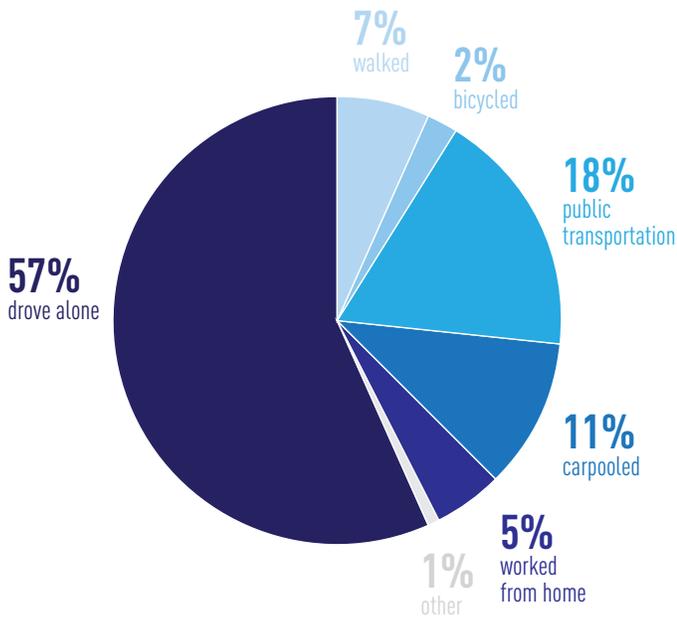
#### Rapid Ride Bus Transit:

- Launched in 2010
- Dedicated fleet of clean-fuel articulated buses
- Branded stations with real-time travel information
- Off-board fare payment and all door boarding
- Frequent service: 10-Minute Peak/15-minute Off-Peak
- 3 Routes in the City of Seattle/3 in King County
- 31,000 riders per day/22,000 in King County (2014)

#### Link Light Rail:

- Launched in 2009
- Light rail operating in mix of subway, aerial, and at-grade tracks
- Frequent service: 7.5-Minute Peak/10-Minute Off-Peak
- 1 line in Seattle (2 extensions under construction: U-Link and Northgate)
- 34,000 per day (2014)

2000



2013

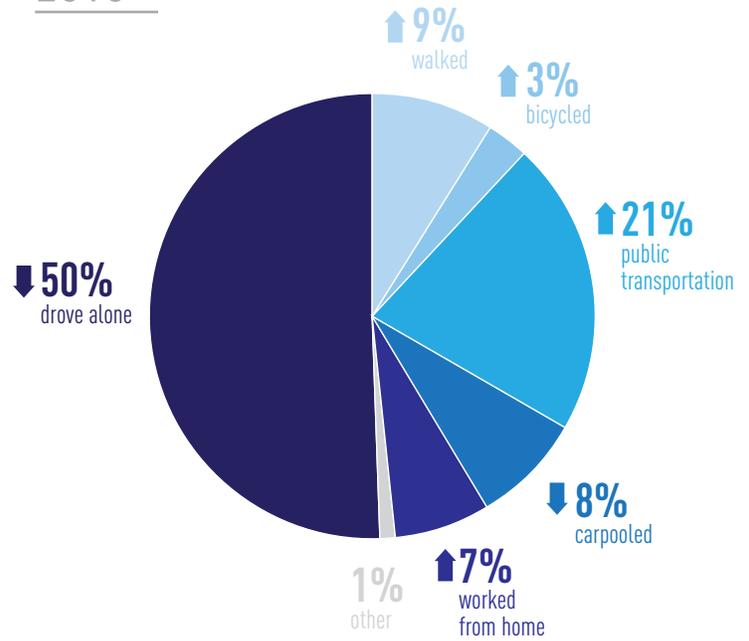


Figure 2: Change in Seattle mode split 2000-2013

(Source: American Community Survey 1-Year Estimates (1 Yr. Estimates begin in 2006) and Census 2000 Summary File 3)

### Seattle's Pronto Cycle Share

Throughout the country, bikeshare systems have shown that they can serve as important parts of cities' transit systems. However, bikeshare systems need to have a sufficient critical mass of stations and bikes to serve as reliable connections to transit. Currently, Seattle's bikeshare system connects to 4 of the city's 11 light rail stations, and only 11 of the Rapid Ride stations. Today, Seattle's bikeshare system serves predominantly affluent neighborhoods and does not meet the needs of all Seattleites.

Pronto Cycle Share launched in Seattle in October 2014, with 50 stations and 500 bikes in the Central Business District and also on the University of Washington (UW) campus approximately 2 ½ miles from the downtown center (Figure 10). Pronto was the first bikeshare system in the world to include helmet distribution and return at the bikeshare station, to comply with King County's all-ages helmet law.

Bicycling is a major component of Seattle's transportation system. Seattle has the eighth-best bicycle mode share in the country at 4.5%. The private-sector recognizes this and has provided capital and operating support for Pronto Cycle Share (Figure 4).

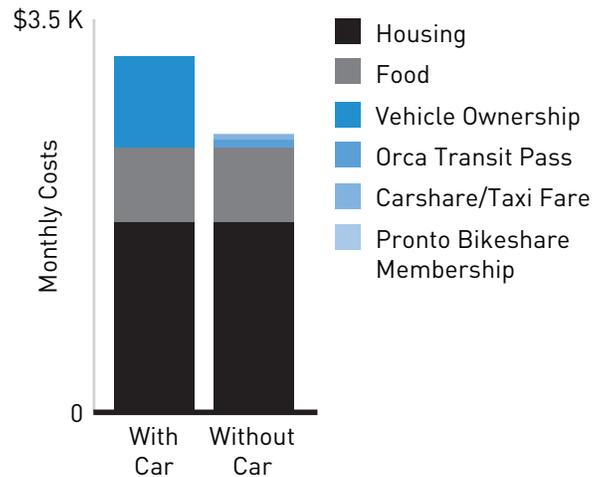


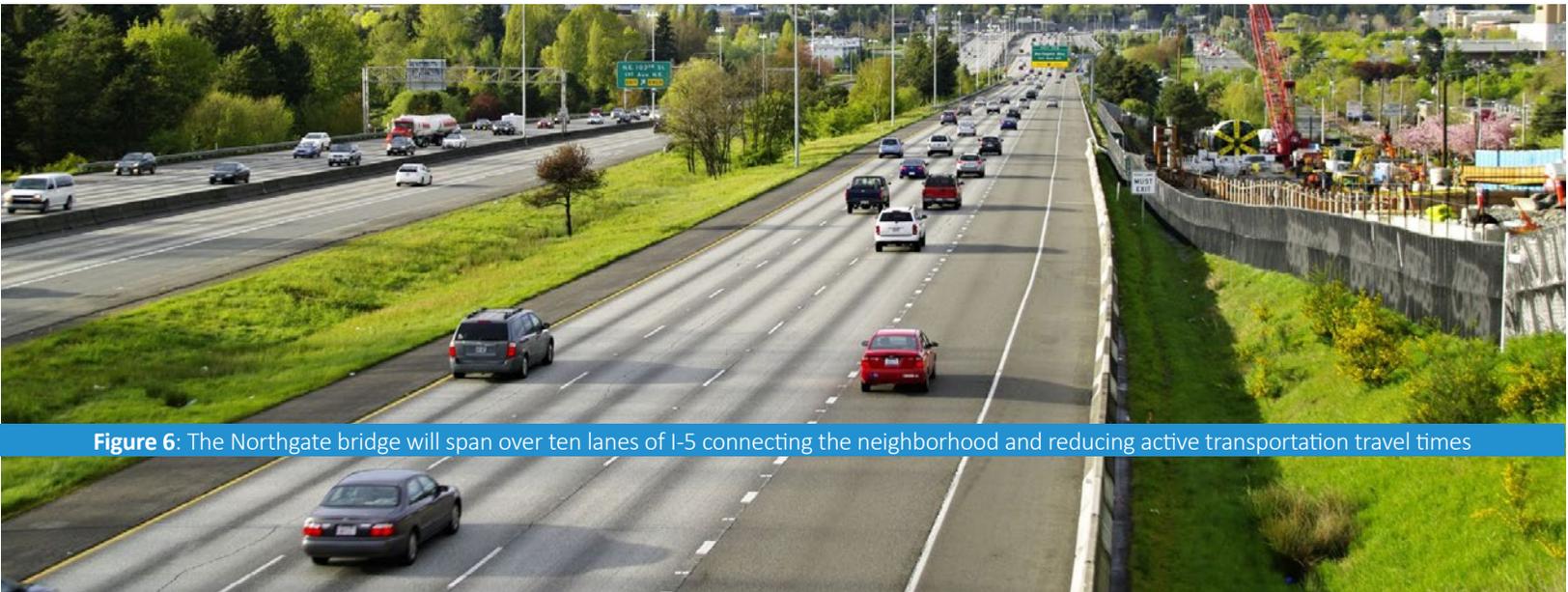
Figure 3: Transportation as % of out of pocket expenses



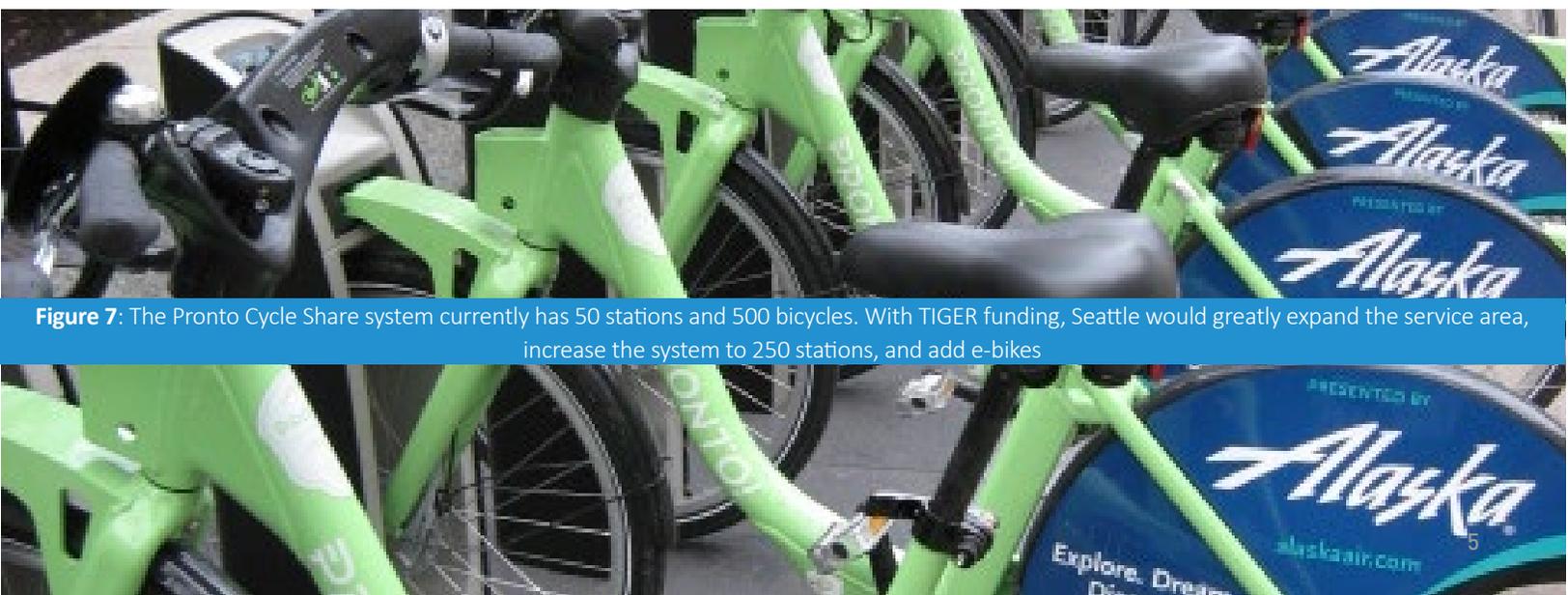
Figure 4: Pronto Cycle Share Private Funding Partners



**Figure 5:** The I-5 corridor is a major barrier bisecting the Northgate community



**Figure 6:** The Northgate bridge will span over ten lanes of I-5 connecting the neighborhood and reducing active transportation travel times



**Figure 7:** The Pronto Cycle Share system currently has 50 stations and 500 bicycles. With TIGER funding, Seattle would greatly expand the service area, increase the system to 250 stations, and add e-bikes

# Northgate Area Improvements

- Bicycle and Pedestrian Improvements
- Bicycle Improvements
- Pedestrian Improvements

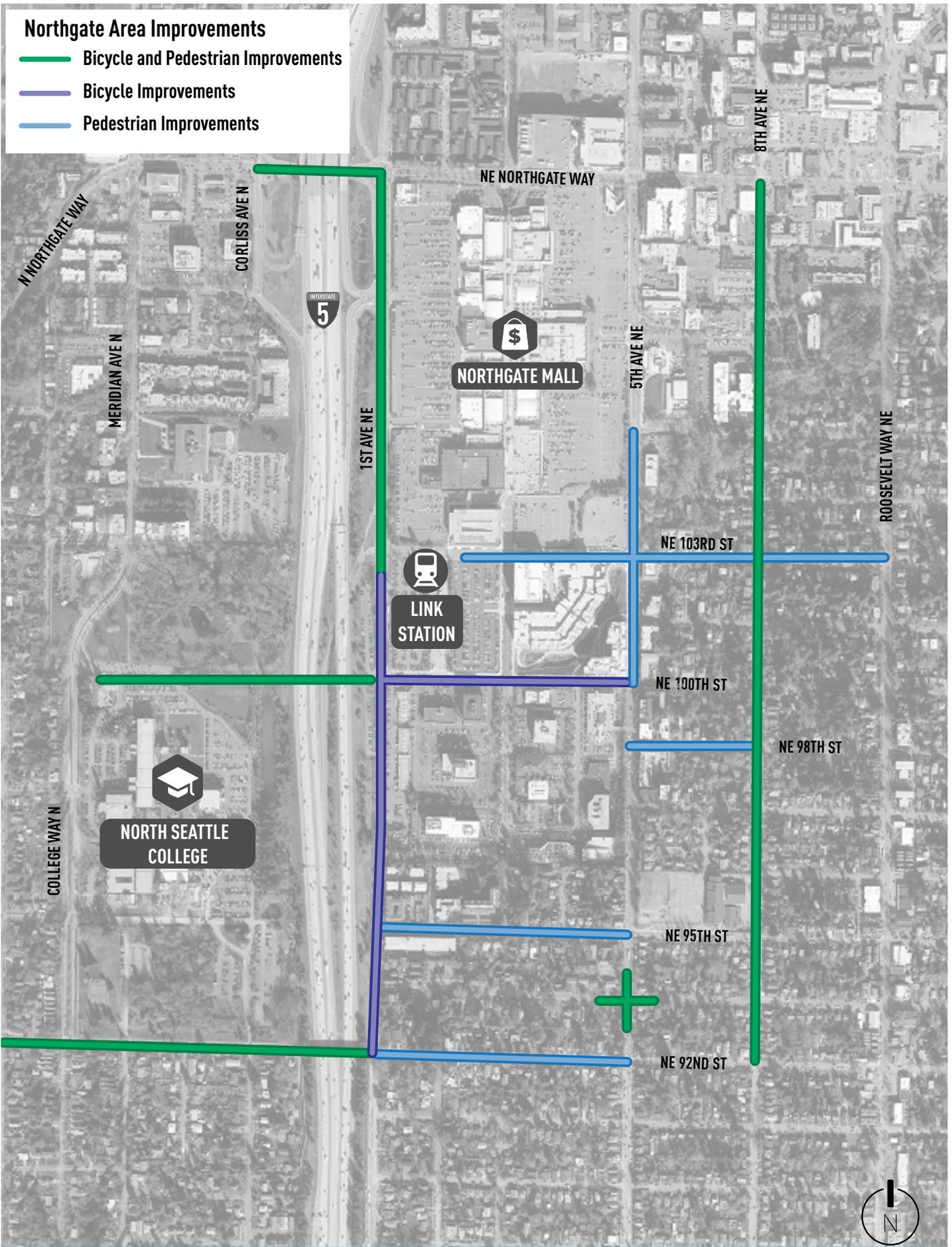


Figure 8: Project improvements in the Northgate area



**Figure 9:** Map showing walking routes and distance from light rail station to college

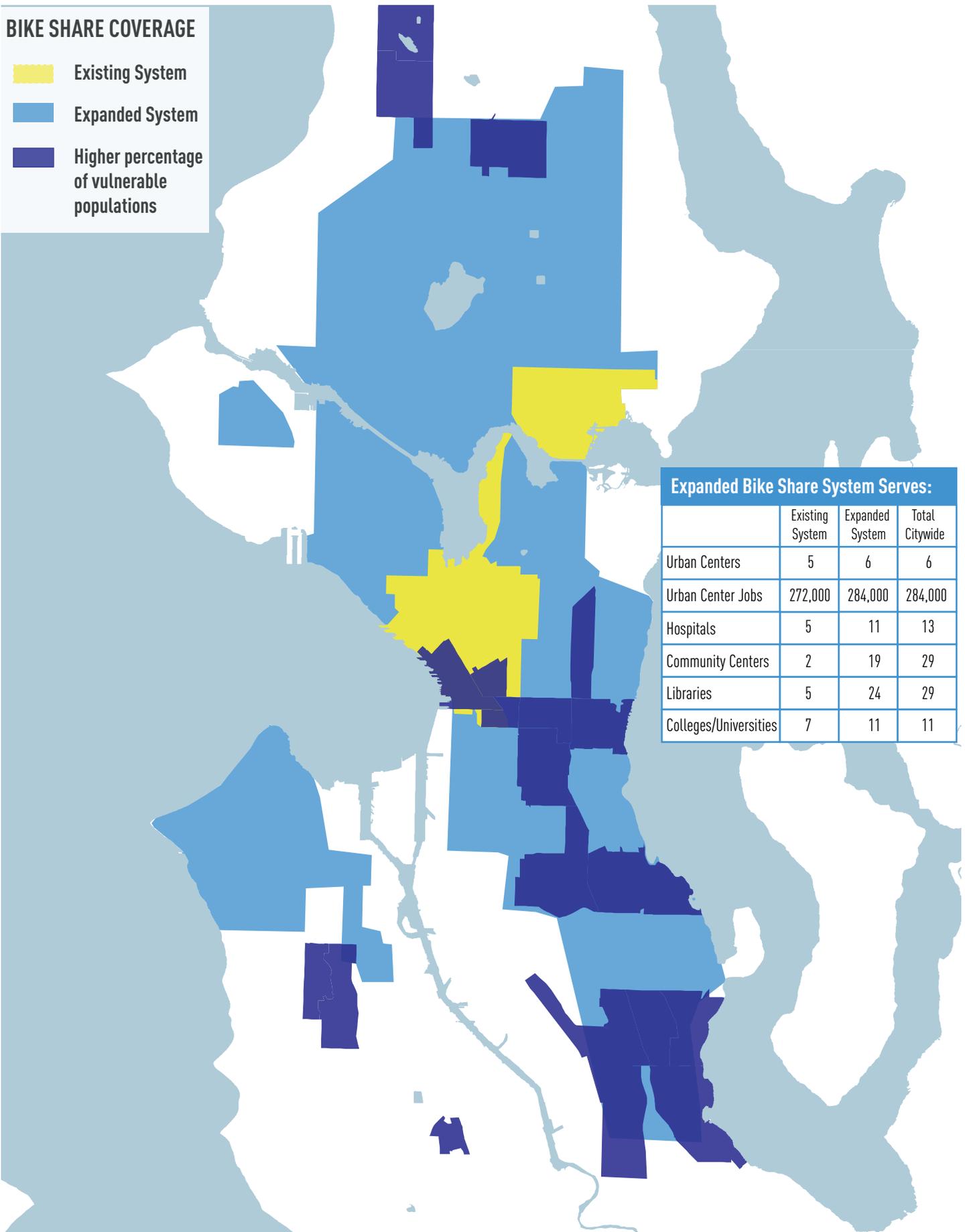
**Northgate Neighborhood**

The Northgate area faces many of the connectivity challenges described on page 3. The area is one of the Puget Sound region’s major residential and employment centers with over 7,000 residents and 12,000 jobs. It is one of Seattle’s most affordable communities and has attracted a higher proportion of economically disadvantaged populations than the city as a whole.

Transit options are very rich – the Northgate transit center is one of the region’s busiest, with over 6,000 bus boardings per day – and with the construction of Sound Transit’s Link Light Rail station in 2021, the Northgate neighborhood is poised to become the region’s second most active transit hub. At the same time, the area’s auto-oriented built environment is dominated by fast moving arterials, highway interchanges and an evolving, but still auto-bound, shopping mall.

Ten lanes of Interstate 5 (I-5) bisect the neighborhood, creating barriers between homes, jobs, schools, transit stops, and vital community services. There are only two opportunities to cross I-5 within the 409-acre urban center, making it difficult to impossible for many people to reach the light rail station. The two existing crossings of I-5 add nearly 20 minutes to the average walk time to the light rail station site, and one of those existing crossings is complicated by freeway entrances.

With the FY 15 TIGER grant and its local match, Seattle plans to bridge I-5, improve safety for people walking and biking, and create a robust bikeshare system. Together, these projects will transform the Northgate center into a transit-oriented community.



**Figure 10:** Bikeshare service area, before and after expansion, showing overlay of Seattle’s most vulnerable populations. Most vulnerable population areas have disproportionately high percentages of people of color, under 18, over 65, with disabilities, without daily access to a car, and earnings below 200% of poverty level (defined by the U.S. Census Bureau)

## THE PROJECT VISION — What Could These Transportation Investments Deliver?

The requested federal funding will carry out TIGER's mission and vision of transportation investments that transform communities, create new ladders of opportunity for struggling populations, and generate economic gains across the region and the country. By expanding the reach of Link Light Rail and Seattle's Frequent Transit Network (including the RapidRide network) with better pedestrian and bikeshare access to transit stations, the project will connect the neighborhood with thriving job centers and communities – nearby centers in central and north Seattle and more distant centers throughout the city and region. The project is divided into three components:

**Northgate Pedestrian Bridge:** Build an approximately 2,000 foot pedestrian and bicycle bridge that will knit together the Northgate community, reduce the walking/biking distance from 1.25 miles to 0.3 miles, and improve safety by reducing crossing of I-5 (Figure 9). This will make it easier to access NSC's Opportunity Center for Employment and Education: an innovative pilot project that combines human services, employment assistance, social services, and educational opportunities at one location. The improvements will also present new opportunities to NSC's 15,000 students and over 7,400 faculty and staff to access jobs and classes in a more time and cost-effective manner.

**Northgate Area Safety Improvements:** Drawing from the City of Seattle, Sound Transit, and King County bicycle and pedestrian station access study, the project will build \$10 million worth of community-prioritized safety improvements: bike lanes, sidewalks, crosswalks, and bridge improvements. These projects include 1.5 miles of new protected bike lanes and 1.4 blocks of sidewalk as well as crossing improvements, improving safety for people walking and biking in the Northgate neighborhood (Figure 10).

**Bikeshare Expansion:** The project will expand the bikeshare system to 250 stations with 2,500 bikes. The proposed bikeshare fleet will include electric drive, pedal assist bikes (e-bikes). The proposed expansion will increase the service area from 5 square miles of the city and 14% of the population to 42 square miles serving 62% of the population (Figure 10). E-bikes will help Seattleites and visitors traverse the many hills in the city and take longer trips. Expansion plans include stations throughout the city – connecting the two initial service areas, extending along major transit corridors, incorporating tourist centers and other sites with high pedestrian volumes, densifying throughout the core service areas, and, most importantly, serving more neighborhoods that need stronger connections to transit, jobs and educational opportunities (Figure 10). Bikeshare

is identified as a critical part of the solution for overcoming barriers that prevent active transportation to, from, and within Northgate (the other critical piece being construction of the pedestrian-bicycle bridge) and to the South Seattle College campus. The system has the potential to grow into a regional bikeshare system. Seed money currently set aside in a proposed state budget for Seattle's neighboring cities, Bellevue, Redmond, and Kirkland (total 276,000 residents and 246,000 jobs). Passage of the state budget is expected in June 2015.

**2016:** Seattle will launch the expansion of its bikeshare program with electric drive bikes

**2017:** Seattle will break ground on the Northgate Pedestrian Bridge

## LADDERS OF OPPORTUNITY

The Northgate Non-Motorized Access to Transit and Education Project creates Ladders of Opportunities through these steps:

**Connect:** The Northgate Non-Motorized Access to Transit and Education Project creates connections by:

- **Opening access to education and employment:** 110,000 students and 500,000 people go to school and work in Seattle every day. The combined Northgate Bridge and bikeshare expansion will increase the number of jobs within a 10-minute walk or bike ride of frequent transit and provide frequent transit access to every college or university in Seattle.
- **Addressing the first-mile/last-mile:** North Seattle College is currently a 1.25 mile and 20- to 30-minute walk from the future Northgate Link light rail station. People walking and biking must cross one on-ramp and one off-ramp to get to the college. The proposed bridge will reduce that to a 0.3 mile and a 6-minute walk or bike with no dangerous intersection crossing. The bikeshare expansion will increase the population with ready access to bikeshare from 88,678 to 392,625 and increase the catchment area of frequent transit by 342%. The Northgate neighborhood needs better, safer connections for people walking and biking. Twenty-one (21%) of people who park at the Northgate Park and Ride lot live within one mile of it. Improving walking and biking routes will make those options more viable to potential transit users.
- **Leveling the land:** Seattle is a hilly city, which makes riding a bike a challenge for many. Electric-assist bikes can help level the land. Electric assist bikes, combined with safe facilities like the Northgate bridge and improved walking and biking routes will help make biking comfortable for people of all ages and abilities.

- **Investing in Affordable Transportation:** User data from Chicago and Washington, DC show that bikeshare users save on average \$750 to \$850 per year in transportation costs. Seattle will build on that by offering half-price fares for residents who qualify for Orca LIFT (a reduced rate transit pass for low-income residents) and for students enrolled in Seattle colleges and universities. In Seattle, eligible persons are at or lower than 200% of federal poverty level. In Seattle, 120,000 people between ages 18-64, including those with a disability, meet this criterion.

**Work:** The Northgate Non-Motorized Access to Transit and Education Project will:

- **Create permanent jobs:** The bikeshare system will create an estimated 35-40 permanent, full-time equivalent positions to operate the systems (maintaining equipment and rebalancing bikes).
- **Train youth through apprenticeships:** The City will partner with Bike Works, a local non-profit organization, to create an apprenticeship program for 8 to 10 youth to have year-round employment opportunities learning how to maintain bikes and stations.

**Revitalize:** The Northgate Non-Motorized Access to Transit and Education Project will revitalize Seattle neighborhoods by:

- **Bridging I-5:** The bridge will reconnect a neighborhood that was cut in half decades ago by the construction of I-5. This will improve access to jobs and education for residents of the Northgate neighborhood.
- **Supporting the Northgate Neighborhood:** The bridge will help knit a community back together and help it realize its potential as a walkable, mixed-use, and transit-oriented community.
- **Connecting Southeast Seattle:** The bikeshare network will open access to education and employment opportunities throughout Seattle, particularly for historically under-represented communities in southeast Seattle within a short walk or bike ride to light rail. It will improve first- and last-mile transit connections to employment and education centers.

## Partners

### FUNDING PARTNERS

#### City of Seattle

- Lead agency and primary grant recipient, responsible for project design, construction, operations and maintenance
- Maintains and operates a multi-modal transportation system with a value of \$13 billion
- Certified Agency since 1973 with a wealth of experience leading large projects and federal grants, including TIGER I and IV grants
- Has technical, financial and legal capacity to complete this TIGER project on time and on budget
- \$10 million local match contribution to project

#### Sound Transit

- Regional transit agency, responsible for design, construction, and operations of Link Light Rail
- \$10 million local match contribution to project

#### Puget Sound Regional Council

- Metropolitan Planning Organization and Economic Development District representing 72 cities, four counties, four port districts, eleven transit agencies, and two Native American tribes
- Designated a Preferred Sustainable Community by the U.S. Department of Housing and Urban Development and awarded a \$5 million Sustainable Communities grant in 2010
- \$718,000 CMAQ grant award to plan and design Northgate non-motorized improvements
- \$600,000 TAP grant award for design of Northgate Non-motorized Bridge

#### North Seattle College

- North Seattle College provides learning opportunities for a diverse group of over 14,000 students each year of the 46,000 total students in the Seattle College system
- Offers a new Bachelor of Applied Science degree in International Business
- Provides career training in over 50 certificate programs including emerging high-tech fields
- Home of Opportunity Center for Employment and Education and Entrepreneur Success Center
- Providing air rights and easement for Northgate Pedestrian and Bicycle Bridge

#### Washington State DOT

- Steward of FHWA funding distributed to public agencies throughout the state
- Providing air rights and easement for Northgate Pedestrian and Bicycle Bridge

## Motivate

- Providing \$3 million in-kind contribution

## SUPPORTING PARTNERS

### King County

- Seattle's major transit provider and operates a major transit center at Northgate
- Planning major transit-oriented development and Northgate park-and-ride facility
- Conducted feasibility analysis of Northgate Pedestrian and Bicycle Bridge

### Bike Works

- Bike Works builds sustainable communities by educating youth and promoting bicycling by: providing collaborative youth programming that develops creativity, community and leadership
- Repurposing and recycling bicycles and promote environmental responsibility
- Helping more people make cycling a part of their everyday lives by keeping cycling accessible and affordable



City of Seattle



Puget Sound Regional Council



NORTH SEATTLE COLLEGE



motivate



King County



BIKE WORKS



Artist rendering looking along future Northgate Bridge

# Primary Selection Criteria

## A. ECONOMIC COMPETITIVENESS

*Investing in better bicycle and pedestrian facilities at the Northgate Station and expanding bikeshare citywide will improve economic competitiveness in five key ways:*

- 1. Connects People to Centers of Education, Employment, and Services:** Ensures every Seattle college and university is served by frequent transit and increases the number of jobs accessible via frequent transit network
- 2. Promotes Workforce Development:** The City will partner with Bike Works to incorporate a youth apprenticeship program into operations of the bikeshare system
- 3. Promotes Business Opportunities:** Increases spending power of local household by lowering out-of-pocket transportation costs
- 4. Supports Job Creation and Job Retention:** Supports 35-40 permanent, full-time operating jobs
- 5. Reduces Travel Time:** The typical bikeshare user will save 1.6 minutes per trip and those individuals using the Northgate pedestrian and bicycle bridge to get to and from light rail will save 20 minutes per trip

### A1. Connects People to Centers of Education, Employment and Services

The proposed project will:

- Open access via a pedestrian bridge, bikeshare, and pedestrian and bike safety improvements to 110,000 college students
- Provide 287,678 more residents with access to frequent transit and 303,947 more residents with access to bikeshare, including shift workers and non-peak hour trips
- Make discounted bikeshare memberships available to up to 20% of bikeshare members
- Improve safety in a neighborhood with 436 crashes over the last 10 years

Seattle has 110,000 students attending 10 colleges and universities. Connecting people from all parts of the City to these educational opportunities is critical to Seattle's goal of ensuring all residents have equitable access to opportunity. The Seattle Colleges District has three main campuses and total enrollment at 46,000 students per year. Only one campus, Seattle Central College, has access to frequent transit. North Seattle College (15,000 students) is directly across I-5 from the future Northgate light rail station, but is a 25 minute walk from the station. South Seattle College

(14,000 students) is 1.1 miles and a 20 minute walk from the nearest frequent transit (every 10 minutes or better).

South Seattle College is situated on the far eastern edge of West Seattle on a bluff overlooking the Duwamish industrial corridor. It lacks direct east/west connections to the neighborhood's primary transit corridor on Delridge Way. Significant slopes require out of direction travel for safe walking and bicycling connections to the college. The college is located 1.5 miles from the closest bus stop at Delridge Way and Juneau Street. This is a 28 minute walk that will be a 7 minute trip on bikeshare with this expansion. The 138' elevation climb of this trip will also be improved with electric assist bicycles. The combination of investing in the Northgate Pedestrian Bridge and an expanded bikeshare system will improve access to both colleges for residents throughout and beyond Seattle (Figures 11 & 12).

NSC serves more than 15,000 students annually, many of whom are from diverse or economically disadvantaged populations. There are 17 "gainful employment" programs located at NSC, and the college now has a Bachelor of Applied Science in Application Development degree and a Bachelor of Applied Science in International Business degree. While most students transfer to the University of Washington's main campus, the College also has developed partnerships with three of the state's four-year colleges and universities: Eastern Washington University, Western Washington University, and Central Washington University. These improvements will also increase access to the Seattle College system, the University of Washington, and other colleges. The Northgate bridge, closely integrated with other new non-motorized facilities in the neighborhood, will provide significantly improved access to the transit station and other nearby destinations.

In parallel, South Seattle College serves more than 6,400 students annually, also from diverse or economically disadvantaged populations. The college offers two-year technical degrees and recently began offering a Bachelor of Applied Science in Hospitality Management, Professional Technical Teacher Education, and Sustainable Building Science Technology. It also offers extensive program support for high school completion and the development of students' basic and transitional skills.

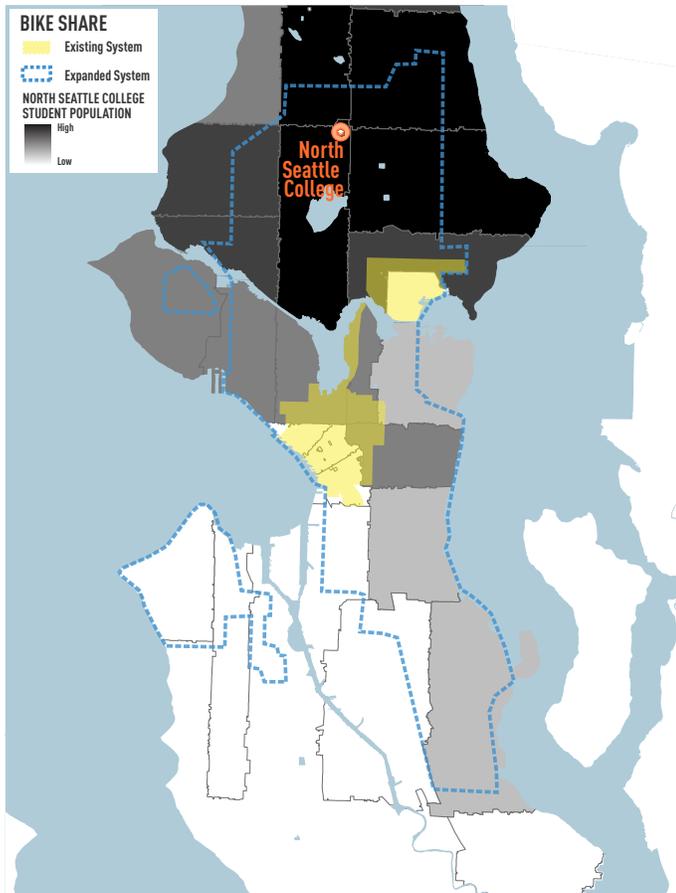
Northgate is one of Seattle's more affordable neighborhoods, with housing prices well below the median within the City. Due to the availability of affordable housing, Northgate has attracted a higher proportion of residents from economically disadvantaged communities. Forty-eight percent of residents within the Northgate urban center are people of color compared to 34% citywide. The median household income is also lower in the Northgate area than

Seattle overall. For these residents, non-motorized access is an important rung on the ladder of opportunity, providing a low cost, healthy means of transportation.

Northgate is also a regional employment center with over 12,000 jobs. Seattle’s Comprehensive Plan sets a target for the center to add over 4,000 new jobs by 2024. People traveling to job and educational opportunities by bike or foot from one side of the freeway and working on the other must take a circuitous and uncomfortable route. Commute trip surveys show that residents living on one side of the freeway and working on the other are 50% less likely to walk or bike to work

than residents living and working on the same side. Improved bicycle and pedestrian infrastructure will support economic development within the immediate station area by increasing the number of people that can walk to local businesses. The proposed project will also provide critical connections to medical services and community services clustered in Northgate.

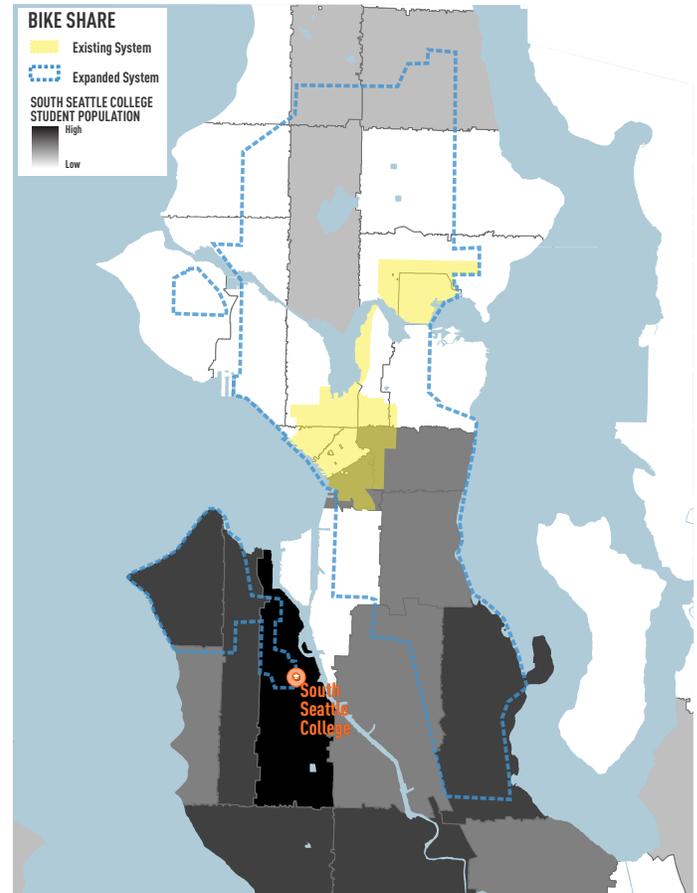
Bikeshare was commonly criticized as an upper-middle class amenity in early stages of its development throughout North American cities, but recent research indicates an important shift is underway. Since 2001, bike-to-transit



### North Seattle College

- 15,000 students served each year
- 29% are academically disadvantaged
- 42% are taking classes to further their current or future work life
- 33% are people of color
- 60% are female
- 52% are over the age of 30, with a median age of 31
- 52% work part or full time
- 29% are parents
- Approximately 600 international students each quarter, hailing from 50 different countries

Figure 11: North Seattle College students by home zip code



### South Seattle College

- 14,000 students served each year
- 40% speak a language other than English at home
- 54% first generation in their families to attend college
- 21% African American (double the citywide percentage)
- 42% minority population other than African American

Figure 12: South Seattle College students by home zip code

connections have grown fastest in lower-income groups. Percentage gains have been more than twice as large within lower income groups compared to higher income peers (earning over \$75,000 per year). The largest percentage increases of any group was for the lowest-income users (earning under \$25,000 per year). Expansion of bikeshare, paired with extension of Link Light Rail, and discounted bikeshare memberships (using Orca Link as a model) will provide residents in Northgate and other economically disadvantaged communities increased access to jobs and education throughout the region. The City of Seattle looks forward to building on successful programs from other cities such as a program in Washington DC, which donated bikeshare memberships to homeless people to assist with getting to and from appointments like job interviews, classes and training. TIGER funds for a major expansion will offer Seattle the opportunity to introduce bikeshare to low-income communities throughout the city, siting stations based on the community's need for low-cost active transportation modes. This approach is contrasted with a slow, decades-long expansion plan where each new station must be sited with short term return-on-investment as a primary criterion.

Expanding bikeshare to the Rainier Valley is necessary to fulfill Seattle's commitment to racial and social equity. The Rainier Valley is home to Seattle's largest minority and immigrant population. This area includes a population that is between 61% and 91% non-white. When conducting inclusive outreach in the Valley, Seattle reaches out to twelve language and community groups (Somali, Spanish, Vietnamese, Cambodian, Afrikaans-Oromo, Chinese, Tigrinya, Filipino, Amharic-Ethiopian, African American, youth, and people with disabilities). The median income of the Rainier Valley is 24% less than Seattle as a whole. Educational attainment is also lower in the Rainier Valley – 32% of residents completed a Bachelor's degree or higher, which is 5% lower than the citywide rate. First- and last-mile bikeshare connections to frequent transit and light rail will improve access to education such as Seattle Central College and the University of Washington, and will provide mobility choices not available to many Valley residents.

## A2. Promotes Workforce Development

This project will improve access to the **Opportunity Center for Employment and Education** at NSC – a partnership of state, local, and private service providers offering employment services, social services, financial support, and post-secondary education through Employment Security/ WorkSource, Department of Social and Health Services, North Seattle College and multiple on-site partners (such as the YWCA and King County). During its first full year of operation, the Opportunity Center provided service to thousands of customers:

- **Social Services** (17,652 Customers): Food, childcare and medical services, mental health assistance, domestic violence advocacy, housing placements, etc.
- **Educational Services** (3,453 Customers): Tuition assistance for low-income and dislocated workers, college readiness workshops, etc.
- **Employment Services** (16,643 Customers): Job search support, unemployment insurance assistance, Temporary Assistance for Needy Families, etc.

Construction of the Northgate Pedestrian and Bicycle Bridge and the other non-motorized access improvements will make getting to the Opportunity Center easier by walking, biking or riding the bus and light rail for disadvantaged families and individuals, lowering transportation costs and increasing mobility choices.

In addition, the City will partner with Bike Works to provide apprentice opportunities to 8-10 youth apprentices. Bike Works is a Seattle non-profit that works to build community by educating youth and promoting bicycling since 1996. Bike Works is located in the Rainier Valley and provides youth programs that combine education, bike repair, outdoor activities and community service.

## Bikeshare as a Tool for Social Equity

### Boston

- **“Prescribe-A-Bike”**: Boston pioneered “Prescribe-a-Bike” which enables doctors from safety net hospitals and health centers to prescribe a \$5 annual membership to low-income residents
- **Reduced Cost Memberships**: 20% of Boston members have purchased reduced costs memberships for \$5 per year, including free helmets and 60 minutes ride time, totaling 1,500 low-income members to date (the majority of purchasers are women and people of color)
- **Stations**: 13 stations in very low income neighborhoods; 33 stations in neighborhoods with substantial low-income populations

### Chicago

- **Youth Employment**: Provides summer jobs and year round internships in bikeshare for at-risk students and resulted in 20 students being hired as mechanics and system rebalancers
- **“Optimum Employment”**: Via a public-private partnership with the Gap, Chicago pairs seasonal positions at Divvy (winter is off-season) with complementary seasonal positions at the Gap (winter is high demand season) to create a 12-month employment opportunity

## Minneapolis, MN

- **Nice Ride Neighborhood:** 140 long-term loaner bikes to address specific needs of low-income residents, particularly cultivating new riders

## Philadelphia

- **Stations:** 20 bikeshare stations in low income neighborhoods
- **Unbanked:** Credit cards not required, enabling the unbanked to purchase memberships

## Washington DC

- **Mental Health:** Free bikeshare membership to mentally ill patients, not only to help them get around town, but to test a hypothesis that cycling improves both physical and mental health

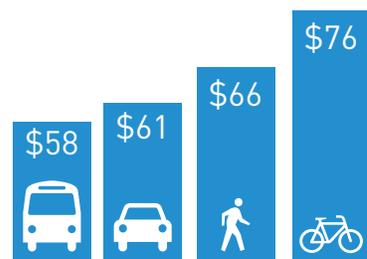
See p31 "Equity Program Articles" section for links to articles describing programs

## A3. Promotes Business Opportunities

The Northgate Link Light Rail Station Non-motorized Access project will promote business activities by reducing travel costs for Seattle residents and visitors and connecting Seattle residents to education opportunities focused on entrepreneurship.

**User Savings:** Analysis from Portland State University shows that people walking and biking outspend drivers at local business districts. The study shows an important link between transportation and business patronage with car-free customers making more frequent visits to local business and spending more per visit (Figure 13). The Northgate Non-motorized Access Improvements will support denser, transit-oriented development, which will result in more business customers on a bicycle or on foot. Data from Washington DC and Chicago show that the average bikeshare member saves \$750 to \$850 per year by using bikeshare.

**Entrepreneur Success Center:** NSC's unique Entrepreneurship certificate program helps potential business owners step-by-step through solid business planning. The program has connections with the Small



**Figure 13:** Average customer expenditures over a month by mode of travel. While customers who arrive by automobile spend more on average per trip, active transportation customers tend to visit more often and spend more on average over time. (Source: Clifton, K.J., Morrissey, S, Ritter, C. Business Cycles: Catering to the Bicycling Market. TR News 280, 2012)

Business Administration (SBA), the Small Business Development Council (SBDC) and SCORE (the Small Business Council of Retired Entrepreneurs) so that students can obtain coaching on new business ideas right on campus.

The Entrepreneur Success Center (ESC), located on the North Seattle College campus, provides one-to-one assistance for individuals who are contemplating starting a business, are in the early stages of their start-up process, or are experiencing a stall-out in taking their business to the next level of development. The ESC was established to address a need in the North Seattle area that was expressed by business owners themselves. More than 45 businesses from Seattle's north end used the center in the first year. The center recently received a one of four "Shared Vision for Small Business" grants from the National Association of Community College Entrepreneurship (NACCE) and Sam's Club to fund the expansion of the center and the scaling up of services provided there.



This area of Northgate Way is a high collision location in the City, and a route between North Seattle College and the Northgate Transit Center. The new Northgate bridge will create a safer, direct route for bicyclists and pedestrians in the area.

#### A4. Supports Job Creation and Job Retention

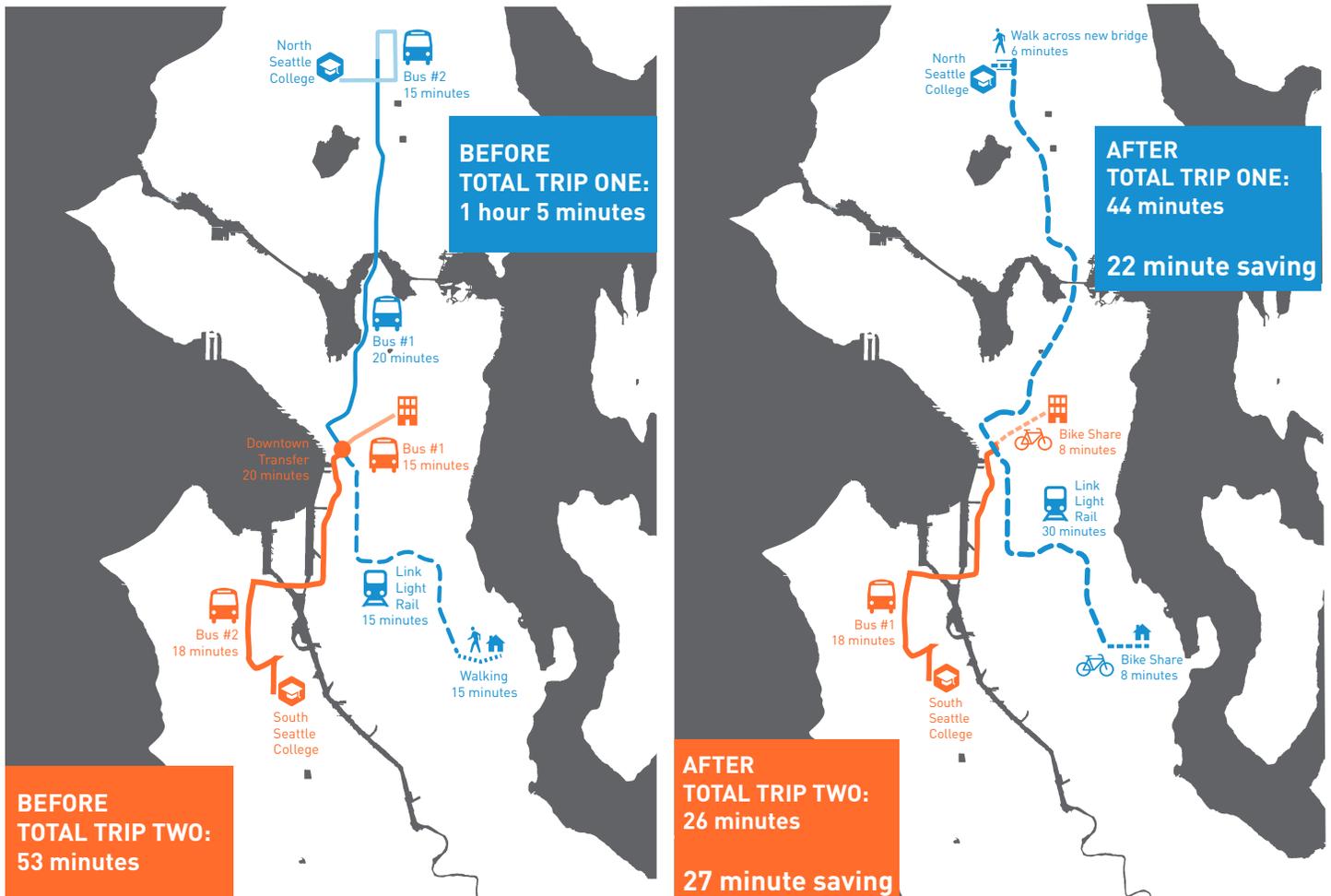
The Northgate Link Light Rail Station Non-motorized Access project's \$54M in spending will create 452 jobs during the construction period of the bridge and the expansion of the bikeshare system. The project will also create an estimate 35-40 Full-Time Equivalent positions to operate the bikeshare system.

#### A5. Reduces Travel Time

The investment in the Northgate Pedestrian and Bicycle Bridge and an expanded bikeshare system will dramatically reduce travel times for Seattle residents. The Northgate Pedestrian Bridge will shorten the walking trip from the Northgate Link light rail station to North Seattle College by 20 minutes. Students, faculty, and staff at South Seattle College will save a similar amount of time (21 minutes) by taking advantage of the proposed bikeshare expansion to transit.

Data from Chicago suggests that bikeshare users typically save 5 minutes per trip over the same trip made via bus. 2,212 people are expected to use the Northgate Pedestrian Bridge each day and 3,304 daily trips will be taken via the expanded bikeshare system each day. The attached Benefit Cost Analysis suggests that Seattle residents and visitors will save an estimated 62,114 hours per year through this project. The Figure 3 below shows how two sample customers will realize this savings (Figure 14).

**The attached Benefit-Cost Analysis suggests that Seattle residents and visitors will save an estimated 60,000 hours per year through this project, valued at over \$30 million.**



**Figure 14:** Sample trips to North Seattle College and South Seattle College before (left) and after (right) the Northgate Non-motorized Access to Transit and Education project is completed

## B. LIVABILITY

*The Northgate Non-motorized Access project will improve livability by:*

- 1. Creating Affordable and Convenient Transportation Choices:** Walking, biking, and transit investments will build a system that provides convenient transportation without the expense of owning a car
- 2. Improving Access to Transit:** Combination of bike and pedestrian improvements and bikeshare will increase communities access to transit
- 3. Improving Pedestrian and Bicycle Access:** Readily available access to bikes ensures that cycling is a viable options for all residents and visitors
- 4. Supporting Existing Communities:** Focused investments in the Northgate neighborhood will help revitalize a long-challenged Seattle neighborhood; while bikeshare expansion will improve livability in southeast Seattle
- 5. Promoting Land-use / Transportation Integration:** Helps fully realize the land-use/transportation benefits of the Link light rail station
- 6. Providing Access to Affordable Housing:** Helps fully realize the land-use transportation benefits of the Link light rail station neighborhoods

### B1. Creating Affordable and Convenient Transportation Choices

The Federal Highway Administration's fact sheet on the Benefits of Livability indicates that families in auto-dependent locations like Northgate spend 25% of their income on transportation. In Seattle, the average household spends 17% of its income on transportation (Figure 3). Numerous studies have shown that the cost of owning a car is a major burden for those families with below average incomes. Seattle is committed to ensuring that affordable and convenient transportation options are available to all members of our society, regardless of economic circumstance. Investing in walking, biking and transit is a central part of the City's strategy to use transportation as a tool to maintain affordability.

The physical and social divide created by I-5 is very visible in the Northgate neighborhood, and the City has already begun design of the bicycle-pedestrian bridge that would directly link NSC to light rail. Currently these sites are linked only by a 1.25-mile walk or ride on unfriendly, traffic-clogged roadways. The bridge will reduce a pedestrian's route to 0.3 miles on a fully-separated facility, equivalent to approximately 6 minutes per walk trip. Along with locally-funded ped-bike connections to the bridge, this new facility also provides seamless connectivity to numerous other destinations in Northgate. Popular destinations include a regional mall, large medical campuses, and numerous

employment centers – as well as a network of city and county trails that radiate outward to other destinations through the city and the region.

Bikeshare systems throughout the country, as well as in many European cities, have started to make significant headway in providing low-cost travel options – either expanding the accessibility of existing transit services by expanding station catchment areas, or providing an entirely new travel option for many trips. Examples of these potential time savings are abundant throughout Seattle's transit system. For hundreds of origin-destination pairs, even the pairs where a one-seat transit trip is possible, a bikeshare trip can be substantially quicker than the equivalent bus ride. In many other cases, a bikeshare trip eliminates the need for a second bus ride within the same trip. A bikeshare user can make the first leg of his or her trip on transit, and then arrive at their final destination on a bicycle well before their second bus could arrive. In addition, bikeshare pricing is extremely affordable and in many cities, including Seattle, is the most affordable public transit option.

Travel time savings in high-density and medium-density metro areas are substantial. In a review of Chicago's bikeshare network, researchers generated 1,000 station pairs and compared travel times between transit and bikeshare for each pair. Overall bikeshare beat transit by an average of five minutes. These incremental savings added up quickly: over 32,000 hours per year based on Chicago's transit and bikeshare ridership. Similar studies in Helsinki Finland reached similar conclusions. Based on travel patterns in Helsinki, the combination of bike sharing and public transportation was estimated to save about six minutes per trip on average – a total reduction of 10% in travel times for the entire region. In Seattle the transformative potential of bikeshare as a complement to transit is especially strong. Lacking the density of some highly transit-oriented American cities (New York, Chicago, etc.), Seattle depends on moving more dispersed groups of people to the transit corridors. This issue is likely to become more pronounced with build-out of Link and other Bus Rapid Transit services, in which transit providers move to a grid-based system that provides more frequency but more trips may require a transfer.

Seattle's existing transit network provides roughly 26% of households with easy walking access to bus or rail lines that run every ten minutes or more. Through investments paid for by a voter approved initiative this number will rise to 43% of households in September of 2015. This equates to 14% of the city's population living within a half-mile of a Rapid Ride station or Link Station. The proposed

expansion of bikeshare raises this market coverage to 62% by increasing the catchment area of each station. The benefits of integrated multimodal systems can't be effectively matched by any mode alone. While it would be theoretically possible to increase bus services enough to match an integrated multimodal system, the outcomes are vastly different. An expansion of the transit system that would provide similar increases in mobility would come at a financial cost exponentially greater than the investment required for bikeshare – not to mention the additional traffic congestion, air pollution, and other undesirable outcomes that are not seen with non-motorized improvements. The proposed \$10 million federal investment in Seattle's bikeshare network would require additional investment to add a single new bus route operating in daytime hours for one year. (Comparison is based on typical bus purchase prices of \$600,000 for diesel vehicles and operating costs of approximately \$140 per hour.)

## **B2. Improving Transit Access**

Northgate is the site of one of King County Metro Transit's most heavily used regional transit centers. Twenty-eight bus routes traveling throughout King County stop at the Northgate Transit Center. The center incorporates five different parking areas with a total of about 1,500 park-and-ride spaces, which are typically 90 to 100 percent occupied – underscoring the need for greater non-motorized access to allow maximum utility of the region's transit options. Over 6,000 riders a day use the transit center, and a 2012 survey by Metro indicated that the majority of riders at the center get there by car. About three-quarters of riders at the station travel to downtown Seattle, and about 20% travel to the east side of King County. Sound Transit has begun construction of the Northgate Extension of its Link Light Rail system. This long-awaited 4.3 mile extension is slated to begin open to the public in 2021. It will reduce the travel time to downtown Seattle to 14 minutes and will add an estimated 62,000 riders to the regional rail system. When Sound Transit 2 is completed, the Sound Transit Link Light Rail system will extend 54 miles, linking Lynnwood, Seattle, Redmond and Federal Way. Eventually, the system will extend to Tacoma and Everett. The Northgate station is expected to have 15,000 daily boardings and will continue to be a major transit hub for the entire North Seattle area. As the Link system is built out, transit riders using the pedestrian bridge to access the Northgate station will be able access the larger Puget Sound region more easily. Until construction of the Lynnwood Link Sound Transit, King County and Seattle are working together to reduce the percentage of riders who drive to Northgate to access transit. The City's goal is to have 70% of people access the light rail station using transit, bikes, or by foot.

While the Northgate Transit Center has a very high level of

transit service and very high ridership levels, currently it is located in an auto-oriented neighborhood. Northgate is the lowest ranking of Seattle's six regional growth centers for both Walk Score and Transit Score, pointing out the difficulty of pedestrians within this area compared to other urban growth centers. This TIGER project improves access to the existing transit center and to the future light rail station, resulting in higher numbers of people walking and biking to access transit services. The Northgate Access Study, conducted by Sound Transit in partnership with Seattle and King County, estimated that the pedestrian-bicycle bridge and related improvements in the neighborhood would result in a 6% increase in boardings at the Northgate station – about 870 daily boardings. The study also indicated that about 2,800 station users would benefit from these improvements.

## **B3. Improves Pedestrian and Bicycle Access**

Over the next 20 years, Seattle will add 120,000 new residents and 115,000 jobs within city limits. Key to accommodating this growth will be investments in bicycle and pedestrian infrastructure and nurturing Seattle's culture of using active transportation modes in a manner that purposefully benefits the city's livability, affordability, public health, economic competitiveness, and natural environment.

The City has set aggressive goals for increasing the share of people walking, biking and using transit as part of its Climate Action Plan and as a part of its Bicycle Master Plan and Pedestrian Master Plan. Within Seattle's Center City, over 50% of commuters currently use these modes rather than drive a car to work. Seattle wants to extend this success to its other neighborhoods, as well as encourage people to use these modes for non-work trips. This TIGER grant funds non-motorized improvements that will help increase bicycling and walking by employees, students and shoppers in the each of Seattle's urban centers.

The Bicycle Master Plan and Pedestrian Master Plan signify an important shift in the way Seattle will accommodate people riding a bicycle or walking for any trip purpose. Citywide, progress is remarkable. For example, the increase in bicycling in the city over the past several years makes Seattle sixth in the country for the percentage of people who commute to work by bicycle. The Seattle Bicycle Master Plan surveyed residents to better understand barriers to bicycling. Seattle residents cited: travel time/distance, unsafe motorist behavior, inadequate bike facilities, and hills among the top barriers. These are all factors that will be addressed through this grant. An expanded e-bike based bike sharing system will increase the amount of distance a person can cover via bicycle and reduce/eliminate the effect of hills. Given the safety record of bikeshare, it is clear that

drivers operate more safely around bike sharing bikes. In addition, Northgate Pedestrian Bridge and associated bike lanes will improve bike facilities. This will strengthen the safety figures and increased ridership citywide.

Northgate lags far behind many Seattle neighborhoods. Many of the residential streets within the Northgate center do not currently have sidewalks, and where sidewalks do exist, they are substandard. This is reflected in the relatively low Walk Score in the Northgate center (85) compared to other Seattle urban centers (90-98). In 2011 Seattle began a new systematic bicycle counts program that uses National Bicycle and Pedestrian Documentation (NBPD) methodology to count bicycles (and pedestrians) at 50 locations citywide, four times a year. In both 2011 and 2012, despite being a major crossing of I-5, Northgate Way was among the five locations with the lowest bicycle volumes.

Construction of new sidewalks/walkways or improvements to sidewalks are planned to occur along eight streets within the core of the Northgate center as part of this package of improvements, encouraging more people to walk to community services and to access the transit network. A Safe Routes to School improvement linking to Olympic View Elementary is also part of this project. The Northgate Pedestrian and Bicycle Bridge included in this package is identified as a catalyst project in the Bicycle Master Plan, and it will connect a wider set of improvements on both the east and west side of the bridge, providing both local and regional connections.

This TIGER project also includes three protected bike lane projects paid for by local dollars. One protected bike lane will run north-south, parallel to the Link Light Rail line from NE 92nd St to the Northgate light rail station at NE 103rd St, and will directly connect to the pedestrian and bicycle

bridge across I-5. The facility will make bicycling safer for all ages and abilities in the corridor. A second protected bike lane along NE 100th St to 5th Ave N.E. is also included in this package. This facility will also directly connect to the Northgate Pedestrian and Bicycle Bridge and will link to the Burke Gilman Trail, the “bike highway” of the Puget Sound region, through an east-west greenway connection. A third protected bicycle lane in this package of improvements also connects across I-5 at NE 92nd St, providing a connection to neighborhood-level routes south of the college to Green Lake and Woodland Park Zoo.

King County Department of Transportation (KCDOT) completed the Northgate Pedestrian Bridge Feasibility Study Report in December 2012. The report identifies possible alignments, bridge types and estimated costs for a bridge. The study reported that a bridge would reduce the walking distance from the transit center to NSC from 1.2 miles to approximately 0.25 miles. The report cites a previous study indicating that a bridge would result in a 30% reduction in average walking time to the Northgate Transit Center and Light Rail Station, and would effectively expand the area walk shed (0.5 miles) to more than 150 buildings and bike shed (3.0 miles) to more than 3,000 additional buildings (Figure 15).

#### B4. Supporting Existing Communities

In 1950, the Northgate Center, the first shopping center to be identified as a mall, opened, and in 1954 the North Seattle area was annexed into the City of Seattle. The I-5 freeway, designed with an exit at Northgate Way, was built in the mid-1960s, dividing the community and restricting access, with only two crossings within the neighborhood. North Seattle College was established in 1970 across from the mall on I-5’s west side. Easy freeway access and the presence of the mall and college resulted in the rapid auto-

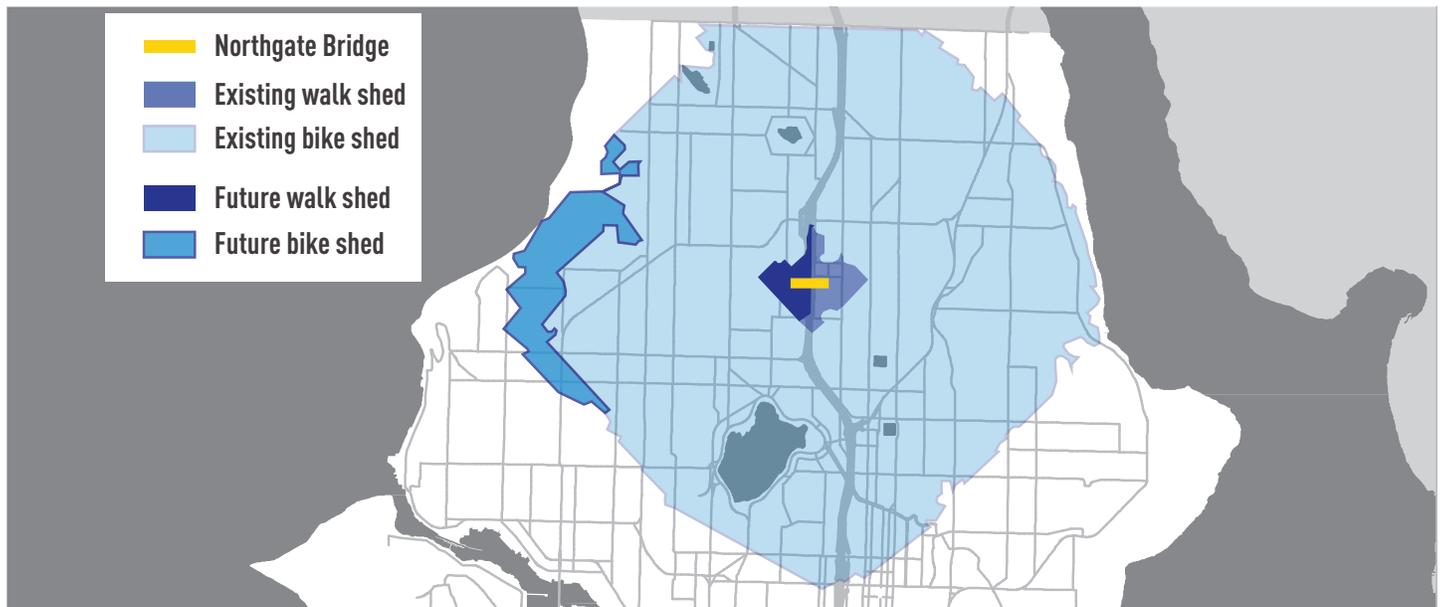


Figure 15: Before/after walkshed map showing mobility impact of Northgate Bridge

oriented development of the area, without improvements in pedestrian and bicycle infrastructure. In 1970, Seattle Transit began operation of Washington State's first park-and-ride express bus service, the Blue Streak, from Northgate. Cars quickly filled 500 reserved parking spaces and the service was credited with eliminating 1,200 cars from the daily freeway commute. The success of the park and ride express service in Northgate led to expansion of parking with little pedestrian access, and was sited on the opposite side of I-5 from the college.

Over the next 20 years the center continued to develop in an auto-oriented fashion. In 1993, Seattle developed the Northgate Comprehensive Plan, setting the goal of transforming the center into a mixed-use, transit-oriented community. Passage of the Sound Move transit plan, funding light rail in Seattle, kick-started efforts to revitalize the community, and in 2001, the City updated the Northgate Comprehensive Plan. As a result, Seattle engaged in a significant revitalization program for the center, providing infrastructure improvements such as the Northgate Branch Library and Community Center, the Maple Leaf Community Garden and the Fifth Avenue Northeast Street Improvements, spurring a mall redevelopment, transit-oriented development on a former parking lot and other developments in the area.

The Great Recession severely impacted this revitalization effort and slowed development within the center. Between 2005 and 2014, the Northgate Urban Center only achieved 40% (1,000 units) of its targeted residential growth for 2024. The nearby urban villages of Ballard and Bitter Lake have each surpassed their goals by 280% (2,800 units) and

147% (1,170 units), respectively. Northgate achieved 30% of its new employment target of 4,200 jobs. Development of Sound Transit's Northgate Link Light Rail extension provides a tremendous opportunity to complete the revitalization of this employment center, develop a sustainable, transit-oriented, mixed use community and to reach the targeted employment growth levels.

This TIGER grant will improve access for residents, employees, and visitors of the Northgate urban center to the wide variety of amenities that make Seattle known for its quality of life. There are many parks, open spaces, community gardens and environmental areas that provide a connection with nature. The Thornton Creek Water Quality Channel is the center piece of the Thornton Place transit-oriented development adjacent to the Northgate Transit Center. The Northgate bridge and the greenways it links will connect the Licton Springs Park, Mineral Springs Park, the NSC Environmental area, the water quality channel, Northgate Community Center, Olympic View playfield, Thornton Creek Park and two regional trails, the Interurban Trail between Everett and Seattle and the Burke-Gilman Trail.

Access to healthy food is a top priority for the City of Seattle. Seattle's Food Action Plan has made it a priority to eliminate food inequities that disproportionately affect low-income residents, children, seniors, and communities of color. This TIGER grant will improve access to two community gardens in the Northgate community, Maple Leaf and Licton Springs, making it easier for residents to grow their own food.



The existing northern walking route from the Northgate Transit Center to North Seattle College takes 30 minutes. The route is a hostile environment for bicyclists and pedestrians.

## B5. Promoting Land-use / Transportation Integration

Seattle's growth management strategy, a modern "urban village" approach, is a smart growth policy that emphasizes significant public investment such as parks, libraries, community and transit centers, along with transit service investments, into urban centers with the greatest potential for locating more residents, jobs, stores and services in a close proximity. The approach reduces the burden of automobile reliance, promotes healthy travel alternatives, shortens commutes and provides more time and opportunities for recreation, leisure, shopping and social interaction. An outcome of this strategy, often called livability, fosters a rich environment in which to enjoy all aspects of daily life.

One of many tools developed by the region's Metropolitan Planning Organization the Puget Sound Regional Council (PSRC), as part of Growing Transit Communities, are the Transit Community Profiles. These profiles assess station areas and provide recommendations to ensure equitable future development. At Northgate, the profile identified good social infrastructure paired with an immediate risk of displacement for lower income residents. This understanding strengthens the City and County effort to maximize the affordable and low-income housing in the TOD and expand the non-motorized improvements to existing low income housing developments and areas not directly accessible to the station area. The Northgate profile also indicated lower scores for physical form and activity because of the lack of sidewalks and overall pedestrian connectivity.

This TIGER application directly targets this shortcoming. The Northgate Urban Design Framework (UDF), funded through the HUD grant and completed in December 2013, provides an integrated transportation and land-use vision for implementing the key strategies identified by the Growing Transit Communities report. Those specific elements that relate and support this TIGER application include: improving the pedestrian environment through improved sidewalks, providing a new pedestrian and bicycle crossing of the I-5 barrier, completing bicycle facilities tying Northgate to adjacent neighborhoods and activity centers, targeting dense development in sites near the light rail station and establishing affordable housing targets in the station area. As development continues in the area, the UDF suggests coordinated improvement to break up the superblocks into shorter, walkable blocks with pedestrian amenities and linked open spaces. Amongst Sound Transit's 12 park-and-ride lots, Northgate has the highest proportion of drivers coming from within one mile, showing the potential market for alternatives to driving. Approximately 21% of Northgate park-and-ride users travel less than a mile, compared to 9% average for all Sound Transit lots.

Consistent with Seattle's Race and Social Justice Initiative, the public engagement process was focused on inclusive outreach targeted to reach economically disadvantaged communities. It built upon strong and sustained relationships and partnerships with organizations representing these populations. As a result of this planning and the public's requests Seattle, Sound Transit, King County and PSRC have dedicated \$21,300,000 to non-motorized access to improve access throughout the urban center. This investment is in addition to the light rail station and integrated bus transit center.

## B6. Providing Access to Affordable Housing

City of Seattle voters have a long history of supporting affordable housing development and preservation by their approval of five ballot measures since 1981. In November 2009, Seattle voters overwhelmingly approved a seven-year, \$145 million renewal of the Seattle Housing Levy. Over two-thirds of levy funding is dedicated to the Rental Production & Preservation program, which provides affordable rental housing. At least 60% of these funds serve households with an income below 30% of median income. The housing levy supports bikeshare expansion by focusing residential and commercial activity in dense, bike-friendly hubs. New bikeshare services will also support implementation of the housing levy, increasing the marketability of new housing units that cater to car-free urban lifestyles. Seattle's 2004 Comprehensive Plan set a growth target of 2,500 new household units within the Northgate urban center by 2024. Through 2013, only about 750 of these units had been developed, leaving a need of about 1,750 new housing units. The 2013 Northgate Urban Design Framework provides a vision for a compact healthy community with affordable housing choices for a diverse population. The plan calls for the transformation of an auto-centric office retail area into a livable, walkable, dense urban center anchored by a multi-modal transit station. Northgate offers a number of unique opportunities to meet affordable housing objectives.

The Puget Sound region's Growing Transit Communities Partnership (HUD Sustainable Communities partnership) provided King County \$500,000 for a catalyst demonstration transit-oriented development (TOD) project to include affordable housing at the site of the Northgate Transit Center park-and-ride south of Northgate Mall. Seattle and King County are looking at opportunities to provide affordable housing through the development agreement for the site.

**Monetized benefits in the project's Benefit-Cost Analysis show household travel savings worth over \$100 million accruing from the project.**

## C. ENVIRONMENTAL SUSTAINABILITY

*The Northgate Non-motorized Access project will improve environmental sustainability through:*

- 1. Supports Energy Efficiency, Air Quality and Climate Protection:** The project will reduce cold starts and short SOV trips, reducing greenhouse gas emissions
- 2. Create Opportunities for New Environmental Education:** The project will have interpretive elements that enhance travelers understanding of the natural environment
- 3. Sustainable Infrastructure Practices:** The project will include recycled and low-energy materials, along with green stormwater infrastructure

### C1. Supports Energy Efficiency, Air Quality and Climate Protection

Seattle has made reducing emissions pollution a central unifying goal in its land-use and transportation strategies. Guided by its Climate Action Plan, Seattle is a recognized leader on environmental issues, showing the world that it's possible to grow economically while shrinking the city's carbon footprint. Road-based transportation creates 40% of Seattle's greenhouse gas emissions, making it the major source of emissions in the city. Due to its importance, Seattle has set a goal of reducing road-based greenhouse gas emissions by 82% from 2008 levels by 2030. In order to meet this goal, Seattle has placed an emphasis on increasing the number of people walking and biking. These improvements will result in mode shift towards non-motorized travel, which will reduce vehicle miles traveled. The reduction in vehicle miles traveled will result in a reduction in hydrocarbons, particulate matter, and carbon dioxide.

Trips that are shorter than 3 miles are easily ridden or those shorter than one-half mile are easily walked if sufficient facilities exist. These shorter trips are also the ones with a high rate of GHG emissions due to the cold starts. The typical bikeshare trip in the US is 1.25 to 1.5 miles. Research indicates that bike sharing alternatives decrease car use considerably. In one recent study of bikeshare systems, 52% of bikeshare users in Minneapolis and 41% in Washington D.C. had decreased their SOV travel since after beginning bikeshare memberships. Reducing the walking distance from the Northgate Link station to the NSC will reduce travel time by 15-20 minutes, increasing transit's time travel savings over SOV trips and decreasing the likelihood people will drive to NSC.

By reducing vehicle trips and encouraging people to walk and bike, this project will significantly reduce harmful emissions. Reductions in congestion and idling time are direct results of bike- and transit-oriented mode shift.

In 2019 these effects will result in about 4,600 pounds fewer emissions of hydrocarbons and a reduction of about 3,200 pounds of nitrous oxide each year. Consistent with Seattle's aggressive greenhouse gas reduction goals, carbon emissions will be reduced by over 1.2 million pounds each year.

### C2. Creates New Opportunities for Environmental Education

The NSC campus includes environmentally-sensitive wetlands, which have inspired a college-wide commitment to sustainability for nearly two decades. The college uses the wetlands as a teaching facility, and in the past five years this work has expanded to include not only environmental education, but also social, cultural, and economic sustainability. The bridge design includes educational and interpretive wayfinding along the bridge and approaches to narrate the important watershed features, natural features and resources of the area. The campus Sustainability Committee has been involved actively in the review of the Northgate bridge project to minimize habitat displacement.

### C3. Sustainable Infrastructure Practices

The City of Seattle and the Seattle Department of Transportation are striving to be leaders in environmental stewardship. SDOT's GreenDOT program is the department's Environmental Management System (EMS) and is our commitment to go beyond basic compliance with environmental rules. We continually work to identify and implement improvements in how we do our work that reduce environmental impact and increase sustainability. The City is a leader in sustainable infrastructure practices, green stormwater infrastructure (GSI) and climate change. This TIGER project will be implemented consistent with these practices. Construction materials will be reused and recycled whenever possible, use of "green" concrete and asphalt materials will be maximized, lighting will be designed for low energy consumption and the design will support enhancement of environmentally sensitive areas.

**The quantifiable benefits of the project include over \$2 million in savings from reduced emissions, as detailed in the Benefit-Cost Analysis.**

## D. STATE OF GOOD REPAIR

*The Northgate Non-motorized Access project will improve state of good repair through:*

- 1. Reduces Heavy Vehicle Mileage by Increasing Non-motorized Travel**
- 2. Furthers Asset Management Best Practices**

### D1. Reduces Heavy Vehicle Mileage by Increasing Non-motorized Travel

Walking and bicycling trips that replace vehicular trips lead to less wear and tear on existing facilities, and reduce the public expense associated with overlays and other routine maintenance. The average person on a bike, roughly estimated at 200 pounds, produces 20 times less stress on roadways than the average driver. A typical motor vehicle weighs in at about 4,000 pounds.

### D2. Furthers Asset Management Best Practices

Bikeshare and Northgate Bike/Pedestrian Bridge stewardship and safeguarding will follow our asset management model. SDOT is a responsible steward for safeguarding the use, condition, safety, security, and financial management of publicly funded capital assets in accordance with stewardship expectations. Our asset management diligence is a key grantee responsibility in Map-21. SDOT stores asset ID and tracking data in our Hansen system and we administer standardized project asset management plans for our transit assets. The plans identify major asset components, useful life, design life, and service life of the infrastructure and assets, inspection and maintenance schedules, and condition assessment evaluation. These asset management plans also layout the processes and standard forms for contractor oversight when a third-party helps operate our capital assets.

The Northgate bridge will be added to 139 other bridges currently managed by SDOT with the rules and guidelines contained in the National Bridge Inspection Standards and further detailed in MAP-21. All of the bridge components will be inventoried into an element level condition assessment and consolidated into our Bridge Manage System (BMS). SDOT is periodically audited by FHWA, FTA, and the Washington State Auditors Office and is currently in compliance with all federal laws and rules associated with asset management.

**The Benefit-Cost Analysis shows that reduced vehicle usage will result in savings of over \$8 million over the life of the project.**

## E. SAFETY AND HEALTHY COMMUNITIES

*The Northgate Non-motorized Access project will improve the safety of and health of Seattle and the Northgate neighborhood through:*

- 1. Safer Pedestrian and Bicycle Networks:** The proposed projects will reduce crashes in an area that has seen 436 crashes and 197 injuries within the last 10 years, generating \$18.5 million in safety benefits over 20 years
- 2. Active Transportation:** Building safe infrastructure and expanding an e-bike bikeshare system to serve people of all ages and abilities will generate \$222 million in health benefits over 20 years

### E1. Safer Pedestrian and Bicycle Network

The Northgate Non-motorized Access project will create safe walking and biking connections and result in mode shifts toward non-motorized travel, which will reduce the number of collisions. More travelers and commuters will choose not to travel in their automobiles. Instead they will walk or bike to their destinations. This will result in reduced loss of life, injuries, and property damage.

Northgate Way between First Avenue NE (just east of I-5) and Meridian Avenue N (west of I-5) is a high collision location. Over the last ten years, 436 crashes have occurred resulting in 197 injuries. Within the Northgate urban center, 2,005 crashes have occurred resulting in 889 injuries and 5 fatalities. This project will provide a new crossing of I-5, allowing people to walk and bike directly between the Northgate Transit Center and North Seattle College and other destinations on the west side of I-5. New protected bicycle lanes will provide safe and attractive travel options for people of all ages and abilities in three locations connecting the bridge, as well as link to regional and neighborhood bike facilities. New sidewalks and walkways will make it easier for residents, employees and people using the Northgate Transit Center and future light rail station to safely and conveniently get to their destination. The project also includes improvements to existing sidewalks and crossing to increase safety.

Bikeshare offers long-term, compounding safety benefits of its own. Research shows there is safety in numbers and that as more individuals bicycle the crash rate drops. Due to the atypical demographic mix of bikeshare users, public perceptions are also changed for the better. Typical bikeshare users include commuters in suits, tourists, children and families, and many other users that don't fit common stereotypes of urban cyclists. Since the launch of bikeshare in the United States in 2008 there have been 23 million bikeshare trips in the United States without a single fatality. Finally, as more people are encouraged to choose

cycling as a transportation mode – even occasionally – more people find themselves consciously or sub-consciously more aware of the safety issues that face cyclists and pedestrians. The city as a whole will benefit from having road users who are more empathetic, cautious, and thoughtful for other travelers regardless of their primary mode or their current mode. Finally, the Pronto Cycle Share system has helmets available at every bikeshare station in the system. This ensures that all riders can comply with King County law.

**The Benefit-Cost Analysis shows over \$18 million in savings from improved safety.**

## E2. Active Transportation

Increasing evidence from experts shows that physical inactivity has become a major public health problem that has expensive economic consequences. The U.S. Centers for Disease Control and Prevention estimated that \$147 billion in added annual health costs could be attributed to obesity. Research shows that increased physical activity due to additional pedestrian and bicycle trips results in significant health benefits. The CDC has also shown that childhood obesity rates go down when more children walk or bike to school.

The 2004 study Cost-Benefit Analysis of Physical Activity Using Bike/Pedestrian Trails quantified the net benefits of money spent on trail development from a health standpoint. The study found that every \$1 investment in trails for physical activity led to \$2.94 in net direct annual medical benefit. Quantifiable benefits of this project include reduction in medical care costs, reduction in lost productivity, and reduction in workers compensation costs. Studies have found that employees who get more exercise by bicycling and walking to work take fewer sick leaves than other employees. In the U.K., it was found that absenteeism costs employers \$478 per day and that employees who are bicyclists take 2.4 sick days per year, compared with 4.5 sick days taken by other employees. In Denmark, one study estimated that cycling saves \$68.7 million in healthcare costs each year. Cities that have launched large bikeshare systems have seen remarkable increases in biking. In Washington D.C, bikeshare officials are providing bikeshare membership to mentally ill patients, not only to help them get around town, but to test a hypothesis that cycling improves both physical and mental health. Washington DC has seen a 150% increase in bicycling commute mode share since the launch of Capital Bikeshare in 2010. Over the same time Seattle’s mode share has remained flat. This package of improvements will increase the amount of biking and enhance the health benefits of non-motorized choices by supporting a walkable and bike friendly urban environment that can help individuals increase their level of physical activity. The project will increase the use of active transportation modes, which will result in reduced healthcare costs, a reduction in lost productivity, and a reduction in workers compensation costs.

**As a result, this TIGER project is expected to result in over \$13 million of safety benefits and \$4 million in health benefits for Seattle’s residents and visitors.**

# Secondary Criteria

## F. INNOVATION

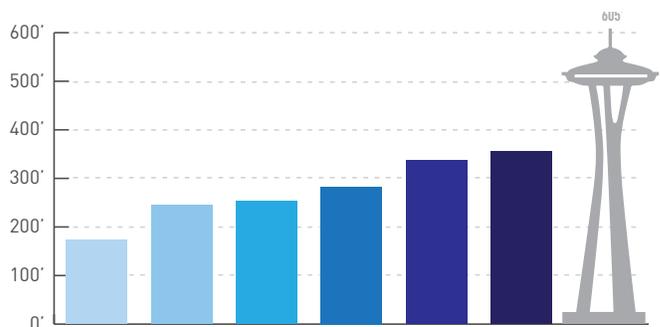
*The Northgate Link Light Rail Station Non-motorized Access project utilizes innovation in solving problems critical to ensuring the project’s success and maximizing its impact through:*

- 1. Electric Drive/Pedal Assist:** Will deploy first large-scale E-bike bikesharing system in North America
- 2. Orca Lift/Student Discounts:** Offer discounted bikeshare memberships to students and low-income residents
- 3. Focus on Equity:** Intentional and intense focus on ensuring bikeshare serves all Seattleites
- 4. Leverage:** Leverage ongoing private investment in Northgate area to have a catalytic effect on growth
- 5. Sustainable Infrastructure Practices:** Build to Seattle’s high standard of environmental stewardship

### F1. Electric Drive/Pedal Assist Technology

Electric drive bikes are becoming increasingly common on City streets. However, no bikesharing system in the United States has launched with an electric drive and at the time of launch Seattle will be the only bikesharing system of significant size (over 100 stations) with electric drives. The City of Seattle is built on hills (Figure 16). The topography affords fantastic views and interesting streets, but it also makes it a more challenging bicycling environment. Seattle’s bike master plan lays out a network of 600 miles of bike facilities to ensure people are safe riding bikes in City. Bike facilities will help people 8 to 80 feel safe on bikes. E-bikes still require people to pedal. They will provide minimal if any assistance on flat ground, but they will provide additional power to help people navigate streets with steep grades.

**The electric bikes will decrease the average travel time of riders by 4.5 minutes or 35%, increasing the catchment area of transit stations and reducing travel times.**



START	FINISH
South Seattle College	West Seattle Junction
NW 65th/24th	Westlake Center
NE 65th/Roosevelt	Westlake Center
Rainier Beach Community Center	Lake Washington Blvd Trail
Pioneer Square	Leschi Park
Madison Park	Westlake Center

## F2. Orca Lift/Student Discounts

Orca Lift is an innovative discount program offered by the King County Metro to individuals with a household income of 200% of the Federal poverty level or less. Qualified individuals are eligible for half of their transit fare. This is particularly important for the immigrant and refugee population in Seattle which has substantially lower household incomes than US born residents (Figure 17). The expanded bikeshare system will utilize the same qualification process and criteria to offer memberships to qualified individuals at a substantial discount of the regular price. In addition, the students enrolled in Seattle colleges and universities will receive membership discounts.

## F3. Focus on Equity

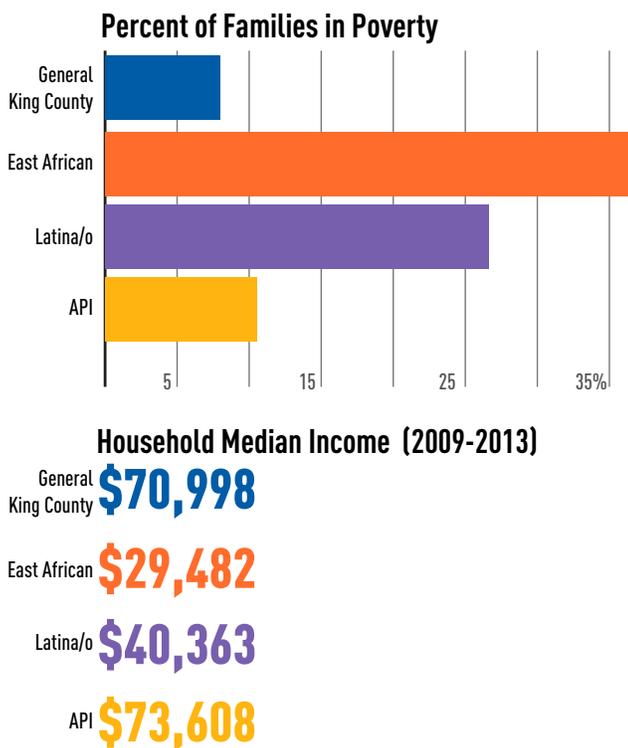
Early bikesharing systems have faced criticism for serving predominately wealthy, white neighborhoods. Seattle’s expanded bikesharing system will have a specific focus on ensuring equitable access to a publicly funded bicycle transit system. This focus on equity from the start is unique and aligned with Seattle’s core values. The proposed service area is 33.8% non-white an exact match to the City as a whole (33.5%). Data from the City’s Department of Immigrant and Refugee Affairs highlights the need to provide reliable, affordable transit services to recent immigrants (19% of the City’s population). Immigrants and refugees are more likely to rely on transit (14% transit mode share than the general population (11.6% transit mode share).

## F4. Leverage

The Northgate area has seen significant public and private investment to help set the stage for transforming it from an auto-oriented to a transit-oriented community that is more livable and sustainable. This TIGER grant leverages these investments, providing the public low-cost, affordable ways to reach them. Transportation improvements have included the Fifth Avenue Northeast Streetscape project, construction of the Third Avenue NE Extension, new sidewalks along NE 100th Street, and the NE Northgate Way and Fifth Avenue NE Intersection and Pedestrian Improvements Project. The package of non-motorized investments proposed will support Sound Transit’s Northgate Link Light Rail extension, which will cost over \$2.1 billion to complete, including over \$145 million of federal funds, and add 62,000 daily boardings (15,000 estimated at Northgate station) to the Link Light Rail system.. Northgate Light Rail Station Non-motorized Access Other public infrastructure improvements in the area include construction of the Northgate Branch Library, Community Center and Park campus, the Hubbard Homestead Park, the Maple Leaf and Licton Springs Community Gardens and the Thornton Creek Water Quality Channel. Expansion of community medical facilities is also occurring at the North Public Health Center. These public investments and the planned light rail station have begun to result in private investments in the area that will accelerate the transition to a more walkable, transit-oriented community. Key projects include the redevelopment of the Northgate Mall (Simon Properties – 116,750 sq. ft. of new retail and an 184,000 sq. ft. joint use parking facility), Thornton Place (Lorig Associates – transit-oriented development with 388 residential units, 144 senior housing units, and 124,870 sq. ft. of commercial uses) and 507 Northgate (Wallace Properties – 163 residential units and 55,000 sq. ft. of retail).

## F5. Sustainable Infrastructure Practices

The City of Seattle and the Seattle Department of Transportation are striving to be leaders in environmental stewardship. SDOT’s GreenDOT program is the department’s Environmental Management System (EMS) and is our commitment to go beyond basic compliance with environmental rules. We continually work to identify and implement improvements in how we do our work that reduce environmental impact and increase sustainability. The City is a leader in sustainable infrastructure practices, green stormwater infrastructure (GSI) and climate change. This TIGER project will be implemented consistent with these practices. Construction materials will be reused and recycled whenever possible, use of “green” concrete and asphalt materials will be maximized, lighting will be designed for low energy consumption and the design will support enhancement of environmentally sensitive areas.



**Figure 17:** % of immigrant and refugee populations in Seattle living in poverty

## G. PARTNERSHIPS

*The Northgate Link Light Rail Station Non-motorized Access project is built on two types of successful partnerships:*

- 1. Jurisdictional/Stakeholder Collaboration:** Builds on a long history of regional planning and partnership
- 2. Neighborhood & Business Support:** The product of partnership with local business and community members

### G1. Jurisdictional / Stakeholder Collaboration and Disciplinary Integration

The Northgate Link Light Rail Station Non-motorized Access project is the result of a strong collaboration among a broad range of government, business, and community participants. The identification of necessary non-motorized access improvements in the Northgate light rail station area is the result of a planning process that began with the designation of the Northgate community as an Urban Center in 1994 and the center's designation as one of the Puget Sound region's 27 regional growth centers. The first comprehensive plan for the center identified the need to enhance the pedestrian and bicycle network within the center, recommending a grade-separated crossing to reconnect the east and west areas of the neighborhood across I-5. In 2003 Seattle embarked on development of the Northgate Coordinated Transportation Investment Plan (CTIP), which was completed in September 2006 and made a priority of providing better pedestrian and bicycle facilities. The stakeholders group expressed its strong support of the development of pedestrian and bicycle crossing over I-5 to link the North Seattle College and the Northgate Link Light Rail station.

These improvements have also been identified as priorities in Seattle's three modal master plans: the Bicycle Master Plan, Pedestrian Master Plan and Transit Master Plan. This TIGER grant request is a direct result of the Northgate Catalyst Demonstration project that was part of the Puget Sound region's Growing Transit Communities (GTC) project, our region's participation in the joint DOT/ HUD/ EPA Sustainable Communities program. GTC funded a broad community engagement effort identifying several priorities for transforming the Northgate employment and residential growth center into a sustainable, transit-oriented community anchored by a major redevelopment of the King County Northgate Transit Center.

Project development has been a joint effort of Seattle, Sound Transit and King County Metro Transit, with Seattle taking on the role for lead agency of these improvements. King County led the initial feasibility study for the pedestrian and bicycle bridge, while Sound Transit led the Non-

motorized Access Study. Non-motorized improvements at the Northgate Link Light Rail station are included in PSRC's award-winning Metropolitan Transportation Plan, Transportation 2040, and in both the Regional and State Transportation Improvement Programs. The Puget Sound region has recognized the significance of these improvements with \$1.3 million of PSRC managed federal funds for the design and environmental processes. The Puget Sound region's Prosperity Partnership has identified Education and Workforce Development and Entrepreneurship and Innovation as two of the region's Economic Foundations in PSRC's Regional Economic Strategy. This TIGER project will support both of these foundations by providing better connections to the NSC.

Pronto Cycle Share formed as a partnership between the City of Seattle, King County Metro, Sound Transit, University of Washington, WSDOT, Seattle Children's Hospital, REI, Microsoft, Cascade Bicycle Club, Puget Sound Regional Council, City of Redmond, and City of Kirkland. In 2012, a business plan was prepared for the partnership with assistance from Alta Planning and Design with funding from a small federal grant. Pronto Cycle Share's non-profit formed in 2012 with the goal of launching bikeshare in the Puget Sound Region.

In 2014, Alaska Airlines, Seattle Children's Hospital, Group Health, and REI provided over \$3.5 million in sponsorships available over the next 5 years to enhance \$750,000 in state funding and \$1,000,000 in federal funds used to launch the system. The City of Seattle has allocated additional local funds to support further expansion of stations and has secured an additional federal grant to improve access for low income populations. Seed money is currently set aside in a proposed state budget for Bellevue, Redmond, and Kirkland (total 276,000 residents and 246,000 jobs) . Passage of the state budget is expected in June 2015 and will allow Pronto to realize its initial vision of providing regional bike sharing service.

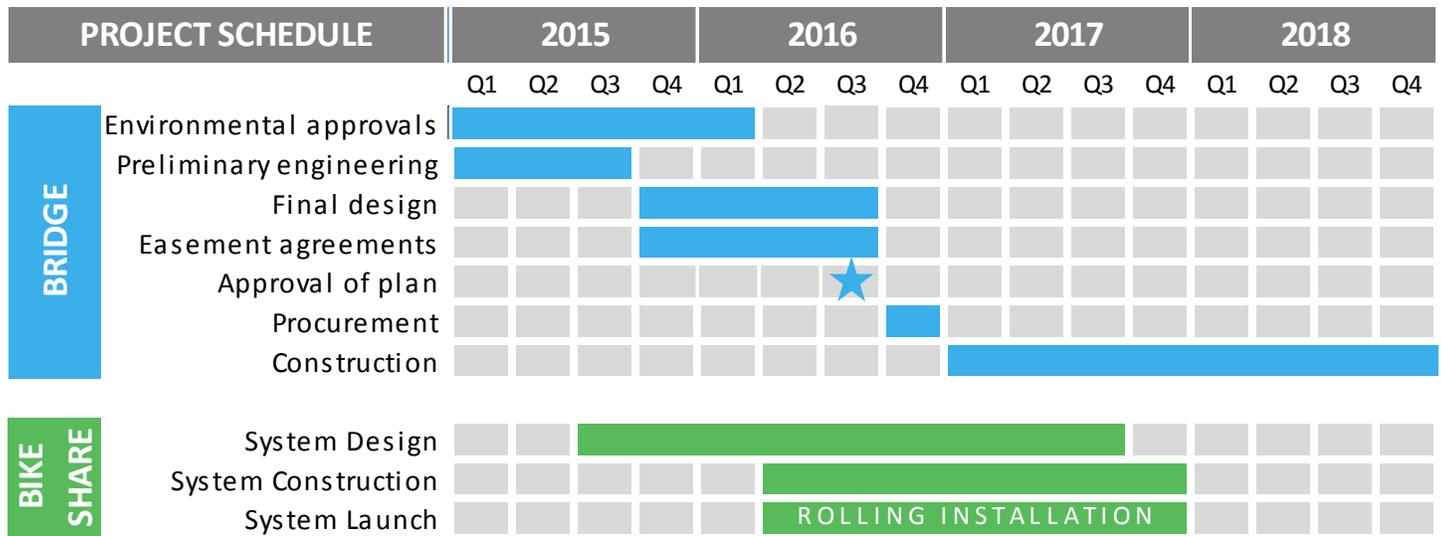
### G1. Neighborhood and Business Support

The Northgate Coordinated Transportation Investment Plan, developed in coordination with the 22 members of the Northgate Stakeholders Group, identifies improvements to the non-motorized transportation network in the community one of its top priorities. As a result of this importance more than 24 elected leaders, business owners and community members have signed letters of support. Pronto has been supported by its private sector sponsors: Alaska Airlines, Seattle Children's Hospital, University of Washington, and REI.

# Project Readiness

All elements of the project are ready to be implemented. The detailed schedule presented includes all project milestones and illustrates the timeliness for completion of the critical elements. All necessary pre-construction activities will be complete to allow for potential grant funding awarded to be obligated no later than June 2016. The project will begin construction rapidly upon receipt of any TIGER grant funds and these funds will be spent steadily and expeditiously once construction starts. No real estate or right-of-way acquisition is required to complete the project. Easement agreements will be secured with our funding partners, the Washington State Department of Transportation and North Seattle College. In addition, there are no significant regulatory or legislative barriers to the project.

**The expanded bikeshare system will launch revenue service in summer 2016 and the Northgate Pedestrian Bridge and surrounding improvements will break ground in 2017.**



## Technical Feasibility

Seattle has the expertise and experience to manage this project and fulfill all federal requirements. SDOT has designed and constructed a number of large capital projects, including the Mercer East and Mercer West projects, funded with TIGER grants. The department manages a large bridge inventory, including many pedestrian and bicycle bridges, and is well versed in bridge design and construction, having completed a number of federally funded bridge projects. Construction over I-5 will require adherence to very restrictive criteria for building above the freeway, which is the main international trade connection between the US, Canada and Mexico. With the lack of construction lay down areas near the project site, it is anticipated that large components of the bridge will be constructed offsite and then brought to their final location. This will all need to be accomplished while maintaining a high level of traffic along the I-5 corridor. One method under consideration is use of a self-propelled modular transporter or self-propelled modular trailer (SPMT). These are a platform vehicle with a large array of wheels. SPMTs are used for transporting massive objects such as large bridge sections and other objects that are too big or heavy for trucks.

Seattle launched a 50 station bikesharing system in 2014. That experience provided valuable lessons to support a much larger system launch. Seattle has staff that have launched systems in Seattle, Boston, Chicago, and Washington DC (1,012 stations total). Through that experience we have learned that launching modular, solar powered bikesharing systems in dense urban environments is achievable in a short period of time. Chicago and New York launched 300 and 330 station each in 2013 in a period of approximately 90 days. E-bikes are becoming increasingly common. Madrid and Copenhagen have launched e-bike bikesharing systems. Birmingham, AL is launching a small electric bikesharing fleet (~150 bikes) using federal funds in 2015.

## Financial Feasibility and Sources of Funds

This \$25 million 2015 TIGER grant request represents the final funding for the Northgate Light Rail Station Non-motorized Access project, allowing Seattle to proceed to construction. It would also accomplish a critical short-term goal of achieving financial solvency for the City's bikeshare program, allowing the necessary market penetration and economies of scale to operate as a viable business enterprise. Future expansions of the bikeshare network are anticipated, and would be funded incrementally from profits on existing stations. Regionally-managed CMAQ and TAP funding has been awarded for planning, design and the environmental phase of the improvements in the Northgate station area, and the TIGER grant will allow completion of these improvements. Seattle anticipates immediate obligation of TIGER funds, advancing components of the project well before USDOT's 2017 deadline. This TIGER grant will leverage \$29.5 million in committed local funding for these improvements from Seattle (\$15.2 million) and Sound Transit (\$10 million), in addition to private contributions (\$3 million) and previously secured federal (\$1.3 million). The City's contributions will come from a combination of street vacation fees and other user fees (\$10.2 million) as well as city revenues (\$5 million).

The TIGER funds requested will have an impact far beyond leveraging the local funding dedicated to the non-motorized access improvements at the Northgate Light Rail Station. They will support Sound Transit's North Link Light Rail extension, which will cost over \$2.1 billion to complete, including over \$145 million of federal funds, and will add 62,000 daily boardings (15,000 estimated at Northgate station) to the Link Light Rail system. This TIGER grant will strengthen the North Link extension and enhance the value of the federal investment in the rail line. Federal support of Seattle's bikeshare operations will also leverage existing and future corporate sponsorships, including prominent Northwest corporations such as Alaska Airlines (current title sponsor) and Children's Hospital.

	Seattle	Sound Transit	Private Funds**	Other Federal Funds	TIGER Funds	Total Cost	Estimated Completion
Northgate Bridge	\$5,000,000	\$5,000,000	\$0	\$600,000	\$15,000,000	\$25,600,000	Fall 2018
Northgate Station Access*	\$5,000,000	\$5,000,000	\$0	\$718,000	\$0	\$10,718,000	2018 to 2021 (phased)
Bike Share System Expansion	\$75,000	\$0	\$0	\$0	\$10,000,000	\$10,075,000	Spring 2018
Bike Share Bicycle Purchase***	\$5,125,000	\$0	\$3,000,000	\$0	\$0	\$8,125,000	Summer 2018
<b>Total</b>	<b>\$15,200,000</b>	<b>\$10,000,000</b>	<b>\$3,000,000</b>	<b>\$1,318,000</b>	<b>\$25,000,000</b>	<b>\$54,518,000</b>	<b>Fall 2018</b>

\*Full project list contained in Appendix E

\*\* In-kind contribution as described in letter of support from Motivate

\*\*\* Bikes will not be purchased with TIGER funds

Seattle is a proven manager of federal grant funds. SDOT has been authorized by WSDOT to serve as a Certified Agency (CA) since 1973, allowing it to develop, advertise, award and manage its own projects. SDOT is the oldest and largest CA in the State of Washington. In this capacity, Seattle has also served as CA for smaller agencies and non-profits, assisting them to deliver projects. As a recipient of two previous TIGER grants, as well as ARRA funding from a number of federal agencies, Seattle knows what is expected and is ready to move forward with this project. The City has put together a citywide accountability and reporting structure overseen by the Mayor of Seattle and City Council to assure the proper use of federal funds.

## Risk Mitigation Plan

Seattle and its partners have identified each of the primary risk factors associated with project delivery based on analyses of similar recent projects, consultation with appropriate federal agencies, and published TIGER guidance. Each component of the project has previously received federal funding, allowing extensive fact-finding and a series of iterative improvements to the City's project delivery plans. From this process, Seattle has identified these primary risk factors and mitigation measures.

**NEPA Approval:** NEPA completion for Northgate improvements is expected in the third quarter of 2016. NEPA reviews for bikeshare stations will take place in 2015 and 2016. Based on previous experience in siting bikeshare stations, a categorical exclusion is expected for most or all of the stations.

**Bikeshare Operating Plan:** Concurrent with the submittal of this funding request, Seattle is working to contract directly with the operator of bikeshare as opposed to having a third party non-profit contract with the operator. This proposed business model is consistent with that of successful systems in large cities across the country. The specific terms of this agreement are under negotiation.

### **Cost Escalations or Unanticipated Expenses:**

The bridge component of the project, and other elements of the Northgate ped-bike network, have been estimated with a 30% design contingency and a 2% annual cost escalation, as well as a 20% contingency on construction management soft costs, to minimize the risk of cost overruns.

Electric bike share systems are a new technology. Seattle is prepared to be in the first wave worldwide of implementing large-scale electric bike share systems. Numerous electric bike share systems are in various development stages with plans to do large scale rollouts in 2016. Costs and production timelines are therefore based on estimated costs provided by manufacturers. Our modelling provided for a reasonable range of uncertainty. The 250 station bike share system size proposed is based on a conservative cost estimate that includes the following assumptions:

1. Low-middle of cost range for bike share equipment
2. Full TIGER award
3. Existing equipment is not consistent with the electric bike system and therefore must be replaced

System size is scalable and actual number of stations will be adjusted according to final equipment acquisition price, amount of TIGER award, and equipment compatibility. In the best case scenario, i.e. the scenario with least expensive equipment and a full TIGER award, the City will purchase, install and operate up to 280 new stations. Regardless of price, with a full TIGER award, the City can guarantee purchase, installation, and operation of a minimum of 200 new stations. Stations will be installed and made operational on a rolling schedule, starting in 2016 with completion in 2017. It is the City's intent to continue to grow the system to 400+ stations in future phases.

To help ensure that the TIGER-funded project can be delivered according to the schedule and budget, Seattle is closely watching the progress of manufacturers. The City will be positioned to select based on reliability, price, quality, and ability to meet deadlines.

**Procurement Delays and Project Synchronization:** Seattle has worked with consultants specializing in bridge projects to review itemized lists of the materials needed for bridge construction. In these reviews, no materials with potentially long lead times have been identified. Bikeshare stations and equipment are essentially off-the-shelf components. Seattle is working closely with project partners including Sound Transit, King County Metro, and WSDOT to ensure that utilization of the bikeshare stations and the bridge will be able to occur when these facilities are constructed, regardless of on-going construction that may occur on other elements of the project. Marked pedestrian pathways

are provided on all construction projects with the city, per Seattle Department of Transportation policies. Per schedule, the TIGER-funded bikeshare system would reach ground-breaking in the summer of 2016 and the bridge would be opened to public use in mid-2018.

**Real Estate Acquisition:** The property rights necessary to construct the bridge will be donated from WSDOT and NSC. Both agencies are proactive project partners. Negotiations for these property rights are in progress. No additional property rights are anticipated for bikeshare stations, as these facilities will be placed within the existing right-of-way.

### **Environmental Approvals**

Early coordination with WSDOT and FHWA indicates that this project would qualify for a Documented Categorical Exclusion (DCE) under the NEPA. Technical reports are being prepared for each area of the environment that the project could potentially impact. In-field surveys (e.g., for wetlands, geotechnical, cultural resources, aesthetics, etc.) as well as thorough background and literature searches are aiding in the alternatives analysis and design of the pedestrian bridge. Once a preferred alternative is identified, the project team will complete the impact analysis portion of each technical report, which will then be incorporated into the NEPA DCE. A draft DCE is anticipated to be submitted to WSDOT in the third quarter of 2015, with final approval in the first quarter of 2016.

### **Legislative Approvals**

Both the Seattle City Council and Sound Transit Board have taken legislative action committing to this project and its funding. On June 25, 2012, the Seattle City Council passed Resolution 31389 agreeing to commit \$10 million for improvements in non-motorized access in the Northgate light rail station area. On June 28, 2012, Sound Transit adopted Motion M2012-42 authorizing provision of \$10 million for non-motorized access improvements in the Northgate light rail station area. Sound Transit updated this agreement in 2015, extending the life of the original agreement and ensuring the availability of their \$10 million contribution. \$5.2 million in street use fees collected in 2014 and prior will be approved for use as part of the City's 2016 budget.

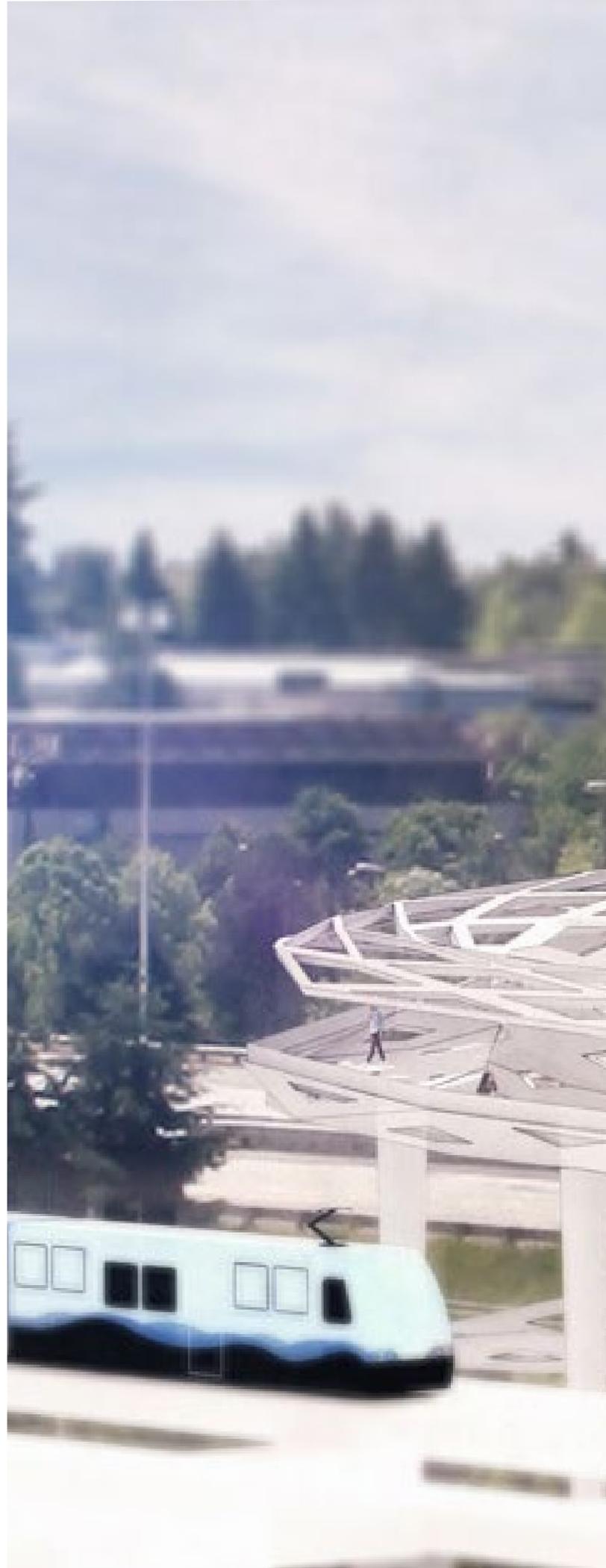
## Local, Regional, and State Planning Approvals

The Northgate Light Rail Station Non-motorized Access project is included in the regional Metropolitan Transportation Plan (MTP), Transportation 2040, and has also been included in both the State and Regional Transportation Improvement Program (TIP). The project is a result of the region's HUD Sustainable Communities Initiative partnership, PSRC's Growing Transit Communities. These improvements are also included in a number of city planning documents, including Seattle's Bicycle, Pedestrian and Transit Master Plans, as well as the local transportation plan for the Northgate regional growth center, the Northgate Coordinated Transportation Improvement Plan.

A number of Seattle's long-range plans call out the need for this project and the Northgate community has consistently prioritized bicycle and pedestrian improvements. Support has continued to be very strong during stakeholder involvement for the Northgate Catalyst project within PSRC's Growing Transit Communities effort. The Northgate pedestrian and bicycle bridge is also identified within the PSRC's Regional Bike Network as a key connection.

Additionally, bikeshare services have been identified as a citywide and regional priority by a coalition of agencies including King County, Seattle, and several rapidly-growing cities within the urban area. Seattle and PSRC have worked for several years to bring the bikeshare program to this region. A partnership of regional agencies, local agencies, and other stakeholders formed in 2011 to develop a plan for bikeshare and identified key objectives:

- Develop a regional bikeshare system that allows multiple jurisdictions to participate and provides a consistent user experience and single pricing structure.
- Provide a new mobility option for the region that extends the reach of public transit.
- Increase the opportunity for residents and visitors to take part in healthy physical activity.
- Reduce carbon emissions from the transportation sector.



## Equity Program Articles

**Boston:** [http://www.slate.com/blogs/moneybox/2014/04/09/prescribe\\_a\\_bike\\_boston\\_medical\\_center\\_has\\_a\\_new\\_prescription\\_to\\_fight\\_obesity.html](http://www.slate.com/blogs/moneybox/2014/04/09/prescribe_a_bike_boston_medical_center_has_a_new_prescription_to_fight_obesity.html)

**Chicago I:** <http://chi.streetsblog.org/2013/08/20/600-youth-bike-apprenticeships-help-spread-benefits-of-divvy-citywide/>

**Chicago II:** [http://articles.chicagotribune.com/2014-03-28/business/ct-employment-skills-0328-biz-2-20140328\\_1\\_divvy-alta-bicycle-share-inc-seasonal-workers](http://articles.chicagotribune.com/2014-03-28/business/ct-employment-skills-0328-biz-2-20140328_1_divvy-alta-bicycle-share-inc-seasonal-workers)

**Minneapolis:** <http://www.startribune.com/nice-ride-launches-neighborhood-program-in-east-side-frog-town-and-north-mpls/268631692/>

**Philadelphia:** <https://nextcity.org/daily/entry/philadelphia-bike-share-start-latecomer-lessons>

**Washington DC:** <http://www.wjla.com/articles/2012/03/capital-bikeshare-launches-homeless-bike-sharing-program-74105.html>

## Technical Appendices

A. Benefit-Cost Analysis Executive Summary  
- Benefit-Cost Analysis Data Tables

B. Wage Rate Certification

C. Project Performance Evaluation

D. Funding Commitments

E. Northgate Station Area Improvements

F. Changes from Pre-application

G. Letters of Support

H. Planning Documents



Model of Northgate Bridge over I-5 connecting to Link Light Rail

# Northgate Non-Motorized Access to Transit and Education

**Ed Murray**

Mayor

**Scott Kubly**

SDOT Director

## Contact:

Jim Storment

PO Box 34966

Seattle, WA 98124-4996

[jim.storment@seattle.gov](mailto:jim.storment@seattle.gov)

206-684-5013

## Letters of Support

- Seattle Mayor and City Council
- Sound Transit
- North Seattle College
- Motivate
- U.S. Senator Maria Cantwell
- King County Council
- King County Executive Dow Constantine
- King County Department of Transportation
- Puget Sound Regional Council
- Washington State Department of Transportation
- University of Washington
- Congressman Jim McDermott, Washington State
- Washington State 46th Legislative District Representatives
- Downtown Seattle Association
- Seattle Pedestrian Advisory Board
- Seattle Bicycle Advisory Board
- Microsoft Corporation
- Seattle Parks Foundation
- Cascade Bicycle Club
- Bike Works
- Washington Bikes
- Feet First
- City of Redmond
- City of Kirkland
- Lake City Neighborhood Alliance

Go to:

[http://www.seattle.gov/transportation/northgate\\_tiger2.htm](http://www.seattle.gov/transportation/northgate_tiger2.htm) to download copies of all materials, including letters of support and relevant planning documents



## APPENDIX A

### Benefit – Cost Analysis Summary and Technical Documentation

#### EXECUTIVE SUMMARY

A Benefit-Cost Analysis was conducted to quantify impacts of the Northgate Non-Motorized Access to Transit and Education project. Benefits and costs are calculated and presented throughout this document for the completed project referred to as “Northgate Non-Motorized Access to Transit and Education” as well as for the project’s two components.

1. Northgate pedestrian bridge, protected bicycle facilities, and associated improvements, referred to as “Bridge Construction”
2. Bikeshare Expansion, referred to as “Bikeshare Expansion”.

The total Northgate Non-Motorized Access to Transit and Education project produces the following benefits:

- *Benefit: Cost* – **Total benefit to cost ratio is 3.1**
- *Monetized Benefits* – **Monetized benefits exceed \$393 million over the life of the project<sup>1</sup>**
- *Net Benefits* - Benefits net of costs exceed \$265 million
- *Mode Shift* - The primary source of benefits is the shifting of trips from motorized trips to walking and biking
- *Categories* - The mode-shift creates the following categories of benefits:
  - reduced emissions
  - fewer vehicle accidents
  - reduced health costs
  - decreased travel costs and
  - other factors detailed in this document.

The results of the Benefit-Cost analysis are shown in **Table 1**. Total monetized economic benefits are shown in **Table 2**.

---

<sup>1</sup> Benefits are in present value (discounted at 3% in 2015 year dollars).

NORTHGATE NON-MOTORIZED ACCESS TO TRANSIT AND EDUCATION

<b>Table 1 — Summary of Benefit-Cost Analysis Results</b>	
<b>Discounted Benefits</b>	<b>Total</b>
Health Savings	222,721,879
Emissions Reduction	2,421,933
Vehicle Crash Reduction	18,457,506
Maintenance Savings	8,645,958
Congestion Reduction Savings	6,341,912
Travel Cost Savings	103,049,370
Travel Time Reduction Savings	31,696,131
Reduced Traffic Congestion Costs	6,189,358
<b>Total Benefits \$</b>	<b>393,334,689</b>
<b>Discounted Costs</b>	<b>Total</b>
Capital \$	48,485,665
Maintenance & Operation \$	79,501,397
<b>Total Benefits \$</b>	<b>127,987,062</b>
<b>BCA Ratio</b>	<b>3.07</b>
<b>Net Discounted Benefits - Costs \$</b>	<b>265,347,627</b>

<b>Table 2 — Long Term Outcomes (Present Value)</b>			
		<b>3% Discount Rate</b>	<b>7% Discount Rate</b>
<b>Quality of Life (Livability)</b>			
Household Travel Savings	\$	103,049,370	\$ 59,699,711
Travel Time Savings	\$	31,696,131	\$ 13,154,612
Improved Health Benefits	\$	222,721,879	\$ 146,295,691
<b>Environmental Sustainability</b>			
Reduced Emissions	\$	2,421,933	\$ 997,785
<b>Economic Competitiveness</b>			
Reduced Traffic Congestion Costs	\$	6,341,912	\$ 2,757,103
<b>Safety</b>			
Reductions in Collision Savings	\$	18,457,506	\$ 8,024,490
<b>State of Good Repair</b>			
Reduction in Road Maintenance Costs	\$	8,645,958	\$ 3,758,078

## NORTHGATE NON-MOTORIZED ACCESS TO TRANSIT AND EDUCATION

Benefits for the two project components are shown below.

### Bridge Construction

- **Benefit: Cost – Benefit to cost ratio is 2.4**
- **Monetized Benefits – Benefits total \$85 million over the life of the project<sup>2</sup>**
- **Net Benefits** - Benefits net of costs exceed \$50 million
- **Mode Shift** - The primary source of benefits is the shifting of trips to work, school and errands out of motor vehicles and into walking and biking
- **Categories** - The mode-shift creates the following categories of benefits:
  - decreased travel cost
  - reduced travel time
  - fewer emissions
  - decreased traffic congestion
  - reduced vehicle crashes
  - reduced road maintenance
  - decreased health costs

### Bikeshare Expansion

- **Benefit:Cost - Benefit to cost ratio is 3.3**
- **Monetized Benefits - Benefits total \$307 million over the life of the project<sup>3</sup>**
- **Net Benefits** – Benefits net of costs total \$214 million
- **Mode Shift** - The primary source of benefits is the shifting of trips to bikeshare from other vehicular modes.
- **Categories** - The mode-shift creates the following categories of benefits
  - decreased travel cost
  - reduced travel time
  - fewer emissions
  - decreased traffic congestion
  - reduced vehicle crashes
  - reduced road maintenance
  - decreased health costs

**Table 2A** displays the benefits and costs of the project.

<b>Table 2A- Northgate Non-Motorized Access to Transit and Education Present Value (2015 \$'s, 3% Discount Rate)</b>	
<b>Benefits</b>	
<b>Total Benefits</b>	<b>\$393,334,689</b>
Bridge Construction	\$85,638,000
Bikeshare Expansion	\$307,696,689
<b>Costs</b>	
<b>Total Costs</b>	<b>\$127,987,062</b>
Bridge Construction	\$35,014,000
Bikeshare Expansion	\$92,973,062

<sup>2</sup> Benefits are in (75 years) in present value (discounted at 3% in 2015 year dollars).

<sup>3</sup> Benefits over the life of the project (20 years) in present value (discounted at 3% in 2015 year dollars).

## BENEFITS

### Monetized Benefits

The Northgate Non-Motorized Access to Transit and Education project provides a wide range of benefits that can be monetized. The project provides significant health benefits by increased physical activity, reduced household transportation costs and travel time savings, reduced traffic congestion, improved safety, reduced road maintenance costs, and reduced vehicle emissions. Monetized benefits have been evaluated on the basis of aggregate mode shift to walking and bicycling modes facilitated by the project implementation.

Monetized benefits resulting from this shift have been estimated in the following categories:

- Reduced cost of vehicle emissions
- Reduced external costs of vehicle travel
  - Traffic congestion
  - Traffic crashes
  - Roadway maintenance
- Reduced healthcare costs
  - Reduction in medical care costs
  - Reduction in lost productivity
  - Reduction in workers compensation costs
- Travel time savings
- Reduced household transportation spending

Discount rates are applied specific to each project component as follows:

#### Bridge Construction

- 3% and 7% annual real rate
- 20 year evaluation period
- three years for project construction (2016-2018)
- 20 years of project benefits (2019-2038)
- Remaining net benefits of the fully-maintained facilities over their full 75 year asset life is claimed as a lump sum at the end of the analysis period in 2038.

#### Bikeshare Expansion

- 3% and 7% annual real rate
- 20 year evaluation period
- one and a half years for project construction (2016-2017)
- 20 years of project benefits (2017-2036).
- No benefit was calculated after the 20 year project lifespan as significant reinvestment (approaching initial investment) would be necessary at that date.

## Qualitative Benefits

The project will also result in numerous qualitative benefits – not monetized for the benefit-cost analysis (BCA) – that will improve the quality of life and economic competitiveness of the region.

The additional qualitative benefits not monetized in the BCA are as follows for each project component:

### Bridge Construction

- improved access to parks and open space
- improved access for disadvantaged communities
- improved access to job centers and employment services and
- improved connection of neighborhoods with retail businesses

### Bike Share Expansion

- increased property values associated with access to new services
- improved access for disadvantaged communities currently underserved by public transit
- improved access to job centers and employment services and the accompanying increase in economic efficiency
- improved access to parks and open space
- increased trip distance due to introduction of electric bikes

Specific to bike share, it is important to note that the BCA does not monetize any increase in trip distance or trip number due to the introduction of electric bicycles. As the first large scale electric bike share system in the country, no precedent exists to show a change in travel behavior with electric bikes. However, new research coming out of the Institute of Transport Economics finds that people travel more often and farther on personal electric bicycles. Trip distance more than doubled, going from 4.8 to 10.3 kilometers per trip. Daily trips likewise increased from .9 to 1.4 trips per day.

Had the trip length been doubled to 4.2 instead of 2.1 miles in our BCA, consistent with the results of the study from the Institute for Transport Economics the overall BCA ratio would increase to 3.77 from 3.68 and net benefits would increase from \$238,561,655 to \$246,582,942.

## PROJECT COSTS

Costs are as follows:

- Total actual project construction costs: \$54.5M
  - Bridge Construction, construction: \$36.3M
  - Bikeshare Expansion, equipment and construction \$18.2M
- Total project annual operations and maintenance cost: \$5.4M
  - Bridge, operations and maintenance: \$29,000
  - Bikeshare Expansion, operations and maintenance: \$5.4M

Bridge construction costs were prepared by KPFF Consulting Engineers in 2014. Bikeshare costs were estimated by the Seattle Department of Transportation based on the experience of other cities.

## METHODOLOGY

To ensure a seamless benefit-cost analysis, the two project components, Bridge Construction and Bikeshare Expansion, use similar methods and categories for analysis. The Northgate Non-Motorized Access to Transit and Education BCA expands on the methodology suggested by National Cooperative Highway Research Program (NCHRP) Report 552: *Guidelines for Analysis of Investments in Bicycle Facilities* by incorporating local demographic information and utilizing new data and research that has become available since the *Guidelines for Analysis* were published in 2006.

One notable enhancement is the consideration of benefits from both bicycling and walking activity, using different impact areas for each mode. By comparison, NCHRP methodology attempts to measure only bicycling benefits, and does not quantify pedestrian benefits for shared-use paths. Another key improvement is the estimate of utilitarian (non-commute) and access to transit in addition to work commute trips. This addition helps capture the full range of walking and bicycling activity in the project area. The benefit-cost analysis also considers local travel patterns, trip distances and public health data to create a detailed, complete picture of benefits generated by the proposed bicycle and pedestrian facilities.

A major advantage of this benefit-cost analysis approach is the ability to quantify benefits at a line-item level for each distinct type of benefit associated with the project. This allows benefits to be quantified and compared for each TIGER grant selection criterion. This also means the benefit-cost analysis omits calculation of recreational benefits of the project from the analysis, so that it can be evaluated solely on its merits as a transportation facility in accordance with TIGER grant selection guidelines. By contrast, the standard NCRHP benefit-cost analysis includes recreational benefits that often make up 90% of the calculated value of bicycle projects, due to savings from newly active people. These methodology improvements should be considered when comparing benefit-cost analysis results for this project with other TIGER grant applications.

## TECHNICAL DOCUMENTATION

### BASELINE DATA INPUTS – BRIDGE CONSTRUCTION

#### Demographics

The benefit-cost analysis related to the Bridge Construction considers several population groups within two project impact areas: a half-mile buffer area for walking impacts and a three-mile buffer area for bicycling impacts. These geographies are standard areas of influence used by bicycle and pedestrian planning professionals and were recently acknowledged by the Federal Transit Administration in the *Final Policy Statement on the Eligibility of Pedestrian and Bicycle Improvements Under Federal Transit Law* that went into effect August 19, 2011. Population groups within these areas were quantified using the following sources:

#### **Employed Populations**

**BCA input:** Employed population

**Source:**

*2008-2012 American Community Survey (ACS) 5-Year Estimates*, U.S. Census Bureau. *TCRP Report 153: Guidelines for Providing Access to Public Transit Stations, 2012*, Transit Cooperative Research Program. "Average station access mode share by station type"

**Method:** The number of employed people within the walking and bicycling impact areas was captured at a census block group level for block groups with their geographic center located within a half-mile or three mile buffer of proposed projects, respectively. This population is used in conjunction with Journey to Work mode split data. A portion of the employed population that journey to work via transit were also assumed to access trips via cycling and walking. The assumed station type used was Urban Neighborhood with Parking.

#### **Student Populations**

**BCA input:** College student population

**Source:** *2008-2012 American Community Survey (ACS) 5-Year Estimates*, U.S. Census Bureau.

**Method:** The populations of college-enrolled students living within the walking and bicycling impact area were captured for Census Block Groups with their geographic center located within the project impact areas. The data represent the most recent demographic estimates available for the area.

#### Travel Patterns – Mode Share

Baseline mode share data was collected for driving, bicycling and walking activity among the different demographic groups listed above. The following data sources were used to estimate mode split for each group:

#### **Employed Populations**

**BCA input:** Mode split of employed population (Journey to Work)

**Source:** *2008-2012 American Community Survey (ACS) 5-Year Estimates*, U.S. Census Bureau.

#### **Student Populations**

**BCA input:** Mode split of college students

**Source:** *Data Extraction Tool*, 2009 National Household Travel Survey (NHTS)<sup>4</sup>

**Method:** College student mode shares were based on travel survey data from the 2009 National Household Transportation Survey. National numbers were used in lieu of local college estimates, which aggregate bicycle and walking trips.

---

<sup>4</sup> <http://nhts.ornl.gov/det/Extraction3.aspx>

**Travel Patterns – Trip Length and Purpose**

Area residents will use the bicycle and pedestrian transportation facilities for more than just work commute trips. To capture the full range of walking and bicycling activity, an estimated number of trips of other purposes were extrapolated from work trips based on data from the 2009 National Household Travel Survey (NHTS).<sup>5</sup> NHTS shows that for every work trip Americans make by bicycle, they also make an average of 1.61 utilitarian (non-commute) trips by bicycle. For walking, this ratio is 4.32.

To accurately estimate the relative benefits resulting from each type of bicycling and walking trip, each trip was weighted according to the average distance for a trip of that mode and purpose. Trip distance multipliers were also provided by NHTS Average trip distances were assigned as follows:

- Bicycling trips:
  - Work commute trips: 3.54 miles
  - College commute trips: 2.09 miles
  - Utilitarian trips: 1.89 miles
- Walking trips:
  - Work commute trips: 0.67 miles
  - College commute trips: 0.56 miles
  - Utilitarian trips: 0.67 miles

**Travel Patterns – New Trips Utilizing Bridge Construction**

Trip generation was calculated as above for the walking and bicycling catchment areas on both the east and west sides of the bridge. Using the trip purpose and mode, a proportion of trips were distributed over the bridge, as given in **Table 3**. Few commute trips were assumed to cross the bridge, while a larger number of trips to access transit, particularly by walking, are assumed to cross when the bridge opens. The largest group assumed to cross the bridge are college trips, both walking and bicycling, generating from the east side of the bridge. This distribution is expected to increase, and a 1% growth rate was applied from the bridge opening in 2019.

Table 3 — Bridge Construction New Trip Distribution				
	West		East	
	Bicycling	Walking	Bicycling	Walking
Weekday commute trips				
Bicycling/walking trips	2.00%	1.00%	2.00%	1.00%
Walk- or bike-to-transit trips	1.50%	5.00%	1.00%	3.00%
College bicycle/walking trips	0.00%	5.00%	30.00%	30.00%
Daily utilitarian trips	2.00%	1.00%	2.00%	1.00%

<sup>5</sup> <http://nhts.ornl.gov/tables09/Login.aspx?ReturnUrl=/tables09/ae/TableDesigner.aspx>

**BASELINE DATA INPUTS – BIKE SHARE EXPANSION**

**Demographics**

The Bikeshare Expansion benefit-cost analysis considers population within a designated service area and determines an expected number of bikeshare users and trips/year based on demographic indicators.

**BCA Input: Trips**

**Source:** A linear model was created to estimate the total number of annual trips based on data from seven bikeshare systems:

1. Hubway – Boston, MA; Brookline, MA; Cambridge, MA; Somerville, MA
2. Nice Ride MN – Minneapolis, MN; St. Paul, MN
3. Capital Bikeshare – Washington, DC; Montgomery County, MD; Alexandria, VA; Arlington County, VA
4. Denver B-cycle – Denver, CO
5. Divvy – Chicago, IL
6. CoGo – Columbus, OH
7. Bikeshare Toronto – Toronto, ON

The independent variables for the linear regression are the population of the bikeshare service area and the number of jobs in the bikeshare service area. The bikeshare service area is defined as the land area that is within a quarter-mile from each peripheral station in the system. The service area does not need to be contiguous. The dependent variable for the regression is trips per month, which was calculated from total annual trips and normalized to the number of operating months the system has. The data sources for the ridership model are listed in **Table 4**.

<b>Table 4 — Sources for Ridership Model</b>			
	<b>Population of the service area</b>	<b>Jobs in the service area</b>	<b>Trips per month</b>
Hubway	U.S. Census Bureau, 2009-2013 5-Year American Community Survey, Table B01003, Block Group level data.	U.S. Census Bureau, American Community Survey 2006-2010 Five-year estimates. Special Tabulation: Census Transportation Planning, Table A202100.*	North American Bikeshare Association, International Bike-Share Database, 2015. Data is self-reported.
Nice Ride MN			
Capital Bikeshare			
Denver B-cycle			
Divvy			
CoGO			
Bikeshare Toronto	Statistics Canada, 2011 National Household Survey	Toronto Employment Survey, 2011, Table 4, <a href="http://www1.toronto.ca/city_of_toronto/city_planning/sipa/files/pdf/survey2011.pdf">http://www1.toronto.ca/city_of_toronto/city_planning/sipa/files/pdf/survey2011.pdf</a>	

**BCA Input:** Unique bikeshare users (annual members & casual users)

**Source:** It was assumed that Seattle would have a similar ratio of casual user trips to member trips as Boston and Washington, DC, both of which are 0.28. This ratio was provided directly by Hubway and Capital Bikeshare. Boston and Washington, DC were chosen because of they are the most similar cities to Seattle for which data was available. The ridership model was used to calculate total trips per month for Seattle. This was then converted to casual user trips per month and annual member trips per month using the 0.28 ratio. This was then converted to unique users by assuming that casual members take 2.2 trips/month and annual members take 7 trips/month, based on 2-years of Capital Bikeshare ridership data that was compiled in Chicago DOT's successful TIGER Grant application from 2011. It was assumed that every casual pass sold was a unique user.

### **Travel Patterns – Mode Shift, Split, and Speed**

**BCA Input:** Alternative mode split of bikeshare trips

**Source:** Survey data from Capital Bikeshare (Washington D.C.) and Hubway (Boston), asking bikeshare users what mode they would use for their trip if bikeshare did not exist.

In order to calculate travel time savings the BCA needs average travel speed for each mode of transportation used in Seattle.

**BCA Inputs:** Average travel speed: Walk, Personal Bike, Electric Bike, Bus & Streetcar, Light Rail, Carsharing, Taxi, Personal Car

**Sources:**

Bike & E-Bike - Cherry, Christopher. "Electric Bike Use in China and Their Impacts on the Environment, Safety, Mobility and Accessibility." April 1, 2007. Accessed May 21, 2015. Pg. 13

Bus & Streetcar - 2013 King County Metro Bus, Trolleybus, DART, Streetcar (Revenue Miles/Revenue Hours) <http://metro.kingcounty.gov/am/reports/annual-measures/service-provided.html>

Light Rail - <http://seattletransitblog.com/2009/12/30/link-light-rail-in-the-north-american-context/>  
Personal Car, Taxi and Carsharing – Assumption based on Google Maps direction data compiled here for many US cities: <http://infinitemonkeycorps.net/projects/cityspeed/>

### **Travel Patterns – Trip Length**

The Bikeshare Expansion will provide both standard bicycles and electric bicycles (e-bikes) for rent. These distinct modes have different usage characteristics and therefore, different average trip lengths.

**BCA Inputs: Average Trip Length**

**Source:** Average trip length was calculated as the average of three peer cities for which data was available: Minneapolis, Boston, and Denver.

*Note:* E-Bike and Conventional Bike trip lengths are identical in the BCA as reliable research was not available on the subject. However, reliable research shows that average travel speed of E-bikes is significantly higher. This suggests that the average trip length for an E-bike would be longer. This effect was not quantified in the BCA but a longer E-bike trip length would increase the magnitude of benefits for emissions reduction, crash reduction, maintenance reduction, congestion reduction, travel cost savings, and travel time savings.

## FORECASTS AND ASSUMPTIONS

### Demographics

#### Bridge Construction

Future estimates were created by using linear growth rates to match Puget Sound Regional Council (PSRC) 2040 population and demographic forecasts by the 934 zone TAZ for the bicycling and walking impact areas. These growth rates were used to create annual estimates for each year evaluation period ending in 2038 through linear extrapolation between the base year (2012) and forecast year (2040).

#### Bikeshare Expansion

Service area population: U.S. Census Bureau, 2009-2013 5-Year American Community Survey, Table B01003, Block Group level data.

### Travel Patterns

#### Bridge Construction

The Bridge Construction will have a strong influence on travel patterns in the bicycling and walking impact areas. Bicycling and walking mode shift curves were forecasted for each population group.

#### Employed Population

Mode shift forecasts for work commute trips within the bicycling and walking impact areas was based on mode shares documented by ACS Journey to Work data for other west coast communities that have made comparable investments in bicycling and walking transportation. According to the 2014 Alliance for Biking & Walking *2014 Benchmarking Report* Seattle has the fourth highest bicycling and walking commute levels of large US cities. A future mode share of 10% for cycling commute trips and 4% for walking trips were selected to reflect the changing land use and mode shift goals and targets observed elsewhere. Bicycle access to mode share was assumed to increase over time to levels consistent access mode share seen in other west coast cities as reported in the BART Bicycle Plan: Modeling Access to Transit, 2010, Bay Regional Transit Authority.

#### College Population

For college students, bicycling and walking growth rates were scaled to match the forecast growth rates for work commute trips.

#### Bikeshare Expansion

The Bikeshare Expansion will have a significant impact on travel behavior in the project area. Mode shift towards biking and away from other modes was projected using survey data from bikeshare users in Washington D.C. and Boston. Mode shift was calculated as fixed percentages applied to a growing ridership base. In other words, the mode share of the bikeshare system was not projected to grow more than is observed in more mature systems throughout the country.

### Estimating Change From Baseline

#### Bridge Construction

For each year in the benefit-cost analysis period, forecasted mode shift was multiplied by demographic data to estimate increases over baseline for the following figures for both bicycling and walking modes:

- Work commute bicycling/walking users and number of trips, access to transit trips for work purposes
- College commute bicycling/walking users and number of trips

## NORTHGATE NON-MOTORIZED ACCESS TO TRANSIT AND EDUCATION

- Number of utilitarian (non-commute) bicycling/walking trips, based on NHTS trip purpose ratios from number of work and college bicycling/walking users

Trip distances are estimated according to the transportation mode and purpose of the trip from NHTS 2009 data. Each new bicycling and walking trip was assumed to have a chance to replace a trip of any other mode equal to the baseline mode split for that trip type, with bicycling or walking removed from the total mode split. For example, if baseline drive alone mode share was 80% for college trips, with baseline bicycling mode share at 5%, a trip shifted to bicycling was assumed to have a 80% of out 95% chance (100% mode split – 5% bicycling, removed) of replacing a drive alone trip, or about 84.2%. These assumptions allow estimates for the following figures:

- Reduced vehicle trips
- Reduced VMT

The number of bicycling/walking users and VMT reduced were used in conjunction with benefit multipliers to monetize the benefits of the forecasted mode shift by year.

### Bikeshare Expansion

The benefits of the Bikeshare Expansion were quantified in two main ways, using VMT reduction and Trips Diverted from each existing mode.

#### **VMT Methodology-**

- For each year, *bikeshare trips* are multiplied by *percentage of trips diverted* from modes that contribute to VMT (Personal Car, Taxi, & Carsharing) and by *average trip length*. This results in a VMT reduction per year.
- VMT reduction per year is then multiplied by benefit multipliers for **Emissions, Crash Reduction, Maintenance Savings, and Congestion Reduction** to produce dollar effects for each benefit.

#### **Trips Diverted Methodology-**

- *Alternative mode split percentages* (what mode would a bikeshare user have used for a given trip if bikeshare facilities did not exist) are multiplied by *total bikeshare trips* (minus a small percentage of trips caused by induced demand) to produce *trips diverted* from each alternative mode.
- **Household Travel Cost Savings** are calculated by multiplying *the number of trips diverted* per mode by their respective *cost per trip* benefit multiplier.
- **Travel Time Savings** are calculated by multiplying trips diverted per mode by (bikeshare travel time minus the travel time of a given mode). This travel time savings per mode is then multiplied by the value of *travel time benefit multiplier*
- **Health Savings** are calculated using *trips diverted* and *unique users*. Unique users are divided into annual members and casual users, each have slightly different methodologies.
  - Annual users – the number of *annual members* is multiplied by the *mode shift percentage from inactive modes* (Bus, Rail, Carsharing, Taxi, and Personal Car) and by the overall *percentage of inactive adults* in society. This yields a figure of annual users that transition from an inactive to an active lifestyle. The number of *newly active annual users* is multiplied by the *health benefit multiplier* to quantify the benefits of becoming active in dollar terms.
  - Casual users – the number of *casual users* is multiplied by the overall *percentage of inactive adults in society*. This yields the number of *newly active casual users* due to

## NORTHGATE NON-MOTORIZED ACCESS TO TRANSIT AND EDUCATION

Seattle bikeshare. Since casual users may only use bikesharing facilities a few times per year the *health benefit multiplier* is discounted by 50%.

### BENEFIT MULTIPLIERS

Based on available research, the following types of benefits were quantified for the Northgate Non-Motorized Access to Transit and Education project using the increased number of bicycling/walking users and reduced VMT forecast annually:

- Reduced cost of vehicle emissions
- Reduced external costs of vehicle travel
  - Traffic congestion
  - Traffic crashes
  - Roadway maintenance
- Reduced healthcare costs
  - Reduction in medical care costs
  - Reduction in lost productivity
  - Reduction in workers compensation costs
- Travel time savings
- Reduced household transportation spending

Multipliers used to translate new bicycling/walking users and reduced VMT into the benefits listed above were drawn from the following sources:

### Vehicle Emissions Rates

*Emission Facts: Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks* (EPA report 420-F-05-022).<sup>6</sup>

- Carbon dioxide: 369 g/VMT
- Carbon monoxide: 12.4 g/VMT
- Hydrocarbons: 1.36 g/VMT
- Particulate matter: 0.0052 g/VMT (PM10) and 0.0049 g/VMT (PM2.5)
- Nitrous oxides: 0.95 g/VMT

### Emissions Costs

- From *NHTSA Corporate Average Fuel Economy for MY 2011 Passenger Cars and Light Trucks, Table VIII-5*<sup>7</sup> Volatile organic compounds: \$1,700/ton
- Particulate matter: \$168,000/ton
- Nitrous oxides: \$4,000/ton

*Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 (May 2013: revised November13), page 18*

- Carbon dioxide: \$57/ton (in 2019 escalating per source - See *Tiger Benefit-Cost Analysis (BCA) Resource Guide* for additional information.)

### External Vehicle Travel Costs

*Crashes vs. Congestion – What’s the Cost to Society?* AAA, 2008. (Figure ES.2, pg ES-4 and Figure ES.3, pg ES-5).<sup>8</sup>

---

<sup>6</sup> <https://www.whatcomsmartrips.org/pdf/Emission%20Facts%202005.pdf>

<sup>7</sup> [http://www.nhtsa.dot.gov/portal/site/nhtsa/menuitem.d0b5a45b55bfbe582f57529\\_cdba046a0](http://www.nhtsa.dot.gov/portal/site/nhtsa/menuitem.d0b5a45b55bfbe582f57529_cdba046a0)

<sup>8</sup> <http://newsroom.aaa.com/Assets/Files/20083591910.CrashesVsCongestionFullReport2.28.08.pdf>

## NORTHGATE NON-MOTORIZED ACCESS TO TRANSIT AND EDUCATION

- Traffic crashes: \$0.37/VMT
- Traffic congestion: \$0.13/VMT.

**Notes:** Cost of crashes divided by 7.21, ratio of crash to congestion costs.

Kitamura, R., Zhao, H., and Gubby, A. R. *Development of a Pavement Maintenance Cost Allocation Model*. Institute of Transportation Studies – University of California, Davis.<sup>9</sup>

- Roadway maintenance: \$0.15/VMT

### **Vehicle Operating Costs**

*Average Cost of Owning and Operating an Automobile*. 2011 [most recent data year] Bureau of Transportation Statistics.<sup>10</sup>

- Reduced household transportation cost: \$0.596/VMT

*2012 National Transportation Statistics* (Table 3-17: Average Cost of Owning and Operating an Automobile, 2012). Research and Innovative Technology Administration, Bureau of Transportation Statistics.<sup>11</sup>

### **Cost of Travel Time**

*TIGER BCA Resource Guide (2014)*. FHWA. Recommended Hourly Values of Travel Time Savings.

- Hourly monetized value of \$12.98 for all surface transportation of all types was used

Travel time differences between modes is based upon average distance by type of trip and speed of travel, assuming trips by vehicle, transit and bike have a small fixed time component for waiting (transit), walking to-and-from vehicle or bike, start-up and shut-down procedures and parking.

### **Health Benefits**

Health Care Reduction Modifier: \$1,144.38

Method: The Health Care Reductions Multiplier was derived from the health care figures provided in the report cited in the footnote below. This report references 1998 Behavioral Risk Factor Surveillance System (BRFSS) data<sup>12 13</sup> Detail on the application of these reports is included in the attached BCA spreadsheet.

## **RESIDUAL BENEFITS TO END OF PROJECT LIFE**

### **Bridge Construction**

The expected lifespan for the bridge is 75 years before the bridge will require substantial maintenance or replacement. Since this analysis only captures 20 years of benefits from the facility, a residual value of the investment is left over. The yearly maintenance on the bridge retains the facility in good repair, so the value of the investment is retained. The value of this remaining net benefit is conservatively estimated by assuming the annual benefits, net of O&M costs, for the remaining life

<sup>9</sup> [http://pubs.its.ucdavis.edu/publication\\_detail.php?id=19](http://pubs.its.ucdavis.edu/publication_detail.php?id=19)

<sup>10</sup> [http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national\\_transportation\\_statistics/html/table\\_03\\_17.html](http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/html/table_03_17.html)

<sup>11</sup> [http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national\\_transportation\\_statistics/html/table\\_03\\_17.html](http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/html/table_03_17.html)

<sup>12</sup> Chenoweth, D. (2005). *The Economic Costs of Physical Inactivity, Obesity, and Overweight in California Adults: Health Care, Workers' Compensation, and Lost Productivity*. Topline Report. <http://www.cdph.ca.gov/healthinfo/healthyliving/nutrition/Documents/CostofObesityToplineReport.pdf>

<sup>13</sup> Population Estimates Program, Population Division, U.S. Census Bureau (1999). ST-99-1 State Population Estimates and Demographic Components of Population Change: July 1, 1998 to July 1, 1999. <http://www.census.gov/population/estimates/state/st-99-1.txt>

## NORTHGATE NON-MOTORIZED ACCESS TO TRANSIT AND EDUCATION

remain constant at 2038 levels. Discounted to 2038, this value is \$105 million, which is added as a benefit in the final year of the analysis.

### Bikeshare Expansion

The lifespan of the Bikeshare Expansion is estimated at 20 years. Therefore, no residual benefits were calculated as the system would require substantial reinvestment, likely equal to the initial capital costs.

### 2015 YEAR DOLLARS

All benefit multipliers have been converted from their original sources to 2015 year dollars using Bureau of Labor Statistics. CPI Inflation Calculator.<sup>14</sup> The stream of benefits and costs are calculated in 2015 constant year dollars prior to discounting to present value.

### DISCOUNTING

Net present values were calculated by discounting the stream of project benefits and costs using both the 3% and 7% real rates as endorsed in the Federal Register grant announcement.

---

<sup>14</sup> Bureau of Labor Statistics. CPI Inflation Calculator. [http://www.bls.gov/data/inflation\\_calculator.htm](http://www.bls.gov/data/inflation_calculator.htm)

**BENEFIT-COST ANALYSIS RESULTS**

**Bridge Construction**

The project will deliver significant net benefits over its 75 year life, with an estimated net present value of \$51 million at 3% discount rate. This results in a BCA Ratio of 2.46. The benefit-cost analysis results tables are available on the following pages. The original Excel document used to calculate the results is available in the BCA attachment. **Table 5** demonstrates the summary of net benefits and **Table 6** displays the individual benefits at 3% and 7% discounts.

**Bikeshare Expansion**

The project will deliver significant net benefits over its 20 year life, with an estimated net present value of \$214,723,627 million at 3% discount rate. This results in a BCA Ratio of 3.68. The benefit-cost analysis results tables are available on the following pages. The original Excel document used to calculate the results is available in the BCA attachment. **Tables 7** and **8** demonstrate the summary of net benefits for 3% and 7%, respectively, and **Table 9** displays the individual benefits at 3% and 7% discounts.

**Table 5 - Summary of Net Benefits (Northgate Bridge Construction)**

Calendar Year	Initial Project Costs	Remaining Life Net Benefits at End of Analysis Period (3)	Operations and Maintenance Costs (1)	Benefits (2)	Net Annual Benefits	Cumulative Benefits
2016	\$ 11,747,572					
2017	\$ 11,405,411					
2018	\$ 11,073,214					
2019			\$ 25,766	\$ 1,250,538	\$ 1,224,772	\$ (33,001,425)
2020			\$ 25,016	\$ 1,280,197	\$ 1,255,181	\$ (31,746,244)
2021			\$ 24,287	\$ 1,310,632	\$ 1,286,345	\$ (30,459,899)
2022			\$ 23,580	\$ 1,342,498	\$ 1,318,918	\$ (29,140,981)
2023			\$ 22,893	\$ 1,375,078	\$ 1,352,185	\$ (27,788,796)
2024			\$ 22,226	\$ 1,408,749	\$ 1,386,523	\$ (26,402,272)
2025			\$ 21,579	\$ 1,443,402	\$ 1,421,823	\$ (24,980,449)
2026			\$ 20,950	\$ 1,479,164	\$ 1,458,214	\$ (23,522,235)
2027			\$ 20,340	\$ 1,516,347	\$ 1,496,007	\$ (22,026,228)
2028			\$ 19,748	\$ 1,554,470	\$ 1,534,722	\$ (20,491,506)
2029			\$ 19,172	\$ 1,593,659	\$ 1,574,486	\$ (18,917,020)
2030			\$ 18,614	\$ 1,634,178	\$ 1,615,564	\$ (17,301,455)
2031			\$ 18,072	\$ 1,675,530	\$ 1,657,459	\$ (15,643,997)
2032			\$ 17,545	\$ 1,719,001	\$ 1,701,456	\$ (13,942,541)
2033			\$ 17,034	\$ 1,763,423	\$ 1,746,389	\$ (12,196,152)
2034			\$ 16,538	\$ 1,809,257	\$ 1,792,719	\$ (10,403,433)
2035			\$ 16,057	\$ 1,856,551	\$ 1,840,495	\$ (8,562,939)
2036			\$ 15,589	\$ 1,905,232	\$ 1,889,643	\$ (6,673,295)
2037			\$ 15,135	\$ 1,955,901	\$ 1,940,766	\$ (4,732,529)
2038		\$ 53,363,363	\$ 14,694	\$ 2,007,766	\$ 55,356,435	\$ 50,623,906
<b>Net Present Value:</b>						<b>\$ 50,623,906</b>

Notes:

NORTHGATE NON-MOTORIZED ACCESS TO TRANSIT AND EDUCATION

- (1) Estimated annual maintenance cost of \$29,000. This maintenance level will preserve the full value and functionality of the facilities for 75 years.
- (2) Includes all monetized benefits of the project, including: air quality and carbon benefits of reduced vehicle emissions; reduced costs of traffic congestion, crashes and road maintenance; healthcare cost savings; and reduced household travel time and transportation expenses.
- (3) Credit in 2038 for additional 55 years of remaining net benefits of fully maintained transportation facilities at end of the 20-year analysis period.

**Table 6: Net Present Value (Northgate Bridge Construction) Discounted at 3% and 7%**

Table 6 - Net Present Value Discounted at 3% and 7%							
Calendar Year	Household Travel Savings		Travel Time Savings		Improved Health Benefits		
	3% Discount	7% Discount	3% Discount	7% Discount	3% Discount	7% Discount	
2019	\$ 419,931	\$ 360,571	\$ 309,465	\$ 88,776	\$ 78,876	\$ 67,727	
2020	\$ 429,648	\$ 355,124	\$ 305,762	\$ 92,685	\$ 79,951	\$ 66,083	
2021	\$ 439,718	\$ 349,860	\$ 302,173	\$ 96,802	\$ 81,070	\$ 64,503	
2022	\$ 450,067	\$ 344,708	\$ 298,629	\$ 101,089	\$ 82,195	\$ 62,953	
2023	\$ 460,746	\$ 339,695	\$ 295,171	\$ 105,590	\$ 83,354	\$ 61,454	
2024	\$ 471,780	\$ 334,827	\$ 291,792	\$ 110,341	\$ 84,567	\$ 60,018	
2025	\$ 483,143	\$ 330,073	\$ 288,472	\$ 115,296	\$ 85,791	\$ 58,611	
2026	\$ 494,863	\$ 325,442	\$ 285,220	\$ 120,523	\$ 87,068	\$ 57,260	
2027	\$ 506,944	\$ 320,923	\$ 282,030	\$ 125,971	\$ 88,354	\$ 55,933	
2028	\$ 519,435	\$ 316,538	\$ 278,920	\$ 131,745	\$ 89,712	\$ 54,669	
2029	\$ 532,279	\$ 312,239	\$ 275,849	\$ 137,790	\$ 91,095	\$ 53,437	
2030	\$ 545,563	\$ 308,068	\$ 272,860	\$ 144,121	\$ 92,506	\$ 52,236	
2031	\$ 559,243	\$ 303,988	\$ 269,917	\$ 150,787	\$ 93,965	\$ 51,077	
2032	\$ 573,365	\$ 300,013	\$ 267,036	\$ 157,799	\$ 95,471	\$ 49,955	
2033	\$ 587,927	\$ 296,132	\$ 264,206	\$ 165,168	\$ 97,019	\$ 48,867	
2034	\$ 602,950	\$ 292,346	\$ 261,432	\$ 172,914	\$ 98,610	\$ 47,812	
2035	\$ 618,451	\$ 288,652	\$ 258,713	\$ 181,056	\$ 100,247	\$ 46,788	
2036	\$ 634,409	\$ 285,031	\$ 256,031	\$ 189,604	\$ 101,921	\$ 45,792	
2037	\$ 650,868	\$ 281,494	\$ 253,397	\$ 198,607	\$ 103,651	\$ 44,828	
2038	\$ 667,866	\$ 278,047	\$ 250,819	\$ 208,066	\$ 105,426	\$ 43,891	
2039-2093	\$ 17,881,730	\$ 3,875,962	\$ 3,496,404	\$ 11,443,655	\$ 2,822,709	\$ 611,837	
<b>TOTAL 2015 Present Value</b>	<b>\$ 1,900,000</b>	<b>\$ 656,000</b>	<b>\$25,538,000</b>	<b>\$ 9,064,000</b>	<b>\$ 4,644,000</b>	<b>\$ 1,706,000</b>	

NORTHGATE NON-MOTORIZED ACCESS TO TRANSIT AND EDUCATION

**Table 6 (continued): Net Present Value (Northgate Bridge Construction) Discounted at 3% and 7%**

Table 6 - Net Present Value Discounted at 3% and 7%											
Calendar Year	Reduced Emissions		Reduced Traffic Congestion Costs		Reductions in Accident Savings		Reduction in Road Maintenance Costs				
	3% Discount	7% Discount	3% Discount	7% Discount	3% Discount	7% Discount	3% Discount	7% Discount			
2019	\$ 22,972	\$ 19,725	\$ 69,859	\$ 59,984	\$ 203,227	\$ 174,500	\$ 95,263	\$ 81,797			
2020	\$ 23,799	\$ 19,671	\$ 71,476	\$ 59,078	\$ 207,929	\$ 171,863	\$ 97,467	\$ 80,561			
2021	\$ 24,357	\$ 19,379	\$ 73,151	\$ 58,202	\$ 212,803	\$ 169,316	\$ 99,751	\$ 79,367			
2022	\$ 25,549	\$ 19,568	\$ 74,873	\$ 57,345	\$ 217,811	\$ 166,822	\$ 102,099	\$ 78,198			
2023	\$ 26,472	\$ 19,517	\$ 76,649	\$ 56,511	\$ 222,980	\$ 164,397	\$ 104,522	\$ 77,061			
2024	\$ 27,431	\$ 19,468	\$ 78,485	\$ 55,701	\$ 228,319	\$ 162,040	\$ 107,025	\$ 75,956			
2025	\$ 28,424	\$ 19,418	\$ 80,375	\$ 54,911	\$ 233,818	\$ 159,740	\$ 109,602	\$ 74,878			
2026	\$ 29,454	\$ 19,370	\$ 82,325	\$ 54,140	\$ 239,491	\$ 157,498	\$ 112,261	\$ 73,827			
2027	\$ 30,870	\$ 19,542	\$ 84,335	\$ 53,388	\$ 245,337	\$ 155,312	\$ 115,002	\$ 72,802			
2028	\$ 31,988	\$ 19,493	\$ 86,413	\$ 52,659	\$ 251,382	\$ 153,190	\$ 117,835	\$ 71,808			
2029	\$ 33,145	\$ 19,443	\$ 88,549	\$ 51,944	\$ 257,598	\$ 151,109	\$ 120,749	\$ 70,832			
2030	\$ 34,347	\$ 19,395	\$ 90,759	\$ 51,250	\$ 264,027	\$ 149,091	\$ 123,763	\$ 69,886			
2031	\$ 35,209	\$ 19,138	\$ 93,035	\$ 50,571	\$ 270,647	\$ 147,116	\$ 126,866	\$ 68,961			
2032	\$ 36,886	\$ 19,301	\$ 95,384	\$ 49,910	\$ 277,482	\$ 145,192	\$ 130,070	\$ 68,059			
2033	\$ 38,228	\$ 19,255	\$ 97,807	\$ 49,264	\$ 284,529	\$ 143,314	\$ 133,373	\$ 67,178			
2034	\$ 39,619	\$ 19,210	\$ 100,306	\$ 48,634	\$ 291,799	\$ 141,482	\$ 136,781	\$ 66,319			
2035	\$ 41,063	\$ 19,165	\$ 102,885	\$ 48,020	\$ 299,301	\$ 139,694	\$ 140,298	\$ 65,482			
2036	\$ 42,559	\$ 19,121	\$ 105,539	\$ 47,417	\$ 307,024	\$ 137,941	\$ 143,917	\$ 64,660			
2037	\$ 44,558	\$ 19,271	\$ 108,278	\$ 46,829	\$ 314,990	\$ 136,230	\$ 147,651	\$ 63,858			
2038	\$ 46,181	\$ 19,226	\$ 111,105	\$ 46,256	\$ 323,216	\$ 134,562	\$ 151,507	\$ 63,076			
2039-2093	\$ 1,236,481	\$ 268,014	\$ 2,974,784	\$ 644,801	\$ 8,653,917	\$ 1,875,783	\$ 4,056,523	\$ 879,273			
<b>TOTAL 2015 Present Value</b>	<b>\$ 1,900,000</b>	<b>\$ 656,000</b>	<b>\$ 4,746,000</b>	<b>\$ 1,697,000</b>	<b>\$ 13,808,000</b>	<b>\$ 4,936,000</b>	<b>\$ 6,472,000</b>	<b>\$ 2,314,000</b>			

NORTHGATE NON-MOTORIZED ACCESS TO TRANSIT AND EDUCATION

**Table 7 - Summary of Net Benefits (Bikeshare Expansion), Discounted at 3% Real Rate**

Calendar Year	Initial Project Costs	Operations and Maintenance Costs	Benefits (2)	Net Annual Benefits	Cumulative Benefits
2016	\$ 7,716,436			\$ (7,716,436)	\$ (7,716,436)
2017	\$ 6,543,229	\$ 5,136,676	\$ 7,463,468	\$ (4,216,437)	\$ (11,932,873)
2018		\$ 4,987,064	\$ 16,195,539	\$ 11,208,475	\$ (724,398)
2019		\$ 4,841,810	\$ 17,963,363	\$ 13,121,553	\$ 12,397,155
2020		\$ 4,700,787	\$ 17,684,975	\$ 12,984,189	\$ 25,381,344
2021		\$ 4,563,870	\$ 17,410,580	\$ 12,846,709	\$ 38,228,053
2022		\$ 4,430,942	\$ 17,140,441	\$ 12,709,499	\$ 50,937,553
2023		\$ 4,301,886	\$ 16,874,494	\$ 12,572,609	\$ 63,510,161
2024		\$ 4,176,588	\$ 16,612,674	\$ 12,436,086	\$ 75,946,247
2025		\$ 4,054,940	\$ 16,355,218	\$ 12,300,278	\$ 88,246,525
2026		\$ 3,936,835	\$ 16,101,454	\$ 12,164,620	\$ 100,411,145
2027		\$ 3,822,170	\$ 15,851,628	\$ 12,029,458	\$ 112,440,603
2028		\$ 3,710,844	\$ 15,605,678	\$ 11,894,834	\$ 124,335,437
2029		\$ 3,602,761	\$ 15,363,260	\$ 11,760,498	\$ 136,095,935
2030		\$ 3,497,827	\$ 15,125,167	\$ 11,627,340	\$ 147,723,275
2031		\$ 3,395,948	\$ 14,890,488	\$ 11,494,540	\$ 159,217,815
2032		\$ 3,297,037	\$ 14,659,451	\$ 11,362,414	\$ 170,580,229
2033		\$ 3,201,007	\$ 14,431,998	\$ 11,230,991	\$ 181,811,221
2034		\$ 3,107,774	\$ 14,208,075	\$ 11,100,301	\$ 192,911,522
2035		\$ 3,017,256	\$ 13,987,885	\$ 10,970,629	\$ 203,882,150
2036		\$ 2,929,375	\$ 13,770,852	\$ 10,841,477	\$ 214,723,627
2037					
2038					
				<b>Net Present Value:</b>	\$ 214,723,627

NORTHGATE NON-MOTORIZED ACCESS TO TRANSIT AND EDUCATION

**Table 8 - Summary of Net Benefits (Bikeshare Expansion), Discounted at 7% Real Rate**

Calendar Year	Operations and		Benefits (2)	Net Annual Benefits	Cumulative Benefits
	Initial Project Costs	Maintenance Costs			
2016	\$ 7,716,436		\$	(\$ 7,716,436)	\$ (7,716,436)
2017	\$ 6,543,229	\$ 4,759,804	\$ 6,915,882	\$ (4,387,151)	\$ (12,103,587)
2018		\$ 4,448,415	\$ 14,446,271	\$ 9,997,856	\$ (2,105,731)
2019		\$ 4,157,397	\$ 15,424,157	\$ 11,266,760	\$ 9,161,029
2020		\$ 3,885,418	\$ 14,617,453	\$ 10,732,035	\$ 19,893,063
2021		\$ 3,631,232	\$ 13,852,684	\$ 10,221,452	\$ 30,114,515
2022		\$ 3,393,675	\$ 13,127,926	\$ 9,734,252	\$ 39,848,766
2023		\$ 3,171,659	\$ 12,441,087	\$ 9,269,429	\$ 49,118,195
2024		\$ 2,964,167	\$ 11,790,183	\$ 8,826,016	\$ 57,944,211
2025		\$ 2,770,249	\$ 11,173,541	\$ 8,403,291	\$ 66,347,503
2026		\$ 2,589,018	\$ 10,588,953	\$ 7,999,935	\$ 74,347,437
2027		\$ 2,419,643	\$ 10,034,951	\$ 7,615,307	\$ 81,962,745
2028		\$ 2,261,349	\$ 9,509,933	\$ 7,248,584	\$ 89,211,329
2029		\$ 2,113,410	\$ 9,012,217	\$ 6,898,807	\$ 96,110,136
2030		\$ 1,975,150	\$ 8,540,865	\$ 6,565,716	\$ 102,675,851
2031		\$ 1,845,934	\$ 8,094,017	\$ 6,248,082	\$ 108,923,934
2032		\$ 1,725,172	\$ 7,670,546	\$ 5,945,374	\$ 114,869,308
2033		\$ 1,612,310	\$ 7,269,232	\$ 5,656,921	\$ 120,526,230
2034		\$ 1,506,832	\$ 6,888,914	\$ 5,382,081	\$ 125,908,311
2035		\$ 1,408,254	\$ 6,528,614	\$ 5,120,359	\$ 131,028,670
2036		\$ 1,316,126	\$ 6,187,044	\$ 4,870,918	\$ 135,899,589
2037					
2038					
				<b>Net Present Value:</b>	<b>\$ 135,899,589</b>

**Note:**

- (4) Includes all monetized benefits of the project, including: air quality and carbon benefits of reduced vehicle emissions; reduced costs of traffic congestion, crashes and road maintenance; healthcare cost savings; and reduced household travel time and transportation expenses.

NORTHGATE NON-MOTORIZED ACCESS TO TRANSIT AND EDUCATION

Table 9 - Net Present Value Discounted at 3% and 7% (Bikeshare Expansion)							
Calendar Year	Household Travel Savings		Travel Time Savings		Improved Health Benefits		
	3% Discount	7% Discount	3% Discount	7% Discount	3% Discount	7% Discount	
2017	\$ 5,171,775	\$ 4,792,328	\$ 157,574	\$ 146,013	\$ 1,906,775	\$ 1,766,877	
2018	\$ 11,297,567	\$ 10,077,325	\$ 336,757	\$ 300,385	\$ 4,075,038	\$ 3,634,896	
2019	\$ 12,752,657	\$ 10,950,009	\$ 358,259	\$ 307,618	\$ 4,335,228	\$ 3,722,423	
2020	\$ 12,554,558	\$ 10,376,924	\$ 352,694	\$ 291,518	\$ 4,267,884	\$ 3,527,604	
2021	\$ 12,359,535	\$ 9,833,833	\$ 347,215	\$ 276,261	\$ 4,201,587	\$ 3,342,982	
2022	\$ 12,167,543	\$ 9,319,165	\$ 341,822	\$ 261,803	\$ 4,136,320	\$ 3,168,022	
2023	\$ 11,978,532	\$ 8,831,433	\$ 336,512	\$ 248,101	\$ 4,072,066	\$ 3,002,219	
2024	\$ 11,792,458	\$ 8,369,227	\$ 331,285	\$ 235,116	\$ 4,008,811	\$ 2,845,094	
2025	\$ 11,609,274	\$ 7,931,212	\$ 326,138	\$ 222,811	\$ 3,946,538	\$ 2,696,192	
2026	\$ 11,428,936	\$ 7,516,120	\$ 321,072	\$ 211,150	\$ 3,885,232	\$ 2,555,083	
2027	\$ 11,251,399	\$ 7,122,753	\$ 316,085	\$ 200,099	\$ 3,824,879	\$ 2,421,359	
2028	\$ 11,076,620	\$ 6,749,974	\$ 311,175	\$ 189,626	\$ 3,765,464	\$ 2,294,633	
2029	\$ 10,904,556	\$ 6,396,704	\$ 306,341	\$ 179,702	\$ 3,706,971	\$ 2,174,540	
2030	\$ 10,735,165	\$ 6,061,923	\$ 301,582	\$ 170,297	\$ 3,649,387	\$ 2,060,733	
2031	\$ 10,568,405	\$ 5,744,664	\$ 296,897	\$ 161,384	\$ 3,592,698	\$ 1,952,881	
2032	\$ 10,404,236	\$ 5,444,008	\$ 292,285	\$ 152,938	\$ 3,536,889	\$ 1,850,674	
2033	\$ 10,242,616	\$ 5,159,088	\$ 287,745	\$ 144,934	\$ 3,481,947	\$ 1,753,817	
2034	\$ 10,083,508	\$ 4,889,080	\$ 283,275	\$ 137,348	\$ 3,427,858	\$ 1,662,028	
2035	\$ 9,926,871	\$ 4,633,203	\$ 278,875	\$ 130,160	\$ 3,374,610	\$ 1,575,043	
2036	\$ 9,772,667	\$ 4,390,717	\$ 274,543	\$ 123,348	\$ 3,322,189	\$ 1,492,611	
<b>TOTAL 2015 Present Value</b>	<b>\$218,078,879</b>	<b>\$144,589,691</b>	<b>\$ 6,158,131</b>	<b>\$ 4,090,612</b>	<b>\$ 74,518,370</b>	<b>\$49,499,711</b>	

NORTHGATE NON-MOTORIZED ACCESS TO TRANSIT AND EDUCATION

**Table 9 (continued): Net Present Value Discounted at 3% and 7% (Bikeshare Expansion)**

Table 9 - Net Present Value Discounted at 3% and 7% (Bikeshare Expansion)											
Calendar Year	Reduced Emissions		Reduced Traffic Congestion Costs		Reductions in Accident Savings		Reduction in Road Maintenance Costs				
	3% Discount	7% Discount	3% Discount	7% Discount	3% Discount	7% Discount	3% Discount	7% Discount			
2017	\$ 11,909	\$ 11,035	\$ 40,836	\$ 37,840	\$ 118,972	\$ 110,243	\$ 55,627	\$ 51,546			
2018	\$ 25,763	\$ 22,981	\$ 87,272	\$ 77,846	\$ 254,258	\$ 226,796	\$ 118,883	\$ 106,042			
2019	\$ 27,408	\$ 23,534	\$ 92,845	\$ 79,721	\$ 270,493	\$ 232,257	\$ 126,474	\$ 108,596			
2020	\$ 27,637	\$ 22,843	\$ 91,403	\$ 75,548	\$ 266,291	\$ 220,102	\$ 124,509	\$ 102,912			
2021	\$ 27,530	\$ 21,904	\$ 89,983	\$ 71,594	\$ 262,154	\$ 208,582	\$ 122,575	\$ 97,526			
2022	\$ 27,420	\$ 21,001	\$ 88,585	\$ 67,847	\$ 258,082	\$ 197,666	\$ 120,671	\$ 92,422			
2023	\$ 27,306	\$ 20,132	\$ 87,209	\$ 64,297	\$ 254,073	\$ 187,321	\$ 118,796	\$ 87,585			
2024	\$ 27,189	\$ 19,297	\$ 85,854	\$ 60,932	\$ 250,126	\$ 177,517	\$ 116,951	\$ 83,001			
2025	\$ 27,372	\$ 18,700	\$ 84,520	\$ 57,743	\$ 246,241	\$ 168,226	\$ 115,134	\$ 78,657			
2026	\$ 27,245	\$ 17,917	\$ 83,208	\$ 54,721	\$ 242,416	\$ 159,422	\$ 113,346	\$ 74,541			
2027	\$ 27,115	\$ 17,165	\$ 81,915	\$ 51,857	\$ 238,650	\$ 151,078	\$ 111,585	\$ 70,639			
2028	\$ 26,983	\$ 16,443	\$ 80,642	\$ 49,143	\$ 234,943	\$ 143,172	\$ 109,852	\$ 66,942			
2029	\$ 26,564	\$ 15,582	\$ 79,390	\$ 46,571	\$ 231,293	\$ 135,678	\$ 108,145	\$ 63,439			
2030	\$ 26,711	\$ 15,083	\$ 78,157	\$ 44,133	\$ 227,700	\$ 128,578	\$ 106,465	\$ 60,119			
2031	\$ 26,571	\$ 14,443	\$ 76,942	\$ 41,824	\$ 224,163	\$ 121,848	\$ 104,811	\$ 56,972			
2032	\$ 26,430	\$ 13,829	\$ 75,747	\$ 39,635	\$ 220,681	\$ 115,471	\$ 103,183	\$ 53,991			
2033	\$ 26,286	\$ 13,240	\$ 74,571	\$ 37,560	\$ 217,253	\$ 109,428	\$ 101,580	\$ 51,165			
2034	\$ 26,141	\$ 12,675	\$ 73,412	\$ 35,595	\$ 213,878	\$ 103,701	\$ 100,002	\$ 48,487			
2035	\$ 26,252	\$ 12,253	\$ 72,272	\$ 33,732	\$ 210,556	\$ 98,273	\$ 98,449	\$ 45,949			
2036	\$ 26,099	\$ 11,726	\$ 71,149	\$ 31,966	\$ 207,285	\$ 93,130	\$ 96,920	\$ 43,545			
<b>TOTAL 2015 Present Value</b>	<b>\$ 521,933</b>	<b>\$ 341,785</b>	<b>\$ 1,595,912</b>	<b>\$ 1,060,103</b>	<b>\$ 4,649,506</b>	<b>\$ 3,088,490</b>	<b>\$ 2,173,958</b>	<b>\$ 1,444,078</b>			

**BENEFIT COST ANALYSIS**  
**TIGER FY 2015: NORTHGATE NON-MOTORIZED ACCESS TO**  
**TRANSIT AND EDUCATION**

<b>BCA Ratio:</b>	<b>3.07</b>
<b>Net Discounted Benefits:</b>	<b>\$ 265,347,627</b>

**Summary of Results**

<b>Discounted Benefits</b>	<b>Total</b>
Health Savings	\$ 222,721,879
Emissions Reduction	\$ 2,421,933
Vehicle Crash Reduction	\$ 18,457,506
Maintenance Savings	\$ 8,645,958
Congestion Reduction Savings	\$ 6,341,912
Travel Cost Savings	\$ 103,049,370
Travel Time Reduction Savings	\$ 31,696,131
<b>Total Benefits:</b>	<b>\$ 393,334,689</b>
<b>Discounted Costs</b>	
Capital	\$ 48,485,665
Maintenance & Operation	\$ 79,501,397
<b>Total Costs:</b>	<b>\$ 127,987,062</b>

<i>Net Discounted Benefits - Costs</i>	\$	265,347,627
BCA Ratio		3.07
Discount Rate		3%



City of Seattle

Edward B. Murray, Mayor

**Department of Transportation**

Scott Kubly, Director

**CERTIFICATION OF COMPLIANCE WITH FEDERAL WAGE RATE REQUIREMENTS**

I certify that the Seattle Department of Transportation will comply with the federal wage rate requirements of subchapter IV of chapter 31, title 40 of the United States Code, as required by the FY 2015 Continuing Appropriations Act.

Sincerely,

Scott Kubly  
Director, Seattle Department of Transportation

# Appendix C

## PROJECT PERFORMANCE EVALUATION

SDOT will collect and analyze a variety of data sets to measure its progress in meeting the stated benefits of the project. These data will also be used to optimize operations of the facilities, and to inform decisions about future bike share expansions or proposed infrastructure projects that could complement the TIGER-funded improvements.

### Northgate Pedestrian-Bicycle Bridge and Supporting Infrastructure

- Vehicular traffic counts on all arterial roadways within Northgate
- Pedestrian and bicycle counts on key corridors within Northgate (including N. 92nd St. east of Corliss Ave. N., and on N. Northgate Way at the underpass under I-5)
- Link Light Rail boardings and alightings at Northgate Station and other stations
- Employee travel behavior for large Northgate employers, provided under the Washington State Commute Trip Reduction (CTR) Act

### Citywide Bike Share

- Total trips per year
- Average trips per day
- Total bike miles ridden per year
- VMT eliminated per year
- Trips by station
- Total number of annual members and casual members
- Number of low-income and student users receiving reduced-rate memberships

Data will be collected in advance of the project to create a baseline, and then on an annual basis following completion of the project to evaluate project performance. All pedestrian and bicycle counts will be collected and evaluated in accordance with the National Bicycle & Pedestrian Documentation Project (NBPDP) methodology.

MOTION NO. M2015-26

**Northgate Pedestrian/Bicycle Bridge Project - Sound Transit Funding Extension**

MEETING:	DATE:	TYPE OF ACTION:	STAFF CONTACT:
Capital Committee	03/12/2015	Recommend to Board	Ahmad Fazel, DECM Executive Director
Board	03/26/2015	Final Action	<b>Ron Endlich, Northgate Link Deputy Project Director</b>

PROPOSED ACTION

Authorizes the chief executive officer to extend the date of the Northgate Link Extension \$5 million funding commitment for the Interstate-5 pedestrian/bicycle bridge at Northgate to February 1, 2016.

KEY FEATURES SUMMARY

- In June 2012, the Board approved Motion No. M2012-42 authorizing a Northgate access improvement study and outlining funding contributions to Northgate pedestrian and bicycle access improvements, including a contribution of up to \$5 million towards an Interstate-5 pedestrian/bicycle bridge that would connect with the Northgate light rail station.
- Motion No. M2012-42 established a deadline of July 2015 for the City of Seattle to complete a full funding agreement to secure the remaining funds needed to complete the Northgate I-5 pedestrian/bicycle bridge project. This action would extend the deadline to February 1, 2016, allowing the City more time to complete additional design and environment review work and identify additional funding sources to implement the project.
- Sound Transit has now designed the Northgate Station mezzanine level to accommodate a future bridge connection to the elevated station structure. The I-5 pedestrian/bicycle bridge project must advance its design work and construction sequence planning further to facilitate continued coordination with Sound Transit and other stakeholders' facilities or planned projects and to take advantage of potential cost reductions and avoid construction delays. The City of Seattle also must complete environmental review for the bridge project before Sound Transit can transfer funding to the City to construct the project.
- If a full funding agreement is not in place by February 1, 2016, Sound Transit's \$5 million contribution towards the bridge project would be re-programmed for other City priority pedestrian or bicycle facility access improvements in the Northgate area so that they could be completed before the Northgate Station opens in 2021.
- Other commitments contained in Motion No. M2012-42 remain in effect.

BACKGROUND

In June 2012, the Sound Transit Board approved Motion No. M2012-42 which committed \$5 million towards the cost of the I-5 pedestrian/bicycle bridge and \$5 million towards other priority pedestrian and bicycle access improvements in the Northgate area as part of a larger integrated Northgate Station access plan. Sound Transit's funding commitment was contingent on matching funds from the City of Seattle. The motion also stated that the City must complete appropriate environmental review for the proposed pedestrian and bicycle access improvements and must have full funding agreements in place for the bridge project by July 2015. Under the motion, Sound Transit costs associated with designing and constructing the Northgate Station to accommodate a connection for the I-5 pedestrian/bicycle bridge will be credited against this contribution; Sound Transit would reallocate any unspent bridge funds to other priority pedestrian/bicycle projects identified in the Northgate area if a funding agreement for the implementation of the I-5 pedestrian/bicycle bridge wasn't completed by July 2015.

The City's matching funding commitment was contained in Resolution 31389, adopted by the Seattle City Council on June 25, 2012.

In April 2014, the City submitted a United States Department of Transportation TIGER grant application request for \$15 million to complete construction of the I-5 pedestrian/bicycle bridge. Sound Transit supported the City's grant request and Sound Transit funds were identified by the City as part of the local match needed to secure the grant. Nationwide, TIGER grant funding is very competitive with many agencies seeking limited grant funds. Unfortunately the I-5 pedestrian/bicycle project TIGER grant application was not approved by USDOT.

The Seattle Department of Transportation (SDOT) has retained a design consultant team and is proceeding with conceptual design work for the I-5 pedestrian/bicycle bridge. Early design coordination work has begun and environmental documentation work is also proceeding. Further design work and coordination is needed to ensure that the I-5 pedestrian/bicycle bridge is fully compatible with planned projects in the vicinity of the proposed bridge crossing at NE 100<sup>th</sup> Street, including the Northgate Station, Sound Transit construction staging areas, and replacement parking mitigation sites. Opportunities to coordinate the construction of bridge support structures or other improvements--which may reduce total project costs--can also be further explored.

The design of Sound Transit's Northgate Station and elevated guideway project is currently 90% complete and will be at 100% design completion by December 2015. Sound Transit has submitted master use permit (MUP) and street improvement permit (SIP) applications to the City for Northgate Station site work and they are currently under review. The station construction contractor will begin work in early 2016. Any desired modifications to further accommodate I-5 pedestrian/bicycle bridge project facilities must be identified and coordinated in 2015 to avoid Sound Transit project delays or higher cost change orders after station construction is underway.

In December 2014, the Sound Transit Board received a letter from four local elected officials (including two Sound Transit Boardmembers) and three state legislators requesting that the Sound Transit Board consider extending the funding deadline to allow additional time to secure the remaining funding needed to complete the bridge project. This motion responds to this request and identifies desirable design and construction coordination steps needed to ensure the cost-effective delivery of Sound Transit's Northgate Station project and the City of Seattle's I-5 pedestrian/bicycle bridge project.

This extension would allow the City of Seattle additional time to:

- a) complete I-5 bridge preliminary engineering and environmental review work;
- b) complete additional design coordination and construction planning work with Sound Transit and other affected stakeholders; and
- c) secure a full funding agreement to complete the design and construction of the I-5 bridge at Northgate.

Sound Transit's \$5 million bridge funding contribution would be reallocated to other priority pedestrian or bicycle access improvement projects in the Northgate area if the City of Seattle is unable to secure a full funding agreement or complete design coordination and environmental review work, as needed, by February 1, 2016.

#### FISCAL INFORMATION

Not applicable to this action.

## SMALL BUSINESS/DBE PARTICIPATION AND APPRENTICESHIP UTILIZATION

Not applicable to this action.

## PUBLIC INVOLVEMENT

The City of Seattle is responsible for public involvement for the I-5 pedestrian/bicycle bridge project.

Many members of the public attending previous Sound Transit open house meetings on Northgate Station design have expressed support for implementing the bridge project and supported a direct connection of the bridge to the mezzanine of the Northgate Station, as currently designed by Sound Transit.

## TIME CONSTRAINTS

A one month delay in considering this action would not create a significant impact to the City of Seattle's I-5 pedestrian/bicycle bridge project schedule.

## PRIOR BOARD/COMMITTEE ACTIONS

Motion No. M2012-42: Authorized the chief executive officer to complete a Northgate access improvement study to identify potential additional pedestrian and bicycle access improvements to enhance access to the current Northgate Transit Center and future Northgate Station inter-modal transit facility as part of the Northgate Link Extension Project. The Northgate access improvement study would include:

- a) A two-step study process that will include a connectivity analysis followed by an access study to identify and prioritize specific improvements that could be funded by Sound Transit in partnership with the City of Seattle, King County Metro, and other local, state, and federal sources.
- b) Sound Transit's funding contribution for proposed Northgate pedestrian and bicycle access improvements would be capped at \$10 million, which includes credits for current Project commitments as included in the baselined Northgate Link Extension Project budget; and
- c) Before Sound Transit dollars will be authorized towards the improvements, the City of Seattle must match Sound Transit's \$10 million funding contribution, must complete appropriate environmental review for the proposed pedestrian and bicycle access improvements, and must have full funding partnership agreements in place to complete the improvements by 2021.

## ENVIRONMENTAL REVIEW

JI 3/4/2015

## LEGAL REVIEW

JB 3/5/2015

## **MOTION NO. M2015-26**

A motion of the Board of the Central Puget Sound Regional Transit Authority authorizing the chief executive officer to extend the date of the Northgate Link Extension \$5 million funding commitment for the Interstate-5 pedestrian/bicycle bridge at Northgate to February 1, 2016.

### **BACKGROUND:**

In June 2012, the Sound Transit Board approved Motion No. M2012-42 which committed \$5 million towards the cost of the I-5 pedestrian/bicycle bridge and \$5 million towards other priority pedestrian and bicycle access improvements in the Northgate area as part of a larger integrated Northgate Station access plan. Sound Transit's funding commitment was contingent on matching funds from the City of Seattle. The motion also stated that the City must complete appropriate environmental review for the proposed pedestrian and bicycle access improvements and must have full funding agreements in place for the bridge project by July 2015. Under the motion, Sound Transit costs associated with designing and constructing the Northgate Station to accommodate a connection for the I-5 pedestrian/bicycle bridge will be credited against this contribution. Sound Transit would reallocate any unspent bridge funds to other priority pedestrian/bicycle projects identified in the Northgate area if a funding agreement for the implementation of the I-5 pedestrian/bicycle bridge wasn't completed by July 2015.

The City's matching funding commitment was contained in Resolution 31389, adopted by the Seattle City Council on June 25, 2012.

In April 2014, the City submitted a United States Department of Transportation TIGER grant application request for \$15 million to complete construction of the I-5 pedestrian/bicycle bridge. Sound Transit supported the City's grant request and Sound Transit funds were identified by the City as part of the local match needed to secure the grant. Nationwide, TIGER grant funding is very competitive with many agencies seeking limited grant funds. Unfortunately the I-5 pedestrian/bicycle project TIGER grant application was not approved by USDOT.

The Seattle Department of Transportation (SDOT) has retained a design consultant team and is proceeding with conceptual design work for the I-5 pedestrian/bicycle bridge. Early design coordination work has begun and environmental documentation work is also proceeding. Further design work and coordination is needed to ensure that the I-5 pedestrian/bicycle bridge is fully compatible with planned projects in the vicinity of the proposed bridge crossing at NE 100th Street, including the Northgate Station, Sound Transit construction staging areas, and replacement parking mitigation sites. Opportunities to coordinate the construction of bridge support structures or other improvements--which may reduce total project costs--can also be further explored.

The design of Sound Transit's Northgate Station and elevated guideway project is currently 90% complete and will be at 100% design completion by December 2015. Sound Transit has submitted master use permit (MUP) and street improvement permit (SIP) applications to the City for Northgate Station site work and they are currently under review. The station construction contractor will begin work in early 2016. Any desired modifications to further accommodate I-5 pedestrian/bicycle bridge project facilities must be identified and coordinated in 2015 to avoid Sound Transit project delays or higher cost change orders after station construction is underway.

In December 2014, the Sound Transit Board received a letter from four local elected officials (including two Sound Transit Boardmembers) and three state legislators requesting that the Sound

Transit Board consider extending the funding deadline to allow additional time to secure the remaining funding needed to complete the bridge project. This motion responds to this request and identifies desirable design and construction coordination steps needed to ensure the cost-effective delivery of Sound Transit's Northgate Station project and the City of Seattle's I-5 pedestrian/bicycle bridge project.

This extension would allow the City of Seattle additional time to:

- a) complete I-5 bridge preliminary engineering and environmental review work;
- b) complete additional design coordination and construction planning work with Sound Transit and other affected stakeholders; and
- c) secure a full funding agreement to complete the design and construction of the I-5 bridge at Northgate.

Sound Transit's \$5 million bridge funding contribution would be reallocated to other priority pedestrian or bicycle access improvement projects in the Northgate area if the City of Seattle is unable to secure a full funding agreement or complete design coordination and environmental review work, as needed, by February 1, 2016. Other commitments contained in Motion No. M2012-42 remain in effect.

**MOTION:**

It is hereby moved by the Board of the Central Puget Sound Regional Transit Authority that the chief executive officer is authorized to extend the date of the Northgate Link Extension \$5 million funding commitment for the Interstate-5 pedestrian/bicycle bridge at Northgate to February 1, 2016.

APPROVED by the Board of the Central Puget Sound Regional Transit Authority at a regular meeting thereof held on March 26, 2015.



Dow Constantine  
Board Chair

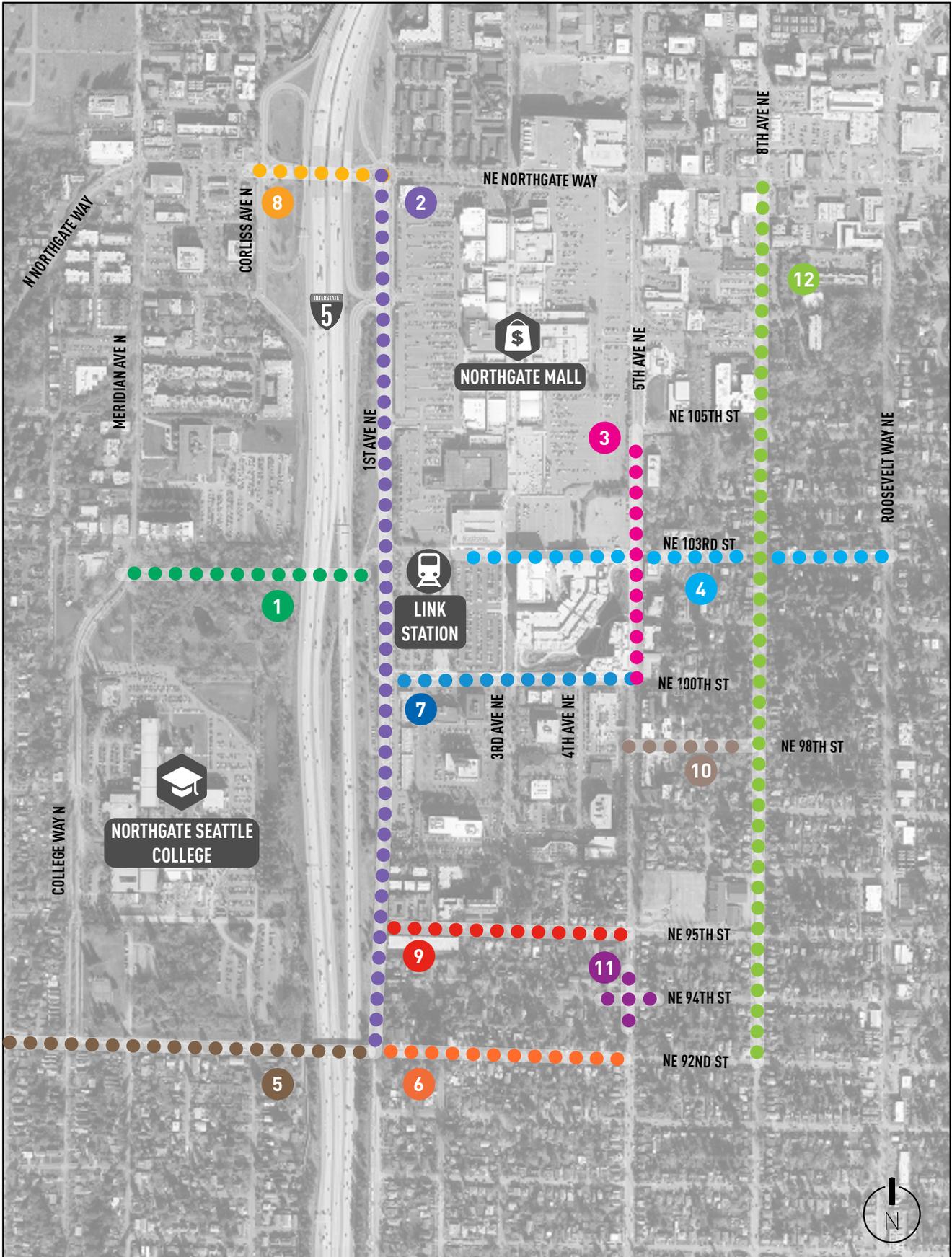
ATTEST:



Kathryn Flores  
Acting Board Administrator

# Appendix E

## NORTHGATE STATION AREA IMPROVEMENTS



Design initiated in 2013

- 1 I-5 bicycle and pedestrian bridge
- 2 1st Ave NE cycle track (92nd to 103rd) and shared use path (103rd to Northgate Way)

Design anticipated to start in 2015 (a project manager from the Project Management Division has just assigned to these projects the week of May 11, 2015)

- 3 Sidewalk upgrades 5th Ave (100th to 105th)
- 4 Sidewalk improvements Ne 103rd (3rd to Roosevelt)
- 5 Cycle track 92nd (Wallingford to 1st Ave)
- 6 Sidewalk 92nd (1st to 5th)
- 7 Cycle track 100th (1st to 5th)

Design anticipated to start in 2016

- 8 Sidewalk and bicycle improvements Northgate Way/Corliss and 1st
- 9 Sidewalk 95th (1st to 5th)
- 10 Sidewalk 98th (5th to 8th)
- 11 Crossing improvements 5th Ave/94th
- 12 Pedestrian improvements along 8th Ave (92nd to Northgate Way)

# Appendix F

## CHANGES FROM PRE-APPLICATION

Since submittal of the TIGER pre-application, Seattle has reviewed its funding plan to validate cost estimates for all components of the project and also to ensure the eligibility and security of all proposed matching funds. This financial review led to minor modifications in the project budget, as shown below:

### Current Funding Plan (as shown in final application)

	Seattle Funds	Sound Transit Funds	Private Funds	Other Federal Funds	TIGER Funds	Total Cost
Northgate Bridge	\$5,000,000	\$5,000,000	\$0	\$600,000	\$15,000,000	\$25,600,000
Northgate Station Access*	\$5,000,000	\$5,000,000	\$0	\$718,000	\$0	\$10,718,000
Bike Share System Expansion	\$75,000	\$0	\$0	\$0	\$10,000,000	\$10,075,000
Bike Share Purchase	\$5,125,000	\$0	\$3,000,000	\$0	\$0	\$8,125,000
<b>Total</b>	<b>\$15,200,000</b>	<b>\$10,000,000</b>	<b>\$3,000,000</b>	<b>\$1,318,000</b>	<b>\$25,000,000</b>	<b>\$54,518,000</b>

### Previous Funding Plan (as shown in pre-application)

	TIGER Request	Total Federal Funding	Total Non-federal Funding	Total Project Cost
Summary of All Costs	\$25,000,000	\$25,000,000	\$23,000,000	\$48,000,000