↑ Eastbank Esplanade. *Source: Metro/Lake McTighe*

Metro Active Transportation **Return On Investment Study**

April 2022

Metro respects civil rights

Metro fully complies with Title VI of the Civil Rights Act of 1964 that requires that no person be excluded from the participation in, be denied the benefits of, or be otherwise subjected to discrimination on the basis of race, color or national origin under any program or activity for which Metro receives federal financial assistance.

Metro fully complies with Title II of the Americans with Disabilities Act and Section 504 of the Rehabilitation Act that requires that no otherwise qualified individual with a disability be excluded from the participation in, be denied the benefits of, or be subjected to discrimination solely by reason of their disability under any program or activity for which Metro receives federal financial assistance.

If any person believes they have been discriminated against regarding the receipt of benefits or services because of race, color, national origin, sex, age or disability, they have the right to file a complaint with Metro. For information on Metro's civil rights program, or to obtain a discrimination complaint form, visit oregonmetro.gov/civilrights or call 503-797-1536.

Metro provides services or accommodations upon request to persons with disabilities and people who need an interpreter at public meetings. If you need a sign language interpreter, communication aid or language assistance, call 503-797-1700 or TDD/TTY 503-797-1804 (8 a.m. to 5 p.m. weekdays) 5 business days before the meeting. All Metro meetings are wheelchair accessible. For up-to-date public transportation information, visit TriMet's website at trimet.org.

Metro is the federally mandated metropolitan planning organization designated by the governor to develop an overall transportation plan and to allocate federal funds for the region.

The Joint Policy Advisory Committee on Transportation (JPACT) is a 17-member committee that provides a forum for elected officials and representatives of agencies involved in transportation to evaluate transportation needs in the region and to make recommendations to the Metro Council. The established decision-making process assures a well-balanced regional transportation system and involves local elected officials directly in decisions that help the Metro Council develop regional transportation policies, including allocating transportation funds. JPACT serves as the MPO board for the region in a unique partnership that requires joint action with the Metro Council on all MPO decisions.

The preparation of this report was financed in part by the U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration. The opinions, findings and conclusions expressed in this report are not necessarily those of the U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration.

↑ Downtown Portland. *Source: Metro/Lake McTighe*

If you picnic at Blue Lake or take your kids to the Oregon Zoo, enjoy symphonies at the Schnitz or auto shows at the convention center, put out your trash or drive your car – we've already crossed paths.

So, hello. We're Metro – nice to meet you.

In a metropolitan area as big as Portland, we can do a lot of things better together. Join us to help the region prepare for a happy, healthy future.

Stay in touch with news, stories and things to do.
oregonmetro.gov/news

Follow oregonmetro

Metro

600 NE Grand Ave.
Portland, OR 97232-2736
503-797-1700

↑ *Source: Metro/Lake McTighe*

Table of contents

Executive Summary

↑ Downtown Portland. *Source: Metro/Lake McTighe*

Executive summary

Study purpose

Active transportation investments offer many types of benefits related to safety, reduced greenhouse gas emissions, physical activity, and the economy.

Metro wants to better understand the role of these investments in building stronger communities in the Portland region, and in implementing the 2040 Growth Concept. The purpose of this study is to shed light on the economic impacts of different active transportation projects throughout the region. One of the most important outcomes of the study is to inform future policy and decision making, including Regional Flexible Funding Allocations (RFFA).

↑ Rose Quarter Transit Center. *Source: Metro (BikePortland)/Lake McTighe*

Study approach

The study examined past projects completed with RFFA funding and adds to the region's understanding of how those projects and potential future projects impact the local economy. Each project included in the study was a retrofitted busy commercial street with pedestrian friendly treatments aimed at catalyzing economic development within 2040 Centers, Main Streets, or Station Communities (from Metro's 2040 Growth Concept). These 2040 Catalyst Projects were completed within the years 2006 through 2016 with RFFA funding.

The study used a variety of methods and data sources to examine how business activities changed over time after the projects were completed, controlling for economic trends in nearby locations or corridors. This section summarizes the four main conclusions from the study. The findings demonstrate that active transportation projects generally have an overall positive impact on business. The full report can be found in Appendix A.

Active transportation investments work across the Metro region. Among communities outside of Portland, over 80% experienced positive business impacts

See: 1. Investments of all shapes and sizes

1 ▸ Investments of all shapes and sizes

Communities of all sizes can boost food and retail businesses through active transportation investments big and small. With positive effects across a broad spectrum of urban densities or project lengths, locally-relevant and contextually appropriate infrastructure solutions are likely more important determinants of success.

2 ▸ Build back better

Businesses benefit from active transportation projects. In addition to safety, mobility and environmental gains from an active transportation project, there were measurable economic gains for nearby retail and food businesses in 3 out of 4 projects studied. As the region—and the nation—work to "build back better" following the COVID pandemic, these findings show the potential of projects to benefit hard hit business sectors.

↓ Illustration: Metro 2019, Designing Livable Streets and Trails Guide

3 ▸ The multiplier effect

Realizing economic benefits from projects that make it safer and easier to walk is more likely when coupled with other improvements that add to an area's walkability. Layering complementary investments (e.g. light rail stations and transit oriented-development), has the potential to yield the greatest benefits from active transportation infrastructure in the region.

4 ▸ Setting projects up for success

High traffic volumes and high travel speeds are likely to reduce a project's benefit to nearby businesses. Projects are more likely to reach their full potential when they reduce the effects of an auto-oriented environment and create places for walking that are also less stressful and more comfortable.

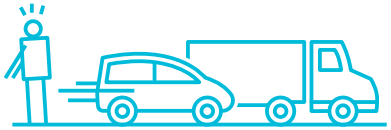
75%

of the project locations saw measurable economic gains in the food or retail industries after implementation

See: 2. Build back better

Layering complementary investments has the potential to yield the greatest benefits

See: 3. The multiplier effect



The projects that did not see positive effects tended to have higher traffic volumes and/or speeds.

See: 4. Setting projects up for success

1

Why study active transportation?

↑ Downtown Portland. *Source: Metro/Lake McTighe*

Why study active transportation?

Metro invests in building strong communities in the greater Portland region. Active transportation investments make improvements to streets, trails, and sidewalks to help us get where we need to go by walking and rolling. These types of investments provide many benefits related to safety, greenhouse gas emissions, physical activity, and the economy. This study focuses on understanding the economic benefits.

These investments are a critical to implementing Metro's 2040 Growth Concept. Vibrant business corridors rely on people of all ages and abilities to walk and roll comfortably to and from them. Currently, many of the town and regional centers identified in the 2040 Growth Concept do not have the bicycle and pedestrian infrastructure they need to create the multimodal future the plan calls for. For this reason, Metro has been building new infrastructure on key business corridors over the last two decades.

As Metro continues to invest in active transportation, it becomes increasingly important to understand the impacts of these projects. Recently, researchers at Portland State University studied the economic impacts of Metro's active transportation investments on nearby businesses. The research helps to clarify the relationship between these investments and economic activity, which will help inform the ongoing implementation of the 2040 Growth Concept. While this report only explores the effects of active transportation infrastructure on business trends, we are currently developing methods to help us measure other ways that active transportation infrastructure impacts the region by quantifying things such as travel cost savings and health benefits.

Regional flexible funding allocations summary

Almost everyone can point to an improvement they'd like to see on a roadway or street, a trail connection or sidewalk gap they'd like to see filled. Every few years, Metro has an opportunity to help make those projects happen with something called Regional Flexible Funding Allocations (RFFA) – money from the federal government that can be used for a wide range of projects. The investment priorities for the 2025 – 2027 RFFA are:

- **Advancing equity** by reducing barriers and disparities faced by Black, Indigenous, People of Color, and other historically marginalized communities.
- **Improving safety** through focusing on reducing fatal and severe injury crashes, particularly in places with high numbers of these crashes.
- **Addressing climate change** by implementing the region's Climate Smart Strategy
- **Managing congestion with multi-modal investments** to expand people's travel choices and make travel more reliable and efficient.

2

How we completed this study

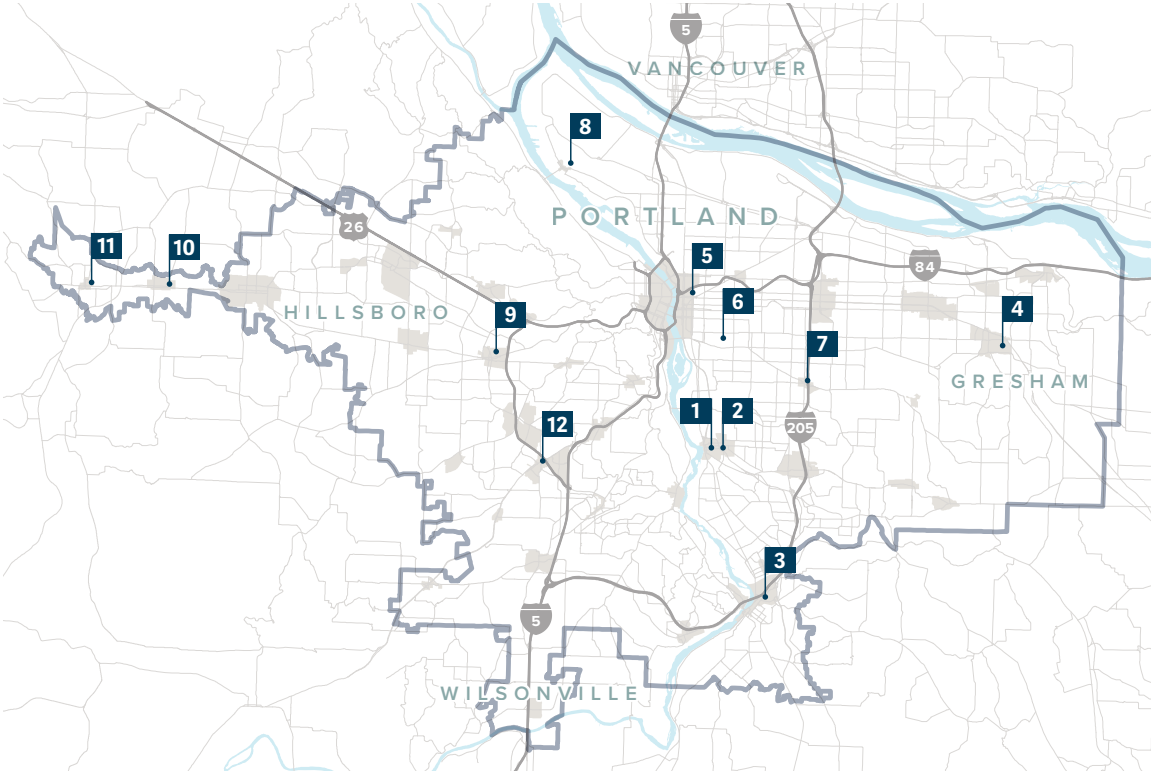
↑ Downtown Portland. *Source: Metro/Lake McTighe*

How we completed this study

The Active Transportation Return on Investment (ATROI) study was conducted by the Transportation Research and Education Center (TREC) at Portland State University (PSU), and has two main components:

1. A quantitative analysis on the economic benefits of 12 active transportation projects on busy commercial streets.
2. A qualitative assessment of the projects to help tell the story and understand other benefits and impacts of each project.

Together they help us understand many of the benefits of different active transportation projects constructed between 2001-2016 that used regional flexible funding. The results will help inform the region's decision makers, business owners, and the general public.



↑ A map of the project locations considered in the Active Transportation Return on Investment Study.

The projects

The study examined twelve 2040 Catalyst Projects to determine if active transportation investments had significant effects on the local economy.

2040 Catalyst Projects retrofit busy commercial streets with pedestrian-friendly treatments to catalyze economic development within 2040 Centers, Main Streets, or Station Communities. Redesigned streets can improve economic conditions by creating attractive and walkable business districts, providing access to various destinations, local businesses, and jobs. All of these projects included pedestrian improvements such as sidewalks, landscaping, lighting and improved crossings; a few included bikeways.

The catalyst projects included in this study are described briefly in Table 1. Nearly all the projects focus primarily on pedestrian improvements, including elements such as improved sidewalks (new, widened, etc.), safer crossings (signals, rectangular rapid flash beacons, curb extensions, crosswalks, signage, ramps, etc.), improved bus stops, landscaping (trees, bioswales for stormwater management, etc.), lighting, and public art. A few projects also included new or restriped bike lanes, shared lane markings, and/or bike parking.

↑ Enhanced sidewalks. *Source: Metro/Lake McTighe*

↑ Dedicated bike lane. *Source: Metro/Lake McTighe*

↑ Signals and signage for safer crossings. *Source: Metro/Lake McTighe*

Table 1. Overview of Catalyst Projects

	#	Project location	Area	Lead agency	Improvements made	Additional information/context	Year
Clackamas County	1	Milwaukie: McLoughlin Blvd.	SE McLoughlin Blvd, from Harrison St - Kronberg Park (~0.4 miles)	City of Milwaukie	Improved pedestrian crossings, landscaping, and sidewalks. Pedestrian crosswalks at several intersections were painted with a brick-like pattern that has since severely faded.	Along the west side, it follows the Trolley Trail and Milwaukie Bay Park along the Willamette River. To the east, there are mainly commercial spaces until it runs into Kellogg Creek.	2006
	2	Milwaukie: Town Center	Milwaukie TC: LRT stop to Main St	City of Milwaukie/TriMet	The Adams Street Connector links the MAX station with Main Street. Other pedestrian and bicycle improvements on adjacent blocks include wider sidewalks, crosswalks, curb extensions, landscaping, and lighting.	The improvements were done in conjunction with the Portland-Milwaukie Light Rail (PMLR) project. The Adams Street Connector was funded with Metro regional flexible funds. The other improvements were funded through the PMLR project.	2016
	3	Oregon City: McLoughlin Blvd.	SE McLoughlin Blvd from the Hwy. 43 bridge north to Dunes Dr. (~0.9 miles)	City of Oregon City	Sidewalk expansion, street trees, crosswalks, and public art	This stretch of McLoughlin runs in the downtown area of Oregon City (a regional center) along the Willamette River. This was phase I of a larger project.	2009

	#	Project location	Area	Lead agency	Improvements made	Additional information/context	Year
Multnomah County	4	Gresham: NE Hood Ave.	NE Hood Ave, from SE Division to SE Powell (~0.5 miles)	City of Gresham	Added sidewalk on the east side of Hood Ave, planter strip with trees and streetlights to treat stormwater, and improved ADA access on NE 4th and Hood. Curb extensions and crosswalks at four intersections.	The north end of the project links to the Gresham Central MAX station. The project is in central Gresham, just on the edge of the main historical commercial area. The land uses along the corridor include a mix of commercial and housing, along with a park that hosts the Gresham Farmers' Market.	2013
	5	Portland: E Burnside	E Burnside, from NE 3rd Ave to NE 14th Ave	City of Portland	Addition of a bike lane, improved sidewalks and crossings, and landscaping. In addition, the street was converted to a one-way couplet with NE Couch.	This area was part of the Lower East Burnside Catalyst Development Area.	2010
	6	Portland: SE Division St.	SE Division St., from SE 6th to SE 39th (~1.9 miles)	City of Portland	Pedestrian improvements, including curb extensions and ramps, marked crossings, pedestrian countdown timers, bioswales and other landscaping, improved bus stops, bike corrals, public art, and street lighting improvements.		2014
	7	Portland: SE Foster Rd.–Woodstock Blvd.	SE Foster and SE Woodstock, from SE 87th to SE 101st (~0.8 miles)	City of Portland	Striped bike lanes, improved sidewalks, and landscaping.	This project is in the Lents Town Center Urban Renewal Area. SE Foster and SE Woodstock are parallel streets and form a one-way couplet through the main part of the Town Center.	2013

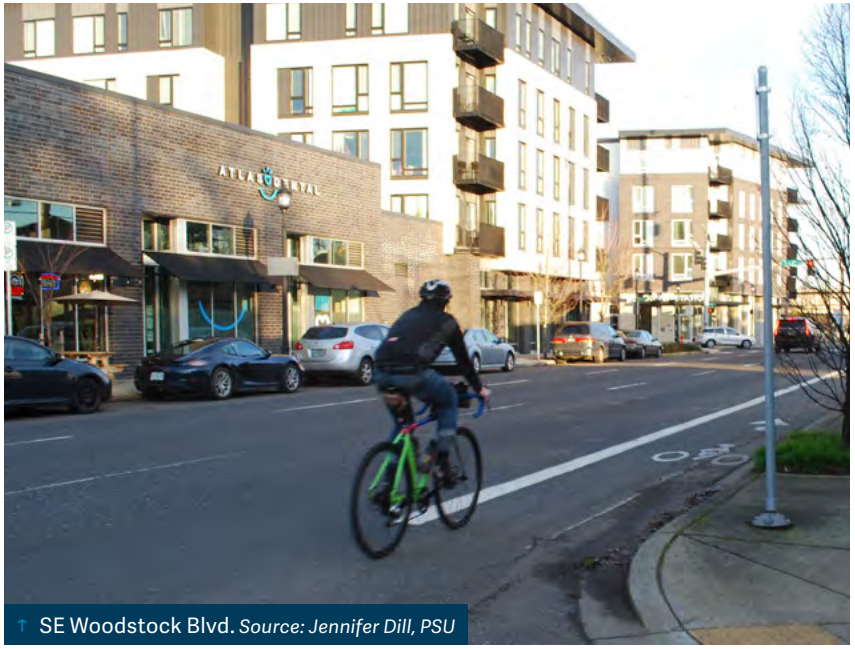
	#	Project location	Area	Lead agency	Improvements made	Additional information/context	Year
Multnomah County	8	Portland: St John's	St John's Town Center	City of Portland	The pedestrian element of this plan has four components. First, signalize the Richmond/ Ivanhoe intersection, second, interconnect three signalized intersections, third install curb extensions with striped crosswalks at several locations, and fourth construct a median refuge island with striped crosswalk at Lombard/Reno.	As a part of a grant received in 2004, the St. Johns/ Lombard part of the larger grant plan focused on improving pedestrian crossing safety in the St. Johns town center and pedestrian district. This also included curb extensions primarily along N Ivanhoe. The pedestrian element of this plan has four components. First, signalize the Richmond/Ivanhoe intersection, second, interconnect three signalized intersections, third install curb extensions with striped crosswalks at several locations, and fourth construct a median refuge island with striped crosswalk at Lombard/Reno.	2012
Washington County	9	Beaverton: SW Rose Biggi	SW Rose Biggi: Hall to Crescent	City of Beaverton	This project extended Rose Biggi Ave 850 feet from SW Crescent Ave. to Hall Boulevard. The segment includes two motor vehicle travel lanes, parking lanes, sidewalks, landscaping and street trees, lighting, storm drainage, irrigation, and a new bridge over Beaverton Creek.	Before the project, the street hit a dead- end; the project is a key north-south connection to the regional center, for motor vehicles, pedestrians, and bicycles. The project is also part of the city of Beaverton's larger efforts to improve the area around the Transit Center and Downtown through a range of transportation and land use projects.	2015
	10	Cornelius: E Baseline	Cornelius: Baseline and North Adair St., Phase I and II	City of Cornelius	Street lighting, wider sidewalks, additional street parking, safer intersections, street trees, a new stormwater management system, and a reduction in visible power lines.	Baseline is part of a one-way couplet with North Adair through downtown Cornelius. Similar improvements were made on North Adair.	2016

	#	Project location	Area	Lead agency	Improvements made	Additional information/context	Year
Washington County	11	Forest Grove: Town Center	Forest Grove Town Center, along Pacific Ave. and 19th Ave.	City of Forest Grove	A four-block area received a "full treatment" of decorative brick areas, street trees and tree wells with decorative grates, and decorative crosswalks. Several intersections were retrofitted with wheelchair ramps.	The two streets form a one-way couplet, with two travel lanes in each direction.	2010
	12	Tigard: Main St.	Main Street Green Street Phase I, Rail Corridor to 99W (~0.3 miles)	City of Tigard	New sidewalks, safer pedestrian crossings, street trees and landscaping, public art, benches, energy-efficient LED streetlights, stormwater treatment planters, and a turn-around for motorists at the south end of Main Street.	Main Street is one lane in each direction, with parallel and diagonal on-street parking. The Fanno Creek Trail intersects with the project corridor. This was part of Phase I of an effort to completely redesign and improve all of Main Street in downtown Tigard.	2014

↑ McLoughlin Blvd, Milwaukie. *Source: PSU TREC, photos by Lacey*

↑ Town Center, Forest Grove. *Source: Jennifer Dill, PSU*

↑ Town Center, Milwaukie. *Source: Jennifer Dill, PSU*



↑ SE Woodstock Blvd. *Source: Jennifer Dill, PSU*

3

Methods

↑ SW Broadway protected bikeway at PSU. *Source: Metro/Lake McTighe*

Methods

There are many ways to measure the impact of infrastructure projects on nearby businesses. Researchers at PSU relied on both quantitative and qualitative analysis methods to understand the impact active transportation infrastructure projects have on the local economies.

Quantitative methods

For each of the twelve study areas, researchers calculated whether the active transportation project had a positive, neutral, or negative effect on each of three business metrics (employment, wages, and sales) for two business sectors (retail and food) using three analysis methods.

Three different data sources for the business metrics were used:

	Measures
Longitudinal Employer-Household Dynamics (LEHD) employment data	Changes in Jobs (Also referred to as employment)
Quarterly Census of Employment and Wages (QCEW) employment and wage data	Changes in Jobs & Changes in Wages
National Establishment Time Series (NETS) employment and sales data	Changes in Jobs, Sales Revenue

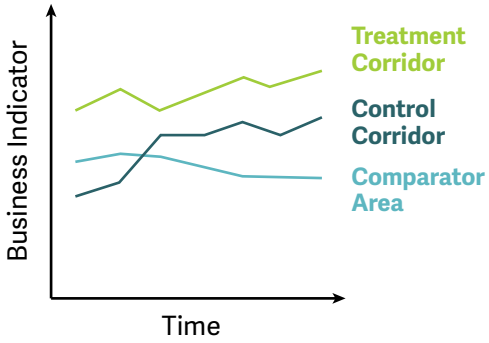
By looking at economic activity over time, we can comprehensively think about how the characteristics of the businesses have changed within the same industry category or between different industry categories. For example, if the number of food and accommodations employees increased but wages and sales decreased, it may be due to a transition from higher price sit-down restaurants to quick service food establishments with a greater number of lower wage employees. Alternatively, if the retail sector declines while the food and accommodations sector grows, these trends may be due to more restaurants and bars opening up on the corridor.

The three analytical methods used to examine how business activities have changed over time are: Aggregated Trends Analysis (ATA), Difference-in-difference (DID) analysis, and Interrupted Time Series (ITS) analysis. Using multiple methods allows researchers to understand trends with greater detail and clarity:

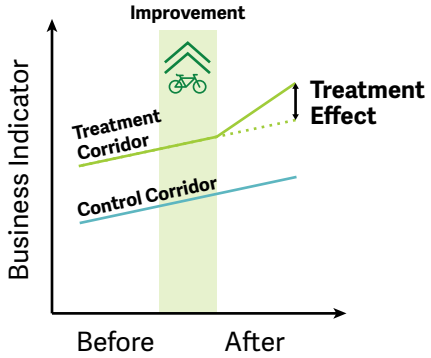
↑ Sidewalk café, Downtown Portland. *Source: Metro/Lake McTighe*

- ATA compares business indicator trends on project corridors with business indicator trends on control corridors (which did not receive improvements) over time. The trends of project corridors are also compared to neighborhood and city-wide trends.
- DID analysis is a way to compare the difference between the project corridor and a control corridor before and after the improvement to understand the effect the project had on a particular business indicator.
- ITS analysis observes a business indicator at different time periods at each of the project corridors and measures the impacts of the project on the business indicator trends for that particular corridor.

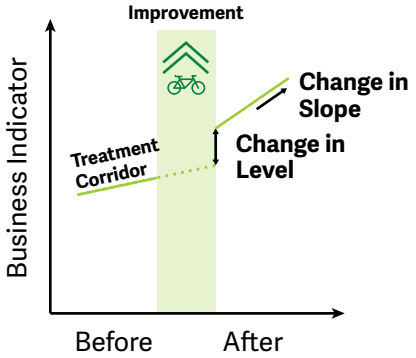
Aggregated Trends Analysis (ATA)



Difference in Difference (DID)



Interrupted Time Series (ITS)



Aggregated trend analysis and DID analysis both utilize control corridors to understand the impacts on the treatment corridor, while ITS is an econometric technique that analyzes multiple time points on the improved corridor only.

The control corridors were selected using the following criteria:

- **Geographical proximity**
- **Similar level and type of commercial activity**
- **Similar growth in commercial activity before the improvement**
- **Similar motor vehicle travel volumes**
- **Similar position in the road network**

↑ NE 21st Ave. *Source: Metro/Lake McTighe*

New methods to study bike projects

Metro is working on a methodology to evaluate the impacts of bicycle infrastructure projects that fill a critical gap in the bikeway network, and improve not just a single business corridor but the connectivity of the entire metropolitan area.

Building on the existing regional travel demand model and research conducted in other regions around the world, Metro will estimate the benefits of bike infrastructure projects, both in terms of individual users and the overall transportation network. These emerging methods will allow Metro to translate bike network improvements into travel cost savings and health cost savings for people in order to more fully understand how these projects impact the region as a whole.

Qualitative methods

Not all of the data evaluated in this study was quantitative. The research team also used interviews, online surveys, and existing feedback recorded in from other projects to collect qualitative input on the impacts of the Catalyst Projects. The results of the qualitative methods is a case study for each of the projects. The methods used for the case studies were:

Interviews

For each project, the research team interviewed potential stakeholders. The stakeholders included neighborhood business and resident groups, local businesses, and non-profit organizations operating in the area.

Online survey

The survey, included two main open-ended questions. One asked what the person thought about walking, bicycling, or using other non-car or transit modes of transportation in the project area (streets or trails). The second asked if they could remember the area before the improvements and how they thought the improvements changed their activities. The form asked about the types of activities they did in the project area (walk, run, bike, skateboard, wheelchair, other) and some demographics (city or neighborhood, race/ethnicity, disability, and gender).

Readers should note that unlike a quantitative survey, this survey was designed primarily to collect qualitative input from interested users, and so the distribution method was not intended to result in a representative sample of all users. When several users expressed concerns or issues related to the improvements, those sentiments were recorded in the project summary.

Existing feedback

Given the inability to collect data in-person and the lack of activity in many of the study areas due to COVID restrictions on businesses, the research team mined many existing sources to capture user views pre-COVID. The three categories of sources include the following:

- **Intercept surveys** conducted by volunteers as part of Metro's regular trail counting efforts.
- **Surveys conducted by PSU** of residents of transit-oriented developments (TODs) funded by Metro.
- **Websites and social media**, particularly www.traillink.com; the site had user reviews for most of the trail projects in the study.

↑ Downtown Tigard. *Source: Metro/Lake McTighe*

4

Findings

↑ Portland, 92nd & Foster. *Source: Jennifer Dill, PSU*

Findings

One of the most important outcomes of this study is to inform future policy and decision making, including Regional Flexible Funding Allocations (RFFA), which are a key funding source for the region's active transportation infrastructure. The findings presented here help to clarify the relationship between these investments and economic activity.

A summary of the impacts on business (in terms of employment, wages, and sales) is shown in Table 2. The text in the table simplifies the results for all outcomes, data sources, and methods of analysis. "Some positive" (or "some negative") indicates that some, but not a majority, of the analyses were positive (or negative), while the others were neutral (no effect). "Mainly positive" indicates that a majority of the analyses were positive, while the others were all or primarily neutral (no effect). "Mixed" indicates that there were positive, negative, and no effects, with no one direction of effect dominating. "Mainly no effect" is used when all but one of the analyses found no effect.

Table 2. Summary of project impacts on the retail and food industries

Study Area	Retail	Food
McLoughlin Blvd, Milwaukie (2006)	Some Positive, Some Negative	Some Positive, Some Negative
Town Center, Milwaukie (2016)	No Negative, No Positive	Some Positive, No Negative
McLoughlin Blvd, Oregon City (2009)	Mainly Positive, No Negative	Some Positive, Some Negative
NE Hood Ave, Gresham (2013)	Some Positive, No Negative	Some Positive, No Negative
E Burnside, Portland (2010)	Mainly Positive, No Negative	Some Positive, Some Negative
SE Division St, Portland (2014)	Some Positive, No Negative	Mainly Positive, No Negative
SE Foster Rd-Woodstock Blvd, Portland (2013)	Some Positive, Some Negative	Some Negative, No Positive
St John's, Portland (2012)	Some Positive, No Negative	No Negative, No Positive
SW Rose Biggi Beaverton (2015)	Mainly Positive, No Negative	No Negative, No Positive
E Baseline, Cornelius (2016)	Some Negative, No Positive	Mainly Positive, No Negative
Town Center, Forest Grove (2010)	Some Positive, No Negative	Some Positive, No Negative
Main St, Tigard (2014)	No Negative, No Positive	No Negative, No Positive

Some Negative, No Positive · *No Negative, No Positive* · *Some Positive, Some Negative* · *Some Positive, No Negative* · *Mainly Positive, No Negative*

Key takeaways

Net positive impact on business

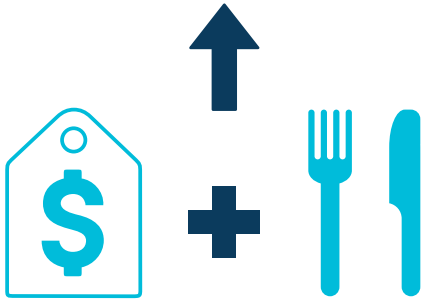
- On aggregate, the study found 84 positive effects, 185 no effects, and 30 negative effects. The evidence suggests that overall, active transportation investments have a net positive impact on business (see Section 7 of the Technical Report in Appendix A).

↑ Pedestrian improvements positively effecting retail and food businesses. *Source: Metro/Lake McTighe*

↑ *Source: Metro*

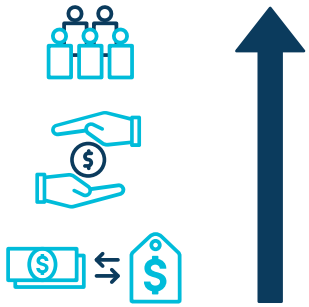
Positive effects more likely than negative

- Among all projects, both retail and food sector businesses were more likely to experience positive effects from active transportation investments than negative effects. Among those projects that did not produce positive effects on either retail or food sector businesses, the majority experienced either mixed results or no effect.



Positive effects more likely in the retail sector than the food sector

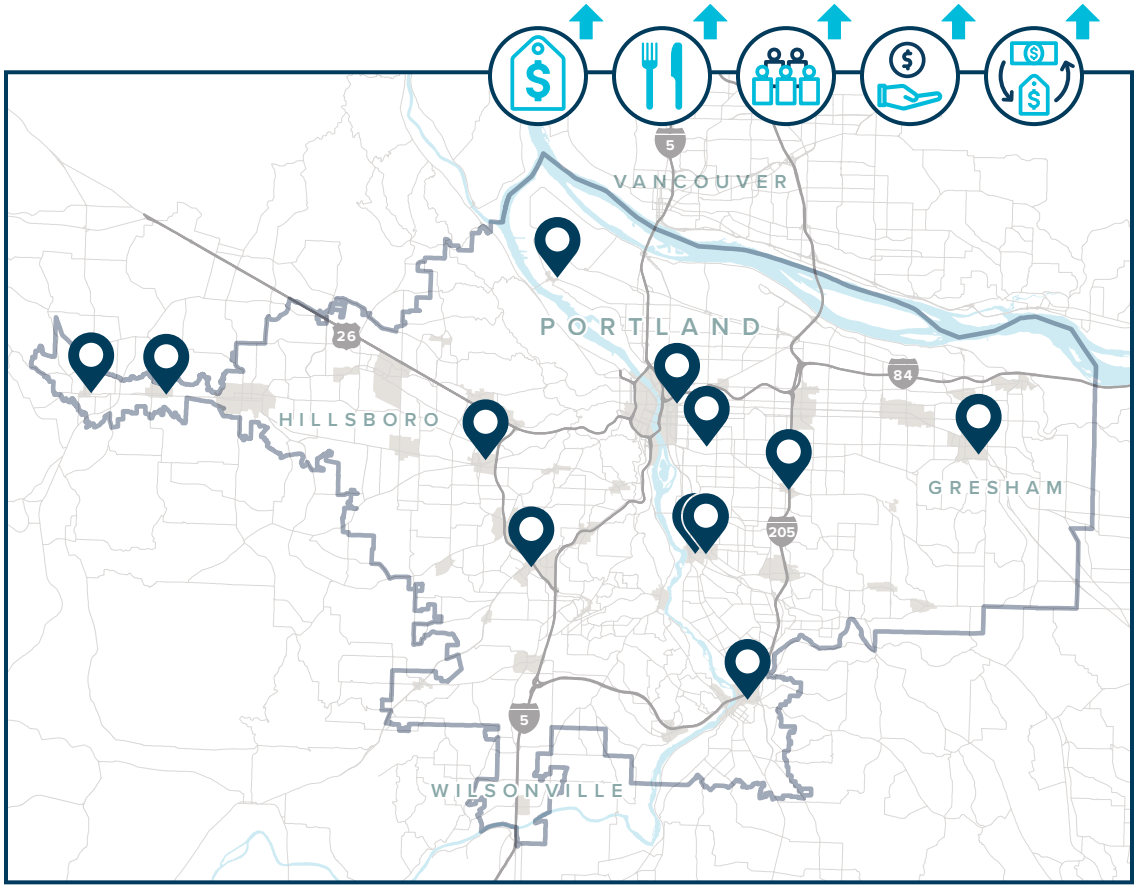
- Employment, wages, and sales in the retail sector were more likely to see positive effects than in the food sector. And while there were more projects that had strong positive effects on the food sector than in the retail sector, the impacts to food sector businesses were more likely to be mixed or have no effect.



↑ *Source: Jennifer Dill, PSU*

Positive effects found across the region

- A range of different areas in the Metro region experienced positive effects. Researchers found some or mainly positive effects for the retail and/or food sectors in nine of the twelve study areas. This suggests that there are potential economic benefits from active transportation infrastructure for places that are not simply in the most urban areas of Portland.
- Places like Mcloughlin Blvd in Oregon City demonstrated some of the most positive impacts from improvements. The improvements there included sidewalk expansion, street trees, crosswalks, and public art. All three methods of analysis and data sources showed positive effects from the project on employment, wages, and sales (see Section 7.3 of the Technical Report in Appendix A).



- In Gresham on NE Hood Avenue, adding sidewalks, planter strips with trees and streetlights, curb extensions, crosswalks, and improved ADA access were shown to have positively impacted both retail and food sectors' employment and wages (see Section 7.4 of the Technical Report in Appendix A).
- Finally, in Forest Grove, the town center was improved with a one-way traffic couplet, decorative brick areas, street trees, decorative crosswalks, and wheelchair ramps. The improvements demonstrated strong positive effects on food sector employment and wages, and to a lesser degree sales, and positively affected retail sector employment and wages (see Section 7.11 of the Technical Report in Appendix A).

↑ Decorative crosswalks. *Source: Jennifer Dill, PSU*

↑ Wheelchair ramps. *Source: Jennifer Dill, PSU*

↑ Public art in NE Hood, Gresham. *Source: Jennifer Dill, PSU*

Positive effects found at different scales

- Positive effects were seen in projects with different scales, too. For example, in Gresham, the project extent was smaller than that of SE Division in Portland (half mile vs. two miles), yet both showed positive results. *(However, it may be harder to find statistically significant changes for smaller projects. For example, the improvements on Main St. in Tigard were only about one-third of a mile in length and not many effects were found).*

↑ Crossing improvements in NE Hood and 3rd, Gresham. *Source: Jennifer Dill, PSU*

Negative effects found along high-speed arterials

- The two projects that produced negative effects on business, and all but one of the projects that produced "mixed effects" were located on major, multi-lane, higher speed arterials. The scale and context of these streets as major thoroughfares makes it challenging to increase pedestrian-oriented business. However, the findings from the researcher's interviews suggest that while business metrics may not benefit as much from active transportation investments in these locations, the improvements are likely to have safety and other benefits. For example, the improvements along McLoughlin Boulevard in both Milwaukie and Oregon City allow people to walk more safely between riverfront trails and the historic downtowns.

Limitations

Lack of control corridors

In some cases, there were no control corridors that had similar commercial activity, were in geographic proximity to the project, or were in a similar position in the road network.

Several possible control corridors with similar contexts and land uses either already had bicycle/pedestrian infrastructure when the catalyst project was built or such infrastructure was added in a similar time frame.

Other public investments were conducted in the same areas

Many of these projects are in areas that received other types of public investments (sometimes much larger investments) that likely also produced positive economic impacts. These include other transportation investments (e.g., a new MAX station or a Streetcar line) and a range of activities related to urban renewal.

Limited long term data

LEHD and NETS datasets were available from 2002 to 2017, and QCEW dataset from 2003 to 2018. However, all of our street improvements except one were completed after 2010. This means that in a number of analyzed corridors, it was difficult to evaluate long-term effects of street improvements because sufficient data had not been collected after construction.

The Great Recession (2008-2009)

The Great Recession that began in 2008 and 2009 impacts the analysis. Most of the projects were constructed within a few years (before and after) the recession, making it more challenging to isolate the effects of the street improvement project from larger economic trends. However, using multiple analytical approaches may help to address this, as they provide ways to identify business activity shifts along an improved corridor relative to the larger economic trends of the post recessionary recovery.

↑ SW Moody Ave. *Source: Metro/Lake McTighe*

5

Conclusion

↑ Wide sidewalk and separated bikeway on freeway overcrossing. *Source: Metro/Lake McTighe*

Conclusions

The project improvements included in the Active Transportation Return on Investment study were intended, in part, to help create attractive and walkable business districts. The findings of the study demonstrate that there were measurable increases in businesses activity at most of the project locations. The following contains additional conclusions to help guide investment in the region.

Active transportation investments work across the Metro region. Among communities outside of Portland, over 80% experienced positive business impacts

See: 1. Investments of all shapes and sizes

1 ▸ Investments of all shapes and sizes

Communities of all sizes can boost food and retail businesses through active transportation investments big and small. With positive effects across a broad spectrum of urban densities or project lengths, locally-relevant and contextually appropriate infrastructure solutions are likely more important determinants of success.

2 ▸ Build back better

Businesses benefit from active transportation projects. In addition to safety, mobility and environmental gains from an active transportation project, there were measurable economic gains for nearby retail and food businesses in 3 out of 4 projects studied. As the region—and the nation—work to "build back better" following the COVID pandemic, these findings show the potential of projects to benefit hard hit business sectors.

↓ Illustration: Metro 2019, Designing Livable Streets and Trails Guide

3 ▸ The multiplier effect

Realizing economic benefits from projects that make it safer and easier to walk is more likely when coupled with other improvements that add to an area's walkability. Layering complementary investments (e.g. light rail stations and transit oriented-development), has the potential to yield the greatest benefits from active transportation infrastructure in the region.

4 ▸ Setting projects up for success

High traffic volumes and high travel speeds are likely to reduce a project's benefit to nearby businesses. Projects are more likely to reach their full potential when they reduce the effects of an auto-oriented environment and create places for walking that are also less stressful and more comfortable.

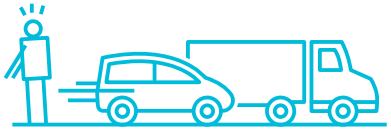
75%

of the project locations saw measurable economic gains in the food or retail industries after implementation

See: 2. Build back better

Layering complementary investments has the potential to yield the greatest benefits

See: 3. The multiplier effect



The projects that did not see positive effects tended to have higher traffic volumes and/or speeds.

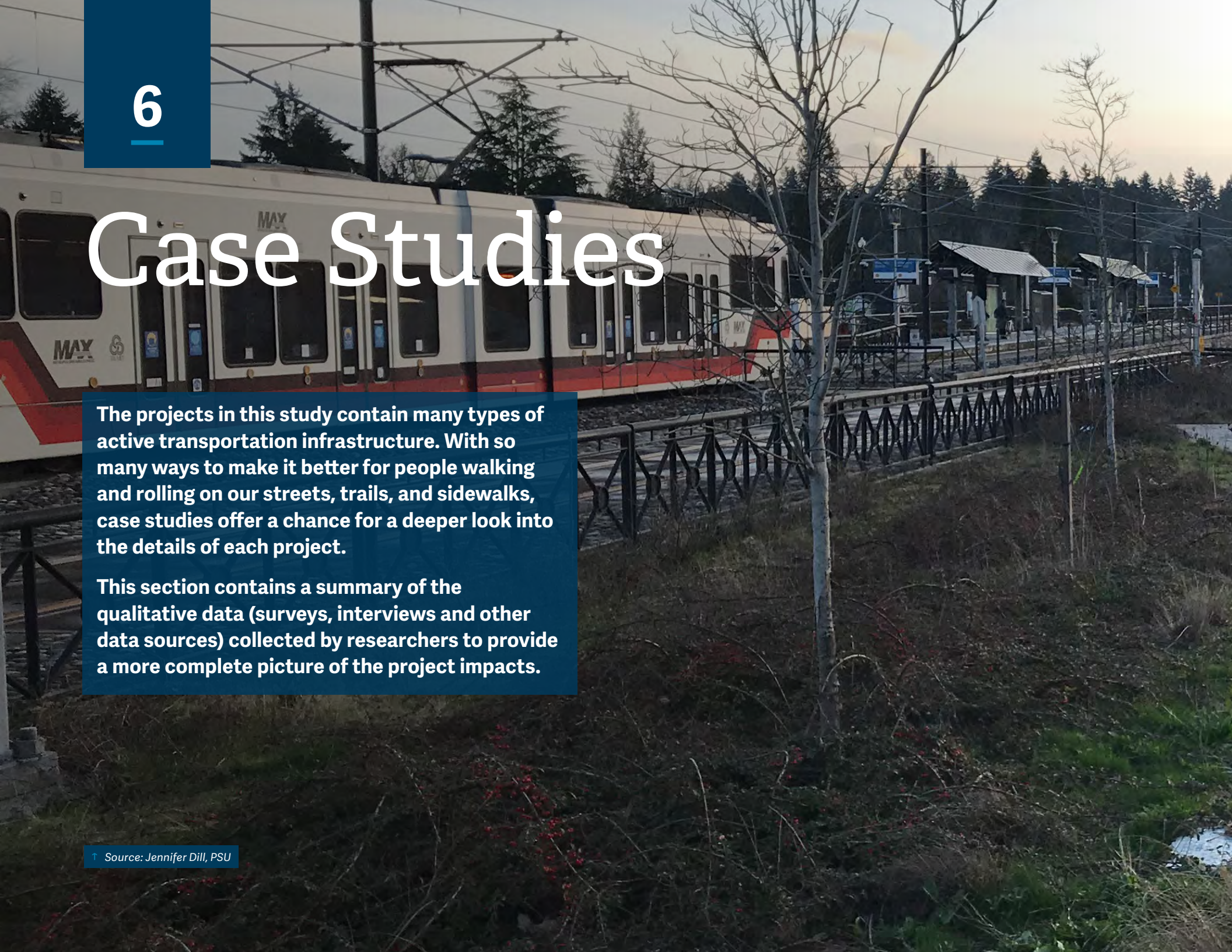
See: 4. Setting projects up for success

6

Case Studies

The projects in this study contain many types of active transportation infrastructure. With so many ways to make it better for people walking and rolling on our streets, trails, and sidewalks, case studies offer a chance for a deeper look into the details of each project.

This section contains a summary of the qualitative data (surveys, interviews and other data sources) collected by researchers to provide a more complete picture of the project impacts.



↑ *Source: Jennifer Dill, PSU*


BROKEN ARROW
ARCHERY

Year completed

2006

Project summary

The project improved pedestrian crossings, landscaping, and sidewalks along about 0.4 miles of McLoughlin Boulevard in downtown Milwaukie. The landscape improvements included 92 trees, several thousand shrubs, and groundcover plants. Pedestrian crosswalks at several intersections included a brick-like pattern.

Project goals

To create a more pedestrian-friendly environment and provide a safer way for pedestrians to cross McLoughlin Blvd, with the hopes of creating a more welcoming and visually appealing place and drawing more people to the area.

Milwaukie: McLoughlin Blvd

Enhanced crossings, sidewalks, and landscape improvements

What people are saying:

The project has been well received by the community and improved the area in several ways, including:

- **Improved access to the Willamette River and downtown.** The enhanced crossings connect the river to the rest of Milwaukie.

  > *I never used to go to the actual waterfront but then started doing so. – Ardenwald neighborhood resident*

  > *Lovely walk, and easy access to public transit, and local businesses. Very much improved with a sidewalk in the park. – Island Station resident*

- **Positively enhanced active transportation connections.** The project follows the Trolley Trail, and the improved crossings help people access this essential corridor for walking and biking.

  > *Trolley trail improvements and riverfront improvements have been a huge plus to Milwaukie.*
  > *– Lake Road resident*

- **Created a welcoming pedestrian environment.** Combined with other projects like Milwaukie Town Center Improvements and the Portland-Milwaukie Light Rail station, the area is becoming increasingly pedestrian-friendly. The improvements and slower vehicle speeds help make the area feel less like a highway corridor and safer for people to cross McLoughlin Blvd.

  > *The improvements through this stretch have improved greatly over this time, and it has become much more enjoyable for recreational use.*
  > *– Downtown Milwaukie resident*

  > *Without these types of projects, it would be a very different place; I'm a huge fan.*
  > *– Milwaukie Mayor Mark Gamba.*

- **Future improvements would be welcomed.** Some users feel that the improvements could go further, and the high traffic volumes on McLoughlin Blvd still diminish the pedestrian experience.

  > *Loud. A bit unnerving with small kids. – SE Portland resident*

  > *The divide between pedestrians and vehicles is good but could be better. Crossing the street only feels safe where there is a center island. – Downtown Milwaukie resident*

↑ Before. 99E and Monroe St. *Source: Google Earth 2004*

↑ After. 99E and Monroe St. *Source: Google Earth 2004*

↑ *Source: PSU TREC, photos by Lacey*

↑ *Source: PSU TREC, photos by Lacey*

↑ *Source: PSU TREC, photos by Lacey*

Year completed

2015

Project summary

The project completed the one block Adams St. Connector- a pedestrian area containing landscaping, artwork, and seating- to connect the MAX station with Main Street and South Downtown Plaza, as well as add more bus stops and upgrade sidewalks around the Max station.

Project goals

To help restore the Milwaukie historic downtown as a vital town center, strengthen the retail character of Main Street, and create a flow of pedestrian activity.

Milwaukie: Town Center

Upgrading sidewalks, bus stops, and Adams St. connection

What people are saying

- **Increased transit connections in the Milwaukie Town Center.** The new connections between transit and business have been greatly improved, providing pedestrians with more access to transportation in and around the downtown area.

  > *[T]he last five years have changed, and it's really awesome. Better walkability by not only adding transportation like the Orange Line but better bus access and stops. – Jennifer Garberly, City of Milwaukie Assistant Engineer*

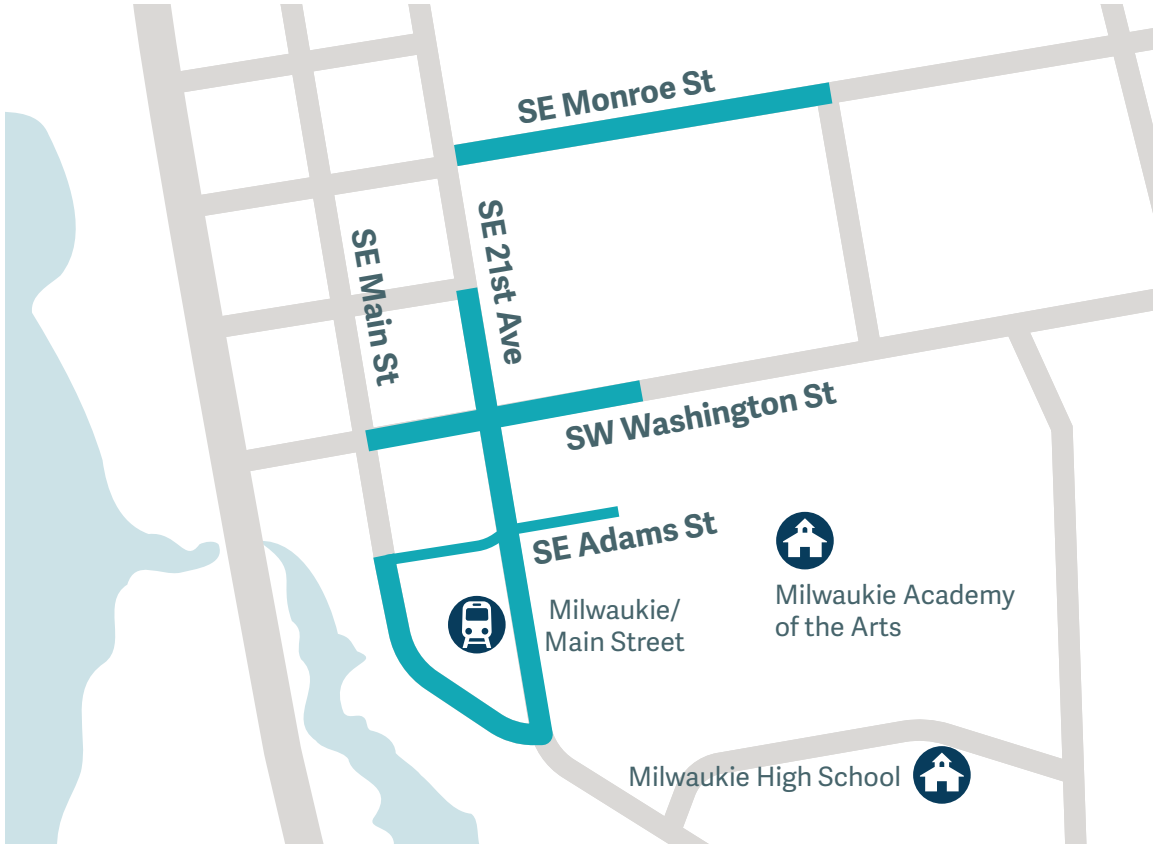
- **Revitalized Milwaukee's Historic downtown area.** Many businesses have seen growth, and more have moved into the downtown area, while maintaining the liveliness and personality of the area.

  > *Huge improvement! Downtown used to be a dump and not an interesting place to walk at all. Seems livelier, more like a neighborhood. Riverfront Park, library renovation, farmers market, Waldorf school, pedestrian bridge, and food carts have all contributed to making downtown a walkable destination. – Lake Road resident*

- **Creating a welcoming pedestrian environment.** Combined with other projects like the Mcloughlin Blvd Improvements and the Portland-Milwaukie Light Rail station, the area is becoming increasingly pedestrian-friendly. The improvements have created a flow of pedestrian activity and increased the safety of pedestrian transportation.

  > *Walking through this area feels safe, and the visibility is great. I have walked from Main Street to the waterfront area more often. – Ardenwald neighborhood resident*

  > *I think a lot has been done to make it safe and easy for pedestrians. I feel great walking in this area. I definitely go downtown a lot more than I used to. – Lewelling resident*



Limitations

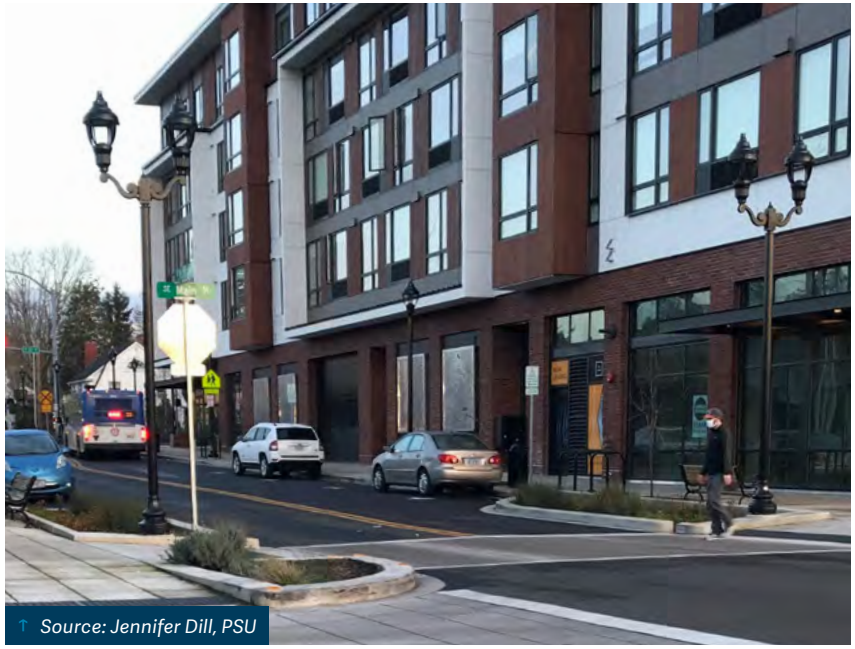
The Portland-Milwaukie Light Rail project funded several other nearby pedestrian improvements on the adjacent blocks; the sheer amount and proximity make it impossible to quantify its impacts separately.

↑ Before. Adams St. *Source: Google Maps*

↑ After. Adams St. *Source: Google Maps 2011*

↑ *Source: Jennifer Dill, PSU*

↑ *Source: Jennifer Dill, PSU*



↑ *Source: Jennifer Dill, PSU*

↑ *Source: Jennifer Dill, PSU*

Year completed

2009

Project summary

The project focused on adding sidewalk expansions, street trees, crosswalks, and public art along a 0.9-mile stretch of Mcloughlin Blvd through the downtown area of Oregon City from Dunes Drive to the Oregon City Bridge. It was the first phase of improvements to McLoughlin Blvd and incorporated significant highway improvements such as reconnecting 12th Street with McLoughlin Blvd and reconfiguring a Highway on-ramp.

Project goals

To create a better downtown environment along and around Oregon Route 99E for pedestrians and cyclists.

Oregon City: McLoughlin Blvd

Sidewalks, highway transportation, and landscaping improvements

What people are saying

- **Energized downtown redevelopment.** The increased connectivity, activity, and visual appeal of Mcloughlin Blvd have increased investments downtown.

  > *This project was the beginning of the Main Street program and really seeing investment; [A] dramatic increase in businesses, restaurants, retail, and office tenants. – Christina Robertson-Gardiner, senior planner with Oregon City*

- **Improved active transportation access.** The improvements have closed a gap in the active transportation network. This complete street design for McLoughlin Boulevard has helped offset the challenges of having a highway run through the city and provide safe pedestrian and bicycle access.

  > *Before, I almost never biked this way and only because I was willing to cross through traffic and use a vehicular turn lane. Now I bike this way more often and use this safer path and a crosswalk to deal with McLoughlin Blvd. – Oak Grove resident*

- **More safety enhancements desired.** Some users believe improvements could further separate congestion and vehicular traffic from walking and biking pedestrians.

  > *It isn't that safe as a biker/walker... My observations are that any car near a freeway on-ramp is thinking, speeding up, and getting on the ramp. They are not looking for [pedestrians], and they'll run the light. – Oregon City resident*

Additional lessons learned

- **Business frontage.** While new businesses have opened on Main street, little growth has occurred on Mcloughlin Blvd due to a lack of business frontage on that street. Many businesses are now looking to create more secondary entrances to Mcloughlin Blvd to fully access the project's benefits.

↑ McLoughlin Blvd, before 12th St extension, facing north. *Source: Google 2007*

↑ McLoughlin Blvd and 12th St facing north. *Source: Google 2018*

↑ *Source: Jennifer Dill, PSU*

↑ *Source: Jennifer Dill, PSU*

↑ *Source: Jennifer Dill, PSU*

Year completed

2013

Project summary

The project improved ADA access, landscaping, and sidewalks along a half-mile segment from NE Division Street to E Powell Boulevard. Sidewalk enhancements included installing crosswalks, curb expansions, and pedestrian scale lighting.

Project goals

To make Hood Ave more pedestrian-friendly, prioritizing improving pedestrian access to public transit, both buses, and the light rail, and promoting connectivity.

Gresham: NE Hood Ave.

Enhanced sidewalks, ada access, and landscaping improvements

What are people saying

- **Improved ADA Accessibility.** The street enhancements have provided a more accessible environment for all community members.

  > *Walking and pushing my adult son in his manual wheelchair, I have felt pretty much safe. Auto traffic isn't heavy. Gave [me] peace of mind and easier access to get around better on the street and easier to push the wheelchair. – Gresham resident*

- **Increased Active Transportation.** The improvements have helped increase walking and biking safety along Hood Ave and provided more pedestrian access around town.

  → One PSU survey of five buildings in downtown Gresham has found significant growth in the rate of pedestrians walking, jogging, or strolling around their neighborhoods after the improvements were installed.

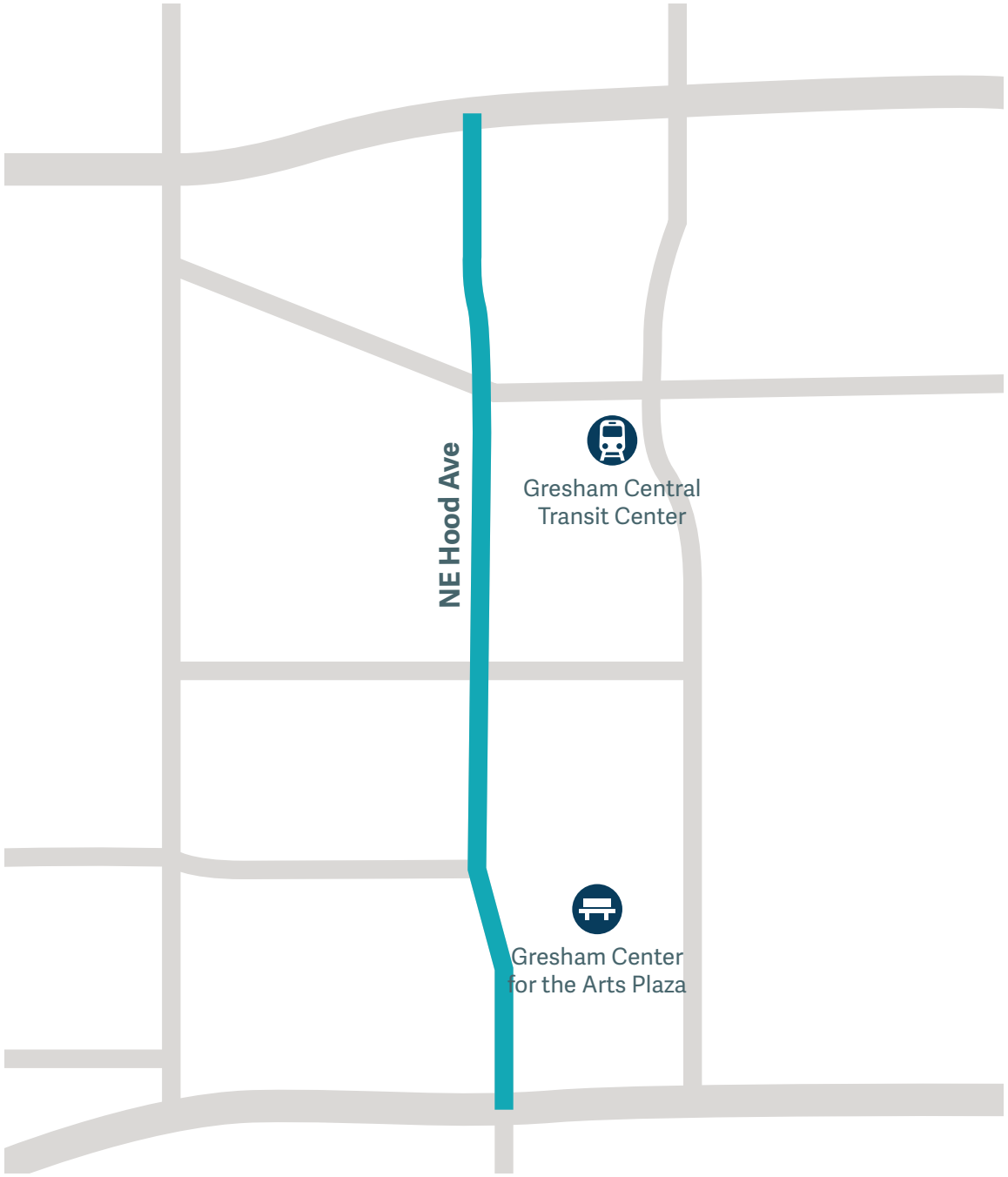
> *I like to be able to walk and cross the street to access other parts of downtown Gresham. The changes greatly improved the access and safety. – Boring resident*

> *We live in downtown Gresham which is a pleasant walking environment: Access to stores, restaurants, doctors, dentist, park, post office, former office (now retired), and the library is ideal. Saved commute time, gas, and much stress for many years. Living close to [our] self-employed work made life much better. – Downtown Gresham resident*

> *We also chose this location because it is close to MAX, which I was using for work at the time we moved here. – Resident*

- **Better experience:** Overall, the project met its goals to benefit people walking and rolling in the area.

  > *I love the width of the sidewalk; it's comfy to walk even when it is busy (like the farmers market or other events); the bulbouts help with letting drivers know when someone wants to cross. I used to push a double stroller around there. The curbs were difficult, and there wasn't always room. There was less of a feeling that the area was for strolling. It was less comfortable to walk (in winter especially) before the separation the rain gardens provide. – SE Gresham resident*



↑ Intersection of NE Hood Ave and NE 3rd Ave. *Source: Google 2007*

↑ Looking south at intersection of Hood and 3rd. Project would add ADA ramp to corner. Source: *Kate Dreyfus, City of Gresham*

↑ Intersection of NE Hood Ave and NE 3rd Ave. *Source: Google 2019*

↑ NE Hood & 3rd. *Source: Jennifer Dill, PSU*

↑ NE Hood & 2nd. *Source: Jennifer Dill, PSU*

↑ NE Hood & 3rd. *Source: Jennifer Dill, PSU*

↑ NE Hood & 5th. *Source: Jennifer Dill, PSU*

Year completed

2010

Project summary

The Portland E Burnside Street Project converted the street into a one-way couplet with NE Couch, in addition to adding a bike lane and improving sidewalks, crossings, and landscaping from NE Couch Street to Sandy Blvd.

Project goals

The project's primary aims were to improve safety, slow down traffic, and help the businesses in the area.

Portland: E. Burnside Street

Improved sidewalks, crossings, and pedestrian access

What people are saying

- **Increased development.** The improvements have caused a boom in mixed-use development, attributed to increased pedestrian traffic and how the Burnside Bridge crossing has become more pedestrian-friendly.

  > *Fifteen years ago, nothing was happening there. – Dan Layden, interim capital delivery division manager for PBOT*

- **Improved access to the city center.** The improvements have facilitated transit along roads and walkways along E Burnside and connected with the Portland Streetcar – the B Loop opened in 2015.

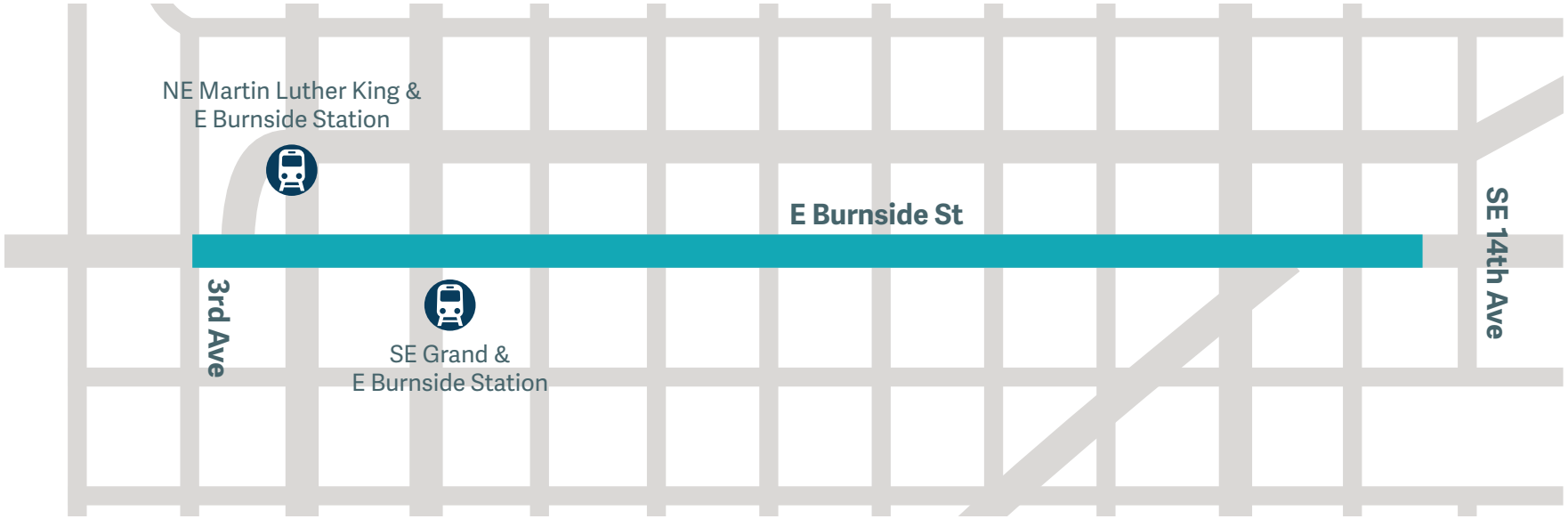
  > *Burnside was horrible to drive and nearly impossible to cross by bike or on foot. Now it is inviting, and businesses are doing well. It works better for driving, biking and walking, too. – Overlook resident*

  > *[I] moved here specifically for the transportation options. – Resident*

- **Creating a welcoming pedestrian environment.** The improvements have slowed down automobile traffic and improved multimodal access, resulting in an increase in pedestrian traffic and improved quality of life for residents in the surrounding area.

  > *This [the improvements] was transformational. Prior to this, Burnside and Couch were barriers and unpleasant to walk along. Now they are easily crossed, and I enjoy walking along them… The improvements to Burnside – including the stormwater gardens, the signals, the curb extensions, and the bike lanes – transformed this area. – Overlook resident*

  > *I enjoy walking around this area. The short blocks and walk signals at every intersection make me feel safe when crossing streets. – Buckman neighborhood resident*



- **Lacking low-stress bike infrastructure:** Biking is perceived by many users as less safe than walking or driving since there are no protected bike lanes; those which do exist are narrow and frequently blocked by cars- as are bus lanes.

> *I frequently bike to/from Burnside Bridge and dread this stretch. The bike lane is narrow, unprotected, and frequently is blocked by cars dropping people off at bars. My bus also gets stuck at these places. Would be better with a truly protected and dedicated bus/bike lane. – Buckman neighborhood resident*

> *Bicycling isn't great, but the bike lane is so valuable for getting to destinations. I wish it were protected from traffic. – Lloyd neighborhood resident*

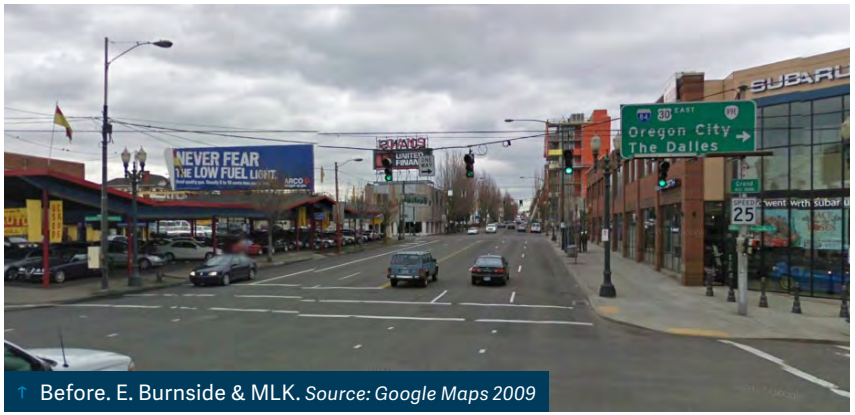
↑ *Source: Google Maps 2009*

↑ *Source: Google Maps 2010*

↑ Before. E. Burnside & 9th. *Source: Google Maps 2009*

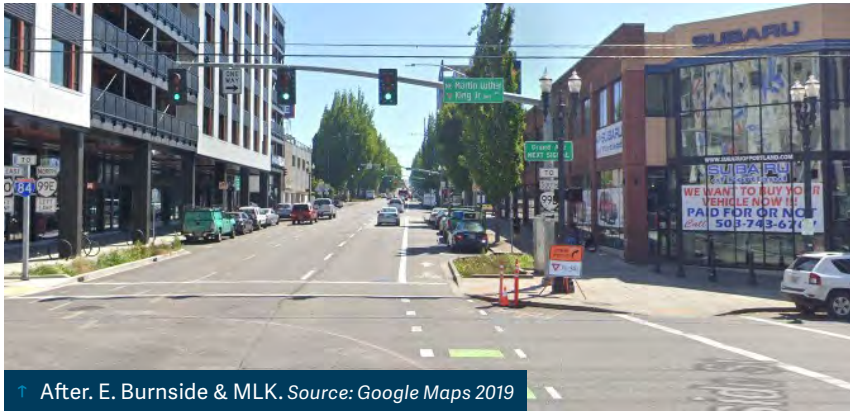
↑ After. E. Burnside & 9th. *Source: Google Maps 2016*

↑ After. E. Burnside & 9th. *Source: Google Maps 2018*



↑ Before. E. Burnside & MLK. *Source: Google Maps 2009*

↑ After. E. Burnside & MLK. *Source: Google Maps 2014*



↑ After. E. Burnside & MLK. *Source: Google Maps 2019*

↑ Before. E. Burnside & 10th. *Source: Google Maps 2009*

↑ After. E. Burnside & 10th. *Source: Google Maps 2015*

↑ NE Grand and Burnside. *Source: Metro/Lake McTighe*

↑ NE Grand and Burnside. *Source: Metro/Lake McTighe*

↑ E Burnside. *Source: Metro/Lake McTighe*

↑ Downtown Portland. *Source: Metro/Lake McTighe*

↑ Cyclists on E Burnside. *Source: Metro/Lake McTighe*

Portland: SE Division St

Landscaping, transportation, and general street improvements

Year completed

2014

Project summary

The Portland SE Division Street project spans 1.9 miles from SE 6th Avenue to SE Cesar Chavez Boulevard and helped general street improvements in that area: curb extensions and ADA-compliant curb ramps, marked crossings, public art, and street lighting improvements. The project added bioswales and other landscaping improvements, along with transportation changes focused on improving bus stops, optimizing traffic signals, and installing bicycle corrals.

Project goals

To create a more pedestrian-friendly, economically vibrant, and environmentally sustainable corridor.

What people are saying

- **Improved transportation access.** Improvements have changed the area's transportation infrastructure and made it more accessible taking buses.

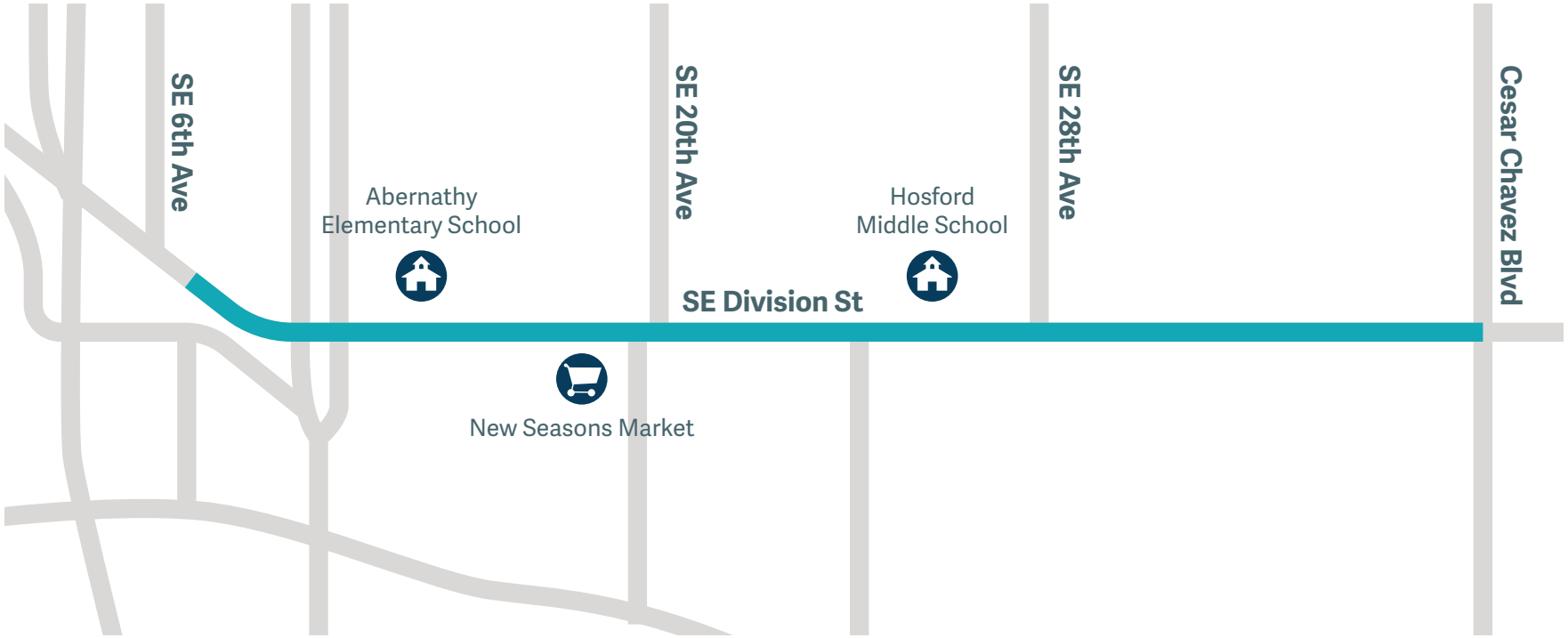
  > *It made the bus faster and getting on and off safer. Buses were setting the pace of traffic (which made it safer for walkers and riders in general), and the sidewalk bulbs at most stops ensured you could board and depart buses without immediately stepping into foot traffic or [being] forced to cross a partial lane of traffic when the bus couldn't fully pull over to the curb. – Buckman resident*

- **Increased development.** Streetscapes have created favorable conditions for developers creating a high-density residential area and developmental sector and turning Division into a destination street and restaurant district.

  > *The thought that you can go in Division and get world-class bread, it's unimaginable. – Chris Eykamp, Chair of Hosford-Abernethy Neighborhood District Association*

- **More safety enhancements desired.** Further improvements are needed to improve bicycle safety as the street is still not very bicycle-friendly. Cars also tend to speed and often fail to stop pedestrians at crossings.

  > *Division is generally pleasant due to its relatively skinny lanes. However, folks still tend to speed and often fail to stop for pedestrians at crossings. – Sunnyside resident*



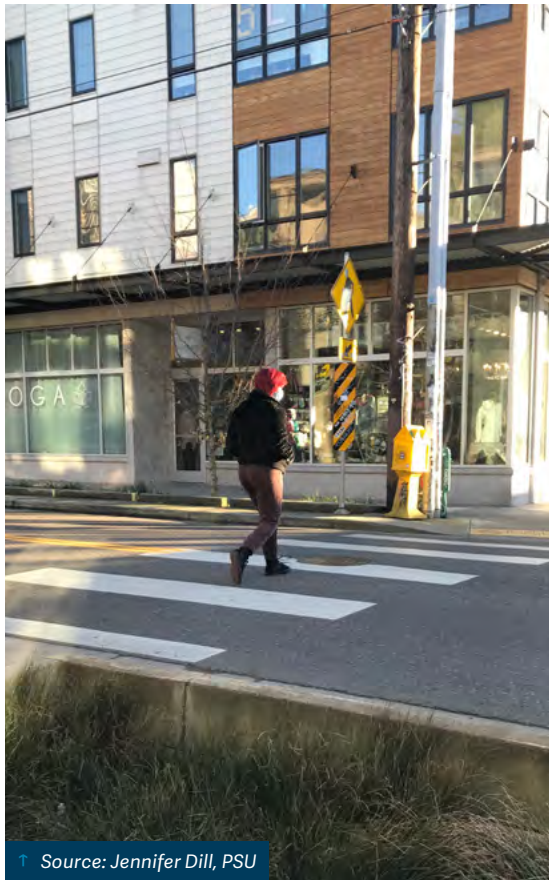
- **Creating a pedestrian-friendly environment.** Curb extensions and narrower driving lanes have slowed traffic and provided more favorable walking conditions. Pedestrians have also felt safer crossing streets, using intersections, and boarding buses.

> *It has slowed drivers down, which helps the overall pedestrian experience. – Mt. Scott/Arleta neighborhood resident*

> *Intersections feel safer to navigate (particularly around the 7 Corners intersection). – Westmoreland resident*

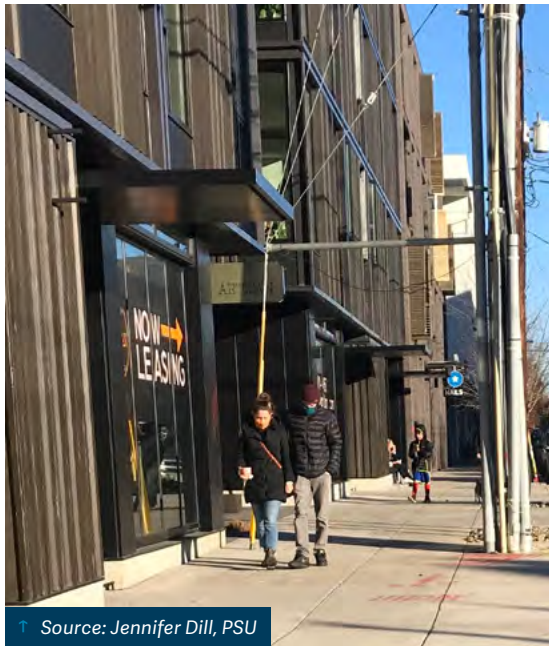
↑ Before. Intersection of SE Division St and SE 33rd Pl. *Source: Google Maps 2011*

↑ After. Intersection of SE Division St and SE 33rd Pl. *Source: Google Maps 2019*



↑ *Source: Jennifer Dill, PSU*

↑ *Source: Jennifer Dill, PSU*



↑ Source: Jennifer Dill, PSU

↑ Source: Jennifer Dill, PSU

↑ Source: Jennifer Dill, PSU

↑ Source: Jennifer Dill, PSU

↑ Source: Jennifer Dill, PSU

Year completed

2013

Project summary

The improvements along SE Foster Boulevard and SE Foster Road in the Lents Town Center covered about 0.8 miles on either side of the street and included striped bike lanes, widened sidewalks, new street trees, and pedestrian scale lighting, as well as enhanced pedestrian crossings and more on-street parking at several locations.

Project goals

To promote pedestrian use and safety, greater accessibility to the Lents light rail station, and the commercial revitalization of the Lents Town Center.

Portland: Foster-Woodstock

Enhanced crossings, bike lanes, and sidewalks

What people are saying

Overall results have been mixed, with differing opinions on the outcomes.

- **Creating a friendlier pedestrian environment.** The changes have made the area safer and more accessible to residents to walk and bike, increasing pedestrian traffic.

  > *I think it is safer now, having more businesses and on-street parking. Some of the signs and signaling have all made a big difference. – Nick Sauvie, ROSE Community Development Director*

  > *Better, with new streetscape, developments, crossings. – South Tabor resident*

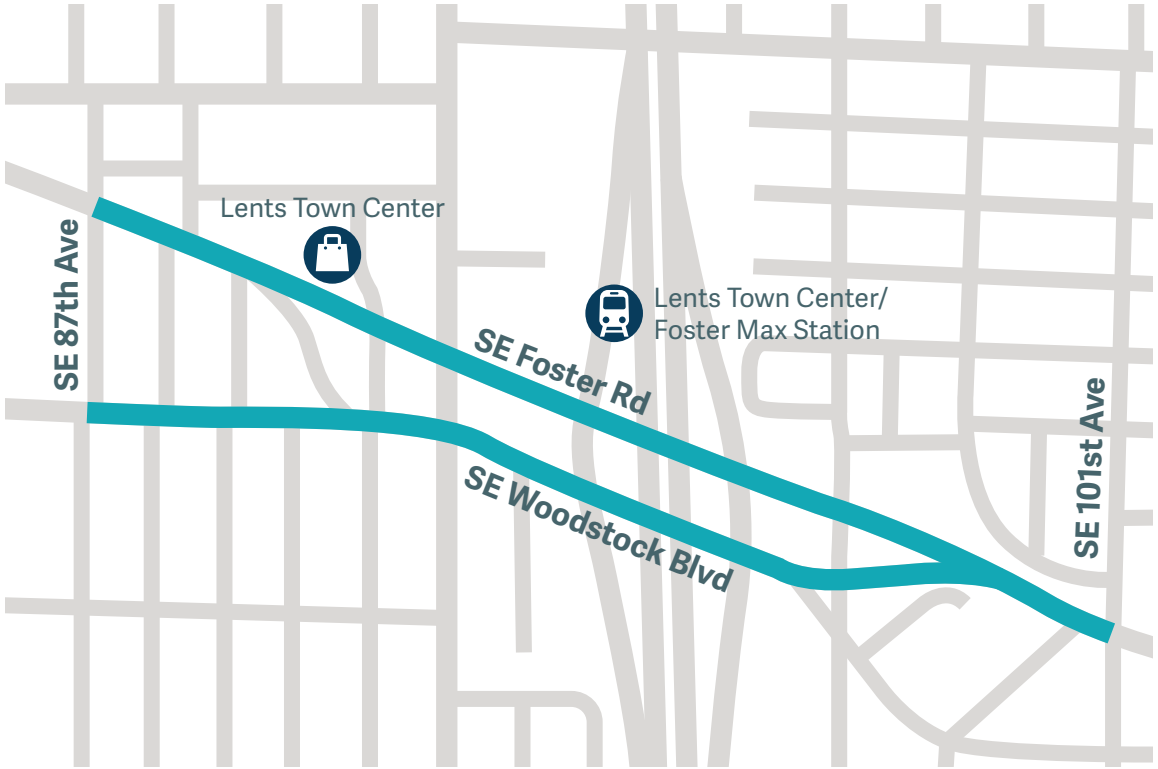
- **Unprotected bike paths and intersections.** Despite improvements, many pedestrians still feel unsafe walking or biking in this area, especially on the I-205 bisection and when crossing Foster and 92nd. High-speed driving, short crossing periods, lack of road crossings, and drivers' lack of awareness of pedestrians are significant concerns.

  > *The improvements are nice (and certainly better than what was there before), but this is still a main arterial and can be a nerve-wracking stretch of road to ride on--even for an experienced cyclist. Like other main arterials, protected bike lanes would be infinitely better than the current improvements. – Richmond resident*

  > *[I]t is an incredibly dangerous area. It is congested with traffic, and people drive very fast. – Local business owner*

- **Business development.** Businesses have also seen mixed results, with many new buildings/commercial spaces still vacant.

  > *[I]n the new buildings that got built, there is a lot of vacant commercial space still. There is still work to be done around business support. – Nick Sauvie, ROSE Community Development Director*



↑ *Source: Jennifer Dill, PSU*

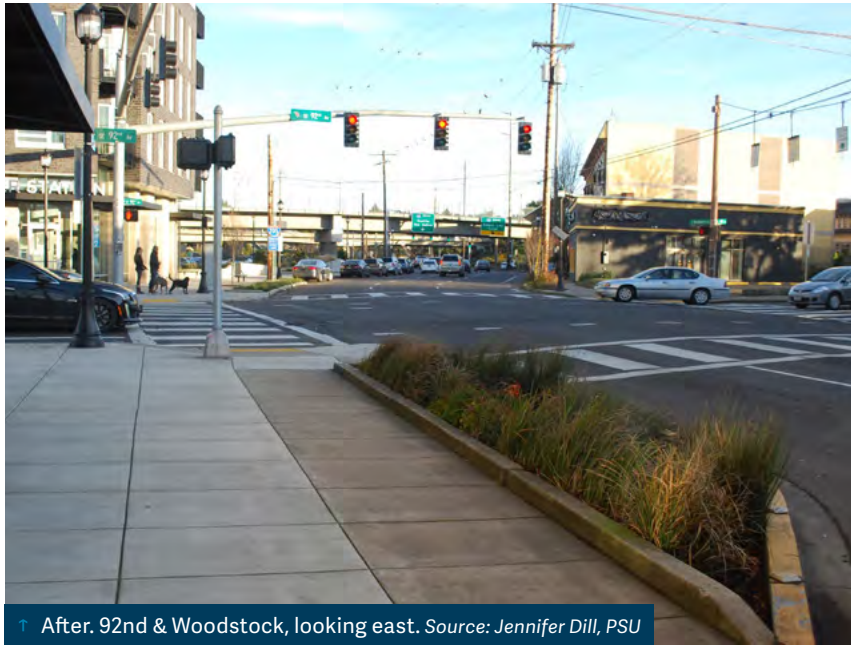
↑ Before. 92nd & Foster. *Source: Google 2011*

↑ After. 92nd & Foster. *Source: Jennifer Dill, PSU*

↑ Before. 92nd & Woodstock. *Source: Google 2009*

↑ Before. 92nd & Woodstock, looking east. *Source: Google 2007*

↑ After. 92nd & Woodstock. *Source: Jennifer Dill, PSU*



↑ After. 92nd & Woodstock, looking east. *Source: Jennifer Dill, PSU*

↑ Before. 91st & Woodstock. *Source: Google 2007*

↑ *Source: Jennifer Dill, PSU*

↑ *Source: Nick Sauvie, ROSE Community Development*

↑ After. 91st & Woodstock ,2021. *Source: Jennifer Dill, PSU*

↑ *Source: Nick Sauvie, ROSE Community Development*

Portland: St. John's Town Center

Enhanced crosswalks, sidewalks, and improved traffic

Year completed

2012

Project summary

The improvements Centered around St. John's town center – especially along N Ivanhoe, N St. Louis, and N Lombard streets – focused on street improvements such as pedestrian-scale lighting, crossings/ crosswalks, and curb extensions. Additionally, a green street stormwater management and a new signal at Richmond and Ivanhoe were installed.

Project goals

To improve pedestrian and bicycle safety and enhance access to commercial destinations and transit services while minimizing impacts to automobile traffic flow, turning movements, and on-street parking. All to advance the revitalization of St. Johns' commercial core while supporting efforts to preserve its small-town character.

Investment outcome

While mainly hailed a success, the results have not fully satisfied residents. They are a first step towards fully meeting the project's goals.

- **Creating a welcoming pedestrian environment.** Crossing and intersections feel safer, and street improvements have increased pedestrian traffic and ADA accessibility.

  > *It is definitely better. More bike parking, and Fessenden/St Louis is much safer. It's easier to get to businesses without driving.*
  > *– Cathedral Park neighborhood resident*

  > *Before, crossing busy streets like St Louis was impossible and very dangerous. Now, with the pedestrian crossings and wheelchair-accessible ramps, the experience is GREATLY improved. Please keep it coming.*
  > *– St. Johns resident*

- **Reduced vehicle traffic.**

  > *It has been a good first step in reducing unnecessary vehicle traffic and increasing pedestrian use.*
  > *– Local business owner*

- **Limited bike infrastructure.** Several people have recommended adding protected bicycle lanes and more accessible left-turn lanes.

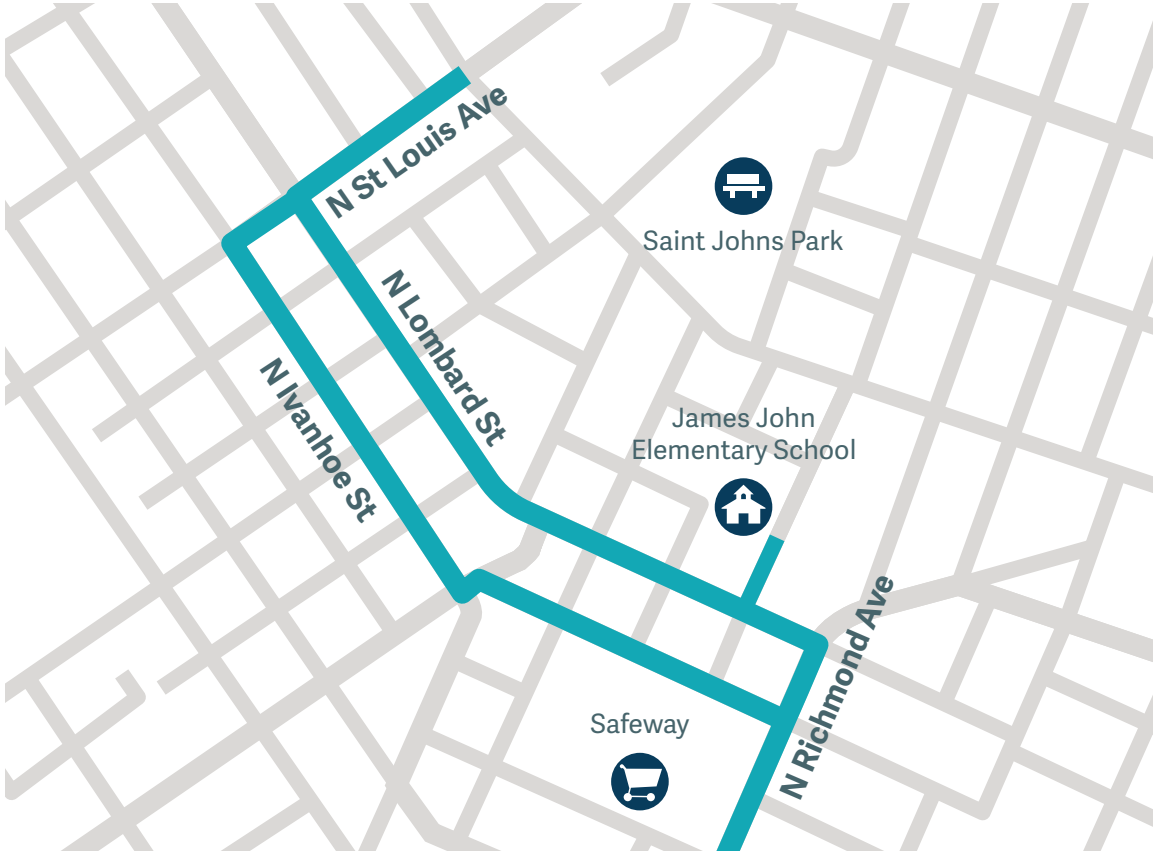
  > *I have avoided biking here because it seems unsafe/undesirable.*
  > *– Portsmouth resident*

  > *There are no specific bike lanes, and the roads are narrow. It's difficult to [make] left turns and a few intersections are hard to navigate.*
  > *– St. Johns resident*

- **Desire for future pedestrian improvements.** Some intersections are hard to navigate, and several pedestrians recommend widening sidewalks and adding more crossing areas as many drivers drive too quickly and/or disregard pedestrian crossings.

  > *Crosswalks are absolutely helpful and much-needed. Cars go way too fast here. Having said that, more needs to be done. – Cathedral Park neighborhood resident*

- **High truck volumes.** Users believe that car lanes are too broad, poorly implemented traffic signals, and too much commercial (large trucks) and commuter traffic are running through the area.

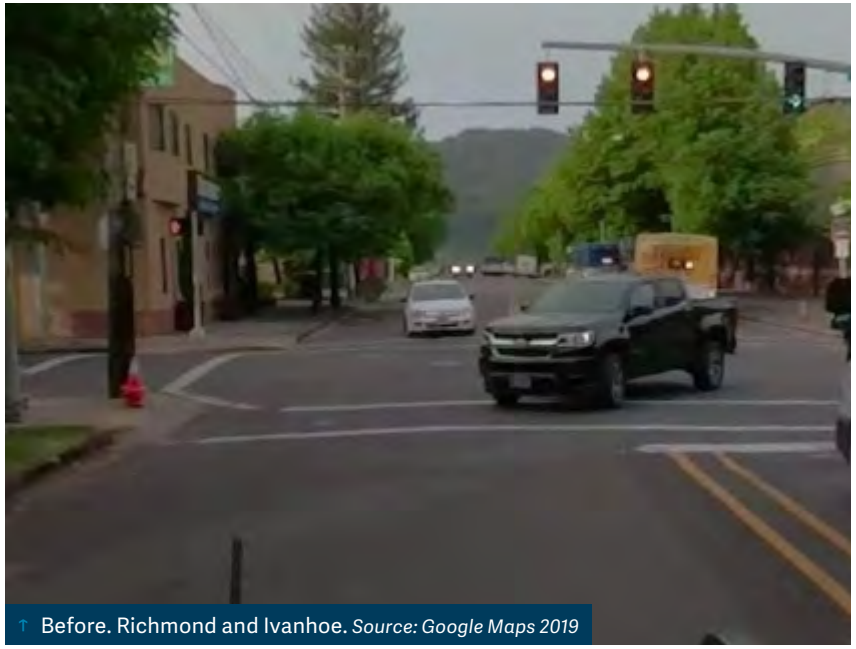


> *This neighborhood is still marred by the constant industrial traffic crossing the St. Johns bridge and cutting through commercial and residential areas to reach the terminal stations.*
> *– Local business owner*

> *It's not enough... there's still simply too many large trucks and fast traffic, particularly on N Richmond, and the lanes are too wide. During pre-pandemic times, TriMet buses also were frequently stopped for minutes at a time. I appreciate Metro's investment, but it simply isn't going fast enough to prioritize transit, biking and walking.*
> *– St. Johns resident*

↑ Before. Richmond and Ivanhoe. *Source: Google Maps 2011*

↑ Before. Richmond and Ivanhoe. *Source: Google Maps 2015*



↑ Before. Richmond and Ivanhoe. *Source: Google Maps 2019*

↑ After. Richmond and Ivanhoe, 2015. *Source: Metro*

↑ Truck apron, St. Johns Town Center. *Source: Metro/Lake McTighe*

Year completed

2015

Project summary

The SW Rose Biggi Ave project has a critical north-south connection to the regional center; it extends the once dead-end street 850 feet from SW Crescent Ave to Hall Boulevard. The changes mainly revolved around improving transit; two motor vehicle travel lanes, parking lanes, sidewalks, and a new bridge over Beaverton Creek. But the new segment also included landscaping and street trees, pedestrian-lighting, storm drainage, and irrigation.

Project goals

To improve mobility and revitalize downtown by making central Beaverton accessible through walking, biking, and driving.

Beaverton: SW Rose Biggi Ave

Enhanced traffic lanes, sidewalks, and connectivity

What people are saying

The changes in this project showed overwhelmingly positive results in the local community:

- **Enhanced commerce and development.** The connection transformed a once-isolated residential/business area into a thriving community/business center by opening up more opportunities for redevelopment on the north end of SW Rose Biggi Ave.

  > *What was once an isolated residential/business area, The Round now thrives with activities. – Google review*

  > *This is a big leap forward for us… a really positive impact for the community. – Leigh Crabtree, Assistant Community Development Director for the City of Beaverton*

- **Improved access and connectivity around downtown.** The changes increased connectivity and access to commercial destinations and transit services and created a flow of pedestrian activity.

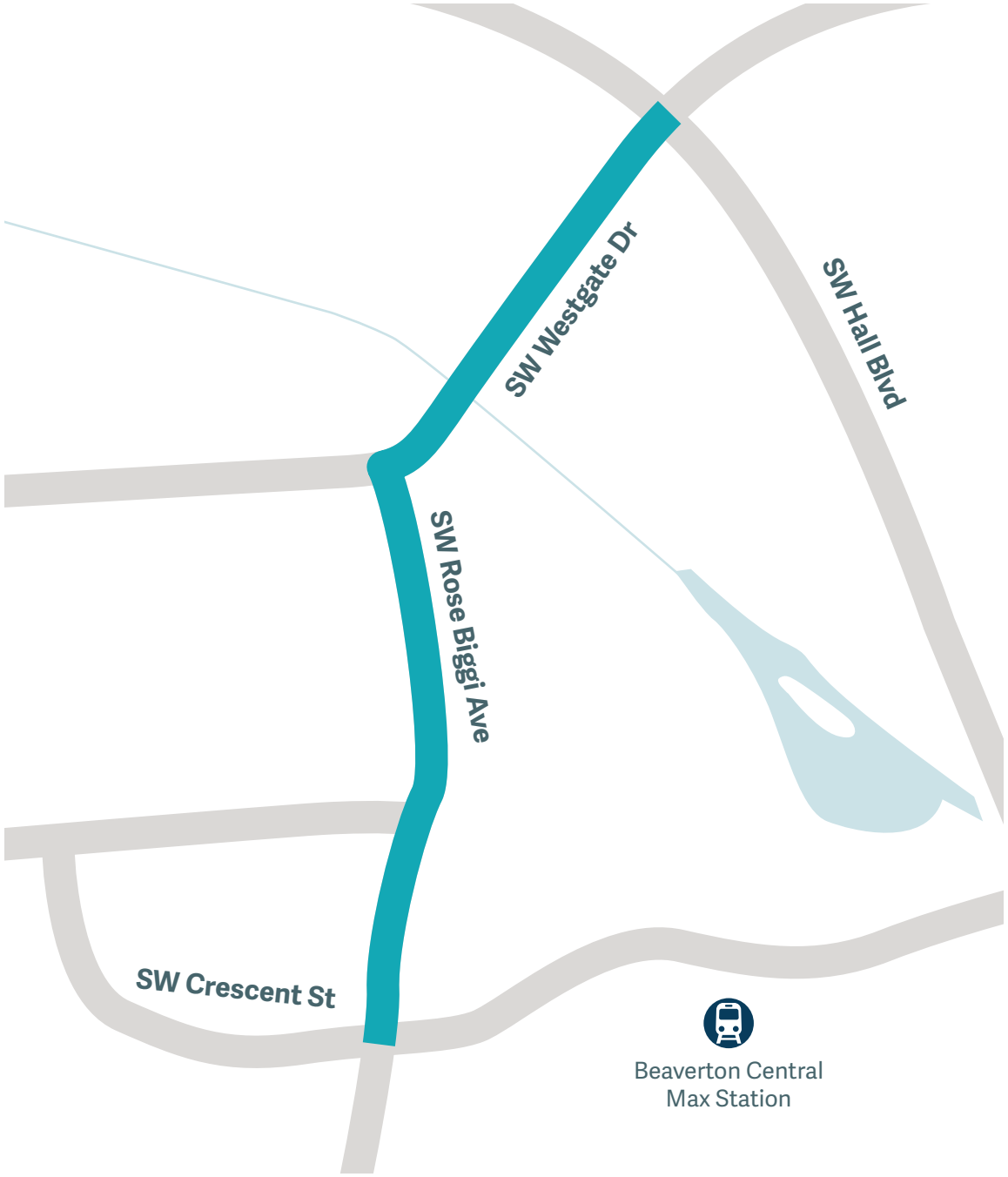
  → The 2018 PSU survey also found that residents of two mixed-use buildings on Rose Biggi St. have reported walking more often than in the previous (2005) survey.

  > *The Rise Central [A mixed-use apartment complex located at the corner of SW Rose Biggi Ave and Crescent Street] is a fantastic place to live. As its name suggests, it's in a very centralized location, with easy access to food, entertainment, public transportation, and more. – Resident*

  > *This location is near everything I use daily. Light rail train is one block away. – Resident*

> *I intentionally moved to an apartment that was closer to downtown Beaverton in an effort to make restaurant/shopping/travel access & transportation easier. – Resident*

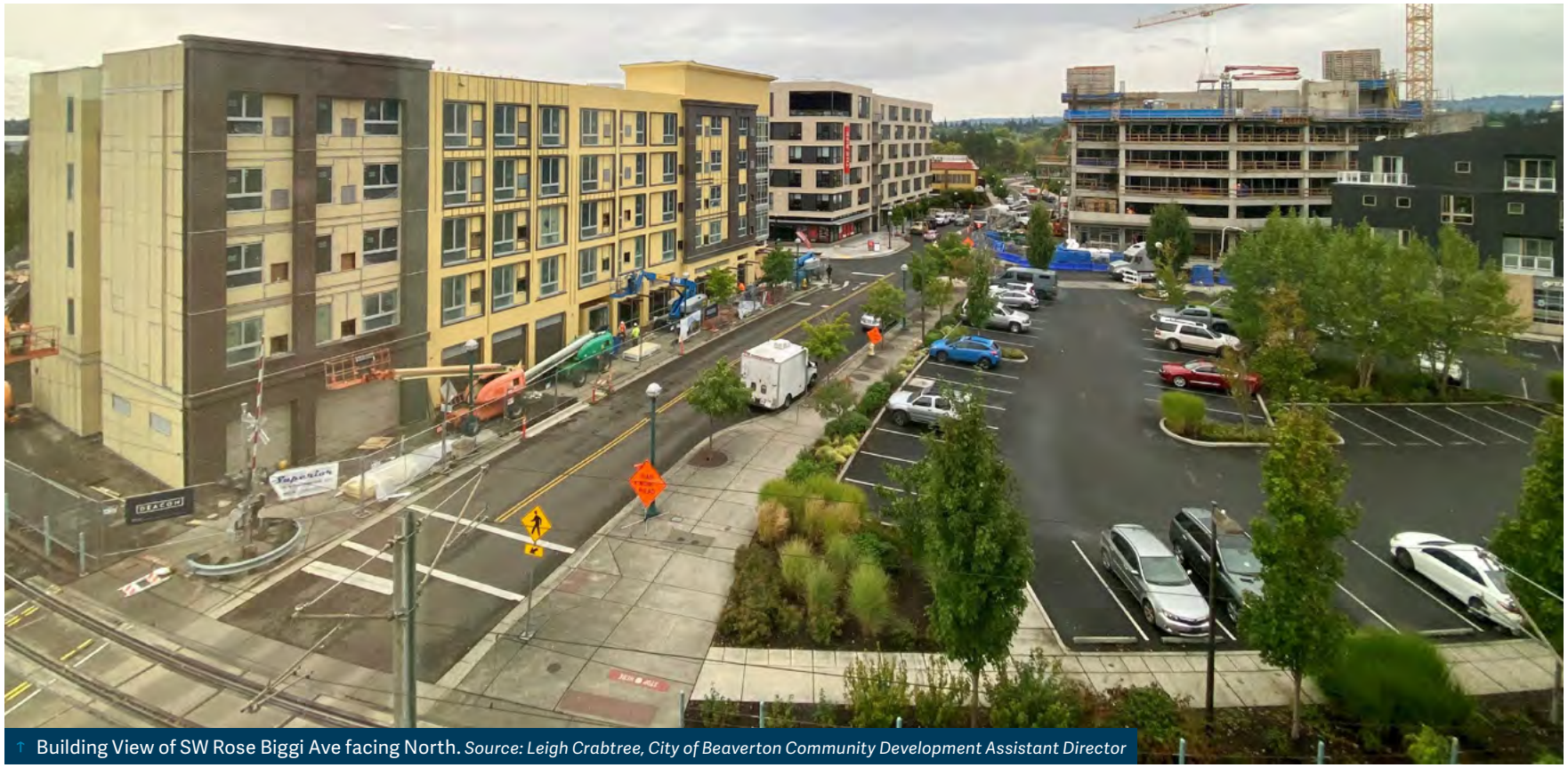
> *The Beaverton area has definitely made us rethink where we can substitute car usage for walking/ public transportation. – Resident*



↑ Before. *Source: Jim Brink, City of Beaverton Project Manager*

↑ After. SW Rose Biggi Ave completed near SW Thayer Ln. *Source: Jim Brink, City of Beaverton Project Manager*

↑ *Source: Google Maps 2019*



↑ Building View of SW Rose Biggi Ave facing North. *Source: Leigh Crabtree, City of Beaverton Community Development Assistant Director*

Year completed

2014

Project summary

The Baseline Street project forms a one-way couplet through Cornelius, between E Baseline Street between 10th and 19th Avenues. It includes many improvements in streets, transit, and landscaping: more effective lighting, wider sidewalks, safer intersections, planters, safer bike lanes, and additional street parking, as well as enhancing stormwater management and reducing visible utility lines.

Project goals

To increase safety for pedestrians, especially those managing disabilities, while providing a sense of identity for the central part of the city.

Cornelius: E. Baseline St

Installing bike lanes, street lighting, and sidewalk improvements

What people are saying

- **Creating a friendlier pedestrian environment.** The changes have helped increase pedestrian traffic and a sense of community and safety.

  > *I'll see an old fellow walking or sitting down with his grandchild, and it makes me feel good knowing we did something good. – Terry Keyes, the City Engineer*

  > *The street lights really make the place look better...they bring some pride to this neighborhood. – Matt Murey, Cornelius Elementary School Principal*

- **Increased investment in the downtown area.** Development has been stimulated with more businesses, nonprofit organizations, and government agencies.

  > *With the projects in the last 10 years, the Cornelius downtown core is excellent as is. – Forest Grove resident*

  > *I have found the facilities on these streets to be pleasant, wide sidewalks and signals at four major intersections. – Forest Grove resident*

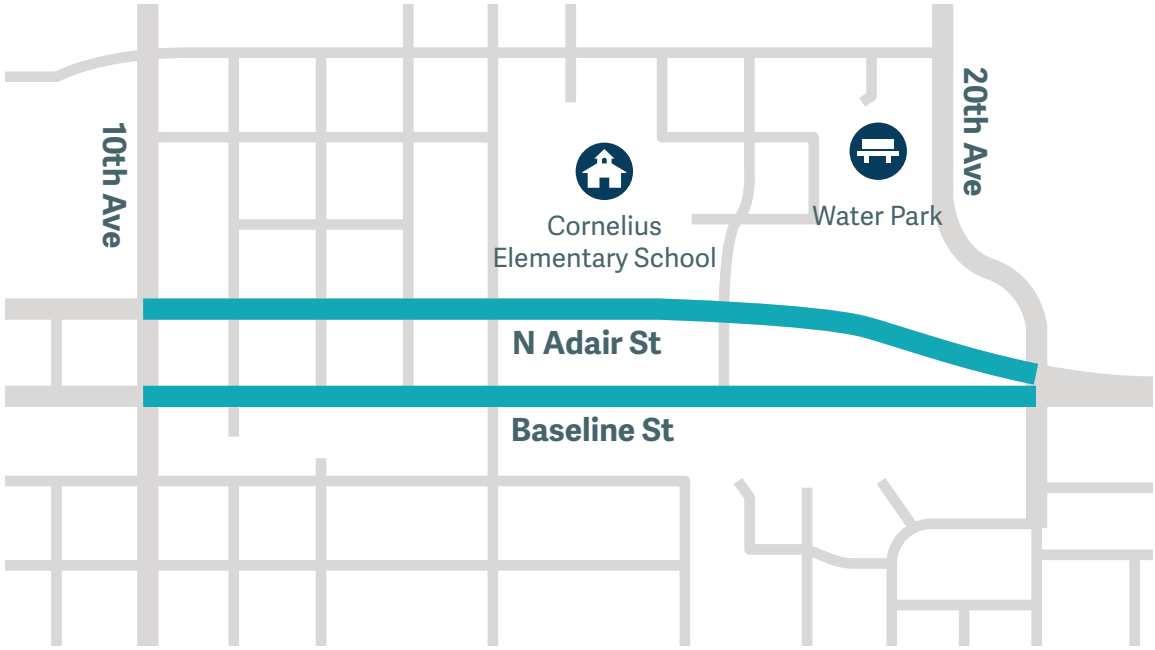
- **High traffic volumes and speeds remain.** Traffic speed and associated noise were consistently raised significantly when impacting crossing safety.

  > *Sometimes traffic is heavy and makes crossing difficult, but wide sidewalks help. – Forest Grove resident*

  > *My teen walks around there, and I worry a bit about how fast the traffic goes. I am very careful crossing the street. I see people run red lights almost every time I'm out. I would be too afraid to bike or let my kid bike Adair or Baseline. – Cornelius resident*

Limitations

- **Data Quantification.** The Baseline Street project is Phase II of the 1997 Main Street District Plan; Phase I was based on North Adair street; however, their effects are quantified together due to proximity.



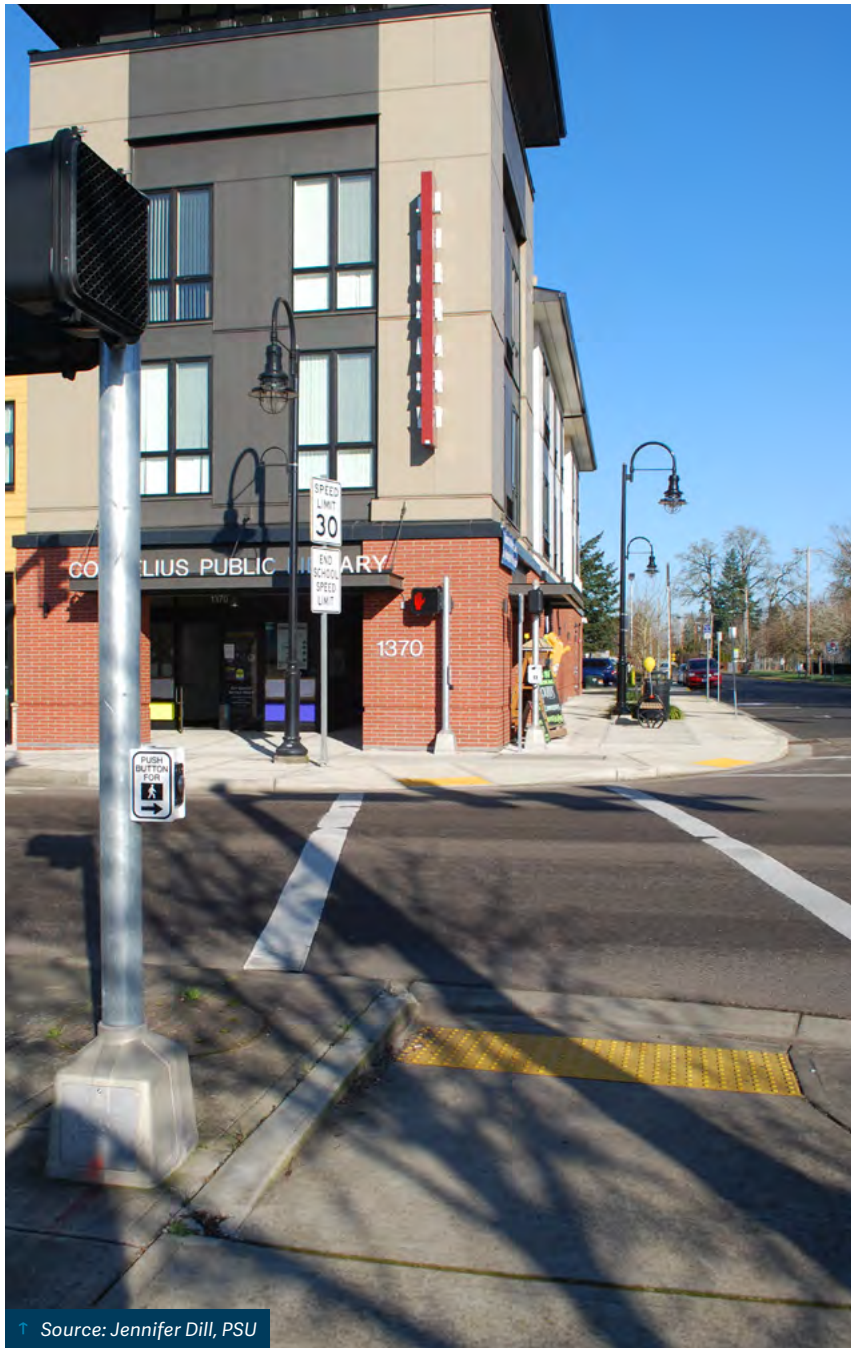
↑ After. *Source: Terry Krewes, City of Cornelius*

↑ *Source: Jennifer Dill, PSU*

↑ Source: Jennifer Dill, PSU

↑ Source: Jennifer Dill, PSU

↑ Source: Jennifer Dill, PSU



↑ *Source: Jennifer Dill, PSU*

↑ *Source: Jennifer Dill, PSU*

Year completed

2010

Project summary

The Forest Grove: Town Center project involved pedestrian improvements along Pacific Ave. and 19th Ave. in the Forest Grove Town Center. The four-block area received many aesthetic improvements, including decorative brick areas, crosswalks, streets, trees, tree wells with decorative grates, improved storm drainage, curbs, sidewalks, new asphalt, and wheelchair ramps.

Project goals

To enhance the visual appeal and aesthetics of downtown Forest Grove to make it easier to travel without a car, recreation, shopping, and dining while maintaining the historic main streets and the look and feel of the downtown area.

Forest Grove: Town Center

Enhanced sidewalks, walkways, and aesthetic improvements

What people are saying

- **Reviving downtown commerce.** The improvements to the downtown area have successfully maintained visual appeal and interest while encouraging new economic activity and retaining small businesses downtown.

  > *The project [new mixed-use apartment building, the Jesse Quinn] is a right fit for our city in so many ways... it plays a vital role in the investment of our downtown and the investment in our future. – Mayor Peter Truax*

- **Creating a more welcoming pedestrian environment.** Residents feel safer and more comfortable walking in the area, and pedestrian traffic has increased.

  > *I like the freedom of fewer cars or busses on the street – Pacific Ave resident*

  > *I often walk to/around downtown and occasionally bike through it.... Walking always feels safe/ comfortable. – Pacific Crossing resident*

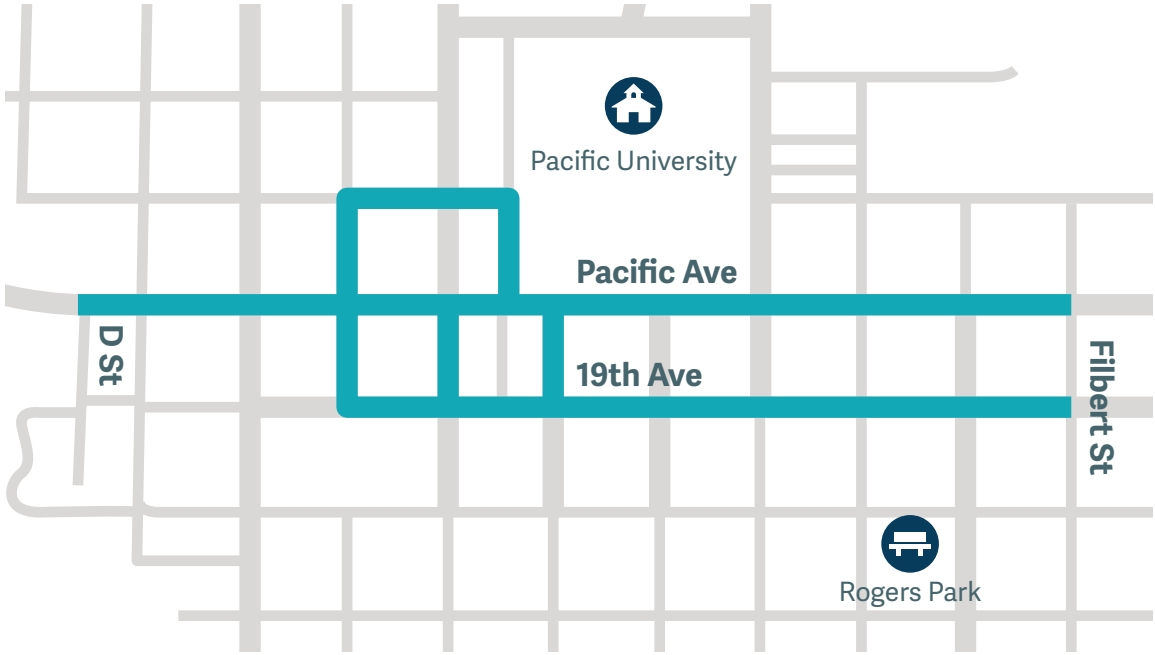
- **Pedestrian safety concerns.** Some pedestrians have remaining safety concerns about high-speed traffic, often unaware of pedestrian crossings and short traffic signal timings.

  > *Walking in Forest Grove can be risky. If you try to cross a road at a designated crosswalk, cars frequently do not even try to stop! – Downtown Forest Grove resident*

  > *I use a walker or a mobility scooter to get around. When out with my walker, it is hard to cross Pacific or 9th with the traffic signal because the timing is too short. It would be much better to have the new style signals which talk to you and allow you to have more time if you hold it longer. – Forest Grove resident*

Limitations

- **Study data.** The corridor's east end had curbing installed for an island plater area but was not used in the study as it was too far from the other improvements and was inaccessible to pedestrians. Similar developmental projects have also occurred in the area during the same time frame, making their effects challenging to qualify separately.



↑ Before. Pacific Ave near Main St. *Source: Google 2007*

↑ After. Pacific Ave near Main St. *Source: Google 2019*

↑ Forest Grove Farmers Market . *Source: Adelante Mujeres*

↑ Source: Jennifer Dill, PSU

↑ Source: Jennifer Dill, PSU

↑ Source: Jennifer Dill, PSU

Year completed

2014

Project summary

The Tigard Main Street project is phase 1 of a 2 phase project to improve and redesign Main Street in the Tigard town center. Completed in November of 2014, it includes over 0.3 miles of improvements, with phase 2 scheduled to carry these improvements north to Scoffins Street in 2021.

- Current improvements include safer pedestrian crossings, bioswales, stormwater treatments, benches, landscaping, trees, energy-efficient LED streetlights, public art, wider sidewalks, new bike infrastructure, corner bulb-outs, and a car turnaround at Main Street's south end.

Project goals

To Improve water management via green street elements, add pedestrian safety features and amenities, and make aesthetic improvements to the street.

Tigard: E. Main St.

Enhanced sidewalks, aesthetics, and traffic safety improvements

What people are saying

- **Creating a friendlier pedestrian environment.** The improvements have increased the town's safety and liveness, creating a flow of pedestrian activity.

> *I had hoped for increased traffic, more walking space, and a renewed downtown energy with the excitement of all that was going on. I would say, for the most part, that's what happened. – Local business owner*

> *They improved the walkability and bike-ability of the street dramatically, especially because cars weren't driving so fast. – SW Portland resident*

- **Increasing investment in the downtown area.** New developments have made the downtown area an attractive place to invest and build, boosting local businesses and encouraging new ones to emerge.

> *There was a car wash and auto repair, which are still there, but new businesses have moved in – partially from the green street improvements. Now there [are] board game bars, shops, etc. It's got a lot more food and drink services. – Sean Farrelly, Tigard Redevelopment Project Manager*

> *[These changes have] helped us be recognized and taken more seriously as a downtown area. – Local business owner*

↑ Before. 12454 SW Main & Burnham. *Source: Google Maps 2011*

- **Safety concerns at crossings.**

> *I work off Main Street and commonly walk and bike in the area. [It's] relatively safe, but speed limit enforcement would improve things greatly. Crossing Main St. as a pedestrian, away from controlled intersections, can be difficult, even with rapid flash beacons. – North Tabor resident*

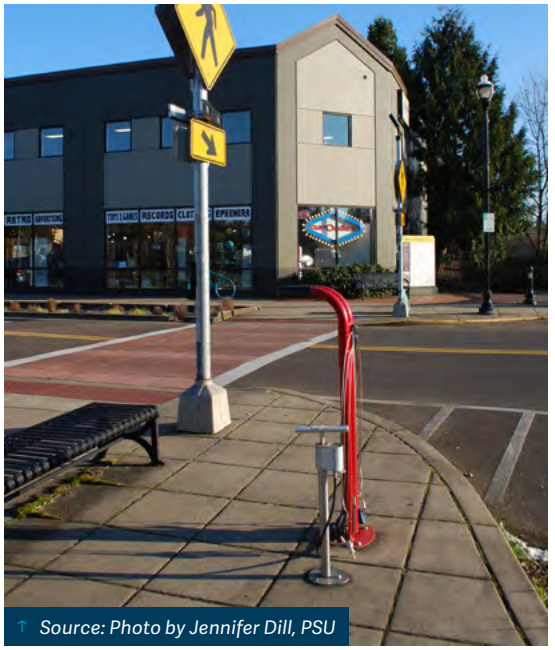
↑ After. 12454 SW Main & Burnham. *Source: Google Maps*

↑ Street art funded by a Washington County Travel grant includes these glass ball installations made by local "Live, Laugh, Love" Art Studio. *Source: Photo by Jennifer Dill, PSU*

↑ *Source: Photo by Jennifer Dill, PSU*

↑ *Source: Photo by Jennifer Dill, PSU*

↑ *Source: Photo by Jennifer Dill, PSU*



↑ *Source: Photo by Jennifer Dill, PSU*

↑ *Source: Photo by Jennifer Dill, PSU*

↑ *Source: Photo by Jennifer Dill, PSU*

↑ *Source: Metro*

Acknowledgements

Metro

Margi Bradway
Planning and Development Deputy Director

Tom Kloster
Regional Planning Manager

John Mermin
Project Manager

Lake McTighe
Senior Transportation Planner

Kim Ellis
Principal Transportation Planner

Molly Cooney-Mesker
Senior Public Affairs Specialist

Chris Johnson
Research Manager

Joe Broach
Senior Researcher And Modeler

Dan Kaempff
Principal Transportation Planner

Portland State University

Jennifer Dill, Ph.D.

Jenny Liu, Ph.D.

Marisa Zapata, Ph.D.

Minji Cho

Kyuri Kim

Natalie Chavez

Natalie Knowles

Lara Media

Victoria Lara
Founder and Chief Executive Officer

Antonio Lara
Chief Marketing Officer

Jairo Rodriguez
Associate Project Manager

Alta Planning + Design

Jean Crowther
Principal

Mike Sellinger
Project Manager

Phil Longenecker
Planner

Marguerite Schumm
Art Director

Joseph Abad
Graphic Designer


Metro