



Bicycle Transportation in the City of Albany

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Mikaila McNeill • Planning, Public Policy, and Management

Marc Schlossberg • PhD, Professor • Planning, Public Policy, and Management

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About SCI

The Sustainable Cities Initiative (SCI) is a cross-disciplinary organization at the University of Oregon that promotes education, service, public outreach, and research on the design and development of sustainable cities. We are redefining higher education for the public good and catalyzing community change toward sustainability. Our work addresses sustainability at multiple scales and emerges from the conviction that creating the sustainable city cannot happen within any single discipline. SCI is grounded in cross-disciplinary engagement as the key strategy for improving community sustainability. Our work connects student energy, faculty experience, and community needs to produce innovative, tangible solutions for the creation of a sustainable society.

About SCYP

The Sustainable City Year Program (SCYP) is a year-long partnership between SCI and one city in Oregon, in which students and faculty in courses from across the university collaborate with the partner city on sustainability and livability projects. SCYP faculty and students work in collaboration with staff from the partner city through a variety of studio projects and service-learning courses to provide students with real-world projects to investigate. Students bring energy, enthusiasm, and innovative approaches to difficult, persistent problems. SCYP's primary value derives from collaborations resulting in on-the-ground impact and expanded conversations for a community ready to transition to a more sustainable and livable future.

SCI Directors and Staff

Marc Schlossberg, SCI Co-Director, and Associate Professor of Planning, Public Policy, and Management, University of Oregon

Nico Larco, SCI Co-Director, and Associate Professor of Architecture, University of Oregon

Megan Banks, SCYP Manager, University of Oregon

About Albany, Oregon

The city now known as Albany has an established history as a central hub in the Willamette valley. Founded in 1848 and incorporated in 1864 the city has served as the Linn County seat since 1851. Albany's unique place in Oregon's history is exemplified in its dedication to historical preservation. Albany is often noted to have the most varied collection of historic buildings in Oregon. Its "four historic districts are listed in the National Register of Historic Places by the United States Department of the Interior." This downtown core has served as the center of revitalization efforts since 2001.

Located on the Willamette and Calapooia rivers Albany spans both Linn and Benton counties. With a population of 51,720 people, Albany is Oregon's 11th largest city and the second largest city in Benton County. Albany is administered under a home rule charter, adopted in 1957 establishing a Council and City Manager model. The city's vision, to be a "vital and diverse community that promotes a high quality of life, great neighborhoods, balanced economic growth and quality public services," is exemplified by its administration and government. Albany has a very active civic community with nearly 100 citizens serving on advisory commissions and committees dedicated to municipal issues.

Historically, Albany's economy has relied on natural resources. As the self-styled "rare metals capital of the world," Albany produces zirconium, hafnium, and titanium. Major employment sectors include "wood products, food processing, and manufactured homes." Because of its short, dry temperate growing season Albany farmers excel in producing specialized crops like grass flower and vegetable seeds, "tree fruits, nursery stock, nuts, berries, mint and grains." Albany and the surrounding (Linn and Benton) counties are so agriculturally productive it is often called "The Grass Seed Capital of the World."

Albany's central location and mild climate has made it a popular destination for a variety of outdoor and leisure activities. Located in the heart of Oregon's most populous region with the Pacific coast to the west and the Cascade Range to its east, Albany is connected to the wider state by Interstate 5, Oregon Routes 99E and 34, and US Route 20. The city is also served by Amtrak, a municipal airport, and a local and regional bus network.

Course Participants

Alayna Biersdorff: Planning, Public Policy and Management Undergraduate
Joe Bigelow: Journalism Undergraduate
Grace Bulger: Planning, Public Policy and Management Undergraduate
Nick Christiansen: Planning, Public Policy and Management Undergraduate
Matthew Clark: Environmental Studies Undergraduate
Sam Copeland: International Studies Undergraduate
Eli Cox-Skall: Architecture Undergraduate
Jack England: Planning, Public Policy and Management Undergraduate
Lucas Eschelbach: Political Science Undergraduate
Kinsey Frey: Environmental Studies Undergraduate:
Emily Friedenber: Material and Product Studies Undergraduate
Kevin Gilbride: Planning, Public Policy and Management Graduate
Miranda Menard Hannu: Planning, Public Policy and Management Undergraduate
Samantha Hoffman: Environmental Studies Undergraduate
Joel Jacobs: Planning, Public Policy and Management Undergraduate
Rachel Jicha: Planning, Public Policy and Management Undergraduate
Kelsey Johnson: Environmental Studies, Food Studies Undergraduate
Sa'ti Key: Environmental Studies Undergraduate
Isaac Kort-Meade: Economics; Planning, Public Policy and Management Undergraduate
John Krauspe: Environmental Studies Undergraduate
Kelsey Lee: English Undergraduate
Suzanne LeGro: Planning, Public Policy and Management Undergraduate
Andre Lightsey-Walker: Planning, Public Policy and Management Undergraduate;
Philosophy Undergraduate
Emily Mason: Cinema Studies Undergraduate
Sophie McGinley: Planning, Public Policy and Management Undergraduate
Mikaila McNeill: Planning, Public Policy and Management Graduate
Wesley Miller: Architecture, Planning, Public Policy and Management Undergraduate
Morgan Murphy: Political Science, Planning, Public Policy and Management
Undergraduate
Alex Nelson: Planning, Public Policy and Management Undergraduate
Madeleine Nelson: Planning, Public Policy and Management Undergraduate
Celeah Norris: Environmental Studies Undergraduate
Shea Northfield: Psychology Undergraduate
Aolani Onatah: Environmental Studies Undergraduate
Andrew Pence: Journalism, Advertising Undergraduate
Matt Robinson: Political Science Undergraduate
Mindy Schlitt: Planning, Public Policy and Management Undergraduate
Kyle Schwiezer: Planning, Public Policy and Management Undergraduate
Amber Shackelford: Planning, Public Policy and Management Undergraduate
Amelia Shank: Environmental Studies Undergraduate
Abby Taylor: Planning, Public Policy and Management Undergraduate
Eric Urban: Planning, Public Policy and Management Undergraduate
Zach Whitsel: Business Administration Undergraduate

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This report represents original student work and recommendations prepared by students in the University of Oregon's Sustainable City Year Program for the City of Albany. Text and images contained in this report may not be used without permission from the University of Oregon.

Executive Summary

This report documents the ideas, methodologies, and proposals produced by students of the University of Oregon's Bicycle Transportation class for the City of Albany, Oregon. Albany saw much of its growth during a period when the individual freedom given by automobiles was considered the main viable form of transportation, and all other forms of transportation were shifted away from mainstream society. Like other small cities, Albany developed as an auto-centric highway town. For this reason, the development of infrastructure has been based largely on the automobile as the primary mode of transportation.

Theme 1: Bicycle Infrastructure and Street Redesign

Safety for all residents is one of the main objectives students hope to accomplish in implementing a connected bicycle network in Albany. Analysis of the best practices for the development of infrastructure for cyclists begins with safety; it is a critical consideration when a person decides to travel by automobile or bicycle. The first theme of this report describes a variety of infrastructure and street redesign options to improve safety measures and alleviate bicycle transportation concerns. Groups chose the best practices for bicycle infrastructure that can be realistically and effectively applied to the City of Albany.

Theme 2: Connectivity and Bicycle Networks

Students visited the City of Albany at the start of the project to see the streets, community, and existing infrastructure. City staff emphasized the importance of creating a connected network of bicycle infrastructure in Albany to increase viability of bicycle transportation for residents. Therefore, several student groups focused on making connections, and filling in gaps to complete the network. This section describes many areas where infrastructure on streets, canals, and off-street paths may be added or improved to achieve this goal.

Theme 3: City Events to Promote Bicycle Transportation

Implementing bicycle infrastructure and street redesigns allow residents to confidently choose bicycle transportation over other modes, and to arrive at their destinations safely and easily. Although an improved bicycle network may encourage increased bicycle transportation, there are other supplemental strategies to increase ridership. Bicycle friendly events and programs that residents may participate in are an excellent method for achieving this goal. Through research and discussions, students suggest several potential options for bicycle-friendly events to promote bicycle transportation for the City of Albany. There was a dedicated effort to include local businesses and areas of the city, such as parks, for economic growth and community engagement.

Introduction

The goal of this project is to inspire the City of Albany to create and expand a bicycle network focused on safety, connectivity, and accessibility for community members of all ages. Students and faculty collaborated with city staff and outlined proposals and recommendations to increase bicycle transportation in the city to improve health, boost the economy, and realize environmental benefits.

As a class, we began our research from the ground up, bicycling and walking around the beautiful city of Albany, acquainting ourselves with the streets, the residents, and the community as a whole. With previous instructions on how to identify areas of conflict between multiple forms of transportation, students determined which streets would complete safe networks of bicycle infrastructure and which streets could be added to, improved, or completely redesigned to fulfill the vision of becoming a bicycle community. Students then applied this knowledge and developed possible enhancements that add value to a wider variety of roadway users across Albany's infrastructure.

In 2010, the City of Albany published its *Transportation Plan*. This document highlights various goals and objectives, which students identified with strategic efforts to ensure that their work was directly associated with achieving the goals of the larger Albany project. Four goals, described below, related to bicycle transportation.

Goal 1: Provide an efficient transportation system.

The focus is efficiency and the language in the original transportation plan highlights travel times.

Goal 2: Provide a safe transportation system.

The recommendations outlined in this report emphasize building safety into any new design, including a new standard for safe bicycling routes.

Goal 3: Provide a diversified transportation system that ensures mobility for all members of the community and provides alternatives to automobile travel.

Providing automobile alternatives is the main objective of this report. In addition to providing safe alternatives, suggestions are provided to also inspire the use of these alternative methods. Connecting the existing infrastructure will assist in creating a more complete bicycle network, and will help encourage biking as a viable mode of transportation in Albany.

Goal 4: Provide a transportation system that balances financial resources with community livability and economic vitality.

Albany's urban renewal goals aim to create a cost effective and economically lucrative

plan that includes community involvement to better establish Albany's transportation system. The goal is to create better bicycle and pedestrian infrastructure to increase the safety and diversity of the transportation system.

Albany's *City Strategic Plan* specifically includes alternative forms of transportation within its Great Neighborhood Goals. Goal number two is to "Provide an efficient transportation system with safe streets and alternative modes of transportation" (City of Albany Strategic Plan, p. 6). Increased bicycle infrastructure creates safer streets that encourage residents' participation in bicycle transportation. Residents will more frequently engage in bicycle transportation when safe, efficient, and connective pathways are provided.

The city's *Strategic Plan* also discusses another Great Neighborhood Goal, Goal 4, which is designed to "Provide diverse, recreational, and cultural opportunities that enrich the lives of our citizens" (City of Albany Strategic Plan, p. 8). By providing increased and safety conscious bicycle infrastructure, the City of Albany is working towards a healthier, safer, more diverse, and economically prosperous community that connects to the plan the city has already begun to create.

In order to promote comfort and safety for all levels of bicyclists, students created a collection of plans supporting connectivity throughout the city and access for everyone. This report explains the different varieties of street treatments and redesigns before explaining each of the plans for the Albany bicycle transportation network. Each suggested improvement builds on Albany's existing infrastructure to promote an easy transition to a more complete network. The proposed ideas include safety concerns and resolutions, well-connected routes, and an overall network of bicycle routes that act as a comprehensive wayfinding system. Additional components of this report include marketing techniques to increase community support as Albany transitions to a more bicycle-friendly city.

Theme 1: Bicycle Infrastructure & Street Redesign

Albany is a city with great bicycle transportation potential. There are existing bicycle lanes, bikeways, and destinations accessible by bike. However, cyclists have varying levels of comfort and ability, and often, lack of proper infrastructure can discourage those residents who are less confident. Implementation of an equitable system for integrating bicycles and automobiles into the same streets and roads requires base infrastructure that forces the mindset of automobile users to accept sharing the road. Outlined below are different street treatments and options for implementing bicycle infrastructure. See the appendix for example images of the different types of street treatments.

Conventional Bicycle Lanes: Designated spaces for cyclists located adjacent to motor vehicle travel lanes. The lanes are indicated by pavement markings and signage.

Typical Applications:

- Streets with $\geq 3,000$ motor vehicle average daily traffic
- Streets with a posted speed ≥ 25 mph
- On streets with high transit vehicle volume.

Buffered Bike Lanes: Conventional bicycle lanes with a designated buffer space that separates the bicycle lane with adjacent motor vehicle travel lanes.

Typical Applications:

- Anywhere a conventional bike lane is being considered
- On streets with high travel speeds, high traffic volume and/or high amounts of truck travel
- On streets with large lane width or extra lanes
- Near transit stops

Contra-Flow Bike Lanes: Bicycle lanes designed to allow cyclists to ride in the opposite direction of motor vehicle traffic. These lanes convert a one-way traffic street into a two-way street (one direction for motor vehicles and two-way for only bicycles). The lanes are separated with yellow center lane striping.

Typical Applications:

- Streets where large numbers of cyclists are already riding the wrong way due to lack of alternative options
- Corridors where alternative routes include unsafe or uncomfortable streets

Left-Side Bicycle Lanes: Bicycle lanes placed on the left side of one-way streets or two-way median divided streets.

Typical Applications:

- One-way/median divided streets with frequent bus stops or loading zone
- Streets with high parking turnover
- Streets with high volumes of right turn movement by motor vehicles

Cycle Tracks: Exclusive bicycle facilities that combine the user experience of a separated path, with the on-street infrastructure of a conventional bicycle lane. Cycle tracks have different forms but share a common element; they provide space exclusively for bicycles.

One-Way Protected Cycle Tracks: Bicycle lanes that are at street level and use a variety of methods for physical protection from passing traffic.

Typical Applications:

- Streets with parking lanes
- Streets on which bike lanes would cause many bicyclists to feel stressed
- Streets with high traffic volume

Two-Way Cycle Tracks: Physically separated cycle tracks that allow bicycle movement in both directions on one side of the road.

Typical Applications:

- On streets with few conflicts such as driveways or cross-streets on one side of the street.
- On streets where there is not enough room for a one-way cycle track on both sides of the street.
- On one-way streets where contra-flow bicycle travel is desired

Bicycle Boulevard: Streets with low auto-traffic and slower speeds that give travel priority to bicyclists. Bike boulevards use signs, pavement markings, and speed and volume management measures in an attempt to discourage through traffic for motorized vehicles, and create safer crossings across busy arterial roads.

Design elements to enhance bike boulevard travel:

- Route planning-direct access to destinations signs and pavement markings-Easy to find and to follow
- Speed management-slow motor vehicle speeds
- Volume management-low or reduced motor vehicle volumes
- Minor street crossings-minimal bicyclist delay
- Major street crossings-safe and convenient crossings
- Offset crossings-clear and safe navigation green infrastructure-enhancing environments

These treatments greatly benefit transportation for bicyclists, but also create a quieter residential environment, which may increase property values, and improve safety for all road users.

Colored pavement: Within a bicycle lane increases the visibility of the facility, identifies potential areas of conflict, and reinforces priority to bicyclists in conflict areas and in areas with pressure for illegal parking. Colored pavement can be utilized either as a corridor treatment along the length of a bike lane or as a spot treatment, such as a bike box, conflict area, or intersection crossing marking.

Bicycle Signals and Beacons: Facilitate bicyclist crossings of roadways. Bicycle signals make crossing intersections safer for bicyclists by clarifying when to enter an intersection and by restricting conflicting vehicle movements. Bicycle signals are traditional three lens signal heads with green, yellow, and red bicycle stenciled lenses that can be employed at standard signalized intersections and hybrid signal crossings. Flashing warning beacons are utilized at unsignalized intersection crossings. Push buttons, signage, and pavement markings may be used to highlight these facilities for both bicyclists and motorists.

Bike Box: A designated area at the head of a traffic lane at a signalized intersection that provides bicyclists with a safe and visible way to get ahead of queuing traffic during the red signal phase.

Typical Applications:

- At intersections with high volumes of bicycles and/or motor vehicles
- Where there may be right or left-turning conflicts between cyclists and motorists
- Where a left turn is required to follow a designated bike route
- On streets with right-side/left-side bike lanes and right-turn/left turn only lanes at intersections
- On streets with bike lanes and a parking lane that transition into a turn lane at intersections.

For bicyclists traveling in a conventional bike lane, the approach to an intersection with vehicular turn lanes can present a significant challenge. For this reason it is vital that bicyclists are provided with an opportunity to correctly position themselves to avoid conflicts with turning vehicles. This treatment specifically covers the application of a through bicycle lane at the intersection.

Wayfinding Signs: Placed around the city provide a visual connection for cyclists to certain destinations around the city. Any piece of infrastructure whose primary purpose is to indicate the presence of bicycle provisions is known as “Bikeway Signing and Marking” by NACTO. These signs are used to distinguish facilities for cyclists, motorists, and pedestrians. Decision signs mark the junction of two or more bikeways and inform the user of destinations and connections. Destinations, travel times, distances, and arrows are recommended but optional combinations may be used. The signs can be placed on the near-side of an intersection in advance to a junction with another bicycle

route or along the route to indicate a nearby destination. Signs are often placed every one to two miles or every two to three blocks.

The benefits of wayfinding signage include the following:

- To familiarize users with the bicycle network
- Identify destinations, connections, and attractions
- Caution motorists that they are driving along a bicycle route
- Overcome barriers to entry for infrequent bicyclists
- Passively market bicycle networks because of frequent and consistent signage

Theme 2: Connectivity & Bicycle Networks

The City of Albany's existing bicycle infrastructure is an excellent starting point for creating a useful and complete network, and connecting major areas and attractions within the city. Many of the following proposals use this existing infrastructure and either connect to it or complete it in areas where gaps may exist. There are simple and cost effective solutions that will increase connectivity as well as safety and efficiency.

Proposal 1: Downtown Albany

First Avenue is currently designed as a typical American one-way street. It is 65 feet wide, with travel lanes of 9 feet and 12 feet. Beginning at Main Street, First Avenue turns from a residential street to a major downtown thoroughfare. The street intersects two high traffic streets at Lyon Street and Ellsworth Street, creating somewhat dangerous intersections. These intersections discourage bicycle transportation. This proposal includes three phases of redesign, beginning with the least expensive.

Phase 1

Reposition the bike lane along First Avenue to the southside, instead of the north, and implement a colored bicycle lane and restripe the travel lanes. The reason for shifting the lane to the southside is because the majority of residents live south of the street. With the new location of the lane, people can reach the safety of the bicycle lane without having to cross the street. In addition, it resolves a major safety concern at the intersection of First Avenue and Lyon Street where automobiles turn right and cross the existing bicycle lane. Although there are other streets that intersect First Avenue from the south, the colored lanes will help prevent conflict. This plan is simple and involves a low cost to the city, making it more politically and physically feasible. This redesign can increase the safety of the bicycle lanes due to the colored lanes increasing visibility and ease of access.



Figure 1: The before and after street redesign with bicycle infrastructure added on First Avenue in downtown Albany.

Phase 2

As there is substantial parking available on the north side of First Street, the second phase removes parking from the south side of the street. This creates enough space to implement a two-way buffered cycle track. Bicycle traffic may now move east and west along First Avenue, increasing the ease of use and transit. Cyclists may now begin at one location on the street and travel to different businesses and downtown destinations with ease. This design also includes bike boxes at Ellsworth and Lyon Streets to allow a large volume of cyclists to stop side-by-side at these busy intersections in front of where cars stop. It increases safety and access for cyclists turning right and increases visibility.



Figure 2: Phase 2 of the street redesign with bicycle infrastructure on First Avenue in downtown Albany.

Phase 3

The third phase includes structural and aesthetic improvements to the overall design of the two-way cycle track. The new design adds bioswales and trees between the cycle track and the automobile streetway to increase safety and ridership. Bioswales allow stormwater runoff to enter a natural filtration system, and prevents draining harmful chemicals into the waterways. Albany does have a few small bioswales in the downtown area, so the addition will increase the benefits already seen and proves feasibility of installation. Trees and foliage will add beauty to the street and the entire downtown area, inviting more residents and visitors to cycle downtown.



Figure 3: Phase 2 of the street redesign with bicycle infrastructure on First Avenue in downtown Albany includes new bioswales and lane protection.

Proposal 2: Periwinkle Path Completion

Two portions of the Periwinkle Path are separated by the intersection of Geary Street and Queen Avenue. Cyclists wishing to travel north on the path have to abruptly merge into traffic on Geary Street, turn left from the lane that is also used by vehicles, and travel through the middle of the intersection to get to the bicycle lane on Queen Avenue to reach the continuation of the Periwinkle Path. Travelling south proves to have even more barriers. We suggest moving the stop bar for vehicles at the intersection to provide room for the Periwinkle Path to cross Geary Street south of the intersection. A pedestrian/cyclist light may be implemented with the existing traffic signal system, providing path users with lawful access to cross the street. This redesign does remove the ability for automobiles to turn right on red, however it allows for pedestrians and cyclists to cross the street safely and with ease.

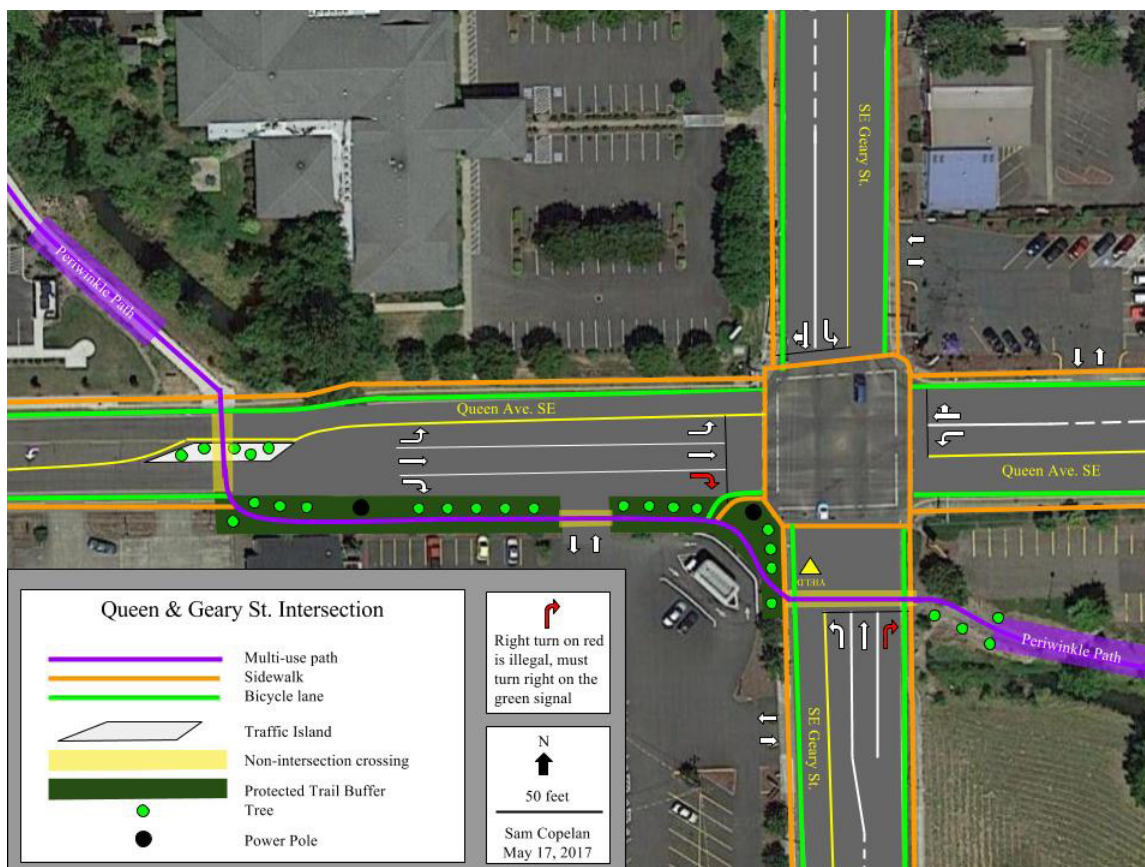


Figure 4: The street lane redesigns for Queen Avenue and Geary Street at the intersection.

An island may be introduced into the intersection allowing pedestrians and cyclists to cross a single lane of traffic safely, which provides another solution instead of having to install flashing lights which can be expensive. An island is also a traffic calming mechanism that further increases safety. This design restructures the street so the trees are on the other side of the multi-use path on the west side of Queen Avenue, creating a protective barrier between automobiles and cyclists.



Figure 5: An example of what the addition of an Island might look like on Queen Avenue.

The Periwinkle Path has the opportunity to connect downtown to residential neighborhoods that are separated by a highway and a train yard. A rarely used train track spur exists behind neighborhood houses behind Hill Street and Madison Street. Currently this lot is vacant and unkempt. Continuing north, the Periwinkle Path ends at Hill Street. On the other side there is an abandoned railway north of Madison Street that makes a direct connection to Jackson Street. This area is underdeveloped and situated between the Periwinkle Path and the proposed bicycle boulevard on Jackson Street. This property could be used to connect the Periwinkle Path to Jackson Street and the Swanson Path.

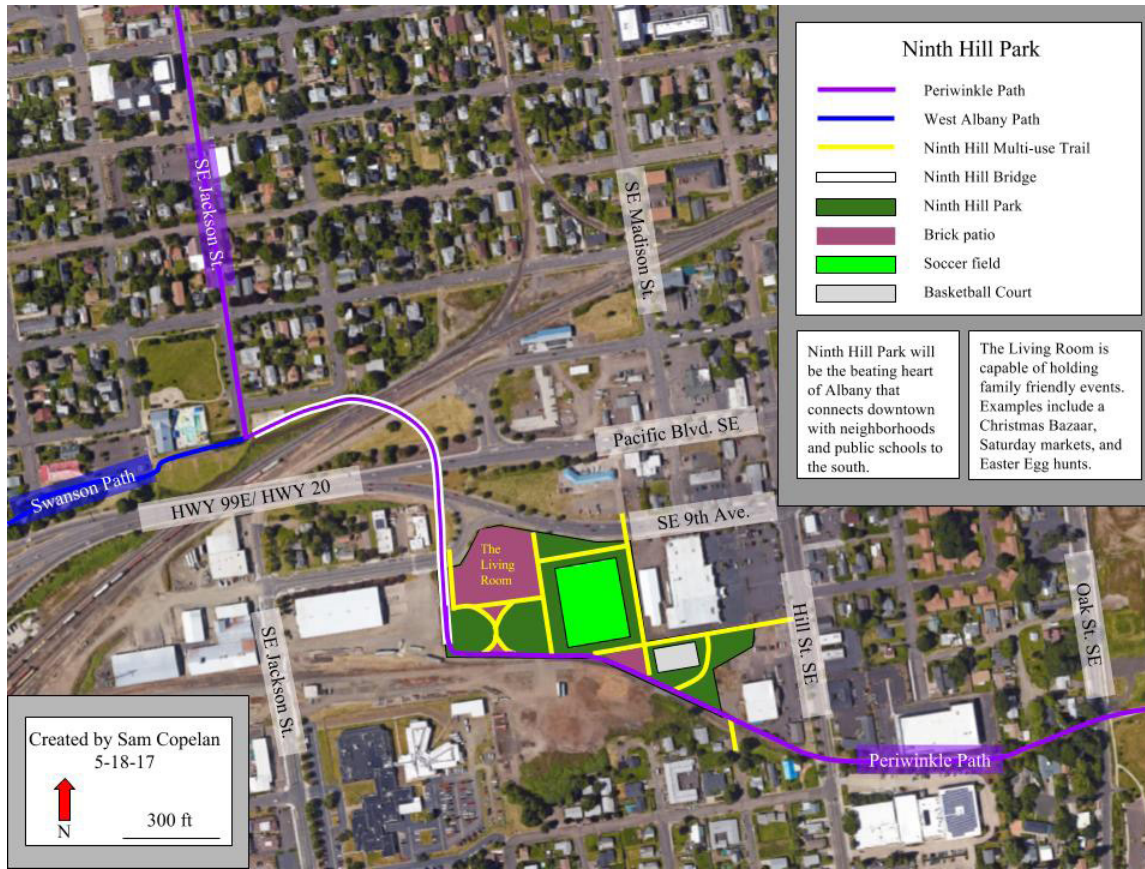


Figure 6: An aerial view of the area to be redesigned with inclusion of a new community space for events.

A bridge for pedestrians and cyclists may be built in this location to maximize the safety and accessibility of connecting the Periwinkle Path across Highway 20/Highway 99. It would be important to consider the size and grade of the bridge. Furthermore, building a park in this empty lot anchors the bridge with a destination that people of all ages would enjoy. As shown in the diagram above, the area could include a soccer field, basketball court, grass fields, and a patio surface known as the “Living Room” where people can gather and socialize. It could host yearly events such as a Saturday market, holiday events, or performances.

The Periwinkle Path connects many parts of Albany and is beneficial for users because it encourages a route that is separated from motor vehicles, increasing safety.

Proposal 3: Canals

Vine Street is not used for motor vehicle transportation, although there are few vehicles parked on the paved area. Certain barriers exist along this path, such as electric poles, however the area is wide and has the capacity for multimodal use. Restructuring the Vine Street canal could create an important connection to the bicycle network.

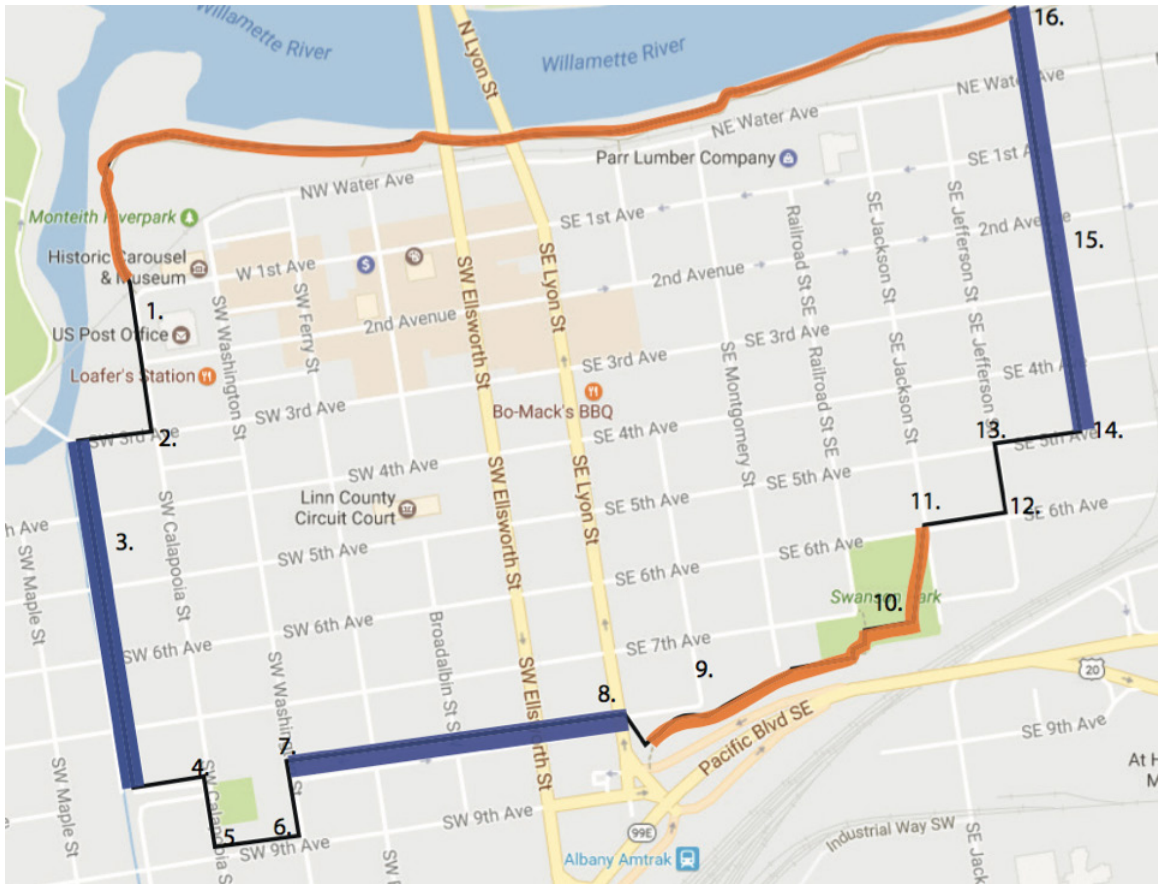


Figure 7: The blue route signifies multi-use paths, the orange route identifies canal paths, and the black route indicates the connecting streets.

The Vine Street Canal has overgrown foliage and areas that are unpaved. Grooming the plants and improving the pavement could increase safety, access, and ridership. Sharrows may be added to indicate the road is shared between motor vehicles and bicycles. To increase visibility and connectivity, dotted lines may be added to indicate that it is part of the canal loop.



Figures 8 and 9: Examples of what the Vine Canal could look like with new pavement and sharrows.

The Swanson Park Path is a well maintained trail that is wide enough to accommodate cyclists and pedestrians. To increase safety, sharrows can be added to one side to remind residents that the path is shared. This trail leads to the Thurston Street Canal. For wayfinding benefits, a colored line may be added along the route to indicate to cyclists where the path continues. The “Blue Line” would be traced to indicate the route and which intersections to cross (e.g. the intersection at 9th Avenue and Calapooia Street).



Figure 10: View of Swanson Path with the addition of blue line and sharrow.



Figure 11: The painted line that can be added to guide the bicycle route.

An alternative route might begin at the intersection of 8th Avenue and Washington Street and end at the Deluxe Brewing Company following improved canal multi-use paths to increase safety and connectivity. The path would continue along the canal on 8th Avenue until Lyon Street, after crossing this intersection, cyclists will be able to ride along an existing off-street bicycle path. The path along 8th Avenue is a beautiful shared path, and a great communal space along the canal. To encourage bicycle transportation we propose adding a raised bicycle path along the canal. Sharrows may also be included further along 8th Avenue to indicate cyclists' use/sharing of the street.



Figure 12: Current view of 8th Avenue Canal.



Figure 13: View of 8th Avenue Canal with lane for bicycles added.

As 8th Avenue continues, there are two intersections that may discourage bicycle transportation at Ellsworth Street and Lyon Street. A strategy to minimize these barriers is to install flashing lights that warn motorists of a cyclist crossing the intersection. A less expensive option could be to add a green crosswalk at each intersection, increasing visibility and automobile attention.

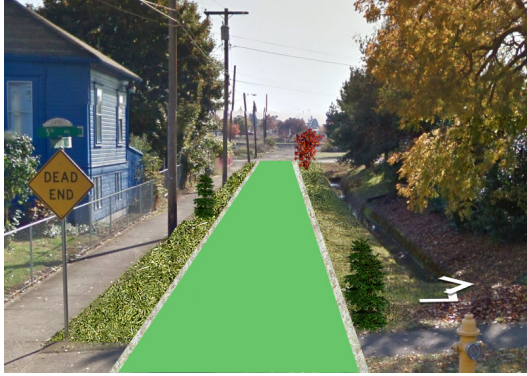


Figure 14: Visible crosswalk at the intersection of 8th Avenue and Ellsworth Street.

After crossing Lyon Street the off-street path leads to Swanson Cool Pool and Park. This may then connect to the canal on Thurston Street, which conveniently leads to downtown connections such as, the Deluxe Brewing Company, and the Dave Clark Trail. The Thurston Street canal offers an opportunity to increase bicycle transportation by repaving and including bicycle infrastructure. Currently, obstacles exist for cyclists as the path is not in good condition, however this area can be improved and provide an excellent connection in Albany's new bicycle network.



Figures 15 and 16: Current images of the Thurston canal.



Figures 17 and 18: Thurston canal after redesign.

In addition there are a few intersections along the Thurston Street canal, which may seem to be barriers, but can be adjusted with minor bicycle infrastructure additions. First Avenue and 2nd Avenue are major downtown thoroughfares with higher volumes of traffic. We suggest implementing a yield sign and raised, colored striping to connect the canal path.



Figure 19: Thurston canal crossing 2nd Avenue before crosswalk added.



Figure 20: Thurston canal crossing 2nd Avenue after crosswalk addition and signage.

When the Thurston Street canal crosses minor streets, such as 3rd Avenue through 6th Avenue, a simpler crosswalk would be adequate to improve the infrastructure.



Figure 21: Thurston canal crossing at a minor intersection.

Another minor adjustment to the canal path is at Swanson Park. There is a large storage container blocking the uneven sidewalk. If this container was relocated, and sidewalk concrete smoothed, the path would be an inviting connection for pedestrians and cyclists. The surrounding field area could include benches, and landscape details for aesthetics. Some example ideas include native wildflowers, community garden space, or a dog park.



Figure 22: Swanson Park by the Thurston canal before and after restructure.



Figures 23-25: Sections of the path provide opportunities for “pocket parks” in the form of benches.

Proposal 4: Bicycle Network Growth

Lyon Corridor

Amtrak is a heavily utilized mode of transportation. A bicycle lane connecting the station to the rest of the city would help ease the stress of travel. The Amtrak station is already equipped with top of the line bicycle lockers. The implementation of a buffered bicycle lane on 9th Street leading to the Amtrak station would increase safety for cyclists, pedestrians, and automobiles. Providing this safer space for cyclists may increase community through bicycling.



Figure 26: Aerial view of the focus area to be redesigned.



Figure 27: View of new infrastructure for bicycles at underpass leading to the Amtrak station.

The first phase of this redesign begins at the broader level as the changes to the Lyon Corridor aim to familiarize residents and visitors to the new system. The Lyon Corridor connection is an area with high traffic, therefore implementing a buffered bicycle lane will ensure maximum safety, as vehicles will no longer be able to cut into the bicycle lane. Adding green paint will increase visibility and indicate to cyclists where the route continues.



Figure 28: Current view of Lyon Street.



Figure 29: Lyon Street at underpass with protected bicycle lane.

At the intersection looking northward, vehicles merge from Pacific Boulevard onto Lyon Street. Currently, the bicycle lane is difficult to decipher and ambiguous for vehicles and cyclists alike. We propose introducing a cut-out in the curb to allow cyclists to easily continue to the park. The new curb island can be filled with plants to brighten up the space. In addition, we recommend implementing green paint in the conflict areas and dashed lines to guide cyclists along the Lyon Street bicycle lane.



Figure 30: Current view of Lyon Street intersection.



Figure 31: Lyon Street intersection with island and visible bicycle lanes.

The second phase introduces accessibility after navigating the intersection. We propose providing a northbound bicycle lane on Lyon Street that extends to First Avenue. This provides another connection to downtown and the rest of the bicycle network in Albany. We recommend a buffered bicycle lane with a three foot painted buffer zone to provide additional separation and safety for cyclists. Approximately 700 meters of bicycle accessibility will require relocating the parallel vehicle parking on the east side of the street. Additional parking is currently offered on the many streets that connect to Lyon Street, in business parking lots, and on the west side of Lyon Street.



Figure 32: Current view of Lyon Street.



Figure 33: Lyon Street after view of buffered and painted bicycle lanes.

Lyon Street

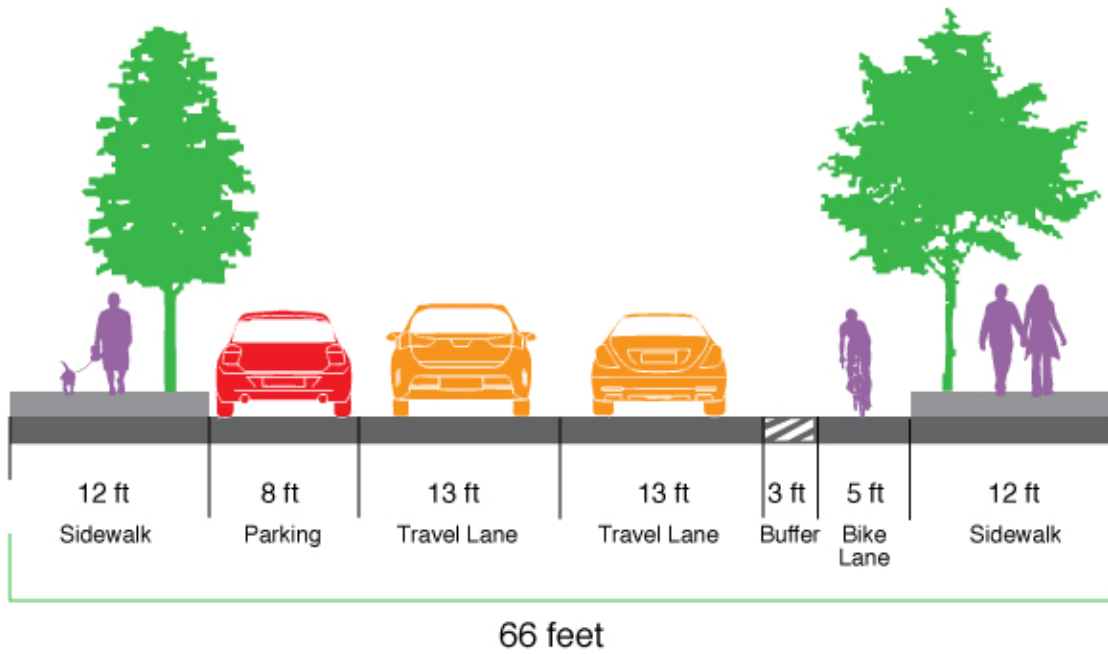


Figure 34: This cross section of Lyon Street after phase 2 indicates that the widths of the travel lanes will not be changed due to the highway designation by ODOT.

One complication of a bicycle lane on Lyon Street is the loading zone before First Avenue. We suggest moving the loading zone around the corner on First Avenue. If this is not a feasible option, we recommend a mixed loading zone and bicycle lane pictured below.

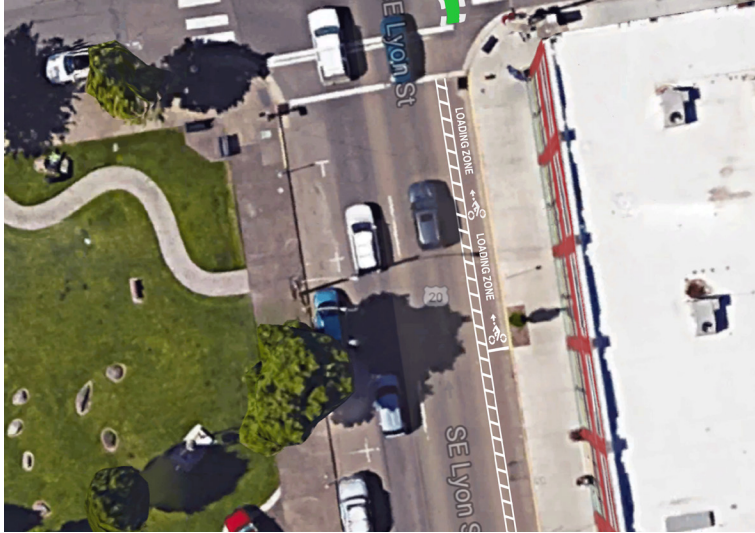


Figure 35: Lyon Street vehicle loading zone shared with bicycle lane.

Phase three of the Lyon Corridor provides additional amenities for route preference among cyclists. Bicycle channels for the corridor staircase, additional bicycle parking along the route, and upgraded median and garden landscaping all provide for a successful and long lasting bikeable community.

Residential Cycle Area

This design targets the Sunrise and Oak neighborhoods.

Marion Street between 13th Avenue and 34th Avenue stretches 1.2 miles and has low volumes of traffic. This street is an excellent opportunity to implement better bicycle infrastructure to encourage bicycle transportation. The existing bicycle lanes are very narrow and more closely resemble a shoulder, rather than indicating a safe space for bicycle transportation. We propose moving the southbound bicycle lane to the north side, creating a two-way cycle track. Because this is a low volume street, it may be feasible to remove the center lane dividing automobile traffic and merge into a single traffic lane. This is a traffic calming strategy and will increase bicycle visibility. The bicycle lanes may be painted green for additional visibility, but it is adequate to only paint street junctions and intersections.



Figure 36: Marion Street with two way bicycle lanes.

Queen Avenue between Marion Street and Geary Street is a 1.3 mile stretch through commercial and residential neighborhoods. As it holds higher volumes of traffic we propose the introduction of small traffic delineators to provide a visual barrier between cyclists and motorists in the more commercial, busier areas of this route.



Figure 37: Queen Avenue with a protected bicycle lane for increased safety.

Similar to Queen Avenue, 34th Avenue runs through both residential and commercial areas and has higher volumes of traffic. Lane delineators may be added to protect the eastbound bicycle lane. On the westbound lane, the existing vehicle parking can be shifted to the left of the bicycle lane, separating the cyclists from moving traffic.



Figure 38: View of 34th Avenue with protected bicycle lane.

To improve connectivity, a bicycle lane on Hill Street would encourage active transportation. We recommend a street redesign beginning at Water Avenue and travelling southbound along sections of Main Street and Hill Street to 34th Avenue.

The blue line on the following map indicates our proposed route and the orange areas highlight intersections with barriers to bicycle access. These intersections are likely to cause conflict between automobiles and cyclists partly due to higher volumes of traffic and lack of bicycle infrastructure. Bicycle infrastructure along this corridor will provide connection routes for residents around the community from local businesses such as Calapooia Brewing, Pepper Tree Sausage House, Starbucks, The Human Bean, and The Heritage Mall to nonprofit educational organizations like Sundborn Children’s House, Montessori School, Hey Diddle Diddle Learning Center, and the American Legion. This route also provides a network leading to the Albany Community Garden and many local parks.



Figure 39: Aerial view of focus area on Hill Street.

A four-way stop exists at the intersection of Hill Street and 24th Avenue. Although this provides safety for automobiles, there are not sufficient safety measures for cyclists. The proposed changes provide both street and intersection improvements, which may be easily added during the upcoming street renovation. Residents may not prefer the removal of parking spaces, therefore widening the streets to allow for both safe bicycle infrastructure and on-street parking may be a viable option. Hill Street south of the intersections and 24th Avenue are designated as shared roads with sharrows. Hill Street north of the intersection includes north and southbound buffered bicycle lanes and a southbound bicycle box at the intersection.



Figure 40: View of Hill Street at 24th Avenue with bicycle infrastructure.

At the intersection of Hill Street and Queen Avenue we propose implementation of buffered bicycle lanes on both roads in every direction. The intersection can include bicycle boxes for cyclists making left turns and egress lanes for north-south cycle traffic. The bicycle lanes on Hill Street north of the intersection can be moved to the end of the roadway. The streetside parking can be removed or serve as a buffer for the new bicycle route.



Figure 41: Hill Street at Queen Avenue with improved bicycle infrastructure including bicycle boxes.

The current intersection at Hill Street and Pacific Avenue is a standard three-way light designed for motor vehicle efficiency. We recommend implementing buffered bicycle lanes on both Hill Street and 9th Avenue. As Hill Street continues north, sharrows may be added transitioning from bicycle lanes.



Figure 42: Hill Street at Pacific Avenue with improved bicycle infrastructure including bicycle boxes.

In order to create a more complete network, providing bicycle transportation all the way to Water Avenue is important. Hill Street ends at 6th Avenue, but curves into Main Street. This bicycle infrastructure implementation consists of the addition of sharrows on Hill Street and 6th Avenue to demonstrate the continuance of the bicycle route. The intersection of Main Street and 6th Avenue can have an egress lane for southbound cyclists making right turns onto the bicycle route. Buffered bicycle lanes can begin at the intersection northbound to Santiam Road. It would be beneficial to include stop lines for both cyclists and automobiles at the railroad crossing.



Figure 43: Hill Street at 6th Avenue and Main Street as a bicycle boulevard merge.

As the buffered bicycle lanes on Main Street reach Santiam Road, the intersection can include a bicycle box for northbound cyclists to enter the Santiam Road corridor. In addition, the existing bicycle lanes on Santiam Road need restriping, and color could be added for increased visibility and accessibility.



Figure 44: Main Street merges with Santiam Road to include bicycle infrastructure.

This proposal connects residents to many community centers and schools through a more complete and safe bicycle network. The Sunrise and Oak neighborhoods contain numerous schools including Sunrise, Lafayette, Oak, and Periwinkle Elementary, as well as Calapooia Middle School and South Albany High School. This route also provides connections to the YMCA, Boys and Girls Club of Albany, and a free summer lunch program for students in the Sunrise neighborhood.

Filling in the Gaps

Throughout Albany there are potential gaps in bicycle infrastructure leaving potential incomplete networks of bicycle transportation options. The following proposals help to make the Albany bicycle network more complete and consistent.

The first goal is to connect Jackson Street to the Dave Clark Trail with a buffered bicycle lane with colored pavement in conflict areas. Jackson Street includes a residential neighborhood, school, and commercial zone, making it an ideal part of the cycling network. The challenge with this proposal is the reduction of on-street parking, however there is a large area of street parking on both sides of Jackson Street causing the implementation of buffered bicycle lanes to be a worthwhile investment. At the intersection of Jackson Street and Second Avenue, colored paint may be added to the bicycle lanes at the crosswalk because Second Avenue has high volumes of traffic. This will increase visibility and safety for cyclists and pedestrians.



Figure 45: Jackson Street with bicycle lanes on both side of the street.



Figure 46: Jackson Street infrastructure and street area measurements.

At the intersection of Walnut Street and Seventh Avenue we propose implementing mini-traffic circles to reduce automobile speeds and increase bicycle safety. This is likely an ideal area for a bicycle boulevard because it is residential, and also connects the west side of Albany to Swanson Park in central Albany.



Figure 47: The addition of islands at smaller intersections is a traffic calming device and is beneficial for cyclists.

Theme 3: City Events To Promote Bicycle Transportation

Implementing bicycle infrastructure and street redesigns can provide residents with the opportunity to commute by bicycle and arrive at their destinations safely and easily. Although an improved bicycle network may encourage increased bicycle transportation, there are other, supplemental strategies to increase ridership. Bicycle-friendly events and programs that residents may participate in are an excellent method for achieving this goal. Outlined below are specific examples of events to engage and encourage Albany residents to participate in active transportation.

Pop-Up Bike Lanes Event

Pop-up plazas and protected bicycle lanes are becoming more popular in cities because of the relative low cost of implementation and the opportunity for residents to ease into and become excited about infrastructure change. These temporary street changes (usually the duration of a weekend) are often put on by bicycle advocacy groups in partnership with the city.

Bike-In Movie Theater

To promote bicycling in the City of Albany, a bike-in movie theater is a way to not only promote cycling, but also community engagement through active involvement. Bike-in movie theaters have been successful in other cities and are a family-friendly, fun way to promote bicycle transportation. Families used to go to drive-in theaters, but now movies are a much higher expense and concession prices continue to increase. A bike-in theater would reduce the costs on families while giving them the same, if not more, entertainment. We suggest Bryant Park as a potential location for this event. By transforming it into a movie theater on selected nights it will create another reason for the community to use that space. Movies could be shown weekly or bi-weekly throughout the summer to create a local tradition for people to look forward to. This provides another opportunity to engage with local businesses to provide the concessions. Residents can learn about local business and it will also help boost the economy.

Bike-aholic Tour

The Bike-aholic Tour is a community bicycle ride for people wanting to enjoy local pubs, bars, and breweries while cycling. This event may also incentivize tourism, which can boost the local economy and businesses. The tour could visit four different businesses, including a stop by the Historic Carousel and Museum. The tour has a different type of bicycle that allows for 12 riders to cycle all at the same time on the same bicycle. Though this is not the traditional way to cycle, it allows people to practice their cycling skills.



Figure 48: A Bike-aholic tour vehicle.

Engage Children

Albany Rides 365 is the name our team created for an educational program for children to reinforce bicycle safety and practice, enabling them to move freely and safely through Albany by bicycle. In fun, educational environments the children of Albany will learn the rules of the road, enabling parents to feel comfortable sending their children out into the community and to schools by bicycle.

Promoting healthy and active lifestyles for children has proven to be increasingly difficult in the 21st century. When engaging in active forms of transportation such as cycling, walking, and skating, data reveal an increase in student productivity in the classroom as well as health benefits. An educational campaign about bicycle transportation will teach bicycle safety and street etiquette so parents can feel confident and comfortable allowing their children to travel by bicycle.

The City of Albany already has several bicycle events that are fun, creative, and kid-friendly. These events include:

- Walk + Bike to School Day in October
- Walk + Bike to School Challenge Month in May
- Partnership programs with the Safe Routes to School initiative

There is the opportunity to provide bicycle events for children throughout the year building upon these already existing events. Highlighted below are proposals for new events for the City of Albany.

Fall Kickoff Event

A fall Kickoff Event would coincide with the start of the school year in the fall, allowing parents, teachers, and children to be excited about bicycling within the community. Parents and children would have the opportunity to meet and greet, in an effort to create a cycling to school network. This presents the ability to create “bikepools,” allowing parents to feel more confident as their children can travel in groups. Participants will learn safety tips and work together to identify the safest routes.

Bike Maintenance Event (winter)

This event is designed to keep children engaged and excited about cycling, even during the rainy winter months. The purpose of this event is to assist children in becoming more independent and self-sufficient regarding cycling. This workshop will educate children on how to assess the condition of their bicycle, and on basic repairs. Focus can be directed on wheel removal, tire removal, tube patching, brake adjustment, and chain lubrication. Children can be encouraged to bring any bicycle tools they may have, but extra equipment may be provided for the children who do not have the necessary supplies. The event can be led by community volunteers from local bicycle shops or the local government. In addition to bicycle maintenance, this event can promote bicycle safety and the importance of wearing a helmet.

Summer Camps

The Albany Parks and Recreation Department provides a variety of weekly summer camp offerings. The mission statement of the Albany Parks and Recreation Department is to “promote healthy living through recreational experiences and serve as stewards of Albany’s public parks and facilities.” To keep youth physically active year-round, summer activities can be implemented to the existing camp schedule to encourage children to ride their bicycles safely in Albany. Throughout the week, campers may have the option to participate in bicycle education classes covering road safety and basic bicycle maintenance. Multiple activities could promote teamwork and problem solving skills. Children may participate in both city and trail rides.

Kids Bike Map

An engaging, colorful map with bikeable destinations for kids could be printed and distributed throughout the community (see following page for map).

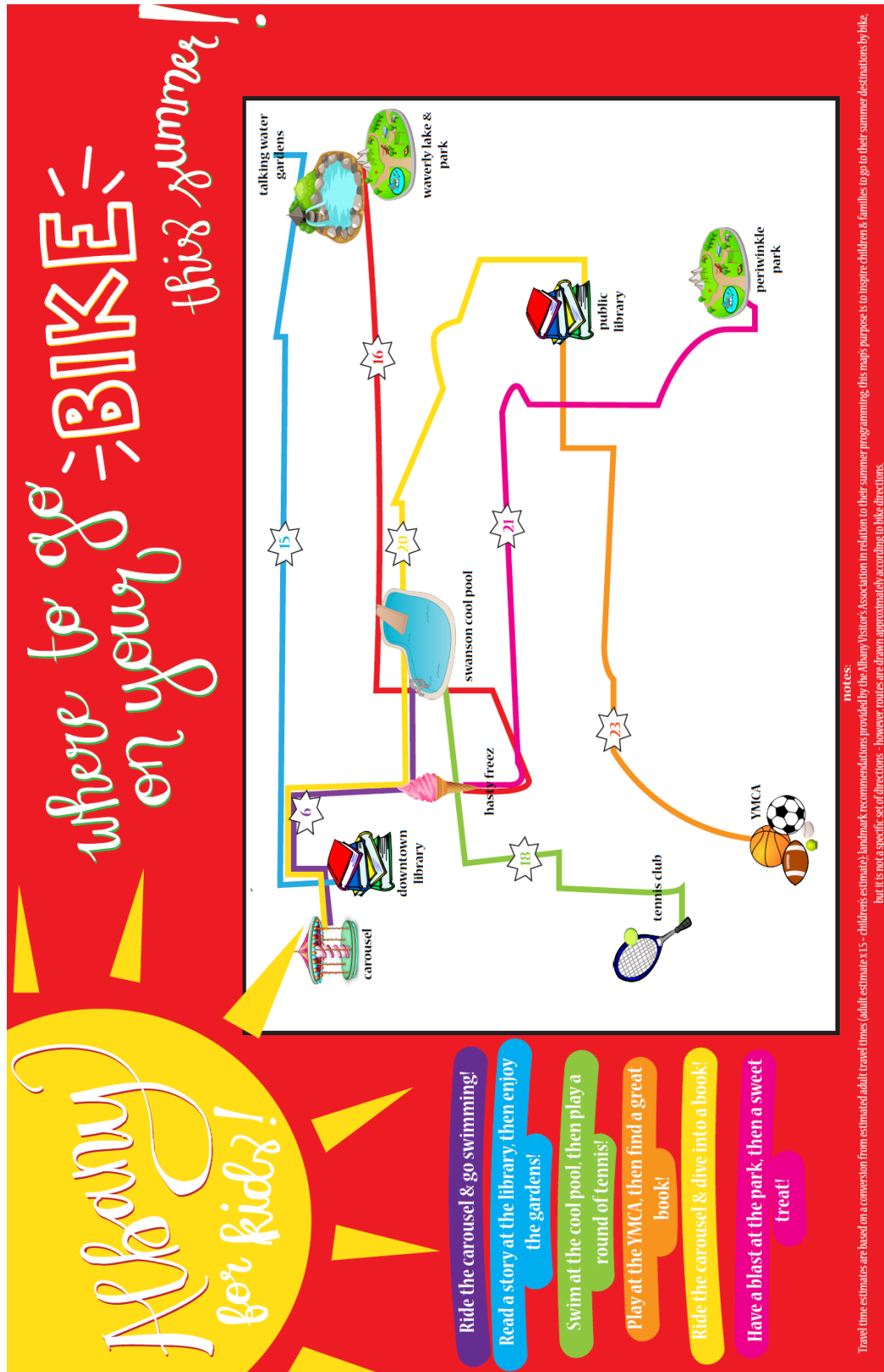


Figure 49: Kids' summer destinations by bike

Conclusion

Along with efforts from CARA, Albany's *Transportation Plan* and other city goals, these recommendations and proposals may help to increase and improve bicycle transportation in the City of Albany. This project works to comprehensively connect the existing system while providing better access to various parts of the community for residents of all abilities and confidence levels. The City of Albany has great potential to become a bicycle friendly city with increased statistics of bicycle commuters. It has a solid foundation of wide streets and off-street paths, as well as some existing bicycle lanes.

Bicycle transportation options are vital for any community, ensuring that streets are safe and welcoming places for all modes of travel. Benefits of active transport include improved air quality, physical exercise and health, and revitalization and economic growth. There are numerous possibilities for future development in local cycling, from the construction of additional bicycle infrastructure to the development of community events, which encourage residents to go outside and ride bicycles.

At this stage in Albany's development, student efforts aim for the ideas and proposals to be considered for implementation as Albany moves forward on the path towards becoming a safer and more connected city for bicycle transportation.

The final products in this report were drawn from extensive reports created by eleven student group teams. The information presented in this report sought to emphasize the best ideas and consolidate common themes interwoven throughout student work. The goal of this report is to serve as a tool for improving the bicycle network, city connections, and accessibility of bicycling for residents of the City of Albany.

Appendix A: Street Treatments (Refer to Theme 1)



Figure 49: Conventional Bicycle Lane

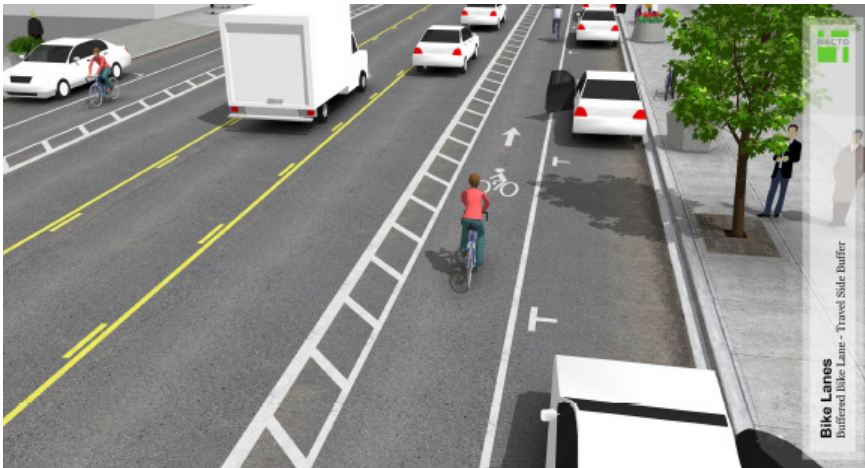


Figure 50: Buffered Bicycle Lane



Figure 51: Contra-Flow Bicycle Lane



Figure 52: Left-Side Bicycle Lane



Figure 53: One Way Protected Cycle Track

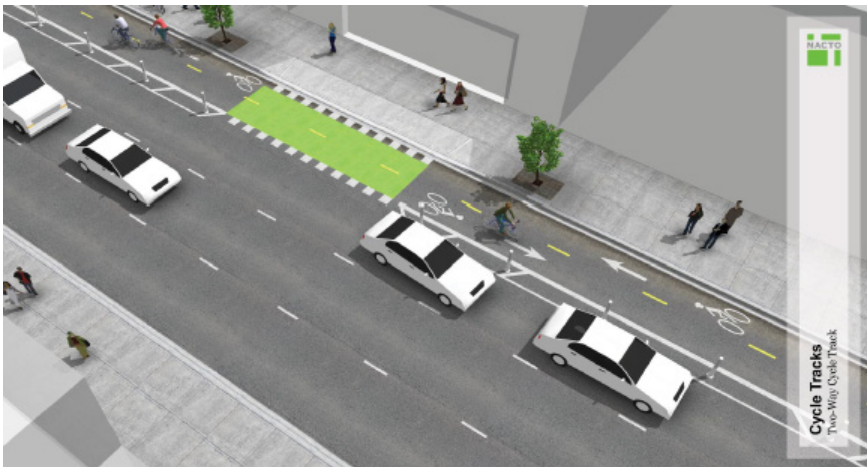


Figure 54: Two Way Cycle Track

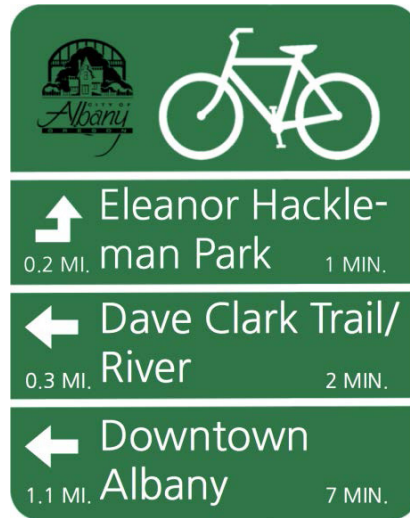
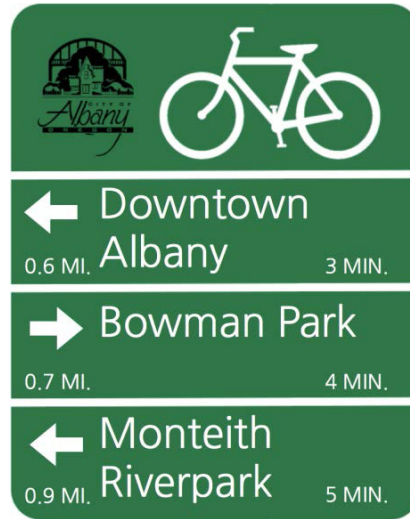
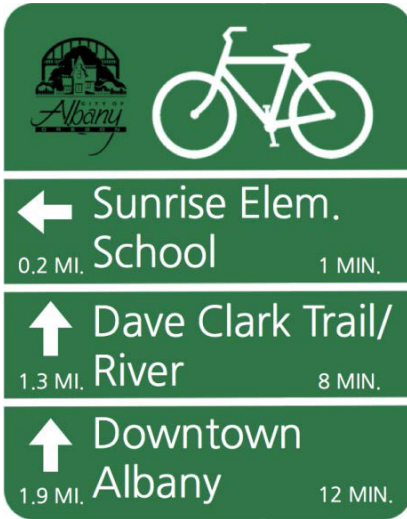


Figure 55: Bicycle Boulevard



Figure 56: Bicycle Box

Appendix B: Wayfinding Sign Opportunities



Figures 57-60: Clockwise from top left: Placement of this sign northbound at Hill Street and Queen Avenue, Placement of this sign northbound at Main Street and the David Clark Trail, Placement of this sign southbound at Main Street and SE 6th Avenue, Placement of this sign southbound at Hill Street and 12th Avenue

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