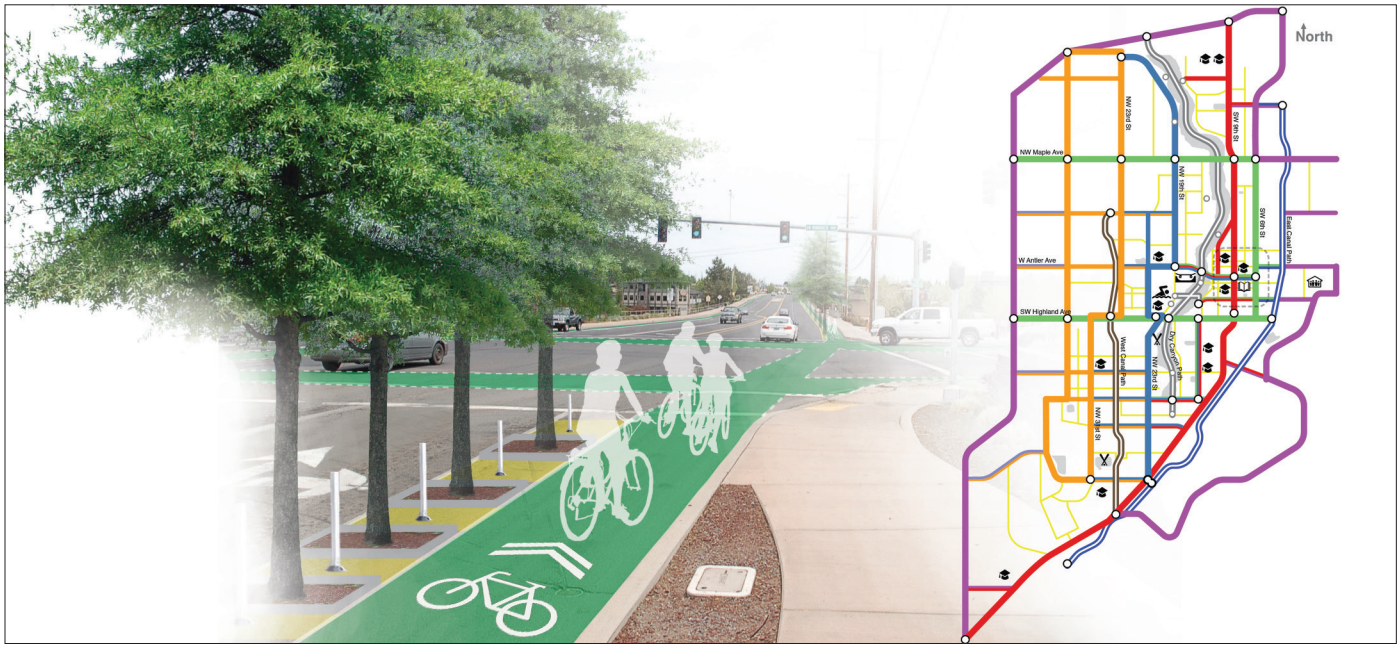

Bike the Hub: Creating a Family-Friendly Bike System in Redmond

Spring 2015 • PPPM

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UNIVERSITY OF OREGON

SCI
Sustainable Cities Initiative

REDMOND 1910 2010 THE HUB

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We would also like to thank all of the community members, organization representatives, and city staff who participated and engaged with students during their site visits and final presentation at City Hall.

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.

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About Redmond, Oregon

Redmond, located in Deschutes County on the eastern side of Oregon's Cascade Range, has a population of 27,427 and is one of Oregon's fastest growing cities. The City's administration consists of an elected mayor and city council who appoint a City Manager. A number of Citizen Advisory Groups advise the City Manager, mayor, and city council.

From its inception, Redmond has had its eyes set firmly on the future. Redmond was initially founded in 1905 in anticipation of a canal irrigation project and proposed railway line. Redmond is on the western side of the High Desert Plateau and on the eastern edge of the Cascade mountain range. Redmond lies in the geographic heart of Oregon. Redmond focuses on its natural beauty, reveling in the outdoor recreational opportunities (camping, hiking, skiing) offered by the Cascade mountain range, four seasons climate, and 300+ days of sunshine annually.

Redmond has been focused on innovative, sustainable growth and revitalization while preserving the city's unique history and culture. In 1995, the City of Redmond began to make critical investments in revitalizing its downtown core. The initial phase of renovations strove to balance growth, livability and historic preservation by rerouting Oregon State Highway 97, improving critical infrastructure, and improving the facades of over 100 buildings in the historic center. The City of Redmond has worked with local businesses to revitalize retail, job creation and housing. To facilitate private sector buy-in, Redmond offers innovative incentive programs such as the Façade Rehabilitation and Reimbursement Grant and the "Downtown Jumpstart" loan competition, as well as Design Assistance.

Often referred to as "The Hub" of Central Oregon, Redmond is situated at the crossroads of US Highway 97 and US Highway 126. It is served by the Burlington Northern Sante Fe Railway, Cascades East Transit Regional Public Transportation Service, as well as a state of the art regional airport served by multiple commercial airlines and FedEx and UPS. In addition to its geographic location, Redmond is viewed as central to business growth in the region. In 2014, Central Oregon Community College opened a 34,300 square foot Technology Education Center to recruit new businesses and expand existing businesses in Central Oregon. Above all, Redmond prides itself on being a family-friendly city which was the motivation for the work presented in this report.

Course Participants

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Table of Contents

Executive Summary

This report documents the ideas, methodologies, and proposals produced by students of the Bicycle Transportation class for the City of Redmond, Oregon. Project members visualized a family-friendly bicycle network that included both connections to and from schools, as well as the redesign of several auto-centric corridors. The scope of the projects were open-ended, but students were expected to make recommendations that could be used in future city transportation projects. The City of Redmond is consistently making efforts to improve the safety of their bike network and to increase the number of residents who bike.

Students conducted research through site visits and analysis of GIS data. In addition, students also relied on federal, state, and regional resources that detailed transportation regulations and requirements, as well as local comprehensive and bicycle master plans. The projects in this report are categorized into four themes: bicycle networks, family-friendly bicycle corridors, family-friendly biking to and from school, and marketing. The report concludes with overall recommendations. It also includes an appendix with a technical glossary and works cited. The structure of the report is as follows:

Introduction

This section briefly explains the Bicycle Transportation class and the project scope. It recognizes the City of Redmond's interest in improving their bicycle network, and increasing their bicycle mode share.

Connecting the Redmond Bicycle Network to Safety and Recreation

This section presents recommendations on how to create a world class, family-friendly bicycle network for the City of Redmond. The proposal involves three phases for reimagining Redmond's streets and includes infrastructure improvements, artistic community connections, and safety measures for improving intersections and bicycle lanes.

Family-Friendly Bicycle Corridors

This section details recommendations on how to best develop family-friendly bicycling throughout the City of Redmond. These projects present best practices for redesigning major, auto-centric corridors that accommodate bicyclists of all ages and skill levels. Ultimately, this section presents a framework for a more cohesive network of bicycle lanes that are family-friendly and encourage families to use bicycle as a mode for trips under two miles.

Family-Friendly Bicycle Connections to and from Schools

This section proposes several corridor redesigns that demonstrate techniques for upgrading current streets, paths, and crosswalks around schools. This allows for family-friendly accessibility in bicycling, walking, or even "rolling" to school. These examples focus on particular schools, but the practices presented can be adopted or applied to most schools within the Redmond area. Many of these projects utilize Dry Canyon as a connector.

Marketing and Safe Routes to School

This section contains a series of recommendations that build on the work of the Bike, Walk, and Roll Marketing Plan. This section provides information on how to build a bicycle and pedestrian advisory group, suggestions for outreach, and information and budgets for events. In addition, this section also contains information and best practices for implementing a Safe Routes to School (SRTS) program. SRTS has become a key part of increasing bicycling mode share in many communities across the country.

Conclusion

This section includes a final summary of students' recommendations for the City of Redmond. Given its flat terrain, expansive right-of-ways, and the signature Dry Canyon path, Redmond is very well positioned to build on these existing assets to create one of the better systems of interconnected family-friendly biking systems in the country.

Introduction

The goal of this project is to inspire the City of Redmond to create a bicycle network focused on safety, connectivity, and accessibility for members of the community aged eight to eighty. With the help of many community members, the students of the Bicycle Transportation course focused on creating a family-friendly bicycle system throughout Redmond, primarily focused on enhancing connections to schools and the existing Dry Canyon Path. The following report includes the collection of efforts from the 2015 Bicycle Transportation class.

As a class, we began our research from the ground up, biking around the beautiful city of Redmond, acquainting ourselves with the streets and people. With previous instructions on how to identify areas of conflict between multiple forms of transportation, students determined which streets could be added to, improved, or completely reimagined to fulfill the vision of becoming a bicycle community. Students then applied this knowledge and developed possible enhancements that adds value to a wider variety of roadway users across Redmond's infrastructure.

Collectively, a genuine interest in Dry Canyon arose, recognized for its potential to become the backbone for all bicycle routes throughout the City of Redmond. Several of the City's public schools, main streets, neighborhoods, and downtown could all be accessed through walking or biking if infrastructure surrounding Dry Canyon supported its use.

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 to and from Dry Canyon. The report is categorized by which type of bicycle infrastructure is being addressed and includes specific locations as examples of where these ideas could be implemented.

Each suggested improvement builds from Redmond's existing infrastructure in Redmond to promote an easy transition to a more family-friendly bicycle transportation system. The proposed ideas include safety concerns and resolutions, well-connected routes separated or physically protected from vehicular traffic, 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 Redmond, Oregon transitions to a more bicycle-friendly municipality.

Theme 1: Bicycle Network

Connecting the Redmond Bicycle Network to Safety and Recreation

The series of networks highlighted in this chapter aim to create a world class, family-friendly bicycle network for the City of Redmond. The plan highlights three phases for redesigning Redmond's streets and includes infrastructure improvements, artistic community connections, and important safety measures for improving intersections and bicycle lanes. The City of Redmond should create a network that fosters safe and accessible bicycle access for people of all ages.

Vision

To create a family-friendly network for the City of Redmond along Obsidian Ave., SW 15th St., Highland Ave., SW Canal Ave., and Deschutes Ave.

Our intent is to create a bicycle network that connects multiple schools, major shopping centers, and residential areas of the city. The infrastructure improvements, amenities, and local connectivity will encourage families to use bicycling as an everyday mode of transportation and provide safe, effective, and easy access for all pedestrians at crucial destinations along the network.

Goals

- Safe and easy access to bike trails, shopping centers, and schools along Redmond's family network.
- Creating neighborhoods where residents build relationships with one another to empower change at the local level.
- Encouraging the redesign of dangerous infrastructure that is currently in place.
- Connecting preexisting bike lanes on Canal Blvd. to the proposed Obsidian buffered bicycle track for a safe route to downtown Redmond.
- Increasing the accessibility of Redmond's bicycle transportation network to all demographics.
- Increasing livability and environmental quality in Redmond.

Project Phasing Summary

Phase One Practical Measures: Can be implemented right away at a relatively low cost.

- Enhance accessibility for bicycle commuters traveling to and from Obsidian Middle School.
- Create a children's bicycle network connecting Vern Patrick Elementary School and Obsidian Middle School, starting at Obsidian Ave. and 31st St. through Dry Canyon Trail to SW Canal Blvd., by adding buffered bike lanes and sidewalks on either side of the street.
- Develop community through having residents paint murals in their neighborhoods.
- Replace dangerous wheel catching grates in bike lanes throughout the city.
- Plant trees and other shrubbery to prevent accidents at dangerous intersections.

Phase Two Progressive Measures: Accessible connection of paths for pedestrians to access residential areas and major shopping centers.

- Redesigning the intersection of Highland Ave. and 15th St., complete with bike lanes, pedestrian crossings, and bicycle signals.
- Restructuring the median refuge island on Highland Ave. for a safe pedestrian crossing with warning signs, hawk signal, and crosswalk lines with truncated tiles.
- Retrofitting the intersection of Obsidian Ave. and SW Canal Blvd. with green stop boxes and bike lanes, a "sharrow" in the left turn lane on SW Canal Blvd. for bicyclists, yield signs, crosswalk, and extend the sidewalk and median refuge island.

Phase Three Pivotal Measures: Transform Redmond into an exceptional bicycle community. The measures proposed are expensive and would require political buy-in from the local community.

- Implement an alternative to the stairs at the SW Obsidian Ave. entrances to Dry Canyon Trail.
- Remodel Deschutes Ave. in downtown and in particular, make a safe pedestrian crossing at the corner of Canyon Dr.

Detailed Phasing

Phase 1: Practical Measures

Children's Network: Connecting Vern Patrick Elementary and Obsidian Middle School

Phase One presents enhanced accessibility for bicycle commuters traveling to and from Obsidian Middle School. At the intersection of Obsidian Ave. and 15th St., students propose bollards to make the bike lane safer and more comfortable. It also makes cars more aware of others using the road.

Figure 1: Intersection of Obsidian Ave. and 15th St. rendition

The principle aim for this intersection redesign mirrors that of the National Association of City Transportation Officials (NACTO). As intersections are public spaces utilized by a diverse array of commuters, students' designs capitalize on heightening commuter visibility to foster a mutual awareness between intersection users. Therefore, open space of the intersection may be negotiated cautiously, respectfully, and with the safety of others in mind. The current state of the Vern Patrick Elementary School to Obsidian Middle School connection does not bear this in mind. No bicycle lanes are present on Obsidian Ave., even though the road intersects Dry Canyon Trail, a readily available and safe north-south network connection. This forces any cyclist commuting to or from either school to share the lane with moving vehicles, a situation that does not accommodate the safety or concerns of children and families.

Safety Measures

To mobilize children and families, students have proposed a redesign of Obsidian Ave. The design pays special attention to the redesign of the intersection of Obsidian Ave. and SW 15th St. This space is a critical connecting point that can greatly affect commute quality for students attending Obsidian Middle School, and it also serves as a connecting point to the greater bicycle network. In its current state, the intersection of SW 15th St. and Obsidian Ave. is entirely automobile-oriented while safe and accessible spaces for bicycles to travel are absent from both streets.

To accommodate cyclists, students propose to implement separated, buffered bicycle lanes on either side of SW 15th Ave. and Obsidian Ave., reallocating space from the existing two-way traffic lanes. To encourage those traveling in motorized vehicles to approach the intersection cautiously and at a low speed, a stop sign will be installed on Obsidian Ave. to safely accommodate left-turning cyclists and pedestrians. The design of this intersection allows cyclists, drivers, and pedestrians ample time to determine their path through the intersection, leading to fewer conflicts in the open space of the intersection.

Cost

All right turns for cyclists will be protected in this intersection to reduce the potential of conflict between vehicles and cyclists continuing their journey onto Obsidian Ave. These bollards will continue to be placed throughout the extent of Obsidian Ave. to Vern Patrick Elementary. Though an added cost, bollards will prevent drivers from veering into the bicycle lane, and add a sense of security for cyclists utilizing the network.

Murals and Community Involvement

Along the residential areas that surround Obsidian Ave., we envision a place where families are rooted in their community, where they come to raise their children because it is a safe neighborhood with reduced traffic speeds, where parents stop to chat with neighbors and inquire about shared child care, and where the area is part of that neighborhood's sense of place.

Communities across the nation are starting a revolution of neighborhood involvement. It all starts with a great idea and a little paint. In the 1990's, the City-Repair co-founder, Mark Lakeman of Portland, Oregon, visited Central America and saw the areas in villages where people gathered in the common areas. Invigorated, he returned to Portland to get permission from the City of Portland Department of Transportation to paint a mural on an intersection in his neighborhood. When officials refused, the community painted without the permission of the City and got the political backing of Mayor Vera Katz, who saw that the painted intersection had a positive effect on its residents. "When the city surveyed the neighbors living near Share-It-Square, they found residents had positive perceptions of less crime, slower traffic, and increased neighborhood involvement." Soon neighbors were adding a 24-hour tea station, a newspaper stand, a community library and exchange station, a play structure, and an information kiosk for children and adults alike. This precedent shoes how these techniques can be successfully implemented and bring a community closer together.

Examples

Figure 2: St. Johns and Central, Portland, Oregon

Figure 3: Tea Station, Share-It-Square

When Seattle's Fremont Neighborhood decided to paint the street at 41st St. and North Interlake Ave., they approached the neighbors one by one to get permission and to work on the permitting process. The turtle design cost the City of Seattle a little more than a thousand dollars, including the permit costs, and the neighborhood received a Neighborhood Matching Fund grant for half of the cost.

In the end, intersection painting is about community empowerment. The project is inexpensive and as the murals need to be repainted on an annual basis, it provides an opportunity for consistent community engagement. This fosters a place for both community gathering and creative problem-solving. These are all things that can be easily implemented in Redmond.

Figure 4: Community Library Share-It-Square

Figure 5: Turtle, Fremont, Seattle

Phase 2: Progressive Measures

Redesign, Restructure, and Retrofit

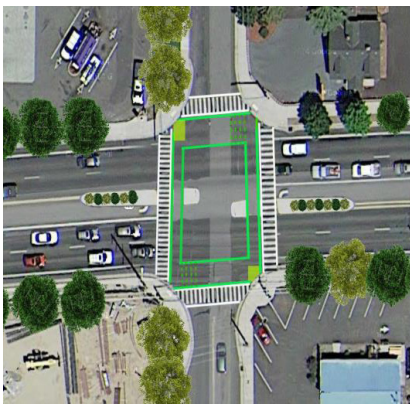
Redesign

Phase Two of the complete network builds off the redesign of Obsidian Ave. and SW 15 St. from Phase One. The corridor along Obsidian Ave. and SW 15th St. is a critical network for school children, and it terminates on Highland Ave., the focus area of Phase Two. Highland Ave. is significant because it serves as a facilitator for east-west travel to Sisters, Prineville, and Eugene. It also serves as a major barrier to safely accessing Dry Canyon Trail, as there is only a single underpass bisecting the trail. Therefore, the intersection at Highland Ave. and SW 15th St. is an important connection for the entire community to use.

To increase pedestrian and motorist awareness, a median refuge island has been proposed for two intersections along Highland Ave. at 15th St. and SW Parkway Dr. A median refuge island is a strip of land that separates traffic moving in opposite directions. The median refuge island (which is usually only 100-250 ft. long) would protect pedestrians and bicyclists by giving them a safe place to stop in the middle of the road and watch for cars coming from only one direction of traffic at a time. Furthermore, the refuge would guide pedestrians to use the preferred crossing location, and with the addition of the shrubbery on the median refuge island it would encourage motorists to stay alert. As there are five lanes of traffic at this intersection, including turning lanes, the travel lanes should be narrowed at this intersection to at least 11 feet (preferably 10.5 feet) to accommodate the median refuge island.

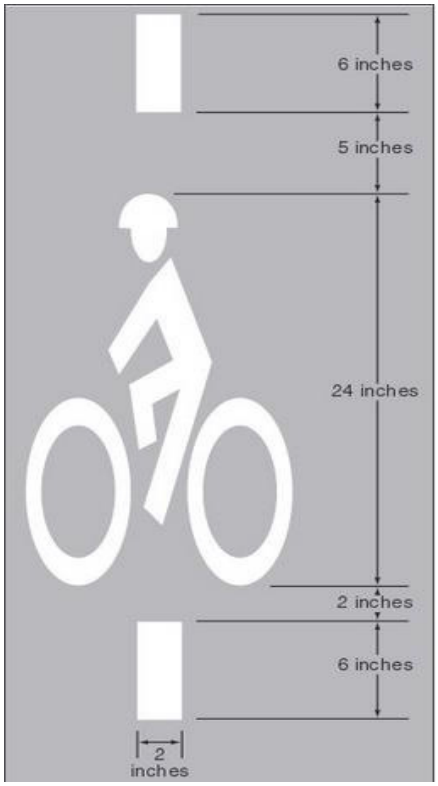
Before

After: Redesign of Highland Ave. and 15th St.



Ariel redesign of Highland Ave. and 15th St.

At Highland Ave. and SW 15th St. there will also be a waiting area in front of the crosswalk for a bicycle activated signal loop on opposing sides of the street. The loop area will give the cyclists a safe and protected place to stop and wait for opposing traffic to subside so that cyclists may advance. Signal activation loops are buried in the roadway surface and do not require the cyclists to dismount the bike to activate the signal. However, they may need to be monitored so that they can be triggered correctly by bicyclists. An alternative to the loop would be a push button, which may be cheaper to implement and require less maintenance.



This symbol is placed in the travel lane to indicate where a bicyclist should be to trigger the signal (MUTCD)

Moreover, a bicycle signal head should be added to the current traffic light posts as well as a “No Right Turn on Red” sign. The bicycle signal head is very similar to a conventional traffic signal, but instead uses a green, yellow, or red bicycle icon. The “No Right Turn on Red” sign could also be an electronic sign that is triggered when the cyclist is in a bicycle activation loop. Additional design recommendations from Portland State University include:

- Using retroreflective pavement markings and signage.
- Installing advanced warning speed and advisory signage.
- Installing “X-ING Ahead” pavement markings in addition to the crosswalk signage.

The Redmond Bicycle Pedestrian Advisory Committee (BPAC) performed a bicycle count in various areas around the City of Redmond and found that on average, pedestrians, bicyclists, and skateboarders used the Highland Ave. and SW 15th St. crossing between 39 to 50 times a day. They also found that the majority of pedestrians using the crosswalk were youth between the ages of 11 and 20. With this intersection being a major cause of accidents, especially for youth, the Highland Ave. crossing is an excellent place to install traffic calming techniques to make the street easier to cross. These suggestions include a median refuge island, shared (but separate) bicycle and pedestrian crosswalk, bicycle activation area, and a bicycle head signal at the intersection.

Restructure

In Redmond, Oregon, Dry Canyon Trail is one of the most widely used sections of the City. By restructuring and adding to the existing median on Highland Ave. at SW Parkway Dr., SW Parkway Dr. can serve as a safe crossing for access to Dry Canyon Trail. In addition, the median refuge island shown in the rendering below will provide a safe crossing for cyclists and pedestrians to access the mall and businesses like Trinity Bike Shop along the southern region of Highland Ave.

Before

After: Reconstruction of Highland Ave. and SW Parkway Dr.

In the effort to increase the overall safety of this crossing, the use of a Rectangular Rapid-Flash Beacon (RRFB) may help reduce crashes and fatalities for both pedestrians and cyclists. A RRFB is an activated yield sign with flashing L.E.D lights and has one of the highest driver compliance rates of the devices in use today. The use of lights is meant to increase the overall visibility of the signal and the pedestrians waiting at the crossing. Studies done by the U.S Department of Transportation have shown a large increase in motorist compliance to these signs, with an increased driver compliance of almost 70 percent. This signal is meant to increase the driver awareness of pedestrians and cyclists. By doing so, this offers a much safer crossing, due to the high rate of driver compliance to RRFB signals. Along with providing safer routes throughout the city, it uses solar panels to provide power and it requires little to no maintenance throughout its lifetime.

These beacons are not the only options that are available to warn drivers of pedestrians and bikes. Another possible option at this crossing would be the implementation of a High Intensity Activated Walkway (HAWK) pedestrian crossing, which is a user-activated signal that is meant to stop traffic for a safe crossing. When the button is pressed by the user, lights will flash in the direction of oncoming traffic to signal them to stop, and will provide the pedestrian or cyclist with a protected route across an active roadway. This design was originally developed in Tucson, Arizona in the 1990's, and is meant to provide a safe pedestrian crossing. The FHA has stated that "previous research found driver yielding percentages above 95 percent for the HAWK treatment, even on major streets with multiple lanes or higher speeds." However, due to the limited use of these signals, the FHA is still conducting further studies to completely assess the effectiveness of the HAWK signs Overall, the study revealed that these signals can reduce both pedestrian and motor vehicle crashes, enough to create a safer route throughout the City.

Crossing any road wider than two lanes can be a scary and stressful experience for any pedestrian. As presented, one of the best practices for improving safety is the addition of a median or refuge island. A study done by the FHA showed that pedestrians are still willing to cross at any "hole" or gap in traffic even when there are no crossings nearby. The implementation of medians or refuge islands will create a safe "buffer zone" for pedestrians or cyclists to cross a street without fear of motor vehicle collisions. These additions to crossings have been documented to reduce pedestrian fatalities and crashes by 46%, and reduce motor vehicle crashes by 36%. These medians also provide space for different fixtures, signs, and vegetation to not only improve safety but the aesthetic appearance as well. Moreover, safer corridors may encourage those who skeptical or nervous to consider bicycling.

Cost

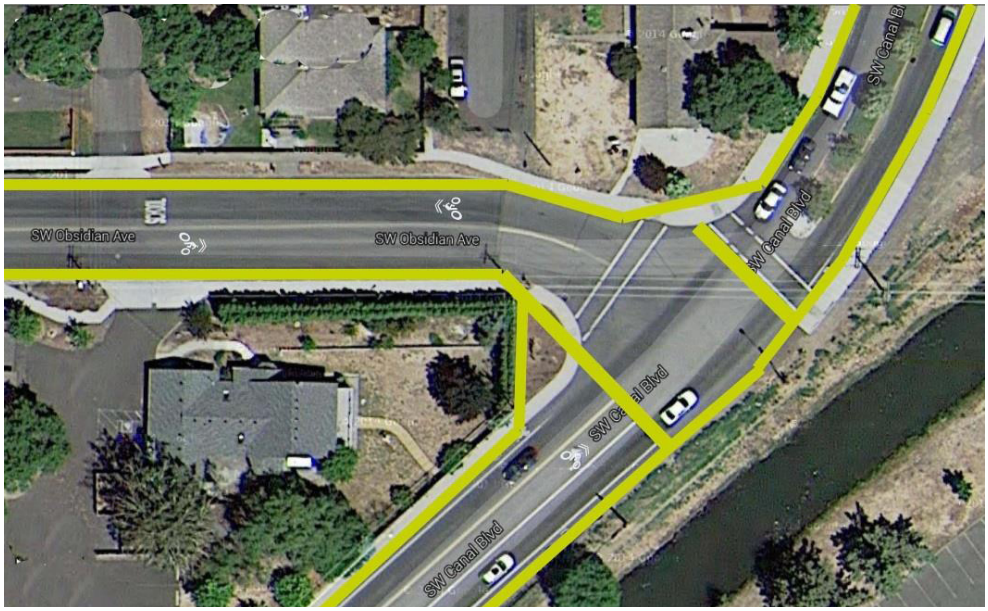
For the redesign of the Highland Ave. and SW 15th St. intersection, the costs may be expensive, considering the many upgrades that need to be made. For the "crossbike" proposal without the median refuge island, Portland State University estimated that the crosswalk and bike lane together will cost "$2,000-$15,000 dependent on extent of treatment, size of the road, and drainage issues." However, Alta Planning & Design found that the addition of a median refuge island will cost $90,000. Since these estimates vary so widely, it is hard to give an accurate estimate of the cost of adding the "crossbike." Similarly, the cast of a bike detection device would depend on whether a city implements a push button or bicycle loop detector. The loop would cost "approximately $75 for pavement marking of the loop only and $1,000-$2,000 for loop detector installation." The cost of the bicycle signal head varies too as, "cost will depend on the complexity and size of the intersection, but in general, costs are comparable to the installation of conventional traffic signals."

For the restructuring of the Highland Ave. and SW Parkway Dr. Intersection, the changes are costly changes that may take time to fully implement. The implementation of a median island ranges price due to the unique nature of each project, which can vary from $15,000 to $30,000 per 100 feet. However, a median refuge island is already in place on Highway Ave. and with some slight alterations to the design, it would not be costly to retrofit the island.

The average cost of a HAWK beacon is approximately $75,000 to $100,000. The overall price of these signals is high, but with the vast reduction of crashes for both pedestrians and motor vehicles, it makes the use of these signals well worth the cost.

Retrofit

The final progressive measure of Phase Two focuses on Obsidian Ave. and SW Canal Blvd. This includes intersection connectivity from the preexisting bike lanes along either side of SW Canal Blvd. to our proposed buffered bike lanes along SW Obsidian Ave. This connection is critical, as the existing bike path along SW Canal Blvd. connects the downtown area, terminates at this intersection. By linking Obsidian Ave., it will create a safe route of passage for pedestrians desiring to travel by bicycle to the downtown area.



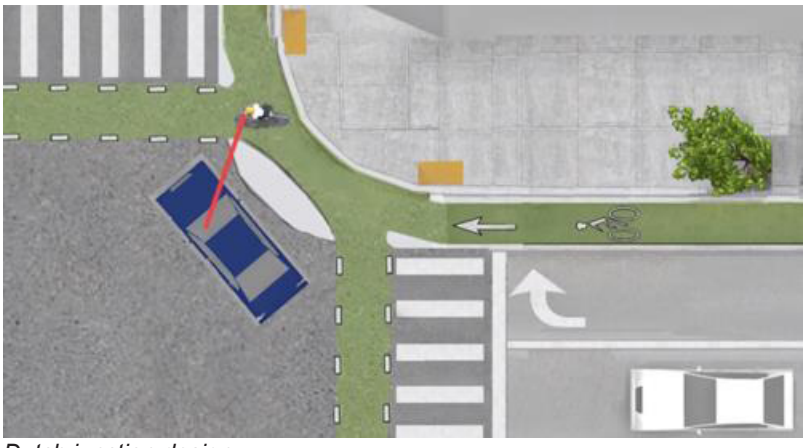
After: Aerial view of Obsidian Ave. and SW Canal Blvd.

Safety Measures

For improved cyclist safety, protected intersection lanes should be added on either side of SW Obsidian Ave. The current bolded curbs provide ideal space for a bicycle-friendly redesign of infrastructure and should be redesigned as protected intersections, while creating a protected bike path diagonally through what is now dirt. Graded curbs will be implemented for access to those with disabilities throughout the area. Additionally, bike signs and arrows (as seen in the figure below) should be implemented along the north moving traffic on Canal Blvd. and the eastern moving lane on Obsidian Ave. These should be used to direct cyclists towards the separated bike routes on the protected intersections.

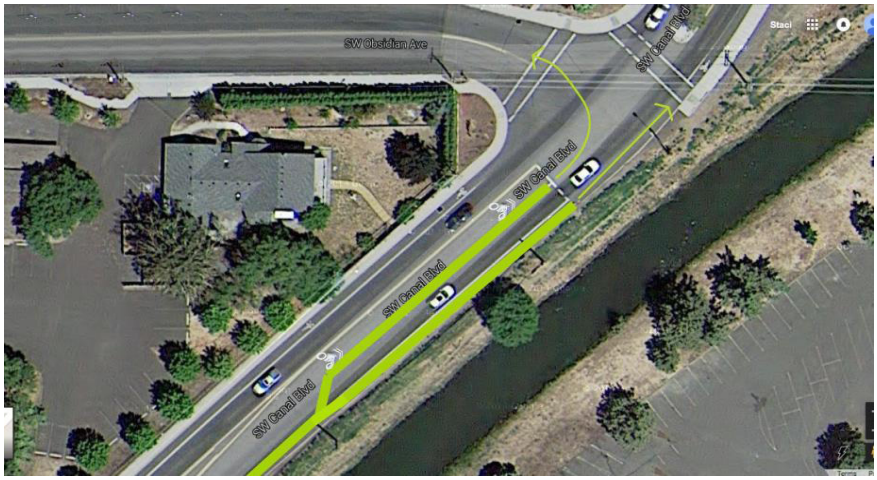
Example Bike Signs and Arrows

The Dutch junction design (below) was recently adopted by four U.S. cities (Boston, MA; Davis, CA; Austin, TX; and Salt Lake City, UT) after international success. Originally created in the Netherlands, this design allows for a low-stress environment for cyclist and pedestrian crossing, while keeping drivers alert of the multimodal presence. The bolded curbs along either side on SW Obsidian Ave. when turning provide ideal space for this infrastructure. The organization People for Bikes refers to this design as “the holy grail of bike infrastructure” stating, “the promise of the design is simple: instead of forcing people in cars and on bikes alike to look constantly over their shoulders for one another, protected intersections arrange traffic so that everyone can see what's going on simply by looking forward.”



Dutch junction design

For bicyclists traveling north on Canal Ave. wishing to turn left onto Obsidian Ave., green paint will be added just before the two-lane extension, creating a shared car and bicycle turning zone, also known as a “sharrow.” Once on Obsidian Ave., bicyclists will again have their own separated lane of traffic. Students also propose extending the sidewalk on the east side on Canal Ave. 100 yards for pedestrian accessibility of the remodeled intersection. Additionally, crosswalks of the typical 10 ft. width should be added on the north side of Obsidian Ave. in front of the median refuge island, as well as on the south side of Obsidian Ave. for assured safe crossing for both cyclists and pedestrians wishing to travel across Canal Blvd.



“Sharrow” and left turn for bicyclist’s area

Before

After: Turning lane with sharrow on Canal Blvd.

Phase 3: Pivotal Measures

Completing the Network

When touring Redmond, students observed access limitations caused by the stairs along Dry Canyon Trail, in particular the two stairways that bisect Obsidian Ave. on both sides.

The stairs are necessary because the canyon walls are nearly vertical. This makes the addition of a switchback or ramp challenging. The stairs have ramps along the side so that pedestrians can walk their bicycles down the stairs instead of carrying them up or down 25 feet. However, Scott Woodford, Associate Planner for the City of Redmond noted that, “Some kids actually ride down the embankment next to the stairs. The Obsidian stairs aren’t that bad and don’t appear to be deterring lots of kids from using it (at least middle school kids - I’m not sure about elementary kids).”

Example of a current stairway into Dry Canyon

In 2010, the ADA was updated with accessibility standards for disabled pedestrians. Regulations state that all new construction done after March 15, 2012 must comply with ADA regulations. Currently the stairs on Obsidian Ave. are not ADA accessible to pedestrians. To retrofit the stairs, the City of Redmond would have to put in an ADA accessible switchback that would accommodate not only disabled pedestrians but also help youth safely use the trail. According to the 2012 standards, “Ramp runs shall have a running slope no steeper than 1:12.”

Students found that with a gradient of about 25 feet and a slope of eight percent, the switchback would have to be 312.5 feet long to comply with regulations. However, the City of Redmond may be able to avoid the switchback and ADA standards. The 2010 ADA regulations allow for an exemption to ADA standards when the implementation of a new ADA construction is structurally impractical. According to the ADA, this means that, “Full compliance will be considered structurally impracticable only in those rare circumstances when the unique characteristics of terrain prevent the incorporation of accessibility features.”

For Redmond’s Dry Canyon Trail, the terrain makes it nearly impossible to offer entrances for the disabled. If Redmond can prove that the addition of ADA access to the staircase is impractical, it is feasible to propose a paved ramp where bicyclists already ride down the side. This would make it safer for bicyclists, limit the amount of debris that is currently in the staircase, and prevent interference with pedestrians who also use the stairs.

Remodeling Deschutes Ave.

Continuing north from the Highland Ave. and SW 15th St. intersection redesign, the remodel of Deschutes Ave. provides a link from the busy intersection of SW 15th St. and Highland Ave., north to Canyon Dr., and right onto Deschutes Ave. This connection facilitates safe transportation for cyclists to travel to the local library and nearby Centennial Park. In addition to “sharrows” that will indicate these streets as shared use, Canyon Dr. will feature a median refuge island so that cyclists turning left from Deschutes Ave. to Canyon Dr. are able to cross traffic safely. This redesign will also benefit pedestrians, who will now be provided a crosswalk across Canyon Dr.

Route from Highland Ave. & 15th St. intersection

Median Refuge Island at the intersection of Deschutes and Canyon Dr.

Potential Project Funding Resources

Bikes Belong Grant Program

Created in 1999, the Bike Belong Grant Program has distributed over 200 grants for the development of bike infrastructure for “municipalities and grassroots groups in 48 US states. This organization strives to put more Americans on bicycles and has distributed over $1.6 million to community bicycle projects, leveraging nearly $550 million in federal, state, and private funding.”

Oregon Pedestrian & Bicycle Program Grants ORS 366.514 aka “Bike Bill”

Passed in 1971 by the Oregon Legislation, this bill “requires the inclusion of facilities for pedestrians and bicyclists wherever a road, street or highway is built or rebuilt.” It applies to Oregon Department of Transportation, cities, and counties. It also requires ODOT, cities, and counties to spend reasonable amounts of their share of the state highway fund on facilities for pedestrians and bicyclists. These facilities must be located within the right-of-way of public roads, streets or highways open to motor vehicle traffic. The funds cannot be spent on trails in parks or other areas outside of a road, street or highway right-of-way.

ORS 367.017 - Urban Trails Fund

The Urban Trails Fund, also known as ORS 367.017, was implemented by the Oregon State Treasury specifically for non-automobile means of transportation. The fund consists of private resources, grant moneys, any moneys appropriated to the fund by the Legislative Assembly, and money from any other sources (such as donations). This money is allocated to various city and state projects and should be highly considered when considering funds for the Redmond remodel. As stated in the fund description:

> Moneys in the fund are continuously appropriated to the Department of Transportation to develop and maintain within urban growth boundaries multi-use trails for non-motorized vehicles and pedestrians that supplement or provide links to roads, highways, footpaths, bicycle trails and public transit.

Recreational Trails Fund

The Recreational Trails Fund is a financial assistance program within the U.S. Department of Transportation under the Federal Highway Trust Fund. Money is allocated to U.S. states in order to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. These recreational amenities include biking, hiking, pedestrian ways, cross-country skiing, equestrian use, and other off-road automobile usage

Neighborhood Matching Fund Model

The Neighborhood Matching Fund was created by the Seattle Department of Neighborhoods, “working for a safe, affordable, vibrant, innovative and connected city.” Established in 1988, this program serves as an example of the local funds made possible through city engagement. In nearly three decades, this fund has allocated close to $50 million dollars to over 4,000 city projects throughout Seattle. Additionally, the fund has generated $72 million in community matches. With over 86,000 local volunteers at work, the Neighborhood Matching Fund could be used as a model for gaining local support and donations for the proposed corridor redesigns.

Federal Transportation Funding - Safe Routes to School National Partnership

Recently, some members of Congress have introduced bills to reduce federal funding for bicycle and pedestrian friendly infrastructure. However, the federal transportation program Safe Routes to School should be considered as a source of project funds.

Theme 2: Family-Friendly Bicycle Corridors

This chapter includes multiple examples of how to approach family-friendly bicycling throughout the City of Redmond. These projects present techniques on how to address busy intersections, fast moving roads, and how to alter streets to cater to any level of bicyclist. Ultimately, this chapter presents a framework for a more cohesive network of bicycle lanes that are family-friendly and encourage families to use bicycle as a mode for trips under two-miles.

Family-Friendly Bicycle Corridors

Kid-Friendly Bicycle Community

Because there are so many elements that can go in to designing a separated bike lane, dedicated space for cyclists that is separated from motor vehicle travel and parking lanes, practitioners have flexibility in choosing these specific design elements to best fit their context.

Separated bike lanes can operate as one-way or two-way facilities. Their designs can integrate with turning automobile traffic at intersections or can be more fully separated; they can be designed at roadway grade, at sidewalk grade or at an intermediate grade; and they can be separated from the adjacent roadway or sidewalk with a variety of treatments. These treatments include on-street parking, raised curbs or medians, bollards, landscaping, or planters.

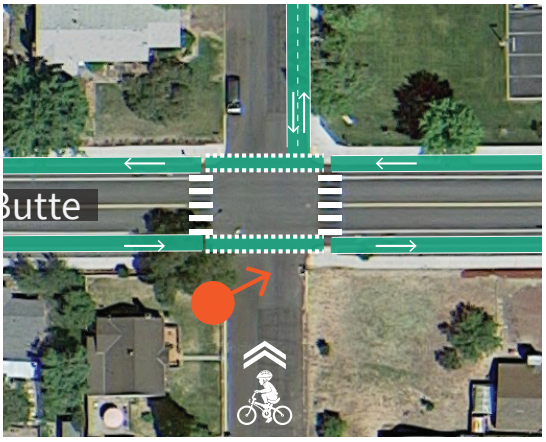
Separated Bike Lane examples - FHWA

The following pages include examples of protected bikeways and bicycle boulevards implemented around Redmond. In addition, design proposals have been made for downtown Redmond and specific busy intersections.

PROTECTED BIKEWAYS:

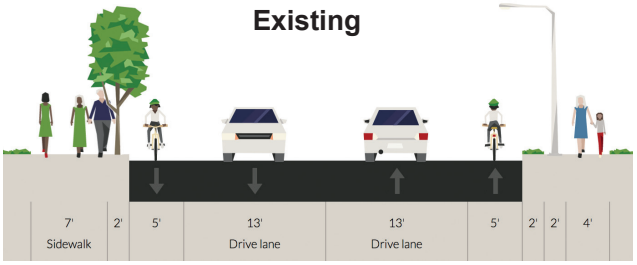
1

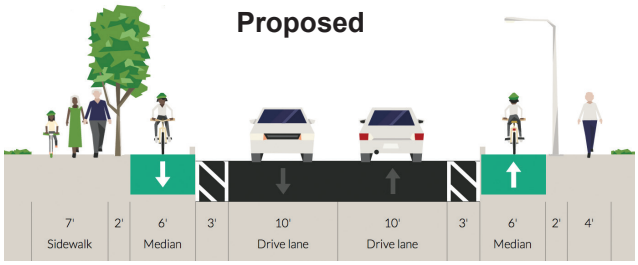
Black Butte/12th



Location:
Intersection of
SW Black Butte Blvd. and
SW 12th St.

Context:
Black Butte Blvd.: 25 mph
SW 12th St.: 25 mph
Collector street.





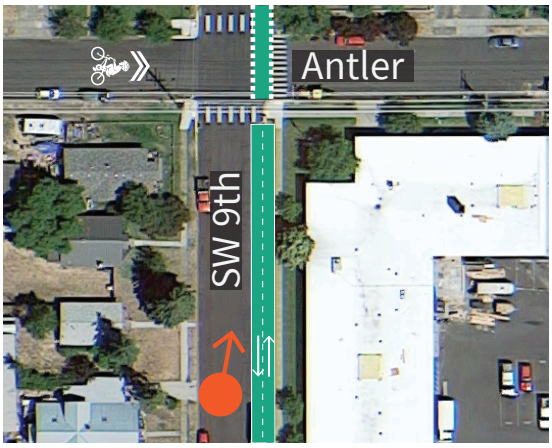
Existing Conditions:
Currently, SW Black Butte Blvd. has conventional shoulder-type bike lanes. SW 12th St. has no bike infrastructure and is a slow neighborhood street that leads north past John Tuck Elementary school and turns into Canyon Dr.

Proposed Treatment:
SW Black Butte Blvd. will have one-way protected bikeways on both sides of the road. Due to space limitations, it would be best to make this a raised path.

PROTECTED BIKEWAYS:

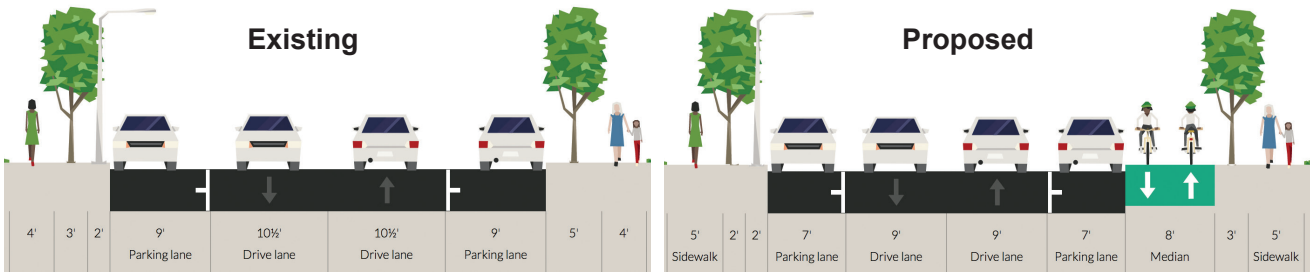
2

9th / Antler



Location:
9th St. and Antler Ave. next to Edwin Brown High School.

Context:
There are three schools and a library along SW 9th St. within only six blocks.



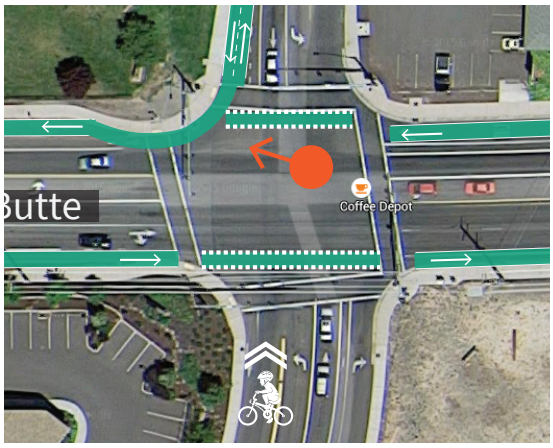
Existing Conditions:
SW 9th St. is a quiet neighborhood street with parking allowed on both sides. Sidewalks are often narrow or missing and there is no existing bicycle infrastructure.

Proposed Treatment:
Installing a two way, raised, protected bike path will still allow parking on both sides by narrowing the travel lanes and utilizing some of the planting strip.

PROTECTED BIKEWAYS:

3

Highland



Location:
Intersection of Highland Ave. and Rimrock Way.

Context:
Redmond High School on corner.

Highland Ave. is also know as Hwy 126.

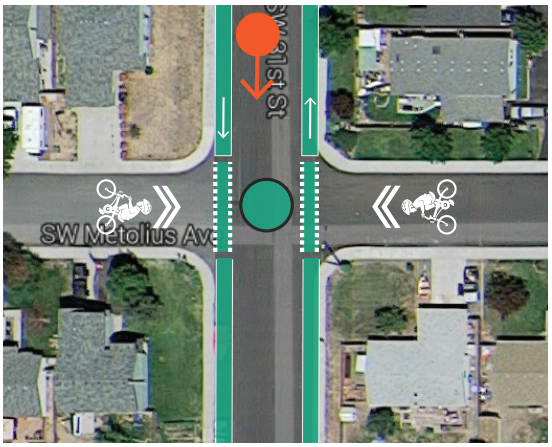
Existing Conditions:
Highland Ave. is a typical highway format. Currently there are conventional bike lanes on both sides.

Proposed Treatment:
Protected bikeways on both sides of Highland Ave., two-way protected bikeway to go along Rimrock Way, and a protected intersection where they meet.

PROTECTED BIKEWAYS:

4

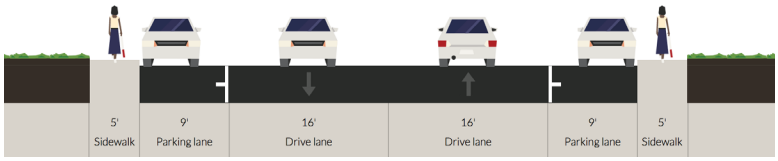
SW 31st



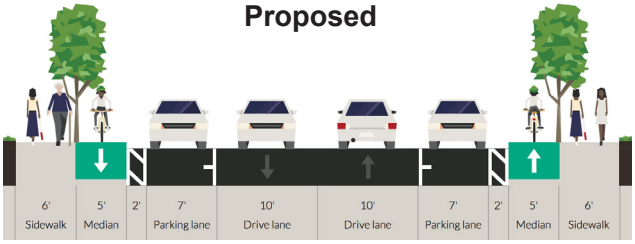
Context:
By Vern Patrick Elementary School.

Wide, calm residential roads.

Existing



Proposed



Existing Conditions:
SW 31st St. is a 60 ft. wide residential street, fairly typical of newer Redmond neighborhoods. The road width would accommodate a number of bike/ped options.

Proposed Treatment:
Protected Bikeways on both sides of SW 31st St. At intersection with Metolius Ave. (a bike boulevard), the installation of a traffic circle would create awareness and further calm traffic.

BICYCLE BOULEVARD:

5

SW Metolius Ave.

Context:
By Vern Patrick Elementary School.

Slow residential street.

Speed Hump

Bump-out

Traffic Circle

Existing Conditions:
SW Metolius Ave. is a calm, residential street. It is, however, straight, wide and without any cues for slowing down.

Proposed Treatment:
Numerous treatments could turn this into a great bicycle boulevard including vegetative bump-outs, speed humps, and traffic circles.

DOWNTOWN REDMOND:

6

6th Downtown

Context:
Downtown Redmond

Existing Conditions:
6th St. downtown is a quaint area with several businesses, restaurants, and cafes. The two lanes of one-way traffic make it feel more like a throughway than a destination.

Proposed Treatment:
A wider sidewalk and a two-way protected bikeway can be installed in the right-of-way by taking out one lane of traffic and parking from one side.

INTERSECTIONS:

The intersections below were chosen as focus areas because they are busy areas that need improvement to achieve family-friendly bikeability. With a continuation of protected bikeway design, these proposals outline how the bike lane share is layed out at the intersection.

6th Downtown

Existing Conditions:
Busy downtown intersection.

Proposed Treatment:
As adopted from NACTO, this is an options for the intersection of SW 6th St. and SW Evergreen St.

SW Canal/SW 27th

Existing Conditions:
Busy traffic circle

Proposed Treatment:
Redesign of the traffic circle gives pedestrians and cyclists the right-of-way.

Family-Friendly Bicycle Corridors

Centennial Bikeway

Currently there is no inviting bicycle connection from downtown Redmond to Dry Canyon. Existing street design encourages auto use for weekend outings and short trips (to the store, library, etc.). Lack of an alternative route for cyclists discourages fun and healthy transportation from the heart of the City to one of its greatest features.

In between Canyon Dr. and 7th Ave. via Deschutes Ave. is 0.285 miles of quiet residential neighborhood. The street is fairly wide, enough to park cars on both sides of the road and still allow two-way traffic to pass. This avenue passes straight into the heart of Redmond, its up-and-coming downtown, as well as Centennial Park, the library, and the police station. This corridor will also travel alongside the planned Centennial Park expansion, as well as the soon-to-be-moved Redmond City Hall.

The main form of transportation on this short, well-connected route is via car, although the corridor has a low enough speed limit to safely encourage bicycling. The orientation of stop signs on this road ensures that all modes will stop at each and every block, until one reaches their destination. In a car this may not be stressful, yet on a bicycle it can discourage cyclists from undertaking even the smallest of trips. The more barriers a potential cycle trip faces, the less incentive there is to hop on a bike. In a City with 200 days of sunlight, flat roads, and small dense neighborhoods, Redmond is the perfect City to implement bicycle-friendly neighborhoods and it has the capability to become a nationwide leader in bicycling infrastructure.

The proposed Centennial Bikeway redesign establishes an easy connection for families to walk, bike, or roll to and from Dry Canyon and downtown. This bicycle-friendly passageway allows families to safely pass through a quiet residential area. The Centennial Bikeway encourages potential cyclists to live a healthy lifestyle by updating infrastructure to increase the flow of alternative transportation. The proposal for Deschutes Ave. has many private residences located along it, as well as current and future sites of key public buildings, and a planned expansion of Centennial Park. The demand and future use of this corridor is exponential. Implementation of volume control devices and the establishment of a bike boulevard will decrease car use and increase bike usage, leaving the residents and park-goers content in a blissful, quiet neighborhood. The Centennial Bikeway plan has three stages of implementation, focusing on accomplishing safer, family-friendly infrastructure and greater access via alternative means of transportation.

Stage 1: Legitimize Alternative Transportation

Stage 2: Techniques For Built Environment

Stage 3: Amenities

Stage 1: Legitimize Alternative Transportation

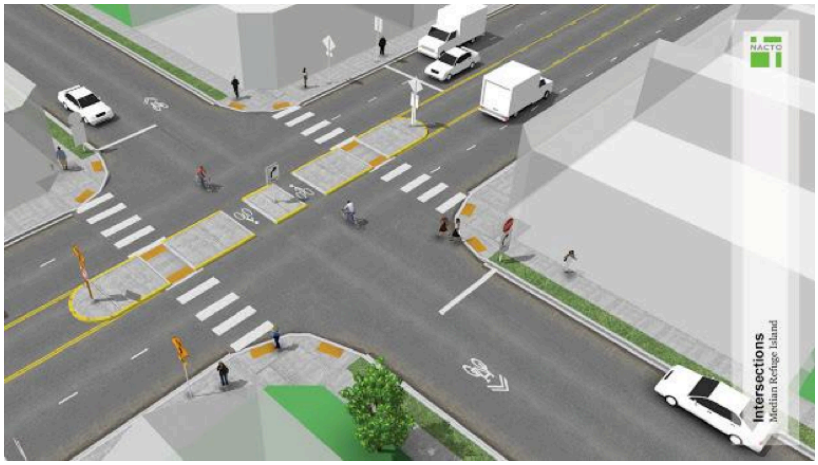
Deschutes Ave. intersection design example

Change Signage: Rotate signage to face north/south on Deschutes Ave. to allow cycle traffic to continue unabated and to force automobiles to yield.

By rotating the stop signs, this will allow the flow of traffic to proceed at ease. It will enable bicyclists to ride along the passageway with few stops which significantly reduces travel time and minimizes bicyclist effort to ride.

Sharrows and Crosswalks: Encourage alternative forms of transportation by officially sanctioning their presence. Sharrows alert cars to the presence of bicyclists, and crosswalks make cars aware of pedestrians.

Stage 2: Techniques For Built Environment



Location: Deschutes and Canyon, Leaving Dry Canyon Trail

Islands: Increase pedestrian safety by using islands and neighborhood traffic circles to slow motorists and provide safe haven for pedestrians when crossing wide streets.

With motorists traveling at high speeds up and down Canyon Dr., the median refuge will slow down traffic by narrowing the current 60 ft. roadway and will force them to be more aware of their surroundings. The median refuge lane will allow them to stop and wait for an opportunity to cross, while including cut-outs for ADA and rolling access.

Location: Deschutes and Canyon, 11th entering Deschutes

Volume Management: Use curb bump-outs [see Stage 3 for possible location(s)] and regulatory closures to manage traffic inside and entering the Centennial Bikeway from the intersection of Canyon Ave. and 11th St.

Closing the entrances for automobiles into Deschutes Ave. will allow families, cyclists, and those using alternative transportation to enter the bikeway with a feeling of safety. This implementation will also quiet the flow of traffic through the neighborhood and around Centennial Park.

Location: 9th and Deschutes

Neighborhood Traffic Circle: Slow traffic at a busy intersection by obstructing the right-of-way with a small traffic circle. This forces motorists and cyclists alike to observe each other and the road. The traffic circle will enable bicyclists to ride along the passageway with fewer stops. This reduces travel time, increases the flow of traffic, and also raises the awareness level of all users.

Stage 3: Amenities

Bike Corral Stations:

Location: 8th St. at Centennial Park and 7th St. Alley

Safe places to centralize and secure bicycles alongside parked cars. Stations will be located on 8th St. and between 7th St. & 6th St. for downtown access.

Bike Repair Stations:

Location: At bike corrals and along Dry Canyon

Public use stations alongside Dry Canyon Trail and at the bike corrals.

Protected Multi-Use Path:

Location: From bike corral between 8th St. and 9th St.

Alongside the future park, include a path separated by bioswale planters (bump-outs) that remove pedestrian and cycle traffic from automobile traffic. This allows for smoother and safer transitions from the bike corrals at the park to the bikeway.

This illustration shows the results of achieving Stage 3, a fully functioning, family-friendly bike boulevard: Centennial Bikeway.

Family-Friendly Bicycle Corridors

McKenzie Bikeway

The intent of the Highway 126, also know as Highland Ave., redesign is to offer safe crossing at key locations, provide a usable bike path to travel from downtown to Rimrock Way, and accentuate and take advantage of Redmond's proximity to the Willamette National Forest and surrounding areas. Redmond lies near the Cascade Mountain Range, offering travelers a unique and gratifying destination point. Combined with a successful restoration of the downtown area, future expansion along Highway 126 will provide an incentive for travelers to engage in all of Redmond's amenities. As well as offering a tourist destination, the redesign will provide a more usable bike route. The bicycle path will offer a completed circuit connecting already designated bicycle routes in the downtown area along Highway 126 to Dry Canyon multi-use path.

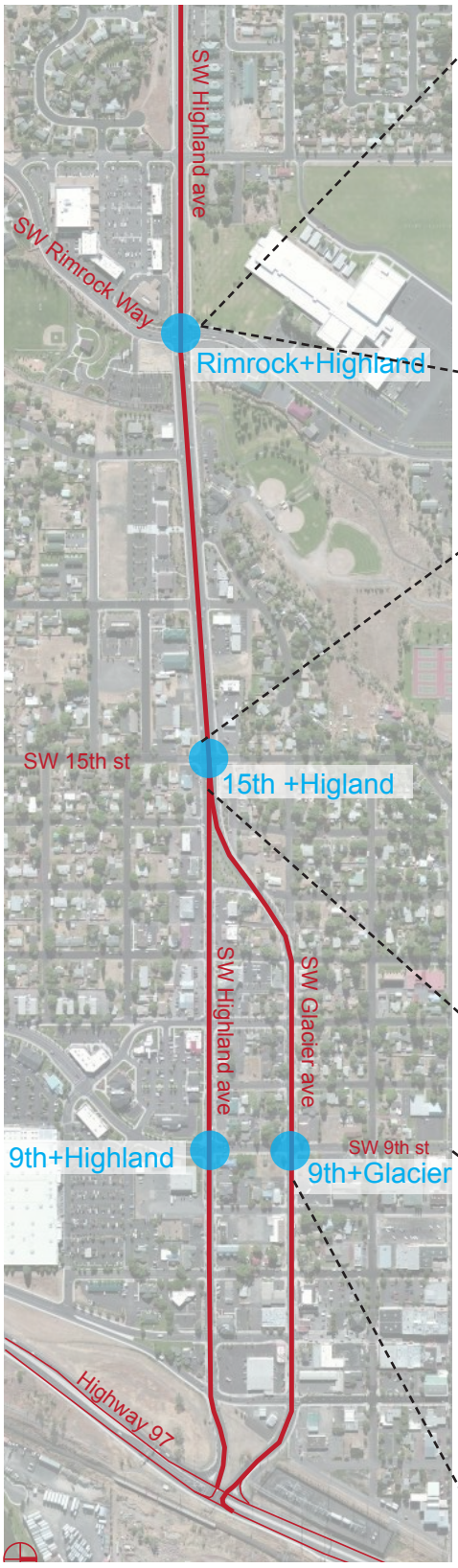
A redesign of Highland Ave. could allow for safer, more effective bicycle and pedestrian movement along the corridor, connecting several of Redmond's important amenities. These amenities include Redmond High School, Dry Canyon, and the downtown area. The plan for Highland Ave. is broken up into three phases, in order to provide the City of Redmond a step-by-step process through which they can effectively and efficiently implement the plan. The phases are:

Rimrock Way Phase 1: Improvement of bike lane visibility through freshly painted green bike lanes.

Rimrock Way Phase 2: Provide a spatial buffer between cars and cyclists.

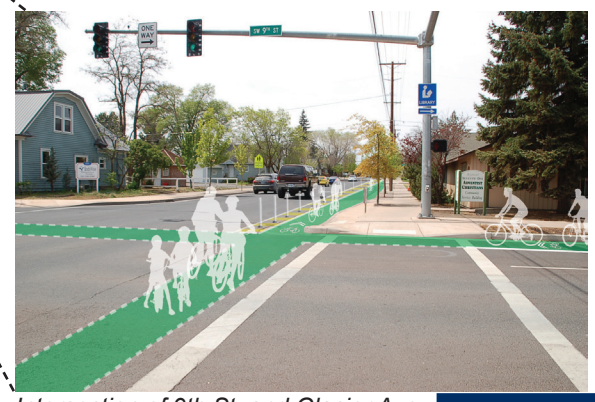
Rimrock Way Phase 3: Provide a physical buffer between vehicular traffic and cyclists.

Map Overview of Mckenzie Bikeway



Intersection of Rimrock Way and Highland Ave.

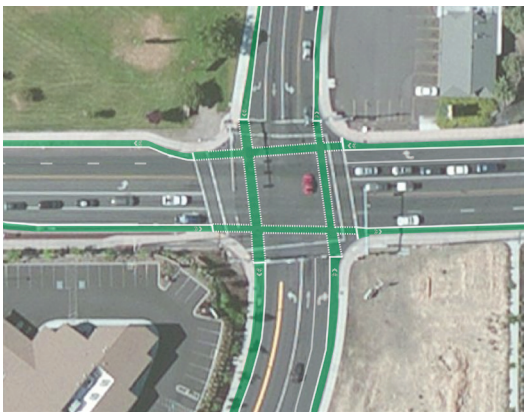
Intersection of 15th St. and Highland Ave.



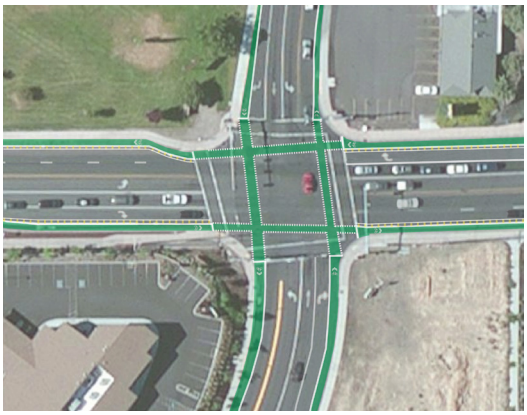
Intersection of 9th St. and Glacier Ave.

Rimrock Way: Project Overview

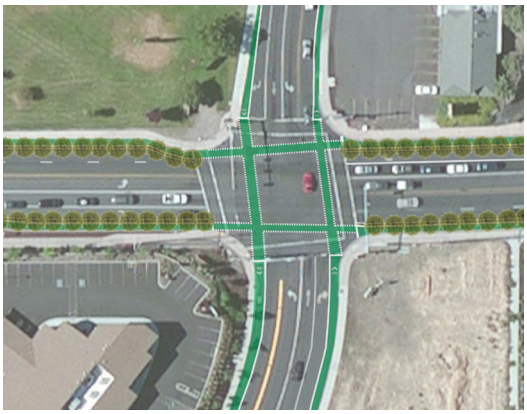
Rimrock Way Phase 1: Improvement of bike lane visibility through freshly painting bike lanes.



Rimrock Way Phase 2: Provide a spatial buffer between cars and cyclists.



Rimrock Way Phase 3: Provide a physical buffer between auto traffic and cyclists.



Wayfinding

An important part of developing a bicycling network that is appropriate for users of all ages and ability levels is to create a wayfinding system that helps people get to the destinations. The system is based, in part, on findings from research on children's wayfinding strategies and abilities. Young children are more likely to depend on landmarks near turns to help them navigate. Additionally, incorporating color into landmarks can help children to identify landmarks, improve wayfinding, and learning routes. Designing a system to meet the needs of the youngest and least experienced users is useful for bicycle riders of all ages and all skill levels.

The proposed wayfinding system is designed to be simple and easy to use to fit the project goal of increasing the utility and accessibility of the bicycle network, as well as help children become more independent by making it easy and safe to get to and from key destinations.

The concepts driving the design of the wayfinding map and signs are laid out in three principles conceived to achieve the goal of creating a safe, legible, and accessible bike network for Redmond.

1. Routes must link together to form a system.

- A system is a set of interacting or interdependent components forming an integrated whole.
- This system must be well connected to allow safe, stress-free, and efficient passage to all important destinations across the network.
- Riders should not have to venture off the network onto roads where traffic speeds and proximity to cars exceed their comfort levels.
- Network is built upon a philosophy that all routes in the system should be designed specifically to prioritize the safety and comfort of young children.

2. Routes must flow to high priority destinations that meet the needs of the users.

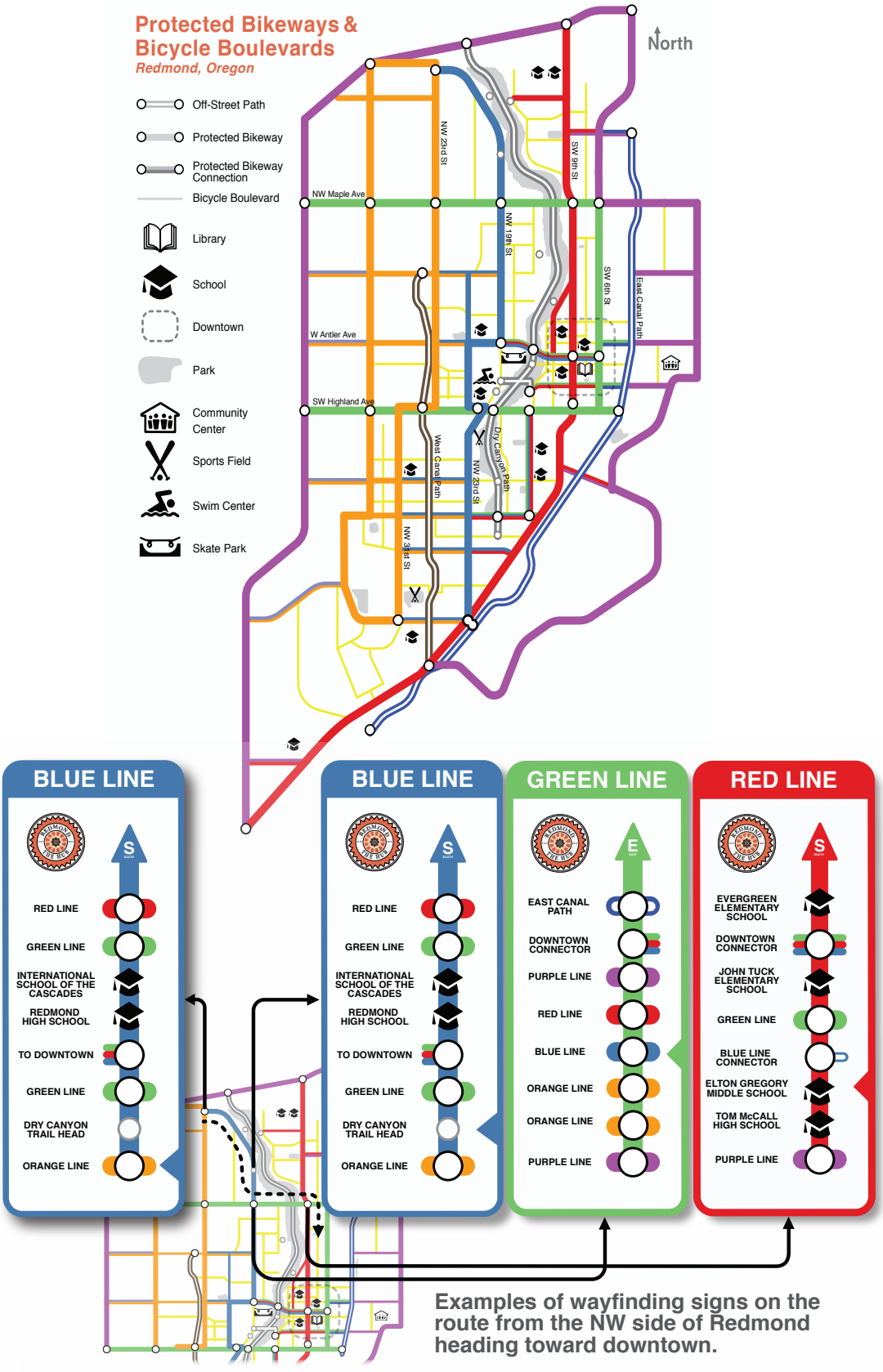
-Important destinations must guide route selection for the network to be appropriate for its intended users.
-The design is driven by prioritizing places that are important for kids and families.
-All routes in the system are designed with schools district boundaries in mind.
-Top considerations for landmarks should include: Redmond's city center as an important hub of the bicycle network system, library, 6th St. area, baseball fields, the skate park, the swimming center, parks, etc.

3. Simplify the wayfinding system.

The wayfinding system should account for the ability of users of all ages. Color coding and landmarks, which have been shown to positively affect children's wayfinding ability, are used on both the maps and the wayfinding signage to associate safe routes along protected bikeways with important destinations. Adding these features to the map and signs simplifies the task of wayfinding. It removes the need to remember multiple street names or turn-by-turn directions which can confuse younger users. Destinations are symbolized with pictorial symbols that convey the type of activities associated with the destination to further reinforce the association of routes and important destinations.

The following page shows an example of a branded wayfinding system that would increase safety and allow for more users to feel comfortable biking throughout the city.

Wayfinding Branding



Examples of wayfinding signs on the route from the NW side of Redmond heading toward downtown.

Redmond Schools

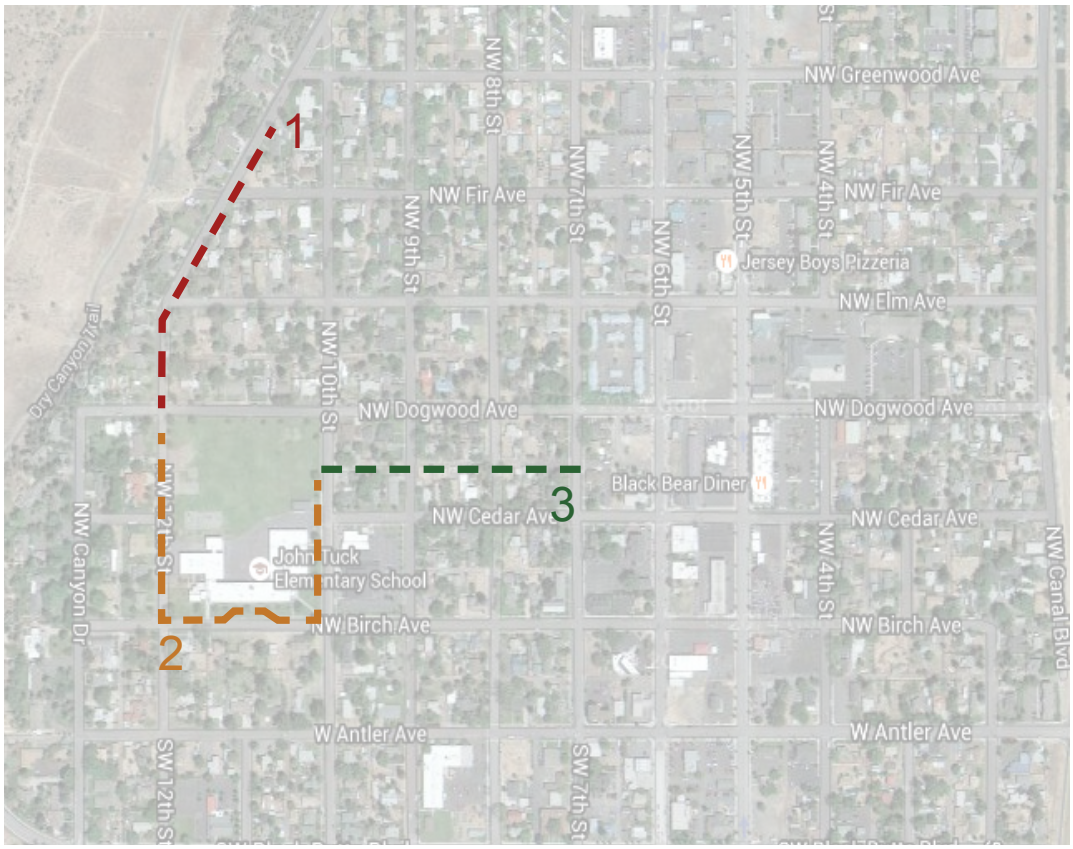
Theme 3: Family-Friendly Bicycle Connections to and from School

This chapter proposes several corridor redesigns that demonstrate techniques for upgrading current streets, paths, and crosswalks around schools. This allows for family-friendly accessibility in bicycling, walking, or even "rolling" to school. These examples focus on several particular schools, but the practices presented can be adopted by or applied to any schools. Many of these projects utilize Dry Canyon as a connector.

Family-Friendly Bicycle Connections to and from School

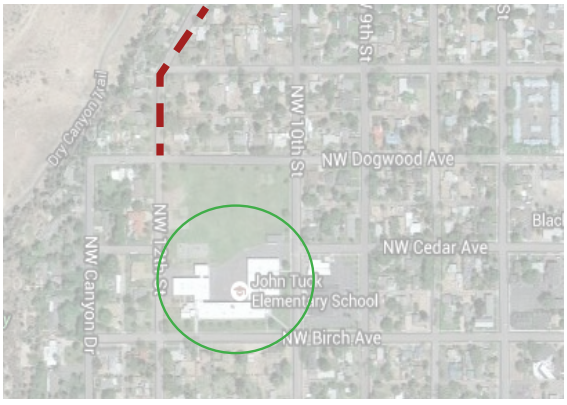
Three Steps to Safety: Example Study at John Tuck Elementary

This project focuses on reducing traffic, promoting alternative ways for students to get to school, and, above all, student safety when traveling to school. To ground the project, students focused their attention on John Tuck Elementary School and attempted to improve upon existing transportation infrastructure. After observing the school and collaborating with staff members, it was concluded that not nearly enough students walk or ride to school and almost everyone drives or takes the school bus. The surrounding area was then observed, echoing staff members' conclusion that walking and biking infrastructure in the area is incomplete and needs to be improved. Proposed improvements include three steps: a bike boulevard, a drop-off zone, and an alley bike path. By creating an attractive multi-use path system, students are encouraged to get to school without relying on a car.



1 BIKE BOULEVARD

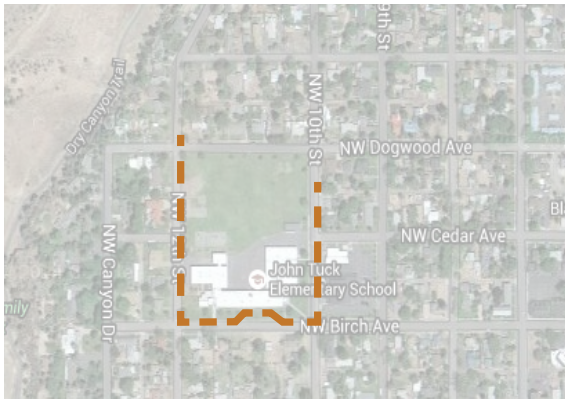
The streets around John Tuck Elementary do not accommodate any mode of traffic other than vehicles. Therefore, students propose to redesign Canyon Dr. as a bicycle boulevard. This change reduces traffic on the quiet residential street because it limits the traffic to a one-way road running from north to south. Reducing traffic allows more people to feel comfortable using the streetscape that otherwise would feel unwelcome. For example, bicyclists can now use a significantly larger portion of the road than before. Additionally, there is no existing sidewalk, so pedestrians may now feel more comfortable using the bicycle right-of-way. This additional road space also opens up possibilities in the future to make changes to the street edge. For instance, a sidewalk can be added along with stormwater buffers or urban gardening strips to add vitality to the street.

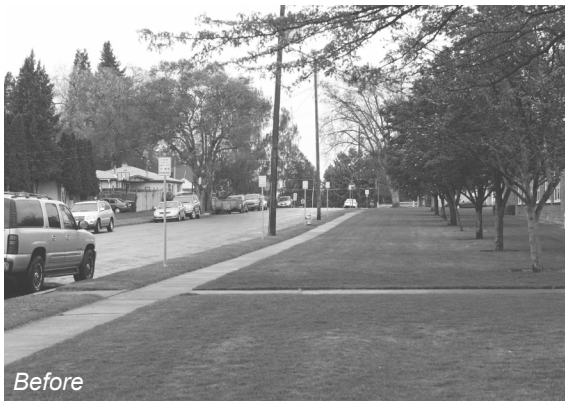


2 DROP-OFF ZONE

Dropping off and picking up students from school is the most hectic period of any school day, and the chaos makes many parents uneasy about the safety of their child (or children). This redesign separates different modes of transportation while allowing a higher level of vehicle traffic flow to expedite the drop-off and pick up moments, while maintaining a safe and logical system.

The design includes a pull-in lane of traffic with three large speed cushions that function as raised crosswalks. These crosswalks both slow traffic and raise the height of pedestrians, bringing them into sight lines for the vehicles. In addition, a crosswalk should be painted on the other side of the drop-off zone at the midpoint of the block to create a shorter walking distance to those on the opposite side of the block as the school. Lastly, the width of the existing sidewalk should be doubled to five feet, and a path should extend around the entire perimeter of the school. The wider path should be used as a multi-use path, allowing all forms of non-motorized transportation to avoid walking or riding in the street.




Before


After

3 THE ALLEYWAY

To create access to the school from the east side, the design suggests altering an existing alley way into a cycle path which requires very little change in infrastructure. This would allow kids that live in the multi-family housing east of John Tuck Elementary to safely ride to school. At the intersections of the alley way there would be signage and paint to alert motorists of crossing cyclists. This is a low cost solution to a very important issue, as all that is needed for this proposal is street paint and signage. In the long-term, it is recommended that the alleyway be paved. Until then, the current usage of loose gravel works for bicyclists and may even discourage cars from using the alley as a road.


Before A


Before B

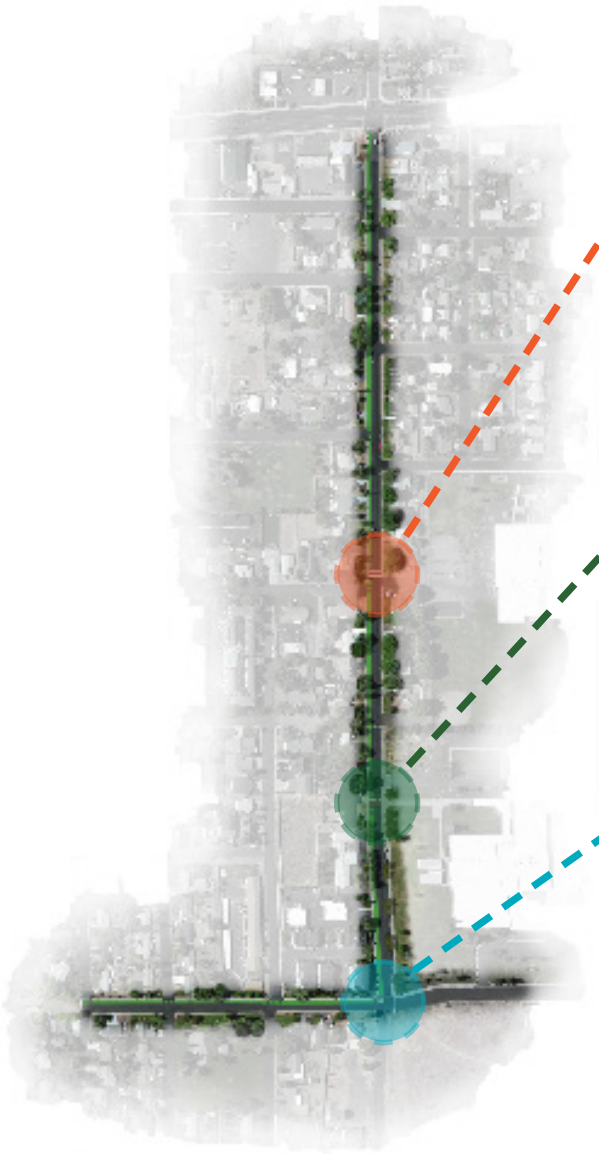

After A


After B

Family-Friendly Bicycle Connections to and from School

Canyon Connect

The Canyon Connect Plan provides a safe and enjoyable route for children, families, and community members to use. The route will focus from Highland Ave. to Dry Canyon Trail on SW Obsidian St. and SW 15th St. This route gives children access to a safe and bike friendly route to and from M.A. Lynch Elementary and Obsidian Middle School.



Focus area 1:

-Crosswalk providing safe crossing to M.A. Lynch Elementary School

-Complete sidewalks along SW. 15th St., connecting to existing sidewalks on Highland Ave.

Focus area 2:

-Indented parking bays

-Protected crosswalk leading to Obsidian Middle School

Focus area 3:

-Complete sidewalk and two-way cycle track from Highland Ave. and Dry Canyon access point

-No vehicle access traveling east on Obsidian Ave.

-Protected intersection including crosswalks

Location Overview

SW 15th St. is a wide street that receives high traffic flow during school commuting hours. M.A. Lynch Elementary and Obsidian Middle School are both located on SW 15th St., making this a significant area of focus and highly valuable to local residents. SW Obsidian Ave. can be reached by traveling south from Obsidian Middle School and down 15th St. for one block. SW Obsidian Ave. is the connecting street for neighborhood access to Dry Canyon Trail. Currently, both SW Obsidian Ave. and SW 15th St. have inconsistent sidewalks and do not have appropriate markings to identify bicycle or pedestrian traffic. The three focus areas outlined on the next page show recommended improvements to increase bicycle and pedestrian safety and accessibility.

Recommended Improvements:

Crosswalks

Before: Existing crosswalks are faded and lack visibility. Two crosswalks observed on 15th St. do not connect to a sidewalk on either end, forcing pedestrians to walk on curbs or residents' lawns.

After: Four key crosswalks will be added at the following locations: Dry Canyon Trail access point, the 15th St. and Obsidian Ave. intersection, Obsidian Middle School entryway and the M.A. Lynch entryway. Each crosswalk will include dyed concrete for enhanced visibility. These crosswalks will be clearly visible to both car and bicycle traffic.

Parking

Before: Undesignated curbside parking exists on both sides of Obsidian Ave. and SW 15th St.

After: Curbside parking will remain on the south side of Obsidian Ave. adjacent to the auto lane. On 15th St., parking will be removed on one side to make room for the two-way cycle track. Parking on the east side of 15th St. will be replaced with indented parking bays, preserving street dimensions.

Sidewalks

Before: A cohesive sidewalk path does not exist between Dry Canyon Trail and Highland Ave. Sidewalks exist directly in front of both schools on 15th St., but are inconsistent and incomplete.

After: Both streets will be lined with sidewalks, creating a guided route from Obsidian Ave. along 15th St. until Highland Ave.

Focus Area 1: SW 15th St. crossing at M.A. Lynch Elementary

Map

Before

After

Focus Area 2: SW 15th St. crossing at Obsidian Middle School

Map

Before

After

Focus Area : SW 15th St. and SW Obsidian Ave. protected intersection

Map

Before

After

More Recommended Improvements

Two-way Cycle Track

Before: Non-existent.

After: Also referred to as protected bike lanes or on-street bike paths, two-way cycle tracks are two directional bike paths that are removed from auto traffic and protected by line markings. The Canyon Connect Plan incorporates a two-way cycle track that begins at Dry Canyon Trail access point and follows Obsidian Ave. until 15th St. It will continue along 15th St. until Highland Ave., where it connects with existing cycle infrastructure. The cycle track will be painted the standard green, as is permitted in the Manual on Uniform Traffic Control Devices (MUTCD). Cycle tracks are desirable because they provide a protected space for cyclists and remove the risk of "dooring" from adjacent parked cars. "Dooring" is when a bicycle is riding by a parked car and someone in the car opens their door into the bicyclist's path, usually seriously injuring the bicyclist and sometimes the car door. Children using the cycle track to get to school will be able to dismount and cross 15th St. safely at designated crosswalks.

Traffic Calming

Before: Streets are wide and unmarked with sparse indication of the approaching school zone. While there is ample space in the roadway, it is currently under utilized.

After: A cornerstone of the Canyon Connect Plan is to designate the south side of Obsidian Ave., beginning at Canyon Dr., traveling east as one-way traffic for cars. This will redesignate the space on the north side of Obsidian Ave., and prioritize the safety of those traveling on the two-way cycle track. After the 15th St. and Obsidian Ave. intersection, two-way traffic will continue for the remainder of the street. Restricting this portion of Obsidian Ave. to one-way car traffic allows room for the cycle highway and eliminates the threat to cyclists of cars turning right from 15th St.

Family-Friendly Bicycle Connections to and from School

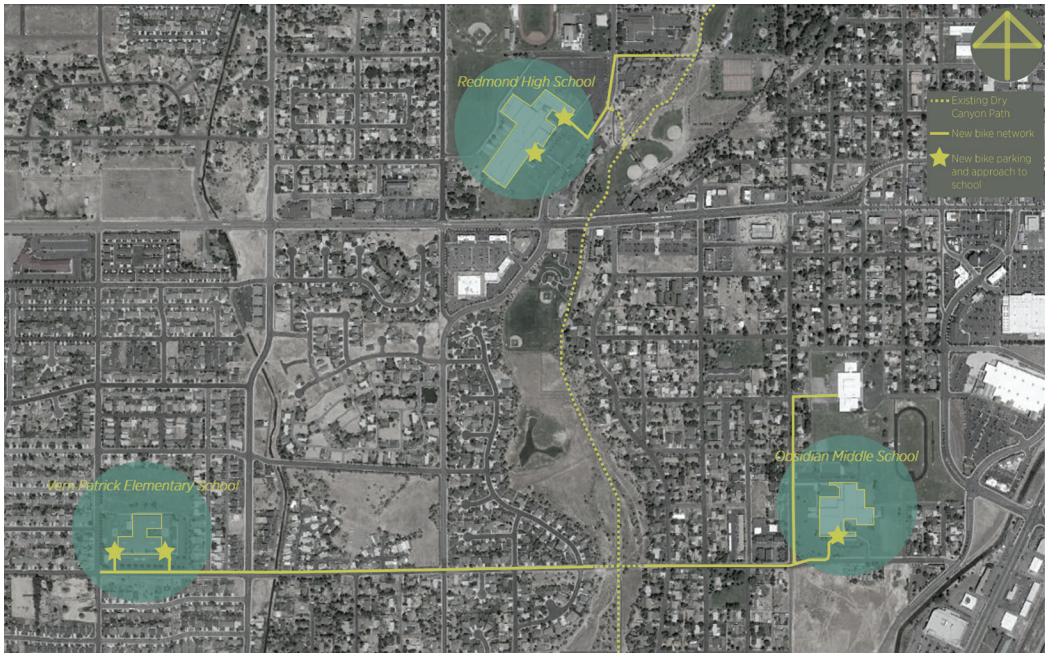
Biking to School in Redmond through Dry Canyon

This vision focuses on connecting schools to Dry Canyon Trail and redesigning bike path approaches to school in order to incentivize and provide easy bike access to school for kids and teens. The vision has three critical points for improvement in the bike infrastructure of the selected region.

1) Connecting Vern Patrick Elementary, Obsidian Middle School, and Redmond High School with a seamless network of bicycle infrastructure (including bike paths, multi-use paths, lanes, or bicycle boulevards).

2) Rethinking safety and security, developing new strategies in terms of public position, orientation, location, uses, access, and community awareness to make commutes and excursions enjoyable for young cyclists and their families.

3) Making biking fun by fostering enthusiasm about biking in the community through public accessibility to programs, events, and additional resources.



Dry Canyon Trail

Dry Canyon Trail is one of Redmond's greatest assets. With this plan, it can now be utilized as a key component to a bike network that helps kids get to school safely. The infrastructure within Dry Canyon serves a variety of recreational needs. However, it is important to make approaches and exits to and from Dry Canyon welcoming and accessible. Green lanes and striping can be added to ensure cyclist safety and visibility.

Before

After: Dry Canyon School Path

Vern Patrick Elementary School

The approach to Vern Patrick Elementary School includes:

-Green painted bike paths
-Paths that are elevated from the street
-Paths that are buffered from the street with planting box barriers
-Two paths to bike stations at either side of the school

Before

After

Plan View

Obsidian Middle School

The approach to Obsidian Middle School includes:

-Green painted bike paths
-Paths that are elevated from the street
-Paths that are buffered from the street with planting box barriers
-New landscaping to increase visibility

Before

After

Plan View

Redmond High School

The approach to Redmond High School includes:

-Green painted bike paths
-Paths that are elevated from the street
-Paths that are buffered from the street with reflective poles
-Flashing crosswalk to Dry Canyon path
-Two bike rack locations

Before

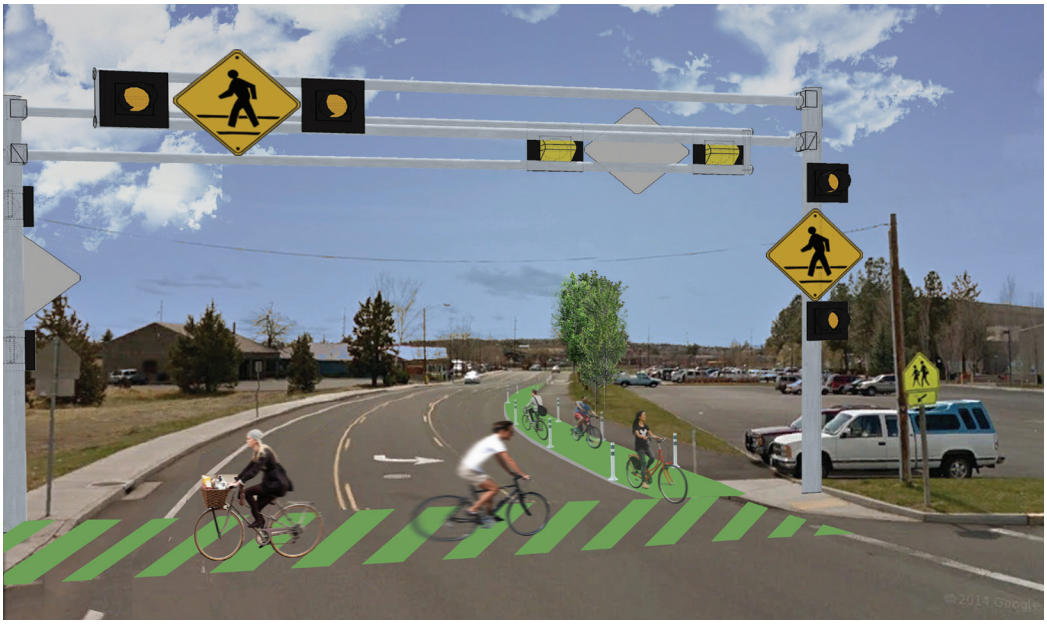
After

Plan View

Redmond High School Connecting to Dry Canyon

Connections both when entering and leaving Remdond High School need to be made family-friendly and safe. Below is a before and after view of the crosswalk from Redmond High School leading to Dry Canyon trail. The current crosswalk is not as safe as it could be, and does not encourage all pedestrians or cyclists to be comfortable. With a larger structure that surrounds the crosswalk and has flashing lights, cars will be more aware of bicyclists and pedestrians. They will travel at slower speeds and respect others on the road. Once bicyclists and pedestrians have good interactions with cars, they will feel more comfortable and trusting in alternative modes of transportation.

Before



After

Family-Friendly Bicycle Connections to and from School

The Vern Patrick Bikeway

Vern Patrick is an entirely residential area with few walkable commercial amenities. This homogenous land use means that residents must travel by automobile for almost all of their trips. Streets are 45 feet wide, which provides ample right-of-way for two-way traffic, as well as curbside parking. Additionally the streets are unstriped, making the streets appear even wider, as well as allow for less restricted traffic flow.

Currently, the neighborhood is designed for traffic to flow from smaller east or west residential streets onto larger north to south corridors, which then ferry cars to Highway 126. These corridors are the recently restripped 27th St., which was upgraded with bike lanes as part of completing the street. Parallel to 27th St. is 31st St. 31st St. is unmarked all the way from its southern most end to Hwy 126. This design uses 31st St., which is currently under-utilized, to help connect the Vern Patrick community. 31st St. is an ideal corridor for families to bike, walk, or roll, as it connects directly to both Vern Patrick Elementary and Sage Elementary. This makes 31st St. perfect for families and kids to go from home to school without having to drive. The bikeway also serves the Umatilla Sports Complex, allowing for easy access to recreational space for families desiring to bike. 31st St. also terminates at Highland Ave., which provides those on bike with quick and easy access to commercial Redmond.

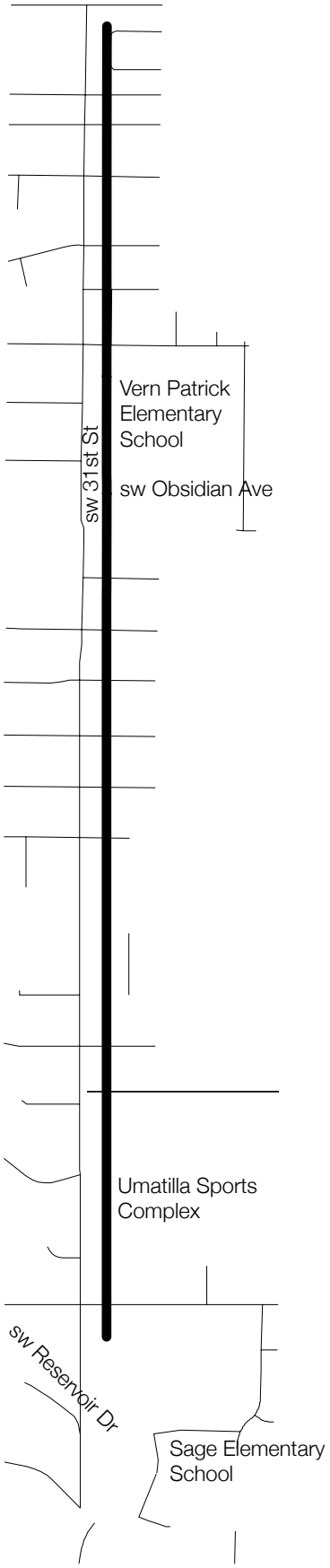
The vision for 31st St. is a pedestrian and bicycle corridor that brings the Vern Patrick community together to build a neighborhood where families have more options to meet their transportation needs.

Proposal

In order to make that vision a reality, an environment where parents and their children can cycle in total comfort and ease is needed. A bikeway that all residents would comfortably use guided designs for the project.

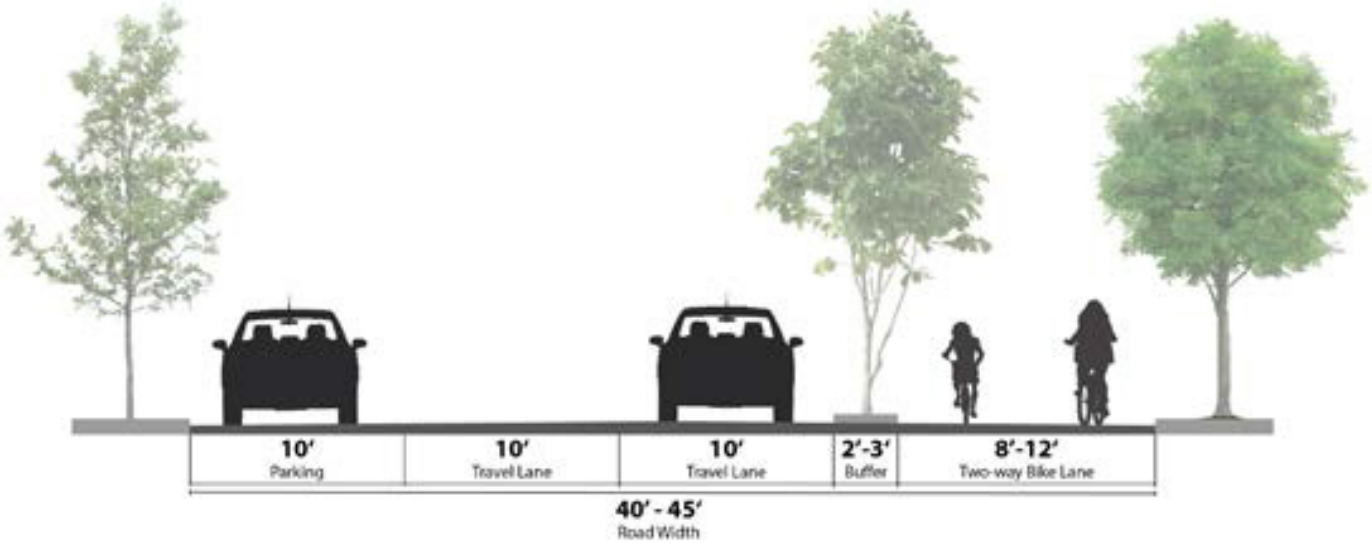
The Vern Patrick bikeway is a 1.5 mile protected cycle track. It provides a continuous route for families to bike through southwest Redmond. A cycle track is a bike lane that is physically separated and protected from automotive traffic. This level of separation and protection makes cycle tracks more family-friendly than standard bike lanes, while also providing a level of comfort for riders of all ages and skill levels. The project adds street markings and a two-way cycle track to the east side of 31st St., as well as removes under utilized parking from the east side of the street. Residents' ability to find parking will not be heavily impacted by the removal of parking on the east side of the street as most of the properties that border 31st St. have entrances and driveways that do not face 31st St.

This bikeway connects a community and acts as a key piece of the City's proposed bicycle network improvements by connecting the Vern Patrick community to existing bicycle infrastructure.



Proposal

The largest part of the Vern Patrick bikeway is the addition of the 1.5 mile two-way cycle track along the east side of 31st Street. The track will run from Hwy 126 to Wickiup Ave. Currently 31st St. is an overly wide, unmarked street that encourages fast automotive speeds. Most of the street is over 45 feet wide, which is an over supply of right-of-way for the current two lanes of parking and two lanes of automotive traffic, especially as the majority of passenger cars are less than seven feet wide.



The plan reallocates existing space to create a street that has one lane of parking along the west side of the street, two lanes of automotive traffic, a physical buffer zone, and a two lane cycle track. The narrowing of vehicular lanes encourages drivers to drive slower through residential neighborhoods. The cross-section diagram above shows how most of the street will look. The dimensions of the cycle track and buffer zone follow the NACTO Urban Bikeway Design Guide specifications.

One alternative for this design is the section of 31st St. between Obsidian Ave. and Peridot St., where it narrows to only 25 feet. For this length of the road, the plan restricts automotive traffic to only northbound traffic and both reduces the buffer zone to two feet wide and the cycle track to eight feet wide. Many people may be concerned that this plan will negatively impact people's ability to park their cars in the neighborhood because it removes the current parking lane along the east side the street. Yet, research suggests that the remaining parking along the west side of the street and existence of driveways on the vast majority of residential properties will be enough to support parking demand, with possible exceptions during pick-up and drop-off times at Vern Patrick Elementary and during peak usage of the Umatilla Sports Complex. This plan should increase the amount of students that self transport and thus reduce pick-up and drop-off congestion, as well as the need for additional parking. Umatilla Sports Complex should have enough parking with the surrounding neighborhood to support high demand during events like tournaments.

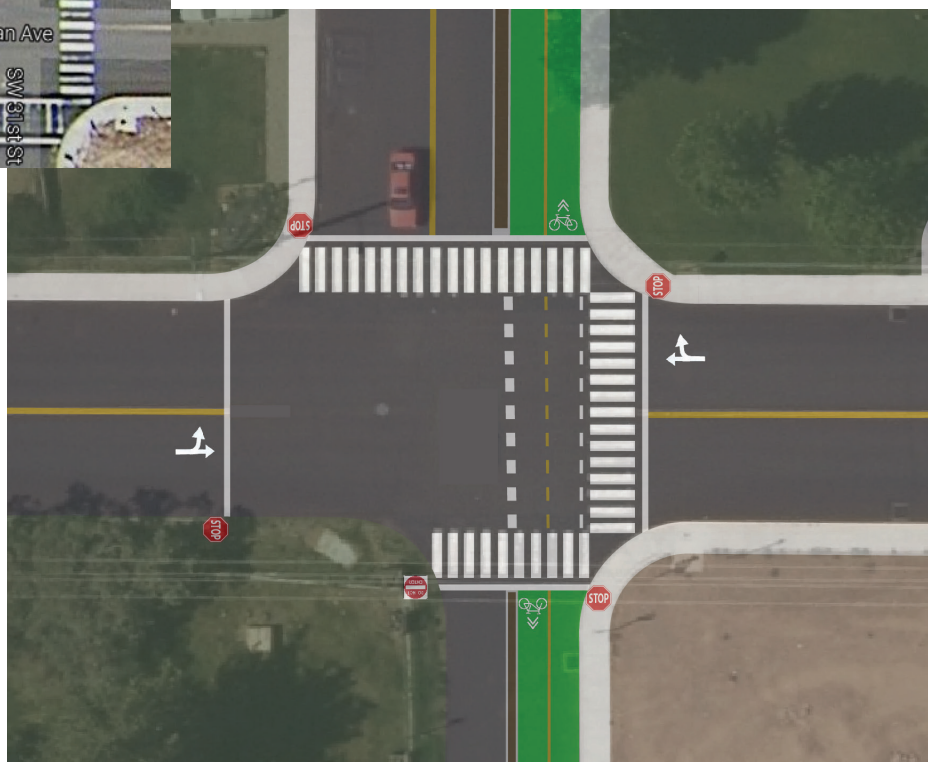
Before

After: View of two-way bike lane at Obsidian and 31st

At certain points on 31st St., the physical barrier will need to be interrupted to provide residents with access to their driveways. Along the 1.5 mile stretch, there are only 22 properties on the east side of the street that would need to interrupt the barrier. At this point, the cycle track design will follow the NACTO cycle track protocol for such a scenario. The raised curb is substituted with paint that informs automotive drivers and cyclists how to interact.

The most critical intersection along the bikeway is the intersection of Obsidian and 31st St. Currently the intersections of these two wide, roads make crossing dangerous for children. The proposed changes to the intersection decreases the distance across automotive lanes that children have to travel. The plan also calls for repainting faded crosswalks to help improve crossing safety. These will all act as visual cues to drivers on Obsidian Ave. to slow and watch for bikes and pedestrians which will help facilitate children getting to school safely. The plan also adds stop signs along Obsidian Ave. This will make drivers more aware of the school zone and make the street safer for pedestrians and cyclists to cross. In addition to changing the intersection near the school, the school itself could improve its bike and pedestrian infrastructure. Driveways along Obsidian Ave. should receive crosswalk paint. The lack of crosswalks in front of the school greatly reduces the safety of pedestrians. The school should also add a significant amount of bike parking to its campus. This plan calls for parking infrastructure for 150 bikes, to accommodate a projected mode share of one-third of the student body.

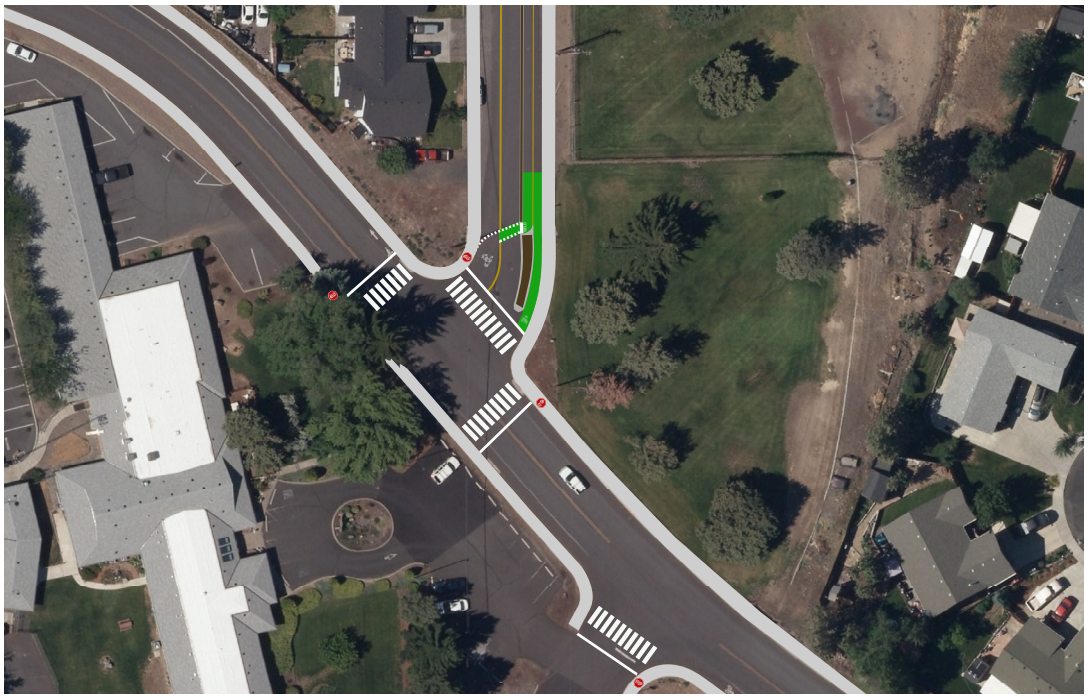
Before



After: Intersection of SW Obsidian Ave. and 31st St.

The intersection of 31st St. and Wickiup Ave. is the most challenging aspect from a traffic design perspective. At the southern end of the bikeway, it is important to help those who wish to continue onto existing bike lanes on Wikiup Ave. make that transition smoothly. Introducing a controlled intersection with stop signs and a modified bike box system allows for easy and safe transitions from the two-way bikeway onto one-way existing bike lanes. This plan allows southbound bike traffic to yield and then merge to the west side of the street before reaching the intersection. However if future improvements to Wikiup Ave. are made, the Vern Patrick Bikeway will be able to easily link to any future bike infrastructure. To assist with families' ability to easily cross Wickiup Ave., stop signs and crosswalks should be added to where Reservoir St./Wickiup Ave. enter the intersection. This would also reduce vehicle speeds in front of the nearby Sage Elementary.

Before



After: Intersection of Wickiup Ave. and 31st St.

The Walking School Bus

This section of “Family-Friendly Bicycle Connections to and from Schools,” describes a walking school bus and how it can be aplied in Redmond. It explores an alternade mode of transportation school kids can be involved with. Not only is it a great way to start the day, but it also brings the community closer together.

A fun and active way to start your day!

Without education, no society can function successfully; it is one of the reasons we enroll our children in preschool as early as three years old. The education system is set up in a way that requires parents or guardians to take their children to school. This makes sense as most parents do not have the time to home-school their children and work a full-time job.

A major problem in this system occurs during the transportation of students to and from school. Generally, public schools have a zone around them (usually about 1 - 1.5 miles), outside of which students can be picked up and dropped off by a school bus everyday. Inside this zone however, students are expected to find a different way to school. With a decline in the number of students walking and biking over the last decade, in exchange for parents dropping them off by car, schools often become heavy traffic areas and unfortunately become potentially unsafe during the drop-off and pick up hours.

> Enter the walking school bus: a simple, elegant form of alternative transportation that helps invoke healthy students and communities.

What Is a Walking School Bus?

The Walking School Bus is as simple as it sounds; a school bus that is operated by walking rather than an engine and wheels. Designated volunteers chaperone a group of students on a fixed “bus” route with set pick up and drop-off points. It can be as simple as using a local business as a meeting point, or a detailed route with times and stops. The walking school bus intends to drop-off students who are energized and ready to learn. It is also a great program that can improve community ties. At the beginning of many Walking School Bus programs, the route may be walked by students and parents once or twice a week, in some places though, as enthusiasm and support grows in the community, the Walking School Bus has become a regular and consistent event for many school children.

How Do You Start a Walking School Bus?

1. Pick a neighborhood to start in
    a. Invite families who are interested to start small walking groups.
    b. Participants can be found through public forums, PTA meetings, or even fliers or handouts; word of mouth can be a great way to get people interested!

2. Trace out a route and test it
    a. It is best to start small with one meeting point and work up to longer routes with more pick up points along the way.

3. Decide how often the bus will travel
    a. Often routes start with one day a week and gradually increase with interest, group size, enjoyment etc. Decide if you have the support to do both morning drop-off and afternoon pick-up or if the pick-up routes need to remain intact at first.
    b.The U.S. Center for Disease Control and Prevention recommends that one adult per three children ages 4-6, and one adult per six children ages 7-10 should be involved.

4. Have fun!
    a. Enjoy yourself, bring treats, sing songs, make bus noises, anything that gets kids excited about walking to school!

What are the Benefits of the Walking School Bus?

- Encouraging physical activity among children
- Studies show that children who participate in physical activity before school have an easier time paying attention and reduced levels of stress
- Teaching safe walking behavior to children early on
- Learning how to safely navigate their community
- Encouraging the view that your town is walkable and doing so can be pleasant
- If there are issues, people can see firsthand how improvements should be made
- People may learn more about what their the city has to offer from the ground
- Bringing people together
- Healthiest option for the environment
- Fewer cars on the road equals less carbon emissions and burning of fossil fuels; increasing the quality of the breathing air, especially surrounding schools
- Reducing traffic congestion
- With less cars around schools, it becomes a safe learning environment
- It's fun and free!

"By improving the drop-off and pick-up process, traffic conditions become safer for all, including pedestrians and bicyclists. Better organized and safer traffic conditions will ease the concerns of parents, making them more willing to allow their children to walk or bicycle (SRTS Guide)."

SafeRoutes
National Center for Safe Routes to School

SCI
Sustainable Cities Initiative

Bike Trains

The Walking School Bus for Those Who Love to Bike!

Improving the education of our youth about the importance of cycling (and exercise) must start with setting examples in their daily environment. There are many methods that Redmond can implement into the school district's daily routine. One method includes a bike train. According to the National Center for Safe Routes to School, a bike train provides a way to for children to bike to school safely in a group with adult supervision, whether it's during a special event or daily trips to school.

A bike train is similar to a walking school bus, picking kids up along the way just like a school bus. However, unlike a walking school bus, a bike train is more involved as it requires the riders to be able to ride a bike. In addition, more adult supervision and more planning and organization is needed. Because of this, bike buses are recommended for older elementary students and above. However, we suggest that Redmond can make that age distinction in conjunction to how well the students ride along with the amount of traffic while the bicycle train is in session.

Safe Routes to School Bike Train

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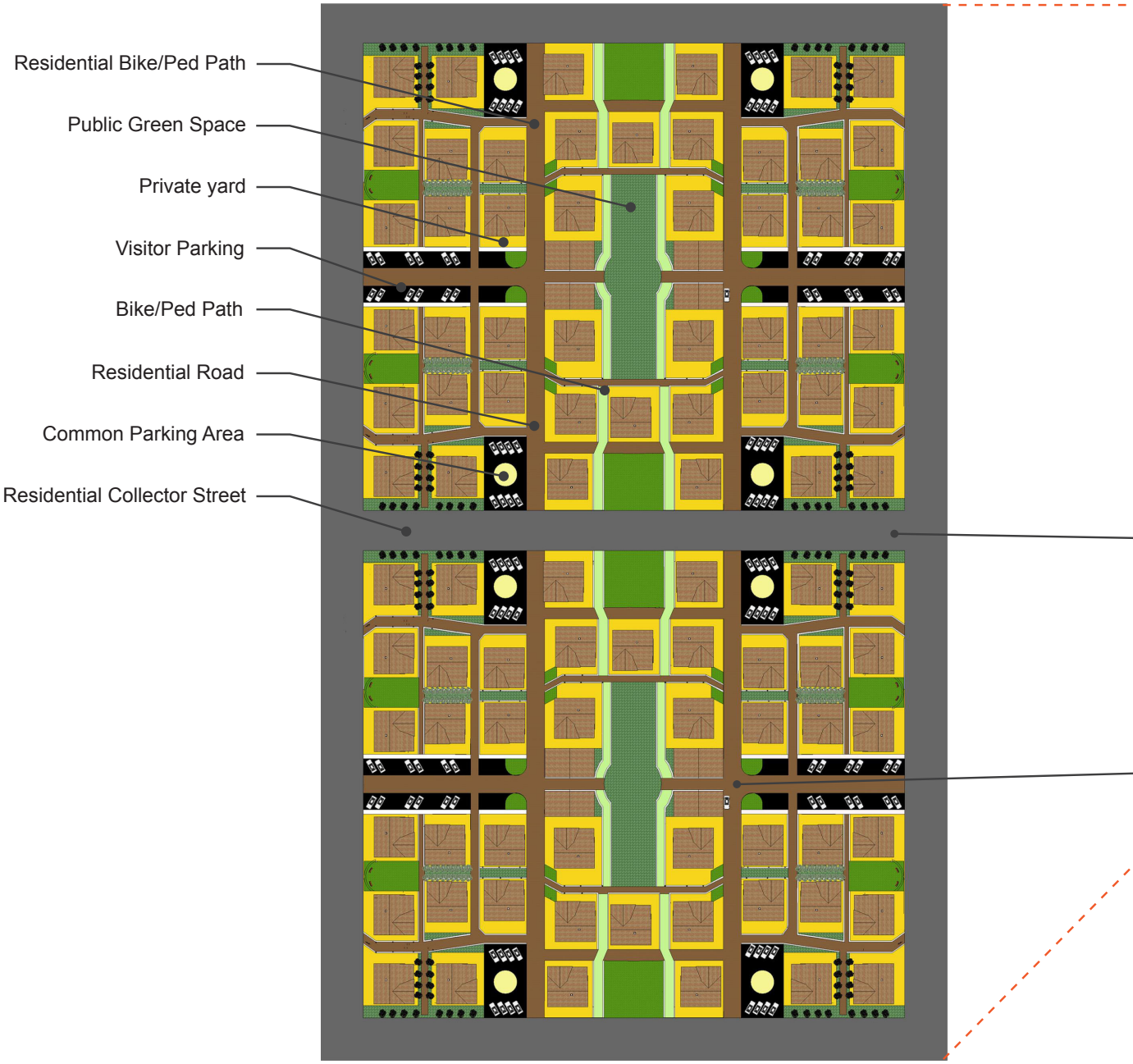
Family-Friendly Bikeable Neighborhoods

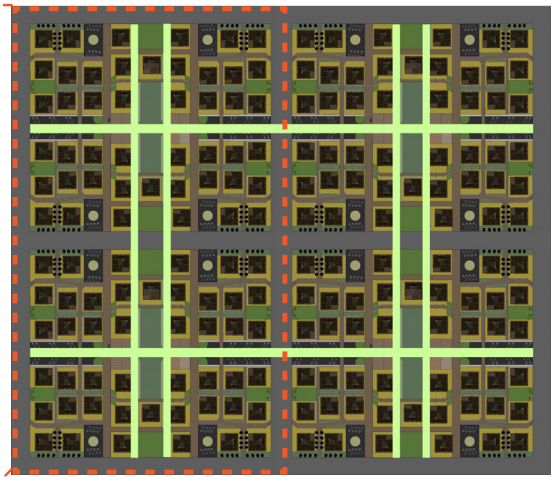
A proposal for future neighborhood developments that prioritize pedestrians and cyclists

In addition to retrofitting and/or adding bike infrastructure to existing neighborhoods, there are also common proposals of how to plan and build new developments so that they will be more pedestrian, cyclist and community-oriented.



Design Principles

- A network of paths to promote community and safety.
- Priority on bikes and pedestrians
- Shortcut for bikes and pedestrians
- Limited car access in neighborhood
- Off-street parking opens up space on street
- Flexible parking for visitors and residents
- Public spaces for communities



Bike/Ped Oriented Streets

Traffic Calming

Old Neighborhood Street

Marketing Plan

Strategies for Increasing Bicycle Usage in the City of Redmond Oregon

Executive Summary

The City of Redmond is a growing, mid-sized community of about 27,000 located in Central Oregon. Surrounded by stunning natural features such as Smith Rock, Steelhead Falls, Cline Falls State Park, and the breathtaking Deschutes River, the City of Redmond is known throughout the State of Oregon for its natural wonders.

Redmond is also known for its commitment to sustainability and its ability to plan neighborhoods for both current and future residents. Redmond has a quickly increasing population of young families and a steady population of retiring baby boomers. The median resident age is 34 and the average household income is $37,252 (City of Redmond).

Known as the "Hub" of Central Oregon, Redmond enjoys the presence of a commercial airport and its location at the intersection of key transportation corridors, US Highway 97 and US Highway 126. Downtown Redmond has grown in past years, with recent additions of several brewpubs, restaurants, lodging, and a summertime farmer market and wintertime outdoor ice skating rink. Redmond also has open-air music events, a growing art scene, and a quickly increasing number of antique stores.

Redmond has committed itself to innovative, sustainable growth and revitalization while maintaining the City's rich history and identity. A priority for the City of Redmond is to establish residential areas that are "safe, convenient, and attractive places to live which provide a maximum range of residential choices" (Redmond 2020 Addendum). This also includes locating public facilities, street trees, and some commercial options within residential neighborhoods, which provides options for families to quickly access community resources.

How to Use this Plan

This marketing plan is a series of recommendations that are meant to build from the work of the *Bike, Walk, and Roll Marketing Plan*. This plan provides information on how to build a bicycle and pedestrian advocacy group, suggestions for outreach, and information and budgets for events. City staff, Bicycle and Pedestrian Advisory Committee (BPAC), and those interested in advocacy work should use this plan.

This plan builds on existing assessments and community outreach findings identified in the 2011 Bicycle Refinement Plan, the Bicycle Master Plan, and the Transportation System Plan (TSP). The findings and priorities of the Redmond 2020 Comprehensive Plan, particularly the Addendum adopted by the Redmond City Council in 2001, are included.

Throughout this plan are events and outreach methods that have been successfully implemented in cities similar in size to Redmond, Oregon. The backbone of this document is *Section 4: Events*, which provides suggestions for events around bicycle education and safety, as well as providing a forum for family-friendly entertainment. One of the best ways to engage the public and increase the number of bicycle users is to simply normalize cycling as a means to get around. The more children, parents, seniors, and recreational cyclists seen bicycling around Redmond, the more likely it is for other residents to participate and "buy-in" to cycling as a safe, convenient means of transportation.

Goals

- Build a Coalition: Hold a Workshop with Possible Allies to Determine Direction of Advocacy Efforts.
- Expand and Reinforce a Brand for Bike, Walk, and Roll Redmond.
- Cultivate New Opportunities and Possible Partners.
- Expand Funding: Walking the Walk

Core Challenges and Opportunities

a. Current Assets

Redmond boasts multiple assets that may assist in improving alternative, or active, transportation facilities and programming. Trinity Bike Shop and Hutch's Bike Shop provide a place for cyclists to not only maintain their bikes, but to also build community and meet other cyclists. Both shops are eager to extend their involvement with the community. The Redmond Bicycle and Pedestrian Advisory Committee (BPAC) is a great vehicle to push for walking and bicycling improvements and provides a venue for residents to voice their desires and concerns.

Complementing this are City of Redmond staff who understand the benefits of a community with excellent walking and biking infrastructure. This common goal may also eliminate potentially crippling political standoff, as well as allow for open communication and the implementation of new infrastructure.

A 1995 survey of Redmond residents identified that Redmond has "clean fresh air, panoramic views, in-town parks, and the canal, which could provide a cross-town corridor for pedestrian and bike use" (Redmond 2020 Addendum). They also greatly enjoy the "small-town feeling of Redmond and the friendliness of residents." Finally, Redmond already sports a large number of bike lanes and sharrows, as well as a beautiful "central park," Dry Canyon, which acts as a spine to an interconnected network of bikeways.

b. Challenges

Redmond currently faces a few key challenges in improving alternative transportation. Without a central body to organize events and coordinate efforts, Redmond is unable to build a community that better supports bicycling and walking infrastructure. Funding is always an issue, especially if funding is allocated depending on public support. As bicycling is still a very underutilized form of transportation in Redmond, it may be difficult to justify funds for usage on bicycle facilities and programs.

In addition, Redmond also lacks bike parking in key areas. This includes downtown, parks, and at some schools where there is no bike parking or bike parking is subpar.

Residents responding to a community survey for the Redmond 2020 Master Plan also stated that current zoning creates a need to drive to services and that Redmond is a bicycle and pedestrian unfriendly town (Redmond 2020 Addendum).

c. Opportunities

In the midst of these challenges, Redmond has a great opportunity to utilize the creative thinking of students enrolled in the Sustainable City Year Program throughout 2015-2016. The *Bike, Walk, and Roll Marketing Plan* also presents many strong ideas to engage the public and promote the benefits of biking and walking in Redmond. Moreover, the City's downtown Urban Renewal District may provide opportunity for some funding of bike racks and bicycle facilities in downtown Redmond. As identifying funding sources can be one of the hardest aspects of implementing better bicycle facilities and programs, using Urban Renewal District funds may alleviate some funding concerns.

Redmond's economy is also quickly diversifying, as more tech and light industry move to Redmond. The City is expecting 8,000 new households in the next ten years and there is enormous potential for citywide growth and development, of both business and infrastructure. Lastly, there is energy among residents, namely business owners and some parents, to implement a family-focused bicycle program. This energy can be directed to beginning an advocacy group or expanding *Kids on Bikes* to a program with more partners and participants.

Section 1. Build a Coalition

Difference between BPAC and Advocacy Group

BPAC was formed in 2013 to "encourage, promote, and advocate for safe and accessible walking and biking environments that enhance the quality of life for residents and visitors to Redmond" (City of Redmond). Those who serve on BPACs are typically appointed by elected officials and provide valuable input to staff and decision makers on bicycle and pedestrian policy, infrastructure, projects, and programming. While similar, an advocacy group serves a different purpose, composed of community members who work through coalition building to advocate for better infrastructure and policy. A BPAC can provide a powerful "inside advocate" voice to ensure that city staff and elected officials are equitably including bicyclists and pedestrians in all decisions (Advocacy Advance 3). However, an advocacy group can act as a clearinghouse for all bicycle and pedestrian related events, activities and programs, while also addressing systemic gaps in policy and infrastructure.

Recruiting and Convening Possible Partners

Coalitions can have wonderful effects on the community and assist on concentrating time and energy on solving specific problems or creating social change. Moreover, coalitions can "create alliances among those who might not normally work together and keep the community's approach to issues consistent" (University of Kansas Community Toolbox). Consistency is essential when advocating for community issues, as multiple messages and efforts can sometimes lead to a convoluted and disordered process. If a coalition can mutually agree on common goals and techniques for achieving these goals, they are far more likely to be successful.

In the case of increasing bicycling activity in Redmond, a coalition can serve a dual purpose. First, it has the potential to effect lasting social change, through its emphasis on cooperation among groups and individuals of different backgrounds and experiences. This can lead to more buy-in from the community, as they see their interests and ideals reflected in the coalition membership. This can streamline the process of introducing change into a community. Second, a coalition can "revitalize the sagging energies of members of groups who are trying to do too much alone" (University of Kansas Community Toolbox). A coalition can provide an outlet for those already involved in advocacy work to refocus and revitalize their efforts, while also be encouraged by the participation of new, like-minded individuals on an issue.

Who to Recruit?

Stakeholders:

It is critical to include those who are most affected by the absence of bicycling programs and infrastructure or who have the most to gain from their addition. This includes families, children under the age of 16, elderly adults, recreational cyclists, business and landowners, and school districts.

Families benefit from bicycle infrastructure as it provides a safe means for children to travel to and from school, as well as a fun way to explore their community without needing to drive. This may also help families save money by cutting out unnecessary trips. Those under the age of 16 and older adults also benefit, gaining independence through being able to access various parts of their community via bicycle. This is especially important for youth unable to drive who still want to participate in activities with their peers, as well as allows for larger responsibility and freedom. Those who are elderly may appreciate the positive impacts that bicycling has on individual health outcomes, as well as the ability to traverse their community

without depending on a car. As many elderly individuals wish to "age in place," this means that access to affordable and reliable transportation is essential for elderly individuals who wish to continue living in their community. Many elderly residents do not want to be housebound, so adequate walking and biking infrastructure that allows for community accessibility is critical to overall senior satisfaction.

Recreational cyclists can also gain from the addition of bicycle infrastructure and programs, especially as it provides them more means to access trails. Recreational cycling is extremely popular in Central Oregon and drawing connections between recreational cycling and commuter cycling may demonstrate to more recreational cyclists that their bikes can be used both on and off the trails.

Business and landowners can also profit from the addition of bicycle infrastructure in Redmond. As many bike events are typically tied to local businesses and the support of local businesses, there is potential for business owners to see increased profit from partnering with the City on bike-centric events. Additionally, cyclists tend to support local businesses more frequently, as they typically make trips within their community. There is also the potential of building "bike tourism," and by enhancing Redmond's reputation as a bicycling city, Redmond may attract cyclists who come and stay in Redmond for vacation or as a main hub to use to access other parts of Central Oregon. The impacts of bike tourism can be rather large – a study through the University of Montana found that spending tracked at $75 a person with an average of eight days spent on vacation. Approximately, "41 percent of the cyclists stayed in motels and bed and breakfasts, in addition to visiting historical sites, breweries, and wild-life watching." (Adventure Cycling).

Moreover, those who employ residents who both live and work in Redmond may benefit from more employees cycling. This may free up more parking spots for other employees and customers, as well as lead to healthier employees. Adding just "thirty minutes of cycling to one's daily activities can save an individual $544 in medical costs…and on average, people who bike to work lose about 13 pounds their first year" (Commuter Benefit Solutions).

Community Leaders

It is essential to include those who can influence others, such as civic leaders, business leaders, or those who provide religious leadership. It is critical to involve those who are emerging leaders or leaders in marginalized communities. This can include youth, leaders in communities of color, and women.

Policy Makers

The inclusion of elected and appointed officials in a coalition may add credibility to a movement, as well as possibly increase the chances that the issue becomes an institutional priority.

Workshop Process

As a coalition should include as a diverse a group of individuals and organizations as possible, it is recommended that the City of Redmond plan a two-hour workshop. This workshop should include all potential stakeholders, community leaders, and policy makers, bringing them together to establish priorities and what form the coalition should take. Depending on the needs identified, the coalition may require a different form, such as an all-volunteer group or a registered non-profit with paid staff.

Ideally, the workshop will be about 25-30 participants and take place in a location that is central. For a sample facilitation agenda and invitation, see the "Tools" section.

After the workshop, a core team of no more than five individuals should be established. This team will take the primary leadership role in synthesizing information and following up with workshop participants until priorities and the form of the coalition is decided. Post-workshop outreach to participants should take place no later than a month after the workshop and can take the form of in-person, online, or hard copy. Typically, an online discussion of workshop findings is best, as it provides the opportunity for synchronous communication. Google Groups is a good tool for this effort.

After hearing back from workshop participants to ensure accuracy of findings, the core team should implement the coalition form most desired by participants. At this point, the core team may or may not change and other workshop participants may step up to take new leadership roles.

Tools

Materials courtesy of the DREAM Workshop, a new bicycle and pedestrian advocacy effort launching in Fall 2015 in Eugene and Springfield, Oregon.

Sample Workshop Initiation

Dear _____,

We invite you to join a select and diverse group of community leaders for a “Walking & Biking Dream Workshop”[1]:

Monday, June 8, 2015

6:00 – 8:00 pm

Redmond City Hall, Conference Room A

(A light dinner will be provided)

Could we together create “a place where walking and biking are integral to the community’s culture; where the city’s livability, sustainability and overall quality of life are enhanced by more people walking and biking; and where these activities are safe, convenient and practical options for everyone”?[2]

Past and current leaders pushed to create the Ruth Bascom Riverbank Trail System, set up a system of bicycle routes, create a cycle track on Alder Street, establish walking and bicycling traffic signals, and more! As a result, Eugene is one of the most bike-friendly cities in the United States.[3]

But unlike cities such as Austin, TX, with Bike Austin[4], Davis, CA, with Davis Bicycles![5], Portland, OR, with the Bicycle Transportation Alliance[6], Savannah, GA, with the Savannah Bicycle Campaign[7], and Seattle, WA, with the Cascade Bicycle Club[8], we lack a strong and

effective nonprofit organization to push for improvements.

According to Gil Peñalosa, executive director of 8-80 Cities[9]: “You’ve got to have a shared vision. Where is it that you want to go? Where is it that you want the community to be 10, 20, or 30 years from now? This has to be a shared vision by many people of the community.… if you have a fantastic shared vision, and you collectively work at it, you can transform [Eugene], and then Oregon, and then the U.S. and the rest of the world!”[10] “Everything is about focusing on doing. We need to move away from just talking and start doing. We don’t have time to continue to talk, we need to act.”[11]

According to Mia Birk, author of *Joyride*: “Key components needed for success: political leadership, well-trained and supported city staff with at least one dedicated position for bicycle, pedestrian, and trails planning; traffic engineers who are also well-trained and both understand and support the goals for active transportation; and organized community advocates. You also need visionary, robust bicycle, pedestrian and greenway plans and funding.”[12]

Let’s dream together:

- Which of the essential elements for making a great place for walking and biking—engineering, education, encouragement, enforcement, and evaluation & planning—would best be done by a nonprofit organization?[13]
- In more detail, what are the most important things such a nonprofit could achieve in the next 5 years?
- What support for such an organization is there in the community?

We want to think big, build relationships, and have fun. Will you join us and bring your ideas and open mind?

Please RSVP, as we will be providing a light dinner and space is limited.

Sincerely,

[Insert core team names and emails]

Notes:

[1] We use the word “walking” to also include running, skateboarding, rollerblading, and the use of wheelchairs, mobility scooters, and other forms of non-motorized transportation. We use the word “biking” to include the use of all forms of nonmotorized, wheeled transportation.

[2] Vision from the *Eugene Pedestrian and Bicycle Strategic Plan*, January 2008, http://www.eugene-or.gov/DocumentCenter/Home/View/5565 The City of Eugene is currently updating this plan. http://www.eugene-or.gov/index.aspx?NID=2594

[3] “America’s Top 50 Bike-Friendly Cities,” *Bicycling* magazine, http://www.bicycling.com/news/

advocacy/america-s-top-50-bike-friendly-cities?slide=6

[4] Bike Austin improves quality of life for all of Austin and Central Texas by growing bicycling as a form of transportation, exercise, and recreation. http://bikeaustin.org/

[5] Davis Bicycles! is a 501(c)(3) nonprofit citizen group dedicated to promoting bicycling in Davis, California, through advocacy, education, encouragement, and design. http://www.davisbicycles.org/

[6] The Bicycle Transportation Alliance creates healthy, sustainable communities by making bicycling safe, convenient and accessible. http://btaoregon.org/

[7] Savannah Bicycle Campaign will create a safer and more convenient bicycling environment by advocating for better facilities and enforcement, and encouraging, educating and empowering residents and visitors to make bicycling a healthy, enjoyable, useful part of their daily lives. http://bicyclecampaign.org/

[8] Cascade Bicycle Club improves lives through bicycling. http://www.cascade.org/

[9] 8-80 Cities is a non-profit organization based in Toronto, Canada. They are dedicated to contributing to the transformation of cities into places where people can walk, bike, access public transit, and visit vibrant parks and public places. http://8-80cities.org/

[10] Gil Peñalosa, keynote address to the Towards Carfree Cities Conference, Portland State University, 17 June 2008, http://bikeportland.org/2008/06/23/gil-penalosas-keynote-speech-from-the-carfree-conference-7972

[11] “Interview with Gil Peñalosa on Livable Cities,” *Broken Sidewalks*, 13 March 2012, http://brokensidewalk.com/2012/qa-gil-penalosa-on-livable-cities/

[12] “In my mind, I’m still in Carolina,” Mia Mirk, 22 September 2011, http://www.miabirk.com/blog/?p=943

[13] The 5 E’s: The Essential Elements of a Bicycle Friendly America, League of American Bicyclists, http://www.bikeleague.org/content/5-es

Agenda

5:30pm Arrival

Person 1 & Person 2: *(Greet people, ask people to sign in, make name tag, get food.)*

Person 4: *(Play video playlist.)*

Participants: *(Arrive, socialize, eat.)*

5:55pm **Person 3**: (Ring/honk to ask participants to settle at tables)

6:00pm Purpose / History

Person 4 & Person 5: *(Welcome everyone. Introduce selves and core team. Describe history to this point. Explain purpose of the meeting, history of the meeting. Mention bike share. Introduce Person 3 as facilitator.)*

6:10pm Introductions

Person 3: *(Ask if everyone has signed in. Mention housekeeping: bathrooms, food. Summarize schedule & agenda—refer to posted sheet. Emphasize that this will be a hands-on interactive workshop, and that we will be asking people to move around to work with different people. Go over Creative Conditions / Ground Rules—refer to posted sheet. Ask participants to introduce themselves with name and affiliation.)*

6:15pm **Person 1** *(setting the model)*: Person 1, [Job title]

Participants: *(Introduce themselves to room, 10 seconds or less each.)*

6:20pm Activity #1: What great efforts to improve walking & biking in other communities would you like to see happening in Eugene?

Person 3: *(Remind participants about homework assignment. Explain that Activity #1 is to share what you liked from around the country. Point out list of advocacy organizations on each table. Say people have 10 minutes to work in tables of 3–5. Highlight emphasis is on **brainstorming**, on generating lots of good ideas. Ask each table to choose a reporter to share top 1–2 ideas from table. Explain large paper on table is for notes/doodles to capture ideas.)*

Person 1: *(Point out one-page explanation of Six E's on each table. Say we will be categorizing each good idea into one of the Six E's.)*

6:25pm **Participants**: *(Choose reporter. Share ideas. Take notes. Select top 1–2 ideas.)*

6:35pm **Person 3**: Okay, let's stop and hear all your good ideas, one table at a time. *(Facilitate reporting.)*

Reporters: *(Report top 1–2 ideas to room.)*

Person 1 w/ Person 4: *(Record ideas on flip chart, grouping together similar ideas. IF POSSIBLE, organize into Six E's. Maybe 1–3 E's per page. Leave room for additional ideas. Include left column for voting and right column for which*

organization could pursue.)

6: 40pm Activity #2: Who isn't walking or biking now, and what would they need to do so?

Person 3: That's great! For our next activity, we want to mix you up a bit. Please move to another table so that you are sitting with different people.

Participants: *(Rotate.)*

Person 2: *(Place character sheets on each table.)*

Person 3: *(Explain that Activity #2 is to think about who isn't walking or biking now, and what would they need to do so. Point out character descriptions on each table. If this character doesn't resonate with you, think of someone you know personally: What would make cycling work for this person? Say people have 10 minutes to work in tables of 3–5. Highlight emphasis is on* ***brainstorming****, on generating lots of good ideas. Ask each table to choose a reporter to share top 1–2 ideas from table. Explain large paper on table is for notes/doodles to capture ideas.)*

Person 2: *(Use props / costumes to act out characters?)*

6:45pm **Participants**: *(Choose reporter. Share ideas. Take notes. Select top 1–2 ideas.)*

6:55pm **Person 3**: Okay, let's stop and hear all your good ideas, one table at a time. *(Facilitate reporting.)*

Reporters: *(Report top 1–2 ideas to room. Act out with props / costumes?)*

Person 1w/ Person 4: *(Record ideas on flip chart, organizing into Six E's and grouping together similar ideas.)*

7:00pm BREAK / Activity #3: What are the most important ideas for our community to pursue in the next 1–3 years?

Person 3: That's great! Let's take a break now to use the restrooms, get more food, or stretch. As you head off on break, please take three sticky dots from your table and place them to the left of what you see are the **most important** ideas for our community to pursue in the next 1–3 years. After the break, please return to another table so that you are sitting with different people.

Participants: *(Break. Vote. Rotate.)*

Person 1w/ Person 4: *(Tally up votes.)*

Person 3: *(Ring/honk to ask participants to settle at tables)*

7:10pm Activity #4: What existing—or new—public, nonprofit or private organizations could best pursue the most important ideas?

Person 3: Now let's hear from Person 1& Person 4 what you see as the most important ideas for our community to pursue.

Person 1w/ Person 4: *(Report the most important ideas to the room.)*

Person 3: *(Explain that Activity #4 is to think about what existing—or new—public, nonprofit or private organizations could best pursue each of the most important ideas. Say people have 10 minutes to work in tables of 3–5. Highlight emphasis is on being **realistic** about the abilities of existing organizations. Invite people to consider opportunities for a new professionally-staffed organization. Ask each table to choose a reporter to share top 1–2 ideas from table. Explain large paper on table is for notes/doodles to capture ideas.)*.

7:15pm **Participants**: *(Choose reporter. Share ideas. Take notes.)*

7:25pm **Person 3**: Okay, let's stop and hear all your good ideas, one table at a time. *(Facilitate reporting.)*

Reporters: *(For each top idea, report which existing—or new—organization could best pursue.)*

Person 1w/ Person 4: *(Record ideas on flip chart.)*

7:30pm Activity #5: What can you contribute to make walking & biking better in our community?

Person 3: That's great! For our final activity, we want to hear what you can contribute to making walking & biking better in our community. For the next 5 minutes, please write on a card at your table:

- What is your name?
- What special skills, knowledge, or resources do you personally possess that you think would help the prioritized items be successful?
- What initiatives identified in the earlier activities are you more passionate about?
- Who else do you know that could help, has skills / resources to bring?

7:35pm **Participants**: *(Write on cards.)*

7:40pm **Person 3**: Okay, now discuss your commitment with others at your table, and feel free to revise what you wrote.

Participants: *(Discuss. Revise cards.)*

7:45pm Take aways (whole group)

Person 3: Thank you, everyone! Please pass your cards to Person 1 or Person 4. Before we adjourn, let's hear from everyone: What is the best thing you got out of this meeting (or what will you go home and talk to your family about it)? Please be brief, no more than 20 seconds.

Person 4 *(setting the model)*: …

Participants: *(Share with room, 20 seconds or less each.)*

7:55pm Next steps

Person 3: *(Thank everyone for being great. Call attention to evaluation forms and ask people to fill out. Turn things back to Person 4 & Person 5.)*

Person 6: *(Pass around evaluation forms.)*

Person 5 & Person 4: *(Thank the participants and communicate next steps, next communications (expect a follow up email, share potential model). Overview of the prospect of steering committee, advisory committee membership structure. Exploring the possibility of a new group, will be communicating back as this concept is explored.)*

8:00pm Adjourn

Section 2. Expand and Reinforce Brand

Outreach Methods

Posters

Postering is a basic, and effective way to market events in a community. In comparison to other forms of marketing, posters are relatively inexpensive. Posters can be designed and printed quickly and are ideally distributed within two weeks of an event. A mixture of energetic volunteers and interns often distributes posters or posters can be mailed to interested businesses and community partners.

Courtesy of Open Streets Minneapolis. 2011.

Street Banners

Banners are a high-profile way for a organization to market an event. The two types of banners most commonly used are those fixed to light posts and those hung over a main corridor. Light post fixtures generally hang from updated fixtures in key commercial areas. Similar to flower baskets that hang from fixtures, this type of banner also provides an aesthetic appeal to a district. Banners that hang over a busy corridor, where buildings are located close enough together to hang a banner across, can be used as a visual tool to alert residents of an upcoming event. Ideally, banners and fixtures are hung a month before an event.

Courtesy of Downtown SLC Alliance

Courtesy of Salem Sunday Streets

Mailers

Mailers are perhaps one of the best ways to reach residents. Depending on the scope of the event, different neighborhood wards can be selected for outreach or mailers can be sent to all residents within Redmond city limits. While effective, this strategy may be costly and time-consuming and is perhaps best an option for large events such as Sunday Streets Redmond. Additionally, it is ideal if mailers keep the same overall design and feel and posters and banners for an event.

Courtesy of Bell + Funk

Radio and Traditional Media Advertising

Buying an ad on radio or traditional media is an extremely successful way to reach a large audience of both residents and non-residents. Typically, larger events, such as Sunday Streets Redmond, would be worth the investment in these forms of media. These markets can also be more narrowly targeted, depending on the audience associated with the media in question.

Radio

The timing of a radio ad has a large effect on which audiences are reached. For commuters, peak traffic times of 7 AM – 9 AM and 3 PM – 6 PM are the best time to place an ad. For farmers and ranchers, the most strategic time to place an ad may be as early as 4 AM. To reach the largest audience, purchase multiple spots at times that are considered "peak" for audiences you are trying to attract. A single ad placement is typically not enough to generate interest. The most successful ads are one that a listener can hear repeated at least several times. For maximum success, ads should run at least two to three weeks before an event. Additionally, ads should be bought in blocks of time, not spots. The commercial should be played at least several times within the identified block of time. This is a better investment than purchasing spots for commercials that play fewer times over the weeks leading up to an event.

Radio Stations in Central Oregon:

88.1 FM	KLBR	Public Radio
91.3 FM	KOAB	Public Radio
1110 AM	KBND	News/Talk
1240 AM	KBNW	News/Talk
1340 AM	KRDM	Regional Mexican

Traditional Media

There are several ways of advertising in traditional print media, depending on the type of format preferred. Ideally, a newspaper ad campaign should run for two to three weeks before an event.

Large format ads typically have the best return on investment because they are the easiest for readers to see. Taking out an half, quarter or full page ad in a local daily or weekly magazine is one of the best options for ensuring high visibility in print media.
Insets are usually offered by weekend and weekly papers and are typically sized 8 ½ by 11 inches or 11 by 17 inches. Inserts are folded in half and can be designed however the organization chooses. This form of advertising is best used for larger events with more attached funding.

Small format ads are typically sold by the column inch. Although less visible than a large format ad, they can still be noticeable if designed correctly. Small format ads are usually best for smaller events and announcements, as they are far less expensive than large format ads and inserts.

The classified section is the least expensive to advertise in and organizations are charged by the line or by the word. This is best for marketing small events and announcements.

Branding

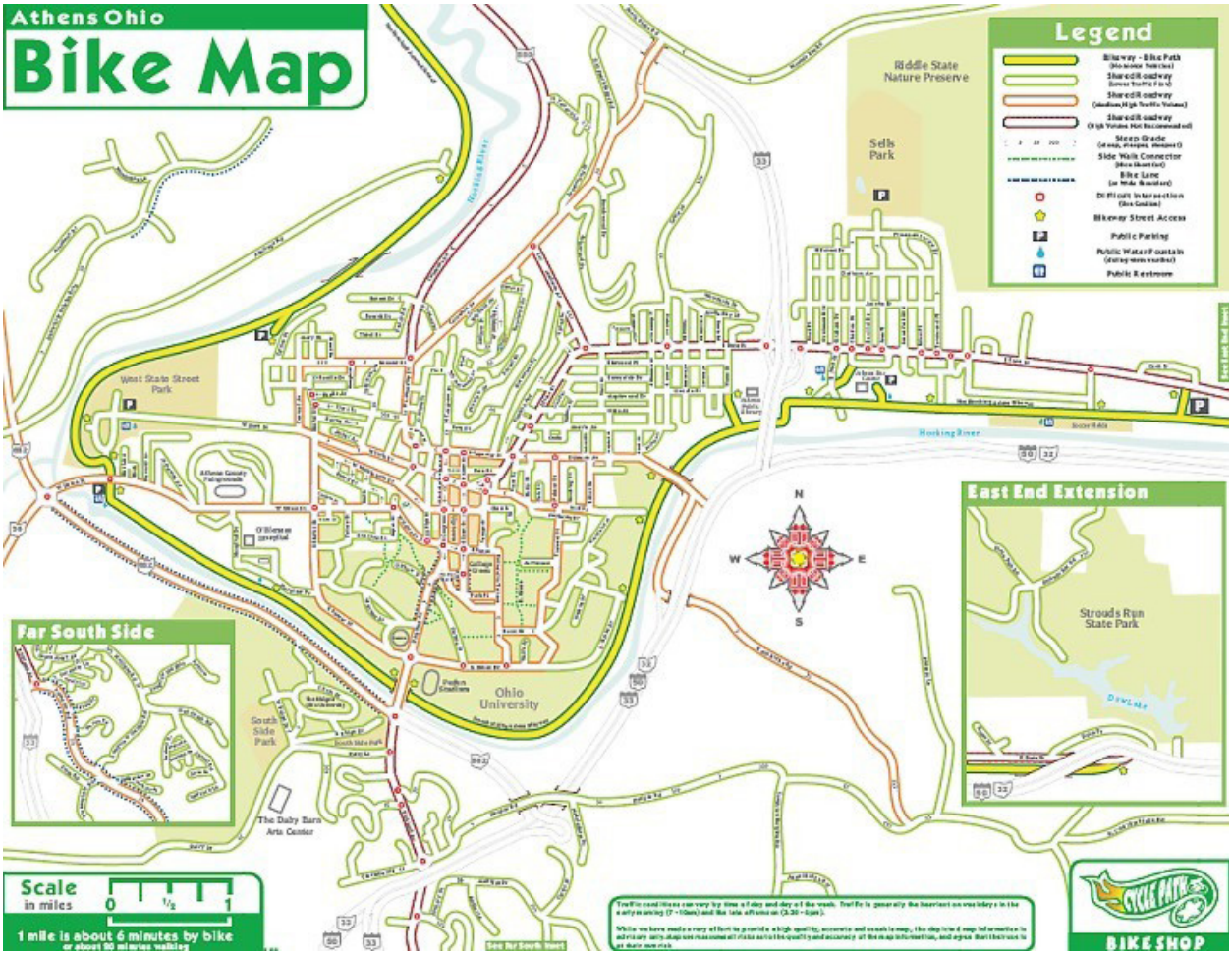
Merchandise

Although merchandise can take many forms, it is typically tangible, take-home items that participants can use or display. These items remind participants of an organization and may also prompt questions or notice from others. They serve as a consistent form of promotion and are best used to promote a program or organization, as opposed to an individual event. Merchandise is best when it is a practical use item. This may include tote bags, pens, stickers, bike lights, t-shirts, key chains, bottle-openers, and mugs or cups. To keep costs down and to also encourage participation, organizations can raffle off merchandise or offer it to a certain number of participants at an event. Merchandise can also be used to fundraise and may be used as a prize in raffles, competitions, and more.

WALK +BIKE
OREGON'S SAFE ROUTES TO SCHOOL PROGRAM

Bike Maps

Well-produced and labeled bike maps are critical for informing the public of an interconnected biking system. Maps signal to the public that bike infrastructure is a priority and can also serve as an educational tool for those who need more information about how to safely bike in Redmond. They are a tangible item that can be distributed at community events, mailed to residents, and available for free at bike shops. The City can also make a downloadable PDF of the map available on their website.



Courtesy of the City of Athens, Ohio

Wayfinding

Signage along bike routes that inform cyclists of route direction and the distance and length of time needed to reach a destination are necessary to the creation of a cohesive system that users can travel easily. Wayfinding makes navigation much simpler and user-friendly, something that is of particular importance to improving the comfort of beginner or cautious riders. Signage also legitimizes paths and bikes lanes, eliminating driver confusion and reassuring cyclists of their right to space on the roads.

Courtesy of the City of Oakland, California

Sponsors and Partners

Partnering with local businesses or nonprofits can be a huge asset to hosting events. Business can provide assistance funding events, either with monetary or In-kind donations. They also allow for potential access to volunteers. Occasionally employers may offer incentives for workers to volunteer their time and talents at events. Partners can also offer their expertise in an area such as providing sanitary solutions or tech support for live music. A list of potential partners includes:

- Redmond Area Parks and Recreation District (RAPRD)
- Trinity Bikes
- Hutch's Bikes
- St. Charles Hospital
- Boys and Girls Club of Central Oregon - Redmond Branch
- Headstart: Neighborhood Impact
- Opportunity Foundation
- Redmond School District
- Redmond Chamber of Commerce, local businesses
- Neighborhood Associations
- Senior clubs and organizations
- Central Oregon Trail Alliance (COTA)
- Redmond Bike and Pedestrian Advisory Committee
- Central Oregon Community College - Redmond Technology Education Center
- Redmond Development Commission
- Redmond Urban Area Planning Commission
- Redmond Downtown Urban Renewal Advisory Committee
- Redmond Parks Commission
- Redmond Historic Landmarks Commission
- Redmond Economic Development, Inc.
- Central Oregon Cities Organization
- Cascade East Transit

Section 3. Events and Educational Outreach

The City of Redmond should put on consistent programming for residents and to attract tourists around bicycling. Each event includes a short description, a budget, potential dates, partners, audience, general routes/location, outreach, and resources.

Events

Redmond Ciclovia

A “ciclovia” is a car free event hosted in key commercial or residential areas. It is an opportunity to reclaim public space and transform it into “living-street.” Ciclovias started in Bogota, Columbia in the early 1980’s and have since spread to hundreds of cities around the world and in the United States. Ciclovias are also known as “Open Streets” in the United States and are used to promote healthy, active living in a fun and family-friendly atmosphere.

Streets are closed to auto traffic during a weekend or holiday afternoon to celebrate unique neighborhoods and the people that live there. This is a great end of summer event to work towards. This event could be promoted during all other events as an end of summer community celebration.

The event can include:

- Cycling, Walking, Skating, Rollerblading
- Live Music
- Food Vendors
- Merchant Vendors
- Games for children and adults
- Gardening Demos
- Yoga lessons
- Dance lessons
- Free basic bike tune ups

Potential Dates:

- Once a month between the months of April to September or as an end-of-summer event.

Partners:

- City of Redmond
- Local bike shops (Hutch's and Trinity)
- Businesses located on the participating corridor
- Food carts and local restaurants
- Redmond School District
- Redmond Area Park and Recreation District

Audience:

- General public, especially families and seniors.

Potential Routes:

- Downtown Core
- Residential Neighborhoods

Resources:

- Alliance for Biking and Walking, *Open Streets Guide*
- Streetfilms: The Rise of Open Streets

CycloFemme

CycloFemme is a social celebration of women on bikes. It transcends race, age and gender and brings communities together to celebrate the joy of cycling. It begins in an open space, such as a park or plaza and follows a protected route where all feel comfortable and safe. It ends at a bike friendly cafe or park, where socializing and festivities can proceed. Cyclofemme has an emphasis on educating women about the benefits of alternative transportation, as well as an opportunity for women to build community through bicycling.

© Jonathan Maus/BikePortland

Potential Dates:

- Weekly on a year-round basis

Partners:

- Sponsoring cafe or restaurant
- Trinity or Hutch's bike shop
- Strong, passionate organizing individual
- Women's health center or gym

Audiences:

- Women and children
- Families of all ages and backgrounds

Potential Routes:

- Downtown Plaza to West Canyon Rim Park via Evergreen Rd.

Resources:

- http://cyclofemme.com/plan-your-ride/
- http://bikeleague.org/womenbike

Coffee in the Canyon

Coffee in the Canyon is a monthly meet up of citizens who walk, bike, and roll over to a park to enjoy coffee, conversations and light breakfast. Bike shops can sponsor and provide free basic tune-ups and get to know the community. Coffee and bagels or pastries can be provided by local cafe.

Potential Dates:
- Early Fall, Spring, and Summer

Partners:
- Trinity or Hutch's Bike shop
- Smith Rock State Park Ranger Station
- BPAC members
- Local hiking club

Audience:
- Community members who love the outdoors
- Citizens looking to become more involved in community

Walking School Bus

Over the past few decades, the number of parents who drive their children to school increased sharply. Despite many schools being located mere blocks from residences, many children do not walk or bike to school. In conjunction with more children being at risk of becoming overweight, changing the travel patterns of parents and children requires solutions that are safe and fun. A “walking school bus” answers both of these concerns.

A walking school bus is comprised of a group of children who walk or bike to school with at least one adult volunteer. It isn’t a formal process and can be as simple as parents interested in walking their children to school mutually developing a volunteer schedule and identifying meeting points. In other words, it’s a carpool system - but, you get to leave the car at home and exercise with neighbors, friends, and kids!

Potential Dates:

- Throughout school year, excluding holiday breaks (September to June)

Partners:

- Redmond School District
- Parents and children
- Principals, school boards, district officials
- Police officers and school security guards
- Neighborhood Associations, local walking or biking clubs
- Parent Teacher Association or Booster Club

Audience:

- K-12 students, primarily those in elementary school.

Potential Routes:

- Routes are dependent on the level of family interest.

Resources:

- http://www.walkingschoolbus.org

Bike and Hike

Central Oregon provides some of the nation's most beautiful outdoor recreation. This community event celebrates this beauty with an afternoon of biking and hiking. Beginning in an easily accessible city park or at a bike shop, participants cycle to nearby trails and natural features for a day hike. This is meant to be a casually paced ride, coupled with a beginning to medium intensity hike.

Potential Dates:

- Early Fall, Spring, and Summer

Partners:

- Trinity or Hutch's Bike shop
- Smith Rock State Park Ranger Station
- BPAC members
- Local hiking club

Audience:

- Community members who love the outdoors
- Citizens looking to become more involved in community

Bike to Work/School Day

Bike to Work Day is an event held monthly that highly encourages commuting to work via bicycle. It would be held on the same day each month and be promoted at local bike shops, schools and participating local businesses. Bike shops could donate time at high schools or larger local business to give free tune ups to those participating. Businesses could also have incentives for riders, such as 25 percent of lunch for those who biked to work or free stickers for children who biked to school.

Potential Dates:

- Last Friday of each month, possibly excluding winter months.

Partners:

- Local businesses/schools would be key in helping market and encourage this event.
- Local Bike shops could be encouraged to have an item up for raffle for participants to win.
    - Hospital
    - Schools
    - Larger local businesses
    - Trinity and Hutch's Bike shop

Audience:

- Current commuters
- Those who are interested in bicycling, but may feel more comfortable with a group
- School children, with parents

Section 4. Expand Funding: Walking the Walk

Perhaps most important to the successful implementation of public outreach and education is dedicated funding to ensure that the programs envisioned can move forward. This funding can be achieved through leveraging existing public resources, applying for grants, and via sponsors. In order to move forward with funding, it is recommended that the city designate new FTE or reallocate existing FTE to a Bicycle and Pedestrian Coordinator position. This provides a main point of contact for program development and implementation, while also ensuring that funding needs are being met through pursuing development opportunities. Should FTE for a bicycle and pedestrian coordinator be unavailable, then individual volunteers or a group should be recruited, identified, and held accountable for this work.

The creation of a Bicycle and Pedestrian Coordinator position within the city is one of the key steps necessary for Redmond to advance in the improvement of bicycle and pedestrian infrastructure and programming. The amount of energy and commitment needed to search out and pursue funding and grants greatly exceeds the capacity of any current position or department and especially, the capacity of volunteers. If the City is dedicated to implementing the Bike, Walk, and Roll Marketing Plan, it needs a clear leader who can develop and grow public outreach and education programs and events. This person also serves as the face of Bike, Walk, and Roll, which provides a consistent person to be associated with bicycling and walking in Redmond.

Bruce Hyman, the City of Portland Bicycle and Pedestrian Coordinator, and Sarah Cushman, Safe Routes to School. Courtesy of Press Herald

Section 5. Evaluation

In this section, program-specific evaluation and event-specific evaluation is discussed. Program evaluation examines the success of bicycle and pedestrian outreach overall and engages program participants on the benefits and drawbacks of existing programming. Event-specific evaluations are evaluations that occur after any event, large or small. The evaluations themselves range from being casual to formal, depending on the type of event. However, the evaluation measures used are scalable and can be adjusted accordingly to various types of events.

Program Specific Measures

This section is adapted from *Understanding Community Leadership, Evaluators, and Funders: What are Their Interests? (*University of Kansas Community Toolbox, Chapter 36, Section 3). For more information, we recommend reading *Introduction to Evaluation*, Chapter 36 of the University of Kansas Community Toolbox, which provides an excellent, comprehensive overview of program evaluation.

Evaluation is not just beneficial for those leading a program or outreach effort, it can also provide more information to others that an organization may work with to determine if an impact is being made. Evaluations should be tailored around the interests of community leaders, evaluators, and funders since all three will use the results of the evaluation differently. Therefore, a dynamic product that can encompass these interests is critical.

First, identify stakeholders relevant to bicycle and pedestrian education and outreach that fall under the categories of community leaders, evaluators, and funders. Sometimes, a person or organization can fall into multiple categories.

Community Leaders

Community leaders may include “staff, administrators, committee chairpersons, agency personnel and civic leaders, and trustees of an initiative” (University of Kansas Community Toolbox). The evaluation should provide information that they can use to better their organization or decision-making, as well as how to improve the effectiveness of an initiative.

Evaluators

Evaluators are professionals, such as consultants and university staff, who can produce an evaluation. However, any interested party with the proper tools and guidance can design and implement an evaluation. If one does not choose a professional evaluator, it may be wise to provide mechanisms and individuals to hold the interested party accountable and if needed, assist with evaluation. Above all, any evaluator, professional or otherwise, is interested in the “systematic production of useful, reliable information” (University of Kansas Community Toolbox).

Funders

Funders are individuals, agencies, and organizations who financially support bicycle and pedestrian efforts in Redmond. Members of this group may include government agency representatives, program directors at foundations or other grant-making organizations, or businesses that consistently sponsor events. At times, organizations and agencies that provide financial support through grants may require a formal evaluation. However, it is good practice to include the needs and interests of funders in one’s evaluation, as funders are particularly interested in if their financial support is having a measurable impact on bicycle and pedestrian activity and programming.

Understanding the interests of these three populations will decide the information needed and then assist in determining how to best collect it. Essentially, "it is the interests of the stakeholders that shape the inquiring" (University of Kansas Community Toolbox). This may also lead to more fruitful collaboration between the organization and these three groups.

Identifying Stakeholders

Identifying stakeholders before evaluation is critical, as this provides the opportunity to incorporate their interests and views into the evaluation process. Identifying these individuals is best done as a group – sit down with core team members and think about individuals and organizations that are involved (and who *should* be involved, but are not) in bicycle and pedestrian efforts. When considering whom to include, it is important to have as diverse a group of stakeholders as possible. This can include business owners, community leaders, nonprofits, recreational agencies and alliances, and neighborhood associations.

When group sits down, preferably with a flip chart and a few hours to spare, ask the following questions (University of Kansas Community Toolbox):

- Who provides funding for our initiative?
- Who will conduct the evaluation?
- Who do we collaborate with?

Once these people are identified, it's time to figure out what their interests are. First, examine the groups more in-depth and the kinds of things they typically need from an evaluator. Then, discuss how to build these interests into the evaluation.

Community Leaders

Community leaders are the primary stakeholders in the evaluation. Remember, they are those who advocate and work for bicycle and pedestrian efforts and are primarily interested in how this information will make things run smoother. Therefore, information needs to be:

- Concise and Simple: Community leaders may be dedicated to bicycle and pedestrian efforts, but may not have the same institutional knowledge as others. Clear and simple information will make it easier for them to participate properly in an evaluation.
- Responsive: Community leaders may have the power to influence funding or public opinion around an effort. The evaluation should take into account any decision-making requirements that policy makers in particular may need to observe.
- Effective: Community leaders are interested in knowing what the program has achieved so far, as well as how future efforts can be better.

Evaluators

Evaluators will be examining the ability of the program to meet goals. They need the following:

- Accurate Feedback: Evaluators will need to be able to reach out to those involved in the program for more information. They need as much correct and complete information as possible.
- Diverse Cooperation: To get the best kind of feedback, evaluators will need timely participation from a wide group of stakeholders.

Funders

Funders are interested in if their financial contribution is making a difference. They will be interested in the following:

- Assessment: Be able to actively assess and demonstrate that their contribution is improving program outcomes. This can be achieved through formal reports, informal check-ins, and more.

Based on the above priorities, methods and questions should be designed to reflect those needs and desires. This also ensures that misunderstandings are avoided and can ensure even and realistic expectations for those involved. There are two types of questions to ask (Coalition for Community Schools):

Process Questions

These questions focus on program operation, determining the "number and types of people who are served by activities, how individuals gain access to the activities, the types of activity offerings in which people participate, and how they experience the activity" (Coalition for Community Schools). These questions answer overall program effectiveness and can provide guidance as to which areas need further development. These questions are best asked when the program is still developing, so that feedback can be used to improve the program as it grows.

Result-focused Questions

Also known as "goal-focused" questions, these questions ask if the program is accomplishing its intended results. These questions examine if the program is serving residents in the best way and if goals are being met. These questions are best asked when a program is fully underway or has been in place for a year or more.

Sample process questions include:

- How many events were held during the last fiscal year?
- What is the average demographic information of those who participated in program activities?
- What were the types of activities and events offered? What sponsors were attracted to these activities and events?
- Based on individual event evaluations, how did people experience the events?
- Is funding consistent? Is it enough or do other avenues for funding need to be researched?

Sample results-focused include:

- What do key audiences report gaining from participation in programs and events?
- Do those who participate cite greater likelihood to use a bicycle as a means of transportation?
- Do participants engage in only one activity or do they participate in multiple activities and programs? Why?
- Do program participants feel more prepared to safely bike around Redmond?

These questions can be asked through a multitude of ways, such as interviews, online and hard copy surveys, phone surveys, and focus groups. After information is collected, the findings should be synthesized into a final report. This information should be disseminated to participants in the evaluation, funders, and available online for interested residents to browse through. It is also recommended that evaluation findings be presented to city staff, the Redmond City Council, and the Redmond BPAC.

Event Specific Measures

The key to event evaluation is to identify what worked, what didn't work, and what could be improved next time. Aspects of the event to evaluate may change depending on context, so evaluation may take place during the event, after the event, or may simply be a form with attendance numbers and breakdown. This section includes two event evaluation forms. The first event evaluation form is for usage by event attendees and will assist event organizers in better understanding attendee experience. The second form is for usage by event organizers and provides an opportunity for organizers to reflect on the event, evaluate overall performance, and identify what worked and what didn't.

Adapted from Refugee Week UK

What did you think of this event?

Name of Event: Bike and Hike

What motivated you to attend this event? (*Check all that apply*)

- ☐ A friend or relative invited me
- ☐ I was interested in learning more about bicycling
- ☐ I wanted to get more involved with city events
- ☐ A group or organization invited me
- ☐ I know the organizers
- ☐ Other (please specify) _____ _____

How did you find out about the event?

- ☐ Press (which newspaper/blog/radio or TV station)_____
- ☐ Promotional materials (i.e. posters, banners, etc)
- ☐ Bike, Walk, and Roll website
- ☐ Other website (list website address)_____
- ☐ Word of mouth
- ☐ Passing by
- ☐ Other (please specify) _____ _____

How do you rate the quality of the event?

- ☐ Excellent
- ☐ Satisfactory
- ☐ Adequate/Neutral
- ☐ Poor

What did you enjoy most about today's event?

Did you learn more than you already knew about bicycling? Yes/No
If so, what?

Has this event inspired you to: (*Check all that apply*)

- ☐ Learn more about bicycling
- ☐ Support bicycling advocacy efforts in Redmond
- ☐ Tell others about Bike, Walk, and Roll Redmond

☐ Invite others to participate in events
☐ Other (please specify) _____
_____

Had you heard of Bike, Walk, and Roll Redmond before coming to this event? Yes/No
Have you attended a Bike, Walk, and Roll Redmond event before? Yes/No
Would you attend another event like this? Yes/No

Please let us know your thoughts on today's events by checking the relevant boxes below:

Event Aspect	Poor	Adequate/Neutral	Satisfactory	Excellent
Organization				
Promotion				
Location				
Entertainment				
Available Information				
Refreshments				

Any other comments about the event?

Name: _____
_____

Phone Number: _____
____

Email Address: _____
_____

Thank you for taking the time to fill out this evaluation. Your feedback will be useful when planning or evaluating future Bike, Walk, and Roll events.

Adapted from Refugee Week UK

Event Organizers Evaluation Form

Background Information

Name: _____

Job Title: _____

Organization: _____

Event: _____

Location: _____

Event Attendees

Number of attendees: _____

Event Promotion

Please indicate how the event was promoted.

- ☐ City of Redmond website
- ☐ Other website
- ☐ Radio
- ☐ TV
- ☐ Blogs
- ☐ Brochures
- ☐ Posters
- ☐ Mailers
- ☐ Flyers and brochures
- ☐ Banners or flags
- ☐ Digital Marketing
- ☐ In-person (either personally or through another organization)

How would you rate available promotional materials and resources?

- ☐ Excellent

- ☐ Satisfactory
- ☐ Adequate/Neutral
- ☐ Poor
- ☐ Didn't use

Are there any promotional resources you would like to see added?

Media Coverage

Did you gain any media coverage for the event? Yes/No
(Please attach clippings if possible)

If so, where?
(Please check all that apply)

- ☐ Newspaper
- ☐ Radio
- ☐ TV
- ☐ Magazines/Journal
- ☐ Blogs
- ☐ Other (please specify)

Funding and Organization

Did you receive any external funding or sponsorships? Yes/No

If yes, from whom: _____
_____

Total event cost: _____
_____

Total available budget: _____
_____

Any other comments?

Thank you for taking the time to fill out this evaluation. Your feedback will be useful when planning or evaluating future Bike, Walk, and Roll events.

Section 6. Safe Routes to School Program Implementation

A Safe Routes to School program would help to increase the City of Redmond's bicycle awareness among elementary age children. The program would focus on elementary age students to encourage and educate them on all the benefits of biking. The specific goals that we wish to achieve are:

- Promote a healthy lifestyle through biking to school.
- Educate children ages 7-10 how to safely navigate the local roads on a bike.
- Reduce overall traffic on the neighborhood roads during peak hours.
- Make biking more accessible to low-income families.

The objectives that we wish to achieve are:

- A visible increase in the amount of children age 7-10 riding their bike to school.
- Visible decrease in the amount of traffic on neighborhood streets.
- Increase in overall bike friendliness community wide.

If we see these effects after three months of running the program then it will be considered a great success because as of now the majority of students do not ride their bikes to elementary school, even though most of the schools are located relatively close to residential neighborhoods. This project is important to Redmond because it is an attempt to rebrand the City as the premier bike-friendly community in Central Oregon and get people to "Bike, Walk and Roll Redmond." This is a City looking towards the future and its essential to expand its transportation options. The best way to do this is by promoting biking throughout the schools.

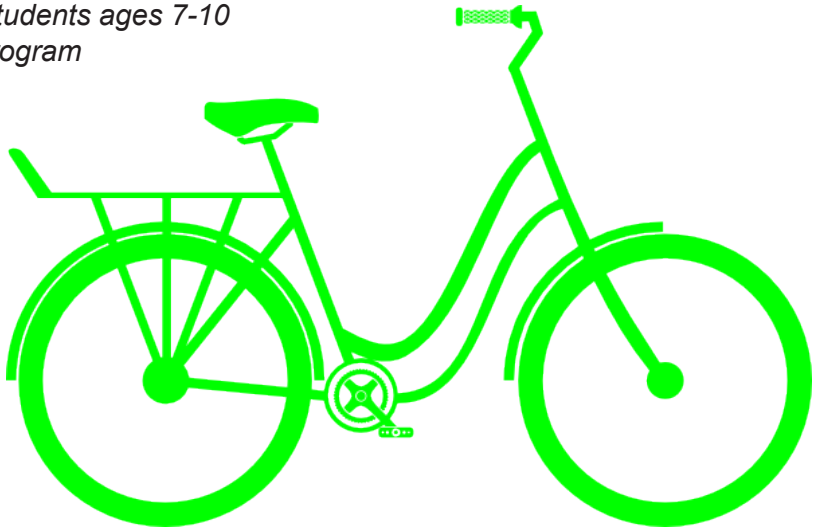
Keys to Marketing Safe Routes to School in Redmond

Isolating the Target Audience

One of the most important aspects of creating a successful marketing campaign is knowing your target audience. In this case, the City of Redmond's goal is to promote a Safe Ride to School (STRS) program for elementary school student's ages 7-10. In order to get the word out about this program, Redmond must inform the students and especially their parents. Students created an informational brochure that schools will be able to hand out to students and parents who are interested in their child biking to school. Sending e-mail newsletters can also broaden the outreach of information for biking to school. It is imperative that parents are involved in the creation and promotion of SRTS projects, as they are the group that is most concerned with making biking to school safer.

Key Points:

- *Target elementary school students ages 7-10*
- *Inform students of SRTS program*
- *Get Parents Involved*



Gaining Support

First off, the City of Redmond must get support from local school districts and school staff and representatives in order to get an SRTS program from an idea to reality. Once schools get the project off the ground, they can then promote it to students and parents by sending kids home with informational fliers and brochures, sending out newsletters, advertising in local newspapers, e-mailing parents within school districts and creating a website that provides clear and concise information about the program. It is also important to communicate how to get involved with the program to those that are interested. PTA meetings and discussions held with the city council are great ways to get ideas flowing and people interested.

An excellent way to get the backing from an entire community is by gaining support from bike and pedestrian advisory committees and activists, neighborhood associations, non-profit organizations and anyone interested in stimulating the up and coming bike culture in Redmond. The more support a SRTS program gains from various organizations, the more likely it is to get funding and support from public workers and planners, members of the local traffic safety committee, the chamber of commerce and the Oregon Department of Transportation.

With so many benefits resulting from programs like Safe Routes to School, funding can come from organizations that work to resolve issues that are improved by these projects. As an increase of students biking to school improves health and well being, while also reducing pollution, the amount of vehicles on streets and traffic congestion, SRTS programs can look to Environmental and Air Quality organizations, as well as Traffic and Congestion Mitigation groups and Health organizations for funding.

Key Points:

- *Gain support from local school districts and organizations*
- *Promote program to students and parents*
- *Encourage community involvement*
- *Use community support to increase funding*

Community Involvement

It is vital that a SRTS program creates fun and interactive activities for the community if it plans to be a widespread success. Kidical Mass is bike advocacy program that has seen great success. Started in Eugene, Oregon, this program has spread across the country and has received so much positive feedback from each community that it would be a fantastic idea to organize a Kidical Mass in Redmond. Each community figures out the type of ride, routes, locations, and events that work best for their area families with the goal of creating a fun and informational way to spread safe bicycle transportation.

Other events that can be beneficial in spreading the use of bicycles for children can be bike to school days, bike rodeos, nature rides, bike gear giveaways and other activities to provide incentive and get children interested in riding their bike. These are simple and inexpensive ways to get the community involved with bicycle culture. The more bicycle events a city creates, the more the public knows about the benefits of alternative methods of transportation and the more interested they will be to get involved in making it safer for everyone. Events are a great way to get local media sources to promote the programs and inform the public about what is going on. Contacting local news stations and newspapers will create free exposure and perhaps get local businesses to sponsor events.

Key Points:

- *Create events to encourage and incentivize bike use*
- *Promote events to community*
- *Establish a Kidical Mass program*
- *Use local media outlets to get the word out*

Examples of Successful Safe Routes to School programs

Cleveland, Ohio

The neighborhoods of East Cleveland have been identified as some of the most dangerous communities in Ohio for pedestrians and bicyclists, especially for children. Residents recognized this issue and in 2013, a request for construction of a sidewalk near an elementary school led to citywide involvement for the safety of people using alternative modes of transportation. The proposed infrastructure improvements included new sidewalks and the installation of warning signs, signals and bike racks. Non-infrastructure improvements were made as well, including education about traffic and bicycle safety, advocating for helmet usage, bike advocacy events, a student safety patrol and the development of a district-wide Safe Routes to School "school travel plan" (STP) for all 70 kindergarten through 8th grade schools in the Cleveland Metropolitan School District. An example of how Cleveland got students and residents involved in the project is how local organizations joined together to help students stencil their names and footprints with paint inside newly created crosswalks in the area. Not only are the decorated crosswalks visually appealing, but they also increase the students' feelings of involvement in the project and draws drivers' attention to the need to watch for young pedestrians. In conjunction with crosswalk and sign improvements, another project has been initiated to install and upgrade crosswalk signals and pushbuttons citywide. The estimated cost of the SRTS program was a feasible $200,000.

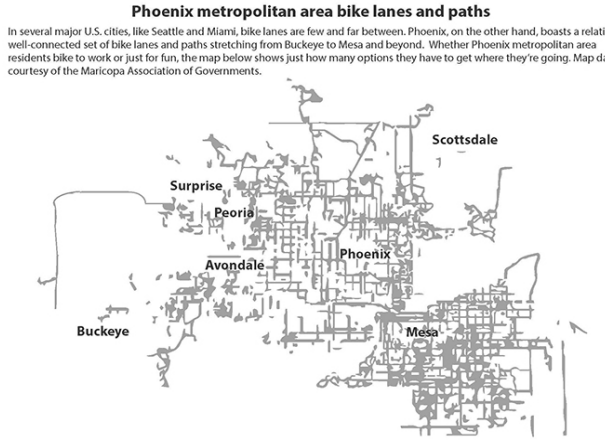
Marin County, California

The Safe Routes to School program in Marin County became a huge success because of the many different opportunities for participation for students and their families. Schools participate in walking school buses and bicycle trains, International Walk to School Day, Walk or Wheelin' Wednesdays, Frequent Rider Miles Contests and Ride 'n' Seek, where families hunt for treasure as they explore neighborhood bicycle trails. The City promotes these activities through fliers, posters, newsletters, articles in local papers, an e-mail distribution list and a website. These marketing techniques proved to be successful as the Marin County SRTS program found increases in the number of children walking, bicycling, and carpooling to and from school, and a reduction in the number of children arriving by private motor vehicle carrying only one student.

Elmhurst, Illinois

In an effort to encourage more students to walk and bike to school, Lincoln Elementary School in Elmhurst, Illinois provided the children with Frequent Walker-Bicyclist cards. When a student walks or bikes to school, they get their cards hole punched and receive prizes when a card is filled. The key aspect of this program is that it provides incentive for students to want to ride their bike to school rather than have their parents drive them. The school analyzed whether or not this idea was providing positive results and found that participation was between 90-95 percent in warmer months and 80-90 during colder months. This simple and easy to install project is an excellent example of a successful walking-biking to school marketing campaign.

Phoenix, Arizona



Parents and school officials in Phoenix were aware of the dangers associated to biking to school in their city and collaborated to create Safest Routes to School maps. These maps show parents and students the recommended safest routes and crossing locations for walking and biking to school. The maps allow parents to feel more comfortable letting their children walk or bike to school and also help city officials identify areas that need improvements to infrastructure like sidewalks and crosswalks. These maps encourage the use of alternative methods of transportation to school and are successful because they allow for parental involvement. Getting parents engaged and aware of these projects is an important step in spreading the word about SRTS programs and marketing the projects to organizations to increase funding. In 2012, the Arizona Department of Transportation approved more than $4.5 million in grant funding for bike infrastructure and 27 Safe Routes to School projects in schools and communities statewide.

Section 7. Final Recommendations/Summary

Some of the recommendations in this report can be implemented immediately, while others may need more time to identify funding and leadership sources. Outlined below are which goals are immediate, near-term, and long-term goals. Immediate recommendations are ones that can be carried out within the next one to two months. Near-term recommendations can be achieved within the next six months. Long-term recommended strategies may take up to a year or more before they are finally realized.

Immediate Recommended Strategies

Redmond should host a workshop to discover individuals and parties that are interested and willing to form a coalition or advocacy group. This group will both act as a voice for better bicycle infrastructure in Redmond, as well as assist in carrying out and promoting programs and events.

Near-term Recommended Strategies

Redmond should create an events calendar specifically geared toward building public awareness and support for active transportation. A minimum of three events should take place this summer with the goal to plan a premier “Open Streets” event in the late Summer or early Fall.

Long-Term Recommended Strategies

Redmond needs a Bike and Pedestrian Coordinator position to pursue the funding and grants necessary to implement marketing strategies and infrastructure needs. They will also develop and manage events to best suit community needs.

Conclusion

Redmond has long been an innovative community with a rich cultural history. The City's geographic location provided its founders and generations of residents with an abundance of opportunities to build businesses, industries, and livelihood. To this day, the residents of Redmond have shown a strong commitment to sustainability and response to social, environmental, and economic challenges.

Today, Redmond is growing at an unprecedented rate. With a population that has doubled in the past decade, the community has raced to improve existing infrastructure and build new infrastructure, while still maintaining the character of Redmond's small, intimate neighborhoods.

Student teams used Redmond's Bicycle Master Plan and Comprehensive plan to address opportunities and constraints for developing a family-friendly bicycle network. The plans focused specifically on major auto-centric corridors, marketing and advocacy, and trips to and from school. Corridor and site-specific plans were designed to fit cohesively into a larger bicycle network. The concepts built upon existing assets and strengths, leveraging community resources to enhance key corridors and connectors. The student teams collaborated with city staff, elected officials, community advisory bodies, business-owners, and faculty at the University of Oregon to generate designs that were both creative and feasible.

The final products in this report were drawn from extensive reports created by over a dozen student teams. The information presented in this report sought to emphasize the best ideas presented by these teams and consolidate common themes interwoven throughout student work. The goal of this report serve as a tool for improving the bicycle network, bicycle connections, and accessibility of biking and walking for residents of the City of Redmond.

Appendix A: Technical Glossary and Resources

Definitions:

A

Alternative Transportation: Also known as active transportation, alternative transportation includes ride sharing, public transportation, biking, and walking. These modes offer a more affordable and sustainable solution to community alone in a vehicle.

B

Bicycle Boulevard: A type of bikeway composed of a low-speed street, which has been “optimized” for bicycle traffic. They discourage cut-through motor-vehicle traffic, but allow local motor-vehicle traffic.They are designed to give priority to bicyclists as through-going traffic. They are intended to improve bicyclist comfort and/or safety.

Bicycle-Friendly Neighborhoods: A bicycle-friendly neighborhood is one that calms traffic and provides a pedestrian and bicycle-friendly travel environment. Through vehicular traffic is discouraged in residential, school, park, and commercial areas. Development of neighborhood commercial areas should be restricted to pedestrian scale and design.

Bicycle Tourism: Bicycle tourism is a growing way of understanding an array of economic activities involving the bicycle. Any travel-related activity for the purpose of pleasure that incorporates a bicycle is considered bicycle tourism.

Bike Corral: On-street bicycle parking, usually taking the form of turning a car parking stall into parking for multiple bikes.

Bike Train: A group of children biking to school with one adult for every three to six children. It can be informal or more formalized, including a walking route and timetable.

Bikeway: A lane, route, or path that is specifically designed and/or designated for bicycle travel.

Bioswale: Landscaped elements designed to remove silt and pollution from surface runoff water. They consist of swaled drainage courses with gently sloped sides (less than six percent) and filled with vegetation, compost, and/or riprap.

Buffered Bike Lane: Conventional bicycle lanes paired with a designated buffer space separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane. This can take the form of bollards, bioswales, a paint buffer, and planters.

C

Curb Bump-Outs: Also known as a curb extension, this is a traffic calming measure and is primarily used to extend the sidewalk. It reduces the crossing distance and allows both pedestrians about to cross and approaching vehicle drivers to see each other when vehicles parked in a parking lane would otherwise block visibility.

Cycle Track: Also known as a protected bike lane, a cycle track is a portion of right-of-way contiguous with the traveled way, which has been designated by pavement markings and, if used, signs, for the exclusive use of bicyclists. Cycle tracks are typically one-way (not always), may or may not be raised above the roadway, and are separated from the motor vehicle lane by a barrier or buffer.

D

Diverter: A traffic diverter is a roadway design feature placed upon a street or roadway in order to prohibit vehicular traffic from entering into, or exiting from, or both, any street.

I

Indented Parking Bays: A parking bay located immediately adjacent to a through traffic lane, but protected from through traffic by virtue of the curb and channel (or, curb and gutter) alignment adjacent to the parking bay(s) being offset in the direction of the property boundary.

K

Kid-Friendly Bicycling Community: Safe bike routes that are physically protected and separated from vehicular traffic and include a wayfinding system that is legible for children.

M

Median Refuge Island: A median refuge island is a strip of land that separates traffic moving in opposite directions. The refuge island (which is typically 100-250 feet) would protect pedestrians and bicyclists, by giving them a safe place to stop in the middle of the road and they can watch for cars coming from only one direction of traffic at a time.

Median Refuge Lane: Protected spaces placed in the center of the street to facilitate bicycle and pedestrian crossings. Crossings of two-way streets are facilitated by allowing bicyclists and pedestrians to navigate only one direction of traffic at a time. Medians configured to protect cycle tracks can both facilitate crossings and also function as two-state turn queue boxes.

Multi-use Path: Also known as a shared-use path design. These paths include bicycle paths, rail-trails, or other facilities built for bicycle and pedestrian traffic. The path is physically separated from motor vehicle traffic and can be either within the highway right-of-way or within an independent right-of-way.

N

Neighborhood Traffic Circle: According to the Institute of Transportation Engineers, neighborhood traffic circles are raised islands placed in intersections around which traffic circulates. Motorists yield to motorists and bicyclists already in the intersection and require drivers to slow to a speed that allows them to comfortably maneuver around them.

P

Pedestrian Safety Island: Reduces the exposure time experienced by a pedestrian in the intersection. According to NACTO, “While safety islands may be used on both wide and narrow streets, they are generally applied at locations where speeds and volumes make crossings prohibitive, or where three or more lanes of traffic make pedestrians feel exposed or unsafe in the intersection.”

Protected Crosswalk: A crosswalk where all cars stop when a pedestrian crosses the road, due to the traffic lights and appropriate signage.

R

Rightsizing Streets: The reconfiguration of streets to better accommodate the range of users. This may include the addition of a sidewalk or the reducing of a lane from 12 feet to 10 feet.

S

Shared Lane: A lane of traveled way that is open to bicycle and vehicular uses

Sharrow: Also known as shared lane markings, a sharrow is a pavement-marking symbol that indicates bicycle positioning in a shared lane.

T

Traffic Calming: Physical design and other measures, including narrow roads and speed bumps, put in place on roads for the intention of slowing down or reducing motor-vehicle traffic as well as to improve safety for bicyclists and pedestrians.

W

Walking School Bus: A group of children walking to school with one or more adults. It can be informal or more formalized, including a walking route and timetable.

Wayfinding: The ways in which people orient themselves in a physical space and navigate from place to place. This usually takes place in the form of sinage

Tools

Bicycle and Pedestrian Design Guidelines: http://www.smartgrowthamerica.org/documents/cs/resources/cs-bestpractices-sacramento.pdf

Guide to Separated Bikeways (FHWA), pg. 12 of report --- See Grad Group 1 (PDF in links folder under “Separated Types)

Protected Bikeways Options, pg. 16-17 --- See Grad Group 1 (PDF in links folder under “Redmond document”)

One-way protected bikeways

- Dedicates and protects space for bicyclists in order to improve perceived comfort and safety.
- Eliminates risk and fear of collisions with over-taking vehicles.
- Reduces risk of ‘dooring’ compared to a bike lane and eliminates the risk of a doored bicyclist being run over by a motor vehicle.
- Prevents double-parking, unlike a bike lane.
- Low implementation cost by making use of existing pavement and drainage and by using parking lane as a barrier.
- More attractive for bicyclists of all levels and ages.

NACTO

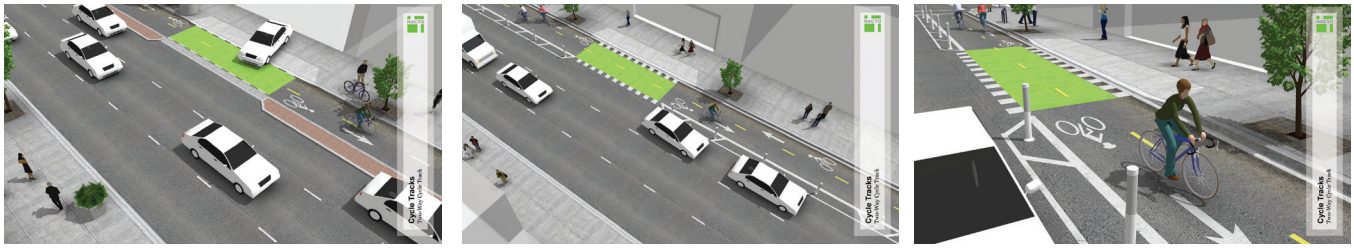
Raised Protected Bikeway Benefits

- Dedicates and protects space for bicyclists in order to improve perceived comfort and safety.
- More attractive to a wider range of bicyclists at all levels and ages than less separated facilities.
- Keeps motorists from easily entering the cycle track.
- Encourages bicyclists to ride in the bikeway rather than on the sidewalk.
- Can visually reduce the width of the street when provided adjacent to a travel lane.
- Minimizes maintenance costs due to limited motor vehicle wear.
- With new roadway construction a raised cycle track can be less expensive to construct than a wide or buffered bicycle lane.

NACTO

Two-Way Cycle Track Benefits

- Dedicates and protects space for bicyclists by improving perceived comfort and safety. Eliminates risk and fear of collisions with over-taking vehicles.
- Reduces risk of 'dooring' compared to a bike lane, and eliminates the risk of a doored bicyclist being run over by a motor vehicle.
- On one-way streets, reduces out of direction travel by providing contra-flow movement.
- Low implementation cost when making use of existing pavement and drainage and using parking lane or other barrier for protection from traffic.
- More attractive to a wide range of bicyclists at all levels and ages.



NACTO

Protected Bikeway Options

This infographic from peopleforbikes.org shows the benefits of numerous ways of creating protected bikeways.

STRIPED BUFFER

1.5 ft. additional width; $8k-$16k per lane-mile

PROTECTION LEVEL	+ +
INSTALLATION COST	$
DURABILTY	
AESTHETICS	

TURTLE BUMPS

1.5 ft. additional width; $15k-$30k per lane-mile

PROTECTION LEVEL	+ + + +
INSTALLATION COST	$ $
DURABILTY	
AESTHETICS	

DELINEATOR POSTS

1.5 ft. additional width; $15k-$30k per lane-mile

PROTECTION LEVEL	+ + + +
INSTALLATION COST	$ $
DURABILTY	
AESTHETICS	

LARGE BUMPS

1.5 ft. additional width; $15k-$30k per lane-mile

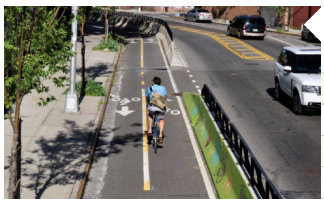
PROTECTION LEVEL	+ + + + +
INSTALLATION COST	$ $
DURABILTY	
AESTHETICS	

Protected Bikeway Options Continued

LINEAR BARRIERS

6 in. additional width; $25k-$75k per lane-mile

PROTECTION LEVEL	+ + + + +
INSTALLATION COST	$ $ $ $ $
DURABILTY	
AESTHETICS	



JERSEY BARRIERS

2 ft. additional width; $80k-$160k per lane-mile

PROTECTION LEVEL	+ + + + +
INSTALLATION COST	$ $ $ $ $
DURABILTY	
AESTHETICS	

OBLONG LOW BUMPS

1.5 ft. additional width; $10k-$20k per lane-mile

PROTECTION LEVEL	+ + + + +
INSTALLATION COST	$ $ $ $ $
DURABILTY	
AESTHETICS	

PARKING STOPS

6 in. additional width; $20k-$40k per lane-mile

PROTECTION LEVEL	+ + + + +
INSTALLATION COST	$ $ $ $ $
DURABILTY	
AESTHETICS	

PARKED CARS

11 ft. for parking + buffer; $8k-$16k per lane-mile

PROTECTION LEVEL	+ + + + +
INSTALLATION COST	$ $ $ $ $
DURABILTY	
AESTHETICS	

PLANTERS

3 ft. additional width; $80k-$400k per lane-mile

PROTECTION LEVEL	+ + + + +
INSTALLATION COST	$ $ $ $ $
DURABILTY	
AESTHETICS	

RIGID BOLLARDS

2 ft. additional width; $100k-$200k per lane-mile

PROTECTION LEVEL	+ + + + +
INSTALLATION COST	$ $ $ $ $
DURABILTY	
AESTHETICS	

12” PRECAST CURB

1.5 ft. additional width; $400k-$600k per lane-mile

PROTECTION LEVEL	+ + + + +
INSTALLATION COST	$ $ $ $ $
DURABILTY	
AESTHETICS	

CAST IN PLACE CURB

12 in. additional width; $25k-$80k per lane-mile

PROTECTION LEVEL	+ + + + +
INSTALLATION COST	$ $ $ $ $
DURABILTY	
AESTHETICS	

RAISED BIKEWAY

No additional width; $8m-$26m per lane-mile

PROTECTION LEVEL	+ + + + +
INSTALLATION COST	$ $ $ $ $
DURABILTY	
AESTHETICS	

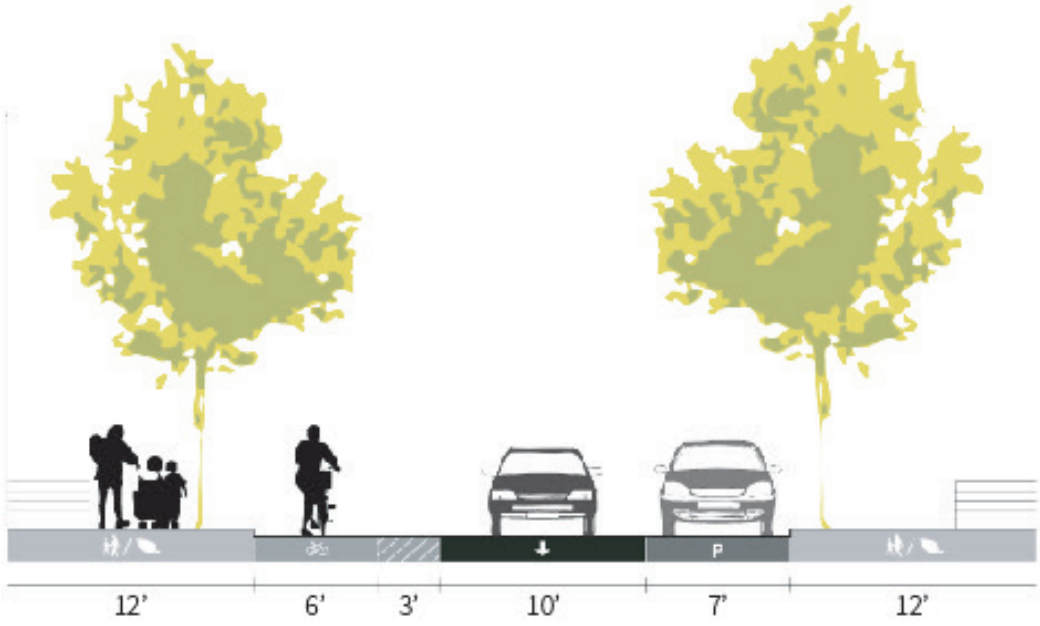
Complete Streets and Rethinking Streets

The existing street design in Redmond encourages automobile use for every outing, and the lack of infrastructure for pedestrians and bicyclists discourages alternative, healthier modes of transportation. To encourage all modes of transportation, complete streets should be a priority in redesigning Redmond's roadways.

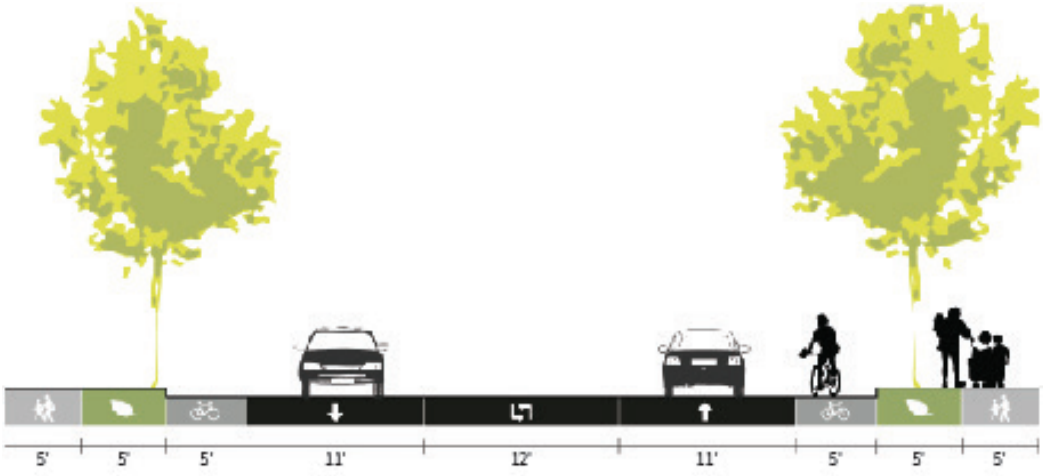
A complete street is, "a transportation policy and design approach that requires streets to be planned, designed, operated, and maintained to enable safe, convenient and comfortable travel and access for users of all ages and abilities regardless of their mode of transportation. Complete Streets allow for safe travel by those walking, bicycling, driving automobiles, riding public transportation, or delivering goods."

*Photo Courtesy of "*Rethinking Streets" *by Marc Schlossberg*

The image above is an example of how a complete street looks and functions. Walking or rolling pedestrians, bicyclists, and motorized vehicles all have the opportunity and appropriate infrastructure to travel safely and efficiently. Using the complete streets policy when observing current infrastructure of Redmond streets is suggested. For example, how will a child walk on this road? How will a child ride their bike safely? How will a driver travel efficiently? What modes of transportation are not included? The following page has more examples of how a complete street can be designed.



*Graphic Courtesy of "*Rethinking Streets*" by Marc Schlossberg*



*Graphic Courtesy of "*Rethinking Streets*" by Marc Schlossberg*

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