

Washington State University Bicycle and Pedestrian Plan

Working Paper #6: Recommended Improvement Strategies

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FROM: Alta Planning + Design

DATE: June 17, 2013



I. Introduction

Based on the needs analysis and stakeholder/public input received from previous tasks, a series of strategies were developed utilizing the “5 Es” approach (Engineering, Education, Encouragement, Enforcement and Evaluation) that WSU, the City of Pullman and regional partners can implement to meet the goals of this study.

Engineering

Based on the study objectives, key findings from the first five tasks, campus community and stakeholder input, and direction received from WSU, a recommended network of bicycle and pedestrian facilities for the WSU campus and surrounding area was developed.

Education

Educational strategies are extremely effective in improving the walking and cycling environment while promoting non-motorized transportation. Utilizing several innovative educational approaches, WSU has the potential to build on its solid foundation of supporting multi-modal transportation and to become a model walking and bicycling campus. This section identifies strategic opportunities for providing

education and educational materials to the campus community.

Encouragement

If you build a facility, people will use it; however, if you build the facility and tell people about it, they will embrace it. This section identifies encouragement strategies for WSU and other partners to promote walking and bicycling as viable transportation options. The recommendations are based both on findings of previous tasks plus experience gained in communities around the region and the United States.

Enforcement

This section identifies enforcement strategies that have proven effective at creating greater compliance to the “rules of the road,” and also foster greater mutual respect toward sharing the road among all transportation users.

Evaluation

Evaluation strategies were developed and designed to assist WSU staff in measuring the success of this Plan over time. There are two distinctly separate yet related items identified as baseline and benchmarking tools – system usage and system expansion. The baselines will be established during the

planning process to allow WSU staff to track usage and expansion over time.

II. Recommendations

Engineering

Section Overview

The purpose of this chapter is to identify recommended projects that will ultimately make it easier to walk or bike to and on campus.

In completing the needs analysis and reviewing the input from the stakeholder and public, it became logical to think of projects in a geographic sense (where the recommended project is located) rather than a mode sense (a bicycle or pedestrian project).

The recommendations, therefore, are organized in the following categories:

- Fix What You Have
- Connections
- Circulation

The categories are defined further on page 3.

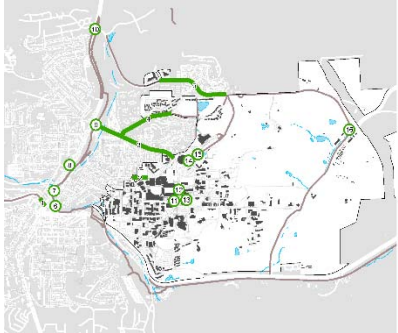
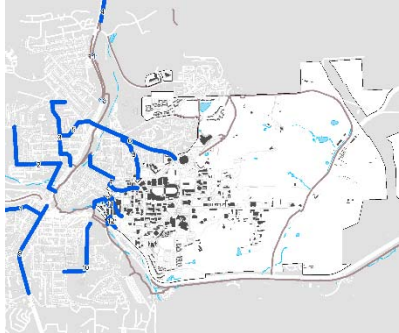
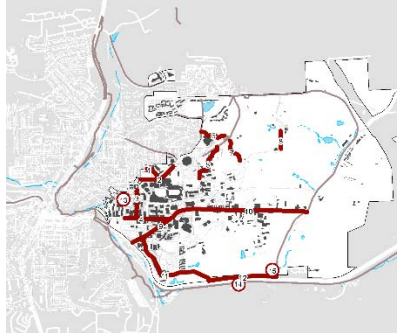
Project Totals

Overall, there are 43 projects recommended for implementation in this plan. Projects are either bicycle, pedestrian, or trail projects; and may be either corridor improvements or spot improvements.

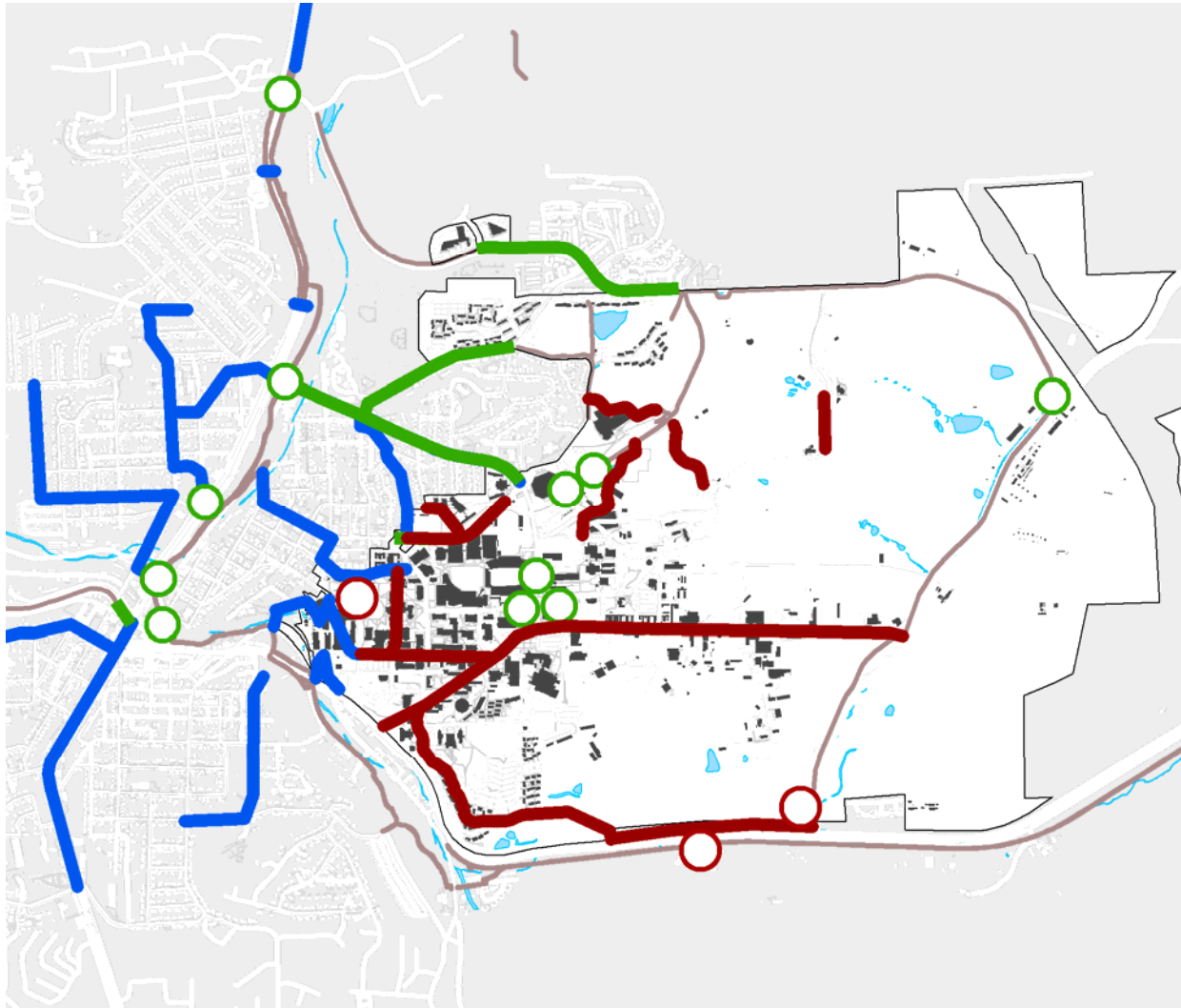
Table 1. Recommended WSU Bicycle and Pedestrian Projects (by category)

# of Projects	Total Length (mi.)
Fix What You Have	
16	1.9
Connections	
12	6.3
Circulation	
15	3.8
Totals	
43	12

Recommendations Framework (The Three Categories)

<p>Fix What You Have</p> 	<p>Connections</p> 	<p>Circulation</p> 
<p>These are the highest priority projects identified. The focus is on improving the existing system while adding to the system as funding allows. Project types include both on-campus and off-campus projects.</p> <p>Project types that fall into this category include:</p> <ul style="list-style-type: none"> • Gap closures • Crossing improvements • Wayfinding / signage • Maintenance / repaving needs 	<p>These projects are intended to improve connectivity to the city center and the WSU campus.</p> <p>Project types that fall into this category include:</p> <ul style="list-style-type: none"> • New neighborhood greenways • New trails • Extensions of existing paths • New roadway cross-sections to accommodate bicyclists and/or pedestrians 	<p>These projects are intended to improve circulation within the campus, and include both long- and short-term priorities. Many of the long-term recommendations are designed to respond to the planned Campus Master Plan recommendations. Project types that fall into this category include:</p> <ul style="list-style-type: none"> • Priority bicycle route/campus greenway improvements (sharrows, signage, wayfinding) • New campus trails • Major capital projects (Stadium Way/Grimes Way realignment) • Long-term campus planning efforts (Campus Master Plan, proposed Multimodal Transit Center) • Pedestrian Mall design/re-design recommendations

Overall Project Map



Green = Fix what you have

Blue = Connections to Campus

Red = Circulation Within Campus

Figure 1: Overall Project Map

Fix What You Have: Strengthening Existing Assets

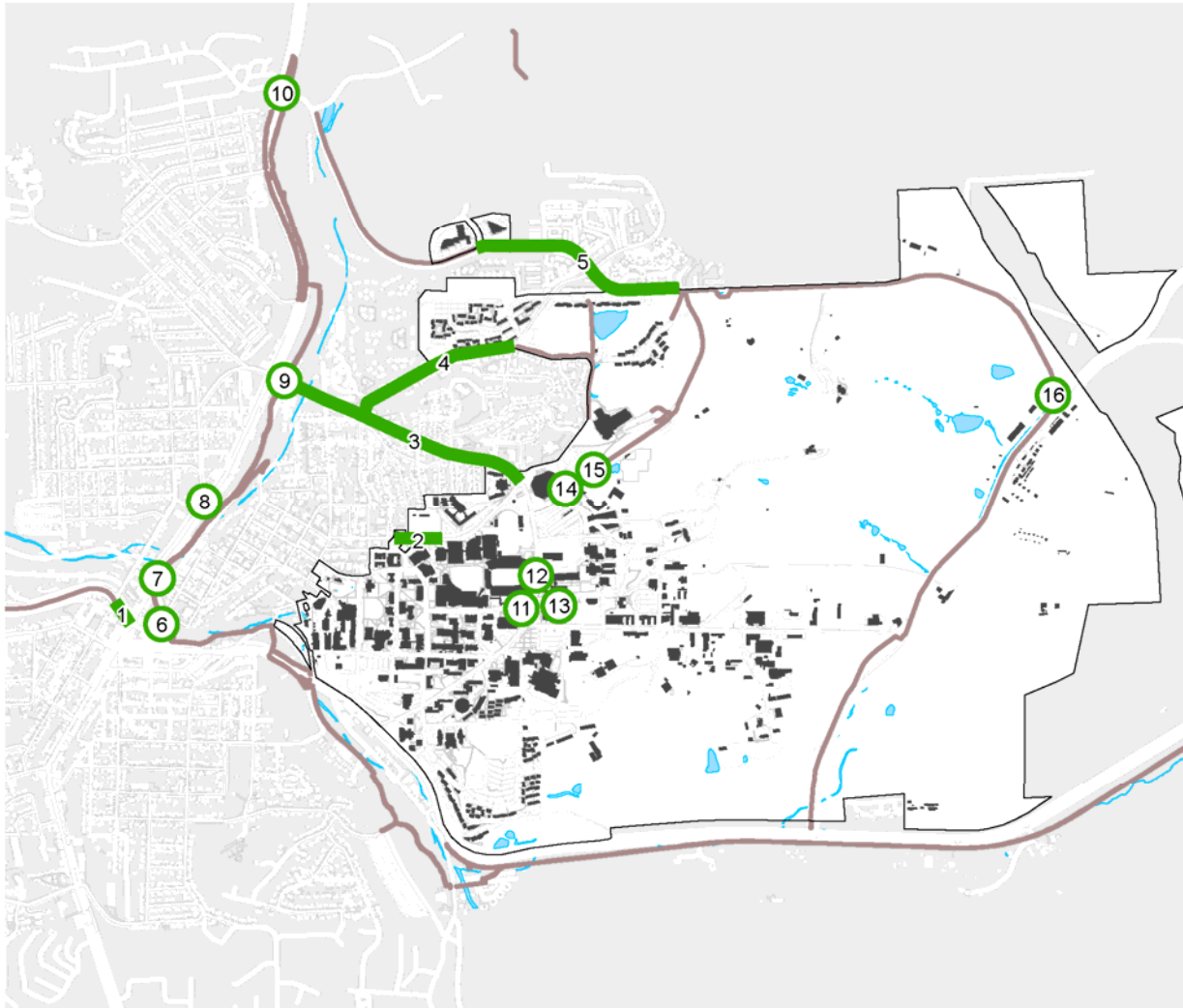


Figure 1: Fix What You Have Overview Map

Fix What You Have

#	Project	Length (ft)
1	NW Davis Way Trail gap (NW State St to Grand)	370
2	Add shared lane markings (Campus, City - where appropriate)	650
3	Stadium Way (Grand to Colorado) (short-term improvements)	3,700
4	Uphill buffered bike lane, downhill shared lane markings	2,400
5	Completion of Terre View Trail	3,000
6	Trail / roadway crossing @ Kamiakan	
7	Trail / roadway crossing @ Whitman	
8	Trail / roadway crossing @ Ritchie Street	
9	Trail / roadway crossing @ Stadium Way	
10	Trail / roadway crossing @ Terre View	
11	Automate pedestrian signals (Campus, City)	
12	Update flashing crosswalk lights to LED (Campus)	
13	Add countdown signal heads to pedestrian signals (Campus, City)	
14	Additional / Improved Bike Parking (Campus-wide)	
15	NE North Fairway Road trail to sidewalk transition	
16	Curb cut infill/retrofit (Campus-wide)	

Fix What You Have #1: NW Davis Way Trail Gap

Existing Conditions

A 10-foot wide sidepath exists on the south side of NW Davis Way from NW Golden Hills Drive to NW State Street. At that point (~370' from the intersection), the sidepath becomes a 5'-wide sidewalk, continuing to the intersection at N Grand Avenue.



This transition from 10'-wide sidepath to 5'-wide sidewalk is difficult for bicyclists as it (a) does not allow for 2-way bicycle travel and (b) makes it difficult for southbound bicyclists to approach the intersection safely.

Recommended Improvements

A Maintaining the existing curb line (preserving existing on-street parking), widen the 5'-wide sidewalk to 10'-wide to match the width of the existing sidepath.

B Widening the sidewalk to 10'-wide will require grading and the installation of a retaining wall for a portion of the new trail length.

C Add wayfinding signage at the intersection of NW Davis Way/N Grand Avenue/NE Olsen Street.

Add wayfinding signage at the intersection of NE Olsen Street and NE Kamiakan Street to direct non-motorized users to the Bill Chipman Trail.

D Add shared lane markings (sharrows) to NE Olsen Street in both directions.

Fix What You Have #1: NW Davis Way Trail Gap



Fix What You Have #3: Stadium Way (Grand to Colorado- short-term)

Existing Conditions

The extent of this project is shown in green below.



Stadium Way is a busy thoroughfare and connector to campus for all travel modes. In this segment, Stadium Way has 4 travel lanes (2 in each direction), with left turn pockets at the major intersections.

For pedestrians, a minimum 5'-wide sidewalk exists on both sides of Stadium Way (and is wider in certain sections).

Bicyclists have two options for travel along Stadium Way

Option 1 is to ride in the street, taking a lane (this means that the bicyclist rides in the middle of the lane, acting as a vehicle, so that any driver who wishes to pass would need to change lanes, rather than passing in the same lane). This is allowed by law, and a minority of bicyclists choose this option. This works best for bicyclists heading west towards Grand Avenue, as this is the downhill direction, and confident bicyclists can take the lane and maintain a speed similar to the motor vehicles.

Option 2 is to use the existing sidepath on the south side of the road. This option is intended for bicyclists headed east, in the uphill direction, as bicyclists traveling uphill will have a large speed differential with the adjacent motor vehicles.

The existing sidepath is narrow, has become broken and uneven in places, and is bordered by landscaping that has started to encroach on the usable space of the sidepath itself. Along with older style curb cuts, the sidepath can be difficult for some to use comfortably.

Recommended Improvements

- Ⓐ Remove and replace all sections of the existing path where the asphalt is in need of maintenance to create a smoother surface for bicyclists.
- Ⓑ Aggressively prune back the existing landscaping to reclaim the width that should be dedicated to the existing sidepath.
- Ⓒ Install new “full-width” curb cuts at all intersections along the sidepath to make access easier and safer for bicyclists and pedestrians.
- Ⓓ Install sharrows in the westbound outside lane to indicate to bicyclists proper lane positioning and to indicate to motorists that they can expect bicyclists to be using the lane.

Fix What You Have #3: Stadium Way (Grand to Colorado – short-term)



Fix What You Have #4: NE Valley Road (NE Stadium Way to NE Merman Drive)

Existing Conditions

The extent of this project is shown in green below.



NE Valley Road is an important connector between the apartments to the north and campus and downtown. In this segment, NE Valley Road is a two lane roadway with turn pockets at major intersections. There is a sidepath on the north side of the road beginning at NE Merman Drive.

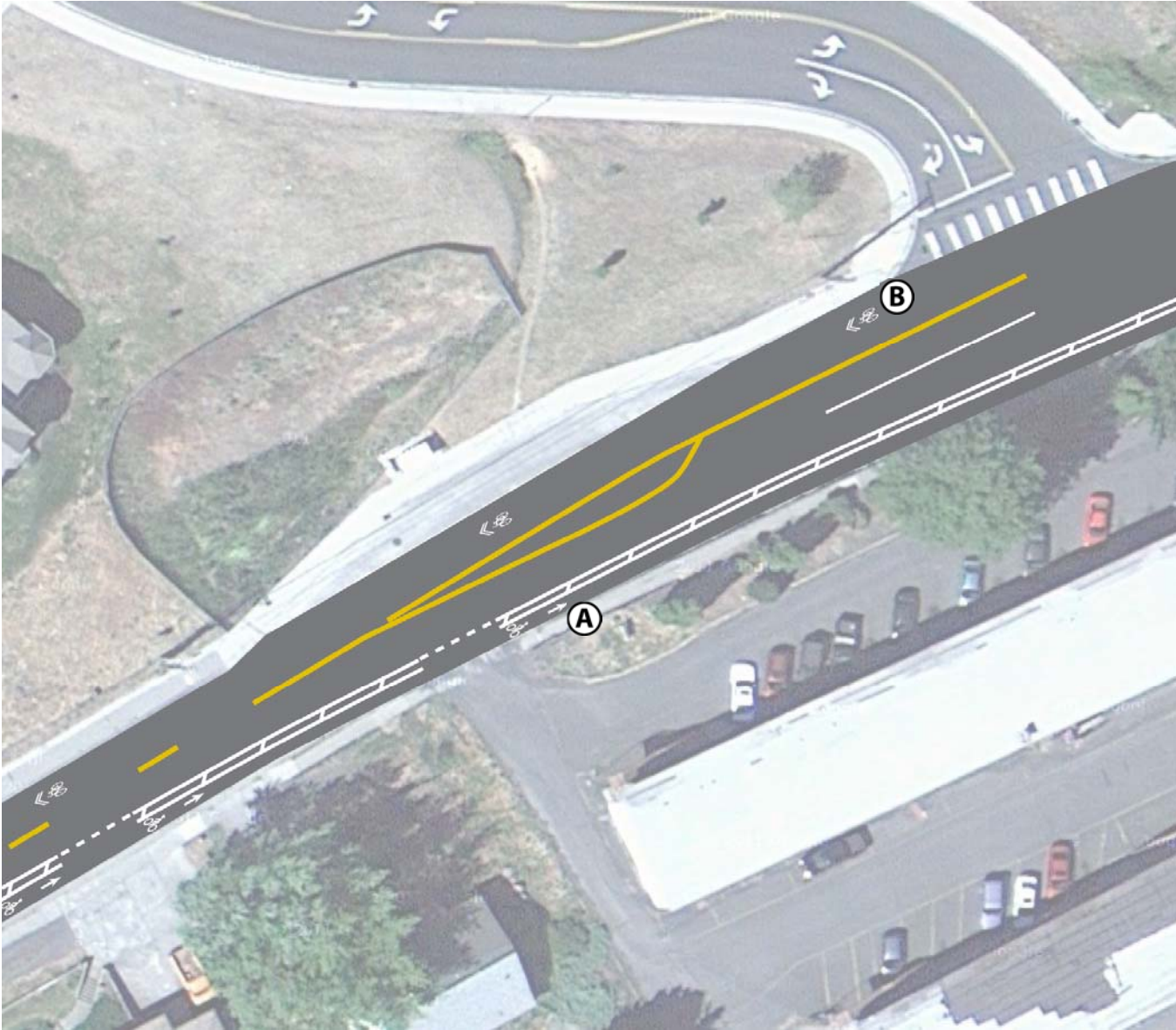
For pedestrians, a 5'-wide sidewalk exists on both sides of the road.

Bicyclists are expected to use the road in this section of NE Valley Road.

Recommended Improvements

- Ⓐ Provide a buffered bike lane (5' bike lane + 2' painted buffer) in the uphill, eastbound direction. This provides greater separation between the slower moving bicyclists and the adjacent traffic.
- Ⓑ Install sharrows in the downhill, westbound direction to indicate to bicyclists proper lane positioning and to indicate to motorists that they can expect bicyclists to be using the lane.

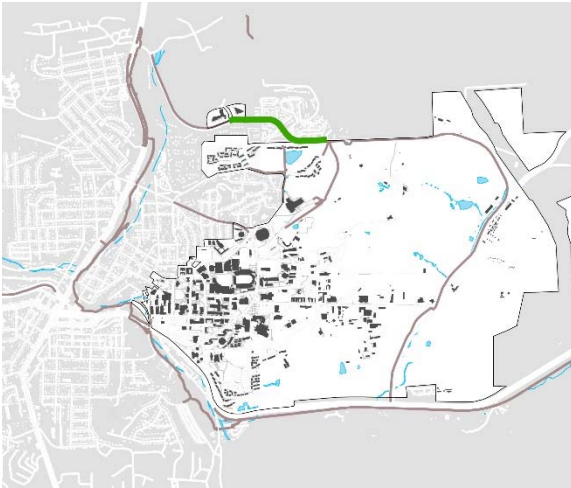
Fix What You Have #4: Valley Road (NE Stadium Way to NE Merman Drive)



Fix What You Have #5: NE Terre View Trail

Existing Conditions

The extent of this project is shown in green below.



NE Terre View Drive is an important connector between the various apartment complexes to the north and campus. In this segment, NE Terre View Drive is a two lane roadway with no turn lanes.

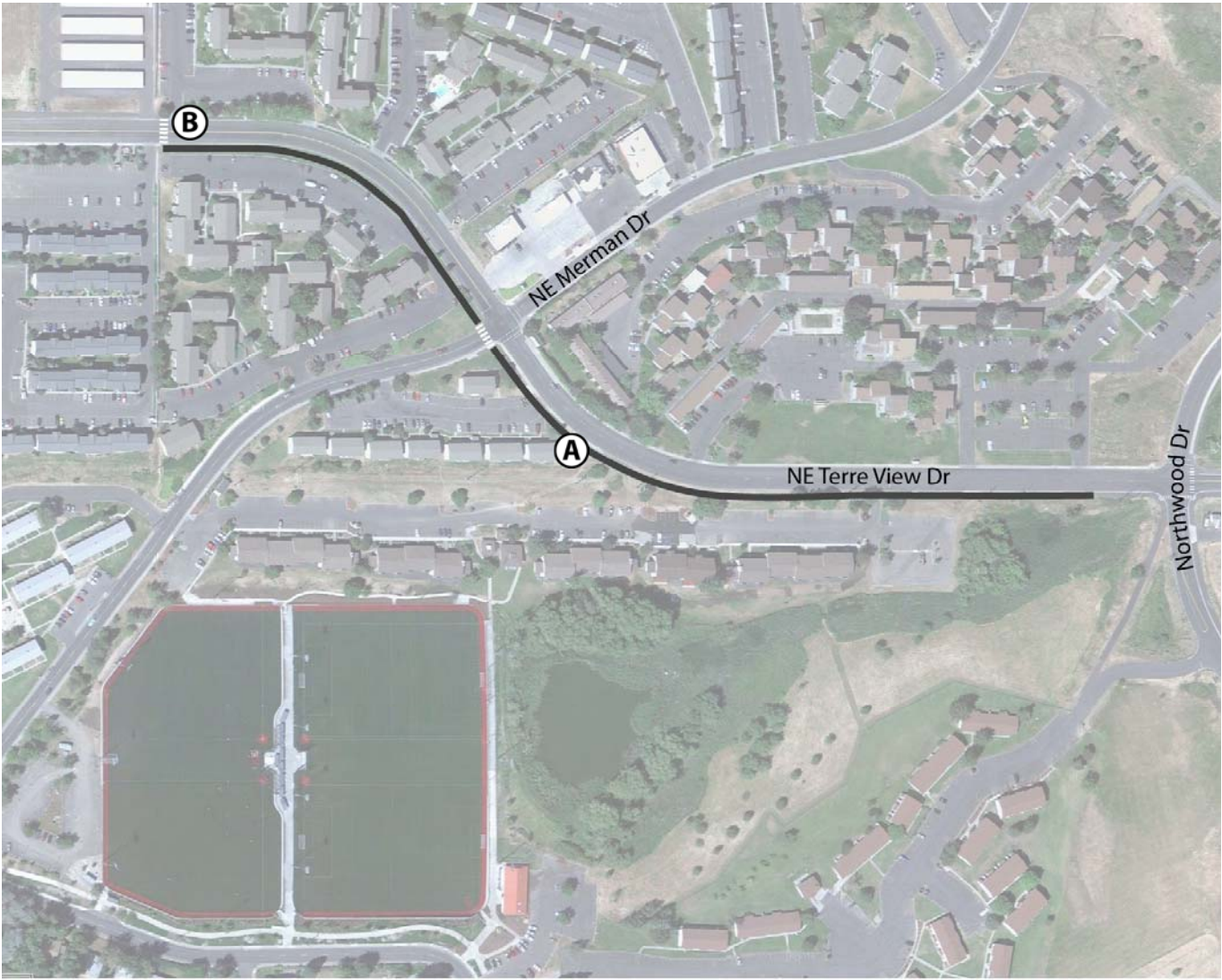
For pedestrians, a continuous 5'-wide sidewalk exists on the north side of the road, with segments of sidewalk located on the south side.

Bicyclists are expected to use the road in this section of NE Valley Road.

Recommended Improvements

- Ⓐ Construct a sidepath on the south side of the roadway from Northwood Drive to the end of the Campus Commons South apartment complex.
- Ⓑ Install a high visibility crosswalk from the new sidepath to the existing sidepath on the north side of NE Terre View Drive.

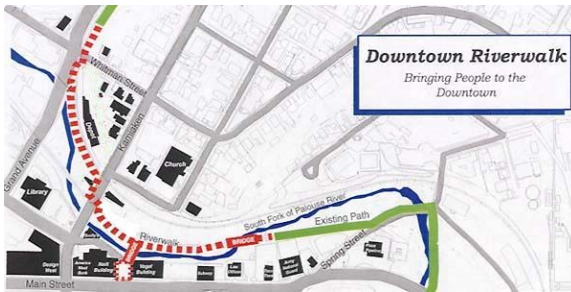
Fix What You Have #5: NE Terre View Trail



Fix What You Have #6: Trail Roadway Crossing @ Kamiakan

Existing Conditions

As the Downtown Riverwalk enters downtown from behind the Armory, it crosses Kamiakan Street and continues along the river next to the Pufferbelly Depot.

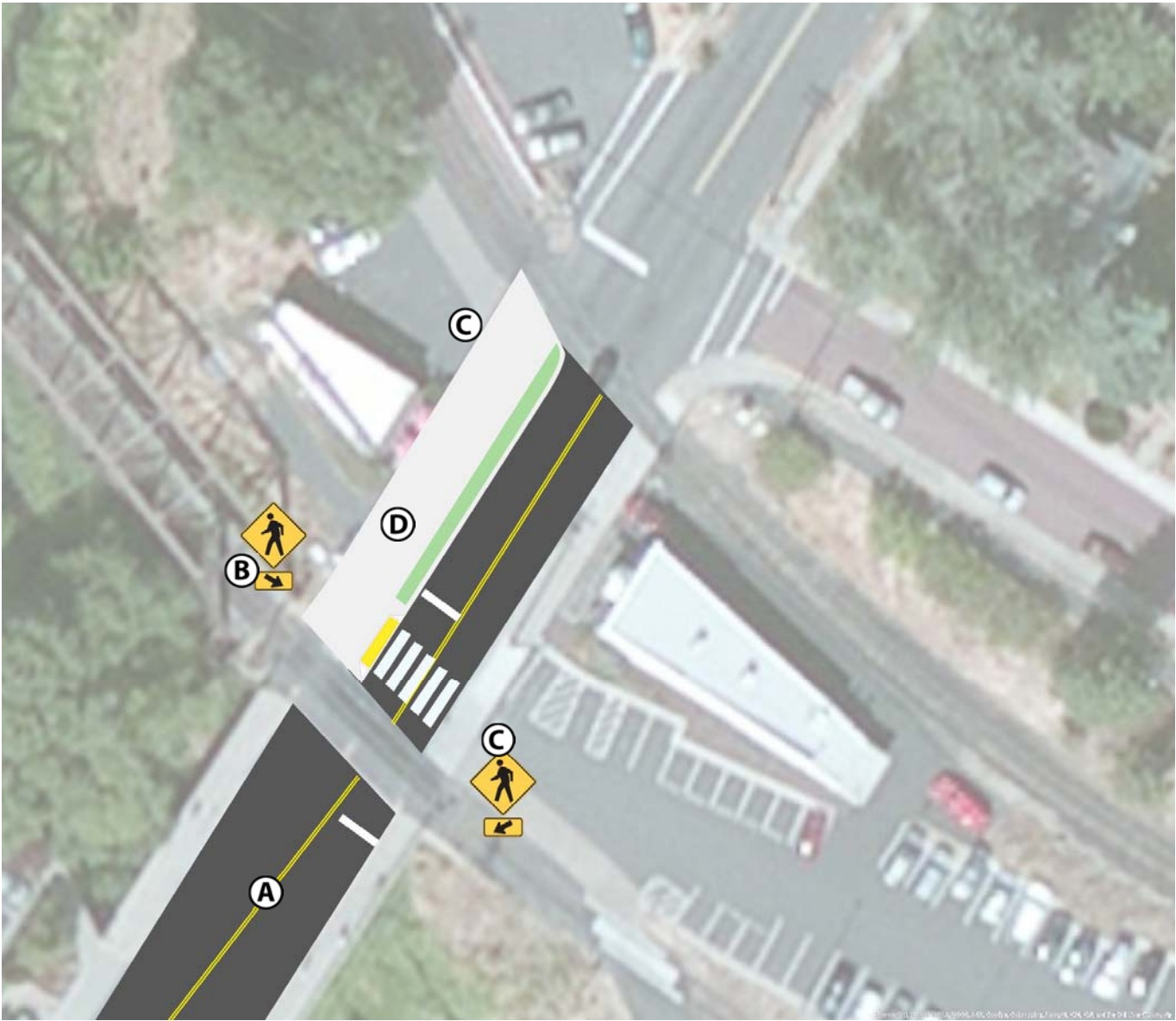


Currently, the trail is offset at the trail/roadway crossing of Kamiakan and utilizes a portion of sidewalk, making it difficult for new trail users to follow the correct route. Improving this crossing and clarifying the proper trail route will make it easier and safer for all users.

Recommended Improvements

- Ⓐ The alignment of the lanes on Kamiakan have to be shifted slightly to the east between just south of the railroad tracks to NE Palouse Street to accommodate the widened sidepath on the east side of the road.
- Ⓑ New signs are installed to clearly identify the mid-block crossing.
- Ⓒ Add new wayfinding signs to direct trail users to nearby destinations (WSU, downtown, NW Davis Way trail, etc)
- Ⓓ The sidewalk on the west side of Kamiakan (between the trail sections) is widened to a minimum of 12' to visually and functionally serve as the Downtown Riverwalk. To accommodate the widened sidepath, on-street parking will be restricted in this section of Kamiakan.

Fix What You Have #6: Trail Roadway Crossing @ Kamiakan



Fix What You Have #7: Trail Roadway Crossing @ Whitman

Existing Conditions

As the Downtown Riverwalk transitions to the Grand Avenue Greenway, trail users must cross NE Whitman Street. The trail crossing of NE Whitman is difficult for the following reasons:

- Offset trail sections. The north side section of the trail aligns with the driveway of the Pufferbelly Depot, leading many trail users to continue south through that property rather than on the trail.
- North side trail has no direct connection to signalized intersection
- The south side trail section is difficult to see from the north side trail.

Recommended Improvements

- Ⓐ Formalize the trail connection on the north side from the Grand Avenue Greenway to the intersection of Grand Avenue and Whitman Street. This will require the relocation of one power pole. For the trail, a centerline is striped to give further indication to trail users the correct route to follow.
- Ⓑ Formalize the driveway entrances on either side of Whitman Street. For the driveway entrance to the Pufferbelly Depot, this also involves moving the driveway entrance to the east slightly so that is no longer aligned with the driveway opposite it across Whitman. This should also serve as a visual reminder to trail users to follow the trail to the crossing at the intersection.
- Ⓒ Relocate the pole supporting the pedestrian push buttons and signal heads so that the pole is out of the line of travel of bicyclists and pedestrians.

Fix What You Have #7: Trail Roadway Crossing @ Whitman



Fix What You Have #8: Trail Roadway Crossing @ Ritchie

Existing Conditions

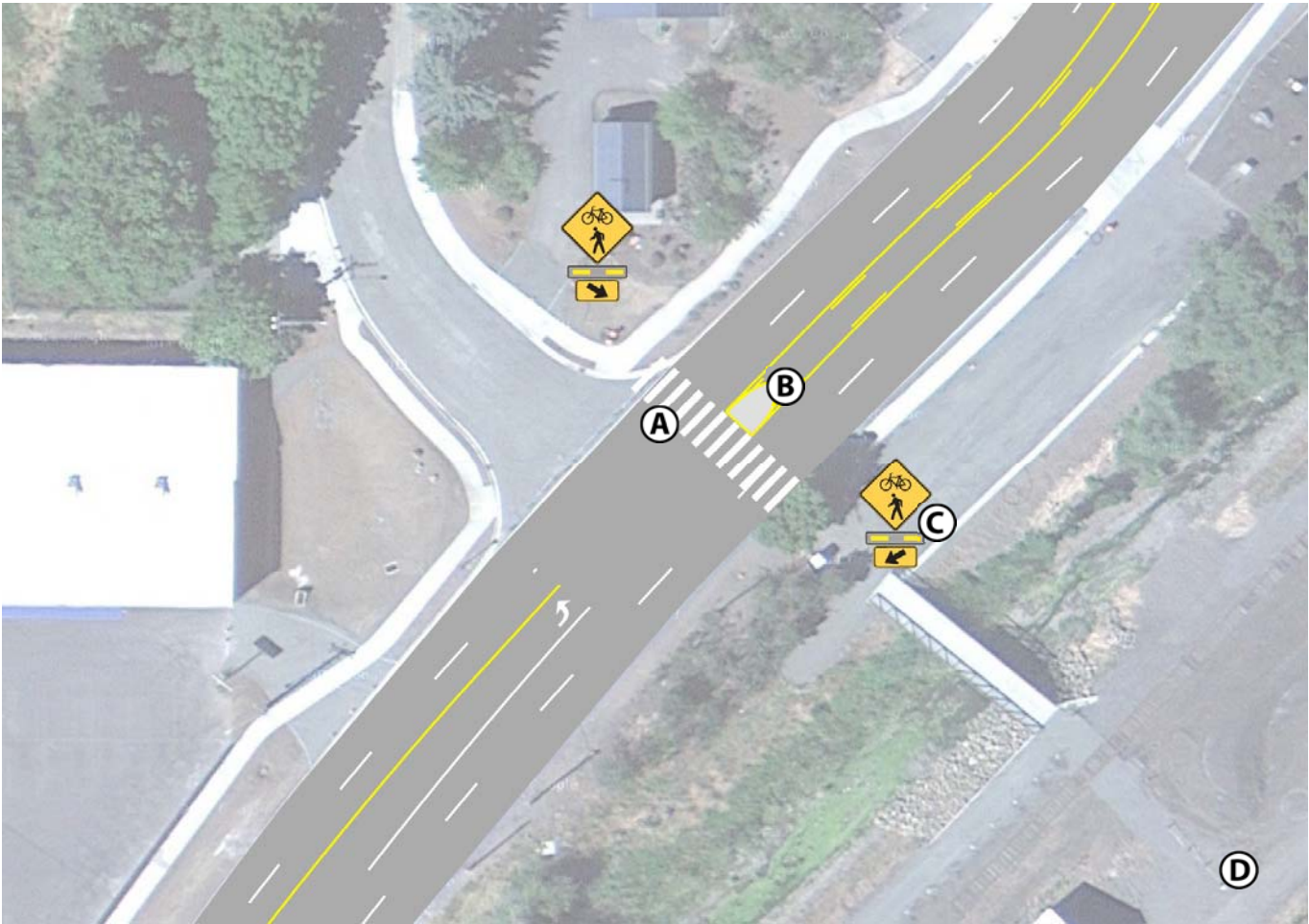
As Grand Avenue Greenway continues north parallel to Grand Avenue, a spur trail connects trail users directly to Grand Avenue opposite NW Ritchie Street. The crossing of Grand Avenue for bicyclists and pedestrians at this location is difficult for the following reasons:

- 5 lane cross-section of Grand Avenue. The length of this crossing makes it difficult for non-motorized users to cross safely.
- No marked crossing. There are no indicators to bicyclists and pedestrians where they could cross, and no indicator to motorists that people might wish to cross at this location.

Recommended Improvements

- Ⓐ Stripe a crosswalk on the east side of the Ritchie/Grand intersection.
- Ⓑ Install a small median to provide visual cues to motorists that there is a crossing at this location and to provide a more protected refuge for pedestrians while making the crossing.
- Ⓒ Install Rectangular Rapid Flashing Beacons (RRFB's) for the pedestrian crossing. This signal-type is manually activated and uses flashing LED lights to indicate to motorists that a pedestrian is waiting at the crossing.
- Ⓓ Install wayfinding signs at the main trail to indicate to trail users what destinations can be reached by using the spur trail (Ritchie Street Neighborhood Greenway, Cougar Country Drive-In, etc)

Fix What You Have #8: Trail Roadway Crossing @ Ritchie



Fix What You Have #9: Trail/Roadway Crossing @ Stadium Way

Existing Conditions

The current alignment of the Grand Avenue Greenway intersects Stadium Way ~ 150 east of the intersection at Grand Avenue. Because of the proximity to the Grand Avenue intersection, all trail users are expected to use the existing sidewalks to travel to the signalized intersection and cross Stadium Way. Traveling out of direction and along a sidewalk is less attractive to many trail users, leading to the risky behavior of crossing the 5 lanes of traffic where the Greenway trail intersects Stadium Way.

Recommended Improvements

- Ⓐ North of Stadium Way, install a new section of Greenway heading west just north of the Jack in the Box parking lot.
- Ⓑ The new section of greenway will require a prefabricated bridge to be installed over the creek.
- Ⓒ Widen the existing sidewalk on the east side of Grand to the fullest extent possible to create a new section of Greenway.
- Ⓓ Install a new section of greenway by removing one eastbound travel lane.
- Ⓔ Install wayfinding signs
- Ⓕ With the removal of a short section of the eastbound travel lane, the eastbound lane on NW Stadium Way on the approach to Grand Avenue will need to be converted to a right-turn only.

Fix What You Have #9: Trail/Roadway Crossing @ Stadium Way



Fix What You Have #10: Trail/Roadway Crossing @ Terre View

Existing Conditions

While Terre View Drive provides the most direct connection into campus from northern Pullman, the connections from the Grand Avenue Greenway to Terre View Drive are difficult for non-motorized users. Pedestrians have created demand paths from the greenway to Terre View Drive on both the south and north sides.

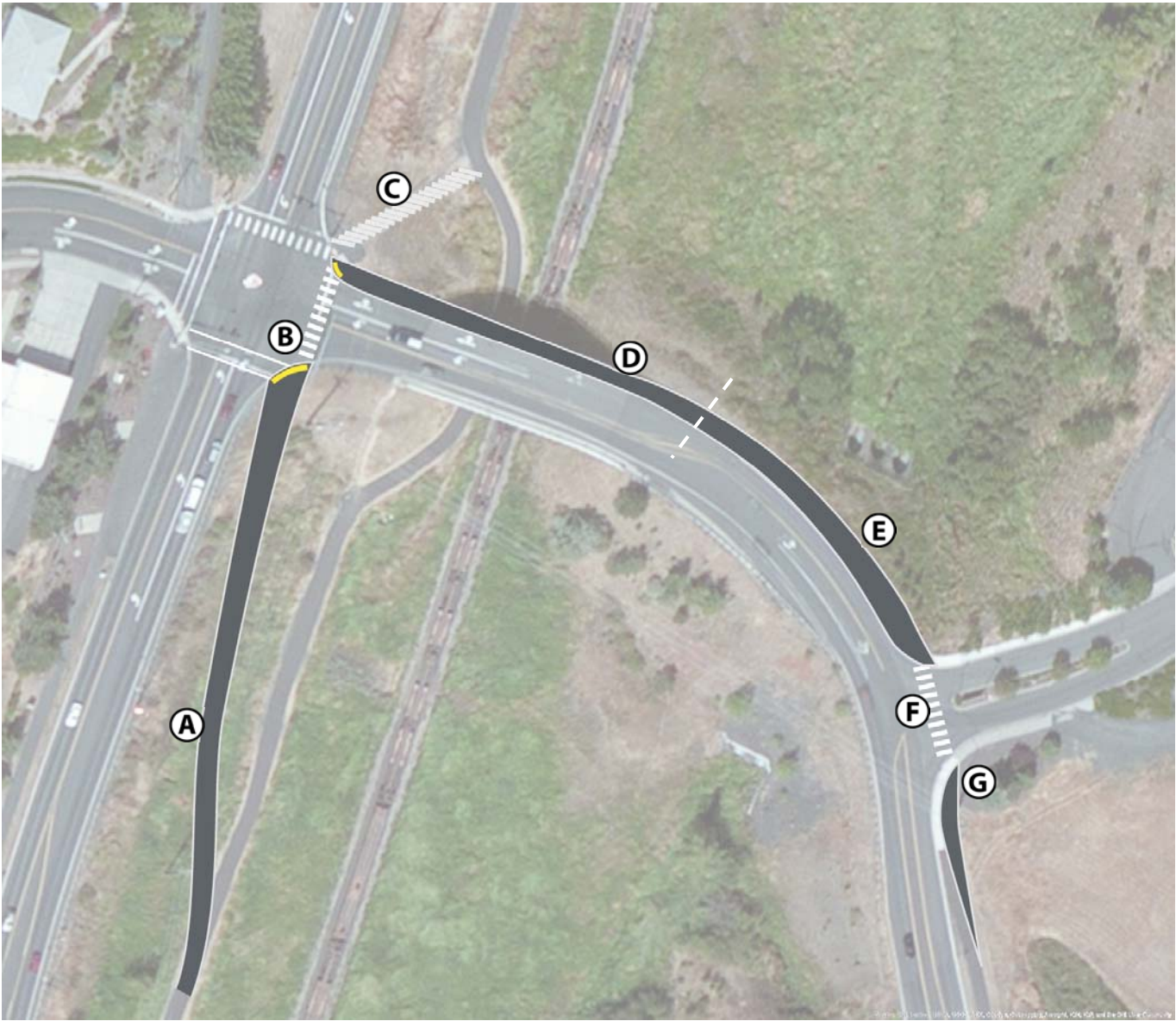
Bicyclists are expected to use the trail access on Grand Avenue that is more than 430 feet from the Grand Avenue/Terre View intersection. This places 2-way bicycle traffic into an ~ 6'-wide space defined by jersey barriers and a fence.

Recommended Improvements

- Ⓐ Add a direct trail connection from the Grand Avenue Greenway to the signalized intersection at Grand and Terre View. This trail will require a retaining wall and will need to avoid the existing power poles adjacent to Grand Avenue.
- Ⓑ Install new marked crossings on the east and south legs of the intersection.
- Ⓒ Install new stairs on the north side of Terre View Drive providing a more direct connection for pedestrians and formalizing the existing demand path.
- Ⓓ Install a sidepath on the north side of Terre View Drive by widening the sidewalk using width taken from the wide outside lane.
- Ⓔ Continue the sidepath on the north side of Terre View Drive by widening the sidewalk to the outside (away from the travel lane). This will require building the extended width section on fill and a retaining wall.
- Ⓕ Rebuild the curb cuts to maintain a straight path across the intersection, parallel to Terre View Drive. Stripe a new crosswalk.

- Ⓖ Fill in the short gap of missing trail just to the south of NE Hopkins Street. May require relocation of light pole.

Fix What You Have #10: Trail/Roadway Crossing @ Terre View



Fix What You Have #11/12/13/16: Pedestrian Safety Improvements

Background

Every time the city or WSU eliminates a barrier to making walking easier will ultimately encourage more people to walk on campus and throughout Pullman. This suite of recommendations is intended to make small but noticeable changes in the pedestrian environment.

Recommended Improvements

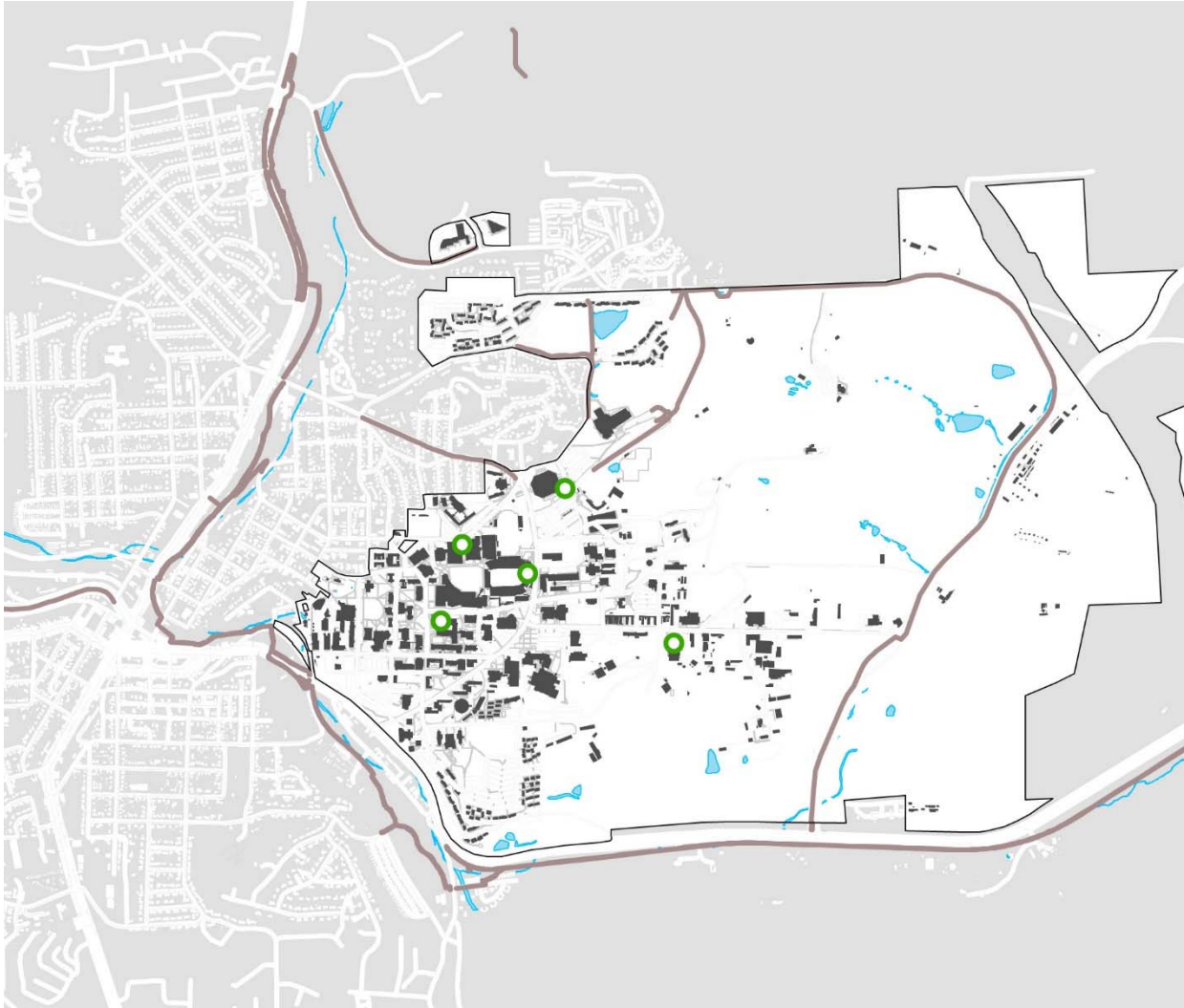
#11. Automate Pedestrian Signals (Campus + City). Almost all pedestrian signals throughout the city require an action by the pedestrian to call the WALK signal. This requires that pedestrians reach the intersection prior to the signal change to call for the WALK signal. When that doesn't happen, many pedestrians will choose to walk anyway, crossing on a DON'T WALK signal when motor vehicles may not be expecting them. Automating the WALK signal provides pedestrians the opportunity to cross when a crossing is available.

#12. The flashing lights at the crosswalks on campus work well. Replacing the existing lights with LEDs will make the flashing lights more visible to drivers, especially in low light/poor weather conditions.

#13. In addition to automating the pedestrian signals at intersections, replacing the current pedestrian signal heads with countdown signal heads (where not present) will provide additional information to pedestrians and bicyclists as they cross the street.

#16. Curb cut infill/retrofit. At some point in anyone's life, the presence of a curb cut will improve the ability to cross the street safely in a timely manner. Identified locations throughout campus where the installation of a curb cut would improve bicycle and pedestrian mobility.

Fix What You Have #14: Additional/Improved Bike Parking



Existing Conditions

Bike parking is at a premium in several locations throughout campus. Based on comments received, the following were the most desirable locations for additional bike parking.

Recommended Improvements

Add additional, high-quality bike parking to the following locations (among others):

- Student Rec Center
- Martin Stadium
- Underneath overhang at PE Building
- Central campus (Todd, Wilson-Short, Fulmer)
- Grounds Shop area

Fix What You Have #15: NE North Fairway Road Trail Transition

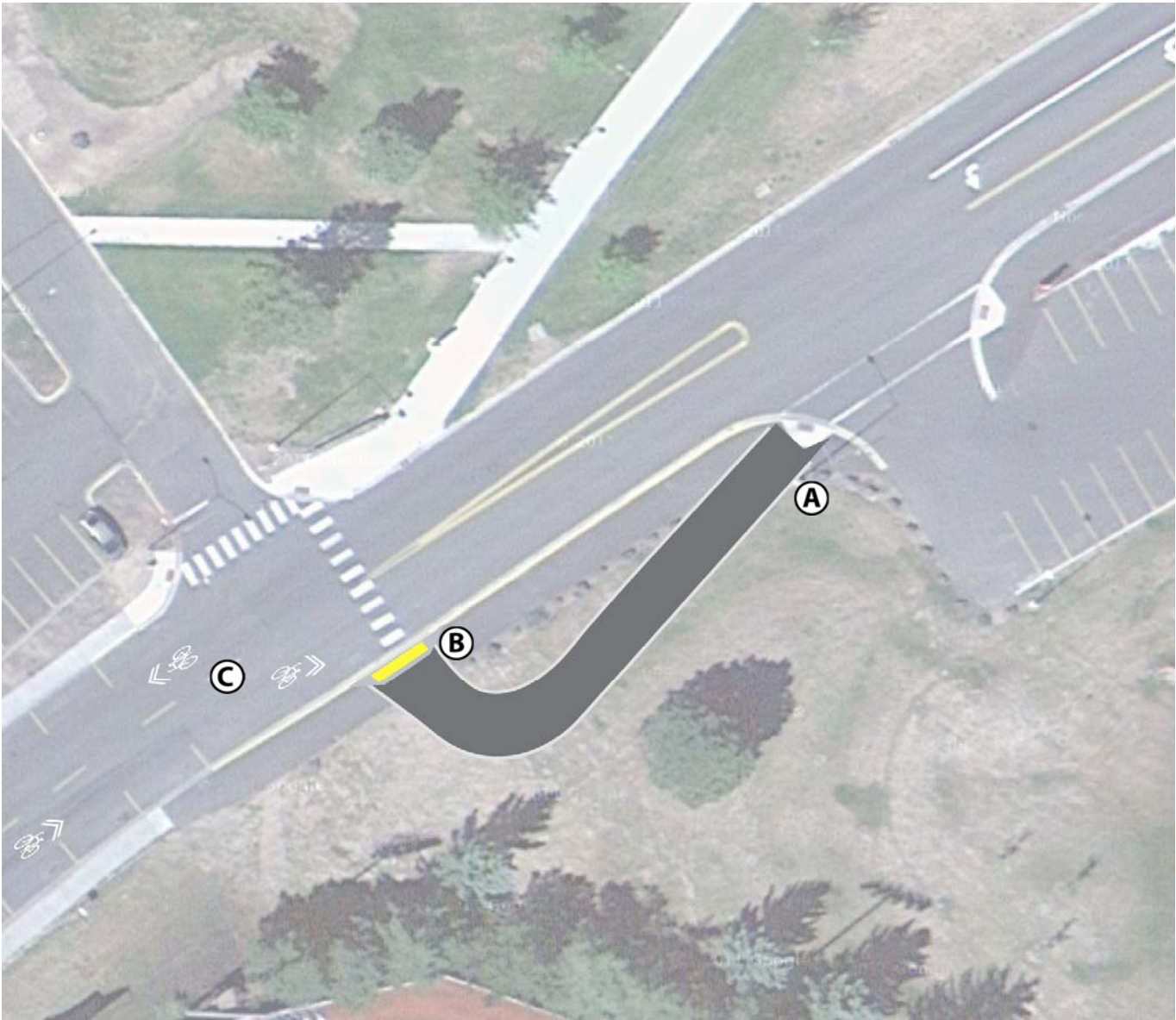
Existing Conditions

NE North Fairway Road has an excellent sidepath that runs from the intersection with NE Terre View Drive to the baseball diamond. At this point, the path suddenly narrows from 10'-wide to 5'-wide, changes from asphalt to concrete, and becomes a sidewalk. This is a difficult and sometimes dangerous transition for bicyclists to make.

Recommended Improvements

- Ⓐ Continue the existing trail to the current crosswalk to the Student Recreation Center. Curving the trail provides a cue to bicyclists that they need to be slowing down as they approach the intersection.
- Ⓑ Add a new curb cut to allow bicyclists to enter and leave the trail.
- Ⓒ Stripe sharrows on NE North Fairway Road from where the trail intersects the roadway to the intersection with NE Stadium Way.

Fix What You Have #15: NE North Fairway Road Trail Transition



Connections: Getting People to Campus

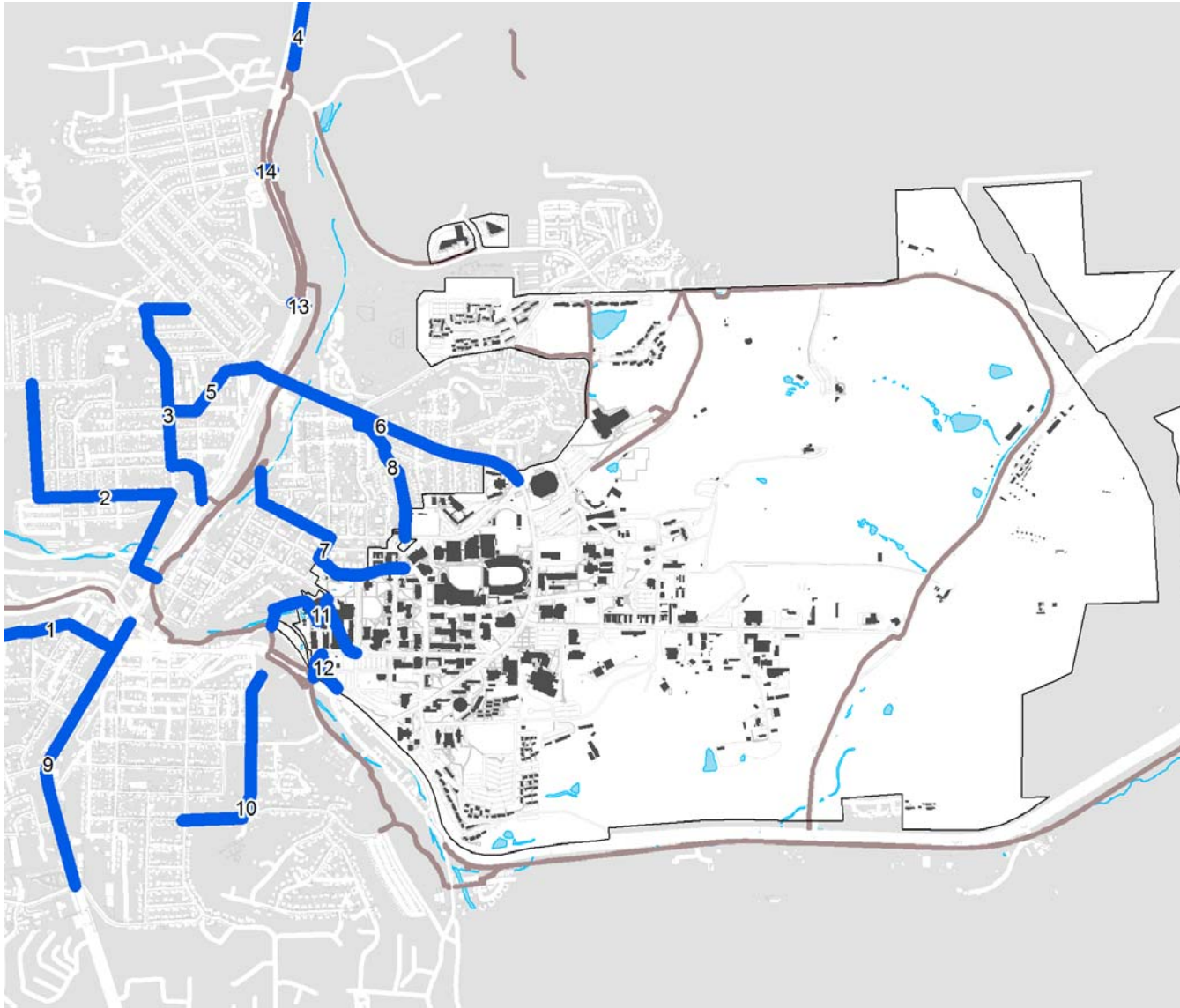


Figure 3: Connections Overview Map

Connections

#	Project	Description	Length (ft)
1	Sunnyside Hill Neighborhood Greenway spine (connecting to trails)	A neighborhood greenway connecting the residential areas of Sunnyside Hill to the trails. Will serve as part of the spine of a broader neighborhood greenway network in Pullman.	3,100
2	Military Hill Route B	A neighborhood greenway.	4,800
3	Military Hill Neighborhood Greenway spine (connecting to trails)	A neighborhood greenway connecting the residential areas of Military Hill to the trails. Will serve as part of the spine of a broader neighborhood greenway network in Pullman.	3,500
4	Grand Avenue Greenway extension to Kitzmiller Road	An extension of the Grand Avenue Greenway connecting to Kitzmiller Road, providing a stronger connection to Pullman Albion Road for regional/recreational bicyclists.	1,200
5	Military Hill Route C	A neighborhood greenway.	1,700
6	Long-term Stadium Way Improvements (Grand to Colorado)	See Project Sheet.	3,700
7	College Hill Neighborhood Greenway spine (connecting to trails)	A neighborhood greenway connecting the residential areas of College Hill to the trails. Will serve as part of the spine of a broader neighborhood greenway network in Pullman	3,000
8	D Street Neighborhood Greenway	A neighborhood greenway.	1,900
9	Grand Avenue bike lanes (south of Olsen)	Working with the existing curb-to-curb width, stripe bike lanes along Grand Avenue south of NE Olsen Street.	3,900
10	Pioneer Hill Neighborhood Greenway spine (connecting to trails)	A neighborhood greenway connecting the residential areas of Pioneer Hill to the trails. Will serve as part of the spine of a broader neighborhood greenway network in Pullman	2,800
11	SW Gateway - the "Wazzu Wiggle"	See Project Sheet	2,200
12	SW Gateway trail	See Project Sheet	900
13	Trail / roadway crossing @ Turner	Improved crossing from Grand Avenue Greenway at NW Turner Drive	
14	Trail / roadway crossing @ Larry	Improved crossing from Grand Avenue Greenway at NW Larry Street	

Connections #6: Long-term Stadium Way Improvements

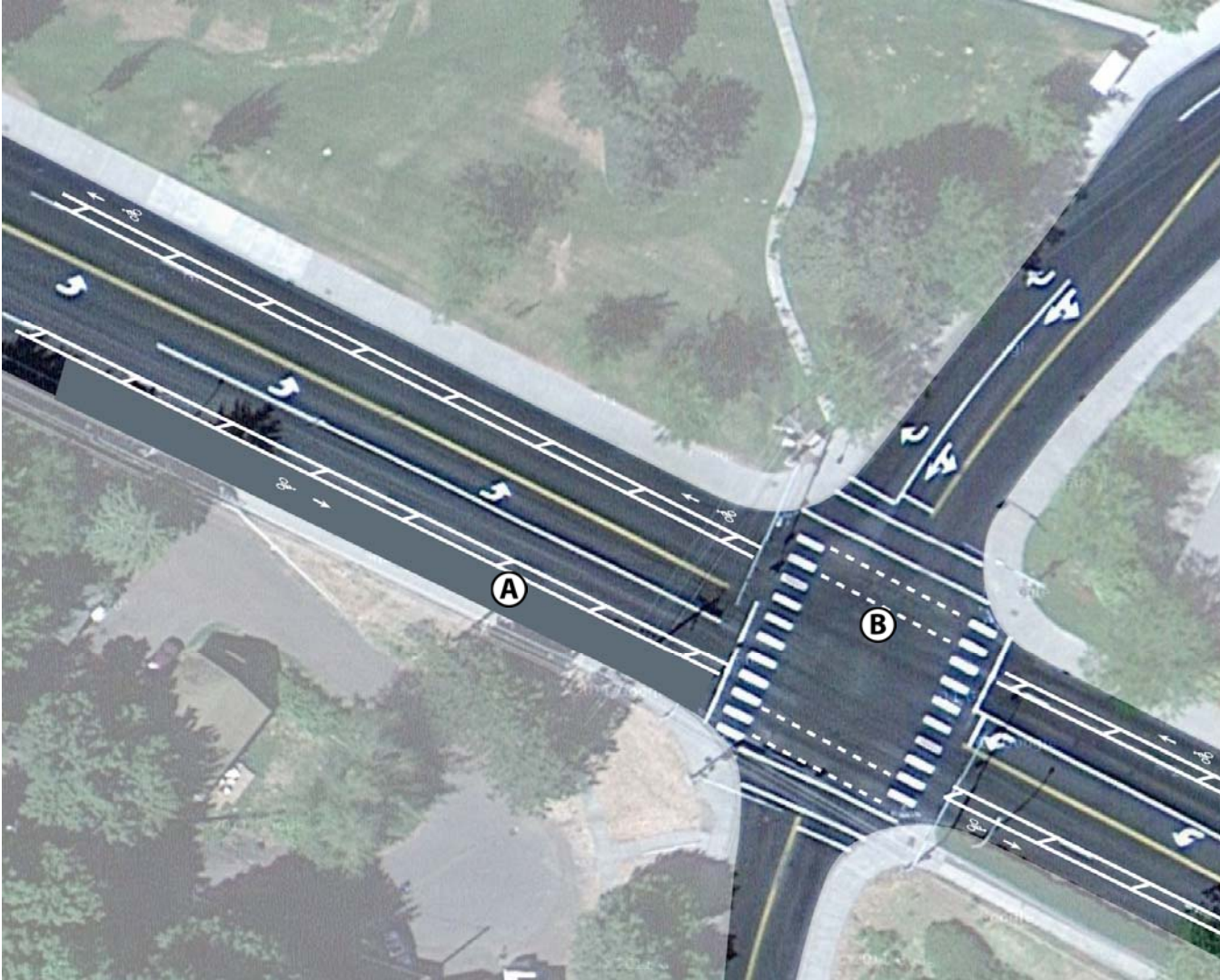
Existing Conditions

In the long-term, Stadium Way will no longer be a through road for motorists traveling from Main Street/Highway 270. With this change in circulation, Stadium Way will not need a 4-lane cross section.

Recommended Improvements

- Ⓐ Change the cross-section from 5 lanes (2 lanes in each direction + a two-way center turn lane) to 3 lanes (one lane in each direction + a two-way center turn). Stripe in a wide buffered bike lane in each direction where the outside lane was previously.
- Ⓑ Stripe a dashed bike lane through the intersection.

Connections #6: Long-term Stadium Way Improvements



Connections #11/12: SW Gateway – The Wazzu Wiggle & SW Gateway Trail

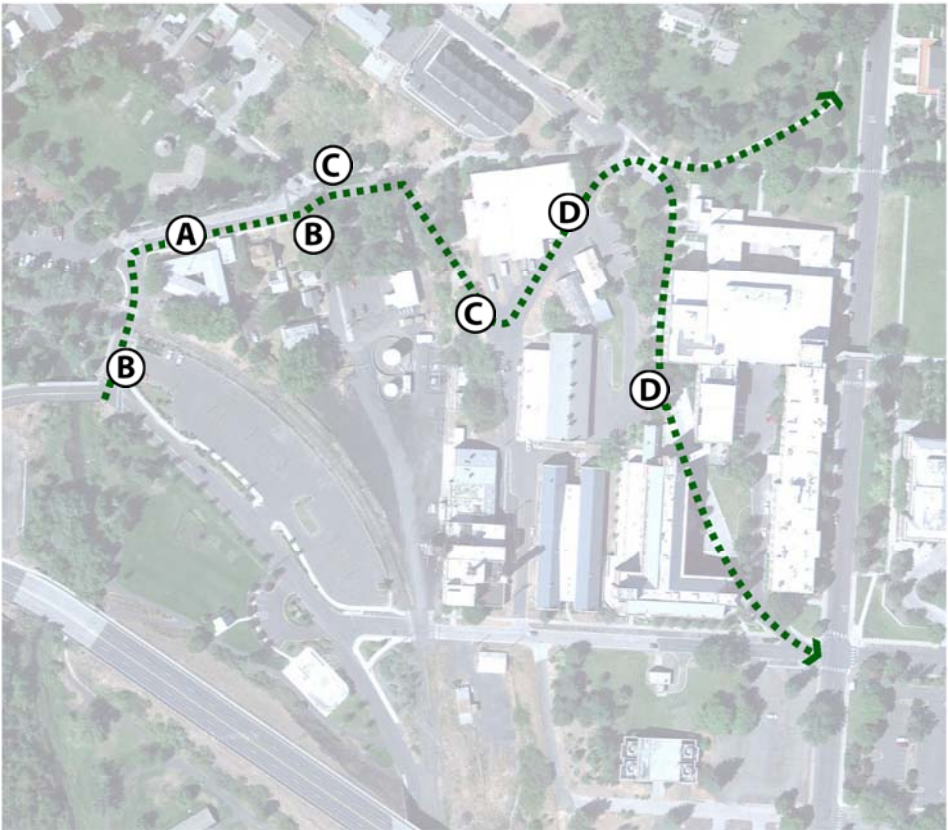
Existing Conditions

Reaching campus from the southwest can be difficult given the hilly terrain. Identifying the least hilly existing route (#11) and creating a new route (#12) will improve connectivity to campus.

Recommended Improvements

- Ⓐ Formally designate the route from Reaney Park to Spokane Street “The Wazzu Wiggle”.
- Ⓑ Add wayfinding signs to direct bicyclists to the Wiggle.
- Ⓒ Add bollards to prevent motor vehicles from using this section of Reaney Way.
- Ⓓ Add paint, bollards or other visual clues to communicate to drivers that bicyclists will be on this section of the roadway.
- Ⓔ Add sharrows from the trail connection at the City Playfield’s to NE College Avenue.
- Ⓕ Build a 12-14’ wide trail connection that switchbacks up the hill connecting from the College Ave/Spring St intersection to the existing path south of the Spokane Street parking lot. This will require building a retaining wall to support the new trail as it switchbacks up the hillside.

Connections #11/12: SW Gateway – The Wazzu Wiggle & SW Gateway Trail



Circulation: Getting Around

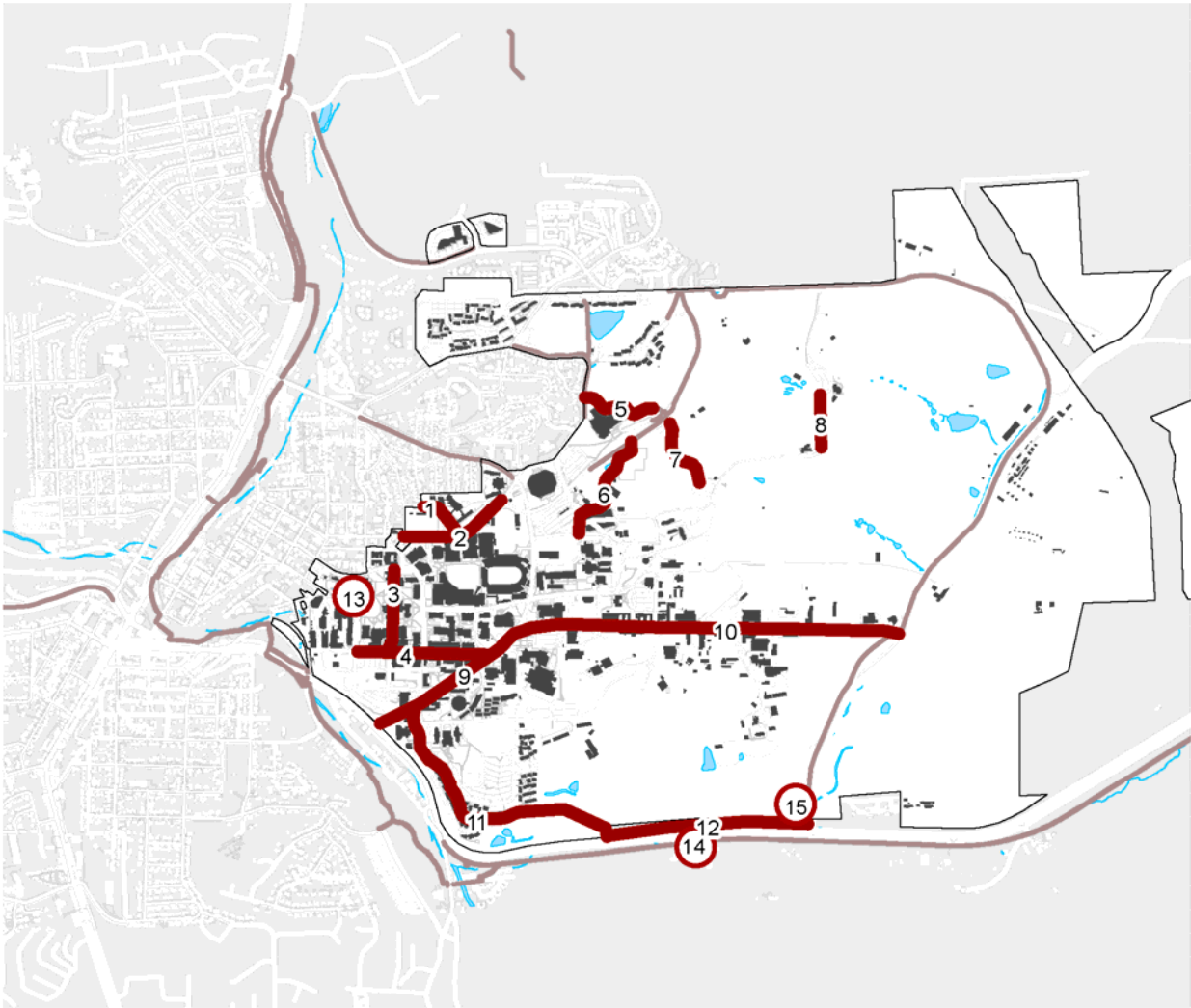


Figure 4: Circulation Overview Map

Circulation

#	Project	Description	Length (ft)
1	Colorado Connector - Widened sidewalk	Widens the sidewalk outside Barnard Hall and connects the D Street Neighborhood Greenway via Shaw St to Ne Colorado Street.	700
2	Priority bicycle route improvements (sharrows, signage, wayfinding)	Add bicycle improvements to NE Colorado Street	1,500
3	Veterans Way Pedestrian Mall design recommendations	Develop a design for current and future pedestrian malls where higher speed traffic (bicycles, service vehicles, skateboards, etc) are channeled to the middle while maintaining the edges for pedestrian travel	1,200
4	College Pedestrian Mall design recommendations		1,800
5	Rec Center Bypass	New trail for improved connectivity.	1,000
6	Ferdinand's Connector		1,600
7	Tennis Court Bypass		1,000
8	Golf Course Connector		720
9	Stadium Way to Grimes Way reconfiguration	With the roadway reconfiguration, adding protected bike lanes in each direction, with a 3-lane cross-section (one travel lane in each direction + 2-way center turn lane) where needed, and one travel lane in each direction in other locations.	2,200
10	Grimes Way Reconfiguration		2,600
11	Forest Way connections	New trail/neighborhood greenway for improved connectivity.	3,900
12	South Campus Trail (on the north side of 270)	New trail for improved connectivity.	2,100
13	stairs to ramps conversions/additions @ key locations	Conversions at selected locations for improved connectivity	
14	Connection from Chipman Trail to the new South Campus Trail	A new mid-block crossing at the	
15	Multimodal Transit Center design recommendations	Addition of showers, lockers, and long-term secure bicycle parking at the new multimodal transit center	

Circulation #3/4: Pedestrian Mall Design Recommendations

Existing Conditions

There are several current pedestrian malls on the Washington State University campus, and with the redesign of Stadium Way and Grimes Way, there may be several more identified.

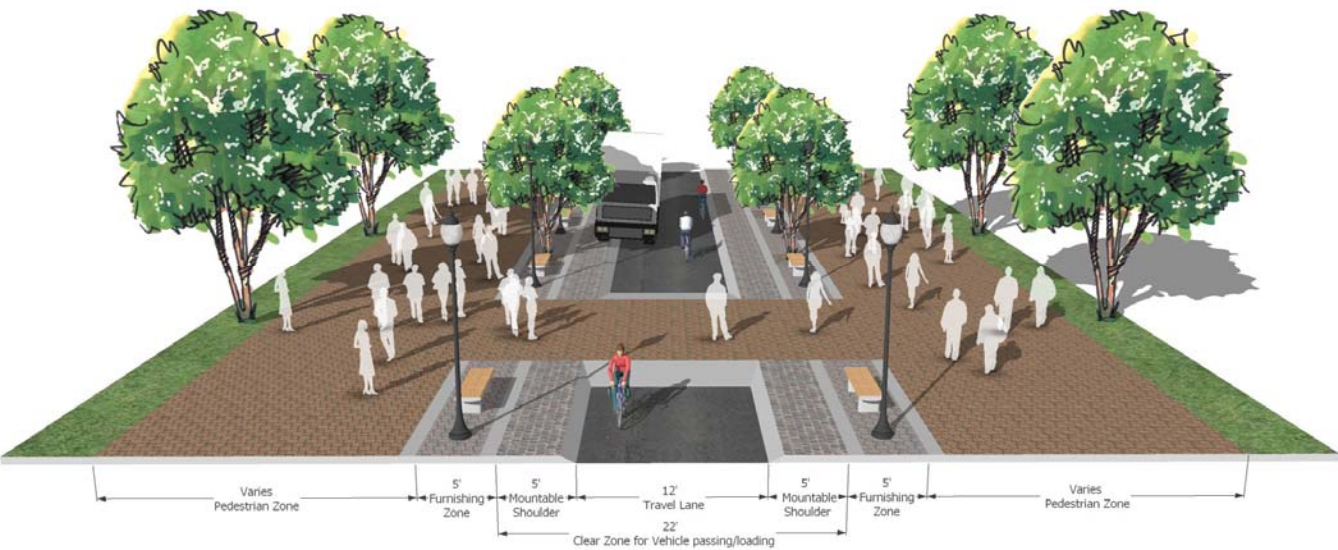
While these locations are called pedestrian malls, they are spaces that allow for the through traffic of all non-motorized

A pedestrian mall should provide

Recommended Improvements

- Ⓐ Change the cross-section from 5 lanes (2 lanes in each direction + a two-way center turn lane) to 3 lanes (one lane in each direction + a two-way center turn). Stripe in a wide buffered bike lane in each direction where the outside lane was previously.
- Ⓑ Stripe a dashed bike lane through the intersection.

Circulation #3/4: Pedestrian Mall Design Recommendations



Circulation #9/10 Stadium Way/Grimes Way Reconfiguration

Existing Conditions

In the long-term, Stadium Way will no longer be a through road for motorists traveling from Main Street/Highway 270. With this change in circulation, Stadium Way will not need a 4-lane cross section.

Recommended Improvements

- Ⓐ Change the cross-section from 5 lanes (2 lanes in each direction + a two-way center turn lane) to 3 lanes (one lane in each direction + a two-way center turn). Stripe in a wide buffered bike lane in each direction where the outside lane was previously.
- Ⓑ Stripe a dashed bike lane through the intersection.

Circulation #9/10 Stadium Way/Grimes Way Reconfiguration



Education

Equally as important as providing bicycle and pedestrian infrastructure is ensuring that users are familiar with the treatments and know how to use them. This section presents recommended bicycle, pedestrian, and motorist education programs.

The recommendations are based both on findings of previous tasks, plus experience gained in communities around the region and the United States.

The recommended strategies are:

- Enhanced/Expanded Alive! Bicycle/Pedestrian Campus Orientation
- Enhanced/Expanded Green Bikes Bike Safety Clinic
- Media Safety Campaign
- Hosted Campus Safety Stations / Bicycle Ambassadors

Enhanced/Expanded Alive! Bicycle/Pedestrian Campus

Orientation

Washington State University should work with Alive! and other beginning of year activities to increase the availability of information on walking and biking on campus and in Pullman.

A bicycle/pedestrian campus orientation session at Alive! for all incoming students at the beginning of each school year can introduce bicycling and walking on/around campus to freshmen and transfer students.

A variety of outreach methods and materials can address important topics such as rights and responsibilities, when and where not to bicycle on campus, proper security measures, etc.

The Bicycle/Pedestrian Orientation should include:

- Distribution of information to incoming and returning students at the beginning of the year through school information packets, including locations of bike parking, instructions on how to properly lock your bicycle, how to share the road with cars, proper (and legal) roadway crossing behavior, etc.
- Bike repair clinics and other activities advertised through flyers, email, bulletin boards, and campus newsletters

- Information tabling at campus events and prominent locations (e.g. the CUB)
- Promotion of the Washington State University Mobility Options website, a resource for all mobility related information on campus
- At-cost or low-cost bike lights and helmets sold at tabling events and through the campus bookstore
- Distribution of free promotional items promoting safe and courteous bicycling and walking on campus

A “bike/walk buddy” program can also be implemented to match current bicycling and walking students with interested students. This can be a simple program where students wear a sticker that says “I bike/walk to WSU, ask me how,” or a more elaborate program that matches bike/walk buddies with interested students who live in the neighborhood

Enhanced/Expanded Green Bikes Bike Safety Clinic

Bicycle riding is a healthy and fun activity that is enjoyed by people of all ages. From the first time you ride a tricycle at age 2 or 3, there is nothing quite like the freedom that you get from riding a bike.

However, regardless of age proper bicycle safety is very important. In order to ride your bicycle safely, there are a number of factors to keep in mind - the bicycle must be in proper working order, with tires properly inflated, brakes being able to stop the bicycle and the steering must be working properly.

But other factors must be taken into consideration such as wearing a properly fitting bicycle helmet, the size of the bicycle must be appropriate for the rider and whether you're riding on a bike trail or on the road, you must follow rules of the road.

Nearly every person in America can look forward to in-depth training before receiving a driver's license. Bicycles are also vehicles that are used on the roads, but most Americans do not receive any training about the rules of the road, how bicycles work, or how to ride a bicycle on the roadway.

Washington State University Transportation Services, in conjunction with the Green Bike Program, should expand on the existing bike

safety clinic that is currently offered by the Green Bike Program. At a minimum, curriculum should cover:

- Parts of a bicycle
- How a bike works
- Flat fixing
- Rules of the road
- Right of way
- Road positioning
- On-bike skills lessons (braking, turning, steering)
- On-bike community ride
- Campus routes



Media Safety Campaign

A high-profile marketing campaign that highlights bicyclist and pedestrian safety is an important part of helping all road users – including motorists, bicyclists, and pedestrians – understand their roles and responsibilities on campus roads. This type of campaign is an effective way to raise the profile of bicycling and improve safety for bicyclists, pedestrians, and motorists (including staff who drive on campus as part of their work).

A well-produced safety campaign will be memorable and effective and include clean, clear graphics in a variety of media, such as print or audio/video advertisements, the distribution of free promotional items, and email or in-person outreach. This type of campaign is particularly effective when kicked off in conjunction with other walking/bicycling events or at the beginning of each academic term. It is recommended that WSU develop and launch a mobility safety campaign specific to campus users.

WSU can also use the safety campaign to help brand all of the bicycling- and walking-related efforts on campus. Safety campaign messages can use similar graphics and colors used on bike/pedestrian orientation materials, bicycle-related campus signs, flyers for events, and promotional items, in order to create a cohesive message among all materials.

WSU's safety campaign should address the following safety issues:

- Where bicycling is permitted and where bicyclists should walk their bikes
- Safe bicycling skills (especially in high-pedestrian use areas, such as the Mall)
- How to share the road (for all users – bicyclists, pedestrians, and motorists)
- Safely crossing major roadways on campus
- Light and helmet use
- Bicycling rights
- Yielding to pedestrians



Mobility Ambassadors / Hosted Campus Safety Stations

Mobility ambassadors can disseminate bicycling and walking information to their peers and other campus users related to safety and campus rules, upcoming events, and other mobility programs and opportunities. They can also distribute promotional items such as buttons, magnets, or stickers. Mobility ambassadors can be volunteers or paid campus representatives, and should be trained on campus bicycle rules, safety, local bicycling resources, and successful outreach techniques.

Volunteers or staff can be roving campus ambassadors, or they can reach out to students at events or at a table during a designated time.

Stanford University establishes a campus safety station every Friday at White Plaza, from 11 a.m. - 2 p.m. (weather permitting).

Activities include:

- Bike registration (required by California law)
- free bike safety check-up
- Access to tire pump and simple tools
- Learn how to lock your bike up properly—avoid bike theft.
- Free headlights for FROSH and new transfer students

The ambassadors should wear a distinctive jacket/shirt/button that lets the public know

that they can be approached with questions and comments, and they should be an encouraging presence, giving positive reinforcement and distributing free promotional items where possible.

This type of program could also be established in conjunction with the City of Pullman. The City of Chicago has a robust bicycle ambassador program called Mayor Daley's Bicycling Ambassadors. They are a group of bicycle safety and education specialists who have been reaching out to Chicago residents since 2001. Their mission is to increase bicycle use while decreasing the number of bicycling related injuries and fatalities. This goal is accomplished through educating Chicago residents on the benefits of bicycling and bicycle safety. The major campaigns of the Mayor Daley's Bicycling Ambassadors include bicycle safety, motorist education on sharing the road with bicycles, shopping by bike, commuting to work by bike, and bikes on transit (including bus rack demonstrations).



Encouragement

Similar to education programs, encouragement programs provide incentives and benefits to the public to try bicycling and walking.

This section identifies encouragement strategies for WSU and other partners to promote walking and bicycling as viable transportation options. The recommendations are based both on findings of previous tasks plus experience gained in communities around the region and the United States.

The recommended strategies are:

- Bicycle/Pedestrian Advisory Committee
- Commuter Benefit Program
- Enhanced Website/Mobile as Information Clearinghouse
- Bike Valet for Events
- Embrace the Steam Plant Zig Zag!
- Biking and Walking Maps
- Car Free Stadium Way Events

Bicycle/Pedestrian Advisory Committee

Many local governments have an official Bicycle/Pedestrian Advisory Committee made of citizen volunteers, appointed by City Council or the appropriate body, to advise on walking and biking issues. An advisory committee establishes an institution's commitment to making walking and biking safer. With the assistance of campus bicycling advocates or enthusiasts, WSU should form an ongoing Bicycle/Pedestrian Advisory Committee composed of students, faculty, and staff to address mobility issues on campus.

The charges of the Bicycle/Pedestrian Advisory Committee (BPAC) should include some or all of the following:

- Review and provide input on campus facility planning and design as it affects walking and biking (e.g., streets, intersections, signals, and parking facilities)
- Participate in the development, implementation, and evaluation of transportation studies and plans
- Provide a formal liaison between university, faculty, staff, and students
- Develop and monitor goals and indices related to walking and biking on campus
- Promote safe and courteous bicycling on campus

Because BPAC members will be volunteers, it is essential to have strong staffing to support the committee in order for it to be successful. A Transportation Services staff member should be formally assigned to the BPAC and should take charge of managing the recruitment process, managing agendas and minutes, scheduling meetings, bringing agency issues to the BPAC, and reporting back to the university about the BPAC's recommendations and findings.

Sample committees are:

Michigan State University
<https://www.msu.edu/~auttc/>

Western Washington University
http://www.wvu.edu/transportation/student_involvement.shtml

Commuter Benefit Program

Commuter Benefits are a federally approved employer-provided incentive for employees to save money on their transit, vanpool and parking expenses. Many universities also extend the program to their student body.

Commuter benefits encourage people to walk, bike, rideshare and take transit to work. This helps relieve traffic congestion and improve air quality, making Pullman and the Palouse a better place to live.

Effective January 1, 2013, the IRS pre-tax deduction limit is \$245/month for transit and vanpool expenses and \$245/month for parking expenses. \$20/month may be offered as a subsidy to employees who commute via bicycle.

Two campus programs are profiled below.

Stanford University

Stanford University has established the Stanford University Commute Club. By not purchasing a Stanford parking permit, and joining the Stanford University Commute Club, members help reduce emissions, minimize the number of vehicles traveling to and from campus, and benefit financially by not driving alone. Rewards can reach up to \$300 (\$25/month) a year in Clean Air Cash or Carpool Credit.

More information can be found at their website:

http://transportation.stanford.edu/alt_transportation/Commute_Club.shtml

Oregon Health & Science University (OHSU)

Oregon Health & Science University (OHSU) provides an incentive for employees who choose to bike to work for at least 2 miles of their trip.

Bicyclists are reimbursed for their commute with one of three incentives for each 30 trips biked. Members of the parking program are refunded one month's parking. Members of the transit pass program received \$35 (in addition to the overall subsidy on their passes). Bicyclists who are members of neither program receive \$50.

More information can be found in this document:

<http://www.ohsu.edu/parking/bike/OHSUBikeSite2010.pdf>

Enhanced Website/Mobile as Information Clearinghouse

Current and potential bicyclists and pedestrians do not have an easy-to-find place to turn to for information about walking and biking on campus, including rights and responsibilities, bicycling tips, security, groups and events, etc.

WSU should develop a comprehensive “one-stop shopping” website on their Transportation Services Mobility Options website (or in conjunction with the Green Bike Program) with comprehensive campus walking and bicycling information.

The University’s mobility website should include the following:

- Maps and other bicycling resources (e.g. bicycle parking locations, Pullman, Moscow, and Palouse region bike maps, bikes on Pullman transit, how to securely lock a bike, etc.)
- Event postings, including clinics or workshops, group rides/walks, campus-wide events, volunteer opportunities, and dates when students, faculty, and staff are encouraged not to drive
- Information on how to safely and courteously bike on campus, including rights and responsibilities, where bicycling is permitted and where to walk your bike, and safety tips
- Information about the WSU Bicycle Advisory Committee (if formed),

including how to get involved, meeting times and dates, etc.

- A list of local bike shops, including phone number and address
- A list of all local bicycling groups, including clubs and advocacy groups
- Links to laws and statutes relating to bicycling
- Contact information for TDM/Mobility Coordinator

The website may also feature:

- Bike buddy matching service
- Repair tutorials
- Message boards
- Blog featuring stories and news
- Photo galleries from events and submitted by readers
- Popular bicycling routes
- Information and/or a forum for buying/selling bicycles

A one-stop mobility website will not be difficult to set up, but it will only be successful if the site is both easy to use and updated regularly. All website content should be reviewed regularly for accuracy. Further, if a Bicycle Advisory Committee (BAC) is formed, the university should consider adding a standing agenda item for the BAC to discuss website changes or updates.

The website, along with many of the other programs described in this section, can be

advertised with branded promotional items such as magnets, buttons, or stickers that highlight biking and walking at WSU. A short memorable slogan (e.g., “I bike WSU”) could be used on promotional items along with the website URL and could be distributed to students, faculty, and staff at events and through campus outreach.

Sample websites include:

University of California, Santa Barbara
<http://bikes.as.ucsb.edu/>

Stanford University
http://transportation.stanford.edu/alt_transportation/AlternativeTransportation.shtml

University of California, Davis
<http://taps.ucdavis.edu/bicycle/>

University of Washington
<http://www.washington.edu/facilities/transportation/commuterservices/>

Bike Valet for Events

Bike valet is like a coat check...for your bike! Volunteers set up a secure area of bike racks, and offer valet service to event goers who arrive by bike.

Adding bike parking allows them to be positive and friendly when directing cyclists to the parking corral. As a bonus, most people who would have locked to poles and fences will seek out the corral instead.

Patrons receive a branded claim ticket and leave their bikes in a secure location. Bike valet brings convenience and peace of mind to event patrons, and provides a secure, orderly site plan for event planners.

Bike valet can be offered as a free service or as a fundraiser for various campus groups with a minimal fee of \$2-\$5/bike.



Embrace the Steam Plant Hill Zig Zag! (aka “The Wazzu Wiggle”)

Existing topography in Pullman can be challenging for bicyclists. At times these challenges can be addressed through comprehensive wayfinding and more circuitous routes that minimize climbing grades to the greatest extent possible.

For other times, the hill must be embraced.

Accessing campus from the southwest, particularly from routes coming off of NE Spring Street, is challenging. The recommended improvements identified earlier in this working paper provide some relief, but bicycle access into this part of campus will always be more challenging than from other parts of Pullman.

Washington State University should acknowledge this challenge, and identify/brand routes up past the old Steam Plant as the Steam Plant Hill Zig Zag.

The following example from San Francisco provides a good example.

The Wiggle

In San Francisco, CA, a one-mile, zig-zagging bicycle route from Market Street to Golden Gate Park has become popularly known as “The Wiggle.” The route minimizes climbing grade for bicycle riders to the greatest extent possible.

There are now wayfinding signs and maps that show the route, and it has become a source of city pride along with the city’s iconic topography



Biking and Walking Maps

Pullman and Washington State University have some existing bicycling maps that highlight existing routes. These maps are effective in informing the public where bicycle facilities are located so residents can plan their trips accordingly. However, bicycle facilities vary greatly by type and within type. For example, some bicycle lanes are located on high-speed, high-volume arterials, while others are on collector or local roads that had adequate right-of-way for installation. Less experienced bicyclists may not understand the difference between these facilities and thus be discouraged after riding on a busy arterial that was outside of their comfort zone.

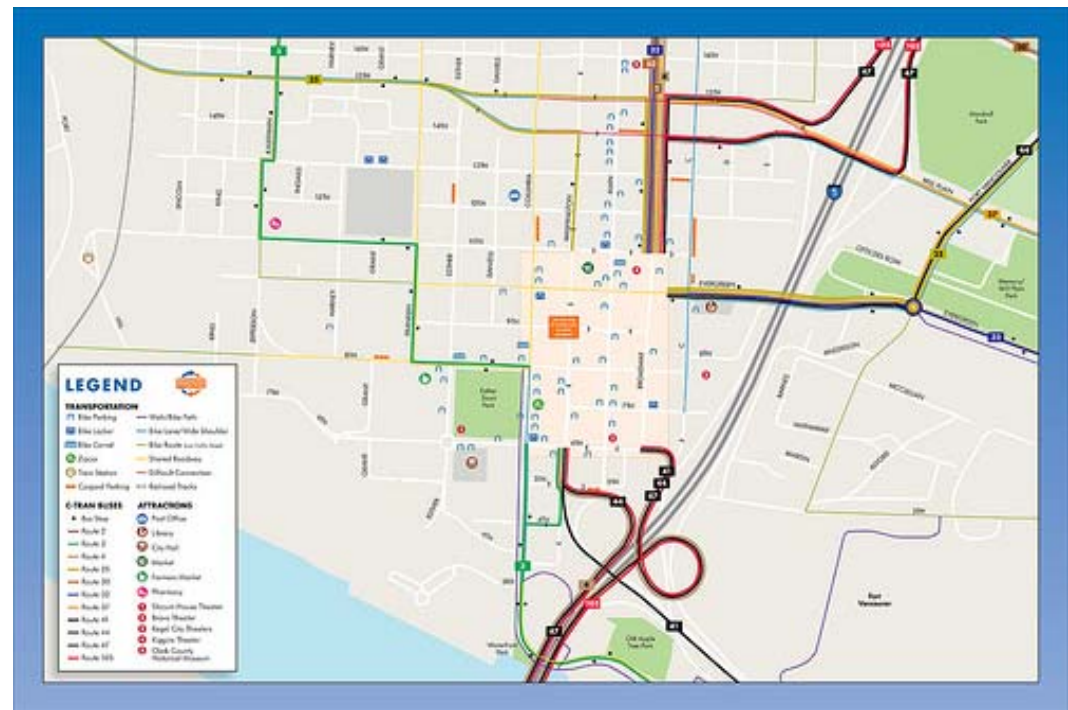
A bicycle map that displays bicycle facilities ranked by relative level of bicyclist comfort will better portray to bicyclists where they will feel comfortable riding. Knowing which routes are on streets with fewer motor vehicles, lower speeds, and other barriers may encourage those not bicycling to try. This map could be an inset map on the existing bicycle map or provided as a separate brochure that specifically targets the “interested but concerned” bicycling population. Pullman could update its existing bicycle maps to reflect user level of comfort.

Walking Maps

Though it is common for jurisdictions to create bicycling maps to highlight existing bicycle routes, it is less common to show people where

to walk. As a result, many people are not aware of how easy it can be to get somewhere on foot. For example, many people don’t realize that it only takes 20 minutes on average to walk a mile.

Walking maps not only show suggested routes and the locations of pedestrian facilities, but can have a buffered radius or grid to show how long it takes for people to walk to specific destinations. Walking maps should also include parks, schools, libraries, business districts, public restrooms, transit, and other key destinations. The City of Pullman could distribute and advertise walking maps with its bicycling maps.



Car Free Stadium Way / Car Free Campus Events

Usually held on a weekend day, car-free events temporarily close streets to cars and open them up to people walking, bicycling, dancing, hula hooping, skateboarding, playing games, and so on. These events (often called 'ciclovias') have been very successful internationally and are rapidly becoming popular in cities across the world. Carfree events on campus could highlight the ease and convenience of walking and biking to school.

This type of event could include a street fair or other festival-type activities to garner interest, and WSU could partner with Pullman, a local bicycling group, or a campus environmental or social group to host the event.

A car-free day on campus would promote health and community by creating a safe space for physical activity and social interaction, while celebrating bicycling and other forms of non-motorized transportation. A car-free street event could take place one time or annually on a weekend day on campus. It is expected that this type of event would be very popular among students and well-attended by the campus community.



Enforcement

Enforcing traffic laws related to bicycling and walking helps to promote a safer environment for all road users.

This section presents recommended region-wide bicycle and pedestrian enforcement programs.

The recommended strategies are:

- Student Community Service Officer
- Speed Radar Trailers
- Continued Targeted Enforcement
- Bicycle and Pedestrian Diversion Course

Student Community Service Officer

Some campuses (such as the University of Arizona) have Student Community Service Officers that assist the university Police Department with detection of criminal activity. This position is ideal for the enforcement of bicycle and pedestrian violations on campus. Students can patrol by foot or by bike and enforce violations, such as wrong way riding, speeding, illegal crossings, and improper bicycle parking. Since community service officers are also students, this is a way to train the campus population in the rules and regulations of bicycling and allows them to teach their peers, as well.

Speed Radar Trailers

Speed radar trailers can help reduce traffic speeds and enforce speed limits in areas with speeding problems, such as Stadium Way. Police set up an unmanned trailer that displays the speed of approaching motorists along with a speed limit sign. The speed trailer's roadway placement should not obstruct bicycle or pedestrian traffic. Speed trailers work as both an educational and enforcement tool. By itself, the unmanned trailer educates motorists about their current speed in relation to the speed limit.

Speed trailers can transport easily to streets where local residents complain about speeding problems. The cities' police departments could station officers near the trailer to issue speeding citations when speeding continues to occur.

The City of Pullman could provide the management role for this program, working with the public to determine which locations are in most need of enforcement. This program can be administered randomly, cyclically, or as demand necessitates because of the speed trailers' portability. Speed trailers could be especially beneficial on bicycle boulevards to reinforce the role the City is taking in improving the bicycle environment for less experienced bicyclists.

Continued Targeted Enforcement

Targeted enforcement is one way to publicize bicycle and pedestrian laws in a highly visible and public manner. Examples of directed enforcement actions include: intersection patrols or stings, handing out informational sheets to motorists, bicyclists and pedestrians; and enforcing speed limits and right-of-way.

The campus police department currently undertakes many of these steps, and should continue to do so throughout the summer and school year.

Bicycle and Pedestrian Diversion Course

A bicycle and pedestrian diversion course can be offered in lieu of a ticket for bicycle and pedestrian related infractions, or some motor vehicle infractions. Those who are cited can attend a class that teaches bicycle and pedestrian safety. Bicycle and pedestrian diversion courses enforce the law while also reinforcing safe behaviors through education.

At Stanford University, Parking & Transportation Services and Stanford Public Safety co-host a free bike safety class twice a month as a part of SUDPS' Bike Diversion Program. These presentations are part of a program initiative to educate cyclists about fundamental bicycle safety.

Evaluation

Cities around the world have begun monitoring their bicycle and pedestrian programs in order to track the number of non-motorized users, gauge user perceptions of the bicycle and pedestrian networks and identify trends in safety. Results are published in a periodic 'report card,' which are typically prepared every one to two years.

There are two reasons for regularly measuring and reporting bicycle and pedestrian investment and activity.

First, the information gathered for the report allows the community to measure progress towards achieving stated goals for walking and bicycling.

Second, a quality data monitoring program can help WSU and the City of Pullman to obtain funding for new projects.

Most grant programs require awardees to monitor the results of funded projects, including a baseline count and monitoring usage over time. Communities with established bicycle and pedestrian monitoring programs will tend to have an advantage over other cities when pursuing funding.

The key to a successful monitoring program is to identify useful data that can be gathered through available resources, that is consistently available over time, and that can be used for

year-to-year comparisons. Washington State University and the City of Pullman can issue bicycle and pedestrian report cards separately or combine them into a non-motorized transportation report card. This report should be made available online.

Key Elements of a Bicycling/Walking Report Card

A set of key figures can be used to identify trends in walking/cycling, miles of pedestrian and bicycle facilities, safety, etc. It is important to supplement this quantitative data with survey data aimed at gauging resident perceptions of the bicycle and pedestrian network. Questions can be tailored to provide information that will inform the location and design of future facilities.

The report card should:

- Utilize performance measures to track progress towards achieving stated objectives related to bicycles and pedestrians.
- Measure the number of non-motorized users
- Measure user perceptions of the system
- Measure the quantity of bicycle and pedestrian facilities
- Measure trends in safety
- Measure transit use and multi-modal connections

- Report results in a format that is accessible to the general public

Quantitative Data

The primary quantitative data sources included in monitoring programs:

- Count Data – There are two types of counts that can be used to measure bicycling and walking.
 - Screen Line Counts monitor the number of cyclists crossing an invisible line across a roadway. They are primarily used to identify general trends in volumes.
 - Intersection Counts are used to monitor the number of cyclists passing through an intersection. Depending on the volumes of bicyclists, intersection counts may be more complicated and require additional counters because they record two streets as well as turning movements. Intersection crossing counts should be conducted at high crash locations and where safety studies are desired.
- Infrastructure – Measure the number of miles of different types of bicycle and pedestrian facilities, number of bicycle parking spaces, etc. Some of this data is

currently available from existing GIS files.

- Safety Data – Track the number of injury and fatality crashes involving bicycles and pedestrians.

To accumulate additional data for benchmarking purposes, WSU and the City of Pullman should consider expanding the count program to additional locations throughout the city. Some count programs measure additional items on their count forms, such as gender and helmet use.

User Perception Data

Survey Instrument

Surveys should be utilized to monitor user perceptions, satisfaction and desires with regard to existing facilities. They can also be used to monitor trip purpose, bicycling and walking habits, etc.

One survey concept that is extremely easy to present and intuitive for people to understand is to simply ask respondents to rate different aspects of bicycling and walking on a scale from 0 to 10, where 0 = strongly disagree and 10 = strongly agree. The report card can then report the average response value in a concise way that allows for easy comparison of perceptions of bicycling and walking over time.

Survey Distribution

There are at least two options for survey distribution and the appropriate methodology may differ for bicycles and pedestrians, as more people on the WSU campus currently walk than bicycle.

- Intercept surveys can be performed at the same time as annual counts. However, depending on the number of counts performed, this may result in a very low sample size. It is common for intercept survey respondents to be given the option of mailing in their survey response (so that they can complete it later) or completing it online.
- Internet/Mail-in surveys can be distributed by Transportation Services to the greater campus community.

Report Format and Frequency

The report card should be visually appealing and be seen as an opportunity for WSU (and the City, if participating) to showcase both the importance of non-motorized transportation and highlight what the university is doing to make WSU a great place to walk and ride a bicycle.

The report should have an attractive cover, provide an introduction explaining the purpose of the report, and include abundant photos. Reporting the actual metrics can be done in as few as 1-2 pages. Each report card can dedicate

additional pages to highlight recent investments, new facility designs, etc. The report can also include sections about additional information that impact bicycling or walking, such as combining cycling with public transport or the socio-economic benefits of walking/cycling. A survey of international best practices indicates that cities report trends in bicycling and walking as frequently as every year, but sometimes as infrequently as every five years. It is recommended that WSU release its report card(s) every two years

