

Washington State University Bicycle and Pedestrian Plan

Working Paper #7: Implementation Strategies



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Introduction

As described in Working Paper #6, the Washington State University and City of Pullman recommended non-motorized system consists of a comprehensive network of sidewalks, on-street bikeways, shared-use paths, and various programmatic measures. This working paper proposes an implementation strategy that targets the best way to implement projects and programs.

The working paper also provides planning-level cost projections for proposed non-motorized improvements. The chapter closes with a discussion of supportive policies that can bolster and institutionalize the development of a high-quality non-motorized network.

Implementation Timeline

The recommended Bicycle and Pedestrian plan projects were divided into short- (Phase I), medium- (Phase II) and long-term (Phase III) priorities for a phased implementation. The prioritization was based on a connected bicycle and pedestrian network, integrated with transit to provide access for key destinations.

Project Prioritization

The project prioritization was developed as the natural extension of the identified goals and objectives (Working Paper #1). The goals and objectives help direct resource allocation, program operation, and University prioritization. A prioritized list of bicycle and pedestrian projects will help guide the implementation of the proposed bicycle and pedestrian facilities presented in this plan.

The goals and objectives for the WSU Bicycle and Pedestrian Plan were organized into the following seven categories:

1. Health and Safety
2. Education and Encouragement (program and policy action)
3. Enforcement (program and policy action)
4. Transit Integration
5. Sustainability
6. Implementation
7. Accountability

Prioritization criteria were developed to address categories 1, 4, 5, 6, 7 where the goals

and objectives addressed capital improvements. Policy and programmatic improvements will also be part of the final recommendations but are not being prioritized.

Based on feedback heard from Washington State University, stakeholder interviews and public outreach, the recommended projects were categorized in one of three ways:

- Fix What You Have (Phase I)
- Connections (Phase II & III)
- Circulation (Phase II & III)

All projects in the first category – Fix What You Have – were automatically considered the Phase I priorities, as the facility already exists, and Washington State University and the City of Pullman should concentrate resources on updating and fixing the existing system.

Prioritization Criteria

By creating a series of scoring criteria designed to help differentiate and rank the facility improvements outlined in this Plan, University staff can make use of additional priority guidance to aid in the timely, efficient implementation of the proposed bicycle and pedestrian network. The following prioritization criteria were selected to help

identify which improvements are likely to provide the most benefit to the University’s bicycle and pedestrian system. Recommended facility implementation measures will ultimately have no specific time line, since the availability of funds for implementation is variable and tied to the priorities of the University’s capital improvement projects. The proposed criteria for ranking the recommended facility projects are:

- Public Input
- Safety
- Gap Closure
- Anticipated Benefit

Public Input

Public input was received through the two open houses and the online survey completed in Spring 2013. Locations most frequently identified as being in need of improvements are given a greater priority.

Safety

Bicycle and pedestrian facilities have the potential to increase safety by reducing the potential conflicts between bicyclists, pedestrians, and motorists that often result in collisions. Projects are of higher priority if they reduce the opportunities for conflicts and increase safety.

Gap Closure

Gaps in the bicycle and pedestrian network come in a variety of forms, ranging from a “missing link” on a roadway to larger geographic areas without non-motorized facilities. Gaps in the network discourage walking and biking because they limit access to key destinations and land uses. Facilities that fill a gap in the existing and proposed network are of high priority.

Anticipated Benefit

Some facilities will serve a greater number of bicyclists and pedestrians based on their length and locations. Facilities that serve or are located within high-traffic areas of campus will have higher anticipated benefits for students, faculty, and staff.

Secondary Prioritization Criteria

Project Cost

While project costs are not considered a primary prioritization criteria, they are useful in prioritizing among projects in the same timeframe category. Funding facilities is a primary focus for all new services and facilities on a university campus. Facilities that need minimal improvements and can be tied in with other construction projects are generally lower in cost and therefore are of high priority.

Project Ranking

Table 1 shows how the criteria described in the previous section translates into weights for project prioritization and weighting. Weights are based on direct, secondary, or no service at all. Direct service means that a facility intersects with a facility/destination, whereas secondary access occurs when the primary facility is located in close proximity to and existing facility/destination.

Table 1. Project Prioritization Criteria

Criteria	Score	Multiplier	Total
Public Input	2	3	6
	1	3	3
	0	3	0
Safety	2	3	6
	1	3	3
	0	3	0
Gap Closure	2	2	4
	1	2	2
	0	2	0
Anticipated Benefit	2	1	2
	1	1	1
	0	1	0

Table 2 presents the list of prioritized projects, with project names and numbers corresponding to the figures in Working Paper #6

Table 2. Prioritized Non-Motorized Projects

Project ID	Project Name	Public Input (6,3,0)	Safety (6,3,0)	Gap Closure (4,2,0)	Anticipated Benefits (2,1,0)	Total
Connections-6	Long-term Stadium Way Improvements	6	6	4	2	18
Circulation-9	Stadium Way to Grimes Way reconfiguration	6	6	4	2	18
Connections-7	College Hill Neighborhood Hill Greenway	6	3	4	2	15
Connections-8	D Street Neighborhood Greenway	6	3	4	2	15
Circulation-10	Grimes Way reconfiguration	3	6	4	2	15
Circulation-1	Colorado Connector	6	3	4	1	14
Circulation-12	South Campus Trail	3	6	2	1	12
Circulation-14	Connections from Chipman Trail to South Campus Trail	3	6	2	1	12
Connections-9	Grand Avenue Bike Lanes (south of Olsen)	0	6	4	2	12
Connections-1	Sunnyside Hill Neighborhood Greenway	3	3	4	2	12
Connections-3	Military Hill Neighborhood Greenway	3	3	4	2	12
Connections-10	Pioneer Hill Neighborhood Greenway	3	3	4	2	12
Connections-11	SW Gateway - the Zig Zag	6	0	2	2	10
Connections-12	SW Gateway Pathway	6	0	2	2	10

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Circulation-2	Priority Bicycle Improvements	3	3	2	2	10
Connections-2	Military Hill Route B	3	3	2	1	9
Connections-4	Grand Avenue Greenway Extension	0	3	4	2	9
Connections-5	Military Hill Route C	3	3	2	1	9
Circulation-3	Veterans Way Pedestrian Mall re-design	3	3	2	1	9
Circulation-4	College Pedestrian Mall re-design	3	3	2	1	9
Circulation-11	Forest Way connections	3	3	2	1	9
Circulation-5	Rec Center Bypass	3	0	4	1	8
Circulation-6	Ferdinand's Connector	3	0	4	1	8
Circulation-7	Tennis Court Bypass	3	0	4	1	8
Circulation-8	Golf Course Connector	3	0	4	1	8
Circulation-13	Stairs to ramps conversions	3	0	2	1	6
Circulation-15	Multimodal Transit Center design	0	0	0	2	2

Phasing Plan

Implementation of the Washington State University Bicycle and Pedestrian Plan will take place incrementally through small steps taken over many years, depending on available funding and coordination with external agencies. The following phasing plan can guide the University and City toward developing the projects identified in this plan. Ideally, the University should complete higher-priority projects found within the Phase I, Phase II, and Phase III lists below in the general order that they appear in the prioritization matrix. However, many opportunities will likely arise over the years that will make lower priority projects feasible either through efforts of an external agency (e.g. street resurfacing), or through on-campus construction projects.

Table 3 shows the phasing plan for the non-motorized prioritized projects. The phasing plan organizes projects into Phase I, Phase II, and Phase III projects.

The intent of prioritizing projects is to identify a strategic timeline for implementation. The recommended implementation schedule is as follows:

- Phase I projects (Fix What You Have) are the top priority projects, which should be implemented within four years.
- Phase II projects are planned for implementation within 8-10 years.
- Phase III projects are future projects recommended for implementation within the next 16 years.

These recommendations are designed to encourage the University to develop an interconnected bicycle and pedestrian network that makes best use of existing facilities, key destinations, and other factors that affect walking and bicycling throughout the city.

Table 3. Phasing of Non-Motorized Projects

Project ID	Project Name
Phase I	
Fix-1	NW Davis Way Pathway Gap
Fix-2	Shared Lane Markings - Campus + City
Fix-3	Stadium Way (Grand to Colorado) (short-term)
Fix-4	NE Valley Road
Fix-5	Terre View Pathway completion
Fix-6	Trail/Roadway crossing @ Kamiakan
Fix-7	Trail/Roadway crossing @ Whitman
Fix-8	Trail/Roadway crossing @ Ritchie Street
Fix-9	Trail/Roadway crossing @ Stadium Way
Fix-10	Trail/Roadway crossing @ Terre View
Fix-11	Automate Pedestrian Signals (Campus + City)
Fix-12	Update flashing crosswalk lights to LED (Campus)
Fix-13	Add countdown signalheads to pedestrian signals
Fix-14	Additional/Improved Bike Parking
Fix-15	NE North Fairway Road Trail to Sidewalk Transition
Fix-16	Curb Cut Infill/Retrofit
Phase II	
Connections-6	Long-term Stadium Way Improvements
Circulation-9	Stadium Way to Grimes Way reconfiguration
Connections-7	College Hill Neighborhood Hill Greenway
Connections-8	D Street Neighborhood Greenway
Circulation-10	Grimes Way reconfiguration
Circulation-1	Colorado Connector
Circulation-12	South Campus Trail

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Circulation-14	Connections from Chipman Trail to South Campus Trail
Connections-9	Grand Avenue Bike Lanes (south of Olsen)
Connections-1	Sunnyside Hill Neighborhood Greenway
Connections-3	Military Hill Neighborhood Greenway
Connections-10	Pioneer Hill Neighborhood Greenway
Connections-11	SW Gateway - the Zig Zag
Connections-12	SW Gateway Pathway
Circulation-2	Priority Bicycle Improvements
Phase III	
Connections-2	Military Hill Route B
Connections-4	Grand Avenue Greenway Extension
Connections-5	Military Hill Route C
Circulation-3	Veterans Way Pedestrian Mall re-design
Circulation-4	College Pedestrian Mall re-design
Circulation-11	Forest Way connections
Circulation-5	Rec Center Bypass
Circulation-6	Ferdinand's Connector
Circulation-7	Tennis Court Bypass
Circulation-8	Golf Course Connector
Circulation-13	Stairs to ramps conversions
Circulation-15	Multimodal Transit Center design

Implementation Costs

This section summarizes planning level cost opinions associated with the recommended non-motorized improvement projects. An overview of the phased cost opinions is presented at the beginning of this section, followed by specific project costs by facility type and phase.

Cost Opinions Overview

The total implementation cost of the Washington State University Bicycle and Pedestrian Plan is estimated at approximately \$11.5 million, as shown in Table 4. Fix What You Have recommendations account for just over \$4 million.

Table 4. Summary of Cost Opinion

Category	WSU	Pullman	Total
Fix What You Have	\$484,000	\$3,626,000	\$4,110,000
Connections	\$1,612,000	\$995,000	\$2,607,000
Circulation*	\$4,830,000	\$65,000	\$4,895,000
Totals	\$6,926,000	\$4,686,000	\$11,612,000

*The Circulation planning-level cost estimates do not include the costs for the Stadium Way/Grimes Way reconfiguration.

The planning-level cost estimate for each project can be found in Appendix H1 at the back of this Working Paper.

Cost Opinion by Phase

Table 5. Cost Opinion by Phase

Phase	WSU	Pullman	Total
I	\$484,000	\$3,626,000	\$4,110,000
II	\$4,272,000	\$483,000	\$4,755,000
III	\$2,170,000	\$577,000	\$2,747,000
Totals	\$6,926,000	\$4,686,000	\$11,612,000

Implementation Strategies

Implementation strategies and their related action items support the goals and policies and projects outlined above.

1. Health and Safety

Provide and promote safe and accessible routes and accommodations for walking and biking as a daily form of physical activity.

Action 1.1: Reduce Crashes

Reduce crashes involving bicyclists, pedestrians, and motor vehicles by at least 10 percent by 2018.

Action 1.2: Address Conflicts

Use current best engineering practices for minimizing and mitigating conflicts between bicycles, pedestrians and motor vehicles.

Action 1.3: Promotion

Work with Alive!, the Green Bike Program, URec, and other campus programs to actively promote walking and biking on campus.

Action 1.4: Prioritize Safety

Prioritize pedestrian and bicyclist safety during construction and maintenance activities and ensure that accessibility guidelines are followed.

2. Education and Encouragement

Increase the public's awareness and usage of the bicycle and pedestrian network on campus and in Pullman through targeted education and encouragement programs.

Action 2.1: Safety Education

Educate the general public on bicycle and walking safety issues and encourage non-motorized transportation with programs that target pedestrians, bicyclists and motorists.

Action 2.2: Promotion through City/Campus-Sponsored Events

Encourage pedestrians and bicyclists through City-and Campus-sponsored events, such as "Bike/Walk to Work Day".

Action 2.3: Education on Laws and Regulations

Educate the general public on bicycle and pedestrian laws and regulations via the University and City's website and other education programs.

Action 2.4: Education for Drivers

Educate drivers (transit drivers, delivery drivers, etc.) on bicyclist rights and safe motoring behavior around bicyclists. Provide appropriate materials to pedestrians, motorists and cyclists convicted of specified violations

Action 2.5: Proper and Safe Behavior

Educate bicyclists and pedestrians on proper and safe behavior for biking and walking via the University's and City's website and other education programs.

Action 2.6: Awareness of Pedestrians with Disabilities

Improve the general public's awareness of the transportation needs and requirements of people with a variety of mobility and sensory disabilities via the University's and City's website and other education programs.

Action 2.7: End of Trip Facilities

Install bike racks, accessible parking and other support infrastructure at destinations citywide, including transit stations, retail area, parks, public facilities, and other high-traffic areas.

Action 2.8: Wayfinding Signage

Install wayfinding signage in proximity to bike lanes, bike boulevards, shared-use paths and destinations.

3. Enforcement

Enhance safety for all road users through increased traffic enforcement on city streets, walkways and bikeways.

Action 3.1: Traffic Law Enforcement

Enforce traffic laws consistently for all users

Action 3.2: Diversion Course

Collaborate with law enforcement and the court system on the development of a traffic skills education course aimed to reduce aggressive and/or negligent behavior among drivers, bicyclists and pedestrians by providing the option of taking a traffic skills education course in lieu of fines for traffic violations.

Action 3.3: Obstruction Prevention

Prevent the obstruction of dedicated bikeways and walkways.

Action 3.4: Violation Reporting

Develop and promote efficient mechanisms for reporting behaviors and conditions that endanger cyclists and pedestrians to law enforcement

4. Transit Integration

Action 4.1: Partner with Transit

Work cooperatively with adjoining jurisdictions and transit agencies to coordinate nonmotorized planning and implementation activities.

Action 4.2: Routes to Transit

Provide safe and accessible routes and intersections to transit for pedestrians of all abilities.

Action 4.3: Bicycle Facilities at Transit Hubs

Provide safe end-of-trip facilities (bike parking, bike lockers, etc) at all transit hubs/centers.

5. Sustainability

Encourage and improve the appeal of modes of transportation with negligible carbon emissions, such as walking, biking, and using assistive devices, thereby reducing the miles traveled by single occupancy vehicles.

Action 5.1: Sustainability

Support Washington State University's sustainability goals by developing a comprehensive pedestrian and bicycle network.

Action 5.2: Parking Strategies to Reduce Driving

Support changing parking policies to discourage single occupancy vehicle driving, while recognizing the need to provide accessible parking.

Action 5.3: End of Trip Facilities for Active Commuting

Give incentives for bicycle storage, locker rooms and shower facilities for all major office building construction and remodeling projects in the downtown core.

6. Implementation

Implement the 2013 WSU Bicycle and Pedestrian Plan's recommendations for developing a non-motorized network that reduces auto travel, increases the number of non-motorized users of all ages and abilities, and improves the health of our people and local ecology.

Action 6.1: Connected Network

Complete the connected network of sidewalks, trails, bike lanes, bike boulevards, shared lane markings, and cycle tracks throughout the city that serves pedestrians and all bicycle user groups.

Action 6.2: New Dedicated Source of Funding

Pursue establishment of a new dedicated source of funding for non-motorized improvements.

Action 6.3: Barriers and Hazards

Reduce barriers and hazards to non-motorized users by ensuring safe and sufficient crossings of major roadways and by providing routes that minimize steep slopes.

Action 6.4: Inspection and Maintenance

Create safe and accessible bikeways and walkways through regular inspection and maintenance.

7. Accountability

Establish benchmarks measurements and monitor the effectiveness of the 2013 WSU Bicycle and Pedestrian Plan on an annual basis.

Action 7.1: Bicycle/Pedestrian Tracking

Track trends in non-motorized usage through the use of Census data, annual user surveys, and annual bicycle and pedestrian counts.

Action 7.2: Collision Data

Monitor bicycle and pedestrian collision data with the goal of reducing non-motorized collisions.

Action 7.3: Pedestrian/Bicycle Report Card

Produce a regular report card tracking pedestrian and bicycle trends on the Washington State University campus and in Pullman including percent of the system that has been completed, funds invested, identification of ongoing problems, public feelings of safety, status of reaching Health and Safety goals, and educational outreach efforts.

Action 7.4: Track Implementation

Track implementation of improved and increased walkway and bikeway facilities, ADA accessible features, and amenities.

Appendix H1: Planning Level Cost Estimates

The Opinion of Probable Cost includes preliminary estimates of construction costs based upon the recommended non-motorized projects in the Washington State University Bicycle and Pedestrian Plan. Important assumptions used to arrive at these estimates include:

- All costs are in 2013 dollars
- Costs do not include property acquisition, utilities, and custom overpasses/underpasses
- Standard construction methods and materials are used

In developing these cost estimates, we have relied upon our experience with similar projects to select the construction materials with the best life-cycle cost and performance characteristics. Since these preliminary estimates are based on a planning-level understanding of the components, rather than on a detailed design, they should be considered as “Order of Magnitude”.

American Society for Testing and Materials (ASTM) Standard E2620 defines Order of Magnitude as being accurate to within plus 50% or minus 30%. This broad range of potential costs is appropriate given the level of uncertainty in the design at this point in the process. Many factors can affect final construction costs, including:

- Final construction phasing
- Selected alignment
- Revisions to the design as required by local, state and federal permitting agencies
- Additional requirements imposed by property owners as a condition of granting property rights (e.g., fencing, vegetated buffers, etc.)
- Fluctuations in commodity prices during the design and permitting processes
- Selected construction materials
- Type and quantity of amenities (e.g., benches, lighting, bike racks, etc.)
- Extent of landscaping desired
- Availability of donated materials and volunteer labor
- Property Acquisition

As the project progresses through preliminary, semi-final and final design phases, these uncertainties begin to diminish. With each round of refinement a range of expected construction costs will become more accurately known.

Table A. Planning level Cost Estimates by Project

Project ID	Project Name	Planning Level Cost Estimate	
		WSU	Pullman
Phase I			
Fix-1	NW Davis Way Pathway Gap		\$280,000
Fix-2	Shared Lane Markings - Campus + City	\$10,000	
Fix-3	Stadium Way (Grand to Colorado) (short-term)		\$1,015,000
Fix-4	NE Valley Road	\$15,000	\$15,000
Fix-5	Terre View Pathway completion	\$219,000	\$511,000
Fix-6	Trail/Roadway crossing @ Kamiaken		\$45,000
Fix-7	Trail/Roadway crossing @ Whitman		\$45,000
Fix-8	Trail/Roadway crossing @ Ritchie Street		\$65,000
Fix-9	Trail/Roadway crossing @ Stadium Way		\$200,000
Fix-10	Trail/Roadway crossing @ Terre View		\$1,375,000
Fix-11	Automate Pedestrian Signals (Campus + City)	\$50,000	\$50,000
Fix-12	Update flashing crosswalk lights to LED (Campus)	\$50,000	
Fix-13	Add countdown signalheads to pedestrian signals	\$25,000	\$25,000
Fix-14	Additional/Improved Bike Parking	\$50,000	
Fix-15	NE North Fairway Road Trail to Sidewalk Transition	\$15,000	
Fix-16	Curb Cut Infill/Retrofit	\$50,000	
Phase II			
Connections-6	Long-term Stadium Way Improvements		\$40,000
Circulation-9	Stadium Way to Grimes Way reconfiguration	n/a	
Connections-7	College Hill Neighborhood Greenway	\$41,000	\$41,000
Connections-8	D Street Neighborhood Greenway	\$11,000	\$42,000
Circulation-10	Grimes Way reconfiguration	n/a	

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Circulation-1	Colorado Connector	\$240,000	
Circulation-12	South Campus Trail	\$2,400,000	
Circulation-14	Connections from Chipman Trail to South Campus Trail		\$65,000
Connections-9	Grand Avenue Bike Lanes (south of Olsen)		\$40,000
Connections-1	Sunnyside Hill Neighborhood Greenway		\$84,000
Connections-3	Military Hill Neighborhood Greenway		\$95,000
Connections-10	Pioneer Hill Neighborhood Greenway		\$76,000
Connections-11	SW Gateway - the Zig Zag	\$60,000	
Connections-12	SW Gateway Pathway	\$1,500,000	
Circulation-2	Priority Bicycle Improvements	\$20,000	
Phase III			
Connections-2	Military Hill Route B		\$130,000
Connections-4	Grand Avenue Greenway Extension		\$400,000
Connections-5	Military Hill Route C		\$47,000
Circulation-3	Veterans Way Pedestrian Mall re-design	\$50,000	
Circulation-4	College Pedestrian Mall re-design	\$50,000	
Circulation-11	Forest Way connections	\$600,000	
Circulation-5	Rec Center Bypass	\$340,000	
Circulation-6	Ferdinand's Connector	\$540,000	
Circulation-7	Tennis Court Bypass	\$240,000	
Circulation-8	Golf Course Connector	\$250,000	
Circulation-13	Stairs to ramps conversions	\$50,000	
Circulation-15	Multimodal Transit Center design	\$50,000	