SOUTHCENTRAL CAMPUS ROADWAY REVISIONS

Capital Project Proposal 2017-2019

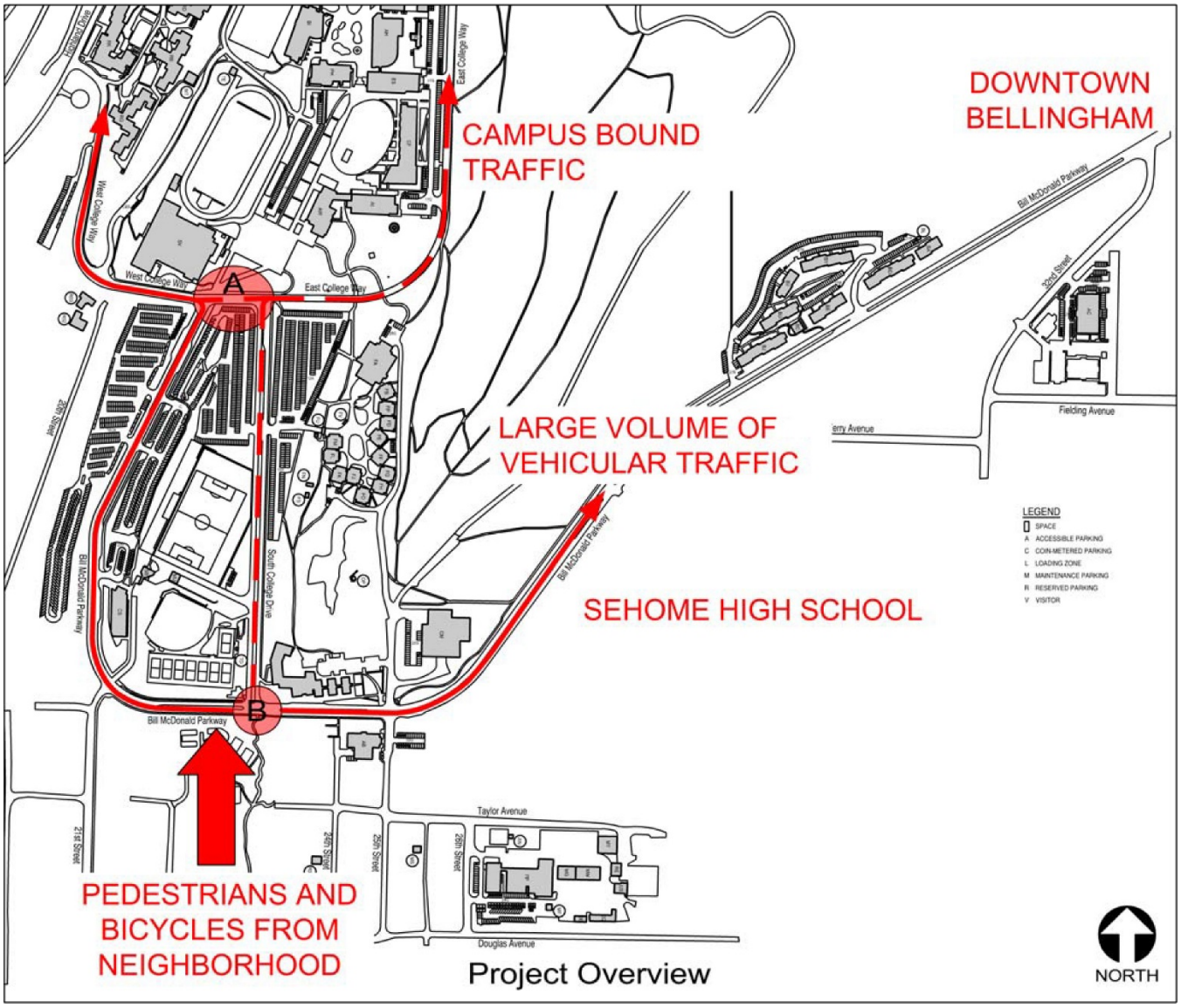
Active Minds Changing Lives

WESTERN WASHINGTON UNIVERSITY

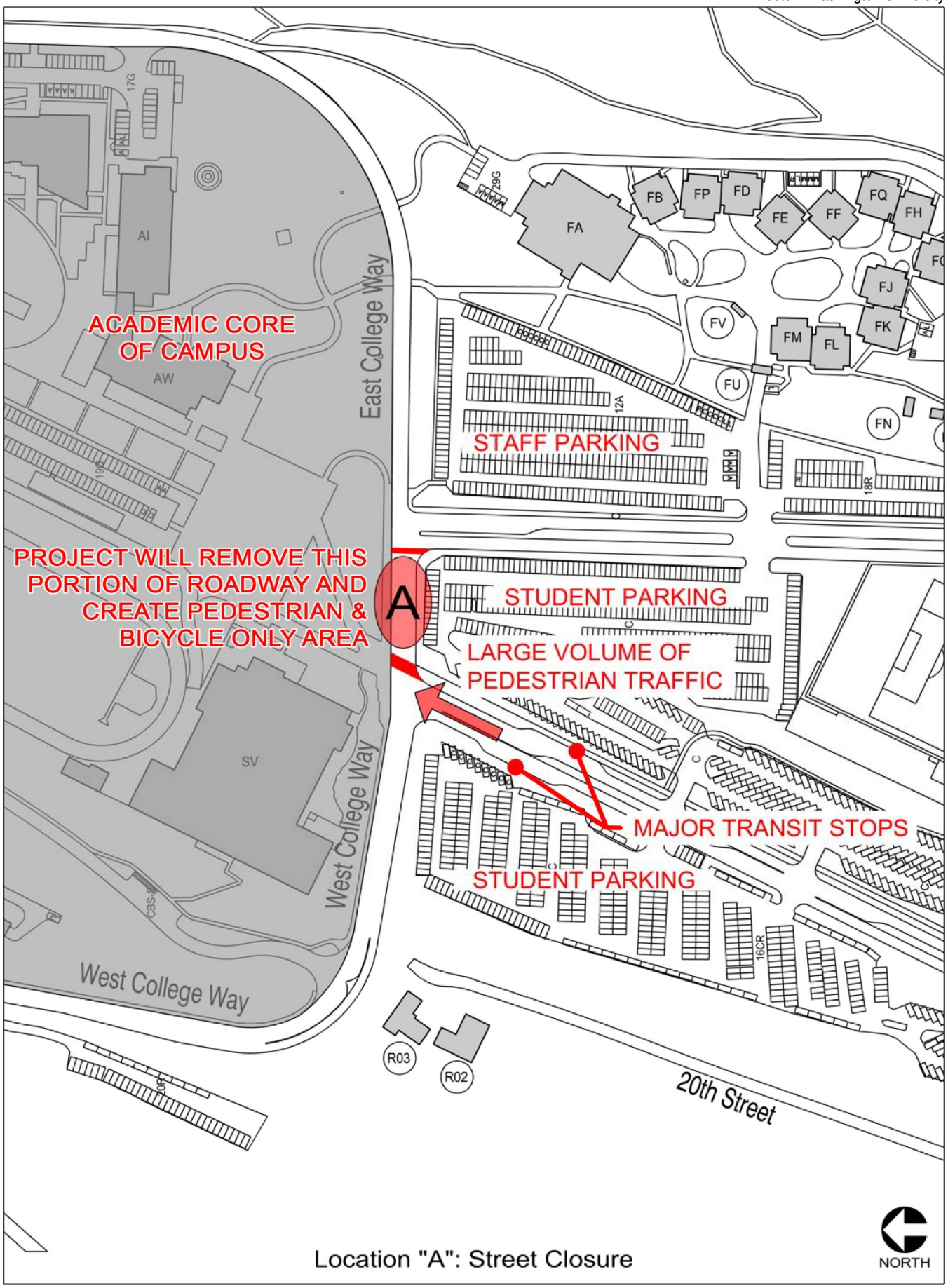
Institution
Western Washington University
Project Title
Southcentral Campus Roadway Revisions
Project Location (City)
Bellingham

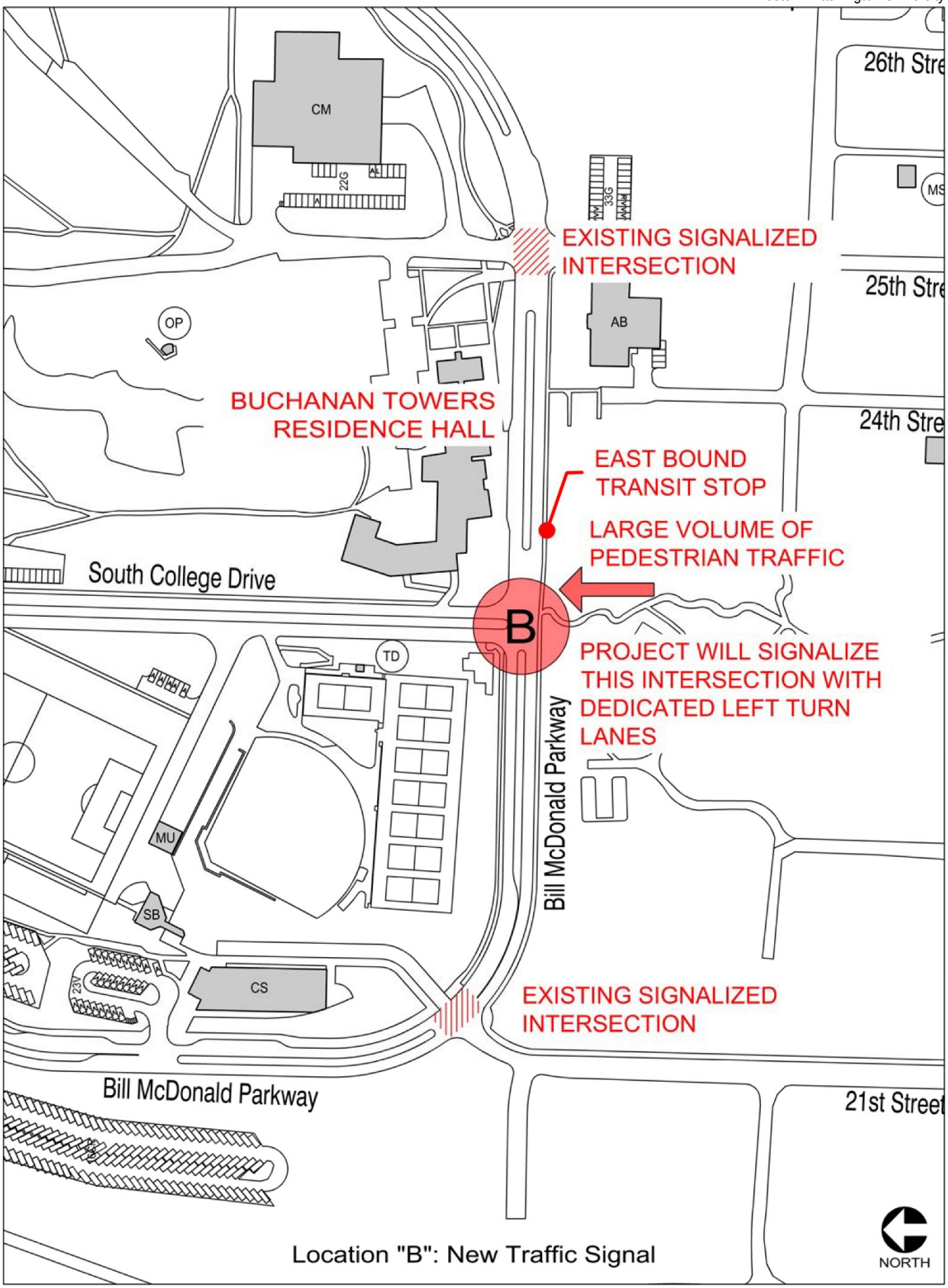
1. Problem Statement (short description of the project – the needs and benefits):

There is a critical need for improving pedestrian and bicycle safety when accessing the campus from the south. The congestion around two intersections (identified as areas "A" & "B" on maps) are significant risks to pedestrians, bicyclists, transit buses, private vehicles, vendor semi-trucks and many motorists coming to campus or simply using the roads to bypass campus heading downtown or to Sehome High School to our east. The project involves creating a safe area for crossing at intersection "A" by removing the eastbound lanes creating an area for pedestrians and bicycles only. We would also signalize intersection "B" and install dedicated left turn lanes.



Project Overview


ACADEMIC CORE OF CAMPUS
PROJECT WILL REMOVE THIS PORTION OF ROADWAY AND CREATE PEDESTRIAN & BICYCLE ONLY AREA
A
STAFF PARKING
STUDENT PARKING
LARGE VOLUME OF PEDESTRIAN TRAFFIC
MAJOR TRANSIT STOPS
STUDENT PARKING
East College Way
West College Way
West College Way
20th Street
AI
AW
SV
FA
FB
FP
FD
FE
FF
FQ
FH
FJ
FK
FM
FL
FV
FU
FN
R03
R02
NORTH
Location "A": Street Closure


CM
22G
33G
EXISTING SIGNALIZED INTERSECTION
26th Stre
25th Stre
24th Stre
MS
OP
AB
BUCHANAN TOWERS RESIDENCE HALL
EAST BOUND TRANSIT STOP
LARGE VOLUME OF PEDESTRIAN TRAFFIC
South College Drive
B
TD
PROJECT WILL SIGNALIZE THIS INTERSECTION WITH DEDICATED LEFT TURN LANES
Bill McDonald Parkway
MU
SB
CS
23W
EXISTING SIGNALIZED INTERSECTION
Bill McDonald Parkway
21st Street
Location "B": New Traffic Signal
NORTH

Over the last several years, there have been hit and run, speeding, and numerous pedestrian crosswalk violation incident reports related to Bill McDonald Parkway and these two highly congested areas. The safety concerns stem from the high volume of vehicular traffic (campus bound and non-campus bypass) combined with high volumes of pedestrian traffic (about one-third of our student population resides just south of campus) and major transit pick-up and drop off stations just south of area A (approx. 3,000 students per day board and alight transit at these stops with a peak hour of 400 students at a time).

All of this volume is traversing the intersections at areas A & B. The situation is compounded with a major bicycle route using these same areas.

Our risks are significant:

According to the 2013 Washington State Strategic Highway Safety Plan "Target Zero", "Pedestrian deaths account for 14% of all traffic fatalities, up from 11% in 2006-2008" and "over one-fifth of all Washington traffic fatalities, and one-third of serious injuries, were intersection related." See Appendix B.

"A significant percentage of bicyclist and pedestrian fatalities and serious injuries occur at intersections. From 2009-2011, 55% of bicyclist fatalities and serious injuries occurred at intersections (54% of fatalities and 55% of serious injuries). For pedestrians, over 45% of fatalities and serious injuries occurred at intersections (32% of fatalities and 55% of serious injuries)."

"Significant progress has yet to be made in reducing pedestrian fatalities and serious injuries at intersections. This is the only area out of the top collision types at intersections that has not improved during 2009-2011 compared to 2006-2008. Rather than a decrease, the total number of intersection related pedestrian fatalities and serious injury collisions have increased by 2%."

By removing the roadway between intersections in area A and signalizing the intersection in area B, we will significantly reduce the potential for safety violations and injuries from vehicle and pedestrian/bicycle interactions.

2. **History of the Project or facility*:***

Requests for roadway revisions have been submitted several biennia. The University received predesign funding in 2003-05 to assess south campus roadway development/revision options.

3. University programs addressed or encompassed by the project: N/A

4. Significant Health, Safety, and Code Issues:

These two areas are high risk life safety areas that must be mitigated.

At intersection area "A", we have data from the Whatcom Transportation Authority (Appendix C) stating that the daily boarding and embarking counts for the transit stops just south of the intersection are a little over 3,000 people per day with the maximum count of over 400 people at one time. These stops are just steps away from the intersection. Combine that with the pedestrians coming from south of campus where approximately 1/3 of our student body resides and from our parking lots where students are parking (over 1,000 parking spaces) and walking north to campus

crossing this same intersection (another peak time of 500 people) and you have a situation where pedestrians are crossing in bulk regardless of the signal. See Appendix H.

The vehicular traffic is also high with over 10,000 vehicles per day using the intersection (500 at peak hour).

At the intersection "B" area, there is an unsignalized intersection with approx. 15,000 vehicles per day, where a large number of students are crossing heading to and from classes to the neighborhood just south of campus. There is also an eastbound transit stop just east of the intersection without a pullout. This stop does two things. First, it backs up traffic eastbound well beyond intersection "B". Second, it drops off students that cross mid-block heading to a large residence hall that sits on the northeast corner of the intersection.

5. Evidence of increased repairs and/or service interruption: N/A

6. Impact on Institutional Operations without the Infrastructure Project:

Failure to fund this project creates an ever increasing life safety risk. With the increasing size of Bellingham comes increasing traffic on the city's main arterial that passes through both intersection areas "A" & "B". Combine that with more apartments just south of the campus and Western's very successful alternative transportation programs that creates more and more pedestrian, bicycle, and transit riders, these intersections will become more congested. The intersection level of service will drop and the frustration levels of users will increase.

Additionally, failure to remove the vehicular roadway section in area "A" creates a barrier to expanding our academic core area for badly needed academic programs. This area is the only remaining larger area for academic growth within our ten-minute class change radius from the main library.

7. Reasonable Estimate:

A detailed C100 cost estimate is attached totaling $2,060,000. See Appendix A.

8. Engineering Study:

A Letter of Opinion from the City of Bellingham Public Works is attached. See Appendix G.

9. Supports Facilities Plan:

Both the 1997 Draft Comprehensive Campus Master Plan (DCCMP) and the 2001 Institutional Master Plan (IMP) speak to the conflicts and life safety risks of the intersection areas identified in this proposal as "A" & "B".

On page IVd-4 of the 1997 DCCMP, it states for intersection area "A", "Pedestrians and bicyclists using the intersection at 21 Street (now renamed Bill McDonald Parkway) and West College Way conflict with both University-related and non-university traffic, including WTA (Whatcom Transportation Authority) buses. This area is considered to be the most heavily traveled and dangerous corridor for pedestrians and bicycles." It also states on that same page, that one of the

plans goals is, “Pedestrian pathways should be oriented to minimize the conflicts with vehicles and bicycles.”

Regarding the intersection “B” area, page IVd-5 of the DCCMP states, “Pedestrian access from areas south of Buchanan Towers will also be improved by relocating the pedestrian crossing of Bill McDonald Parkway closer to South College Drive. This will allow easier access to designated sidewalks that will offer a more direct passage to campus.” See Appendix D.

Page II-41 of the 2001 IMP states that one of the Character Goals and Development Recommendations for District 13 (area where intersection “A” exists) is to, “Increase safety for pedestrians, bicyclists, transit, and vehicles.” See Appendix E.

It also states on pages III-1 & 2,

- Provide convenient, safe, and accessible access to campus for students, staff, faculty and students.
- Increase the number of students, staff, and faculty who walk to campus.
- Maximize a pedestrian campus and minimize the use of limited campus land for roads.

In addition to the university’s plans, this proposal is also consistent with the goals of the 2013 Washington State Strategic Highway Safety Plan “Target Zero” and the WSDOT Safe Routes to School program. See Appendix F.

10. Resource Efficiency and Sustainability:

The project will reduce the amount of impervious surface on campus by removing an existing roadway and will improve stormwater management.

New lighting will be LED, significantly reducing electrical consumption and will be night sky compliant.

Southcentral Campus Roadway Revisions

Appendix Contents

A. Office of Financial Management Reports (CBS002)
Project Cost Summary/C100
B. Washington State Strategic Highway Safety Plan
C. Whatcom Transit Authority Table
D. WWU Comprehensive Master Plan
E. WWU Institutional Master Plan
F. Washington State Department of Transportation Data
G. City of Bellingham Public Works Department Letter
H. City of Bellingham 2012-2015 Bike-Ped Count Totals

Appendix A

OFM

380 - Western Washington University
Capital Project Request

2017-19 Biennium

*

Version: WV Working Version 2017-19 Budget Req

Report Number: CBS002
Date Run: 7/29/2016 3:43PM

Project Number: **30000783**
Project Title: **Southcentral Campus Roadway Revisions**

Description

Starting Fiscal Year: 2018
Project Class: Program
Agency Priority: 10

Project Summary

This project proposes to revise pedestrian crossing and traffic flow in the congested south end of campus to improve safety for pedestrian, bicycle and auto traffic.

Project Description

Intersection A Bill McDonald Parkway and West College Way
Intersection B Bill McDonald Parkway and South College Drive

There is a critical need for improving pedestrian and bicycle safety when accessing the campus from the south. The congestion around two intersections (identified as areas “A” & “B” on attached maps) are significant risks to pedestrians, bicyclists, transit buses, private vehicles, vendor semi-trucks and many motorists coming to campus or simply using the roads to bypass campus heading downtown or to Sehome High School to our east. The project involves creating a safe area for crossing at intersection “A” by removing the eastbound lanes creating an area for pedestrians and bicycles only. We would also signalize intersection “B” and install dedicated left turn lanes.

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All of this volume is traversing the intersections at areas A & B. The situation is compounded with a major bicycle route using these same areas.

The risks are significant::

--- According to the 2013 Washington State Strategic Highway Safety Plan “Target Zero”, “Pedestrian deaths account for 14% of all traffic fatalities, up from 11% in 2006-2008” and “over one-fifth of all Washington traffic fatalities, and one-third of serious injuries, were intersection related.”

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OFM

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Failure to fund this project creates an ever increasing life safety risk. With the increasing size of Bellingham comes increasing traffic on the city's main arterial that passes through both intersection areas "A" & "B". Combine that with more apartments just south of the campus and Western's very successful alternative transportation programs that creates more and more pedestrian, bicycle, and transit riders, these intersections will become more congested. The intersection level of service will drop and the frustration levels of users will increase.

Additionally, failure to remove the vehicular roadway section in area "A" creates a barrier to expanding our academic core area for badly needed academic programs. This area is the only remaining larger area for academic growth within our ten-minute class change radius from the main library.

Both the 1997 Draft Comprehensive Campus Master Plan (DCCMP) and the 2001 Institutional Master Plan (IMP) speak to the conflicts and life safety risks of the intersection areas identified in this proposal as "A" & "B".

This project will increase resource efficiency and sustainability by reducing the amount of impervious surface on campus by removing an existing roadway and will improve stormwater management. New lighting will be LED, significantly reducing electrical consumption and will be night sky compliant.

Project Schedule: September 2017 - September 2018

Location
City: Bellingham **County:** Whatcom **Legislative District:** 040

Project Type
Intermediate

Growth Management impacts
NONE

New Facility: No

Funding

Acct Code	Account Title	Estimated Total	Expenditures Prior Biennium	Expenditures Current Biennium	2017-19 Fiscal Period Reapprops	2017-19 Fiscal Period New Approps
057-1	State Bldg Constr-State	2,060,000				2,060,000
	Total	**2,060,000**	**0**	**0**	**0**	**2,060,000**

		Future Fiscal Periods 2019-21	2021-23	2023-25	2025-27
057-1	State Bldg Constr-State				

OFM

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Capital Project Request
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Funding

Total	**0**	**0**	**0**	**0**

Operating Impacts

No Operating Impact

STATE OF WASHINGTON

AGENCY / INSTITUTION PROJECT COST SUMMARY

Agency	Western Washington University
Project Name	Southcentral Campus Roadway Revisions
OFM Project Number	30000783

Contact Information	
Name	Rick Benner, FAIA
Phone Number	(360) 650-3550
Email	rick.benner@wwu.edu

Statistics			
Gross Square Feet		MACC per Square Foot	
Usable Square Feet		Escalated MACC per Square Foot	
Space Efficiency		A/E Fee Class	B
Construction Type	Other Sch. B Projects	A/E Fee Percentage	13.04%
Remodel	Yes	Projected Life of Asset (Years)	50
Additional Project Details			
Alternative Public Works Project	No	Art Requirement Applies	No
Inflation Rate	2.80%	Higher Ed Institution	No
Sales Tax Rate %	8.70%	Location Used for Tax Rate	
Contingency Rate	10%		
Base Month	July-16		
Project Administered By	Agency		

Schedule			
Predesign Start		Predesign End	
Design Start	September-17	Design End	May-18
Construction Start	June-18	Construction End	September-18
Construction Duration	3 Months		

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Project Cost Estimate

Total Project	**$1,950,002**	Total Project Escalated	**$2,059,812**
		Rounded Escalated Total	**$2,060,000**

STATE OF WASHINGTON

AGENCY / INSTITUTION PROJECT COST SUMMARY

Agency	Western Washington University
Project Name	Southcentral Campus Roadway Revisions
OFM Project Number	30000783

Cost Estimate Summary

Acquisition			
Acquisition Subtotal	**$0**	**Acquisition Subtotal Escalated**	**$0**

Consultant Services			
Predesign Services	$0		
A/E Basic Design Services	$121,738		
Extra Services	$83,500		
Other Services	$74,694		
Design Services Contingency	$27,993		
Consultant Services Subtotal	**$307,924**	**Consultant Services Subtotal Escalated**	**$322,575**

Construction			
Construction Contingencies	$123,000	Construction Contingencies Escalated	$130,147
Maximum Allowable Construction Cost (MACC)	$1,230,000	Maximum Allowable Construction Cost (MACC) Escalated	$1,301,463
Sales Tax	$117,711	Sales Tax Escalated	$124,551
Construction Subtotal	**$1,470,711**	**Construction Subtotal Escalated**	**$1,556,161**

Equipment			
Equipment	$0		
Sales Tax	$0		
Non-Taxable Items	$0		
Equipment Subtotal	**$0**	**Equipment Subtotal Escalated**	**$0**

Artwork			
Artwork Subtotal	**$0**	**Artwork Subtotal Escalated**	**$0**

Agency Project Administration			
Agency Project Administration Subtotal	$104,367		
DES Additional Services Subtotal	$0		
Other Project Admin Costs	$0		
Project Administration Subtotal	**$104,367**	**Project Administation Subtotal Escalated**	**$110,431**

Other Costs			
Other Costs Subtotal	**$67,000**	**Other Costs Subtotal Escalated**	**$70,645**

Project Cost Estimate

Total Project	**$1,950,002**	Total Project Escalated	**$2,059,812**
		Rounded Escalated Total	**$2,060,000**

Cost Estimate Details

Acquisition Costs					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Purchase/Lease					
Appraisal and Closing					
Right of Way					
Demolition					
Pre-Site Development					
Other					
Insert Row Here					
ACQUISITION TOTAL	**$0**		**NA**	**$0**	

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Cost Estimate Details

Consultant Services				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Pre-Schematic Design Services				
Programming/Site Analysis				
Environmental Analysis				
Predesign Study				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0328**	**$0**	Escalated to Design Start
2) Construction Documents				
A/E Basic Design Services	$121,738			69% of A/E Basic Services
Other				
Insert Row Here				
Sub TOTAL	**$121,738**	**1.0423**	**$126,888**	Escalated to Mid-Design
3) Extra Services				
Civil Design (Above Basic Svcs)				
Geotechnical Investigation				
Commissioning				
Site Survey				
Testing				
LEED Services				
Voice/Data Consultant				
Value Engineering				
Constructability Review				
Environmental Mitigation (EIS)				
Landscape Consultant	$30,000			
Traffic Engineer	$25,000			
Travel & Per Diem	$20,000			
Document Reproduction	$5,000			
Advertising	$3,500			
Insert Row Here				
Sub TOTAL	**$83,500**	**1.0423**	**$87,033**	Escalated to Mid-Design
4) Other Services				
Bid/Construction/Closeout	$54,694			31% of A/E Basic Services
HVAC Balancing				
Staffing				
On-Site Rep.	$20,000			
Insert Row Here				
Sub TOTAL	**$74,694**	**1.0581**	**$79,034**	Escalated to Mid-Const.
5) Design Services Contingency				
Design Services Contingency	$27,993			
Other				
Insert Row Here				
Sub TOTAL	**$27,993**	**1.0581**	**$29,620**	Escalated to Mid-Const.
CONSULTANT SERVICES TOTAL	**$307,924**		**$322,575**	

Cost Estimate Details

Construction Contracts				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Site Work				
G10 - Site Preparation				
G20 - Site Improvements				
G30 - Site Mechanical Utilities				
G40 - Site Electrical Utilities				
G60 - Other Site Construction				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0544**	**$0**	
2) Related Project Costs				
Offsite Improvements				
City Utilities Relocation				
Parking Mitigation				
Stormwater Retention/Detention				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0544**	**$0**	
3) Facility Construction				
A10 - Foundations				
A20 - Basement Construction				
B10 - Superstructure				
B20 - Exterior Closure				
B30 - Roofing				
C10 - Interior Construction				
C20 - Stairs				
C30 - Interior Finishes				
D10 - Conveying				
D20 - Plumbing Systems				
D30 - HVAC Systems				
D40 - Fire Protection Systems				
D50 - Electrical Systems				
F10 - Special Construction				
F20 - Selective Demolition				
General Conditions				
MACC	$1,230,000			
Insert Row Here				
Sub TOTAL	**$1,230,000**	**1.0581**	**$1,301,463**	
4) Maximum Allowable Construction Cost				
MACC Sub TOTAL	**$1,230,000**		**$1,301,463**	

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7) Construction Contingency				
Allowance for Change Orders	$123,000			
Other				
Insert Row Here				
Sub TOTAL	**$123,000**	**1.0581**	**$130,147**	
8) Non-Taxable Items				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0581**	**$0**	
Sales Tax				
Sub TOTAL	**$117,711**		**$124,551**	
CONSTRUCTION CONTRACTS TOTAL	**$1,470,711**		**$1,556,161**	

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Cost Estimate Details

Equipment				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
E10 - Equipment				
E20 - Furnishings				
F10 - Special Construction				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0581**	**$0**	
1) Non Taxable Items				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0581**	**$0**	
Sales Tax				
Sub TOTAL	**$0**		**$0**	
EQUIPMENT TOTAL	**$0**		**$0**	

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Cost Estimate Details

Artwork					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Project Artwork	$0				0.5% of Escalated MACC for new construction
Higher Ed Artwork	$0				0.5% of Escalated MACC for new and renewal construction
Other					
Insert Row Here					
ARTWORK TOTAL	**$0**		**NA**	**$0**	

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Cost Estimate Details

Project Management					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Agency Project Management	$104,367				
Additional Services					
Other					
Insert Row Here					
PROJECT MANAGEMENT TOTAL	**$104,367**		**1.0581**	**$110,431**	

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Cost Estimate Details

Other Costs					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Mitigation Costs					
Hazardous Material Remediation/Removal					
Historic and Archeological Mitigation					
Plan Review	$39,000				
M & O Assist	$28,000				
Insert Row Here					
OTHER COSTS TOTAL	**$67,000**		**1.0544**	**$70,645**	

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C-100(2016)
Additional Notes

Tab A. Acquisition
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Tab B. Consultant Services
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Tab C. Construction Contracts
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Tab D. Equipment
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Tab E. Artwork
Insert Row Here

Tab F. Project Management
Insert Row Here

Tab G. Other Costs
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Appendix B

Pedestrians

Executive Summary

In 2009-2011 there were 193 pedestrian fatalities and 869 serious injuries, accounting for 13.7% of traffic deaths and 12% of serious injuries. The rate of decrease for pedestrian deaths and serious injury collisions has been slower than that of overall fatalities and serious injuries.

Background

In 2009 through 2011, pedestrian fatalities decreased by 2.5% compared to 2006-2008, while overall traffic fatalities decreased by 18.5%. Likewise, serious injuries to pedestrians decreased by 4.2% during the same period, while serious injuries overall decreased by 11.4%.

Since pedestrians and bicyclists share common characteristics, they are discussed together in some instances. In order to better assess pedestrian and bicycle collisions in Washington State, the traffic safety community is trying to assess the number of people walking and biking statewide to determine pedestrian or bicycle exposure rates.

In 2008, Washington State Department of Transportation (WSDOT) initiated the Washington State Bicycle and Pedestrian Documentation Project to collect data on walking and biking. WSDOT completed its fifth annual documentation project in 2012. Volunteers counted more than 40,000 pedestrians and 20,000 bicyclists at 200 locations in 38 cities. According to WSDOT, counts at selected locations showed walking and biking in Washington increased by 10% between 2008 and 2012.

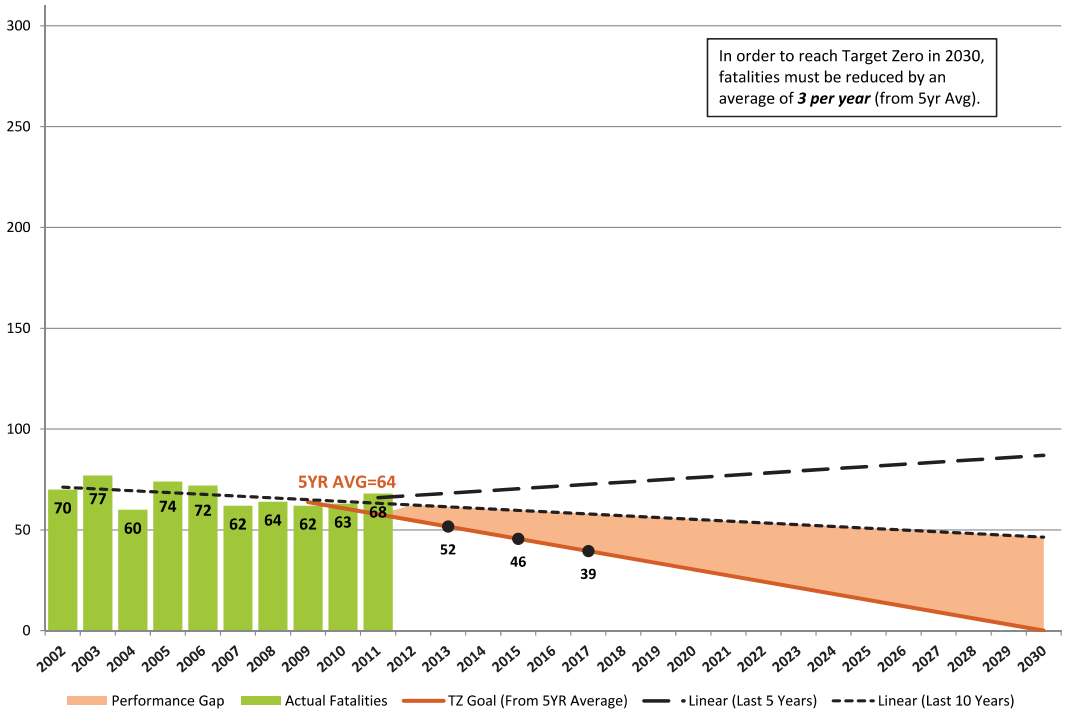
Walking is an integral component of our transportation system. Almost everyone is a pedestrian at one time or another—going to school or work, running errands, recreating and connecting with transit or other services. For some without access to vehicles, particularly children and older citizens, walking is a necessity.

According to WSDOT, most crosswalk locations are unmarked. Approximately 10% of all legal crosswalk locations are marked and 4% are signalized. A sampling of city and county roads indicates a similar percentage of marked legal crossings, and a higher percentage of signalized locations.

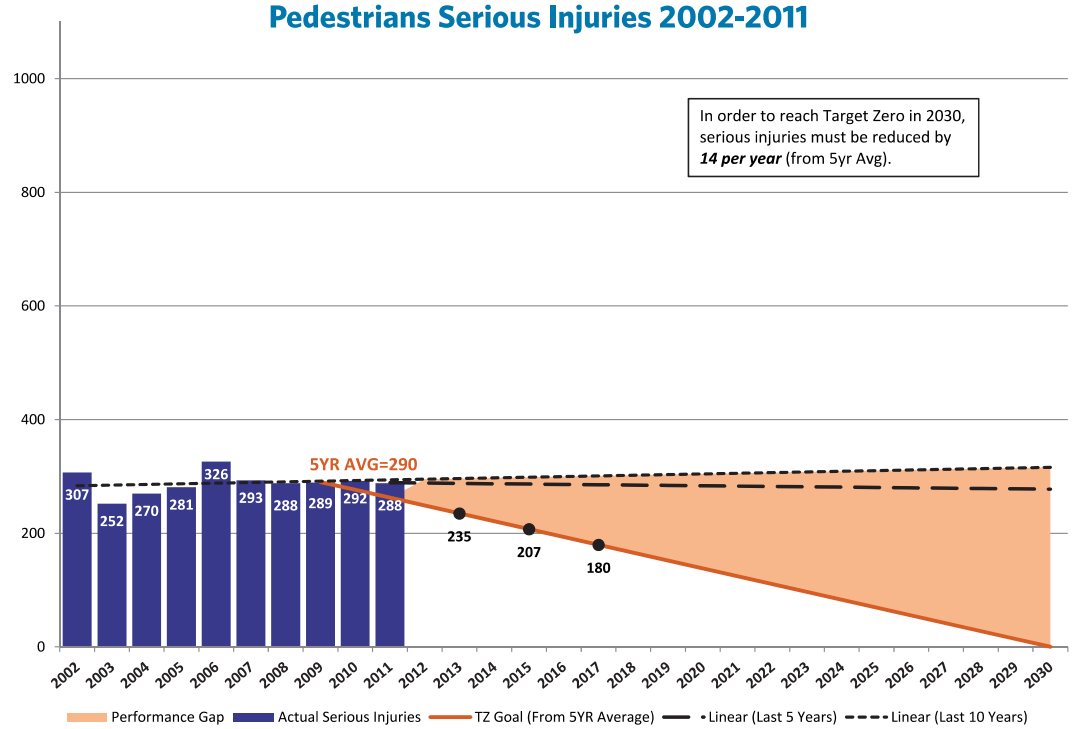
A joint research project between WSDOT and the University of Washington identified a subset of state highways that operate as city main streets in more than 180 cities. These city main street highways account for 9% of the state highway system (600 miles out of 7,044). In 2009-2011, these routes experienced 26% of pedestrian and bicyclist fatalities occurring on state highways.

Pedestrian deaths account for 14% of all traffic fatalities, up from 11% in 2006-2008.

Pedestrians Fatalities 2002-2011



Pedestrians Serious Injuries 2002-2011



Contributing Circumstances and Factors

The top contributing factors in pedestrian-vehicle collisions are different from those in other types of vehicle collisions.

In 2007-2011, vehicle driver actions were not a factor in 57% of pedestrian fatalities. Among the 43% of pedestrian fatalities involving driver contributing factors, the following were most common:

1. Driver distraction (21%)
2. Failure to yield right-of-way (13.5%)
3. Driver impairment (12%)
4. Speeding (6.9%)

Consistent with all traffic fatalities, young drivers (age 16-25) were involved most frequently (21%). Drivers age 26-35 and 46-55 were both involved in 17% of pedestrian fatalities.

Pedestrian contributing factors were not involved in 38% of pedestrian fatalities. Of the 62% of fatal pedestrian collisions involving a pedestrian factor, the following were the most common:

1. Pedestrian impairment (50.8%)
2. Not visible to the driver (31%)
3. Crossing improperly (28.5%)
4. Improper action in the road, including standing, lying, and playing (21%)

Nearly two-thirds (63.3%) of pedestrians killed were male. Looking at age, the highest percent of pedestrian fatalities occurred among those age 46-55 (17.9%), followed by those age 56-65 (15.4%). Just over two percent (2.2%) of pedestrian deaths involved those under age 10, and 4.7% were age 11-15.

Nearly one-third of pedestrian deaths occur in the winter months of October – March, between the hours of 3-9 p.m. This time period constitutes the deadliest time for pedestrians, as do the months of April – September.

Location of Pedestrian Collisions

From 2007-2011, almost half (46%) of pedestrian fatalities occurred at or were related to an intersection. Statewide, 70% of pedestrian deaths occurred in urban areas. However, when developing targeted countermeasures, it is important to note that two-thirds of Native American pedestrian deaths occurred in rural settings. Over half (54.2%) of all pedestrian fatalities occurred in areas with posted speeds of 25-35 mph, and 16.6% occurred on roadways with 60-70 mph posted speeds.

Programs and Successes

High Visibility Enforcement

A High Visibility Enforcement (HVE) campaign helped reduce annual pedestrian deaths in Spokane County from 11 in 2009 to two in 2010. The campaign focused on both drivers and pedestrians in cities. The locations were selected based on crash and complaint data. Education and publicity targeted drivers and pedestrians using a multi-pronged approach with news coverage, television advertising, rackcards, giveaways, and a presence at large events.

Enforcement used previously developed protocols for three operational plans: vehicle driver/pedestrian sting, pedestrian education/enforcement operation, and pedestrian enforcement operation. Motorcycle police were so successful that their usage was expanded during the project. As motorcycle officers handed out rackcards, giveaways and citations by shopping malls, hundreds of people approached them to learn what was happening (Spokane County Pedestrian Safety Project, Engineers Office, March 2011).

Safe Routes to School Program

Washington's Safe Routes to School (SRTS) program is designed to get more children walking and bicycling to school safely, reduce congestion around schools and improve air quality. The program provides technical assistance and resources to cities, counties, schools, school districts and state agencies.

Through WSDOT's SRTS Grant Program, between 2005 and 2012:

- A total of $32 million was made available for 96 projects from the over $137 million in requests
- Forty-one Safe Routes to School projects have been completed, 51 are underway, three are pending and one was cancelled.
- Almost 70% of projects awarded in the first three cycles have been completed
- A statewide bicycle and pedestrian safety educating program had reached approximately 25 school districts and over 10,000 children in 5th through 8th grades by spring of 2012

According to WSDOT, SRTS projects that have provided evaluation results show:

- An average increase of 20% in the number of children walking and biking to school
- Completion of about 75,000 additional feet of sidewalks near schools
- A reduction in motorist travel speeds and traffic citations in school zones
- Increased student compliance with safe crossing behaviors
- No collisions occurring at completed project locations

Nickerson Street Rechannelization

In the summer of 2008, Seattle removed three marked crosswalks along Nickerson Street that no longer met marked crosswalk guidelines. After analysis, Seattle Department of Transportation (SDOT) determined reconfiguring Nickerson Street from four lanes to three, with a center turn lane, would accommodate traffic and allow better pedestrian crossings. In addition to the rechannelization, two new marked crosswalks were added. The project improved traffic safety dramatically while maintaining traffic volumes.

There was a 27% reduction in total collisions compared to the previous five-year average. In the 18 months following the rechannelization, there was more than a 67% reduction in vehicle-bicycle collisions and no vehicle-pedestrian collisions (2011 Seattle Traffic Report, SDOT).

Aurora Traffic Safety Project

Using short-term, low-cost engineering, education, and enforcement tactics, collisions on Aurora Avenue North in Seattle dropped more than 20%, with all fatal and serious injury collisions down by 28%. The two-year project (2009-2011) used education and enforcement efforts to bring attention to behaviors like failure to yield to pedestrians, speeding and inattention/distracted driving. This focus paid off with the following reductions, according to Seattle DOT:

- Failure to yield collisions down by 34%
- Inattention/distracted driving collisions down by 28%
- Speeding involved collisions down by 20%

Longview Elementary – Moses Lake, WA

Objectives & Strategies		
Objectives (What)	**Strategies (How)**	**Implementation Arena(s)**
1. Improve pedestrian safety awareness and behaviors	1.1 Promote the use of reflective apparel among pedestrians (conspicuity enhancement). (R, CTW)	Education
	1.2 Educate pedestrians about the risks of distracted walking. (U)	Education
	1.3 Develop and conduct communication and outreach efforts, including the proven 'brief intervention and screening' approach to contact crash-involved impaired pedestrians, as well as local law enforcement agencies, alcohol servers, social and health service providers, and other involved parties for reducing impairment as a factor in pedestrian crash-related injuries and deaths. (U)	Education
2. Increase enforcement of laws pertaining to pedestrians	2.1 Implement pedestrian safety zones, targeting geographic locations and audiences with pedestrian crash concerns. (P, CTW)	Education, Enforcement, Engineering
	2.2 Expand targeted crosswalk enforcement and education for both vehicles and pedestrians. (R, CTW)	Education, Enforcement
	2.3 Reduce and enforce speed limits. Implement traffic calming features to reduce speeds in locations with a high number of pedestrians. (R, CTW)	Education, Enforcement, Engineering
	2.4 Improve pedestrian rights and responsibilities training for law enforcement officers at state, Tribal, and local levels. (R, WSDOT)	Education
3. Expand and improve pedestrian facilities	3.1 Improve safety at pedestrian crossings by installing refuge islands, scale lighting, and shortening crossing distances. (R, CMF)	Engineering
	3.2 Increase the use of rectangular rapid flashing beacons and pedestrian hybrid beacons. (R, CMF)	Engineering
	3.3 Follow national guidelines on the use of reflective markings and sign materials. (R, FHWA)	Engineering Education, Enforcement,
	3.4 Implement programs that improve the built environment. Solutions should focus on appropriate zoning, crossing treatments, and pedestrian connections to public transit. (R, LIT)	Engineering
	3.5 Improve sight distances and/or visibility between motor vehicles and pedestrians at high risk and high volume pedestrian crossings. Move the stop bar farther back from the intersection, clear vegetation, extend crossing times, and implement pedestrian lead intervals. (U)	Engineering
	3.6 Implement Complete Streets to provide for all modes of transportation. (R, NCSC)	Leadership/Policy, Engineering

Continued on next page.

Objectives & Strategies		
Objectives (What)	**Strategies (How)**	**Implementation Arena(s)**
4. Improve safety for children walking to school	4.1 Expand high visibility speed enforcement in school zones, including automated speed photo enforcement. (R, CTW)	Education, Enforcement
	4.2 Implement elementary and middle school pedestrian training curricula in schools. (R, CTW)	Education
	4.3 Apply consistent signing and other pedestrian crossing features in school zones as appropriate (based on the number of lanes, speeds, age of pedestrians, etc.). (R, FHWA)	Engineering
	4.4 Distribute and encourage the use of "School Walk and Bike Routes: A Guide for Planning and Improving Walk and Bike to School Options for Students" and assist schools in creating school walk route maps. (R, WSDOT)	Education, Engineering
	4.5 Encourage and support school districts to implement elements in the Safe Routes to School program including Walking School Buses, walking campaigns. (U)	Education, Engineering
5. Improve data and performance measures	5.1 Enhance the collection of a measure of 'miles walked' (similar to VMT). Continue to track pedestrian counts through Washington's Pedestrian and Bicycle Documentation Project. (R, DDACTS)	Leadership/Policy

P = Proven **R = Recommended** **U = Unknown**

CMF = Crash Modification Factors
CTW = Countermeasures That Work
DDACTS = Data Driven Approaches to Crime and Traffic Safety
FHWA = Federal Highway Administration
LIT = Literature (Although we could not locate a meta study, there is sufficient independent literature with favorable results to justify as a recommended strategy)
WSDOT = Washington State Department of Transportation

Additional Resources

Countermeasures That Work: A Highway Safety Countermeasure Guide for State Highway Safety Offices, 7th Edition, Chapter 8 (National Highway Traffic Safety Administration), www.nhtsa.gov/staticfiles/nti/pdf/811727.pdf

Effectiveness of a Safe Routes to School Program in Preventing School Aged Pedestrian Injury (Charles DiMaggio, PhD, MPH and Guohua Li, MD, DrPH, in *Pediatrics* journal)

NCHRP Report 500, Volume 10: A Guide for Reducing Collisions Involving Pedestrians (National Cooperative Highway Research Program, Transportation Research Board), http://safety.transportation.org/guides.aspx?cid=29

Relationship between Speed and Risk of Fatal Injury: Pedestrians and Car Occupants (UK Department for Transport), http://assets.dft.gov.uk/publications/pgr-roadsafety-research-rsrr-theme5-researchreport16-pdf/rswp116.pdf

State Highways as Main Streets: A Study of Community Design and Visioning (Washington State Department of Transportation and University of Washington), http://www.wsdot.gov/research/reports/fullreports/733.1.pdf

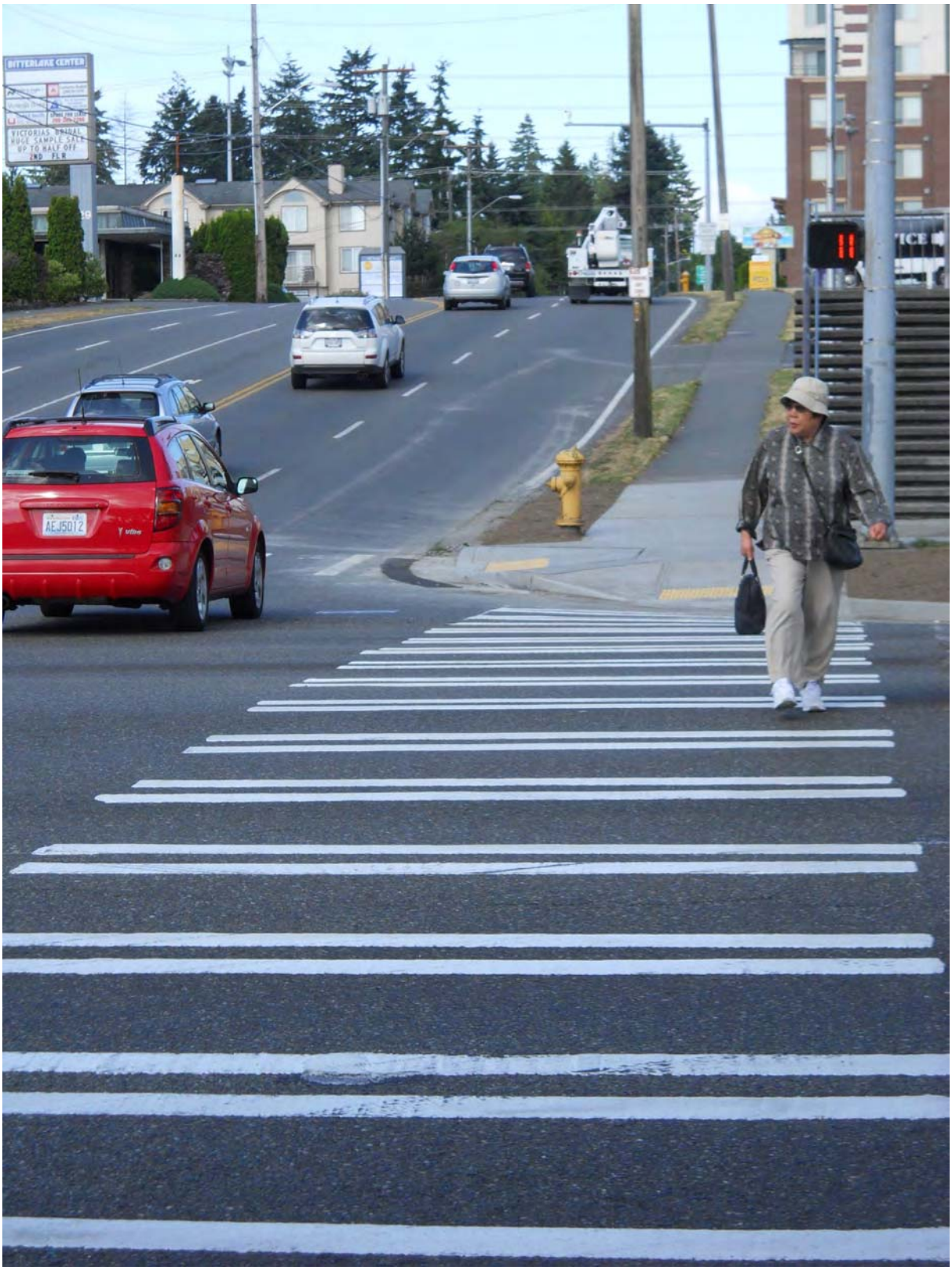
The Gray Notebook, Edition 48, page 5-8 (Washington State Department of Transportation), http://wsdot.wa.gov/publications/fulltext/graynotebook/Dec12.pdf

Washington State Bicycle and Pedestrian Documentation Project (Washington State Department of Transportation), http://www.wsdot.wa.gov/bike/Count.htm

Washington State Bicycle Facilities and Pedestrian Walkways Plan (Washington State Department of Transportation), http://www.wsdot.wa.gov/bike/bike_plan.htm

Washington State Laws (RCWs) relating to pedestrians:

- *RCW 46.61.050 – Traffic signals*. Pedestrians must obey traffic signals and traffic control devices unless otherwise directed by a traffic or police officer.
- *RCW 46.61.235 – Crosswalks*. No pedestrian or bicycle shall suddenly leave a curb and move into traffic so that the driver cannot stop. Vehicles shall stop at intersections to allow pedestrians and bicycles to cross the road within a marked or unmarked crosswalk. See Washington's Crosswalk Law for more information.
- *RCW 46.61.240 – Yield to vehicles outside intersections*. Every pedestrian crossing a roadway at any point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right of way to all vehicles upon the roadway.
- *RCW 46.61.245 – Drivers exercise due care*. Every driver of a vehicle shall exercise due care to avoid colliding with any pedestrian upon any roadway and shall give warning by sounding the horn when necessary.
- *RCW 46.61.250 – Pedestrians on roadways*. Pedestrians must use sidewalks when they are available. If sidewalks are not available, pedestrians must walk on the left side of the roadway or its shoulder facing traffic.
- *RCW 46.61.261 – Sidewalks, crosswalks*. Drivers and bicyclists must yield to pedestrians on sidewalks and in crosswalks.
- *RCW 47.04.330 – Street projects – Consultation with local jurisdictions – Context sensitive design solutions.*


BITTERLAKE CENTER
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HUGE SAMPLE SALE
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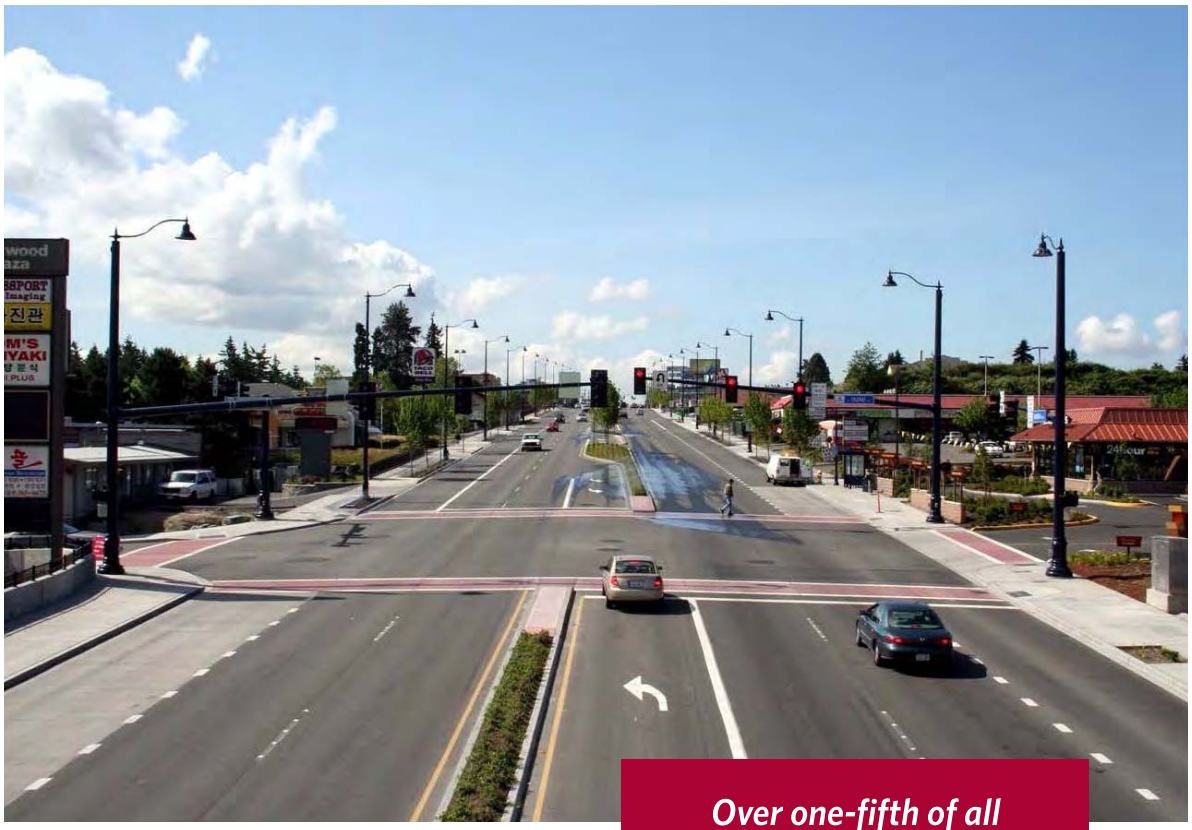
Intersection Related

Executive Summary

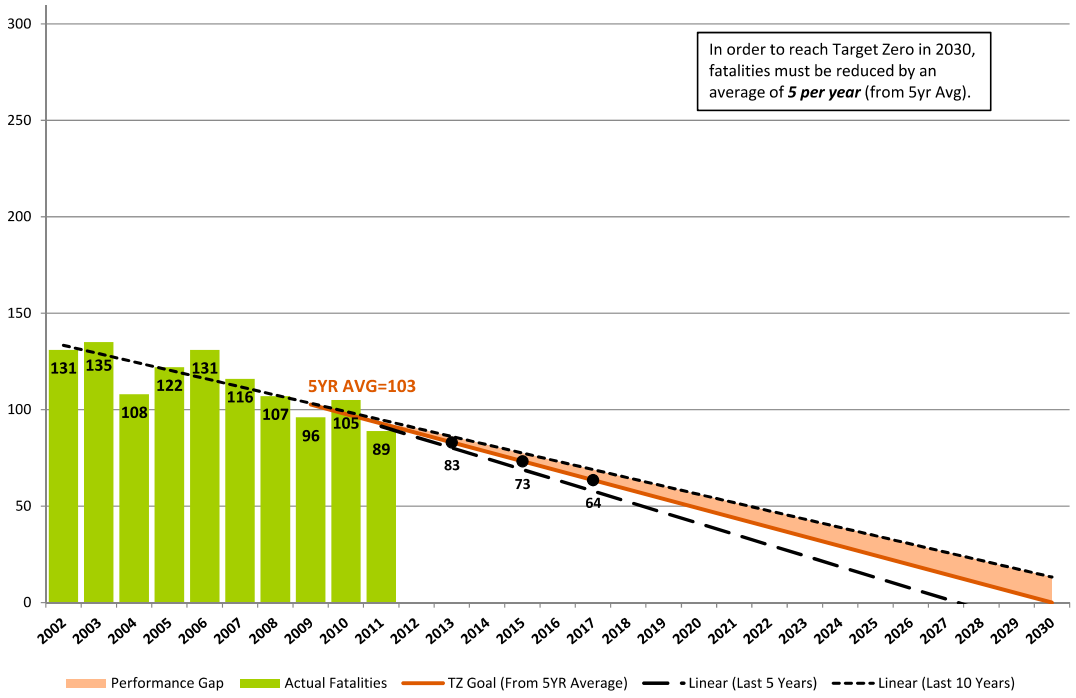
While declining at a rate similar to overall fatalities and serious injuries, intersection related collisions have been elevated to the Priority One Level. This is primarily due to the number of serious injuries occurring at intersections. From 2009-2011 more than one-fifth of fatalities and one-third of all serious injuries were intersection related.

Forty-four percent of fatal and serious injury collisions at intersections came from "T-bone" and "left turn" angle collisions. Nineteen percent were from pedestrians being hit. Implementing current intersection safety technologies, including roundabouts and flashing yellow arrows, while also focusing more on pedestrians, will help to achieve Target Zero for intersection related collisions.

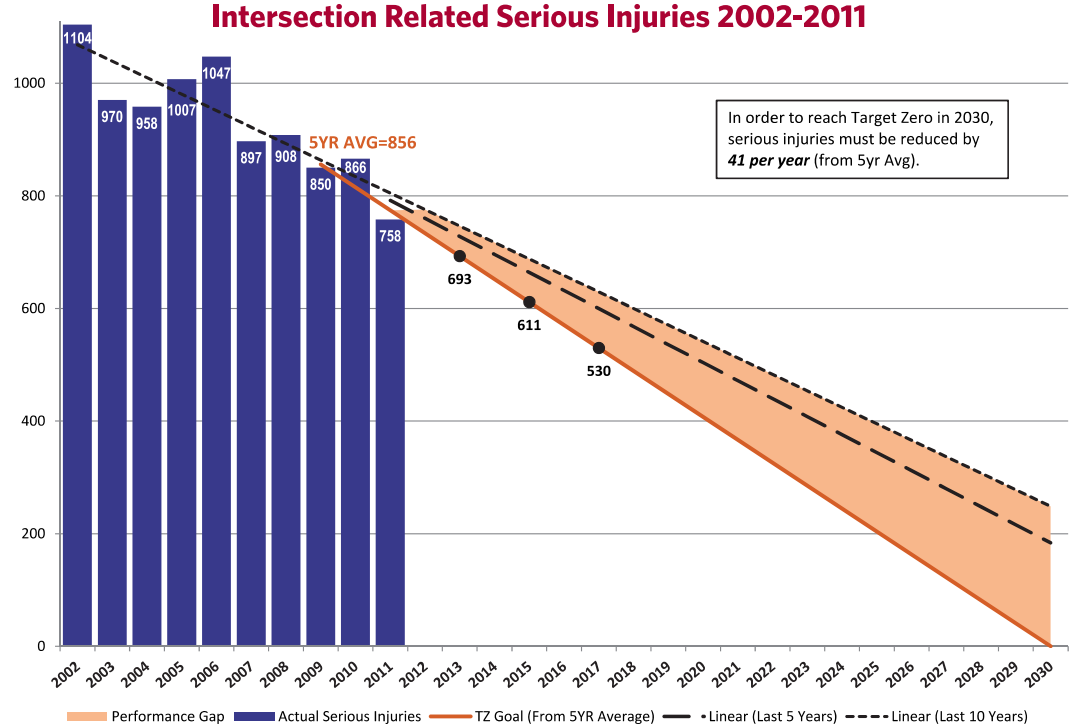


Over one-fifth of all Washington traffic fatalities, and one-third of serious injuries, were intersection related.

Intersection Related Fatalities 2002-2011



Intersection Related Serious Injuries 2002-2011



Background

For intersection related collisions there was a combined 13% decrease in fatal and serious injury collisions (20% decrease in fatal collisions and 12% decrease in serious injury collisions), when comparing 2009-2011 to 2006-2008. This is similar to the overall decline rate for fatalities and serious injuries. To achieve Target Zero for intersection related collisions, there needs to be five fewer fatalities and 41 fewer serious injuries each year until 2030.

There are many kinds of intersection related collisions. From 2009-2011, the top types of fatal or serious injury intersection related collisions were:

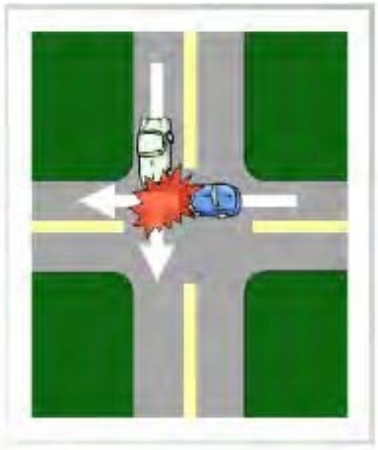
- Angle (T-bone) - 29%
- Hit pedestrians - 19%
- Angle (left turn) - 14%
- Rear-end with - 12%
- Hit bicyclists with - 8%

Protected Left Turn = At a traffic signal, left turns that have a green arrow are protected (no other conflicting vehicles or pedestrians are being allowed to go).

Permitted Left Turn = At a traffic signal, left turns that do not have a green arrow are permitted (other conflicting vehicles or pedestrians are also being allowed to go).

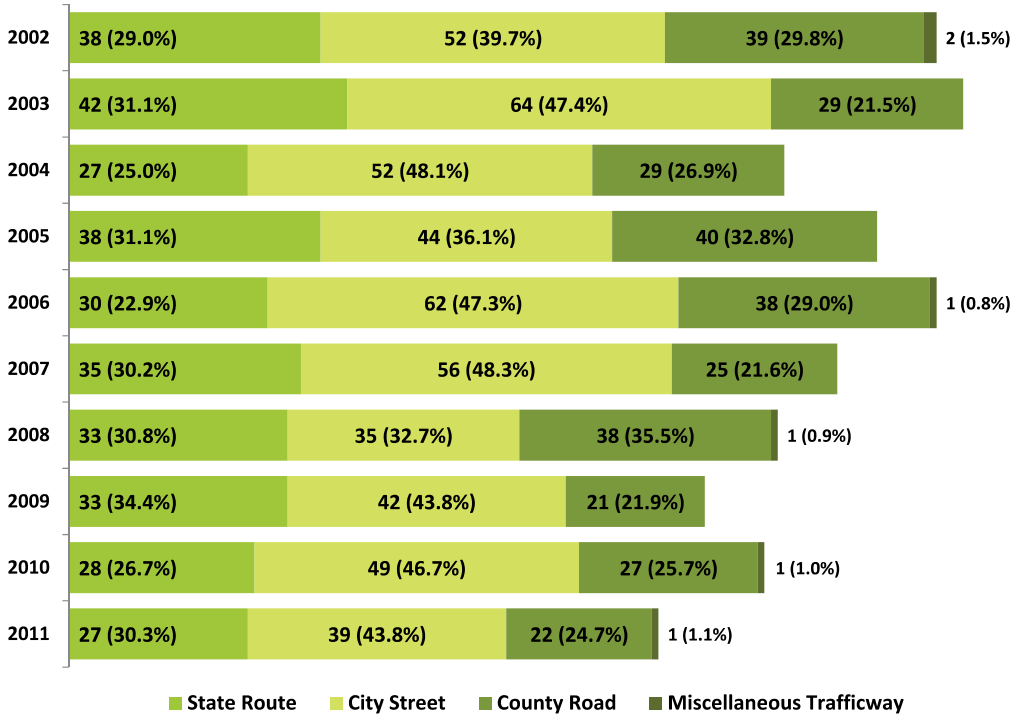
The greatest number of these collisions occurred on city streets. Looking at fatal and serious injuries combined from 2009-2011, 60% of intersection related collisions were on city streets, resulting in 130 fatalities and 1,492 serious injuries. Another 22% (88 fatalities and 553 serious injuries) were on state highways and 17% (70 fatalities and 419 serious injuries) were on county roads. See the charts for intersection related collisions by jurisdiction (page 78) for annual fatality and serious injury break outs.

Angle (T-bone) Collision

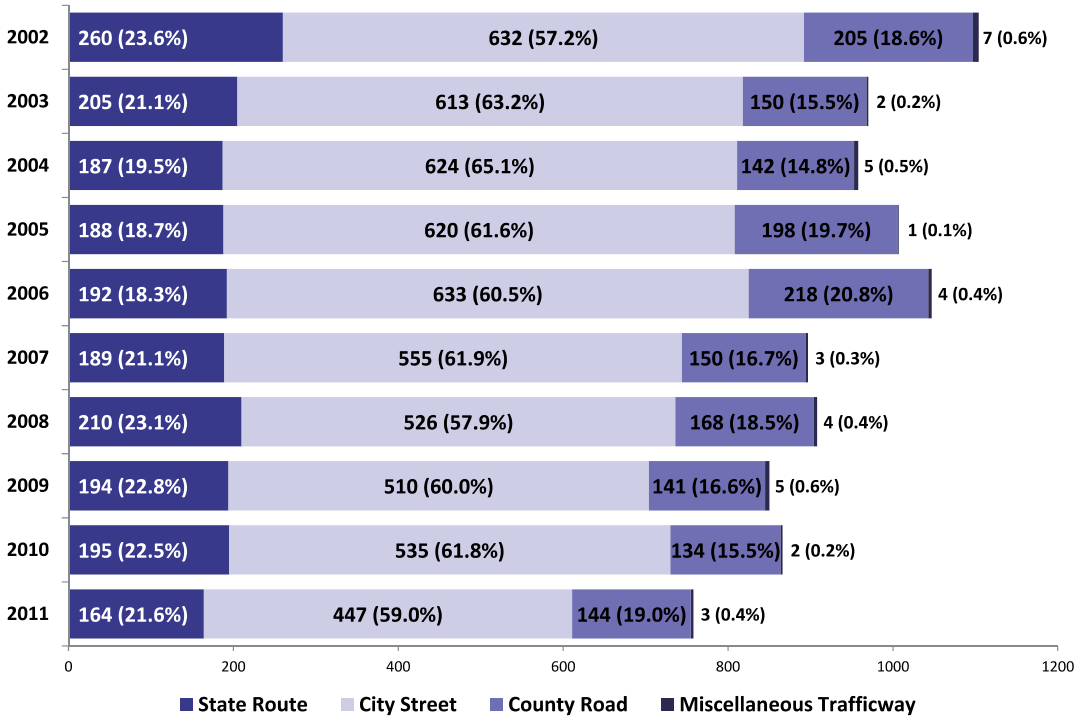


Angle (Left Turn) Collision

Intersection Related Fatalities by Jurisdiction 2002-2011



Intersection Related Serious Injuries by Jurisdiction 2002-2011



Contributing Circumstances and Factors

From 2009-2011, the top contributing circumstances in fatal or serious injury intersection related collisions were failing to yield (39%), speeding (16%), impairment (14%), driver inattention or distraction (13%) and running red lights (11%).

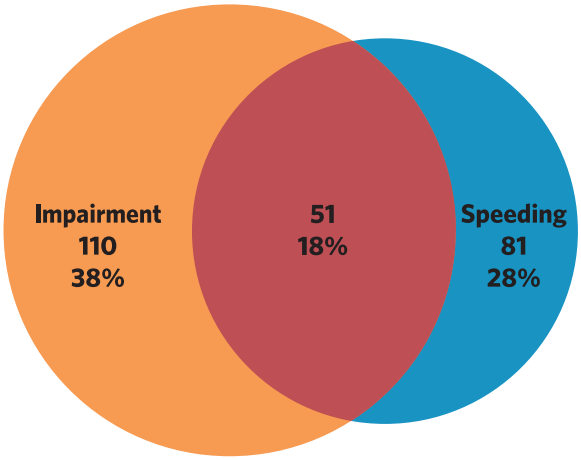
There are two major types of failure to yield. Failing to yield to vehicles was involved in 26% of fatal and serious injury collisions. Failing to yield to a pedestrian or bicyclist was involved in another 13% of fatal and serious injury collisions.

Impairment and speeding are more likely to be factors in fatal intersection related collisions than in serious injury collisions. Impairment was involved in 35% of fatal collisions (contributing to 38% of intersection fatalities) and speeding in 27% of collisions (contributing to 28% of intersection fatalities). Impairment is underreported in serious injury collisions (although documented in 12% of collisions) compared to fatalities, where impairment is confirmed by toxicology.

Speeding was noted in 15% of serious injury intersection collisions. For fatal and serious injury collisions combined, impairment is involved in 14%, contributing to 16% of fatalities, and speeding in 16%, contributing to 18% of fatalities.

Driver inattention or distraction, involved in 13% of collisions, is likely underreported yet still contributed to 32% of intersection related fatalities and 11% of serious injuries. A significant percentage of bicyclist and pedestrian fatalities and serious injuries occur at intersections. From 2009-2011, 55% of bicyclist fatalities and serious injuries occurred at intersections (54% of fatalities and 55% of serious injuries). For pedestrians, over 45% of fatalities and serious injuries occurred at intersections (32% of fatalities and 55% of serious injuries).

Intersection Related Fatalities
Total = 290



Of the 290 intersection related fatalities 2009-2011, 38% also involved impairment and 28% involved speeding. Combined, 18% of these fatalities involved both impairment and speeding.

Programs and Successes

Several high- and low-cost strategies can reduce collisions at intersections. Many low-cost strategies make changes to existing traffic controls (signals or signs), such as modifying signal timing or adding flashing beacons to signs. Higher-cost strategies often involve changing traffic control devices, such as converting signs to signals or roundabouts, or converting signals to roundabouts. A balanced approach of making systematic low-cost improvements area-wide, in addition to addressing key locations with higher-cost improvements, can have the greatest impact in reducing collisions.

Roundabouts

Converting intersections to roundabouts has been shown to reduce fatal and serious injury collisions by 90% (Transportation Research Record 1751, 2001). In Washington similar results – an 80% reduction – have been found (WSDOT Gray Notebook 27, 2007). There are currently 245 roundabouts installed across the state, including both urban and rural locations.

Left Turn Flashing Yellow Arrows

One of the most recently embraced low-cost improvements is using flashing yellow arrows at "permitted" (not protected with a green arrow) left turns. This helps prevent drivers from seeing a green ball for the permitted left turn, and assuming they can proceed even when there is opposing traffic. The flashing yellow arrow helps to more appropriately display that a left turn should be made with caution.

Depending upon the location in the state, some agencies have made complete conversions to the flashing yellow arrow for all appropriate locations. Many other agencies have begun to convert some of their locations to use this display. While most installations of flashing yellow arrows are new, one study of locations in Washington, Oregon and North Carolina showed a 19% decrease in left turn collisions when converting from protected and permitted left turns to the flashing yellow arrow (Srinivasan et. al., 2011).

Pedestrians

Significant progress has yet to be made in reducing pedestrian fatalities and serious injuries at intersections. This is the only area out of the top collision types at intersections that has not improved during 2009-2011 compared to 2006-2008. Rather than a decrease, the total number of intersection related pedestrian fatal and serious injury collisions has increased by 2%. Although fatal collisions decreased from 69 to 61, the number of serious injury collisions increased from 393 to 411.

Addressing pedestrian collisions at intersections has the potential to have a significant impact on intersection and pedestrian safety. (See section on Pedestrians on page 120 for programs being implemented to address pedestrian safety.)

Objectives & Strategies		
Objectives (What)	**Strategies (How)**	**Implementation Arena(s)**
1. Reduce motor vehicle collisions at intersections	1.1 Install or convert intersections to roundabouts. (P, NCHRP)	Engineering
	1.2 Optimize traffic signal clearance intervals. (P, NCHRP)	Engineering
	1.3 Provide/improve left- and right-turn channelization. (P, NCHRP)	Engineering
	1.4 Install illumination at locations with night time crashes. (P, NCHRP)	Engineering
	1.5 Convert permitted left turns to protected left turns at signals. (P, HSM)	Engineering
	1.6 Remove unwarranted signals. (P, NCHRP)	Engineering
	1.7 Employ signal coordination. (P, NCHRP)	Engineering
	1.8 Employ flashing yellow arrows at signals. (P, CMF)	Engineering
	1.9 Restrict or eliminate turning maneuvers at intersections. (R, NCHRP)	Engineering
	1.10 Implement restricted access to properties/driveways adjacent to intersections using closures or turn restrictions. (R, NCHRP)	Engineering, Leadership/ Policy
	1.11 Provide skid resistance in intersections and on approaches. (R, NCHRP)	Engineering
	1.12 Improve visibility of intersections by providing enhanced signing and delineation. (R, NCHRP)	Engineering
	1.13 Provide dynamic intersection warning (real-time) to drivers on mainline or side streets of conflicting vehicle traffic at rural intersections. (U)	Engineering
2. Improve driver compliance at intersections	2.1 Implement automated enforcement (photo red cameras) of red-light running at locations with angle crashes. (P, NCHRP)	Enforcement, Engineering, Leadership/Policy
	2.2 Provide targeted speed enforcement. (P, NCHRP).	Enforcement
	2.3 Provide targeted conventional traffic law and stop sign/signal enforcement at intersections and intersection approaches. (R, NCHRP)	Enforcement
	2.4 Implement automated enforcement (cameras) of approach speeds. (R, NCHRP)	Enforcement, Engineering, Leadership/Policy

Continued on next page.

Objectives & Strategies		
Objectives (What)	**Strategies (How)**	**Implementation Arena(s)**
3. Improve driver awareness of intersections	3.1 Redesign intersection approaches to improve sight distances. (P, NCHRP)	Engineering
	3.2 Add back plates with retro-reflective borders to signals. (P, CMF)	Engineering
	3.3 Provide advance warning of intersections using dynamic signal warning flashers or actuated advance warning dilemma zone protection systems at high-speed signalized intersections. (P, CMF)	Engineering
	3.4 Improve visibility of intersections on approaches. (R, NCHRP)	Engineering
	3.5 Improve visibility of signals and signs at intersections. (R, NCHRP)	Engineering
	3.6 Install transverse rumble strips on intersection approaches. (R, NCHRP)	Engineering
	3.7 Provide targeted public information and education on safety problems at specific intersections. (R, NCHRP)	Education
4. Reduce vehicle collisions involving pedestrians and bicyclists at intersections	4.1 Improve safety at pedestrian crossings by installing refuge islands, scale lighting, and shortening crossing distances. (R, CMF)	Engineering
	4.2 Expand targeted crosswalk enforcement and education for both vehicles and pedestrians. (R, CTW)	Enforcement, Education
	4.3 Improve sight distances and/or visibility between motor vehicles and pedestrians at high risk and high volume pedestrian crossings. Move the stop bar farther back from the intersection, clear vegetation, extend crossing times, and implement pedestrian lead intervals. (U)	Engineering
	4.4 Upgrade pavement markings using high visibility crosswalks and bicycle lanes. (U)	Engineering
	4.5 Install bicycle lanes and bicycle boxes. (U)	Engineering
	4.6 Implement Complete Streets to provide for all modes of transportation. (R, NCSC)	Leadership/Policy, Engineering

P = Proven **R = Recommended** **U = Unknown**

CMF = Crash Modification Factors
CTW = Countermeasures That Work
HSM = Highway Safety Manual
NCHRP = National Cooperative Highway Research Program

Additional Resources

Crash Modification Factors Clearinghouse, http://www.cmfclearinghouse.org/

Intersection Safety Resources (Federal Highway Administration), http://safety.fhwa.dot.gov/intersection/

NCHRP Report 500, Volume 5, A Guide for Addressing Unsignalized Intersection Collisions, (National Cooperative Highway Research Program, Transportation Research Board), http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_500v5.pdf

NCHRP Report 500, Volume 10, A Guide for Reducing Collisions Involving Pedestrians, (National Cooperative Highway Research Program, Transportation Research Board), http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_500v10.pdf

NCHRP Report 500, Volume 12, A Guide for Reducing Collisions at Signalized Intersections, (National Cooperative Highway Research Program, Transportation Research Board), http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_500v12.pdf

Q&A: Roundabouts (Insurance Institute for Highway Safety), http://www.iihs.org/research/qanda/roundabouts.aspx

The Gray Notebook, Edition 27 (Washington State Department of Transportation), http://wsdot.wa.gov/publications/fulltext/graynotebook/Sep07.pdf

Appendix C

WTA Ridership at WWU's Rec Center

by hour of the day (2015 Boarding and Alighting Survey)

	Northbound Stop			Southbound Stop			Stops Combined		
Hour	Ons	Offs	Total Activity	Ons	Offs	Total Activity	Ons	Offs	Total Activity
6:00	n/a	n/a	n/a	0	1	1	0	1	1
7:00	49	143	192	1	54	55	50	197	247
8:00	18	215	233	5	80	85	23	295	318
9:00	23	285	308	20	76	96	43	361	404
10:00	9	82	91	29	35	64	38	117	155
11:00	28	117	145	81	59	140	109	176	285
12:00	17	65	82	72	61	133	89	126	215
13:00	35	59	94	68	57	125	103	116	219
14:00	17	39	56	115	50	165	132	89	221
15:00	37	44	81	106	39	145	143	83	226
16:00	31	19	50	127	32	159	158	51	209
17:00	36	16	52	132	39	171	168	55	223
18:00	24	29	53	62	30	92	86	59	145
19:00	9	11	20	45	19	64	54	30	84
20:00	12	6	18	21	8	29	33	14	47
21:00	6	5	11	13	12	25	19	17	36
22:00	8	0	8	7	4	11	15	4	19
Total	359	1,135	1,494	904	656	1,560	1,263	1,791	3,054

Appendix D

Western Washington University

DRAFT COMPREHENSIVE MASTER PLAN

Prepared by the Office of Facilities and Master Planning
Western Washington University
Bellingham, Washington

Listed below are the pedestrian conflict zones as initially identified in the Institutional Profile prepared by the Facilities and Master Planning staff in 1990. The Existing and Master Plan Pedestrian Access plates show the locations of the following conflict zones:

A Major pedestrian/vehicular conflicts arise in this area due to the high volume of traffic on Bill McDonald Parkway, which is a busy city arterial and the main entrance to campus, and the vehicular/pedestrian cross traffic attempting to access Bill McDonald Parkway from both 24th and 25th Streets. Western students who live south of campus, Sehome High School students, Physical Plant employees, visitors to the Northwest Regional Archives Building and general city traffic converge in this area.

B The conflicts previously observed at this intersection have been improved with the recent installation of four-way stop signs by the City of Bellingham.

C Pedestrians and bicyclists using the intersection at 21st Street and West College Way conflict with both University-related and non-university traffic, including WTA buses. This area is considered to be the most heavily traveled and dangerous corridor for pedestrians and bicycles.

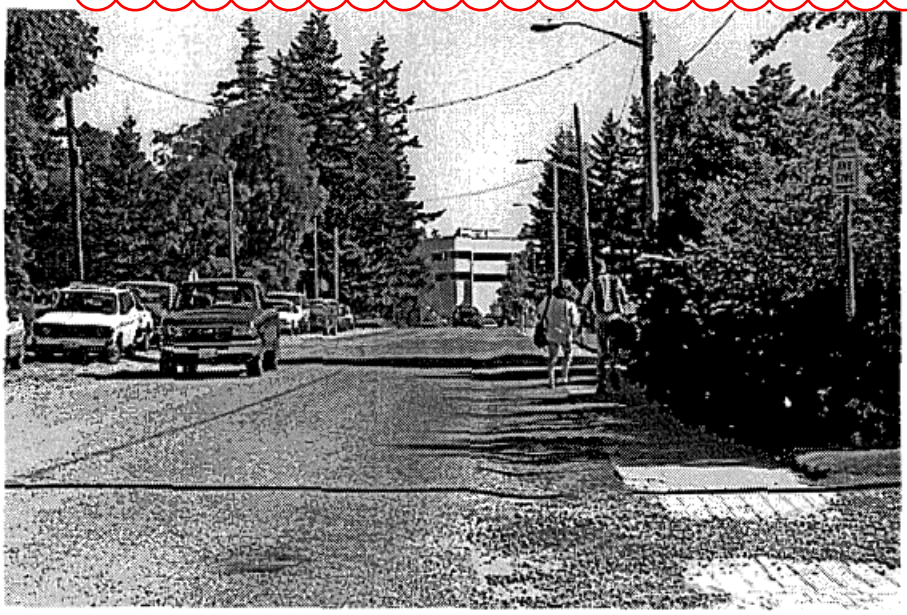


Figure P-5. Inadequate pedestrian pathways along 21st Street

(D) Pedestrians encounter conflicts with vehicles using this route to access campus. The pedestrian path leading to Carver Gym is narrow and lacks separation from the road. The road is also inadequate to handle two vehicles passing each other without encroaching onto the pedestrian path.

(E) This is a common route for pedestrians coming from the Birnam Wood area to the south. Conflicts arise when the sidewalk ends near the Steam Plant, forcing pedestrians to cross East College Way. Pedestrians cross East College Way at a point where visibility is poor and heavy volumes of vehicular traffic occur en route to Old Main and parking lot 10G.

(F) This is the major campus crossroad with the highest volume of pedestrians on campus. Pedestrians conflict with service vehicles and bicycles.

(G) The location of both loading zones and parking stalls for the disabled conflict with pedestrian traffic in this area. Private and service vehicles interfere with the pedestrian traffic flow. This area will be a preferred bicycle route that may add to potential conflicts with pedestrians.

(H) Conflicts occur between pedestrians and service vehicles that use High Street. WTA buses that stop and are required to stage near Wilson Library and the Viking Union Complex also pose difficulties for pedestrians.

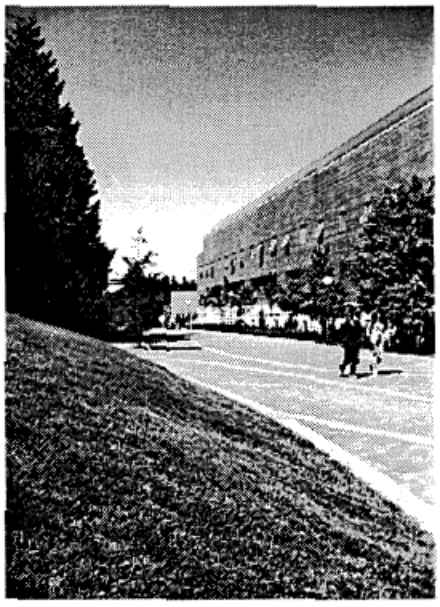
(I) This is a primary pedestrian crossing for people who live to the west of campus. Garden Street is a major city arterial where pedestrian crossing is difficult due to limited visibility and the heavy volume of vehicular traffic.

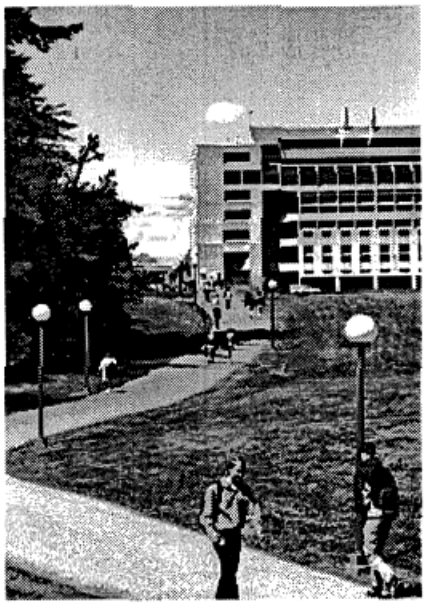
Solution

The Master Plan's emphasis on pedestrian circulation is reinforced by the implementation of the Transportation Management Program (TMP). The major focus of the TMP supports a more pedestrian oriented campus with less reliance on the use of single occupant vehicles (SOV). Through the implementation of the Master Plan and TMP, Western desires to increase the pedestrian to vehicle ratio, both on and off campus.

In order to accommodate the goals for pedestrian circulation the following principles are considered:

- Pedestrian pathways need to be oriented to maximize safety and convenience.
- Paths should be accessible to the disabled and secure at night with adequate illumination.
- Pedestrian pathways carry large volumes of traffic during class changes and should be wide enough to accommodate peak volumes and future population increases.
- Pedestrian pathways should be oriented to minimize the conflicts with vehicles and bicycles.





Figures P-6. and P-7. Improved pedestrian pathways

- To support a pedestrian orientation on campus, future academic zones should be located within a 10-minute walk from central campus.

The Master Plan's purpose is to provide direction to resolve pedestrian conflicts when projects allow. One of the principal elements of the Master Plan is the development of 21st Street into a formal entry with the realignment of South College Drive. The Conceptual Plan locates pedestrian paths along newly created roads to ensure the least amount of obstacle, deviation or interruption. This road realignment will enable improvement of the primary pedestrian route into campus by reconstruction of the pedestrian pathways and redirection allowing improved barrier-free access from parking lots and locations where pathways intersect vehicular roadways. Pedestrian access from areas south of Buchanan Towers will also be improved by relocating the pedestrian crossing of Bill McDonald Parkway closer to South College Drive. This will allow easier access to designated sidewalks that will offer a more direct passage to campus.

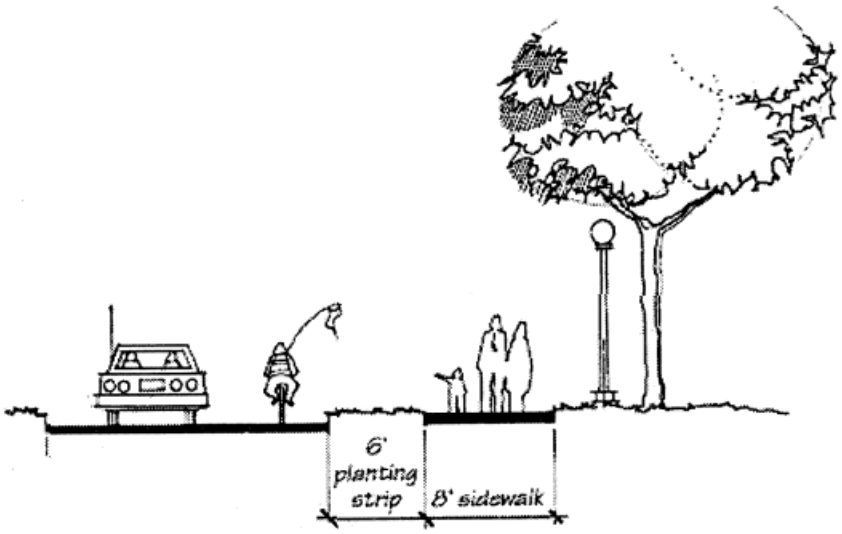


Figure P-8. Proposed pedestrian pathway along loop road

Appendix E

Western Washington University
Institutional Master Plan

An Addendum to the Western Washington University Neighborhood Plan

Adopted by the City of Bellingham, September 24, 2001
Ordinance #2001-09-068

Approved by WWU Board of Trustees, October 5, 2001

WESTERN
WASHINGTON UNIVERSITY

Track

Fast-Pitch Field

21st Street and West College Way

- Maximize the number of regulation size fields.
- Accommodate tennis courts, hammer throw, and academic, varsity and intramural program space needs.
- Accommodate athletic equipment, groundskeeping equipment and restroom facilities.
- Develop views of the valley.
- Increase safety for pedestrians, bicyclists, transit, vehicles.
- Reclaim the valley by removing South College Drive and reconfiguring layout of fields.
- Respect and retain existing character of sculpture pieces.
- Develop parking facility.
- Develop major south campus transit center.

Rationale:

- Locates fields as close as possible to academic core.
- Preserves open space.
- Locates fields close to proposed Student Recreation Center.
- Provides parking facility for south campus activities.
- Provides transit service for south campus.

Introduction

The Circulation section contains principles that guided the preparation of the circulation plan. In summary, the principles promote moving vehicular access to the perimeter of campus. The principles set up a hierarchy to facilitate pedestrian and bicycle access to campus as the highest priority, then transit and carpool access, and finally single occupant vehicle access as the lowest priority.

The Circulation section also contains a description of the identified problems with the current system and proposes a number of solutions to address the problems.

Finally, this section contains a summary of the existing and proposed major and secondary campus routes for pedestrians, bicycles, transit vehicles, and private cars. The plans identify the major access points to campus for each mode, major transit stops, and parking areas.

Circulation Principles/Patterns to be Reinforced

Many of the principles relating to circulation previously identified in the January 1997 WWU Draft Comprehensive Master Plan also apply to the Institutional Master Plan. These principles, combined with desirable character patterns identified during the IMP process, guide the proposed circulation plans. All circulation principles and patterns support the goal of prioritizing modes of transportation in the following order: 1) pedestrian, 2) bicycles, 3) transit, and 4) vehicles.

The following general principles and patterns relate to circulation:

- Provide convenient, safe, and accessible access on campus for students, staff, faculty and visitors.
- Work with the City to ensure that all on-campus and off-campus circulation plans are complementary and reinforce circulation connections between Western and adjacent neighborhoods.
- Separate pedestrian, bicycle, and transit circulation

from private and service vehicles where feasible and appropriate.

- Provide multiple "front doors" to campus.
- Discourage cross campus through-traffic, promote traffic calming devices, and minimize adverse circulation effects on neighborhoods.

To promote priority of pedestrian access, the plan should:

- Locate future academic zones within a 10-minute walk from central campus to support a pedestrian oriented campus.
- Increase the number of students, staff, and faculty who walk to campus.
- Maximize convenient, well-lighted and safe pedestrian access and circulation on campus; keep pedestrians separate from bicycles and vehicles whenever possible.
- Relocate the majority of parking to the periphery of campus.
- Design pedestrian paths so they are accessible to the disabled and sufficient to carry required volumes of pedestrian traffic.
- Support the City's efforts to provide convenient and safe pedestrian access to campus.
- Convert High Street to a pedestrian/transit mall between West Campus Way and Oak Street to improve pedestrian and transit accessibility and reduce current conflicts between pedestrians and vehicles. Limit single occupancy vehicle circulation consistent with relevant City ordinances and regulations regarding the use of High Street.
- Maximize a pedestrian campus and minimize the use of limited campus land for roads.
- In accordance with "Recommendation #9" from the

Appendix F

Washington State Department of Transportation

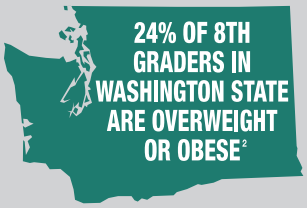
Getting results:

Safe Routes to School increasing walking and bicycling to school safely

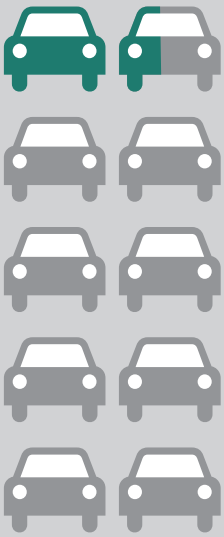
1. THE PROBLEM

768 bicycle and pedestrian **COLLISIONS** involving children in 2012[1]

124 were **FATAL** OR **SERIOUS** injury collisions[1]



14 PERCENT OF ALL **RUSH HOUR TRAFFIC** IS CAUSED BY PARENTS AND CAREGIVERS TAKING CHILDREN TO SCHOOL[3]



Safe Routes to School aims to reduce both collisions and traffic congestion.

2. OPPORTUNITY

A SHORT WALK

50%

OF THE CHILDREN ENROLLED IN THE PUBLIC SCHOOL SYSTEM LIVE WITHIN ONE MILE OF SCHOOL[4]

CLEANER AIR

28,000 tons

LESS CARBON DIOXIDE, THE EQUIVALENT OF TAKING MORE THAN 5,000 CARS OFF THE ROAD EACH YEAR IF WASHINGTON RETURNED TO THE 1969 LEVEL OF WALKING AND BICYCLING TO SCHOOL[5]

3. BENEFITS

CARDIOVASCULAR FITNESS IS **BETTER** IN CHILDREN THAT WALK AND BIKE TO SCHOOL VERSUS THOSE WHO DO NOT[6]

CHILDREN WHO WALK AND BIKE TO SCHOOL ARE MORE "READY-TO-LEARN" THAN THOSE WHO DO NOT. (THEY HAVE BETTER ACADEMIC PERFORMANCE, BETTER SCHOOL ATTENDANCE, AND BETTER BEHAVIOR AND CONCENTRATION IN CLASS)[7]

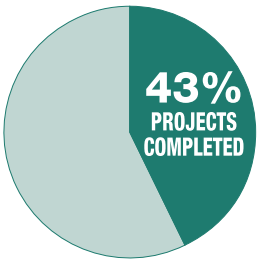
WALKING AND BIKING IMPROVEMENTS ARE COST EFFECTIVE TRANSPORTATION INVESTMENTS[8]

4. SUCCESS

100 PLUS SCHOOL LOCATIONS WITH **WALKING AND BIKING** SAFETY IMPROVEMENTS

10,000 PLUS students in 25 school districts **REACHED** with the **SRTS BICYCLE AND PEDESTRIAN SAFETY EDUCATION PROGRAM**

$49 MILLION AWARDED TO 136 SRTS PROJECTS OVER THE PAST 10 YEARS



19%

OVERALL INCREASE IN WALKING AND BIKING

Locations - Examples of success	Results
Federal Way, Mark Twain Elementary	29% increase in walking
Moses Lake, Peninsula Elementary	20% increase in walking and biking
Kirkland, Lakeview Elementary	30% increase in walking
Puyallup, Wildwood Elementary	39% increase in walking and biking
Washougal, Hathaway Elementary	55% increase in walking and biking

PROJECTS OUTLINED ON BACK.

1. H:\excel\PedBikeYouthCollisions2010to2013 (Information pulled from TDO Data)
2. Washington Physical Activity and Obesity - http://www.askhys.net/FactSheets
3. Rush hour traffic http://www.saferoutesinfo.org/program-tools/what-percentage-morning-traffic-congestion-caused-children-being-driven-school
4. H:\word\Five_states_data_draft_report_20110621_cac (Not published)
5. National Center for Safe Routes to School Resource on Estimating Environmental Health Impacts of SRTS Program http://www.saferoutesinfo.org/sites/default/files/resources/Environmental_Health.pdf
6. Reference: Children's active commuting to school: current knowledge and future directions. Davison KK, Werder JL, Lawson CT, Preventing Chronic Disease, 2008 Jul; 5(3):A100. Epub 2008 Jun 15.
7. Active children do better in school http://letsmoveschools.org/assets/Imas-partner-infographic.pdf
8. Cost efficient http://mobikefed.org/2011/09/school-bus-vs-private-vehicle-transportation-vs-biking-and-walking-school-how-much-does-it-c

The stories

Federal Way, Mark Twain Elementary

The Star Lake Road school speed zone is directly in front of the elementary school and serves as the sole crosswalk for the school entrance. School zone flashing beacons and two solar powered LED rectangular-shaped rapid flashing crosswalk beacons were installed at this location. The school speed zone and speed emphasis patrols helped to reduce vehicle travel speeds and calm traffic. A multi-use path between the crosswalk and the entrance to the school building was installed to provide students with a walk/bike route separated from the cars. Children were encouraged during a school assembly and with educational materials to walk and bike safely.

Moses Lake, Peninsula Elementary

Burress Avenue is the primary route for all school traffic coming to Peninsula Elementary. This project installed curb extensions and other crosswalk improvements at the intersection of Burress Avenue. and Spruce Street to make it safer for children living north of the school to walk and bike. They also implemented a healthful walk campaign, conducted assemblies, held a walk to school event, hosted a bicycle rodeo, and a poster contest to encourage children to walk to school.

Kirkland, Lakeview Elementary

This successful project encouraged children to walk and bike by implementing Walking Wednesday events, a walking school bus, Walk to School Week events, and by handing out fliers, providing information on the school website, and in email messages. They implemented a Park and Walk program with locations where parents could park and then walk their kids, making it possible for all students to walk at least part of the way to school. The project also installed a sidewalk, crosswalk improvements including a pedestrian activated flashing beacon, and bicycle racks.

Puyallup, Wildwood Elementary

The paths connecting adjacent neighborhoods to Wildwood Elementary School have been improved. The improvements included lighting, way finding signage, and paving the gaps in the walkway. Safety cameras were installed at the places on the paths where children are not as visible from the school or the street for personal safety. Students can now safely walk or bike directly to their school without having to use the deadend entrance to the school that vehicles dropping off and picking up children must use. A walking school bus, mileage club, and Walk to School Day celebration were used to encourage children to walk to school.

Washougal, Hathaway Elementary

This project included the installation of a high visibility crosswalk with pedestrian activated flashing beacons, advanced warning signs and flashers, reflective pavement markings, median island pedestrian refuge, improved street lighting, and sidewalks. They provided students and parents with walk/bike safety messages using brochures, website postings, and a safety assembly. In addition, local law enforcement conducted emphasis patrols when children were arriving and departing from school.

13-12-0002253

Appendix G

City of Bellingham
Public Works Department

July 25, 2016

Mr. Rick Benner, Director and University Architect
Western Washington University
516 High Street
Bellingham, WA 98225

RE: WWU Southcentral Campus Roadway Revisions

Dear Mr. Benner,

The City of Bellingham (City) is pleased to provide this letter of support for Western Washington University's (WWU) Southcentral Campus Roadway Revisions Higher Education Project Proposal.

The City agrees that the addition of a signal at Bill McDonald Parkway and South College Drive will make this area safer for both vehicular traffic, including transit, and pedestrian traffic. A large student population lives south of Bill McDonald Parkway and crosses this corridor to access WWU. West College Way between Bill McDonald Parkway and South College Drive is an on-campus roadway and not public right-of-way. The proposed closure of this segment of West College Way will provide a pedestrian and bicycle only area, eliminating the vehicle and pedestrian/bicycle conflicts.

The City supports WWU's Southcentral Campus Roadway Revisions project and efforts to address recommendations provided in their Institutional Master Plan.

Sincerely,

Ted Carlson
Public Works Director

Engineering
104 W. Magnolia Street, Suite 109
Bellingham, WA 98225
(360) 778-7900
Fax: (360) 778-7901
TTY: (360) 778-8382
pw@cob.org

Natural Resources
Physical: 2200 Nevada Street
Mailing: 2221 Pacific Street
Bellingham, WA 98229
(360) 778-7800
Fax: (360) 778-7801
pw@cob.org

Operations
2221 Pacific Street
Bellingham, WA 98229
(360) 778-7700
Fax: (360) 778-7701
pw@cob.org

Appendix H

Excerpt from City of Bellingham Bike & Pedestrian Counts for 2008-2015

Location	Time	Bike	Bike	Bike	Bike	Ped	Ped	Ped	Ped
2008 locations		***2012#***	***2013#***	***2014#***	***2015#***	***2012#***	***2013#***	***2014#***	***2015#***
Northwest Avenue at Alderwood Ave	am	44	38	42	49	48	**52**	41	41
Northwest Avenue at Alderwood Ave	pm	**67**	53	51	61	74	53	59	**79**
Cornwall Avenue at Alabama Street	am	**70**	51	69	66	58	55	**66**	43
Cornwall Avenue at Alabama Street	pm	70	44	**77**	64	52	44	58	60
Holly Street at Railroad Avenue	am	**140**	63	90	89	247	255	202	189
Holly Street at Railroad Avenue	pm	214	119	236	181	**1011**	783	788	836
South Bay Trail at Wharf Street	am	40	27	**41**	34	43	30	43	**69**
South Bay Trail at Wharf Street	pm	137	29	102	133	133	50	107	125
Fraser Street at Racine Street	am	**40**	12	14	25	59	**63**	38	30
Fraser Street at Racine Street	pm	28	12	34	37	39	38	58	53
Railroad Trail (behind Haggen/Barkley Village)	am	27	23	24	32	**139**	60	60	83
Railroad Trail (behind Haggen/Barkley Village)	pm	49	45	41	**55**	153	122	112	**204**
Totals:		**926**	**516**	**821**	**826**	**2056**	1605	1632	1812

*in 2013, roundabout under construction at S. Bay/Wharf

New Locations in 2009	Time	Bike	Bike	Bike	Bike	Ped	Ped	Ped	Ped
		2012#	***2013#***	***2014#***	***2015#***	***2012#***	***2013#***	***2014#***	***2015#***
Lakeway at Grant	am	34	33	43	38	45	**66**	45	56
Lakeway at Grant	pm	**75**	48	60	45	157	159	143	137
Cordata at Westerly	am	**26**	24	12	24	65	58	**108**	102
Cordata at Westerly	pm	**35**	26	27	22	147	156	177	**180**
E. Illinois at Memorial Park	am	32	25	29	15	48	**109**	48	58
E. Illinois at Memorial Park	pm	**62**	29	47	47	23	13	18	29
Dupont at 'F'	am	106	54	109	**117**	49	19	41	**70**
Dupont at 'F'	pm	140	78	138	136	64	64	**94**	63
21st at Bill McDonald Pkwy	am	**96**	59	73	77	485	399	438	**504**
21st at Bill McDonald Pkwy	pm	110	81	87	90	**528**	450	452	450
Totals:		**716**	**457**	**625**	**611**	**1611**	**1493**	**1564**	**1649**