

EASTERN REGION  
PLANNING

**US 2**  
CORRIDOR  
**STUDY**  
DEER ROAD TO  
ELK-CHATTAROY  
ROAD

Approach

- Least Cost Planning
- Practical Design



US 2 and SR 206 Vicinity



Public Workshop May 2014



Target  
**ZERO**



US 2 and Elk-Chattaroy Road Vicinity

Four "E" Principles

- Education
- Enforcement
- Engineering
- Emergency Medical Service



US 2 Railroad Bridge near Colbert Road



Washington State  
Department of Transportation

OCTOBER 2015

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## US 2 CORRIDOR STUDY

### Study Limits

Deer Rd. (MP 297.00) to Eik-Chattooy Rd. (MP 302.30)

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**Disclaimer**

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# Executive Summary

## Understanding the Corridor

This US 2 corridor, extending from Deer Rd. to Elk-Chattaroy Rd. (MP 297.00 to MP 302.30) in northern Spokane County, serves a variety of transportation needs. This section is a commuter route between residential areas north of Spokane and employment centers located throughout the Spokane County urban areas. A freight route, US 2 is also an important route for recreational access to lakes, parks, ski resorts, and wilderness areas in northeastern Washington, northern Idaho, and western Montana.

## Study Purpose

This study of the US 2 Corridor evaluates crash trends and identifies countermeasures that have the greatest potential to reduce serious and fatal injury crashes on the corridor. WSDOT Engaged the community and stakeholders continuously throughout the study efforts. This engagement lead to identifying opportunities to enhance the corridor in alignment with adjacent land use, improve access, and provide multimodal choices. Emerging practical solutions from this study are the results of an integrated cross-functional WSDOT team's engagement with US 2 communities and stakeholders. This study replaces all sections relating to the limits between Deer Rd. and Elk-Chattaroy Rd. (MP 297.00 to MP 302.30) of the Route Development Plan completed December 2004, titled "US 2 Deer Road to Pend Oreille County, MP 297.00 - MP 315.47".

## Corridor Context

The corridor study area is easily divided into two segments with distinct roadway and land use context.

### Segment 1: Deer Rd to Day-Mt Spokane Rd:

Segment 1 extends 1.28 miles as a five-lane 55 MPH urban managed access corridor segment in a proposed Spokane County Urban Growth Area expansion area. Funding is currently allocated for the construction of low-cost safety improvements on this segment in 2017 and will combined with a scheduled paving preservation project.

### Segment 2: Day Mt Spokane Rd to Elk Chattaroy Rd:

Segment 2 extends 4.02 miles as a four -lane 60 MPH limited access rural divided corridor segment with six unsignalized intersections.

## Community Engagement:

Extensive community engagement that was integrated throughout the decision making process was a guiding facet of this study. The following diverse members of the community and stakeholders were involved in the planning efforts:

- ▶ Community members
- ▶ Business owners
- ▶ Emergency medical responders
- ▶ School Districts
- ▶ Local Agencies
- ▶ Metropolitan Planning Organizations
- ▶ Elected Officials

As part of the community engagement, WSDOT conducted an online survey, convened a technical advisory committee, and hosted a community planning workshop and two open houses. WSDOT Planning Staff and Region Management also met with the business owners on various occasions to present data and discuss potential practical solutions. Input from the community engagement is reflected in the emerging practical solution presented in this study.

## Crash Data

This study analyzed 10 years of crash data (2004-2013) to identify crash trends and emerging Target Zero Priority opportunities along the corridor. There were 517 crashes during this period. Driver behavior/error emerged as the primary contributor in 80% of all crashes. About half of the crashes along the corridor were intersection related. Utilizing WSDOT Benefit/Cost analysis and Highway Safety Analyst tools, five year crash data (2009 -2013) was used to evaluate potential practical solutions per WSDOT protocols.

## Development of Concepts

The community engagement and engineering analysis resulted in concepts that had the greatest potential to address the study purpose. An early potential solution presented by WSDOT was to install a roundabout at the US 2/Day-Mt. Spokane Rd. Intersection and raised channelization the entire length of Segment 1. After presenting this concept at the first open house, WSDOT became aware of community concerns. WSDOT reevaluated the immediate need for these countermeasures and determined it was appropriate to develop more targeted practical concepts to address current conditions, and defer potential long term solutions as land use development occurs along the corridor.

## Emerging Solutions\*

The following summarizes the emerging solutions resulting from this study:

### Segment 1: Deer Rd to Day Mt Spokane Rd - Short Term

- ▶ Reduce the posted speed limit in alignment with the current corridor context and geometrics.
- ▶ Narrow the width of existing lanes and shoulders.
- ▶ Install raised channelization at select locations.
- ▶ Provide pedestrian and bicycle facilities that align with the existing corridor context.
- ▶ Install advance signal warning signs.
- ▶ Install chicanes in advance of signals with consideration for business access.
- ▶ Provide local road network improvements to facilitate access (including Yale Road hard surfacing paving on the unpaved section).

### Segment 1: Deer Rd to Day Mt Spokane Rd - Long Term (as land use develops and/or there are changes in serious/fatal crash occurrences).

- ▶ Install additional channelization to manage access.
- ▶ Revise intersection control.
- ▶ Enhance pedestrian and bicycle facilities.
- ▶ Modify cross access between adjacent properties.
- ▶ Modify interconnectivity of the local county road network.

### Segment 2: Day Mt Spokane Rd to Elk Chattaroy Rd.

Analysis of crash data for Segment 2 indicates the crashes experienced on this segment are “as expected” for this type of facility. Therefore, no locations in this segment currently prioritize for funding under the current statewide WSDOT Safety Priority Array process. However, WSDOT will continue to monitor and evaluate this segment as land use develops and/or changes in serious/fatal crash occurrences. Included in this study are some potential practical countermeasures for consideration at such time land use development demands or WSDOT Priority Array process provide funding opportunities.

\*Evaluate and refine target speed ranges, design and operation solutions during design phase to achieve appropriate target speed for the corridor.

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# Understanding the Corridor

## Practical Solutions Approach

In the past the direction for transportation investment was clear: build highways. However, this approach is no longer affordable or sustainable. To meet current and future demands on Washington state's transportation system, the WSDOT has implemented practical solution principles for efficient, sustainable, innovative, and generally low cost, high benefit improvements. These principles were utilized when providing potential countermeasures to reduce crashes for the study segments of this corridor.

Practical Solutions is a two-part strategy that includes: least cost planning and practical design to enable more flexible and sustainable transportation investment decisions. It encourages this by increasing the focus on project purpose and need throughout all phases of project development.

This process engages the public and provides opportunities to: facilitate collaboration, support and provide an opportunity for input when setting visions and goals that reflect a community's transportation values.

Applies better decision making tools to identify, evaluate and select the most cost-effective solutions.



*Project location shown in red. Figure 1.*

## Purpose of the Study

The purpose of this study is to update a previous Route Development Plan (RDP) for US 2 in Spokane County north of the City of Spokane. The previous RDP titled "US 2 Deer Road to Pend Oreille County Line MP 297.00 to MP 315.47" was completed in December 2004.

This current study refines and updates the previous RDP for the segment of US 2 from Deer Rd. (MP 297.00) to Elk-Chattaroy Rd. (MP 302.30) by:

- ▶ Identifying and evaluating current crash trends. Using a Target Zero Collision Analysis process to assess route specific data, identify priorities, strategies and potential countermeasures;
- ▶ Identifying opportunities to provide a complete street concept, by improving access, reducing crashes, and enhancing multimodal mobility in a practical approach;
- ▶ Incorporating context sensitive design, by addressing transportation objectives along the corridor in a manner that considers aesthetic, social, economic and environmental values,

needs, constraints and opportunities in a larger community setting; and

- ▶ Determining and considering stakeholder and the public's opinions during the process of development of alternatives.

The previous RDP included recommendations to build a four lane divided highway with full interchanges at four of the intersections within the limits of the current study. The emerging solutions for the same limits, as detailed later in this study, provide a much different vision. The current vision provides low-cost solutions, including the improvement of the local network to encourage local trips to access US 2 through the signalized intersection at SR 206, and improve local trip circulation.

The entire US 2 route in Washington is designated as part of the National Highway System classifying it as important to the national economy, defense, and mobility. The Washington State Department of Transportation (WSDOT) designates US 2 as a Highway of Statewide Significance, which includes

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highways that connect major communities in the state of Washington.

The US 2 corridor serves a variety of transportation needs. This section is a commuter route between residential areas north of Spokane and employment centers located throughout the Spokane metropolitan area. As well as an important route for recreational access to lakes, parks, ski resorts and wilderness areas in northeastern Washington, northern Idaho, and western Montana.

This corridor is an important connector route in the Truck Freight Economic Corridors system. It plays a key role in supporting supply chains in Washington state and is essential for lumber and agricultural products. It is classified by the Freight & Goods Transportation System (FGTS) as a T-3\* freight route.

As reported in 2013 by the FGTS, this portion of US 2 carries approximately 3.4 million tons of freight annually.

- ▶ Average truck volumes are 773 trucks per day.
- ▶ Trucks constitute about 8% of the traffic.

- ▶ At the SR 206 intersection, the Average Daily Traffic (ADT) is 27,000.

- ▶ Just north of the Ek-Chattaroy Road intersection, the ADT is 12,000.

Traffic volumes in the corridor gradually diminish as the distance between the corridor and the Spokane metropolitan area increases.

The Washington State FGTS is a classification system for roadways, railways, and waterways based on freight volume. The FGTS classification is used to: establish funding eligibility for Freight Mobility Strategic Investment Board grants, fulfill federal reporting requirements, support transportation planning process, and plan for pavement needs and upgrades. WSDOT has used this data to designate freight economic corridors in the Freight Mobility Plan.

\*T-3 classification is a roadway where trucks carry a gross tonnage weight of 300,000 to 4 million tons of freight per year.

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## Corridor Context

The study area is easily divided into two sections with distinct roadway and roadside characteristics. Proceeding north from Deer Rd. through the SR 206 and Day-Mt. Spokane Rd. intersections, US 2 is a five lane, 55 mph managed access roadway section with residential and commercial development adjacent to the highway (Segment 1). This section is within the limits of a proposed change to the Spokane County Urban Growth area where continued development is anticipated.

Currently, Segment 1 is the primary contiguous north-south route in the study area. There are numerous cul-de-sacs in the two residential areas bordering the corridor that result in increased travel on US 2 in lieu of the circuitous, segmented north-south local network. Students from the residential areas who attend the four schools in the study area, typically use school buses and private vehicles to travel to school in lieu of walking and biking. Access to the primary neighborhood commercial area (Spokane County Zoning Map included in Appendix) that includes a grocery store, bank, and fast food is primarily accessed by private vehicles. Dedicated pedestrian and bicycle facilities are currently not available to provide for these types of trips.

North of the Day-Mt. Spokane intersection, US 2 quickly transitions into a four lane divided 60 mph facility that passes through light density suburban land uses with six at-grade intersections (Segment 2). This portion of the corridor has limited access and includes slight to moderate grades.

The intersections of US 2/SR 206 and US 2/Day-Mt. Spokane Rd. were identified as locations to be analyzed based on crash records through a statewide priority process. As part of this process, funding for low-cost improvements to reduce crashes is allocated for the section from SR 206 to Day-Mt. Spokane Rd. Construction of these improvements is scheduled for 2017. The

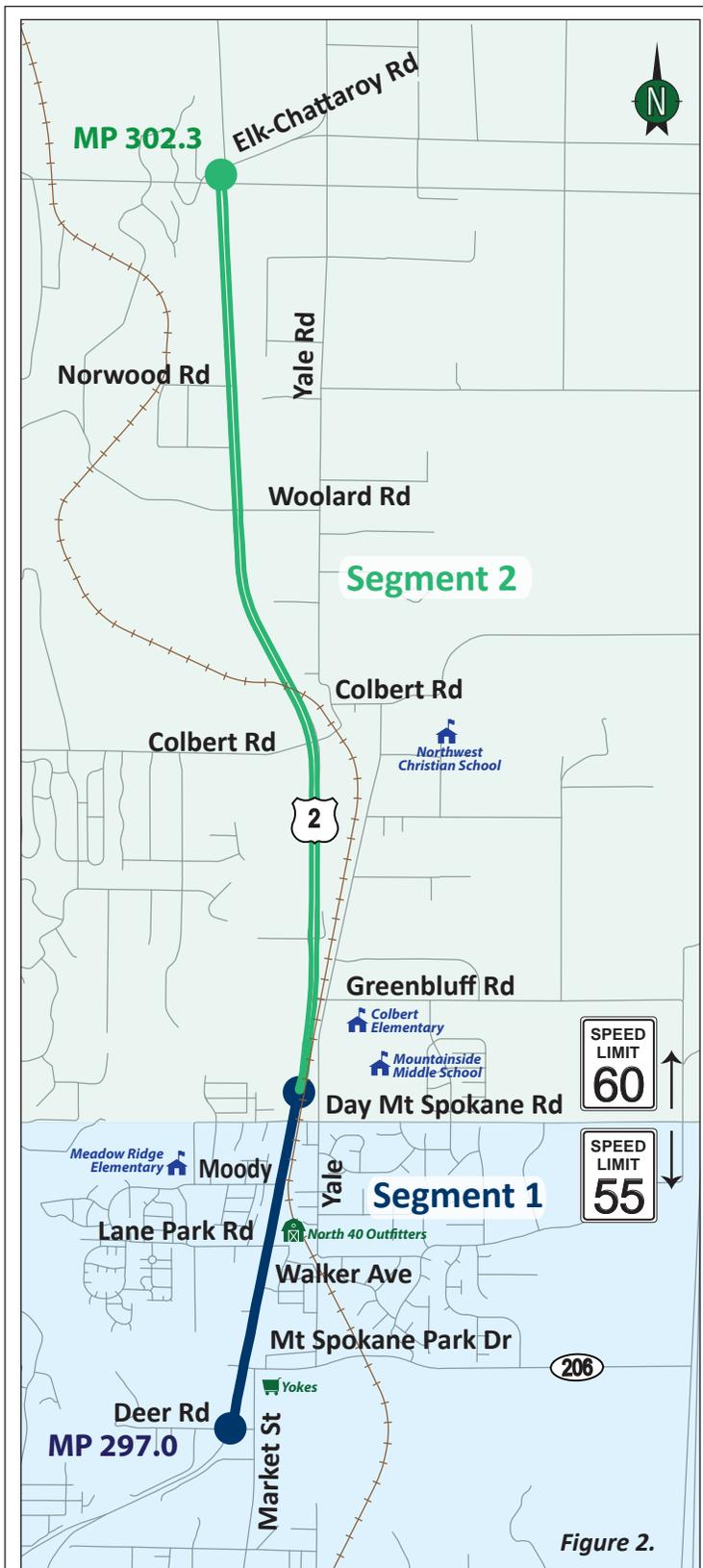


Figure 2.

**Segment 1** - Deer Rd. to Day Mt. Spokane Rd., a 55 mph managed access roadway.

**Segment 2** - Day Mt. Spokane Rd. to Elk-Chattaroy Rd., a 60 mph limited access roadway

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low-cost improvements discussed later in the emerging solutions chapter are interim steps in developing this corridor.

In conjunction with future development, “Complete Street”, features to improve multi modal mobility will be evaluated and may be implemented to include: additional access management and control measures at intersections, possibly roundabouts at SR 206, Lane Park Rd. and Day Mt. Spokane Rd., and enhanced pedestrian and bicycle amenities.

## Climate Change and Wildlife

WSDOT’s strategic plan, **Results WSDOT**, requires all plans to consider how climate change and extreme weather vulnerability may affect future investments (Goal 3 Environmental Stewardship). In 2011, WSDOT examined climate risks to state transportation assets using data from the University of Washington Climate Impacts Group. The planning team incorporated information from the vulnerability assessment report (WSDOT 2011) into this corridor planning study. This section of US 2 is rated as low risk. Fire and flooding were noted as potential threats in our assessment. (See “Climate Change and Extreme Weather” map in appendix.) The design of proposed improvements should consider current and future climate conditions, stormwater flow, and extreme heat and cold.

WSDOT has a Habitat Connectivity policy directive (Executive Order 1031, “Protections and Connections for High Quality Natural Habitats”) which mandates consideration of habitat values and wildlife movement needs in all transportation activities. WSDOT’s Carcass Summary for 2009-2013 documents high numbers of white-tailed deer killed on US 2 in the study area. Seventy-four of the 109 “non-driver behavior” crashes that occurred along the corridor during a ten year period from 2004 - 2013 were non-domestic animal strikes. Of the 517 total recorded crashes occurring along the corridor 45 were “vehicle strikes deer” and 33 were “vehicle strikes non-domestic animal. One crash was reported as “serious”. There were no recorded fatal crashes resulting from strikes with non-domestic animals. The majority of the deer strikes occurred north of Day Mt. Spokane Rd., a segment of corridor with a rural roadside context.

The following is WSDOT’s policy on installation of deer crossing signs:

Install DEER CROSSING (W11-3) signs to alert motorists when approaching an area where deer or elk may unexpectedly enter the roadway. Gather information from the following sources when considering sign installation:

- ▶ Region Maintenance personnel.
- ▶ WSDOT Headquarters Environmental Services Office, Fish and Wildlife program. They compile a Wildlife Carcass Removal data base which notes deer and other wildlife killed on state highways.
- ▶ Records of crashes with wildlife maintained by the WSDOT Transportation Data & GIS Office.
- ▶ The Department of Fish and Wildlife’s regional biologists have additional information on concentrations and migratory routes of deer. Consider the following criteria before installing DEER CROSSING (W11-3) signs:
  - ▶ Minimum of five documented deer/vehicle crash occurrences per mile per year for at least two of the past 10 years.
  - ▶ Minimum of 10 carcass counts per mile year for at least three of the past 10 years. Concurrence from region maintenance personnel.



*Deer Crossing Sign (W11-3)*

Existing DEER CROSSING sign locations should be reviewed every five years.

**See appendix for statewide map of suggested DEER CROSSING sign locations for 2004 - 2013.**

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# Community Engagement



Community engagement is essential in identifying and confirming existing issues and ultimately forming decisions that consider a wide array of perspectives and preferences that are representative of all those that use the US 2 corridor study segment. Community engagement works best where it is an ongoing cumulative process enabling relationships and trust to build and strengthen over time. This was the aim of the engagement efforts of this study. Individual engagement events were planned and designed with this in mind. The community and stakeholders participated at a range of levels – from undertaking some aspects of the engagement, providing advice, to co-designing the process, outcomes, and solutions.

The community engagement efforts in this study were intentionally developed and implemented to align with **Results WSDOT** – Goal 5 (Community Engagement) priority outcome to:

- ▶ Increase consent on decisions made by WSDOT, communities, stakeholders, and the Legislature based on a shared understanding of needs and opportunities.
- ▶ Improve the understanding of transportation expenditures, investments and respective benefits (outcomes).
- ▶ Improve public access to information and decision making, so that WSDOT is recognized as the most credible source for information.

Community engagement is the public input opportunity in implementing practical/collaborative transportation solutions. Practical design and least cost planning requires the public input at the earliest stages of defining the project scope. (See Figure 3).

## Who WSDOT Engaged

The following diverse groups of community members and stakeholders were engaged in the planning efforts:

- ▲ *Local community members and commuters*
- ▲ *Commuters that live outside of the local study area*
- ▲ *Local businesses*
- ▲ *Pedestrians and bicyclist*
- ▲ *Emergency Medical Services*
- ▲ *School Districts*
- ▲ *Local Agencies*
- ▲ *Metropolitan Planning Organization*
- ▲ *Elected Officials*

The WSDOT engaged public agencies, emergency response organizations, and community members in the study area including business stakeholders to gain greater insight about existing conditions and gather ideas for potential low-cost high-benefit countermeasures. Surveys, mailings, community workshops, community open houses and meetings with the business stakeholders along with community input via “comment cards,” correspondence with individual community members and meetings with individual all informed the study efforts and outcomes. An Internet web page was maintained as another means to communicate emerging concepts and outcomes.

The public transportation authority (Spokane Transit Authority) was engaged early in the process; however, they elected to not participate because the study area is outside the limits of their Public Transportation Benefit Area, and they have no current plans to extend this area in the near future.

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# Tribal Coordination

We met with the Spokane and Kalispel Tribes to discuss this study and the emerging solutions described in this report. There were no concerns expressed with the emerging solutions. We shared that the concepts will be further refined during the design phase.

## Practical Solutions - WSDOT Least Cost Planning Framework

Community Engagement

Practical Solutions - How a Collaborative Transportation Solution is Implemented.

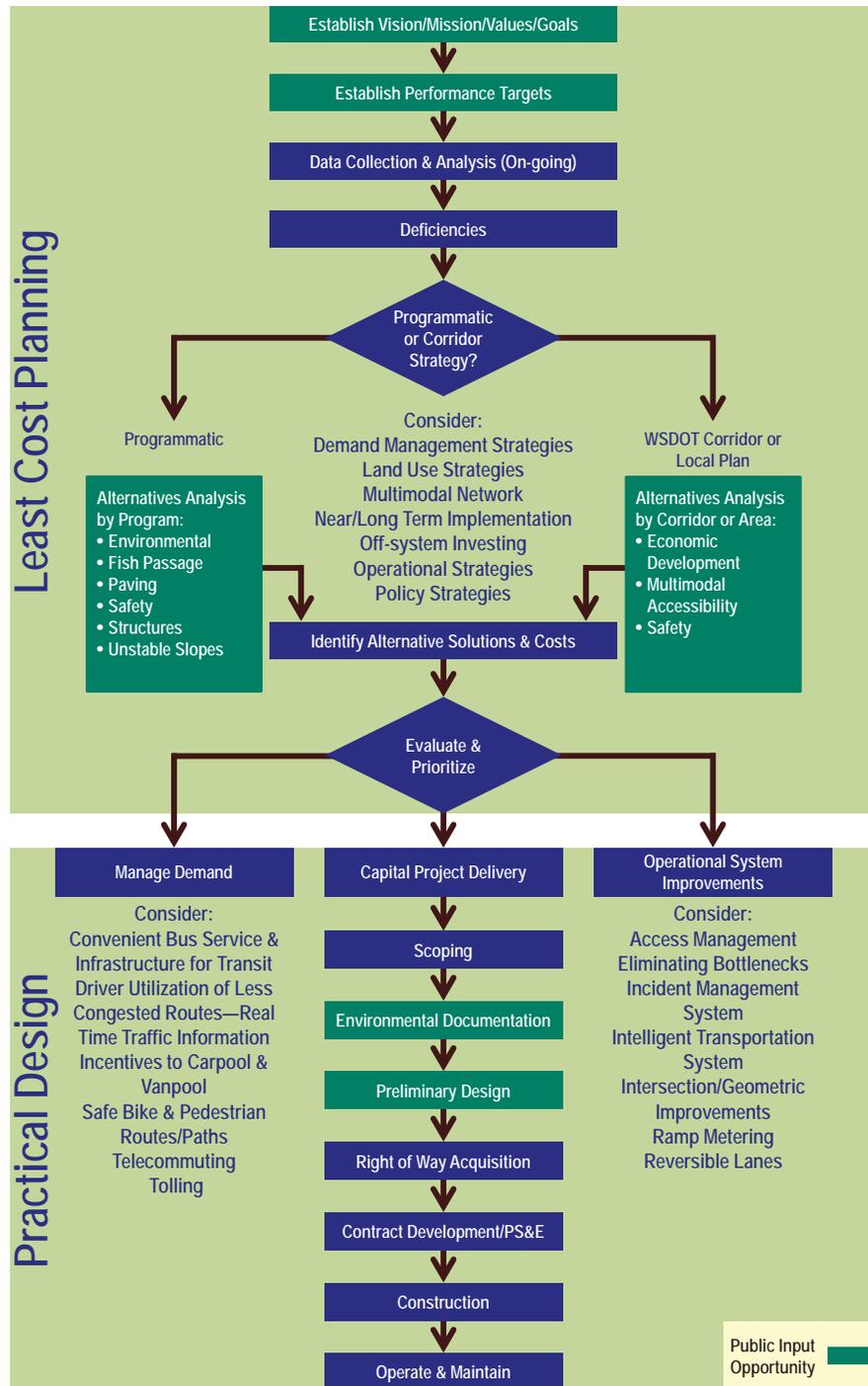


Figure 3

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## How WSDOT Engaged the Community and Corridor Stakeholders

To ensure all stakeholders and interested parties were provided opportunities to be involved in the least cost planning of potential low-cost high-benefit safety solutions along the corridor, WSDOT first formed a Technical Advisory Committee (TAC), which included a cross-section of business owners, emergency medical services, schools and Spokane County. WSDOT then connected with business stakeholders and local neighborhood and civic organizations in the study area. As Spokane County was not aware of any established neighborhood organization in the study area, the team researched, identified, and connected with various stakeholders.



**WSDOT staff discussing the merits of a roundabout at Day Mt. Spokane Road with the public, at the first Open House.**

WSDOT hosted a community workshop and met one-on-one with community members to discuss the potential safety issues and challenges and to develop conceptual solutions. Continuous and open community engagement was achieved through web updates; an online survey; three separate meetings with business owners; and two community open houses and ongoing feedback from the public through returned comment cards, email, along with accessible telephone and in person meetings.

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from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any WSDOT program or activity. In engaging the community we reviewed the U.S. Census data to ensure engagement efforts aligned with Executive Order 12898 on Environmental Justice (EJ) and Executive Order 13166 on Limited English Proficiency (LEP). The Title VI review for this study is detailed in the appendices.

Following a “kick-off” meeting with the TAC, a survey seeking community insight regarding concerns, trip activity, and modal choices was developed and distributed primarily via Internet. The survey included a few open-ended questions to encourage personal accounts. Over 400 people responded to the survey.

To gain greater insight about the corridor and potential improvement opportunities, WSDOT, as presented in the illustration (see Figure 5) hosted meetings, workshops, and open houses along with on sight one-on-one meetings and telephone conversations to discuss potential safety issues, challenges and solution concepts with the community and the corridor users.

WSDOT prepared for community engagement by gaining a better understanding of current conditions through data collection and analysis. Information regarding emerging transportation solutions was introduced during these exchanges.

Over 11,000 invitations were delivered to residences and businesses in five zip codes prior to the community workshop and prior to each of the 2 open houses.

In response to a citizen suggestion, later in the study efforts, variable message signs were located on the US 2 corridor to ensure corridor commuters were informed of the second open house that included a community workshop for Phase 2. A survey revealed the variable message signs were effective. Generally, the workshops/open houses were well attended and resulted in modifications to proposed concepts. Many concerned citizens called the study team on various occasions to provide insight.

The next two pages include graphics showing our Community engagement interactions:

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# Community Engagement - Practical Approach Framework

## US 2 / Deer Road to Elk-Chatarray Road Corridor Study

### How Will We Get There?

### Practical Approach Framework

**Desirable:** Solutions that align with the stakeholders desires, recommendations, and/or expectations  
**Feasible:** Capable of being accomplished within a specific time frame, is technically possible, or is relatively low in price  
**Acceptable:** Satisfies practical design best practices or engineering justification

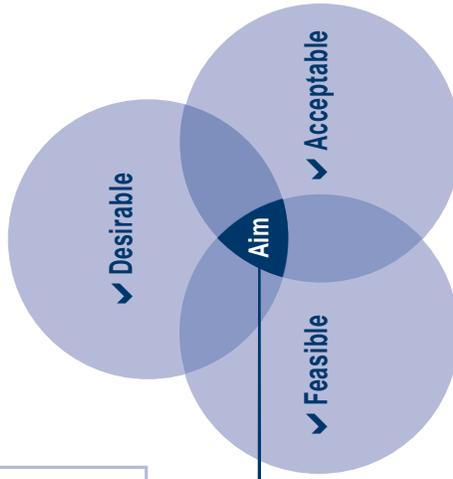
### Community Engagement

#### Stakeholders

- Citizens
- Business Owners
- Land Owners
- Community Groups
- Spokane County Fire Districts
- Spokane County Engineering
- Mead School District
- Washington State Patrol
- WSDOT
- Spokane Regional Transportation Council
- Others

Workshops  
 Online Survey  
 Community Meetings

Identify Goals → Develop Concepts



We started here

We want to be here



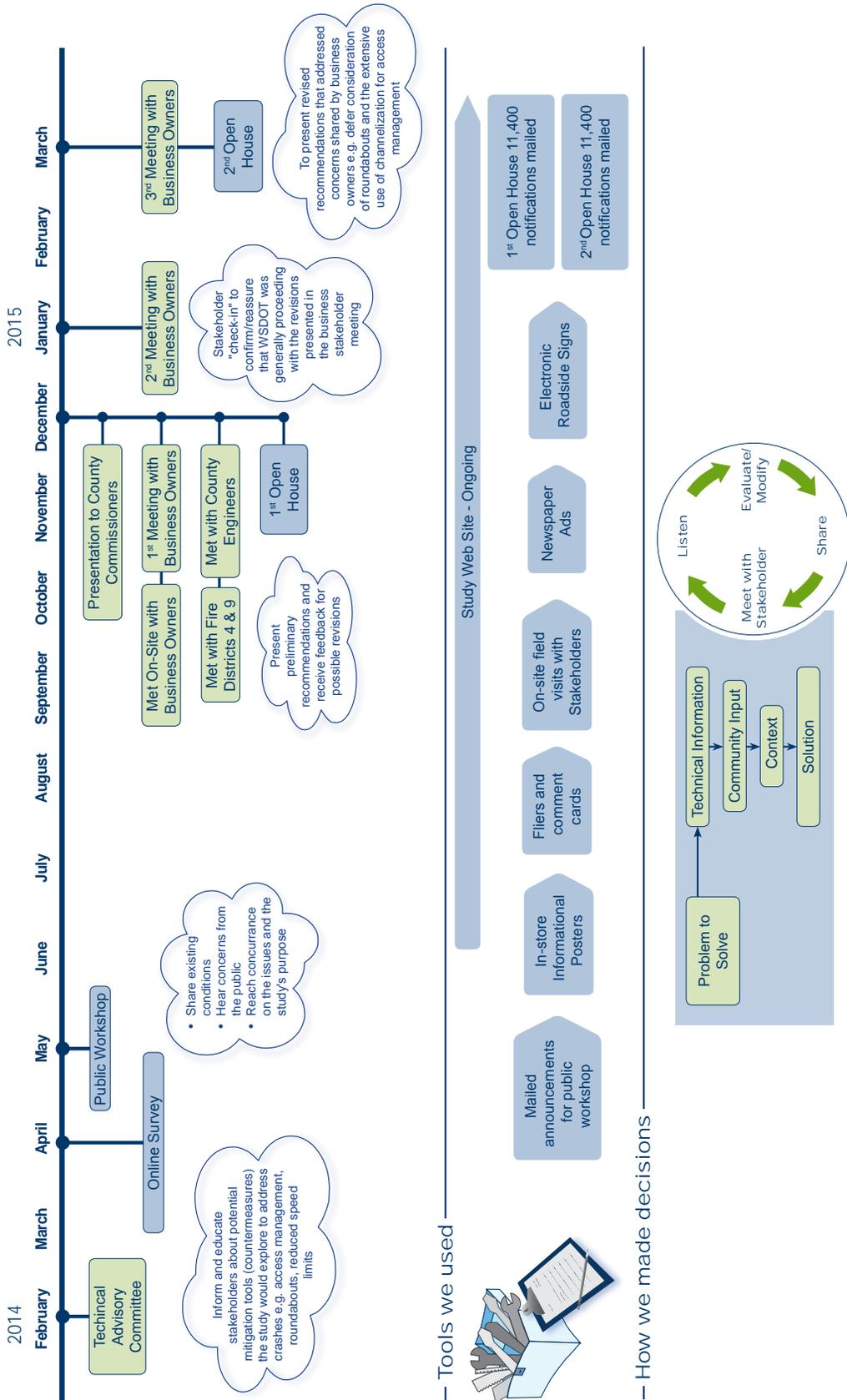
Figure 4

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# Community Engagement - Cumulative Process

## Community Engagement - How have we connected with the community?



**Community Engagement**

Figure 5

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## What WSDOT Heard

Through the community engagement process, WSDOT heard concerns about crashes and mobility issues. Although there were diverse interests and desires for corridor improvements; the corridor users generally agreed that providing countermeasures to reduce crashes occurrences was important.

For the segment of the corridor study from SR 206 to Day-Mt Spokane Rd, the majority of the commuters living in adjacent neighborhoods expressed a desire to reduce the posted speed. While commuters living outside this limits, that regularly use the corridor wanted to maintain the existing posted speed.

Access management to reduce left turns was a countermeasure that had support by many corridor user; with the exception of the business owners, who did not want any access restrictions to their businesses.

Other concerns expressed included driver behavior, intersections control, channelization, turn lanes, increased enforcement, roadway revisions, roadway maintenance and travel speeds, all of which influence various crash types/severity at different locations.

The community's responses in the electronic survey and during the first workshop indicated the US 2/ Colbert Rd. Intersection was the most significant location of concern. Table 1.1 ranks interest relating to corridor intersections.

The survey questions prompted comments by the community and stakeholders and these comments showed that numerous people concurred with a proposal to install signal warning flashers in advance of signals at US 2/SR 206 and US 2/ Day-Mt. Spokane Rd. and adding/modifying turn or acceleration/merge lanes was frequently suggested.

Community feedback from the first open house indicated opposition to a proposal to construct a roundabout at US 2/Day-Mt. Spokane Rd., and to installation of median channelization the entire length of the corridor segment, to manage access to/from US 2. Based on the presented concerns, the crash incidents were further evaluated to provide more targeted practical solutions.

As the study progressed, an emerging US 2 business group circulated two variations of a petition with over 800 signatures that generally supported:

- ▶ A signal or roundabout at the US 2 and Lane Park Rd. Intersection\*,
- ▶ Reducing the posted speed to 35 MPH,
- ▶ Advanced flashers
- ▶ Eliminating the proposed median channelization

Early in the study efforts, some of the community questioned the need for bicycle and pedestrian facilities; however, many people who previously expressed concern later supported a multimodal facility during the second open house/workshop.

\* WSDOT performed a signal warrant analysis and analyzed installation of a roundabout at Lane Park Rd. This analysis is included in the appendices.

**Electronic Survey - Ranked Interest Related to Corridor Intersections by Segments**

Intersection	Number of Comments Received
<b>SEGMENT 1</b>	
Lane Park Rd	46
North 40 Outfitters Approach	42
Market Street/SR206	33
Day Mt Spokane Rd	29
Deer Rd	9
SR 206	9
Moody Rd	2
Walker Ave	0
<b>SEGMENT 2</b>	
Colbert Rd	133
Woolard Rd	21
Elk-Chattaroy Rd	15
Greenbluff Rd	12

Table 1.1, Electronic survey responses during the period of the first workshop, May 2014

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# Crash Data

A review of the US 2 crash data identified the type of crashes occurring along the study segment; where the crashes occurred; the demographics of those involved; the number of crashes at specific locations; and the circumstances that contributed to the crash.

## Crash Data Source

The study crash analysis used ten years of crash data, beginning in January 2004 through the end of December 2013. During this 10 year period, there were 517 reported crashes between Deer Rd. and Elk- Chattaroy Rd.

A 10 year history of collisions was used in the initial community engagement, however it is now the policy of WSDOT to only use 5 years of crash history for analysis. Therefore the highway benefit cost analysis to evaluate potential low-cost high benefit solutions utilized the 5 year crash history data between 2009 and 2013.

The data, as supplied by the WSDOT Crash Data & Reporting Branch Office, was compiled from reports submitted by state and local law enforcement officers.

**This data allows us to identify and analyze information such as:**

Driver Behaviors  
Drowsy  
Distracted  
Intoxicated  
Speeding

### Driver Demographics

Age  
Gender

### Crash Type

At Angle  
Rear-ending  
Run off the Road

### Crash Location

Intersection  
Roadway Segment

### Contributing Factors

Weather  
Road Conditions  
Roadway Character  
Time of day  
Day of the Week  
Month

### Crash Severity

Injury  
Fatal  
Property Damage Only

**The information was used to look for trends and identify potential solutions.**

## Crash Data Findings

The following represents a summary of the crashes for the **ten year study period** (excluding identified US 395 NSC construction detour related crashes). The majority of crashes occurred during daylight hours, on a dry roadway surface, with clear, partly cloudy, or overcast weather conditions.

- ▶ 70% of crashes involved more than one vehicle
- ▶ Over 50% of all crashes were intersection related

### The most frequent First Crash Types\*:

- ▶ One vehicle rear-ending another
- ▶ A vehicle entering from a side road and colliding with a vehicle traveling on US 2
- ▶ A vehicle striking an animal
- ▶ A vehicle running off the road or hitting a fixed object

\*First Crash Type refers to the crash type that was first in an incident. For example, a rear ending crash may cause one of the vehicles to run off the road, but the rear-ending crash was the First Crash Type.

### The most frequent "Contributing Circumstance" causing a crash was the driver:

- ▶ Not granting the right-of-way to another vehicle
- ▶ Following another vehicle too closely
- ▶ Exceeding a reasonable speed for conditions
- ▶ Operating the vehicle while distracted
- ▶ Under the influence of alcohol

# Crash Map - Deer Rd. to Carney Rd.

## Crash Data

All crashes are by location, density, intersection related and all other types

The crash densities shown do not represent statistically significant frequencies or locations. Data is from 1/2004 to 12/2013

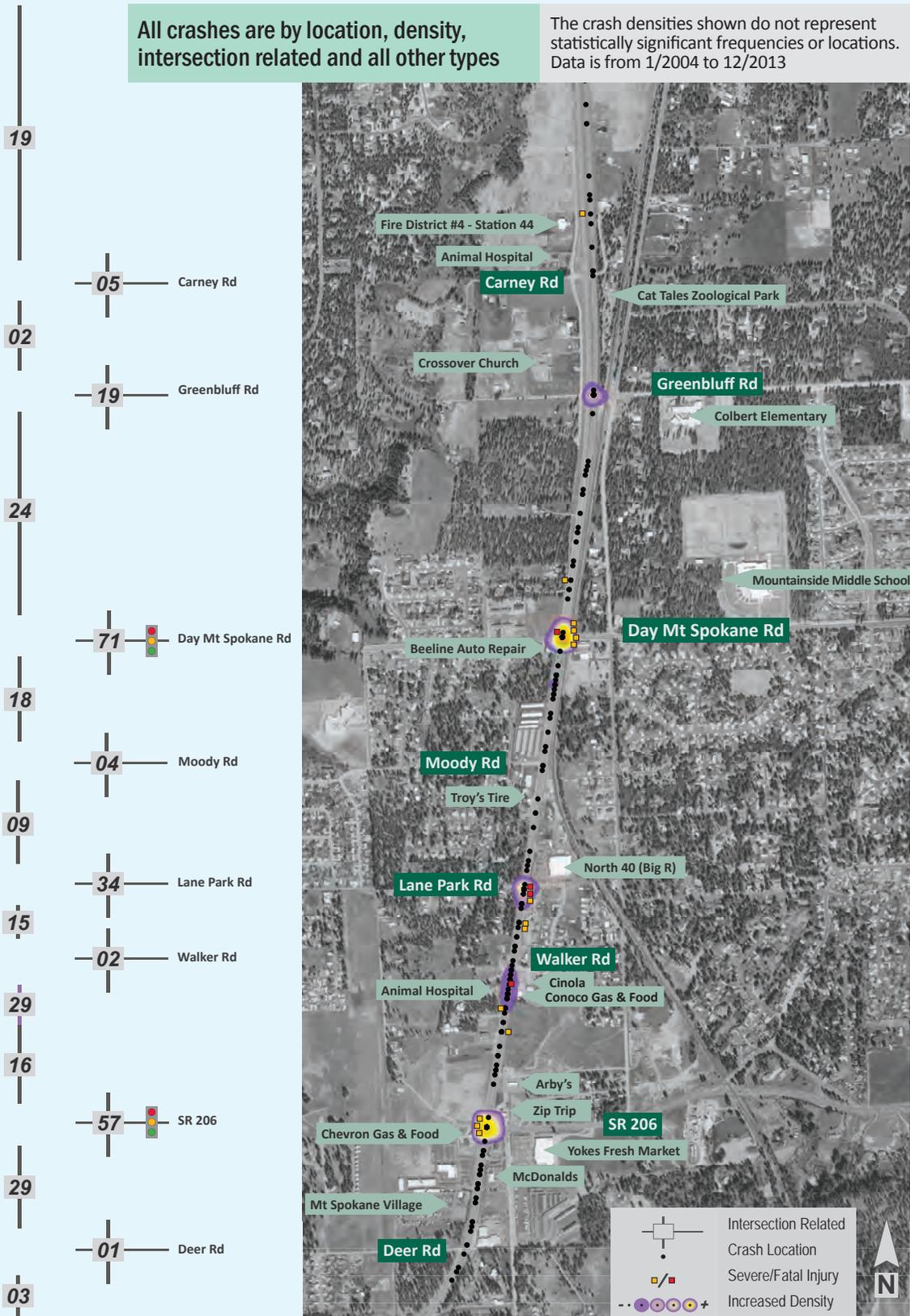
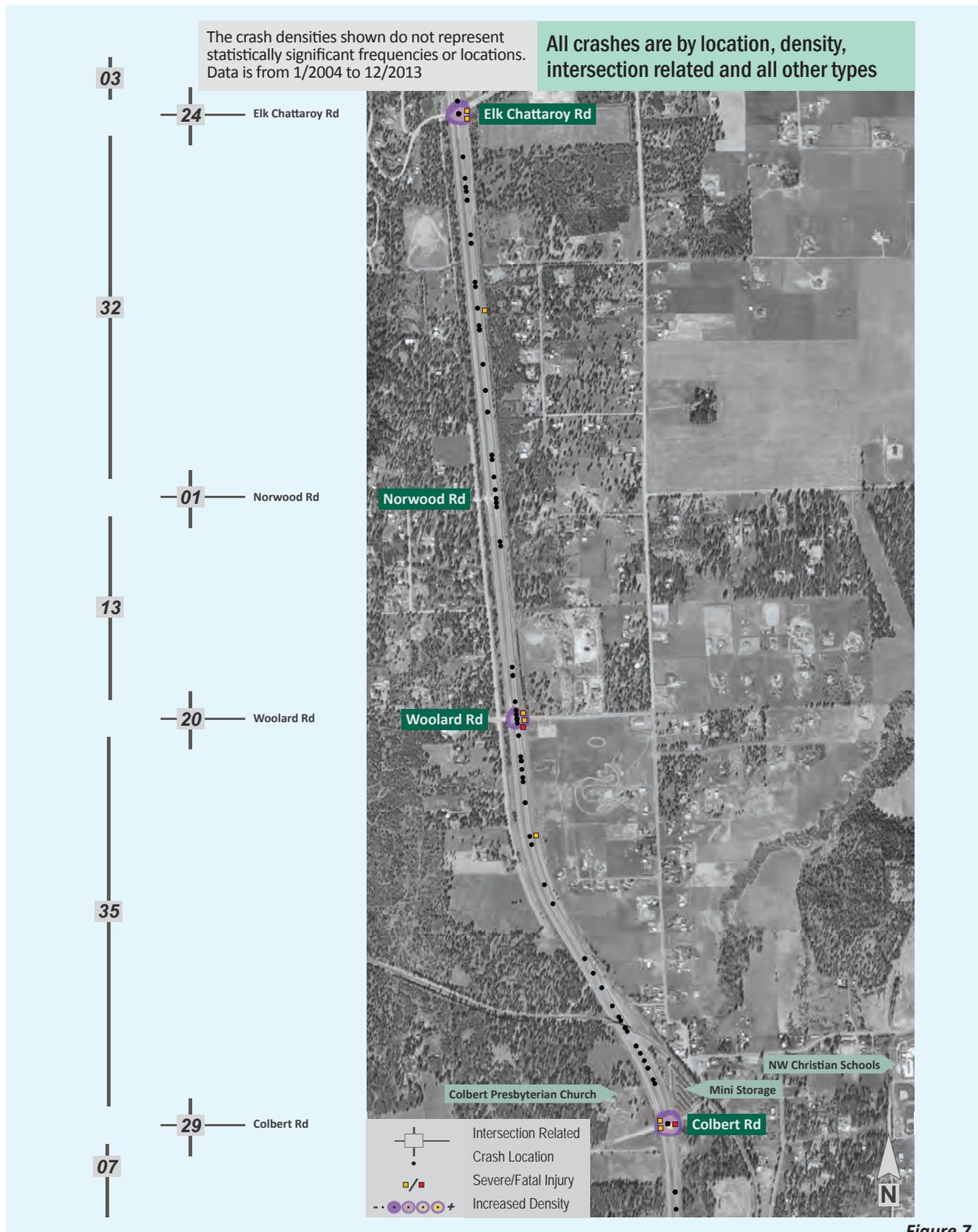


Figure 6

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# Crash Map - Colbert Rd. to Elk-Chattaroy Rd.



Crash Data

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# Crash Data - Contributing Circumstances

For All 517 crashes reported during the 10 year study period

	Driver of		Fatal	Serious
	1 <sup>st</sup> 	2 <sup>nd</sup> 		
<b>Failure to Obey Traffic Laws</b>				
Did Not Grant Right-of-Way to Vehicle	114	11	2	5
Follow Too Closely	75	5		3
Exceeding Reasonable Safe Speed	71	3		2
Disregard Stop and Go Light	13			2
Improper Turn	10	1		
Disregard Yield Sign - Flashing Yellow	4	1	1	
Over Center Line	5	1		
Exceeding Stated Speed Limit	4		1	1
Improper Backing	2			
Disregard Stop Sign - Flashing Red	2		1	1
Improper U-Turn	2			
Fail to Yield ROW to Pedestrian	2			
Improper Passing	1			
Improper Signal	1			
<b>Distracted</b>				
Inattention	23			
Driver Distractions Outside Vehicle	10			
Driver Interacting with Passengers	5		1	1
Driver Adjusting Audio Equipment	3			
Driver Operating Handheld Device	2	1		
Unknown Driver Distraction	2			
Driver Eating or Drinking	1			
Driver Operating Hands-free Device	1		1	
<b>Impairment</b>				
Under Influence of Alcohol	34		1	3
Under Influence of Drugs	5			
Had Taken Medication	1			
<b>Drowsy/Illness</b>				
Apparently Asleep	7			
Apparently Ill	6			1
Apparently Fatigued	3		1	
<b>Other</b>				
None	109	334		
Other	23	11		
Operating Defective Equipment	9	1		1

Human factors are generally a significant component in all crashes... **Highway Safety Improvement Program Manual - Federal Highway Administration**

The full extent of distracted driving as a crash factor is unknown due to under-reporting

74 of 109 single vehicle crashes were animal strikes

Crash Data

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## Crash Data - First Crash Types

For All 517 crashes reported during the 10 year study period

<b>Same Direction</b>		Fatal	Serious
Both going straight - one stopped - rear-end	110	1	5
Both going straight - both moving - rear-end	56		
Both going straight - both moving - sideswipe	15		
All others	9		
One left turn - one straight	6		
Both going straight - one stopped - sideswipe	4		
Both turning right -- both moving -- sideswipe	2		
Both turning left -- one stopped -- rear end	1		
One right turn - one straight	1		
<b>Vehicle Entering &amp; Struck At Angle</b>			
Entering at angle	90	1	7
<b>Strikes Animal</b>			
Vehicle Strikes Deer	45		
Non-domestic animal (deer, bear, elk, etc)	33		1
Vehicle Strikes All Other Non-Domestic Animal	1		
Domestic animal (horse, cow, sheep, etc)	1		
Domestic animal other (cat, dog, etc)	1		
<b>Opposite Direction</b>			
One left turn - one straight	33	2	
Both going straight - sideswipe	2		
Both moving - head-on	1		
<b>Pedestrian /Bicycle</b>			
Vehicle going straight hits pedestrian	5	2	1
Vehicle - Pedalcyclist	1		
<b>Strikes Object/Run-off-the-Road</b>			
Fixed object	43		3
Vehicle overturned	25		2
Other object	5		1
<b>Driveway</b>			
One car leaving driveway access	15		1
One car entering driveway access	6		
<b>Strikes Parked Vehicle</b>			
One parked--one moving	6		1

## Driver Demographics

### Drivers Involved By Age Group

16-20	16%
21-25	10%
26-30	7%
31-35	8%
36-40	7%
41-45	9%
46-50	11%
51-55	11%
56-60	6%
61-65	5%
66-70	4%
71-75	2%
76+	5%

## Crash Severity

### Most Severe Crash Injury

Fatal	6
Serious	22
Evident	69
Possible	112
No injury	302
Unknown	6

## Injury Definitions

**Fatal:** When a person dies within 30 days from injuries sustained due to the crash.

**Serious/Disabling:** Any injury which prevents the injured person from walking, driving, or continuing normal activities at the time of the crash.

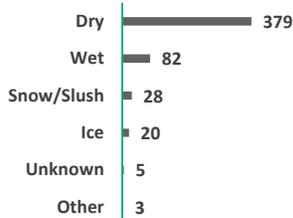
**Evident/Non-Disabling:** Any injury at the scene other than fatal or disabling.

**Possible:** Any injury reported to the officer or claimed by the individual such as momentary unconsciousness, limping, complaint of pain, nausea, hysteria, or a claim of injuries not evident.

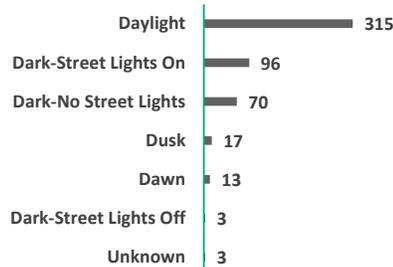
**No Injury:** Applies when the officer at the scene has no reason to believe that at the time of the crash the person received any bodily harm due to the crash.

## Contributing Factors

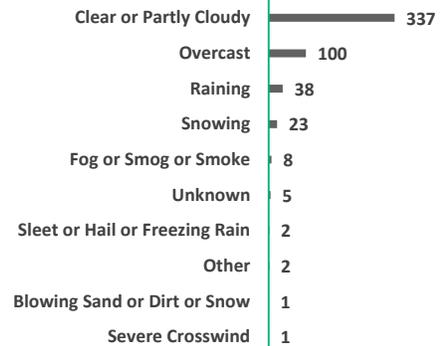
### Roadway Surface



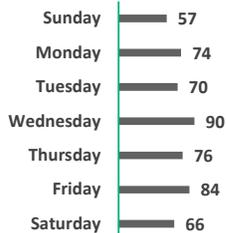
### Light Conditions



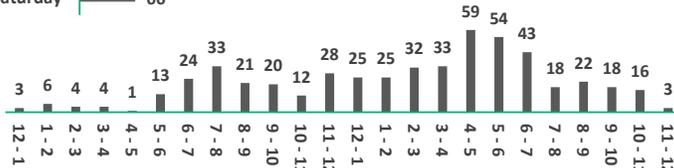
### Weather Conditions



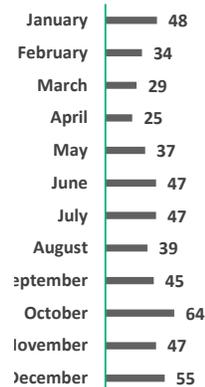
### Day



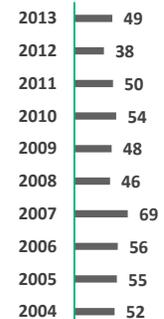
### Time of Day



### Month



### Year



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## Fatal Crashes

There were six fatal crashes that resulted in seven fatalities during the 10 year study period. The following summarizes the contributing circumstances in the fatal crashes:

- ▶ Two involved pedestrians
- ▶ Three were due to failing to yield or grant right-of-way
- ▶ One was due to a distracted or fatigued driver

### 1) Pedestrian struck by vehicle

	<i>Contributing Circumstances</i>	<i>Seatbelt Use</i>	<i>Age</i>	<i>Injury</i>
<b>Vehicle 1</b>	None	Yes	53	No Injury
<b>Pedestrian</b>	Did Not Grant Right-of-Way to Vehicle	N/A	69	Fatal

Southbound vehicle 1 was moving straight ahead and struck a pedestrian crossing at a non-intersection location in the vicinity of Walker Rd

This crash occurred Sunday, January 2005 around 5 PM during nighttime hours with no street lights

Weather was overcast and roadway surface was dry

### 2) Pedestrian struck by vehicle

	<i>Contributing Circumstances</i>	<i>Seatbelt Use</i>	<i>Age</i>	<i>Injury</i>
<b>Vehicle 1</b>	None	Yes	30	No Injury
<b>Pedestrian</b>	Under Influence of Alcohol	N/A	47	Fatal

Northbound vehicle 1 was moving straight and struck a pedestrian walking in the roadway. The pedestrian was under the influence of alcohol

This was an intersection related crash in the vicinity of Lane Park Rd

The crash occurred Tuesday, January 2013 around 8 PM during nighttime hours with street lights on

Weather was overcast and roadway surface was wet

### 3) From opposite direction - one left turn - one straight

	<i>Contributing Circumstances</i>	<i>Seatbelt Use</i>	<i>Age</i>	<i>Injury</i>
<b>Vehicle 1</b>	Did Not Grant Right-of-Way to Vehicle	Yes	92	Fatal
<b>Vehicle 2</b>	None	Yes	40	No Injury

Both the 92 year old driver and his wife sustained fatal injuries

Southbound vehicle 1 turned left (eastbound) in front of northbound vehicle 2

This was an intersection related crash at Lane Park Rd

The crash occurred Sunday, October 2013 at around 4 PM during daylight hours

Weather was clear or partly cloudy and the road surface was dry

### 4) Entering vehicle struck at angle

	<i>Contributing Circumstances</i>	<i>Seatbelt Use</i>	<i>Age</i>	<i>Injury</i>
<b>Vehicle 1</b>	None	Yes	29	Possible
<b>Vehicle 2</b>	Disregard Yield Sign	No	79	Fatal

Eastbound vehicle 2 did not stop in median for southbound vehicle 1 and was struck at angle

This was an intersection related crash at Colbert Rd

This crash occurred on Thursday, December 2008 around 3 PM during dusk

Weather was snowing with a roadway surface of other

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### 5) From same direction - both going straight - one stopped - rear-end

	<i>Contributing Circumstances</i>	<i>Seatbelt Use</i>	<i>Age</i>	<i>Injury</i>
<b>Vehicle 1</b>	Operating Hands-free Device & Apparently Fatigued	Yes	33	Evident
<b>Vehicle 2</b>	None	Yes	35	Evident
<b>Vehicle 3</b>	None	Yes	54	Possible

The fatal injury involved a young passenger in vehicle 2

Southbound vehicle 1 was moving straight ahead and struck vehicle 2 which was stopped in traffic at traffic signal. This was an intersection related crash at Day Mt Spokane Rd

The crash occurred Wednesday, May 2007 around 5 PM during daylight hours

Weather was clear or partly cloudy and roadway surface was dry

### 6) From opposite direction - one left turn - one straight

	<i>Contributing Circumstances</i>	<i>Seatbelt Use</i>	<i>Age</i>	<i>Injury</i>
<b>Vehicle 1</b>	Did Not Grant Right-of-Way to Vehicle	Yes	87	No Injury
<b>Vehicle 2</b>	None	Yes	80	Fatal
<b>Vehicle 3</b>	None	Yes	18	No Injury

Northbound vehicle 1 was turning left (west) and struck front end of southbound vehicle 2

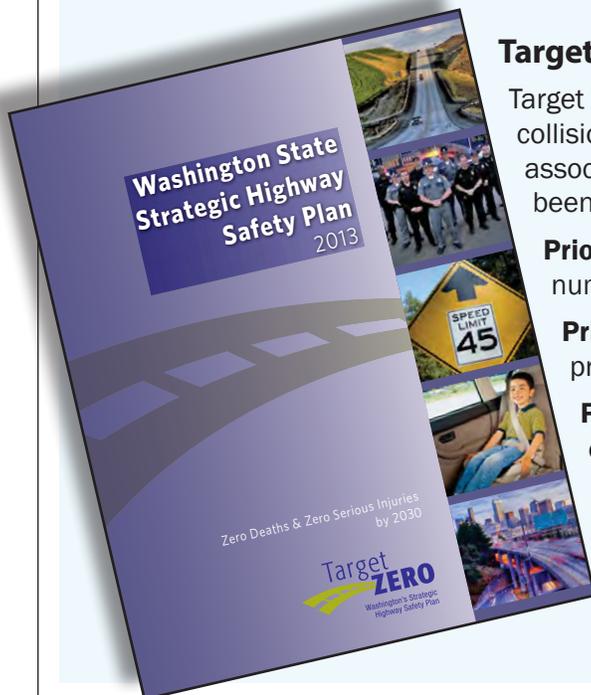
This was an intersection related crash at Woolard Rd

This crash occurred on Saturday, November 2007 around 5 PM during nighttime hours with street lights on

Weather was overcast and roadway surface was dry

## Washington State Strategic Highway Safety Plan - Target Zero

Target Zero is a high-level strategic plan that sets state-wide priorities for all traffic safety partners and provides a resource of potential strategies to address each priority area. Target Zero vision is to reduce traffic fatalities and serious injuries in Washington State to zero by 2030.



### Target Zero Priorities

Target Zero priorities are based on a data driven analysis of collisions statewide. The analysis identified the primary factors associated fatal and serious injury collisions. These factors have been grouped into three priority levels.

**Priority level one** includes the factors associated with the largest number of fatal and serious injuries.

**Priority level two** factors are frequent but not seen as often as priority level one.

**Priority level three** factors are associated with less than 10% of fatalities and serious injuries.

These priorities help us focus on the issues where the potential for favorable results are greatest.

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**Target Zero Strategies Focus on the Four “E”s.**

**Education** - Give drivers the information to make good choices, such as not driving while impaired, wearing a seatbelt, and avoiding distractions while in their vehicles.

**Enforcement** - Use data-driven analysis to help law-enforcement officers pinpoint locations with a high number of fatal and serious-injury collisions related to driver behaviors, such as speeding and impairment.

**Engineering** - Design roads and roadsides using practical, near term solutions to reduce collisions, or severity of collisions if they do occur.

**Emergency Medical Services (EMS)** - Provide high-quality and rapid medical and emergency response to injury collisions.

Leadership/Policy – Not an “E”, these are strategies that involve laws, agency rules, or policy changes.” Washington State Strategic Highway Safety Plan 2013.

## US 2 Crash Data Sorted by Target Zero Priorities

### Target Zero - Priority Level One

For All 517 crash reported during the 10 year study period

	All	Fatal	Serious
<b>Target Zero - Priority Level One</b>			
<b>Impaired or Drinking Person Involved</b>			
Had Been Drinking - Ability Impaired	35	1	3
Under Influence of Drugs	5		
Had Been Drinking - Ability Not Impaired	5	1	
Had Been Drinking - Sobriety Unknown	2		1
Had Taken Medication	1		
<b>Run-Off-the-Road</b>			
Run-Off-the-Road	30		2
<b>Speeding Involved</b>			
Exceeding Safe Speed for Conditions	75		2
Exceeding Stated Speed Limit	4		1
<b>Young Driver 16 - 25 Involved</b>			
Age 16 - 20	127	1	4
Age 21 - 25	87		3
<b>Distracted Driver Involved</b>			
Inattention	23		
Driver Distractions Outside Vehicle	10		
Driver Interacting with Passengers	5		1
Driver Adjusting Audio or Entertainment	3		
Driver Operating Handheld Device	3		
Unknown Driver Distraction	2		
Driver Eating or Drinking	1		
Driver Operating Hands-free Phone	1	1	
<b>Intersection Related</b>			
At Intersection and Related	248	5	10
Intersection Related but Not at Intersection	22		3
At Driveway within Major Intersection	6		

Statewide from 2009-2011 more than one-fifth of fatalities and one-third of all serious injuries were intersection related.

Crash Data

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## Target Zero - Priority Level Two

Priority Level Two factors while frequent, are not seen as often as Priority Level One items. Level Two factors were seen in at least 10% of traffic fatalities or serious injuries statewide.

Target Zero - Priority Level Two	All	Fatal	Serious
<b>Unrestrained Vehicle Occupant</b>			
No Restraints Used	5	1	2
<b>Unlicensed Driver Involved</b>			
Data is not available for unlicensed drivers			
<b>Opposite Direction</b>			
From opposite direction - sideswipe	2		
<b>Motorcycles</b>			
Motorcycle Involved	7		2
<b>Pedestrians</b>			
Pedestrian Involved	5	2	1

\*Target Zero excludes opposite direction collisions when intersection related



Target Zero - Priority Level One Impaired or Drinking Person Involved.

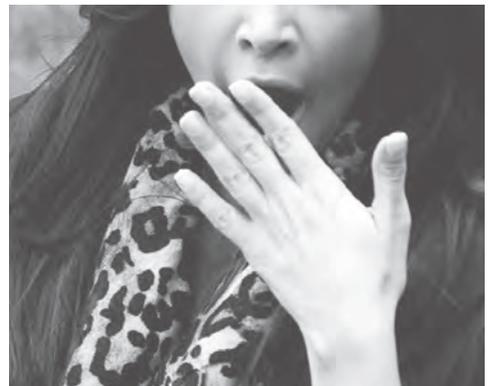
## Target Zero - Priority Level Three

Priority Level Three factors are associated with less than 10% of fatalities and serious injuries statewide.

Target Zero - Priority Level Three	All	Fatal	Serious
<b>Older Drivers 75+</b>			
Drivers 75 Years Old or Older	40	3	3
<b>Heavy Truck Involved</b>			
Heavy Truck Involved	20		1
<b>Drowsy Driver Involved</b>			
Apparently Asleep	7		
Apparently Fatigued	3	1	
<b>Bicyclists</b>			
Bicyclist Involved	1		
<b>Work Zone</b>			
Within Work Zone	14		
In External Traffic Backup	7		4
<b>Wildlife</b>			
Vehicle Strikes Deer	47		
Non-domestic animal (deer, bear, elk, etc)	33		1
Vehicle Strikes All Other Non-Domestic Animal	1		
<b>School Bus</b>			
School Bus Involved	1		
<b>Vehicle-Train</b>			
Vehicle-Train			



Target Zero - Priority Level Two Unrestrained Vehicle Occupant.



Target Zero - Priority Level Three Drowsy Driver Involved.

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# Development of Concepts

In developing concepts for this study the WSDOT used a least cost planning approach that considered a variety of conceptual solutions to achieve the study purpose of reducing crashes along the corridor. Engagement of the community as presented in the “Community Engagement” section is central to least cost planning. The traffic volumes and crash data, collected from 2004 through 2013, were analyzed to identify crash trends and locations that will benefit from countermeasures targeted at reducing crashes. However, 5 year crash data from 2009 through 2013 was used in the benefit cost analysis of potential concepts. Traffic volume and crash data is included in the “Crash Data” section of the appendix.

The following describes the collaborative development of emerging solutions for \*Phase 1 from SR 206 to Day-Mt. Spokane Rd. The study efforts acknowledged that funding for low cost improvements to reduce crashes on Segment 1 was available for construction in 2017. The community embraced the opportunity to focus on and develop potential improvements that would be constructed in the near future.

WSDOT presented various conceptual plans throughout the community engagement process and many elements in the various concepts were revised to address the community’s concerns in alignment with design guidelines, best practices and policies.

Continuous and open community engagement throughout this least cost planning effort resulted in practical design solutions for Phase 1 of Segment 1, that will provide low cost improvements to reduce crashes at locations with higher crash density.

As future development occurs, “Complete Street”, features (see Figure 12) to improve multi modal mobility and other improvements, including additional access management and control measures at intersections along the corridor may be provided as future land use developments, or as crash trends indicate a need and funding is available.

As this corridor is developed, WSDOT will continue using practical design principles as show in Figure 3.

*\*Phase 1 is the near term (2017) improvements to Segment 1. See map, Figure 2.*

## Phase 1 - SR 206 to Day-Mt. Spokane Road - Initial Concepts

Based on the project goals identified by the TAC, input at the initial community workshop, stakeholder meetings, and the online survey; WSDOT developed a plan for long term low cost corridor improvements that considered multiple values. This plan initially included a roundabout at the US 2/Day-Mt. Spokane Road intersection, raised median channelization along the entire length of Segment 1 to limit conflicting left turns to and from US 2, as well as several other low cost enhancements aimed at reducing crash potential. See Figure 8, for these emerging solutions (funded for construction in 2017) presented to the business owners and at the first open house, held on December 16, 2014.

### What was the Reaction to the Emerging Solutions by the Local Community?



*Community workshop participants brainstorming crash reduction countermeasures.*

Comments received during and subsequent to the first open house informed WSDOT of opposition to the proposed roundabout at the US 2/Day-Mt. Spokane Rd. Intersection, as well as concerns with raised median channelization, particularly where business access points were restricted. In keeping with practical design guidelines, WSDOT re-evaluated the need for the long term corridor countermeasures presented at the first open house. WSDOT concluded that the modifications from early implementation

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activities would positively impact crash trends and therefore delay of some higher cost countermeasures, such as roundabouts for intersection control and channelization for access management were appropriate based on future need and development.

## Conceptual Designs Presented at the Second Open House

A more targeted practical solution was developed and presented to the business owners. The new proposal did not include a roundabout at Day-Mt. Spokane Rd. and proposed raised median channelization only at locations on the corridor where existing crash trends indicated a need.

Comments and concerns presented during a meeting with corridor business owners were considered when developing the revised plans, that were presented at the second open house on March 12, 2015. See Figure



After the first Open House, WSDOT re-evaluated the need for roundabout at US 2 and Day Mt. Spokane as a near term solution; agreeing with the community that this option could be revisited in the future, as crash trends and development indicate the need. Instead, a right-turn lane northbound to eastbound option was selected. This option also provides a right-turn acceleration lane from eastbound to southbound.

9, for elements of the revised plan which included a reduction in the posted speed from 55 to 45 mph and a number of geometric changes including chicanes\* and narrowing the existing lanes and shoulders throughout the corridor to cause drivers to slow down. The plan also provided raised channelization in the median at select locations and no changes to the remainder of the existing two-way left turn lane and striping. Advance signal warning signs (Prepare to Stop When Flashing), lane modifications, enhanced pedestrian crossing, curb/sidewalk and paving a section of an existing local gravel road were also proposed. See Figure 9.

\*Chicanes are a series of curves with raised channelization/curbs that encourages lower speed.

## Refinements After Second Open House

The concepts were further refined after listening to feedback during the second community open house and after further internal discussion.

- ▶ The proposed 45 mph speed limit was further analyzed. Effective speed limits are those that the majority of drivers naturally drive. The proposed geometric changes presented at the second open house were not enough to gain compliance with a 45 mph speed limit. As the context of this developing corridor changes additional roadway revisions may be implemented and speed limits should be evaluated to match context as development occurs.
- ▶ Chicanes in the Day Mt. Spokane Road vicinity northbound and southbound, and in the

SR 206 vicinity northbound, while considering access for businesses.

- ▶ Advance signal warning signs (Prepare to Stop When Flashing) at the northbound approach to SR 206 and the southbound approach to Day-Mt. Spokane Rd.

As refinements are an evolving process, WSDOT will continue to refine the planning concepts in more detail during the project design phase prior to construction.

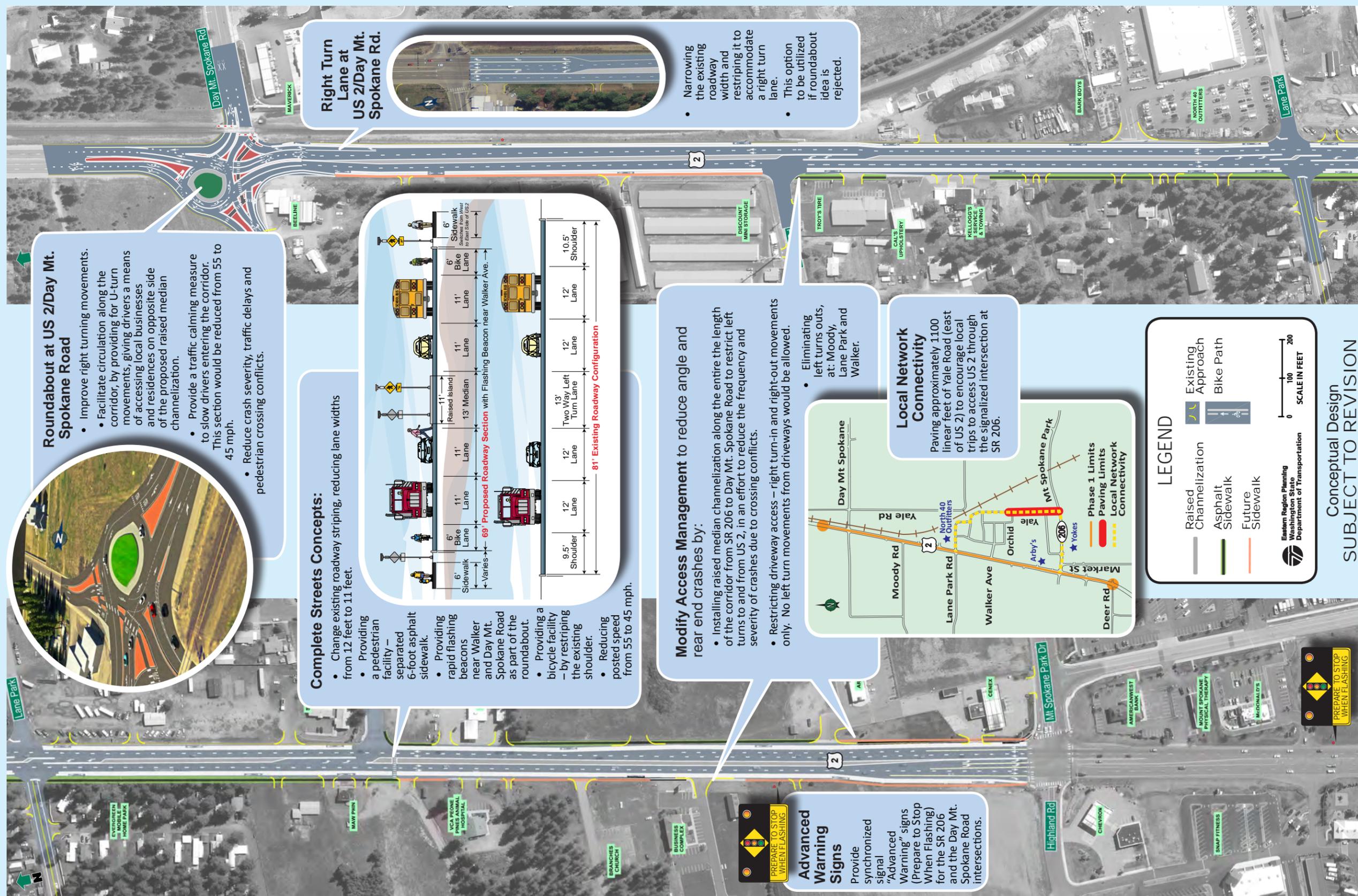
Figure 10 and the appendices include more details about proposed alternatives, additional information about discussions during stakeholder/community meetings and open houses along with the study survey results.

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# First Open House Emerging Solutions - (12/16/2014)



4/27/2015

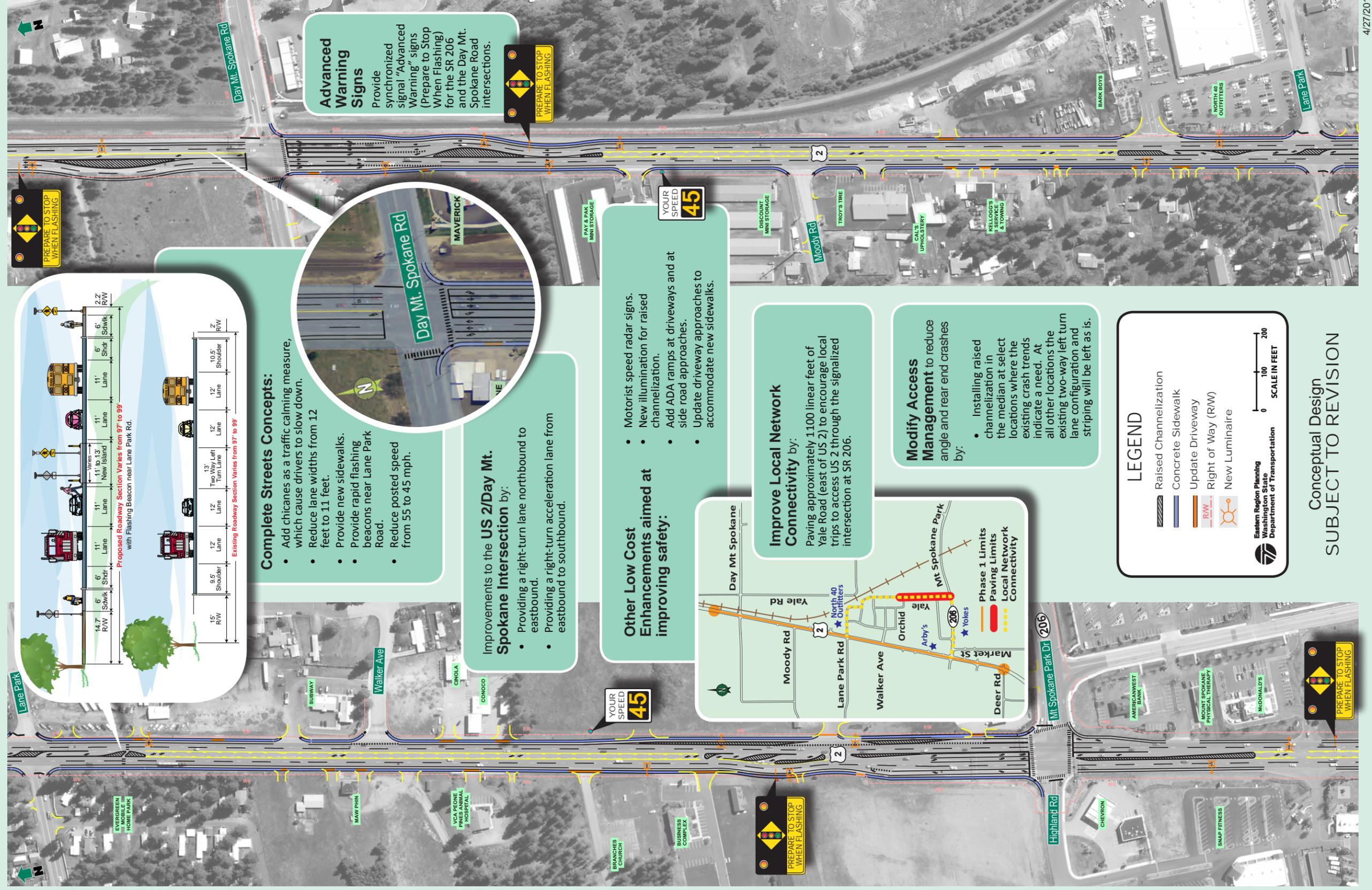
Conceptual Design  
SUBJECT TO REVISION

Development of Concepts

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# Second Open House Emerging Solutions - (3/12/2015)



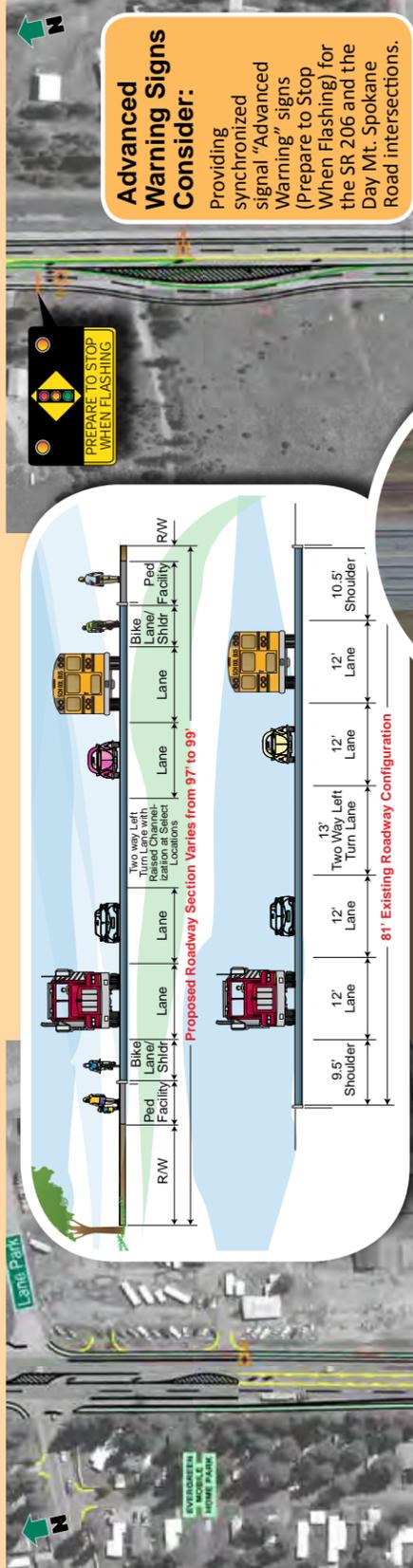
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# Emerging Solutions



**Advanced Warning Signs Consider:**  
 Providing synchronized signal "Advanced Warning" signs (Prepare to Stop When Flashing) for the SR 206 and the Day Mt. Spokane Road intersections.



## US 2/Day Mt. Spokane Intersection Enhancements Consider:

- Adding chicanes.
- Providing a right-turn lane northbound to eastbound.
- Providing a right-turn acceleration lane from eastbound to southbound and evaluate at other locations.

## Consider Other Low Cost Safety Enhancements:

- Converting existing painted channelization to raised channelization at the SR 206 intersection at the southbound approach, while providing measures to maintain access to businesses in the vicinity of chicanes. Such measures may include improved circulation in the vicinity of SR 206 and Chris Ct. with a roundabout. Another potential measure may include providing access to Market St. from US 2.
- Eliminating a section of the existing northbound acceleration lane at the SR 206 intersection.
- Restriping the existing roadway to provide right turn lanes and acceleration lanes at select locations.
- Adding ADA ramps at driveways and at side road approaches.
- Updating driveway approaches to accommodate new pedestrian facilities.
- Providing illumination at location with raised channelization.

## Complete Streets Concepts Consider:

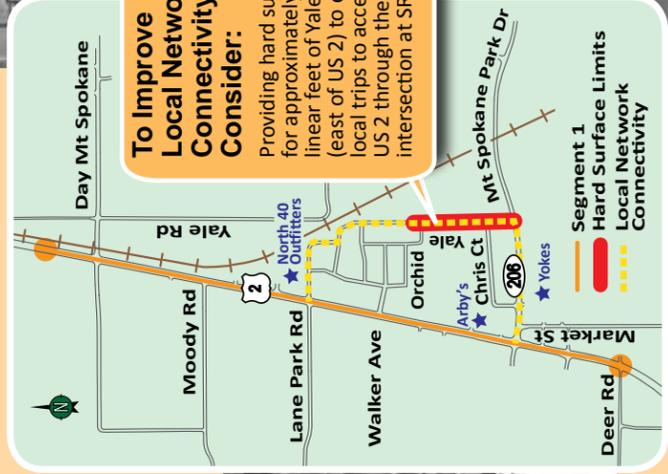
- Adding chicanes as a traffic calming measure, which cause drivers to slow down, at the northbound and southbound approaches at Day Mt. Spokane, and the northbound approach at SR 206.
- Reducing speed limit to match context as development occurs.
- Reducing lane and shoulder widths.
- Striping for bicycle lane on the shoulder area.
- Providing new pedestrian facilities. Pedestrian access at existing crossings shall not be prohibited.

## Consider Modifying Access Management to reduce angle and rear end crashes by:

- Installing raised channelization in the median at select locations. At all other locations the existing two-way left turn lane configuration and striping will be left as is.
- At Lane Park, install curb (channelization) to provide for left-in, right-in, and right-out movements only at Lane Park and right-in, right-out and left-out only at the northern commercial approach in the vicinity of Lane Park. No left turns from Lane Park to US 2 will be provided. Pedestrian crossing will not be prohibited and existing unmarked crosswalks will be ADA compliant.

## To Improve Local Network Connectivity Consider:

Providing hard surface for approximately 1100 linear feet of Yale Road (east of US 2) to encourage local trips to access US 2 through the signalized intersection at SR 206.



## LEGEND

- Raised Channelization
- Concrete Sidewalk
- Update Driveway
- Right of Way (ROW)
- New Luminaire



Conceptual Design  
 SUBJECT TO REVISION

## Development of Concepts

10/21/2015

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# Emerging Solutions \*

## Roadway and Roadside Context

The corridor study area is divided into two segments, each with distinct roadway and roadside characteristics. Both sections provide access to four schools, one commercial center with grocery store, a regional farm implement business, suburban cul-de-sac neighborhoods, and strip commercial development. (See Figure 11).

**Segment 1** The southern segment is a five lane 55 mph managed access highway with residential and commercial development adjacent to the highway from Deer Rd. on the south through Day-Mt. Spokane Rd. on the north. This undivided roadway has a 14 ft. two-way left turn lane, two 12 ft. lanes in each direction, 8-10 ft. shoulders, and minimal channelization to manage access. The majority of the segment does not have pedestrian or independent bicycle facilities. Public transportation services do not extend into this area.

Currently, this segment is outside of the Spokane County Urban Growth Area (UGA). Spokane County has proposed to include this segment in the UGA, opening up a greater potential for growth along the corridor. See the zoning section of the appendix for the current zoning land use classification map.

Funding is allocated to construct low-cost improvements in 2017 to reduce crashes in this segment.

**Segment 2** The northern segment of the study area is a four lane median divided 60 mph highway with six at grade intersections that serves light density suburban land uses. The segment extends just north of Day-Mt. Spokane Rd. to Elk-Chattaroy Rd. There are no existing pedestrian or independent bicycle facilities in the section.

Currently, construction funding is not available for any of the suggested emerging solutions for this segment.

\*Evaluate and refine target speed ranges, design and operation solutions during design phase to achieve appropriate target speed for the corridor.

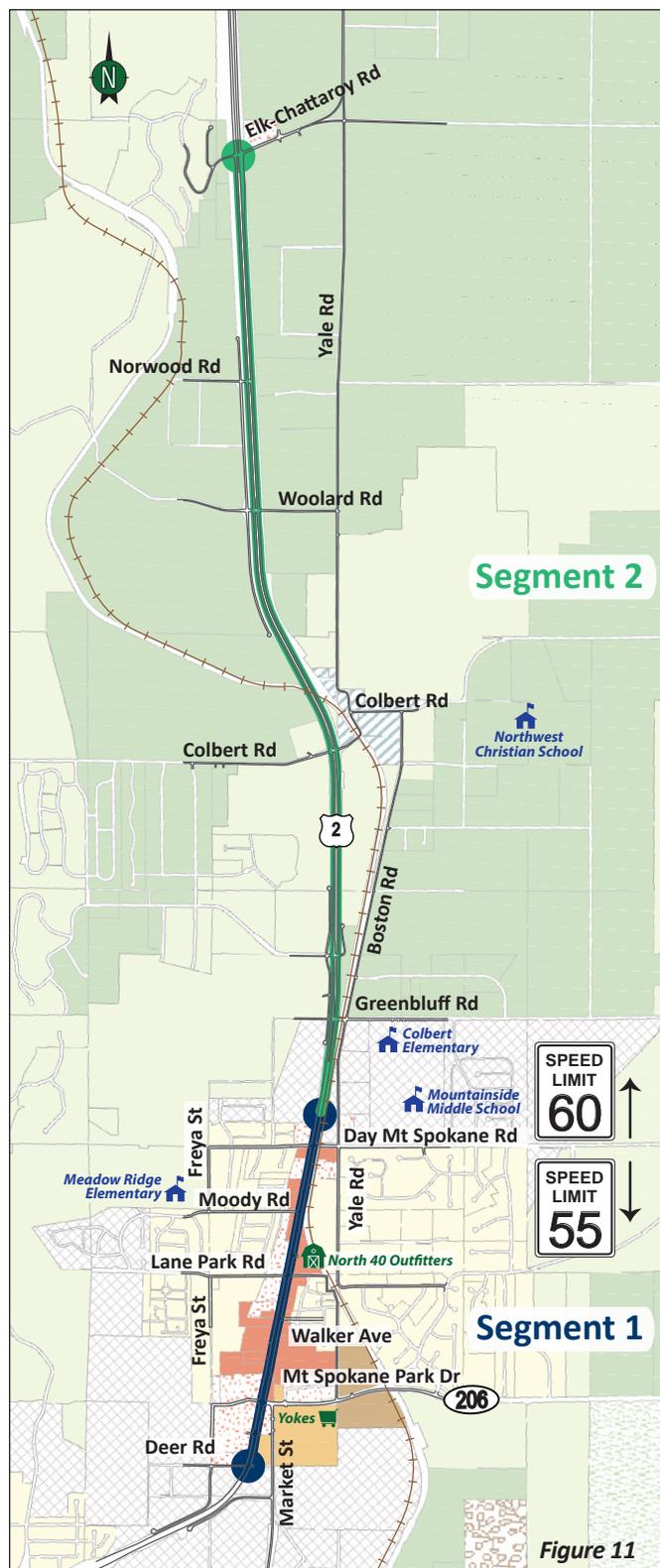


Figure 11

Emerging Solutions

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code,

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## Near Term 2017 Improvements for Segment 1 (Phase 1)

The safety performance for this highway is similar to like highways. In the past, the US 2/Day-Mt. Spokane and US 2/SR 206 intersections were on WSDOT's prioritized collisions list. After reviewing the contributing factors of crashes, along this segment of the corridor, a few low-cost high-benefit concepts emerged that are predicted to reduce crashes at a relatively low cost.

Figure 10 and the following summarizes "near term" low-cost/high-benefit emerging solutions for Phase 1 that have potential to reduce crashes and crash severity. Funding is available to construct the "near-term" emerging solutions in 2017.

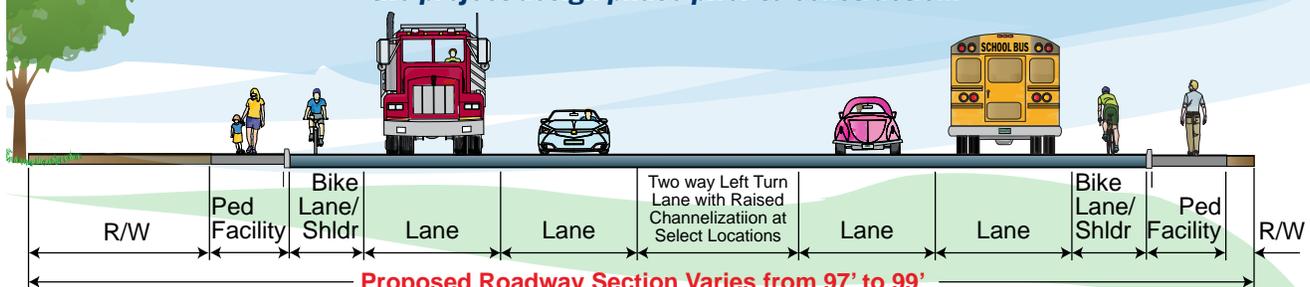
Consider:

- ▶ Reducing speed limit to match context as development occurs.
- ▶ Geometric changes such as narrowing of lanes and shoulders and adding raised channelization and curb with pedestrian facilities to achieve compliance with reduced speed limit.
- ▶ Installing striping for bicycle lane on the shoulder area. Design details to be finalized by project office during Design Approval process.
- ▶ Installing "Be Prepared to Stop When Flashing" warning signs interconnected with the signals in advance of the SR 206 (northbound) and Day-Mt. Spokane Rd. (southbound) signals.
- ▶ Installing chicanes at Day Mt. Spokane Rd. vicinity northbound and southbound, and in the SR 206 vicinity northbound, while considering measures to maintain access to businesses in the vicinity of the chicanes. Such

measures may include improved circulation in the vicinity of SR 206 and Chris Ct. with a roundabout. Another potential measure may include providing access to Market St. from US 2. Also, the chicanes should be designed as the approaches to future roundabouts, as much as possible.

- ▶ Converting existing painted channelization to raised channelization at the SR 206 Intersection at the southbound approach,
- ▶ Installing curb (channelization) to provide for left-in, right-in, and right-out movements only at Lane Park and right-in, right-out and left-out only at the northern commercial approach in the vicinity of Lane Park. No left turns from Lane Park to US 2 will be provided. Pedestrian crossing will not be prohibited and existing unmarked crosswalks will be ADA compliant.
- ▶ Eliminating a section of the existing northbound acceleration lane at the SR 206 intersection.
- ▶ Providing hard roadway surface on Yale Road from Orchid Ave. to SR 206, to provide local motorists with an option to access US 2 through the signalized intersection at SR 206. Yale Rd. is a north/south unpaved county road east of US 2 that extends from SR 206 to Orchid Ave. From Orchid Ave. north, Yale Rd. is paved and continues northerly beyond Day Mt. Spokane Rd. with no crossing access at the railroad in the vicinity of Lane Park Rd.
- ▶ Restriping the existing roadway to provide right turn lanes and acceleration lanes at select locations.

*WSDOT will continue to refine the planning concepts in more detail during the project design phase prior to construction.*



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## Aligning the Corridor with the Planned Land Use Context and Multimodal Needs

The study recognizes that Segment 1 is a developing corridor and the improvements described on the previous page are interim steps in addressing multimodal transportation needs and operational demand resulting from land use and development changes.

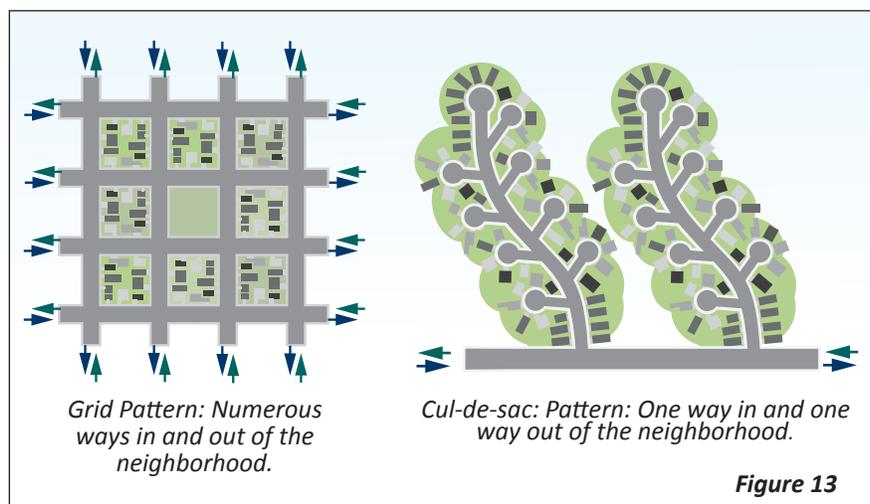
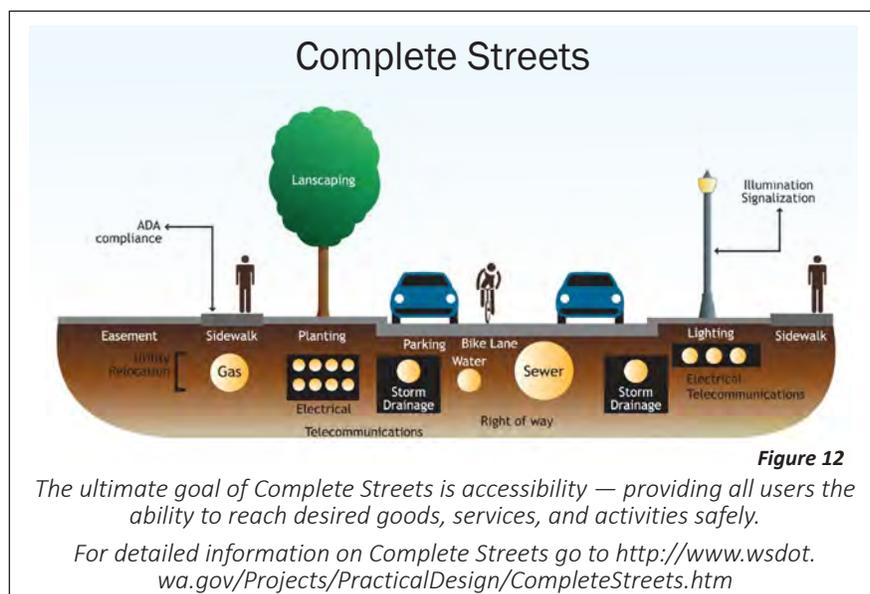
Because Segment 1 of the study limits is in the proposed Spokane County Urban Growth expansion area, increased development adjacent to US 2 is anticipated as sewer services are provided. As local Comprehensive Plans are updated and/or development occurs, additional improvements may be necessary to maintain US 2 corridor performance and operation for the various corridor users.

Currently, circulation and mobility in the vicinity of the US 2/SR 206 intersection is an identified area of concern and this location will require close monitoring as this area is further developed.

## Long Term Improvements for Segment 1

Long Term US 2 improvements will be analyzed and implemented in conjunction with land use development and may include:

- ▶ Additional median channelization to manage access to and from US 2.
- ▶ Revised intersection control, possibly roundabouts at SR 206, Lane Park Rd., and Day Mt. Spokane Rd.
- ▶ Enhanced separated and/or protected pedestrian and bicycle amenities towards the development of a more “Complete Street” to enhance multi modal mobility.
- ▶ Developer agreements to provide cross-access between adjacent properties and reduce conflicting movements to and from US 2.
- ▶ Improve the interconnectivity of the local county road network to distribute travel patterns and promote local access from local roadways, see



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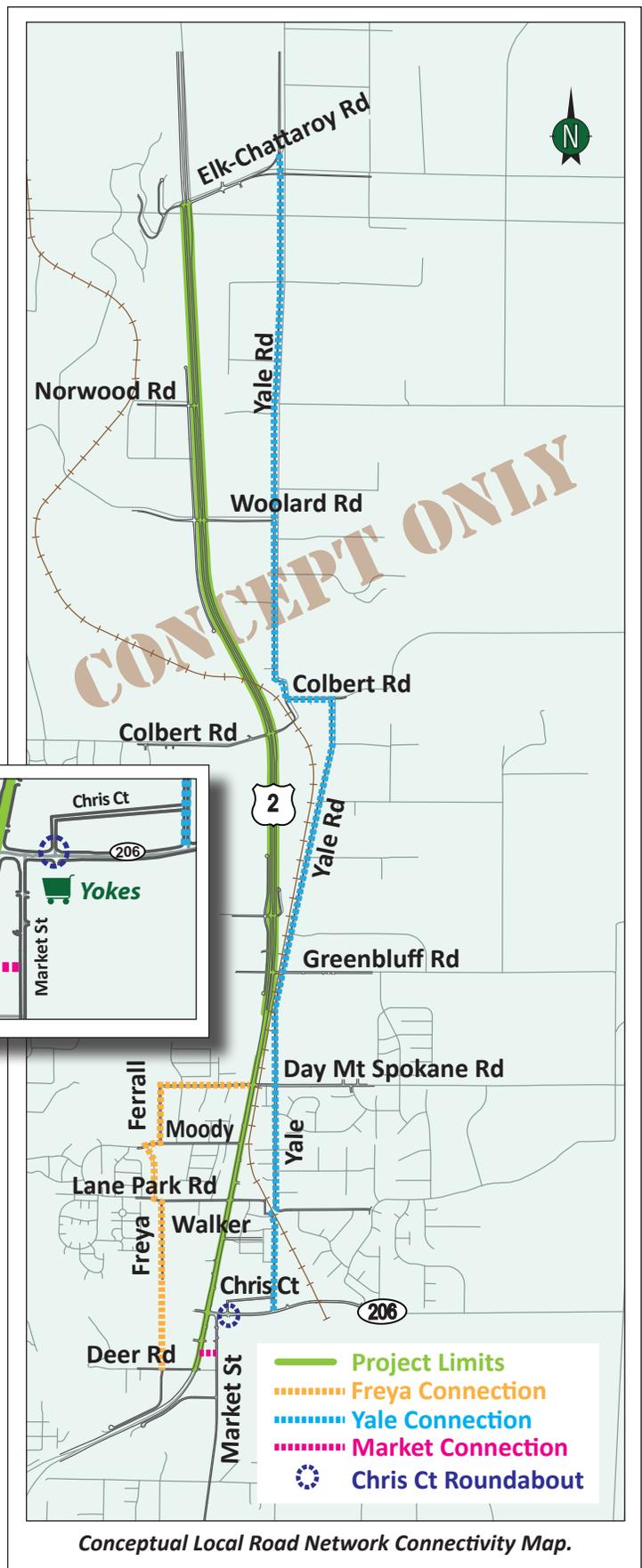
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Figure 13 “grid pattern” roadway network vs. a “cul-de-sac pattern” network).

- ▶ The local road network connectivity measures may include:
  - ▲ Developing Freya Rd. as a parallel route on the west of US 2. Freya Rd. can be developed from Deer Rd. to the south through residential and undeveloped land north to Day-Mt. Spokane Rd. and even further north as development occurs.
  - ▲ Developing Yale Rd. as a parallel route on the east of US 2. Yale Rd. can be developed by installing a grade separation for the railroad in the vicinity of Lane Park and improving the driving surface and cross section of the entire route. Yale Rd. to the north of Greenbluff Rd. becomes Boston Rd. to Colbert. At Colbert, Yale Rd. continues north to Elk-Chattaroy Rd. and beyond.
  - ▲ Installing a roundabout at SR 206 and Chris Ct. to improve circulation in the vicinity, as circulation will be affected by turning movement restrictions and chicanes on US 2.
  - ▲ Another potential measure may include providing access to Market St. from US 2.

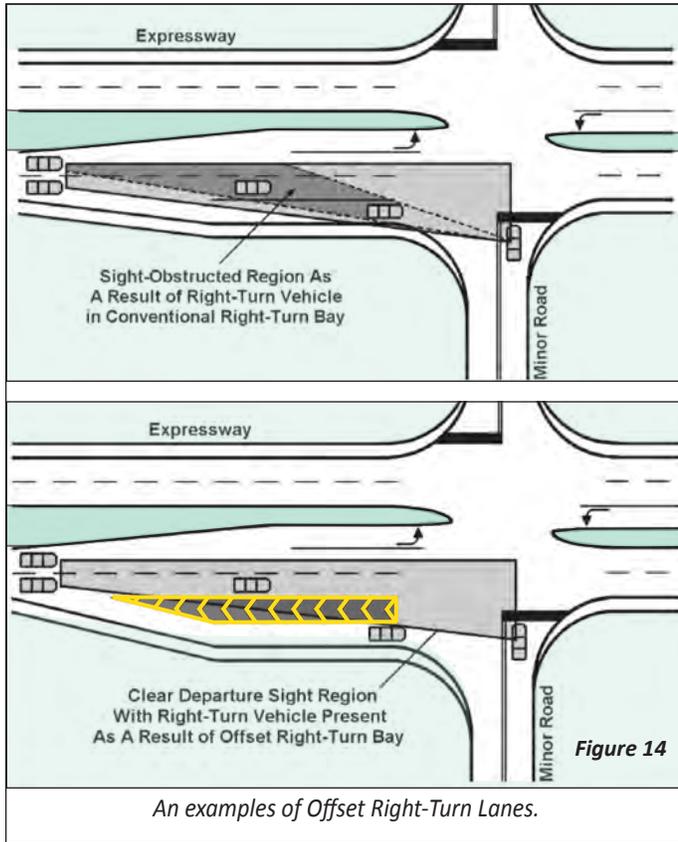
See Local Road Network Connectivity Map.



Conceptual Local Road Network Connectivity Map.

## Long Term Improvements for Segment 2

A collision analysis of this section revealed the crash frequency is within a range that is expected for this type of corridor as compared with similar corridors.

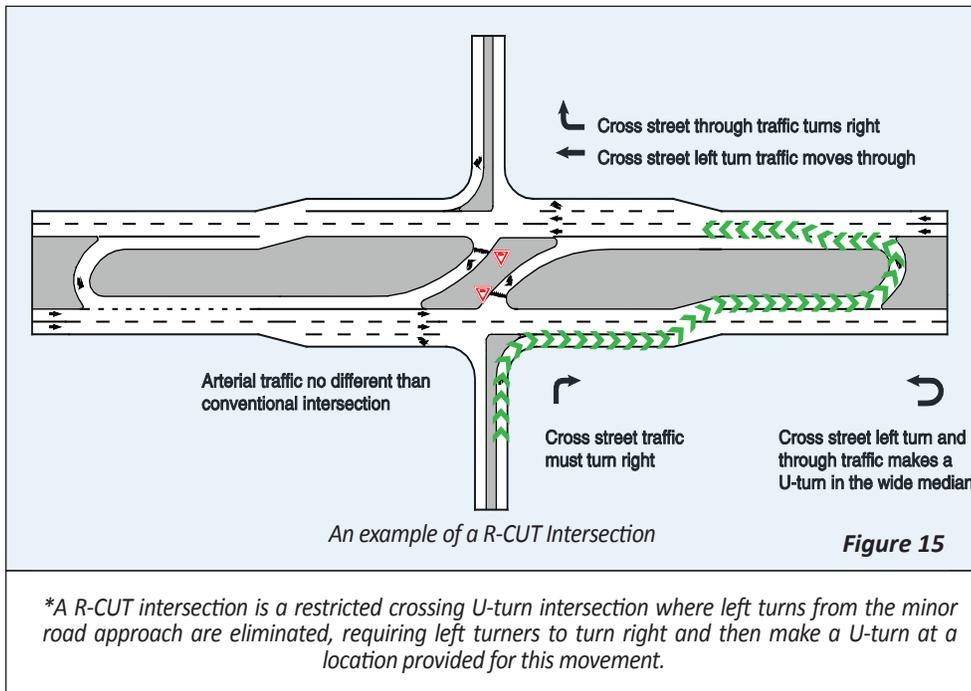


### WSDOT Safety Program Priority Array

WSDOT Safety Projects are funded through the Safety Priority Array process. This analysis screens the highway network across the state using predetermined crash criteria. This process results in a set of locations that are evaluated to determine if cost beneficial and effective countermeasures can be implemented to reduce crash frequency and severity. This statewide program ranks projects based the benefit to cost ratio of the potential projects. The locations listed are called Collision Analyses Locations (CALs), Collision Analyses Corridors (CACs), and Intersection Analysis Locations (IALs). Listing as a CAL, CAC, or IAL is required for a project to be considered for funding. No locations in Segment 2 have been identified as CAL/CAC or IAL locations; therefore, none of these locations are currently being considered for priority array funding.

WSDOT will continue to monitor and evaluate US 2 as future development and growth occurs. If US 2 is identified as CAL/CAC or IAL location a thorough analysis will be performed to

determine how best to address the contributing factors of those crashes in a cost effective manner. Potential countermeasures could include: offset right-turn lanes, restricted crossing U-turn (R-CUT) intersections and roundabouts. See conceptual drawings of the offset right-turn lane and the R-CUT intersection, figures 14 and 15.



**Emerging Solutions**

## Colbert Road Intersection Evaluated

During engagement with the community, many comments were received about the Colbert Rd. Intersection. The comments and field review noted that in the morning peak there is some delay for the eastbound to southbound movement. An analysis of the crash data does not indicate a crash related link to the peak delay concerns as presented by the motoring public. A field review of this location shows the sight distance meets design criteria lengths for the speed limit. High cost roadway revisions including intersection modifications and vertical alignment changes to increase sight distance (which already meets design criteria) in an attempt to address this location cannot be justified as a cost effective countermeasure to reduce crashes.



*Existing Colbert Road Intersection configuration. Many comment were received about the morning peak delay for the eastbound to southbound movement.*

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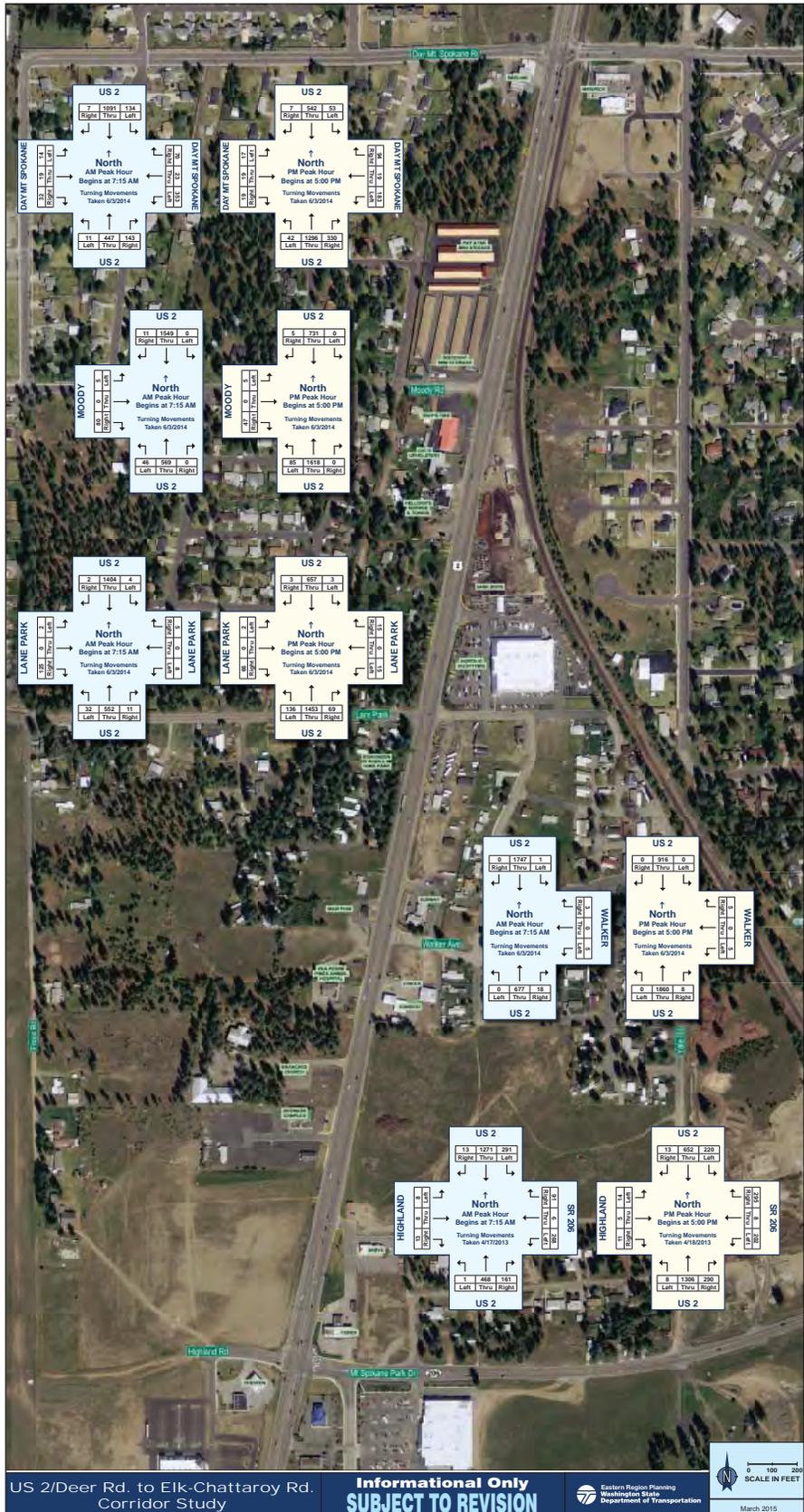
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# Traffic

## Turning Volumes



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**WSDOT**  
2714 N Mayfair St  
Spokane, WA 99207

Counts taken by TDGO  
Bicyclists counted as Bank 1 Peds

File Name : US 2 Colbert 14AM-PM  
Site Code : 00000000  
Start Date : 6/4/2014  
Page No : 1

Groups Printed- Cars/Light Trucks/Peds - Trucks up to 4 Axles/Bikes - Trucks 5+ Axles

Start Time	2 Southbound					COLBERT Westbound					2 Northbound					COLBERT Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
06:00 AM	1	182	0	0	183	7	1	0	0	8	1	35	2	0	38	1	0	9	0	10	239
06:15 AM	0	246	0	0	246	6	0	0	0	6	2	47	2	0	51	2	1	17	0	20	323
06:30 AM	2	215	1	0	218	9	0	0	0	9	5	39	0	0	44	3	0	30	0	33	304
06:45 AM	0	255	3	0	258	6	2	0	0	8	4	62	9	0	75	4	2	51	0	57	398
<b>Total</b>	<b>3</b>	<b>898</b>	<b>4</b>	<b>0</b>	<b>905</b>	<b>28</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>31</b>	<b>12</b>	<b>183</b>	<b>13</b>	<b>0</b>	<b>208</b>	<b>10</b>	<b>3</b>	<b>107</b>	<b>0</b>	<b>120</b>	<b>1264</b>
07:00 AM	1	212	4	0	217	7	0	0	0	7	9	78	14	0	101	7	7	29	0	43	368
07:15 AM	0	285	4	0	290	7	1	0	0	8	8	77	14	0	99	4	4	37	0	45	442
07:30 AM	2	284	2	0	288	12	1	0	0	13	5	67	17	0	89	1	4	60	0	65	455
07:45 AM	3	263	11	0	277	13	2	0	0	15	11	74	30	0	115	3	12	52	0	67	474
<b>Total</b>	<b>6</b>	<b>1045</b>	<b>21</b>	<b>0</b>	<b>1072</b>	<b>39</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>43</b>	<b>33</b>	<b>296</b>	<b>75</b>	<b>0</b>	<b>404</b>	<b>15</b>	<b>27</b>	<b>178</b>	<b>0</b>	<b>220</b>	<b>1739</b>
08:00 AM	5	186	4	0	195	21	5	0	0	26	17	80	66	0	163	8	27	28	0	63	447
08:15 AM	3	209	2	0	214	29	7	3	0	39	11	73	31	0	115	1	10	22	0	33	401
08:30 AM	0	168	5	0	173	15	3	3	0	21	5	55	6	0	66	6	2	14	0	22	282
08:45 AM	1	184	3	0	188	9	2	1	0	12	7	63	5	0	75	5	5	25	0	35	310
<b>Total</b>	<b>9</b>	<b>747</b>	<b>14</b>	<b>0</b>	<b>770</b>	<b>74</b>	<b>17</b>	<b>7</b>	<b>0</b>	<b>98</b>	<b>40</b>	<b>271</b>	<b>108</b>	<b>0</b>	<b>419</b>	<b>20</b>	<b>44</b>	<b>89</b>	<b>0</b>	<b>153</b>	<b>1440</b>
*** BREAK ***																					
02:30 PM	0	163	3	0	166	4	1	0	0	5	29	189	30	0	248	6	3	17	0	26	445
02:45 PM	2	123	4	0	129	12	6	1	0	19	37	184	48	0	269	8	13	13	0	34	451
<b>Total</b>	<b>2</b>	<b>286</b>	<b>7</b>	<b>0</b>	<b>295</b>	<b>16</b>	<b>7</b>	<b>1</b>	<b>0</b>	<b>24</b>	<b>66</b>	<b>373</b>	<b>78</b>	<b>0</b>	<b>517</b>	<b>14</b>	<b>16</b>	<b>30</b>	<b>0</b>	<b>60</b>	<b>896</b>
03:00 PM	3	142	6	2	153	27	10	1	0	38	34	158	18	0	210	3	8	27	0	38	439
03:15 PM	0	119	4	0	123	11	0	0	0	11	26	165	17	0	208	5	4	24	0	33	375
03:30 PM	0	118	3	0	121	11	4	5	0	20	26	181	15	0	222	5	4	14	0	23	386
03:45 PM	1	149	8	0	158	9	4	1	0	14	23	195	17	1	236	8	1	20	0	29	437
<b>Total</b>	<b>4</b>	<b>528</b>	<b>21</b>	<b>2</b>	<b>555</b>	<b>58</b>	<b>18</b>	<b>7</b>	<b>0</b>	<b>83</b>	<b>109</b>	<b>699</b>	<b>67</b>	<b>1</b>	<b>876</b>	<b>21</b>	<b>17</b>	<b>85</b>	<b>0</b>	<b>123</b>	<b>1637</b>
04:00 PM	0	126	7	0	133	8	2	3	0	13	19	224	22	0	265	4	2	12	0	18	429
04:15 PM	2	145	4	0	151	7	0	0	0	7	20	238	15	0	273	3	3	23	0	29	460
04:30 PM	2	107	5	0	114	4	0	1	0	5	24	240	13	0	277	3	4	26	0	33	429
04:45 PM	0	120	3	0	123	7	3	0	0	10	37	289	20	0	346	3	2	26	0	31	510
<b>Total</b>	<b>4</b>	<b>488</b>	<b>19</b>	<b>0</b>	<b>521</b>	<b>26</b>	<b>5</b>	<b>4</b>	<b>0</b>	<b>35</b>	<b>100</b>	<b>991</b>	<b>70</b>	<b>0</b>	<b>1161</b>	<b>13</b>	<b>11</b>	<b>87</b>	<b>0</b>	<b>111</b>	<b>1828</b>
05:00 PM	3	125	13	0	141	17	1	0	0	18	29	276	17	0	322	3	3	14	0	20	501
05:15 PM	2	125	3	0	130	8	3	0	0	11	31	289	16	0	336	2	1	14	0	17	494
05:30 PM	1	124	9	0	134	6	4	1	0	11	34	314	12	0	360	6	3	24	0	33	538
05:45 PM	0	133	7	0	140	10	2	0	0	12	27	281	11	0	319	3	4	25	0	32	503
<b>Total</b>	<b>6</b>	<b>507</b>	<b>32</b>	<b>0</b>	<b>545</b>	<b>41</b>	<b>10</b>	<b>1</b>	<b>0</b>	<b>52</b>	<b>121</b>	<b>1160</b>	<b>56</b>	<b>0</b>	<b>1337</b>	<b>14</b>	<b>11</b>	<b>77</b>	<b>0</b>	<b>102</b>	<b>2036</b>
<b>Grand Total</b>	<b>34</b>	<b>4509</b>	<b>118</b>	<b>2</b>	<b>4663</b>	<b>282</b>	<b>64</b>	<b>20</b>	<b>0</b>	<b>366</b>	<b>481</b>	<b>3973</b>	<b>467</b>	<b>1</b>	<b>4922</b>	<b>107</b>	<b>129</b>	<b>653</b>	<b>0</b>	<b>889</b>	<b>10840</b>
<b>Approach %</b>	<b>0.7</b>	<b>98.7</b>	<b>2.5</b>	<b>0</b>		<b>77</b>	<b>17.5</b>	<b>5.5</b>	<b>0</b>		<b>9.8</b>	<b>80.7</b>	<b>9.5</b>	<b>0</b>		<b>12</b>	<b>14.5</b>	<b>73.5</b>	<b>0</b>		
<b>Total %</b>	<b>0.3</b>	<b>41.6</b>	<b>1.1</b>	<b>0</b>	<b>43</b>	<b>2.6</b>	<b>0.6</b>	<b>0.2</b>	<b>0</b>	<b>3.4</b>	<b>4.4</b>	<b>36.7</b>	<b>4.3</b>	<b>0</b>	<b>45.4</b>	<b>1</b>	<b>1.2</b>	<b>6</b>	<b>0</b>	<b>8.2</b>	
<b>Heavy and Overweight</b>	<b>33</b>	<b>4384</b>	<b>118</b>	<b>0</b>	<b>4535</b>	<b>277</b>	<b>63</b>	<b>19</b>	<b>0</b>	<b>359</b>	<b>462</b>	<b>3847</b>	<b>464</b>	<b>0</b>	<b>4773</b>	<b>101</b>	<b>129</b>	<b>631</b>	<b>0</b>	<b>861</b>	<b>10528</b>
<b>% of Heavy and Overweight</b>	<b>97.1</b>	<b>97.2</b>	<b>100</b>	<b>0</b>	<b>97.3</b>	<b>98.2</b>	<b>98.4</b>	<b>95</b>	<b>0</b>	<b>98.1</b>	<b>96</b>	<b>96.8</b>	<b>99.4</b>	<b>0</b>	<b>97</b>	<b>94.4</b>	<b>100</b>	<b>96.6</b>	<b>0</b>	<b>96.9</b>	<b>97.1</b>
<b>Trucks 5+ Axles</b>	<b>1</b>	<b>84</b>	<b>0</b>	<b>2</b>	<b>87</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>18</b>	<b>75</b>	<b>2</b>	<b>1</b>	<b>96</b>	<b>6</b>	<b>0</b>	<b>22</b>	<b>0</b>	<b>28</b>	<b>218</b>
<b>% Trucks 5+ Axles</b>	<b>2.9</b>	<b>1.9</b>	<b>0</b>	<b>100</b>	<b>1.9</b>	<b>1.8</b>	<b>1.6</b>	<b>5</b>	<b>0</b>	<b>1.9</b>	<b>3.7</b>	<b>1.9</b>	<b>0.4</b>	<b>100</b>	<b>2</b>	<b>5.6</b>	<b>0</b>	<b>3.4</b>	<b>0</b>	<b>3.1</b>	<b>2</b>
<b>Trucks 5+ Axles</b>	<b>0</b>	<b>41</b>	<b>0</b>	<b>0</b>	<b>41</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>51</b>	<b>1</b>	<b>0</b>	<b>53</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>94</b>
<b>% Trucks 5+ Axles</b>	<b>0</b>	<b>0.9</b>	<b>0</b>	<b>0</b>	<b>0.9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.2</b>	<b>1.3</b>	<b>0.2</b>	<b>0</b>	<b>1.1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.9</b>

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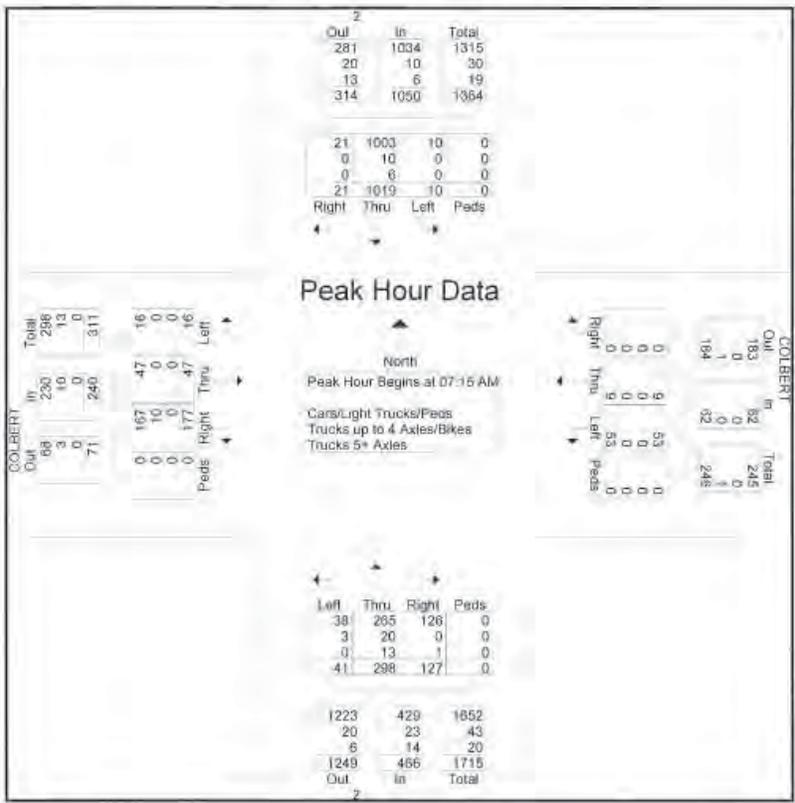
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**WSDOT**  
2714 N Mayfair St  
Spokane, WA 99207

Counts taken by TDGO  
Bicyclists counted as Bank 1 Peds

File Name : US 2 Colbert 14AM-PM  
Site Code : 00000000  
Start Date : 6/4/2014  
Page No : 2

Start Time	2 Southbound					COLBERT Westbound					2 Northbound					COLBERT Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	286	4	0	290	7	1	0	0	8	8	77	14	0	99	4	4	37	0	45	442
07:30 AM	2	284	2	0	288	12	1	0	0	13	5	67	17	0	89	1	4	60	0	65	455
07:45 AM	3	263	11	0	277	13	2	0	0	15	11	74	30	0	115	3	12	52	0	67	474
08:00 AM	5	186	4	0	195	21	5	0	0	26	17	80	66	0	163	8	27	28	0	63	447
Total Volume	10	1019	21	0	1050	53	9	0	0	62	41	298	127	0	466	16	47	177	0	240	1818
% App. Total	1	97	2	0		85.5	14.5	0	0		8.8	63.9	27.3	0		6.7	19.6	73.8	0		
PHF	500	891	477	000	905	631	450	000	000	596	603	931	481	000	715	500	435	738	000	896	959
Trucks 5+ Axles																					
% Trucks 5+ Axles	100	98.4	100	0	98.5	100	100	0	0	100	92.7	88.9	99.2	0	92.1	100	100	94.4	0	95.8	96.5
Trucks 2-4 Axles	0	10	0	0	10	0	0	0	0	0	3	20	0	0	23	0	0	10	0	10	43
% Trucks 2-4 Axles	0	1.0	0	0	1.0	0	0	0	0	0	7.3	6.7	0	0	4.9	0	0	5.6	0	4.2	2.4
Trucks 3+ Axles	0	6	0	0	6	0	0	0	0	0	0	13	1	0	14	0	0	0	0	0	20
% Trucks 3+ Axles	0	0.6	0	0	0.6	0	0	0	0	0	0	4.4	0.8	0	3.0	0	0	0	0	0	1.1



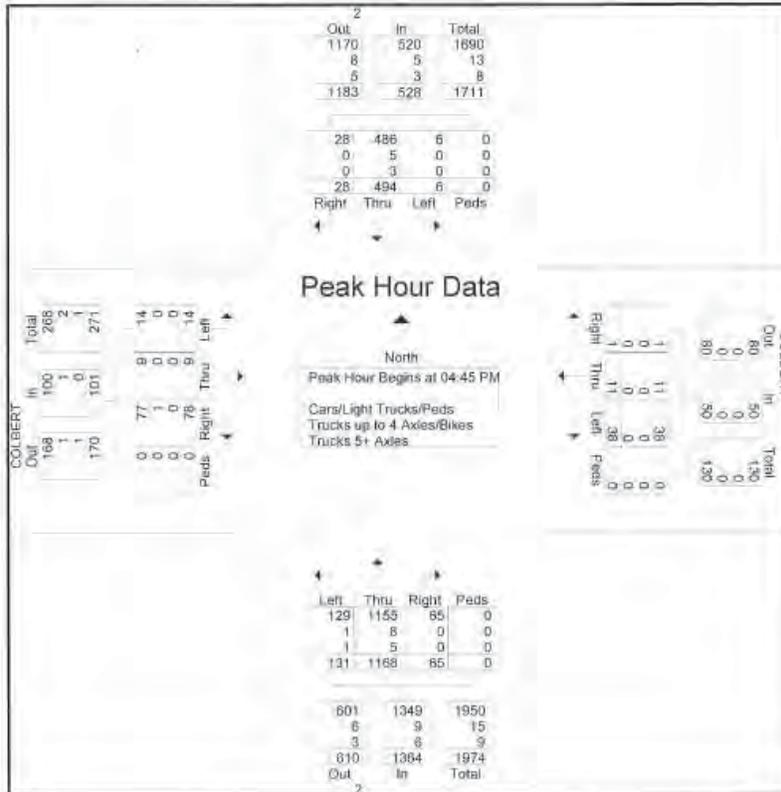
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**WSDOT**  
2714 N Mayfair St  
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Counts taken by TDGO  
Bicyclists counted as Bank 1 Peds

File Name : US 2 Colbert 14AM-PM  
Site Code : 00000000  
Start Date : 6/4/2014  
Page No : 3

Start Time	2 Southbound					COLBERT Westbound					2 Northbound					COLBERT Eastbound					Incl. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	120	3	0	123	7	3	0	0	10	37	289	20	0	346	3	2	26	0	31	510
05:00 PM	3	125	13	0	141	17	1	0	0	18	29	276	17	0	322	3	3	14	0	20	501
05:15 PM	2	125	3	0	130	8	3	0	0	11	31	289	16	0	336	2	1	14	0	17	494
05:30 PM	1	124	9	0	134	6	4	1	0	11	34	314	12	0	360	6	3	24	0	33	538
Total Volume	6	494	28	0	528	38	11	1	0	50	131	1168	65	0	1364	14	9	78	0	101	2043
% App. Total	1.1	93.6	5.3	0	78	22	2	0	0	9.6	85.6	4.8	0	0	13.9	8.9	77.2	0	0	0	0
PHF	500	988	538	000	936	559	888	250	000	894	885	930	813	000	947	583	750	750	000	785	949
1155																					
Car/Light Trucks/Peds	100	98.4	100	0	98.5	100	100	100	0	100	98.5	98.9	100	0	98.9	100	100	98.7	0	99.0	98.8
Trucks 4+ Axles	0	5	0	0	5	0	0	0	0	0	1	8	0	0	9	0	0	1	0	1	15
Bicyclists	0	1.0	0	0	0.9	0	0	0	0	0	0.8	0.7	0	0	0.7	0	0	1.3	0	1.0	0.7
Trucks 5+ Axles	0	3	0	0	3	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	9
% Trucks 5+ Axles	0	0.6	0	0	0.6	0	0	0	0	0	0.8	0.4	0	0	0.4	0	0	0	0	0	0.4



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# Signal Warrant Analysis

## Signal Warrant Analysis - Lane Park Rd

### Signal Warrant Analysis

U.S. 2 & Lane Park Rd

MP 297.75

April 16, 2015

**Prepared By:**

ReBecca Fouts & Lawrence L. Frostad, P.E.



*Lawrence L. Frostad*  
4/16/2015

**Traffic Engineer:**

Harold L. White, P.E.



*Harold L. White*  
4/16/15

**Eastern Region Administrator:**

Keith A. Metcalf, P.E.

Signal Warrant

A signal warrant analysis was conducted for the Lane Park Road intersection as part of the Washington State Department of Transportation (WSDOT) *U.S. 2 Deer Rd to Day Mt Spokane Rd* Project. This section of roadway has been scoped and programmed for safety improvement and WSDOT is currently identifying opportunities to reduce collisions.

U.S. 2 at this location is classified as an Urban Principle Arterial five-lane highway with 12-foot lanes, 8-foot shoulders with raised curb, and a 14-foot median that serves as a two-way left-turn lane. Posted speed is 55 mph. Lane Park Road is a two-lane residential street that services housing on each side of U.S. 2, as well as the North 40 Outfitters and Mt. Spokane Auto Sales, to the east.



### Methodology

The 2009 Edition of the Manual on Uniform Traffic Control Devices (MUTCD), published by the Federal Highway Administration and approved by the Federal Highway Administrator as the national standard for all highways open to public travel, was duly adopted by the Washington state secretary of transportation (WAC 468-95-010). WSDOT Design Manual Chapters 320 Traffic Analysis, 1300 Intersection Control Type and & 1330 Traffic Control Signals, require the use of the MUTCD when conducting signal warrant analyses.

The MUTCD indicates that the investigation of the need for a traffic control signal shall include an analysis of factors related to the existing operation and safety at the study location and the potential to improve conditions, and the applicable factors contained in the traffic signal warrants.

#### **Volumes:**

Traffic volumes for this analysis are based on twelve hours of manual turning movement counts taken on Wednesday, February 4, 2015 between 6:00 a.m. and 10:00 a.m. and from 3:00 pm to 6:00 p.m., as well as Thursday, February 5, 2015 between 10:00 a.m. and 3:00 p.m. See Appendix B for counts.

#### **Optional Volume Reductions:**

As the posted and 85<sup>th</sup>-percentile speed on the major street exceeds 40 mph, the MUTCD optional 70% volume criteria were used in the analysis. As the MUTCD 56% volume criterion is only to be evaluated after adequate trial of other remedial measures, they were not evaluated in the analysis.

#### **Number of Approach Lanes, Right Turn Reduction, and Highest Volume Minor Approach:**

Site-specific characteristics dictate whether an approach should be considered as one lane or two lanes. Lane Park operates as a de-facto right turn lane the majority of the time due to the low left and through

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volumes (the highest combined left/through volume in an hour was eleven vehicles) and will be considered a one-lane approach for the analysis.

Right turning vehicles incur less delay than left-turn or through vehicles. As stated in NCHRP Report 457, "...an intersection where minor-road drivers are primarily turning right is less likely to derive benefit from signalization than one where most drivers are crossing through or turning left." The MUTCD states, "...right-turn traffic should not be included in the minor-street volume if the movement enters the major street with minimal conflict".

Right-turn adjustments were based on an assessment of the collision history, accepted right-turn adjustment methodology and field observations.

- Collision analysis did not indicate an issue with right-turning traffic entering. There are no sight distance obstructions to impede entering vehicles.
- Adjustment methodology: In acknowledgement that right-turns are often accomplished before needing a signalized movement, WSDOT Eastern Region typically places a detection delay for right-turning vehicles at signalized intersections so as to not unnecessarily impede mainline progressive flow. Additionally, per guidance from MUTCD, NCHRP, ITE, and other state departments of transportation, if the hourly average delay per right turning vehicle is 10 seconds or less then all right-turning traffic for that hour should not be included; if the hourly average delay per right turning vehicle exceeds 36 seconds then all right-turning traffic for that hour should be included, and if the hourly average delay falls in between then the intermittent reduction factors shown below are to be used in the analysis. Eastern Region Traffic Office has established the table below as a starting point for all signal warrant analyses (see last page of Appendix A), including analyzing Lane Park Rd:

DELAY (SEC)			RIGHT TURN REDUCTION FACTOR %
0	to	10	100
11	to	15	75
16	to	25	50
26	to	35	25
36	to	+	0

- Field observations: previous traffic counts indicated that we needed to conduct a delay study (Appendix C) for the eastbound approach. The study was conducted concurrently with turning movement counts. Applying the adjustment methodology percentage reduction per delay above, the following are the hourly percentage reductions for the eastbound right turns.

RIGHT TURN REDUCTION FACTOR DIRECTION:		EB
HOUR	AVG DELAY (SEC)	RIGHT TURN REDUCTION FACTOR %
6AM-7AM	14	75
7AM-8AM	19	50
8AM-9AM	19	50
9AM-10AM	12	75
10AM-11AM	7	100
11AM-12PM	13	75
12PM-1PM	8	100
1PM-2PM	7	100
2PM-3PM	11	75
3PM-4PM	11	75
4PM-5PM	13	75
5PM-6PM	9	100

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After applying the right turn reduction, the larger of the minor approaches each hour (eastbound with right turn reduction or westbound with no reduction), was analyzed against the warrants.

### Signal Warrants

The warrants used for this analysis are as outlined in the currently adopted 2009 Manual on Uniform Traffic Control Devices (MUTCD) and can be viewed in Appendix D:

- Warrant 1 – Eight-Hour Vehicular Volume
- Warrant 2 – Four-Hour Vehicular Volume
- Warrant 3 – Peak Hour
- Warrant 4 – Pedestrian Volume
- Warrant 5 – School Crossing
- Warrant 6 – Coordinated Signal System
- Warrant 7 – Crash Experience
- Warrant 8 – Roadway Network
- Warrant 9 – Intersection Near a Grade Crossing

Any one warrant may or may not be applicable to the intersection. The following indicates MUTCD's support (in quotes) for evaluating each warrant and whether or not it was reviewed in the study.

- Warrant 1 (Reviewed) *"...is intended for application at locations where a large volume of intersecting traffic is the principal reason..."* or *"traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street."*
- Warrant 2 (Reviewed) is intended for intersections in which intersecting traffic may not be high for eight hours of a typical weekday but is very high for at least four hours.
- Warrant 3 (Not applicable) *"shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time."*
- Warrant 4 (Reviewed) *"is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street."*
- Warrant 5 (Not applicable) *"is intended for application where the fact that school children cross the major street is the principal reason..."* This warrant was not reviewed due to the crossing is not an established school crossing. Additionally, observed pedestrians in the vicinity of the area were estimated to be between the ages of 20 and 70.
- Warrant 6 (Reviewed) is intended for when a signal is not needed other than to maintain proper platooning of vehicles through a signal system.
- Warrant 7 (Reviewed) *"conditions are intended for application where the severity and frequency of crashes are the principal reasons..."*
- Warrant 8 (Not applicable) is intended *"to encourage concentration and organization of traffic flow on a roadway network."* Lane Park does not meet the characteristics of a "major route" as defined in this warrant.

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- Warrant 9 (Not applicable) “is intended for use at a location where none of the conditions described in the other eight traffic signal warrants are met, but the proximity to the intersection of a grade crossing on an intersection approach controlled by a STOP or YIELD sign is the principal reason to consider installing a traffic control signal.”

### Signal Warrant Analysis

Calculations for the following signal warrants can be found in Appendix A.

#### **Warrant 1 – Eight-Hour Vehicular Volume**

The need for a traffic control signal shall be considered if one of the three conditions exists, for each of any 8 hours of an average day.

Condition A – Minimum Vehicular Volume requiring 420 vehicles per hour on the major street and 105 vehicles per hour on the higher volume minor street approach. Hours met: zero.

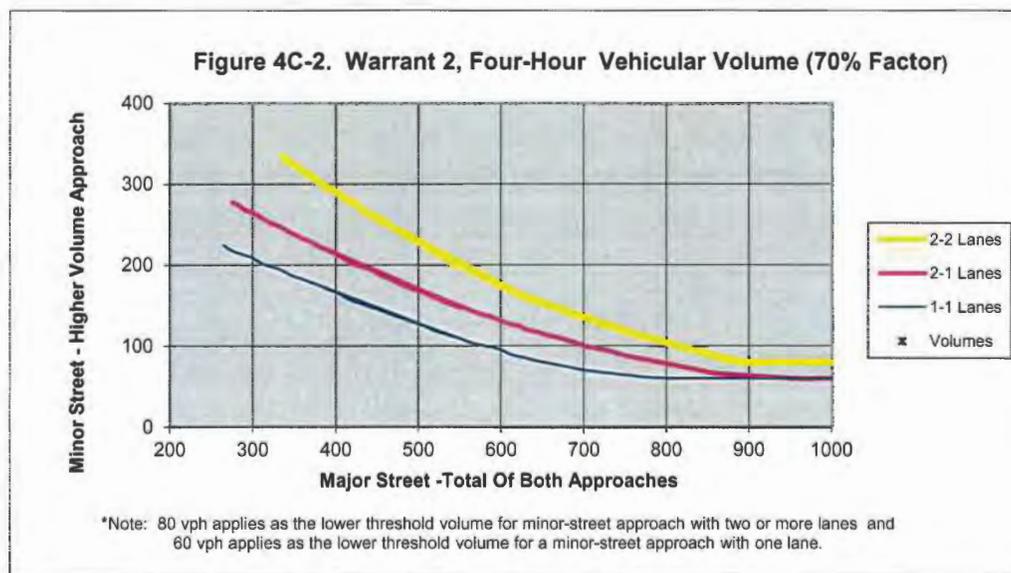
Condition B – Interruption of Continuous Traffic requiring 630 vehicles per hour on major street and 53 vehicles per hour on the higher volume minor street approach. Hours met: one.

Combination Warrant - Condition A, Minimum Vehicular Volume requiring 480 vehicles per hour on the major street and 120 vehicles per hour on the higher volume minor street approach AND Condition B, Interruption of Continuous Traffic requiring 720 vehicles per hour on major street and 60 vehicles per hour on the higher volume minor street approach. Hours met: zero.

Conclusion: Warrant 1 is not met.

#### **Warrant 2 – Four-Hour Vehicular Volume**

For warrant 2, the volumes must fall above the applicable curve in the graph below for four hours or more.



The middle line is considered since the major street has two approach lanes and the minor street has one approach lane. All twelve hours counted have a major street volume higher than 1200 and therefore are to the

U.S. 2 & Lane Park Road  
Signal Warrant Analysis  
4/16/2015

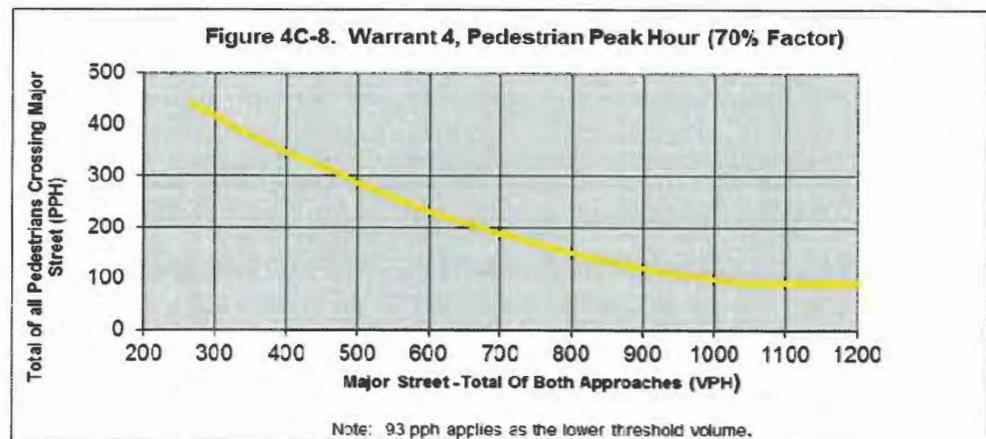
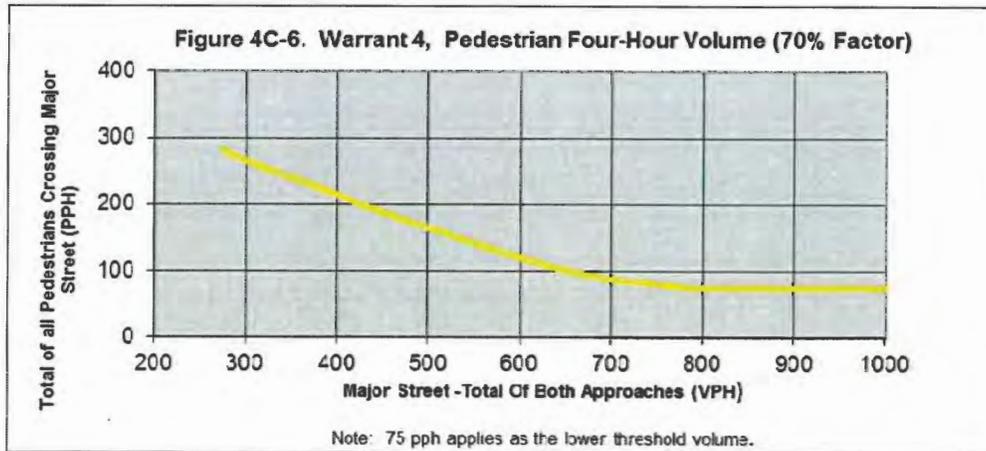
4

right of the graph. For one hour, between 7:00 a.m. and 8:00 a.m., the minor approach is above the 60 VPH minimum.

Conclusion: Warrant 2 is not met.

#### Warrant 4 – Pedestrian Volume

For warrant 4, the volumes must fall above the applicable curve in either of the graphs below.



All twelve hours counted have a major street vehicular volume that is higher than 1200 VPH and therefore plot to the right of both graphs. Seventy-five pedestrians per hour is the lower threshold volume when evaluating the four-hour criteria and 93 pedestrians per hour is the lower threshold volume when evaluating the pedestrian peak hour. Pedestrians crossed U.S. 2 only four times during the count with two of those crossings completed by the same pedestrian. The highest total of all pedestrians crossing the major street in an hour occurred between 12:15 p.m. and 1:15 p.m. where one pedestrian crossed the north side of the intersection and one other crossed the south side of the intersection.

Conclusion: Warrant 4 is not met.

U.S. 2 & Lane Park Road  
Signal Warrant Analysis  
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### Warrant 6 – Coordinated Signal System

During the twelve hours of manual counts, southbound traffic only platooned from the U.S. 2 and Day-Mt Spokane Rd intersection, located 0.50 miles to the north, between 7:30 a.m. to 8:00 a.m. Northbound traffic only platooned from the U.S. 2 and SR 206 signalized intersection, located 0.50 miles to the south, between 4:45 p.m. to 5:15 p.m. During these two half-hour peak periods a coordinated signalized system would provide progressive operation of mainline traffic. However, a coordinated signal system with these three signals would increase delay to SR 206, Lane Park Rd and Day-Mt Spokane Rd.

Conclusion: Warrant 6 is not met.

### Warrant 7 – Crash Experience

The MUTCD states...

*“ Standard: The need for a traffic control signal shall be considered if an engineering study finds that all of the following criteria are met:*

- A. Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; and*
- B. Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash; and*
- C. For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80 percent columns of Condition A in Table 4C-1 (see Section 4C.02), or the vph in both of the 80 percent columns of Condition B in Table 4C-1 exists on the major-street and the higher-volume minor-street approach, respectively, to the intersection, or the volume of pedestrian traffic is not less than 80 percent of the requirements specified in the Pedestrian Volume warrant. These major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.”*

An adequate trial of alternatives has not been performed to date.

Fifteen collisions were reported to be at or related to the intersection between January 1, 2010 and January 1, 2015. The highest 12-month period with collision types susceptible to correction by traffic signal control was the year following October 23, 2012, with four collisions. See Appendix D for Collision Analysis.

Eighty-percent volumes in Criteria C were not met for the Minimum Vehicular Volume Warrant, the Interruption of Continuous Traffic Warrant, or the Pedestrian Volume Warrant. See Page 2 of Appendix A.

Conclusion: Warrant 7 is not met.

#### Conclusion

Based on the vehicular and pedestrian counts conducted, associated field observations, and the MUTCD Signal Warrant Analysis as described above, the intersection of U.S. 2 and Lane Park Road currently does not meet warrants to consider the installation of a signal.

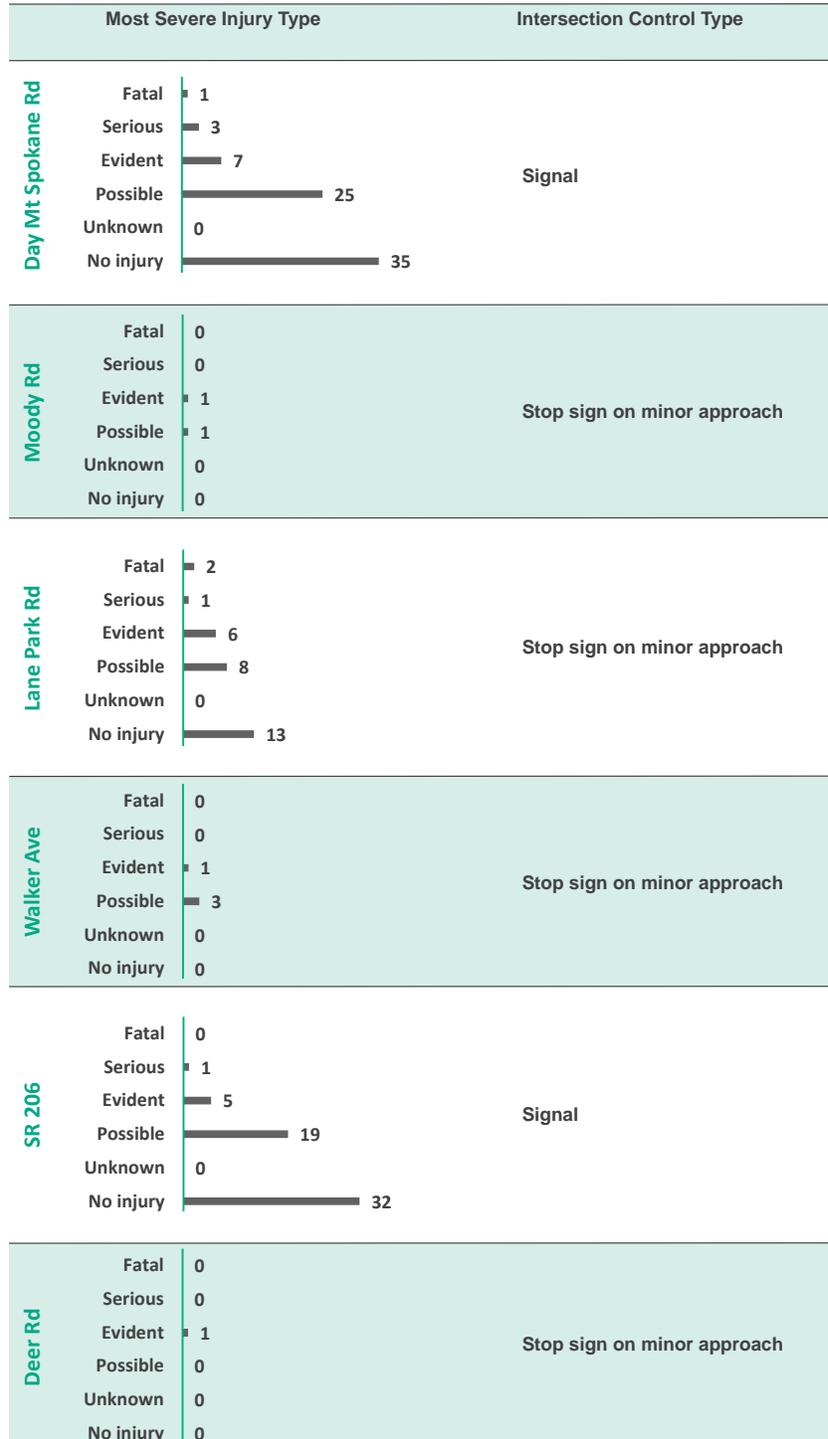
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# Crash Data

## US 2/Deer Rd to Elk Chattaroy Rd

Intersection related crashes compared, 2004 - 2013

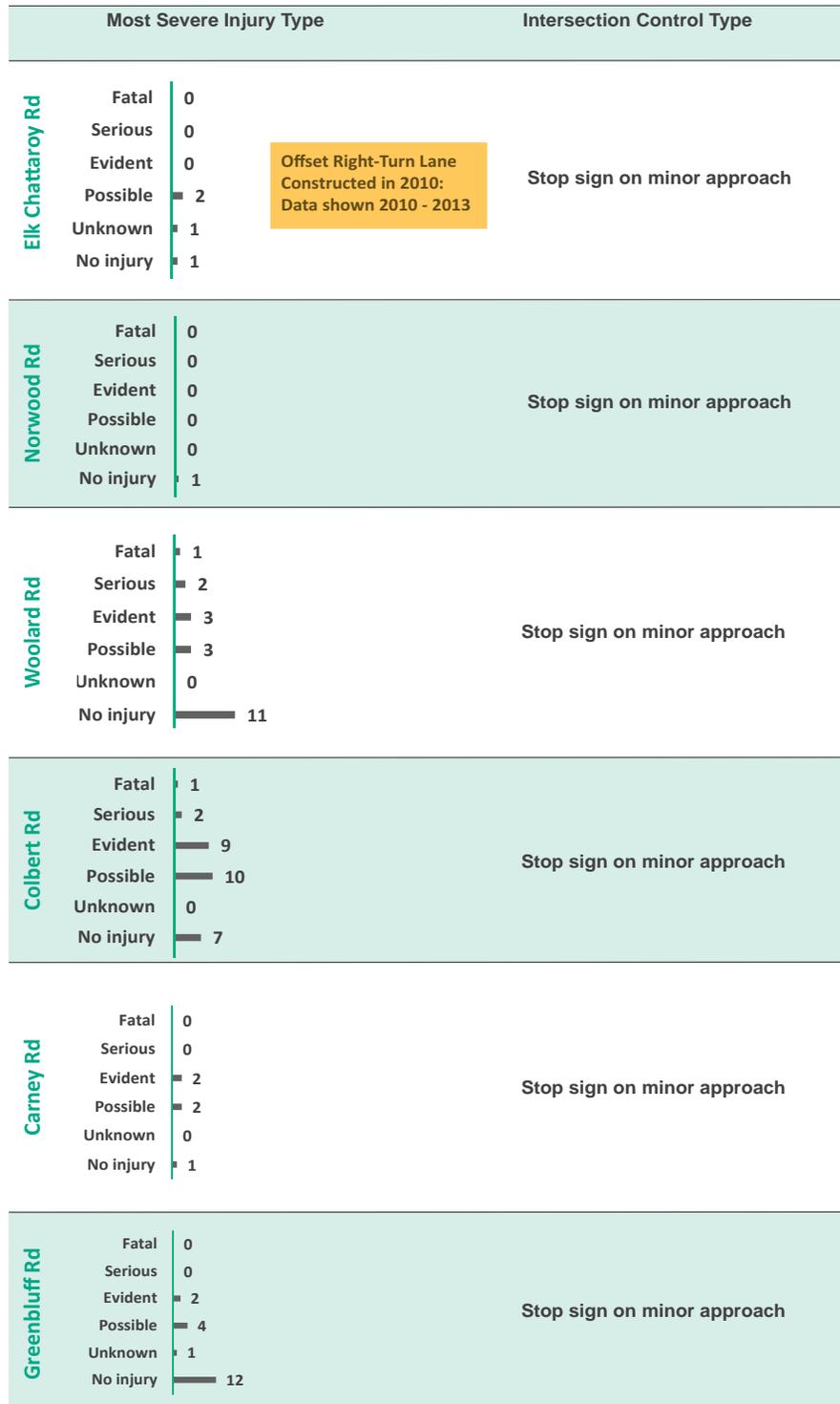


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US 2 Intersections Compared

## US 2/Deer Rd to Elk Chattaroy Rd

All Intersection related crashes compared, 2004 - 2013



US 2 Intersections Compared

ral highway safety laws require the state to create this collision  
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## US 2/Deer Rd to Day Mt. Spokane Rd

Intersection related crashes compared, 2004 - 2013

### All Intersections

Crash Type	Intersection					
	Deer Rd	SR 206	Walker Ave	Lane Park Rd	Moody Rd	Day Mt. Spokane Rd
Entering at angle		7	1	11		6
Fixed object		2				1
From opposite direction - both moving - head-on						1
From opposite direction - one left turn - one straight	1	1	1	10	1	5
From same direction - all others		1			1	
From same direction - both going straight - both moving - rear-end		12				11
From same direction - both going straight - both moving - sideswipe		1		1		1
From same direction - both going straight - one stopped - rear-end		27	1	5		44
From same direction - both going straight - one stopped - sideswipe		3				1
From same direction - one left turn - one straight		1	1			
From same direction - one right turn - one straight				1		
One parked--one moving				1		
Same direction -- both turning left -- one stopped -- rear end		1				
Same direction -- both turning right -- both moving -- sideswipe		1				
Vehicle - Pedalcyclist						1
Vehicle going straight hits pedestrian				1		

ral highway safety laws require the state to create this collision  
 ase for use in obtaining federal safety improvement funds.  
 if Section 409 of Title 23 of the United States Code, collision data  
 rhibited from use in any litigation against state, tribal or local  
 rnement that involves the location(s) mentioned in the collision data.

Crash Data

US 2 Intersections Compared

## US 2/Deer Rd to Day Mt. Spokane Rd

All Intersection related crashes compared, 2004 - 2013

### All Intersections

Contributing Circumstances - Vehicle 1 only	Intersection					
	Deer Rd	SR 206	Walker Ave	Lane Park Rd	Moody Rd	Day Mt. Spokane Rd
Apparently Asleep		1				1
Apparently Ill		1				
Did Not Grant RW to Vehicle	1	2	2	19	1	3
Disregard Stop and Go Light		6				6
Driver Adjusting Audio or Entertainment						2
Driver Distractions Outside Vehicle				1		2
Driver Eating or Drinking		1				
Driver Interacting with Passengers, Anim		1				3
Driver Operating Handheld Telecommunicat						1
Driver Operating Hands-free Wireless Tel						1
Exceeding Reas. Safe Speed		12		2		12
Fail to Yield Row to Pedestrian						1
Follow Too Closely		15	1	1		20
Improper Backing		1				
Improper Turn		2	1	2		1
Improper U-Turn					1	
Inattention		1		1		8
None		1	1	3		1
Operating Defective Equipment		3				2
Other		4				1
Over Center Line		1				1
Under Influence of Alcohol		4		2		6
Under Influence of Drugs		2				1

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

US 2 Intersections Compared

# US 2 & SR 206 Crash Diagram

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.



- 1** Collision count
  - At Angle
  - Run-off-Road
  - Same Direction
  - Opposite Direction
- Intersection related collisions,  
2004 - 2013

SR 206 (Mt Spokane Park Drive)

US 2/SR 206 (Mt Spokane Park Dr)

Crash Data

**US 2/SR 206 (Mt Spokane Park Drive)**  
 Intersection related crashes, 2004 - 2013

Intersection Related	Totals
Number of crashes	57
Number of injury crashes	25
Total number of injuries	35
Total number of vehicles	123



Most Severe Injury Type

Crash Type	Totals	Most Severe Injury Type					
		Fatal	Serious	Evident	Possible	No Injury	Unknown
From same direction - both going straight - one stopped - rear-end	27			1	9	17	
From same direction - both going straight - both moving - rear-end	12			2	5	5	
Entering at angle	7		1	2	3	1	
From same direction - both going straight - one stopped - sideswipe	3					3	
Fixed object	2					2	
From opposite direction - one left turn - one straight	1					1	
From same direction - both going straight - both moving - sideswipe	1					1	
From same direction - all others	1				1		
From same direction - one left turn - one straight	1				1		
Same direction -- both turning right -- both moving -- sideswipe	1					1	
Same direction -- both turning left -- one stopped -- rear end	1					1	

Contributing Circumstances	Driver of:	
	1 <sup>st</sup> 	Others 
Follow Too Closely	15	
Exceeding Reas. Safe Speed	12	
Disregard Stop and Go Light	6	
Under Influence of Alcohol	4	
Other	4	1
Operating Defective Equipment	3	
Improper Turn	2	
Under Influence of Drugs	2	
Did Not Grant RW to Vehicle	2	
None	1	55
Inattention	1	
Apparently Asleep	1	
Apparently Ill	1	
Driver Interacting with Passengers, Anim	1	
Improper Backing	1	
Driver Eating or Drinking	1	
Over Center Line	1	

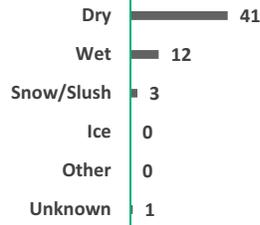
US 2/SR 206 (Mt Spokane Park Dr)

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

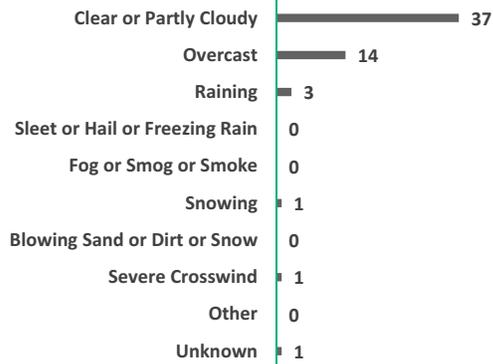
## US 2/SR 206 (Mt Spokane Park Drive)

### Intersection related crashes, 2004 - 2013

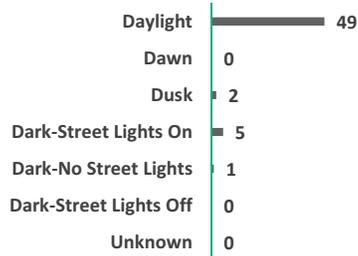
#### Roadway Surface



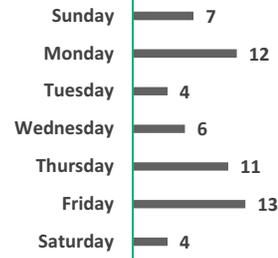
#### Weather



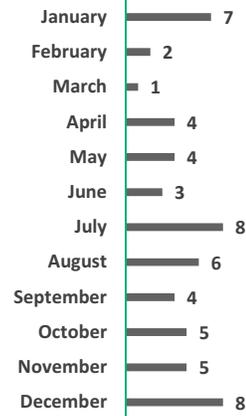
#### Light Condition



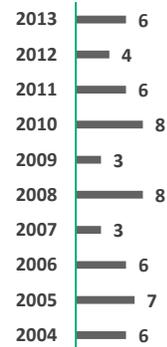
#### Day



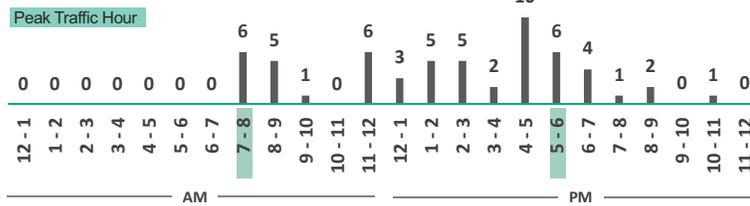
#### Month



#### Year



#### Time of Day



US 2/SR 206 (Mt Spokane Park Dr)

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

Crash Data

US 2/SR 206  
AM - Intersection Related  
All Injury Types

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**US 2/SR 206  
PM - Intersection Related  
All Injury Types**



**Crash Data**

Crash Data

US 2 & Lane Park Rd  
Serious/Fatal - Diagram

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## US 2/Lane Park Rd

Intersection related crashes, 2004 - 2013

Intersection Related	Totals
Number of crashes	30
Number of injury crashes	17
Total number of injuries	26
Total number of vehicles	59



Most Severe Injury Type

Crash Type	Totals	Most Severe Injury Type					
		Fatal	Serious	Evident	Possible	No Injury	Unknown
Entering at angle	11		1	2	2	6	
From opposite direction - one left turn - one straight	10	1		4	1	4	
From same direction - both going straight - one stopped - rear-end	5				4	1	
From same direction - both going straight - both moving - sideswipe	1					1	
From same direction - one right turn - one straight	1				1		
One parked--one moving	1					1	
Vehicle going straight hits pedestrian	1	1					

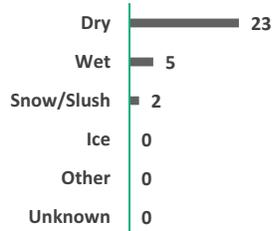
Contributing Circumstances	Driver of:	
	1 <sup>st</sup> 🚗	Others 🚗
Did Not Grant RW to Vehicle	19	1
None	3	24
Exceeding Reas. Safe Speed	2	
Under Influence of Alcohol	2	
Improper Turn	2	
Follow Too Closely	1	
Inattention	1	
Driver Distractions Outside Vehicle	1	

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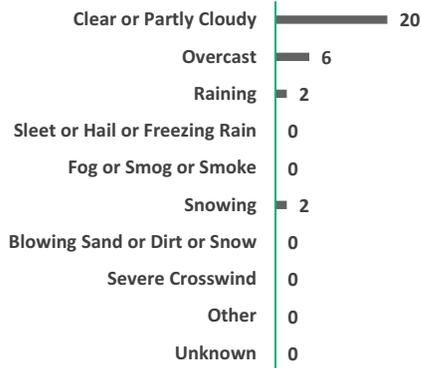
# US 2/Lane Park Rd

Intersection related crashes, 2004 - 2013

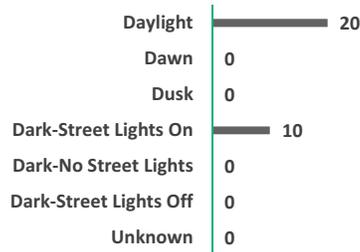
## Roadway Surface



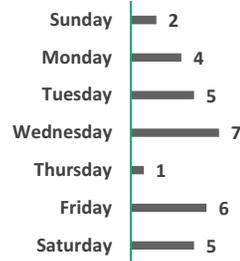
## Weather



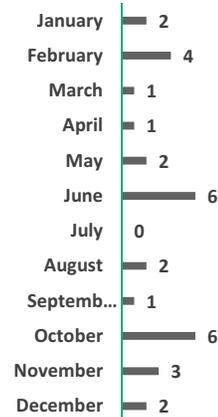
## Light Condition



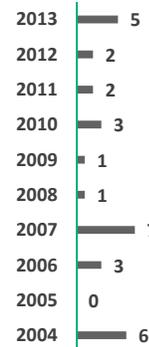
## Day



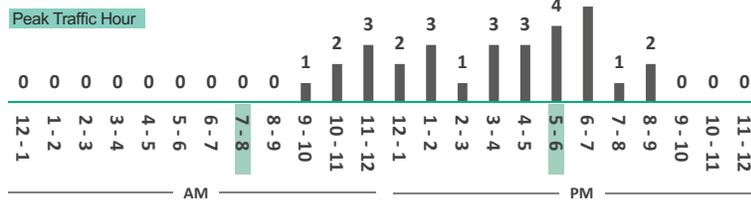
## Month



## Year



## Time of Day



US 2/Lane Park Rd

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**US 2/Lane Park Rd  
AM - Intersection Related  
All Injury Types**



**Crash Data**

# Crash Data

## US 2/Lane Park Rd PM - Intersection Related All Injury Types

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# US 2 & Day Mt Spokane Crash Diagram

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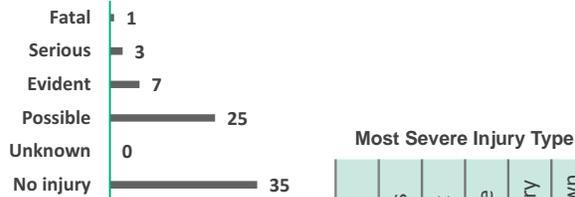


## Crash Data

## US 2/Day Mt Spokane Rd

Intersection related crashes compared, 2004 - 2013

Intersection Related	Totals
Number of crashes	71
Number of injury crashes	36
Total number of injuries	53
Total number of vehicles	156



Crash Type	Totals	Most Severe Injury Type					
		Fatal	Serious	Evident	Possible	No Injury	Unknown
From same direction - both going straight - one stopped - rear-end	44	1	2	2	21	18	
From same direction - both going straight - both moving - rear-end	11			3	1	7	
Entering at angle	6		1		1	4	
From opposite direction - one left turn - one straight	5			1	2	2	
Fixed object	1					1	
From opposite direction - both moving - head-on	1					1	
From same direction - both going straight - both moving - sideswipe	1					1	
From same direction - both going straight - one stopped - sideswipe	1					1	
Vehicle - Pedalcyclist	1			1			

Contributing Circumstances	Driver of:	
	1 <sup>st</sup>	Others
Follow Too Closely	20	1
Exceeding Reas. Safe Speed	12	
Inattention	8	
Disregard Stop and Go Light	6	
Under Influence of Alcohol	6	
Did Not Grant RW to Vehicle	3	
Driver Interacting with Passengers, Anim	3	
Driver Adjusting Audio or Entertainment	2	
Driver Distractions Outside Vehicle	2	
Operating Defective Equipment	2	
None	1	68
Other	1	1
Apparently Asleep	1	
Driver Operating Handheld Telecommunicat	1	
Driver Operating Hands-free Wireless Tel	1	
Fail to Yield Row to Pedestrian	1	
Improper Turn	1	
Over Center Line	1	
Under Influence of Drugs	1	

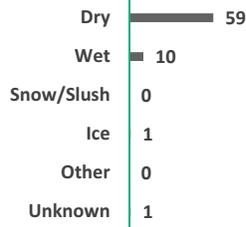
US 2/Day Mt Spokane Rd

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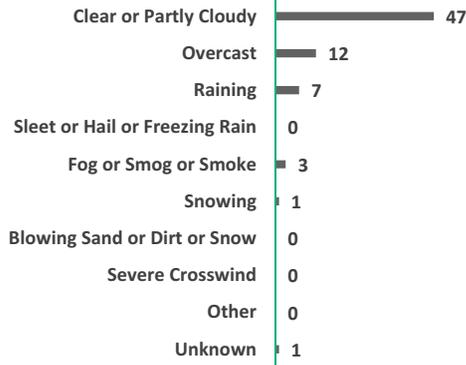
## US 2/Day Mt Spokane Rd

Intersection related crashes compared, 2004 - 2013

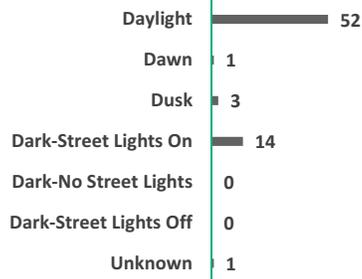
### Roadway Surface



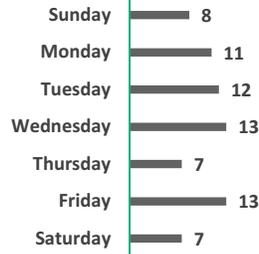
### Weather



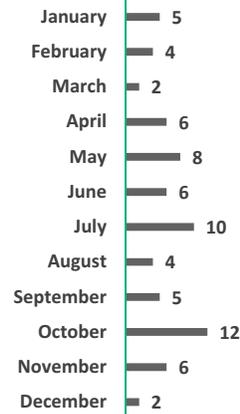
### Light Condition



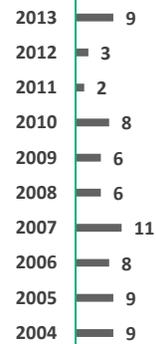
### Day



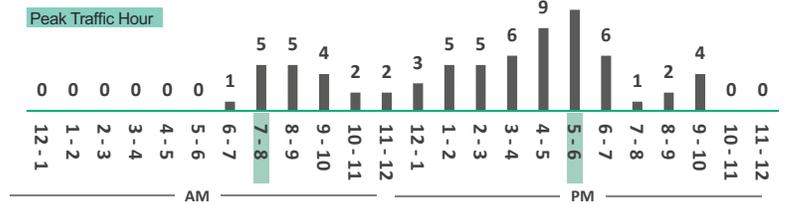
### Month



### Year



### Time of Day



US 2/Day Mt Spokane Rd

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

US 2/Day Mt Spokane Rd  
AM - Intersection Related  
All Injury Types

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**US 2/Day Mt Spokane Rd  
PM - Intersection Related  
All Injury Types**



**Crash Data**

## US 2/Deer Rd, Walker Ave, Moody Rd

Intersection related crashes, 2004 - 2013

Intersection Related	Totals
Number of crashes	7
Number of injury crashes	7
Total number of injuries	12
Total number of vehicles	16

Fatal	0
Serious	0
Evident	3
Possible	4
Unknown	0
No injury	0

### Most Severe Injury Type

Crash Type	Totals	Most Severe Injury Type					
		Fatal	Serious	Evident	Possible	No Injury	Unknown
<b>Deer Road</b>							
From opposite direction - one left turn - one straight	1			1			
<b>Walker Avenue</b>							
From same direction - both going straight - one stopped - rear-end	1				1		
Entering at angle	1				1		
From opposite direction - one left turn - one straight	1			1			
From same direction - one left turn - one straight	1				1		
<b>Moody Road</b>							
From opposite direction - one left turn - one straight	1			1			
From same direction - all others	1				1		

Contributing Circumstances	Driver of:	
	 1 <sup>st</sup>	 Others
<b>Deer Road</b>		
Did Not Grant RW to Vehicle	1	
None		1
<b>Walker Avenue</b>		
Did Not Grant RW to Vehicle	2	
Follow Too Closely	1	
Improper Turn	1	
None		6
<b>Moody Road</b>		
Did Not Grant RW to Vehicle	1	
Improper U-Turn	1	
None		2

US 2 & Deer, Walker, Moody

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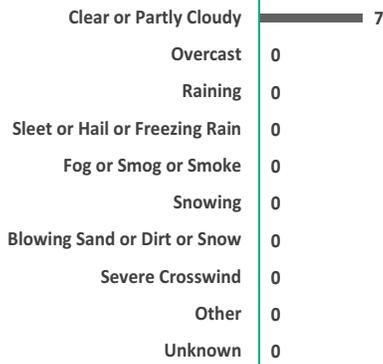
## US 2/Deer Rd, Walker Ave, Moody Rd

Intersection related crashes, 2004 - 2013

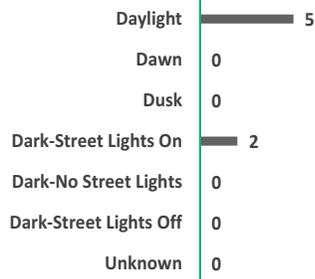
### Roadway Surface



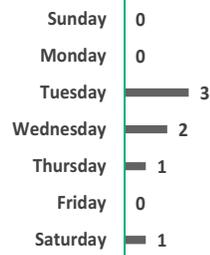
### Weather



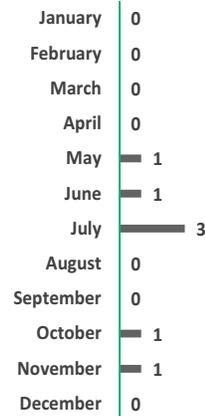
### Light Condition



### Day



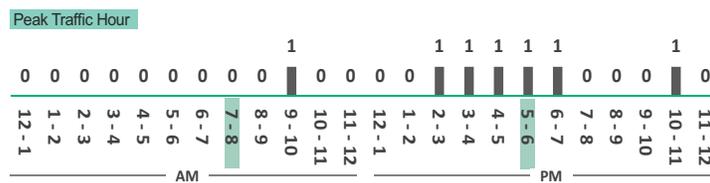
### Month



### Year



### Time of Day



US 2 & Deer, Walker, Moody

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

## US 2/Deer Rd to Day Mt Spokane Rd

Driveway related crashes, 2004 - 2013

Driveway Related	Totals
Number of crashes	35
Number of injury crashes	16
Total number of injuries	23
Total number of vehicles	69



Most Severe Injury Type

Crash Type	Totals	Most Severe Injury Type					
		Fatal	Serious	Evident	Possible	No Injury	Unknown
One car leaving driveway access	15		1	1	4	9	
Entering at angle	9			5	1	3	
One car entering driveway access	6			2	2	2	
Fixed object	2					2	
One parked--one moving	1					1	
From same direction - all others	1					1	
Same direction -- both turning right -- both moving -- sideswipe	1					1	

Contributing Circumstances	Driver of:	
	1 <sup>st</sup>	Others
Did Not Grant RW to Vehicle	22	3
Under Influence of Alcohol	3	
Inattention	3	
Exceeding Reas. Safe Speed	2	
Other	2	2
None	1	27
Improper Backing	1	
Over Center Line	1	
Improper Passing	1	
Unknown Driver Distraction	1	
Operating Defective Equipment		1

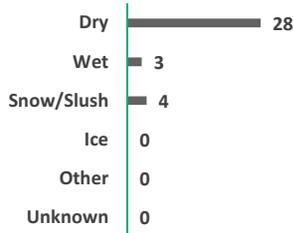
Driveway Related - US 2/Deer Rd to Day Mt Spokane Rd

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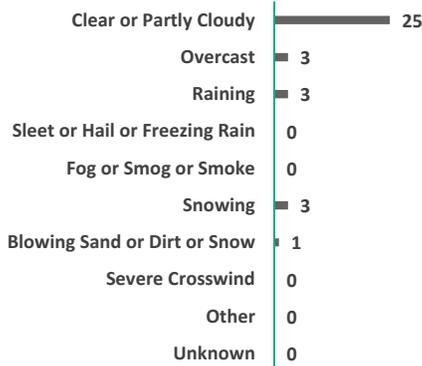
# US 2/Deer Rd to Day Mt Spokane Rd

Driveway related crashes, 2004 - 2013

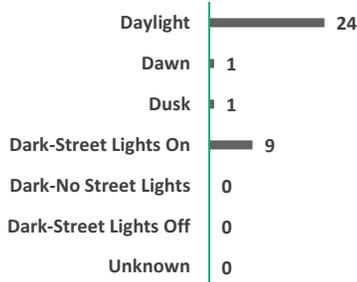
## Roadway Surface



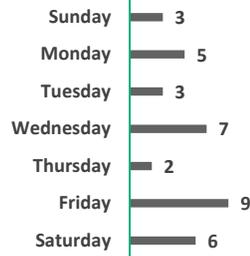
## Weather



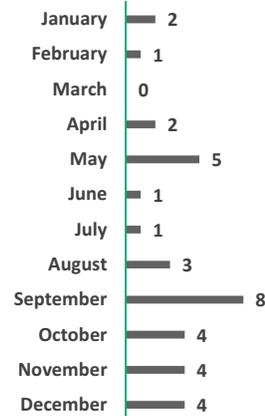
## Light Condition



## Day



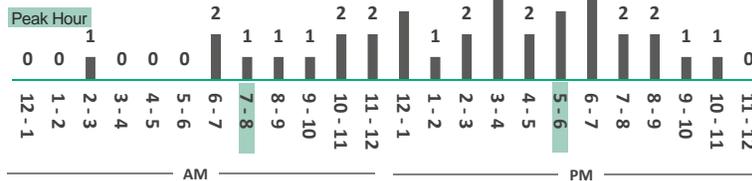
## Month



## Year



## Time of Day



Driveway Related - US 2/Deer Rd to Day Mt Spokane Rd

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

## US 2/Greenbluff Rd

Intersection related crashes, 2004 - 2013

Intersection Related	Totals
Number of crashes	19
Number of injury crashes	6
Total number of injuries	10
Total number of vehicles	36



Most Severe Injury Type

Crash Type	Totals	Most Severe Injury Type					
		Fatal	Serious	Evident	Possible	No Injury	Unknown
Entering at angle	13			2	4	7	
Fixed object	2					1	1
From same direction - both going straight - both moving - rear-end	1					1	
From opposite direction - one left turn - one straight	1					1	
From same direction - all others	1					1	
From same direction - one left turn - one straight	1					1	

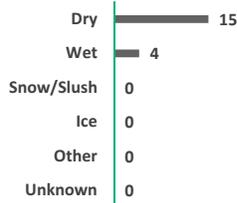
Contributing Circumstances	Driver of:	
	1 <sup>st</sup> 	Others 
Did Not Grant RW to Vehicle	14	
None	1	16
Other	1	1
Exceeding Reas. Safe Speed	1	
Inattention	1	
Disregard Stop Sign - Flashing Red	1	
Disregard Yield Sign - Flashing Yellow	1	

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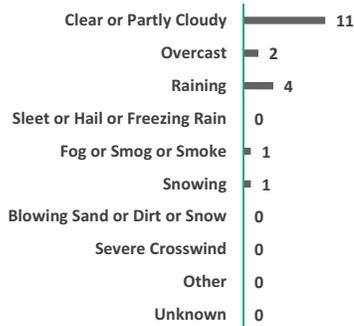
# US 2/Greenbluff Rd

Intersection related crashes, 2004 - 2013

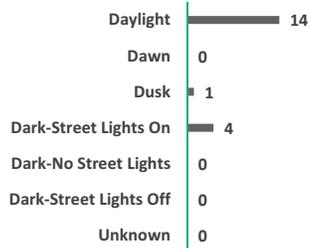
## Roadway Surface



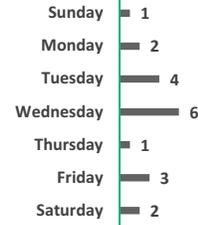
## Weather



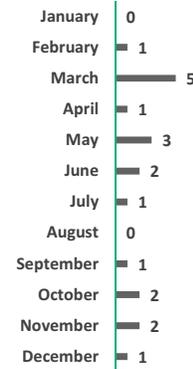
## Light Condition



## Day



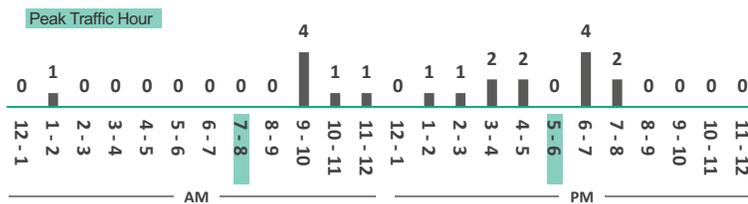
## Month



## Year



## Time of Day



US 2/Greenbluff Rd

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

Crash Data

US 2/Greenbluff Rd  
 AM - Intersection Related  
 All Injury Types - 2004 thru 2013

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.



Greenbluff Rd

1 Collision count

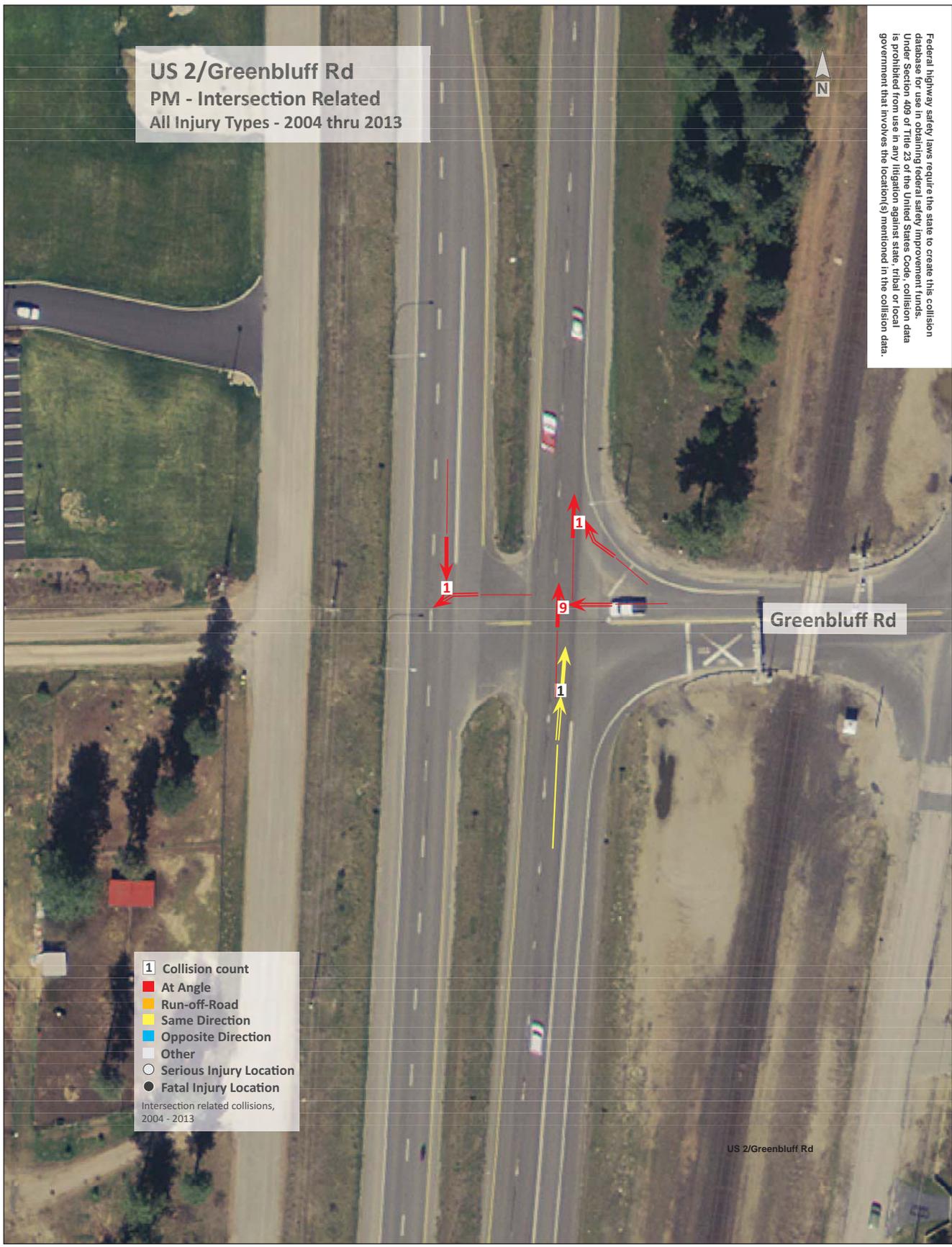
- At Angle
- Run-off-Road
- Same Direction
- Opposite Direction
- Other
- Serious Injury Location
- Fatal Injury Location

Intersection related collisions, 2004 - 2013

US 2/Greenbluff Rd

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

**US 2/Greenbluff Rd**  
**PM - Intersection Related**  
**All Injury Types - 2004 thru 2013**



Greenbluff Rd

US 2/Greenbluff Rd

- 1** Collision count
  - At Angle
  - Run-off-Road
  - Same Direction
  - Opposite Direction
  - Other
  - Serious Injury Location
  - Fatal Injury Location
- Intersection related collisions,  
 2004 - 2013

**Crash Data**

## US 2/Carney Rd

Intersection related crashes, 2004 - 2013

Intersection Related	Totals
Number of crashes	5
Number of injury crashes	4
Total number of injuries	6
Total number of vehicles	10

Fatal	0
Serious	0
Evident	2
Possible	2
Unknown	0
No injury	1

### Most Severe Injury Type

Crash Type	Totals	Most Severe Injury Type					
		Fatal	Serious	Evident	Possible	No Injury	Unknown
From same direction - both going straight - both moving - rear-end	2				2		
Entering at angle	1			1			
From opposite direction - one left turn - one straight	1			1			
From same direction - both going straight - one stopped - rear-end	1					1	

Contributing Circumstances	Driver of:	
	1 <sup>st</sup> 	Others 
Follow Too Closely	2	1
Did Not Grant RW to Vehicle	2	
None	1	4
Driver Distractions Outside Vehicle	1	
Inattention	1	
Under Influence of Alcohol	1	

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

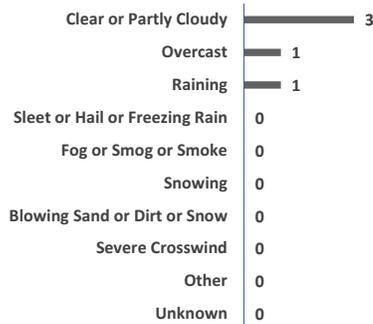
## US 2/Carney Rd

Intersection related crashes, 2004 - 2013

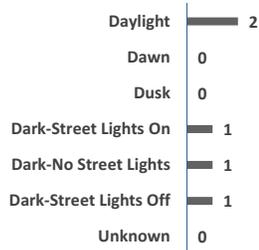
### Roadway Surface



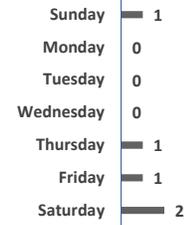
### Weather



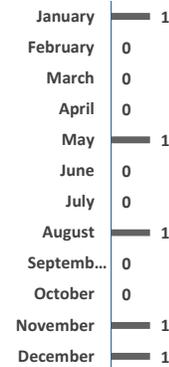
### Light Condition



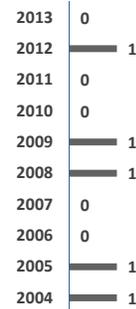
### Day



### Month

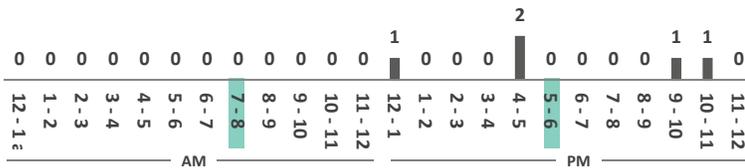


### Year



### Time of Day

Peak Traffic Hour



US 2/Carney Rd

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

Crash Data

US 2/Carney Rd  
 AM - Intersection Related  
 All Injury Types - 2004 thru 2013

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

Carney Rd

**1** Collision count

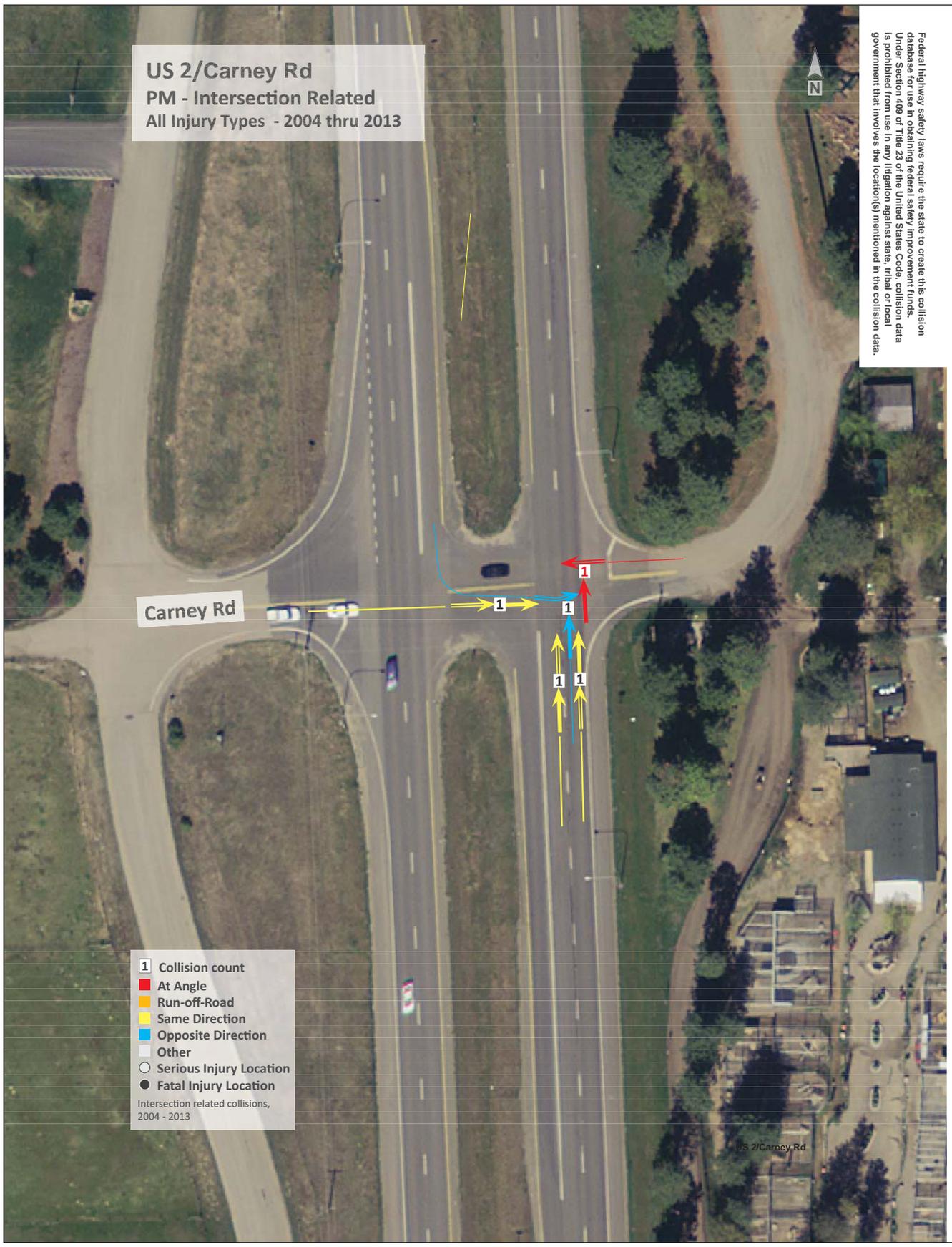
- At Angle
- Run-off-Road
- Same Direction
- Opposite Direction
- Other
- Serious Injury Location
- Fatal Injury Location

Intersection related collisions,  
 2004 - 2013

US 2/Carney Rd

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

**US 2/Carney Rd**  
**PM - Intersection Related**  
**All Injury Types - 2004 thru 2013**



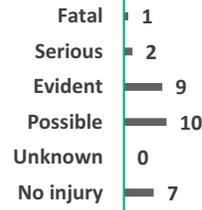
- 1** Collision count
  - █ At Angle
  - █ Run-off-Road
  - █ Same Direction
  - █ Opposite Direction
  - █ Other
  - Serious Injury Location
  - Fatal Injury Location
- Intersection related collisions,  
2004 - 2013

**Crash Data**

## US 2/Colbert Rd

Intersection related crashes, 2004 - 2013

Intersection Related	Totals
Number of crashes	29
Number of injury crashes	22
Total number of injuries	44
Total number of vehicles	55



Most Severe Injury Type

Crash Type	Totals	Most Severe Injury Type					
		Fatal	Serious	Evident	Possible	No Injury	Unknown
Entering at angle	14	1	1	7	3	2	
From opposite direction - one left turn - one straight	5			1	4		
Fixed object	2				1	1	
From same direction - both going straight - both moving - rear-end	2					2	
From same direction - both going straight - one stopped - rear-end	2				2		
From same direction - one left turn - one straight	1					1	
One parked--one moving	1					1	
Vehicle going straight hits pedestrian	1		1				
Vehicle overturned	1			1			

Contributing Circumstances	Driver of:	
	<i>I<sup>st</sup></i> 	<i>Others</i> 
Did Not Grant RW to Vehicle	13	2
None	3	19
Under Influence of Alcohol	3	
Disregard Yield Sign - Flashing Yellow	2	1
Other	2	1
Follow Too Closely	2	
Improper Turn	2	
Exceeding Reas. Safe Speed	1	1
Exceeding Stated Speed Limit	1	

US 2/Colbert Rd

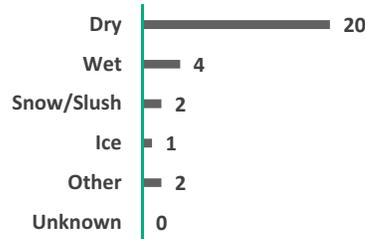
Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code,

collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

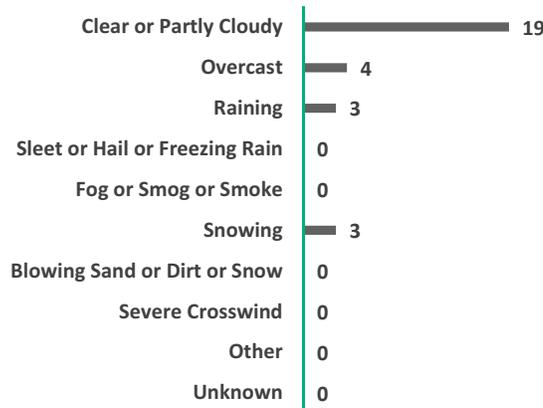
# US 2/Colbert Rd

Intersection related crashes, 2004 - 2013

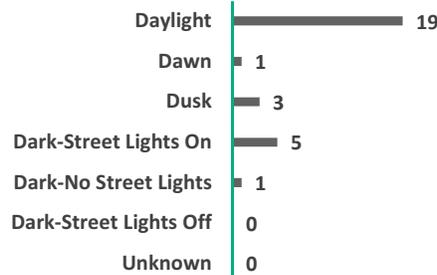
## Roadway Surface



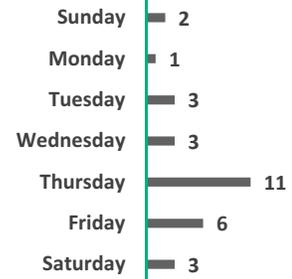
## Weather



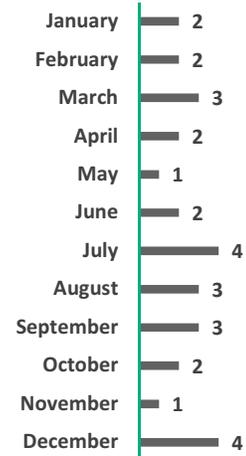
## Light Condition



## Day



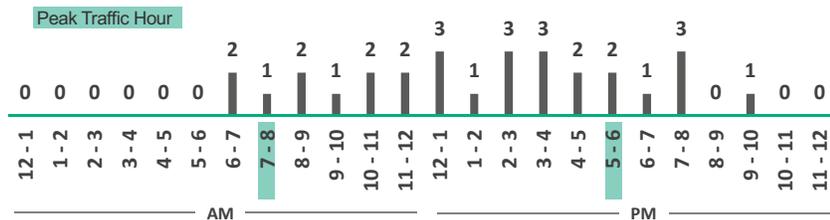
## Month



## Year



## Time of Day



US 2/Colbert Rd

Crash Data

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code,

collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

US 2/Colbert Rd  
 AM - Intersection Related  
 All Injury Types - 2004 thru 2013



Colbert Rd

1 Serious Injury Collision

1	Collision count
Red	At Angle
Yellow	Run-off-Road
Light Yellow	Same Direction
Light Blue	Opposite Direction
White	Other
Grey	Parked vehicle
Circle with 1	Serious Injury Location
Circle with 0	Fatal Injury Location

Intersection related collisions,  
 2004 - 2013

US 2/Colbert Rd

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code,

collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

**US 2/Colbert Rd**  
**PM - Intersection Related**  
**All Injury Types - 2004 thru 2013**



Colbert Rd

1 Fatal Injury Collision

1 Serious Injury Collision

**1** Collision count

- At Angle
- Run-off-Road
- Same Direction
- Opposite Direction
- Other
- 1 Serious Injury Location
- 1 Fatal Injury Location

Intersection related collisions,  
2004 - 2013

US 2/Colbert Rd

**Crash Data**

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code,

collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

## US 2/Woolard Rd

Intersection related crashes, 2004 - 2013

Intersection Related	Totals
Number of crashes	20
Number of injury crashes	9
Total number of injuries	11
Total number of vehicles	36



Crash Type	Totals	Most Severe Injury Type					
		Fatal	Serious	Evident	Possible	No Injury	Unknown
Entering at angle	9		1	1	2	5	
Fixed object	4				1	3	
From opposite direction - one left turn - one straight	4	1		2		1	
From same direction - both going straight - one stopped - rear-end	2		1			1	
Vehicle overturned	1					1	

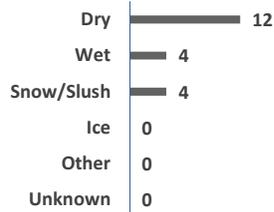
Contributing Circumstances	Driver of:	
	1 <sup>st</sup> 	Others 
Did Not Grant RW to Vehicle	11	1
None	3	12
Exceeding Reas. Safe Speed	2	
Other	2	
Driver Distractions Outside Vehicle	1	
Improper Turn		1

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

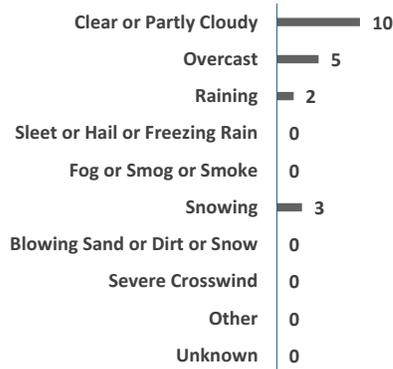
# US 2/Woolard Rd

Intersection related crashes, 2004 - 2013

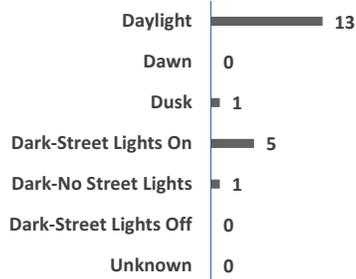
## Roadway Surface



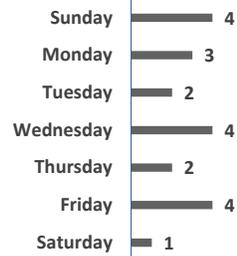
## Weather



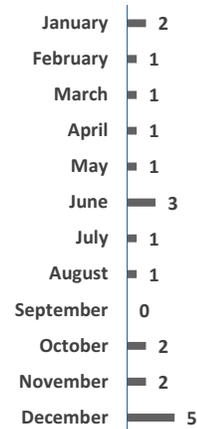
## Light Condition



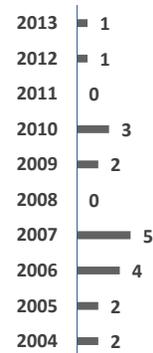
## Day



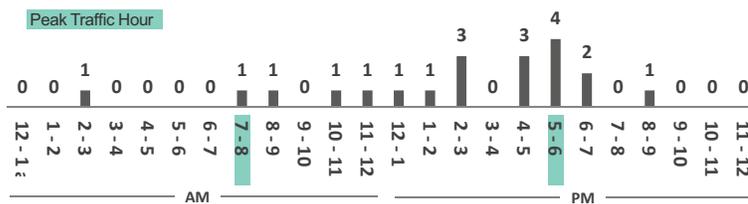
## Month



## Year



## Time of Day



US 2/Woolard Rd

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

Crash Data

US 2/Woolard Rd  
 AM - Intersection Related  
 All Injury Types - 2004 thru 2013

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.



Woolard Rd

1 Serious Injury Crash

- 1 Collision count
  - At Angle
  - Run-off-Road
  - Same Direction
  - Opposite Direction
  - Other
  - Serious Injury Location
  - Fatal Injury Location
- Intersection related collisions,  
 2004 - 2013

US 2/Woolard Rd

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

**US 2/Woolard Rd**  
**PM - Intersection Related**  
**All Injury Types - 2004 thru 2013**



**Crash Data**

## US 2/Norwood Rd

Intersection related crashes, 2004 - 2013

Intersection Related	Totals
Number of crashes	1
Number of injury crashes	0
Total number of injuries	0
Total number of vehicles	2

Fatal	0
Serious	0
Evident	0
Possible	0
Unknown	0
No injury	1

### Most Severe Injury Type

Crash Type	Totals	Most Severe Injury Type					
		Fatal	Serious	Evident	Possible	No Injury	Unknown
Entering at angle	1					1	

Contributing Circumstances	Driver of:	1 <sup>st</sup>	Others
			
Improper Turn		1	
None			1

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

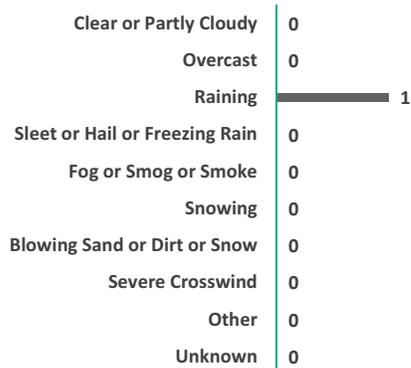
## US 2/Norwood Rd

Intersection related crashes compared, 2004 - 2013

### Roadway Surface



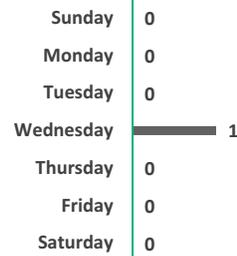
### Weather



### Light Condition



### Day



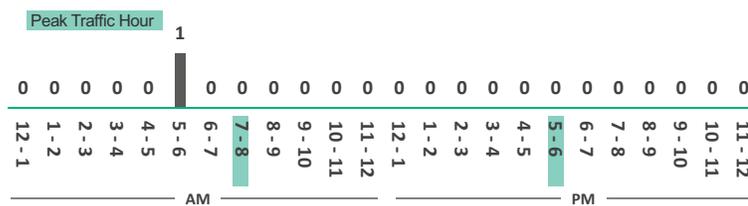
### Month



### Year



### Time of Day



US 2/Norwood Rd

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

# Crash Data

**US 2/Norwood Rd**  
**AM - Intersection Related**  
**All Injury Types - 2004 thru 2013**



Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

Norwood Rd

- 1** Collision count
  - At Angle
  - Run-off-Road
  - Same Direction
  - Opposite Direction
  - Other
  - Serious Injury Location
  - Fatal Injury Location
- Intersection related collisions,  
 2004 - 2013

US 2/Norwood Rd

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

**US 2/Norwood Rd**  
**PM - Intersection Related**  
**All Injury Types - 2004 thru 2013**



Norwood Rd

US 2/Norwood Rd

**1** Collision count

- At Angle
- Run-off-Road
- Same Direction
- Opposite Direction
- Other
- Serious Injury Location
- Fatal Injury Location

Intersection related collisions,  
2004 - 2013

**Crash Data**

## US 2/Elk Chattaroy Rd

Intersection related crashes, **Offset Right-Turn Lane construction in 2010 - Data shown 2010 - 2013**

Intersection Related	Totals
Number of crashes	4
Number of injury crashes	2
Total number of injuries	4
Total number of vehicles	9

Fatal	0
Serious	0
Evident	0
Possible	2
Unknown	1
No injury	1

### Most Severe Injury Type

Crash Type	Totals	Most Severe Injury Type					
		Fatal	Serious	Evident	Possible	No Injury	Unknown
From opposite direction - one left turn - one straight	3				2	1	
From same direction - both going straight - both moving - rear-end	1						1

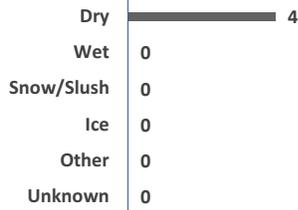
Contributing Circumstances	Driver of:	
	1 <sup>st</sup> 	Others 
Did Not Grant RW to Vehicle	1	0
Follow Too Closely	1	0
Improper Turn	1	0
Disregard Yield Sign - Flashing Yellow	1	0

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

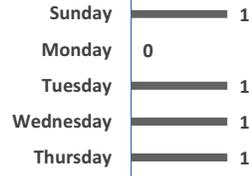
# US 2/Elk Chattaroy Rd

Intersection related crashes, **Offset Right-Turn Lane construction in 2010 - Data shown 2010 - 2013**

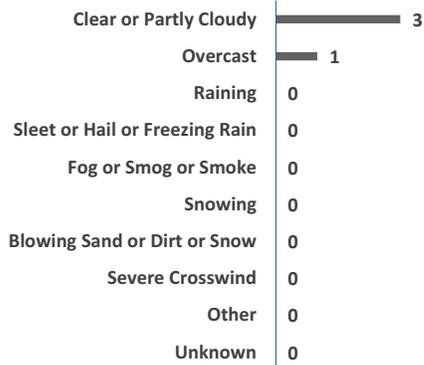
## Roadway Surface



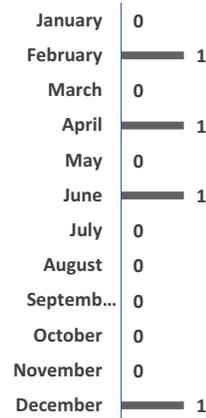
## Day



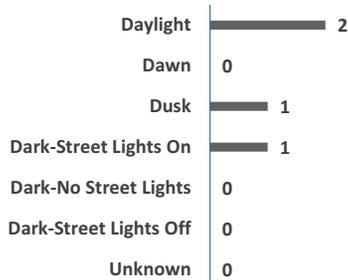
## Weather



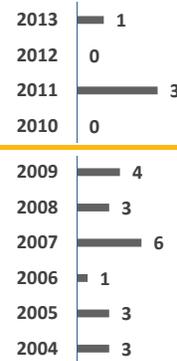
## Month



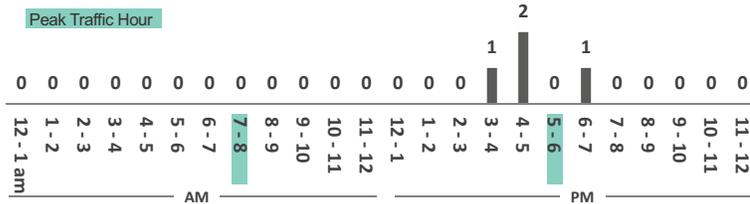
## Light Condition



## Year



## Time of Day



US 2/Elk Chattaroy Rd

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

US 2/Elk Chattaroy Rd  
AM - Intersection Related

All Injury Types - 2010 thru 2013

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

Elk Chattaroy Rd

Offset Right-Turn Lane  
constructed in 2010  
Collisions per year  
Before - 3.1  
After - 1.1

**1** Collision count

- At Angle
- Run-off-Road
- Same Direction
- Opposite Direction
- Other
- Serious Injury Location
- Fatal Injury Location

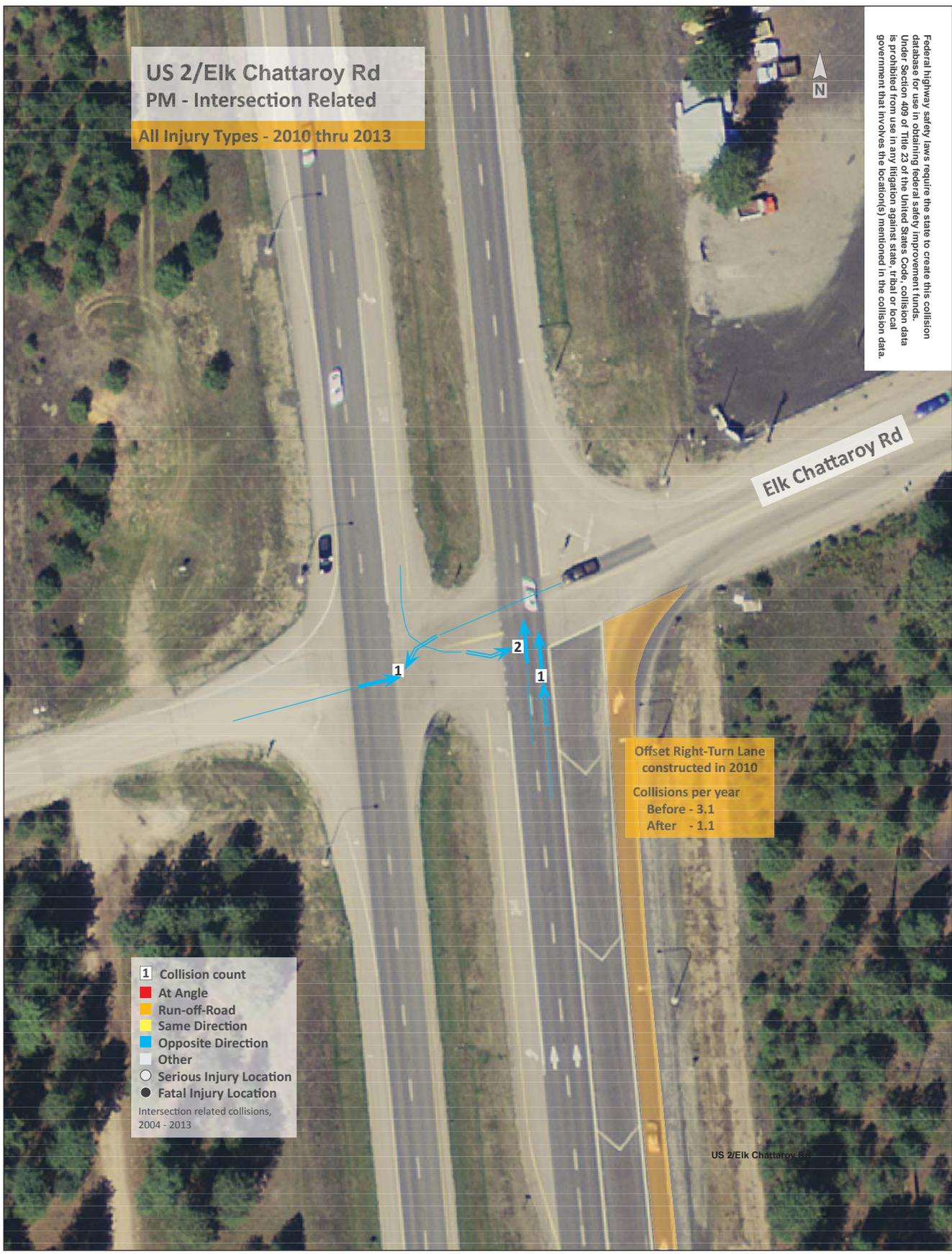
Intersection related collisions,  
2004 - 2013

US 2/Elk Chattaroy Rd

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

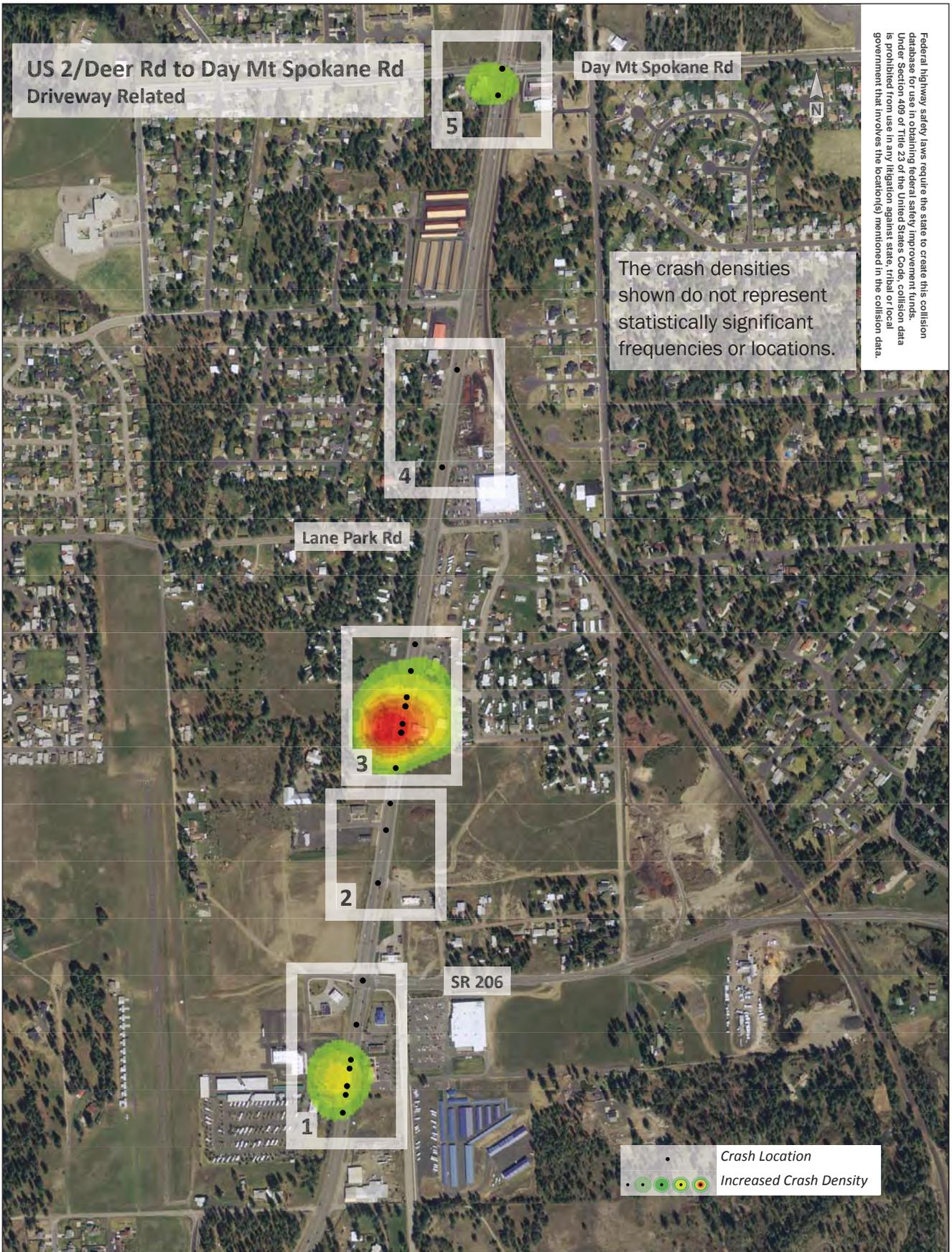
**US 2/Elk Chattaroy Rd  
PM - Intersection Related**

All Injury Types - 2010 thru 2013

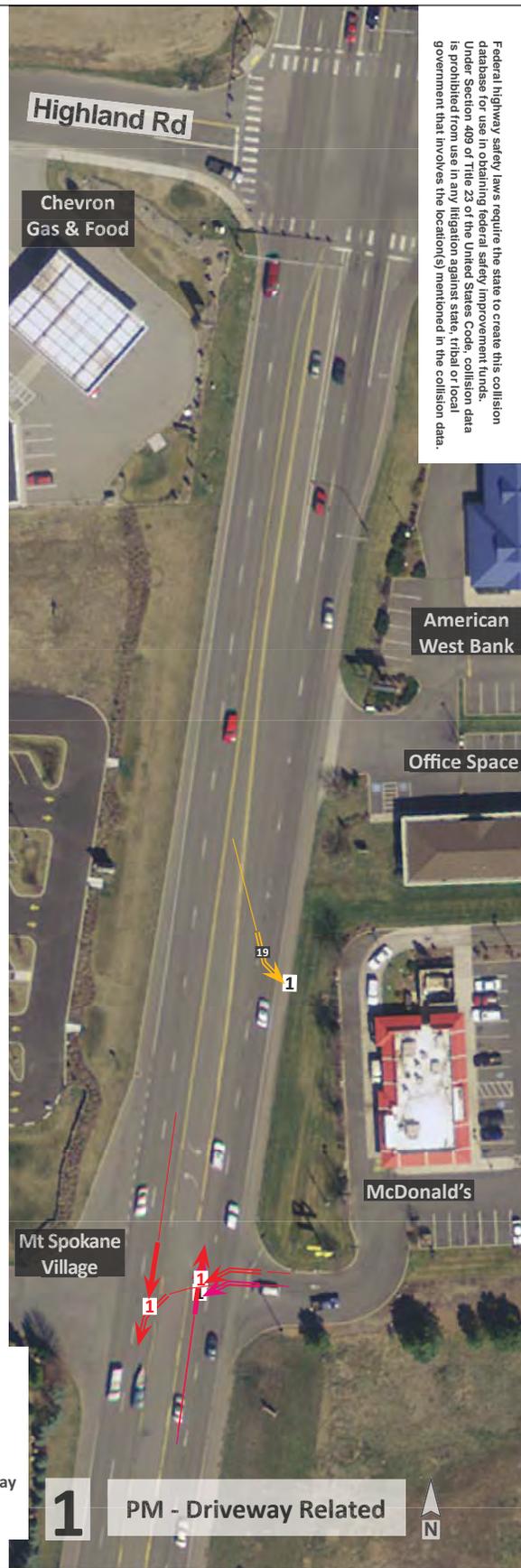
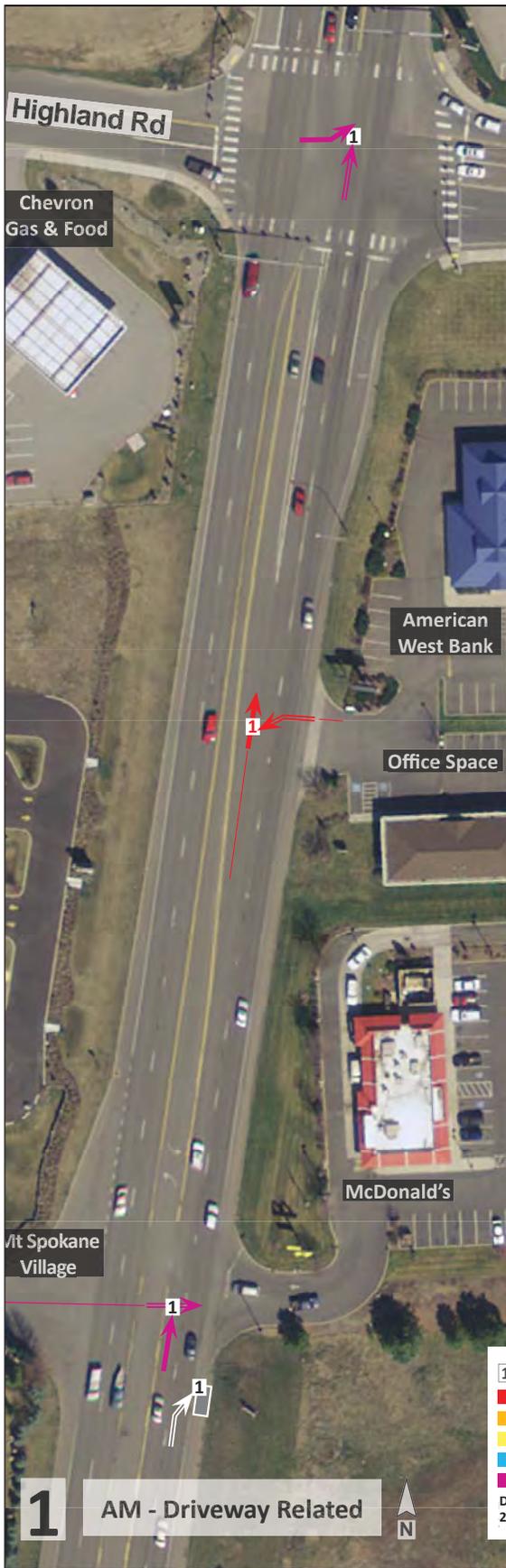


**Crash Data**

Crash Data

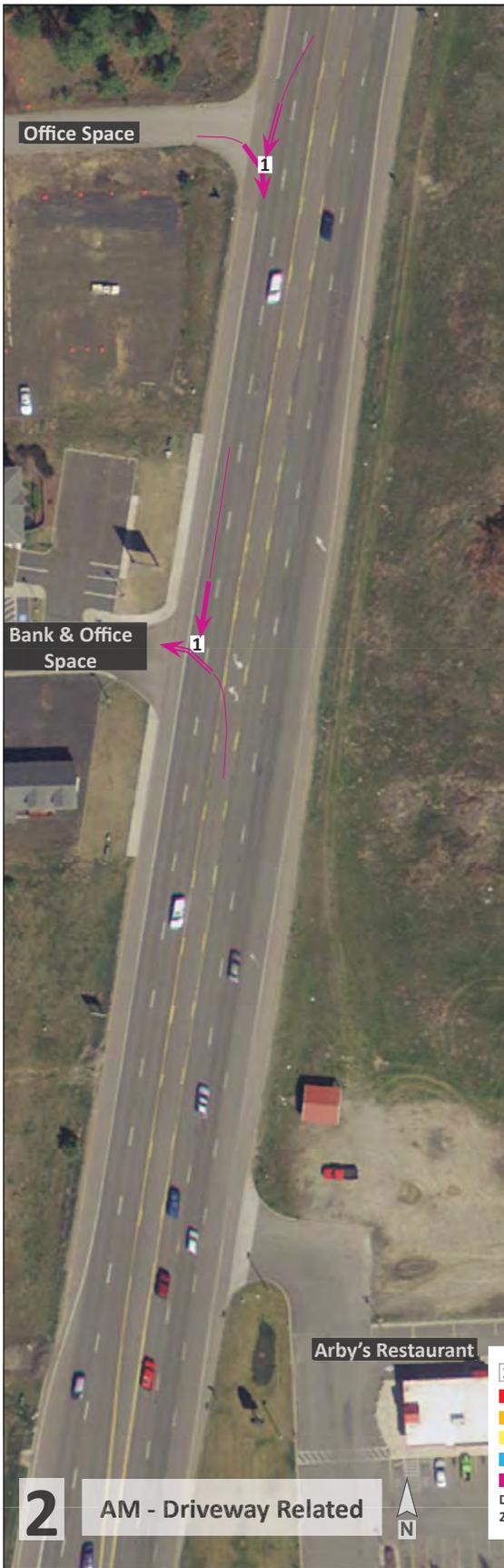


Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

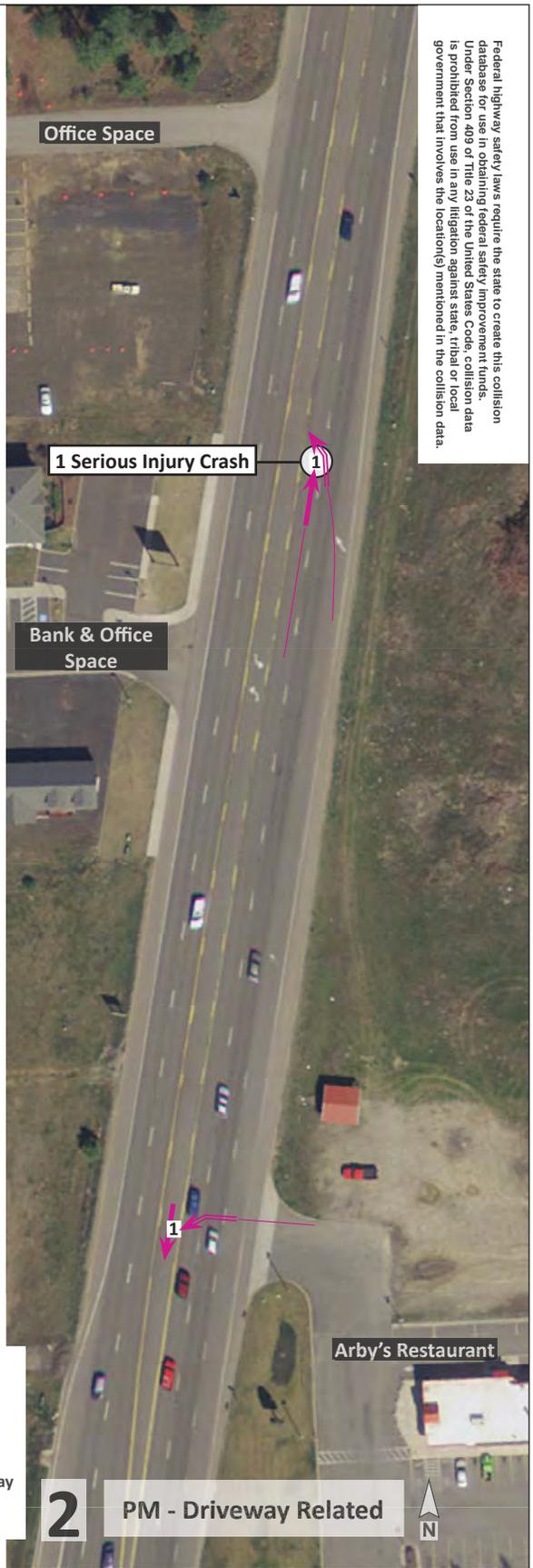


**Crash Data**

# Crash Data



- 1** Collision count
  - At Angle
  - Run-off-Road
  - Same Direction
  - Opposite Direction
  - Enter/Leave Driveway
- Driveway related crashed, 2004 - 2013



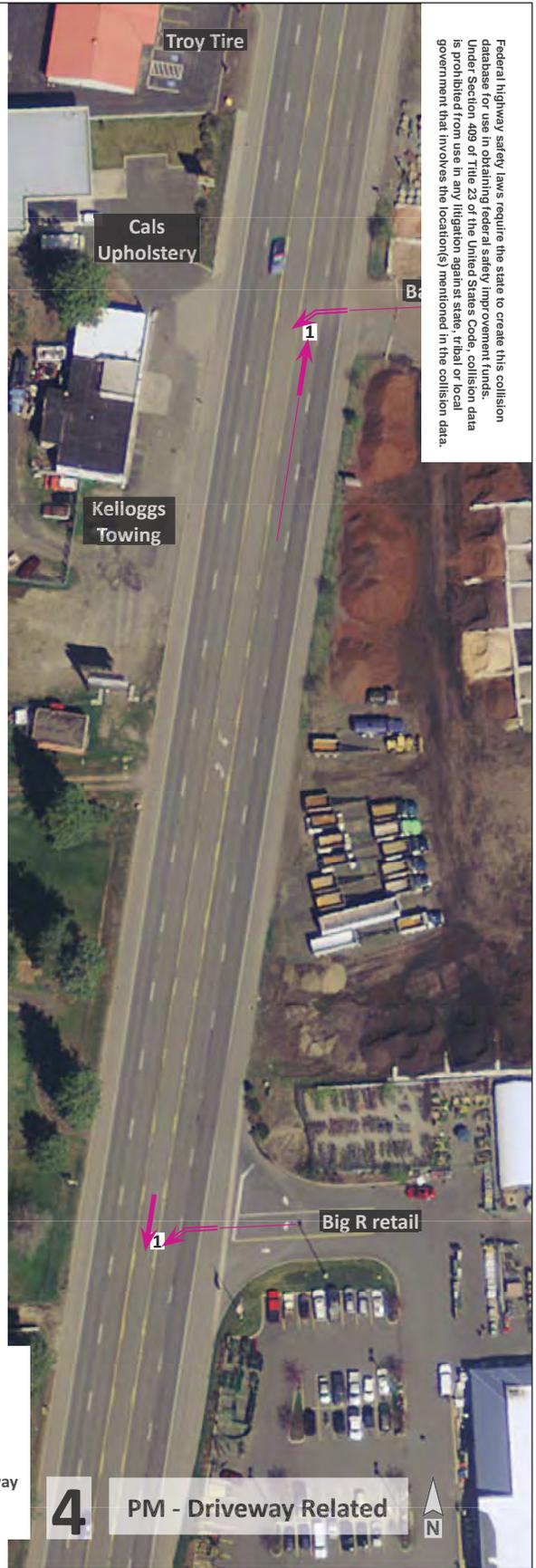
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Crash Data

# Crash Data



1 Collision count  
 At Angle  
 Run-off-Road  
 Same Direction  
 Opposite Direction  
 Enter/Leave Driveway  
 Driveway related crashed,  
 2004 - 2013

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code, collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

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- 1 Collision count
  - At Angle
  - Run-off-Road
  - Same Direction
  - Opposite Direction
  - Enter/Leave Driveway
- Driveway related crashed,  
2004 - 2013

Crash Data

US 2/Deer Rd to Day Mt Spokane Rd  
2004 to 2013: 296 Crashes - All Types



The crash densities shown do not represent statistically significant frequencies or locations.

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# Meetings and Outcomes

## Community Engagement Process and Conceptual and Emerging Solutions

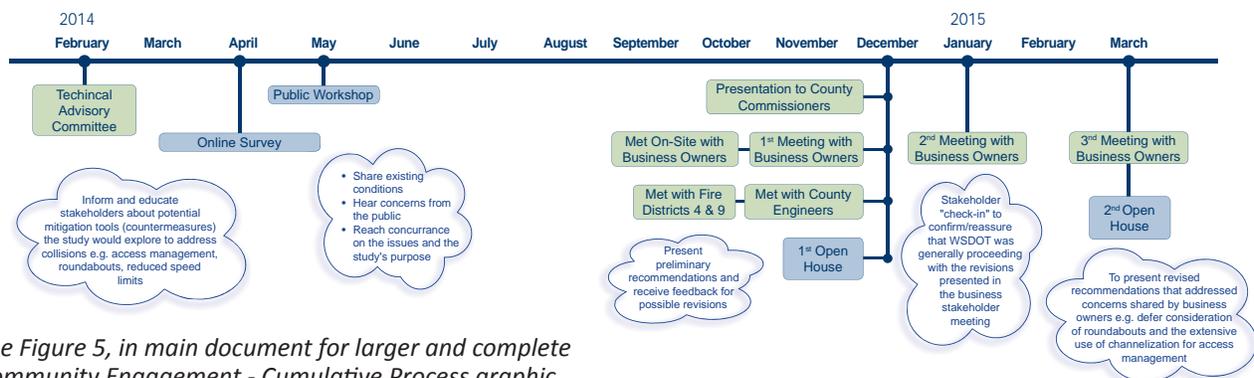
In developing concepts for this study the WSDOT used traffic and crash data to evaluate current crash trends and identify locations that will benefit from countermeasures that reduce crashes.

The WSDOT also engaged the local community to solicit information and ideas for possible improvements to the corridor. This included surveys, public workshops, mailings, open houses, meetings with the local businesses owners, community input via “comment cards”, correspondence with individual community members, an Internet web page, and other community interactions which are shown in the following pages.

The community engagement process influenced the emerging solutions of this study, which is most evident on the segment from SR 206 to Day-Mt. Spokane Rd. That segment is funded for construct (in 2017) where low cost improvements to reduce crashes for the current conditions will be added.

### The Practical Design, Development, Presentation and Selection of Low Cost Safety Improvement Concepts for Phase 1

#### Community Engagement Timeline



See Figure 5, in main document for larger and complete Community Engagement - Cumulative Process graphic.

## Technical Advisory Committee - Meeting

### February 2014 - Technical Advisory Committee Meeting and Presentation - Summary:

Identified internal and external stakeholders.

Project kick off meeting, to endorse study goals and objectives to include:

- ▶ Identifying and evaluating current crash trends. Using a Target Zero Collision Analysis process to assess route specific data, identify priorities, strategies and potential countermeasures.
- ▶ Identifying opportunities to provide complete street features of improving access, safety, and promoting multimodal mobility in a practical approach.
- ▶ Incorporating context sensitivity by addressing transportation solutions along the corridor in a manner that considers aesthetic, social, economic and environmental values, needs, constraints and opportunities in a larger community vision.

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- ▶ Stakeholders and the public opinion need to be reviewed and evaluated during the process and considered during the development of project solutions.

## February 2014 - Technical Advisory Committee Meeting and Presentation - Outcome:

A comprehensive stakeholder technical advisory group along with continuous engagement will be used in identifying and developing solutions that address the project objective of reducing crashes and aligning with the context and community's vision for this segment of the US 2 corridor.

## Public Outreach

### April 2014 - Public Outreach - Summary:

The online survey sought insight from corridor users about their trip activity, perceived level of safety, modal choices, vision for the corridor and what safety improvements or modifications they would like to see. It was developed and distributed primarily via the Internet, with printed copies available upon request. WSDOT sent out approximately 11,000 mailers to local residences and businesses inviting them to the upcoming workshop (May 2014) and requesting their help by completing the online survey.

Washington State Department of Transportation

### Why is the WSDOT conducting the US 2 / Deer Road to Elk-Chattaroy Corridor Study?

During the next few months, the Washington State Department of Transportation (WSDOT) will conduct a study on US 2 from Deer Road to Elk-Chattaroy Road to identify opportunities to improve access, reduce the frequency, and severity of collisions, and enhance transportation choices along the corridor. Your participation is important and needed.

#### What are the study limits?

The initial near-term roadway safety analysis and assessment effort will focus on the area between Deer Road and Day Mt. Spokane Road. The overall study limits are between Deer Road and Elk-Chattaroy Road.

#### How can I help?

We are asking users of the corridor to attend an upcoming workshop and complete an online, anonymous survey.

While the WSDOT has access to traffic counts and collisions data, you may have experiences or a concern that does not show up in these types of data. Your involvement will help WSDOT understand your perspective of transportation-related issues along the corridor, shape a shared vision for the corridor, and ultimately identify the contributing factors to collisions, assess potential lower cost corridor modifications that address the contributing factors and that will support the needs of the diverse travelers including pedestrians, bicyclists and the adjacent communities along the corridor segment.

All licensed drivers in your household are welcome to take the survey!

Please complete the survey by May 14, 2014.

### May 2014 Survey



**We need your help!**  
During the next few months, the Washington State Department of Transportation (WSDOT) will conduct a study on US 2 from Deer Road to Elk-Chattaroy Road to identify opportunities to improve access, reduce frequent and severe collisions - a Target Zero strategy, and enhance transportation choices along the corridor. Your participation in this study is important and needed.

**How can I help?**  
We are asking users of the corridor to attend an upcoming workshop and complete an online, anonymous survey.

While the WSDOT has access to traffic counts and collisions data, you may have experiences or a concern that does not show up in these types of data. Your involvement will help WSDOT better understand transportation-related issues along the corridor, shape a shared vision for the corridor, and ultimately identify potential low cost corridor improvements that will support the needs of the diverse travelers including pedestrians, bicyclists and the adjacent communities along the corridor segment.

**Where can I find the survey?**  
The anonymous survey is available online at: [www.surveymonkey.com/s/US2DeerRoadtoElkChattaroy](http://www.surveymonkey.com/s/US2DeerRoadtoElkChattaroy)

You will be able to complete the survey in approximately 10 to 15 minutes. Paper copies of the survey are also available by emailing one of the contact addresses listed below.

**When is the first workshop?**  
The first workshop will be held Thursday, May 1, 2014, from 5:00 PM to 7:30 PM, at Mount Spokane High School, 6015 E Mt Spokane Park Dr.

Your participation during the entire workshop will be appreciated.

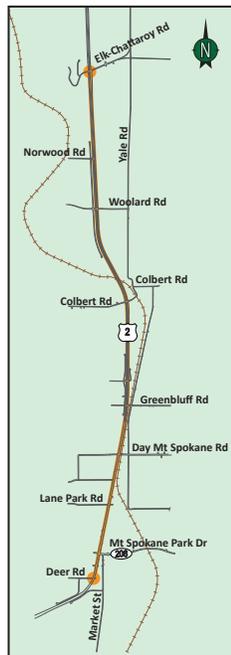
**When will additional meetings be held?**  
Information regarding the time and location of additional corridor meetings will be posted on the WSDOT website provided below. Future meetings will present concepts that are developed as a result of the workshop findings, survey results, and stakeholder engagement.

**Where can I find more information?**  
Periodically updated information relating to the study will be posted on the following website: [www.wsdot.wa.gov/Projects/US2/DeerRdElkChattaroyRdCR/](http://www.wsdot.wa.gov/Projects/US2/DeerRdElkChattaroyRdCR/)

**Or Contact:**  
Chris Courtney  
Corridor Study Engineer  
Phone: (509) 324-6197  
E-mail: [courtnc@wsdot.wa.gov](mailto:courtnc@wsdot.wa.gov)

Charlene Kay, P.E.  
Region Planning Engineer  
Phone: (509) 324-6195  
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Washington State  
Department of Transportation  
Keith Metcalf, P.E.  
Regional Administrator



Title VI Notice to Public  
It is the Washington State Department of Transportation (WSDOT) policy to ensure that no person shall, on the grounds of race, color, national origin, sex, or ancestry by Title VI of the Civil Rights Act of 1964, be excluded from participation in, be denied the benefits of, or be otherwise discriminated against under any of its federally funded programs and activities. Any person who believes he/she has been discriminated against may file a complaint with WSDOT's Office of Equal Opportunity (OEO). For additional information regarding Title VI complaint procedures and/or information regarding our non-discrimination obligations, please contact OEO. This information is for informational purposes only. WSDOT is not responsible for the content of any linked information. This material can be made available in an alternate format by emailing the WSDOT Disability/ADA Access at [adaaccess@wsdot.wa.gov](mailto:adaaccess@wsdot.wa.gov) or by calling toll free, 800-362-ADACED. Persons who are deaf or hard of hearing may make a request by calling the Washington State Relay at 711.

Washington State  
Department of Transportation  
Eastern Region  
2714 North Mayfair Street  
Spokane, WA 99207-2090

ECR WSS  
Postal Customer

### US 2 Corridor Study from Deer Rd to Elk-Chattaroy Rd



May 2014 US 2 Mailer - 11,000 mailers went out to local residences and businesses.

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# Public Outreach - Online Survey

## April 2014 - Public Outreach - Outcome:

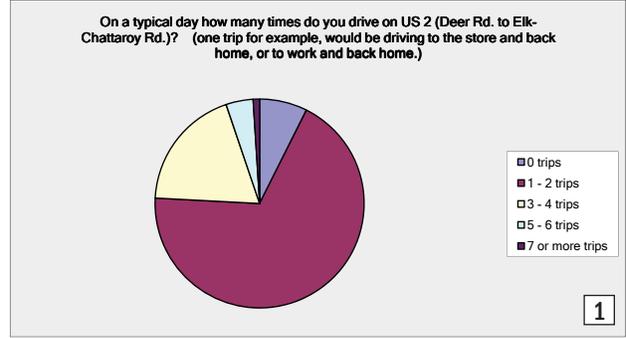
Over 400 people responded to the survey, with many diverse interests, desires and differing visions for the corridor. However, they typically agreed on providing solutions that would improve safety and reduce the number and severity of crashes.

The survey included a few open-ended questions to encourage personal accounts and to provide an opportunity for users to bring their ideas and observations to the table. Many of the comments received provide information not previously known about their (corridor users and local residence) safety concerns and their vision of what they would or would not like to see happen with the corridor.

### US 2 Corridor Study - Survey

On a typical day how many times do you drive on US 2 (Deer Rd. to Elk-Chattarray Rd.)? (one trip for example, would be driving to the store and back home, or to work and back home.)

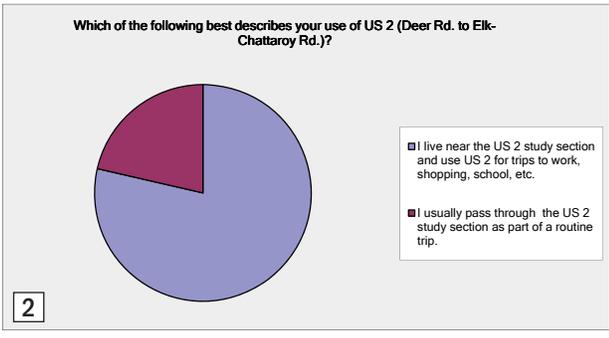
Answer Options	Response Percent	Response Count
0 trips	7.4%	30
1 - 2 trips	68.5%	278
3 - 4 trips	19.0%	77
5 - 6 trips	4.2%	17
7 or more trips	1.0%	4
<b>answered question</b>		<b>406</b>
<b>skipped question</b>		<b>7</b>



### US 2 Corridor Study - Survey

Which of the following best describes your use of US 2 (Deer Rd. to Elk-Chattarray Rd.)?

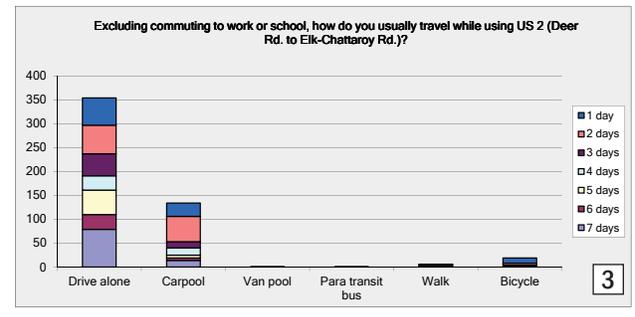
Answer Options	Response Percent	Response Count
I live near the US 2 study section and use US 2 for trips to work, shopping, school, etc.	78.6%	316
I usually pass through the US 2 study section as part of a routine trip.	21.4%	86
<b>answered question</b>		<b>402</b>
<b>skipped question</b>		<b>11</b>



### US 2 Corridor Study - Survey

Excluding commuting to work or school, how do you usually travel while using US 2 (Deer Rd. to Elk-Chattarray Rd.)?

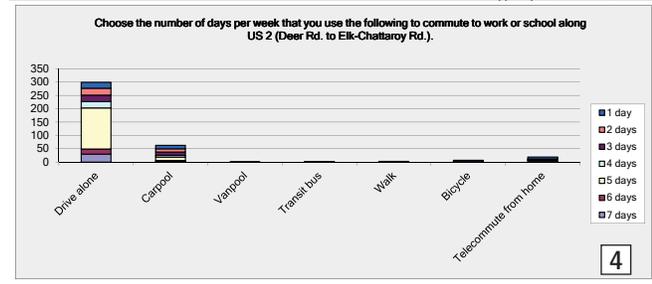
Answer Options	1 day	2 days	3 days	4 days	5 days	6 days	7 days	Response Count
Drive alone	57	60	46	30	51	31	79	354
Carpool	28	53	13	15	6	5	14	134
Van pool	0	0	1	0	0	0	0	1
Para transit bus	0	0	0	0	1	0	0	1
Walk	1	1	3	0	0	1	0	6
Bicycle	11	4	2	2	0	0	0	19
<b>answered question</b>								<b>400</b>
<b>skipped question</b>								<b>13</b>



### US 2 Corridor Study - Survey

Choose the number of days per week that you use the following to commute to work or school along US 2 (Deer Rd. to Elk-Chattarray Rd.).

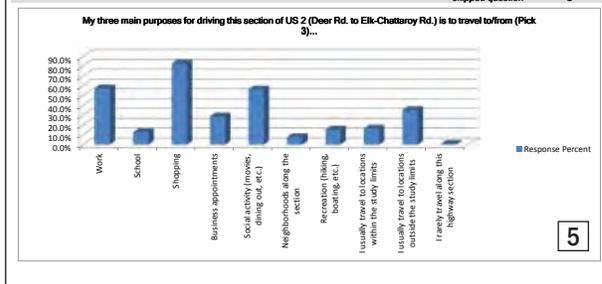
Answer Options	1 day	2 days	3 days	4 days	5 days	6 days	7 days	Response Count
Drive alone	22	26	24	24	154	19	30	299
Carpool	13	12	12	7	13	3	3	63
Vanpool	1	0	0	0	0	0	0	1
Transit bus	1	0	0	0	1	0	0	2
Walk	1	0	1	0	0	1	0	3
Bicycle	5	0	1	0	0	0	1	7
Telecommute from home	7	2	1	2	0	0	5	19
<b>answered question</b>								<b>331</b>
<b>skipped question</b>								<b>82</b>



### US 2 Corridor Study - Survey

My three main purposes for driving this section of US 2 (Deer Rd. to Elk-Chattarray Rd.) is to travel to/from (Pick 3)...

Answer Options	Response Percent	Response Count
Work	57.5%	233
School	12.6%	51
Shopping	82.7%	335
Business appointments	28.9%	117
Social activity (movies, dining out, etc.)	56.3%	228
Neighborhoods along the section	7.7%	31
Recreation (hiking, boating, etc.)	15.3%	62
I usually travel to locations within the study limits	16.3%	66
I usually travel to locations outside the study limits	35.3%	143
I rarely travel along this highway section	1.0%	4
<b>answered question</b>		<b>405</b>
<b>skipped question</b>		<b>8</b>



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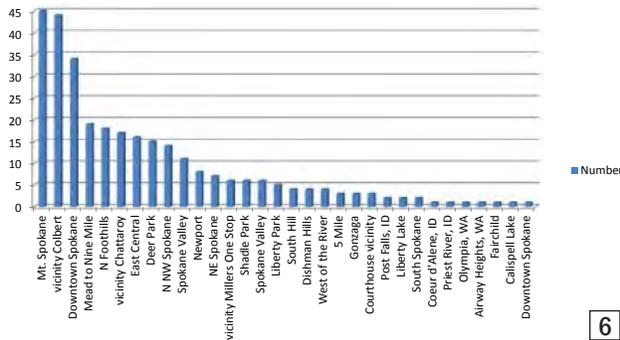
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US 2 Corridor Study - Survey

What is the zip code of your place of employment?

Answer Options	Response Count
answered question	317
skipped question	96

What is the zip code of your place of employment?



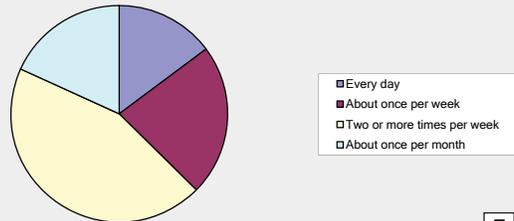
6

US 2 Corridor Study - Survey

How often do you drive to a business that is located between Deer Road and Day-Mt Spokane Road?

Answer Options	Response Percent	Response Count
Every day	14.8%	57
About once per week	22.6%	87
Two or more times per week	44.4%	171
About once per month	18.2%	70
answered question		385
skipped question		28

How often do you drive to a business that is located between Deer Road and Day-Mt Spokane Road?



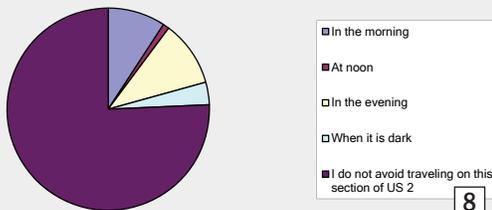
7

US 2 Corridor Study - Survey

Do you sometimes avoid traveling on US 2 (Deer Rd. to Elk-Chattaroy Rd.)? (Not counting weather related road conditions) If so, when?

Answer Options	Response Percent	Response Count
In the morning	9.2%	36
At noon	1.0%	4
In the evening	10.5%	41
When it is dark	3.6%	14
I do not avoid traveling on this section of US 2	75.7%	296
answered question		391
skipped question		22

Do you sometimes avoid traveling on US 2 (Deer Rd. to Elk-Chattaroy Rd.)? (Not counting weather related road conditions) If so, when?

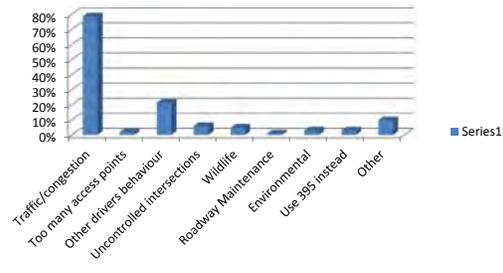


8

US 2 Corridor Study - Survey

Do you sometimes avoid traveling on US 2 (Deer Rd. to Elk-Chattaroy Rd.)? (Not counting weather related road conditions) If yes, why?

Answer Options	Response Count
answered question	103
skipped question	310



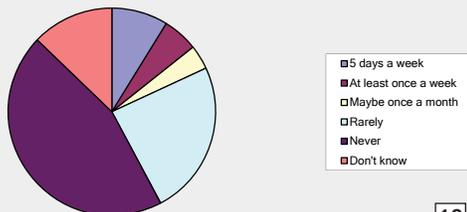
9

US 2 Corridor Study - Survey

If a bus route was available, how often might you or a household member use it?

Answer Options	Response Percent	Response Count
5 days a week	8.8%	35
At least once a week	5.5%	22
Maybe once a month	3.8%	15
Rarely	24.1%	96
Never	45.0%	179
Don't know	12.8%	51
answered question		398
skipped question		15

If a bus route was available, how often might you or a household member use it?



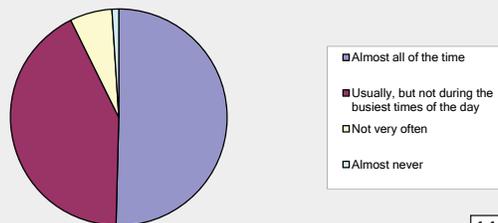
10

US 2 Corridor Study - Survey

I am able to drive the posted speed limit on US 2 (Deer Rd. to Elk-Chattaroy Rd.):

Answer Options	Response Percent	Response Count
Almost all of the time	50.4%	200
Usually, but not during the busiest times of the day	42.3%	168
Not very often	6.3%	25
Almost never	1.0%	4
answered question		397
skipped question		16

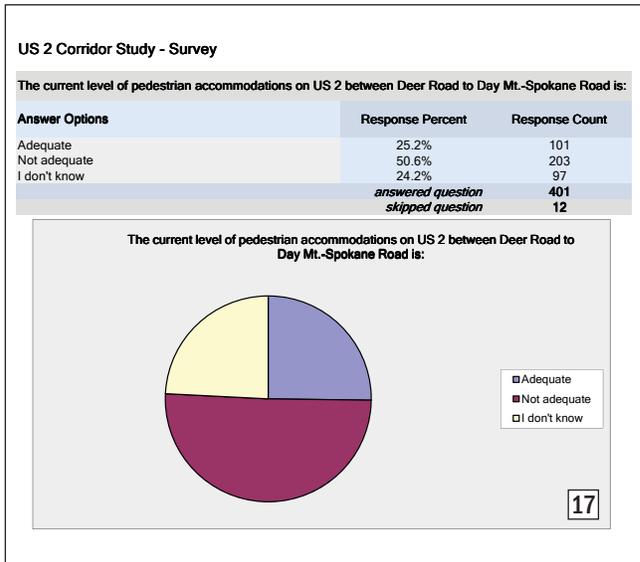
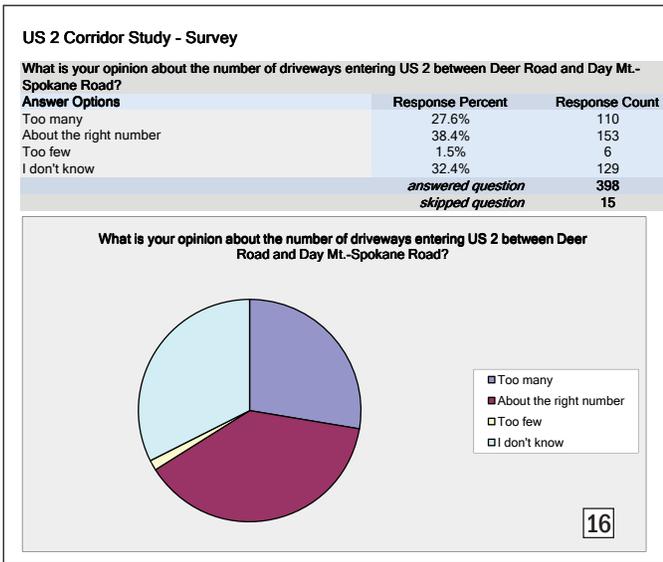
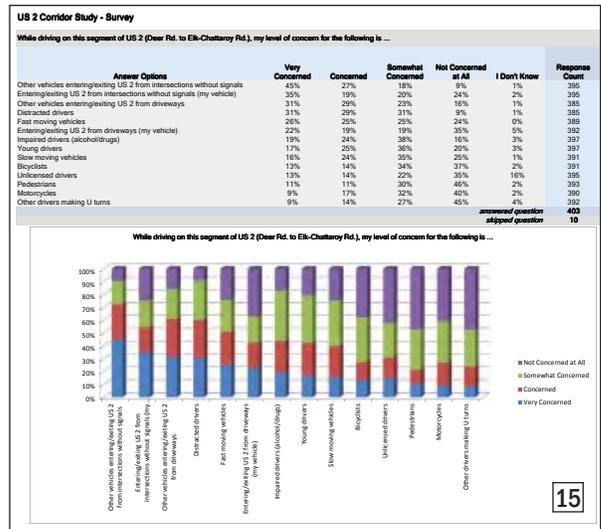
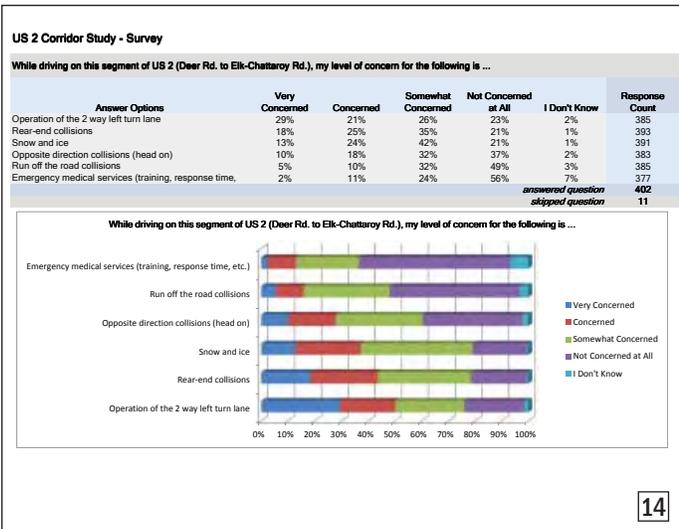
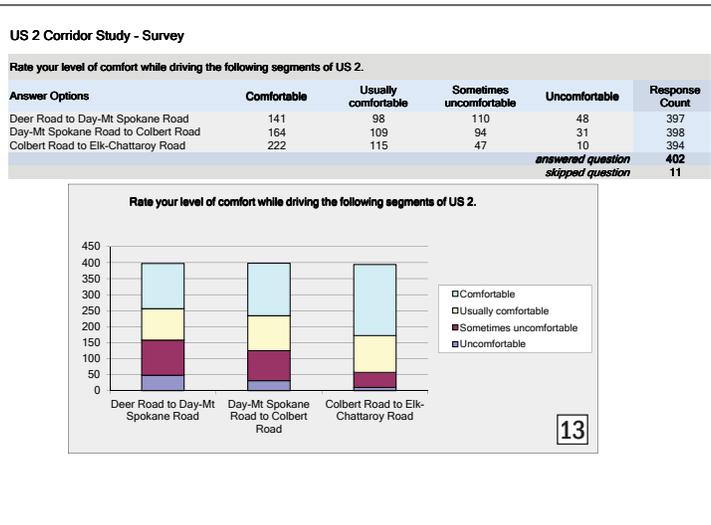
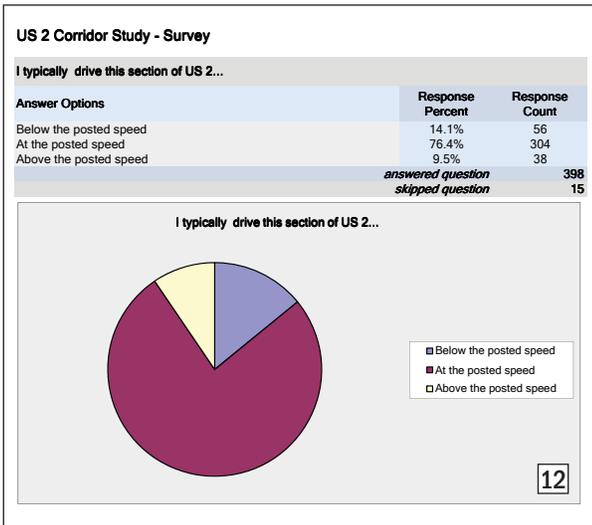
I am able to drive the posted speed limit on US 2 (Deer Rd. to Elk-Chattaroy Rd.):



11

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Meetings & Outcomes

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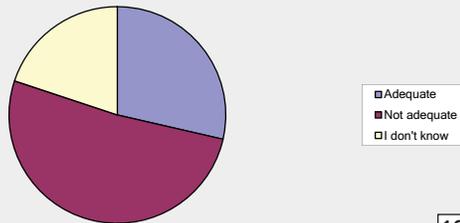
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**US 2 Corridor Study - Survey**

The current level of bicycle accommodations on US 2 between Deer Road to Elk-Chattaroy Road is:

Answer Options	Response Percent	Response Count
Adequate	28.6%	115
Not adequate	51.5%	207
I don't know	19.9%	80
<i>answered question</i>		<b>402</b>
<i>skipped question</i>		<b>11</b>

The current level of bicycle accommodations on US 2 between Deer Road to Elk-Chattaroy Road is:



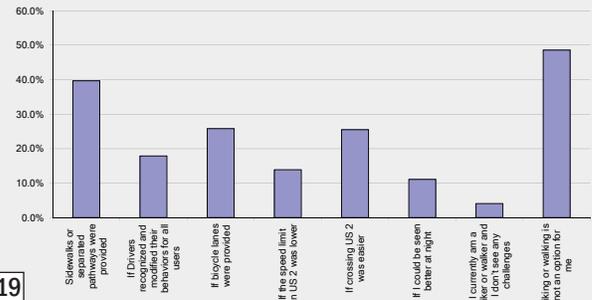
18

**US 2 Corridor Study - Survey**

I would walk or bike more (select all that are appropriate):

Answer Options	Response Percent	Response Count
Sidewalks or separated pathways were provided	39.7%	146
If Drivers recognized and modified their behaviors for all	17.9%	66
If bicycle lanes were provided	25.8%	95
If the speed limit on US 2 was lower	13.9%	51
If crossing US 2 was easier	25.5%	94
If I could be seen better at night	11.1%	41
I currently am a biker or walker and I don't see any	4.1%	15
Biking or walking is not an option for me	48.6%	179
Other (please specify)		28
<i>answered question</i>		<b>368</b>
<i>skipped question</i>		<b>45</b>

I would walk or bike more (select all that are appropriate):



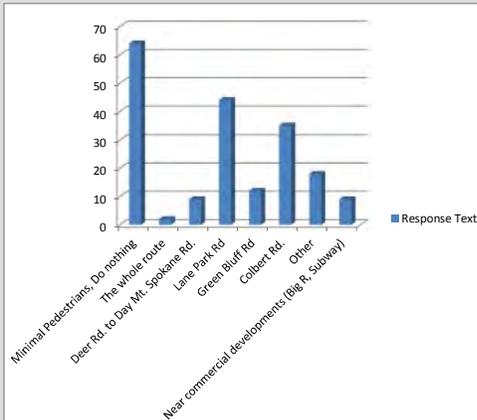
19

**US 2 Corridor Study - Survey**

Are there specific locations where additional or improved crossings for pedestrians should be considered on US 2 (Deer Rd. to Elk-Chattaroy Rd.)?

Answer Options	Response Count
<i>answered question</i>	217
<i>skipped question</i>	196

There currently are pedestrian/bicycle crossing facilities at SR 206 and Day-Mt. Spokane Rd.



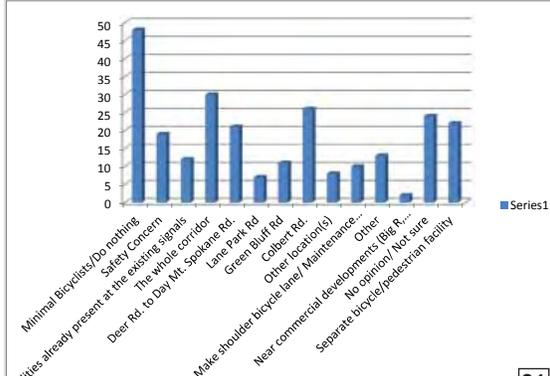
20

**US 2 Corridor Study - Survey**

Are there specific locations where additional or improved bicycle accommodations should be considered on US 2 (Deer Rd. to Elk-Chattaroy Rd.)?

Answer Options	Response Count
<i>answered question</i>	195
<i>skipped question</i>	218

There currently are pedestrian/bicycle crossing facilities at SR 206 and Day-Mt. Spokane Rd.



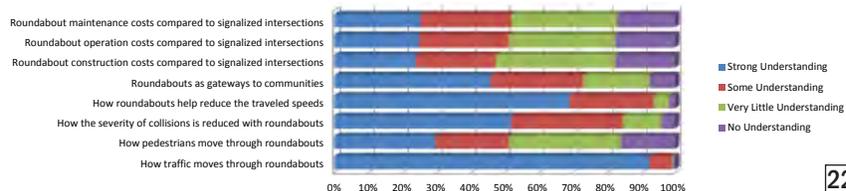
21

**US 2 Corridor Study - Survey**

The following best describes my knowledge regarding roundabouts...

Answer Options	Strong Understanding	Some Understanding	Very Little Understanding	No Understanding	Response Count
How traffic moves through roundabouts	92%	7%	1%	1%	398
How pedestrians move through roundabouts	29%	22%	33%	16%	390
How the severity of collisions is reduced with roundabouts	52%	33%	11%	4%	395
How roundabouts help reduce the traveled speeds	69%	25%	5%	2%	394
Roundabouts as gateways to communities	46%	27%	20%	7%	393
Roundabout construction costs compared to signalized intersections	24%	23%	35%	18%	394
Roundabout operation costs compared to signalized intersections	25%	27%	31%	18%	392
Roundabout maintenance costs compared to signalized intersections	25%	27%	31%	17%	393
<i>answered question</i>					<b>399</b>
<i>skipped question</i>					<b>14</b>

The following best describes my knowledge regarding roundabouts...



22

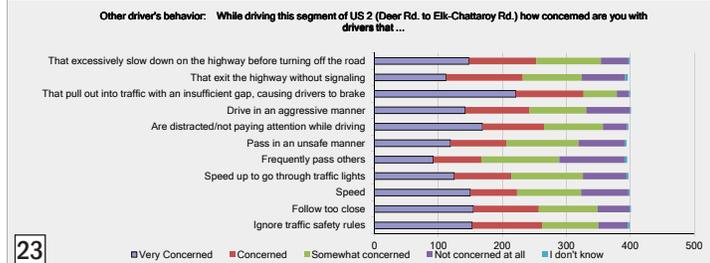
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**US 2 Corridor Study - Survey**

**Other driver's behavior: While driving this segment of US 2 (Deer Rd. to Elk-Chattaroy Rd.) how concerned are you with drivers that ...**

Answer Options	Very Concerned	Concerned	Somewhat concerned	Not concerned at all	I don't know	Rating Average	Response Count
Ignore traffic safety rules	153	109	88	46	3	3.91	399
Follow too close	155	102	92	50	2	3.89	401
Speed	150	73	100	74	2	3.74	399
Speed up to go through traffic lights	125	89	112	68	3	3.67	397
Frequently pass others	92	75	122	102	4	3.38	395
Pass in an unsafe manner	119	87	113	72	3	3.63	394
Are distracted/not paying attention while driving	169	97	91	38	2	3.99	397
Drive in an aggressive manner	142	100	89	68	2	3.78	401
That pull out into traffic with an insufficient gap, causing drivers to brake	221	106	52	19	2	4.31	400
That exit the highway without signaling	112	120	92	68	4	3.68	396
That excessively slow down on the highway before turning off the road	148	105	101	43	2	3.89	399
<i>answered question</i>							<b>402</b>
<i>skipped question</i>							<b>11</b>

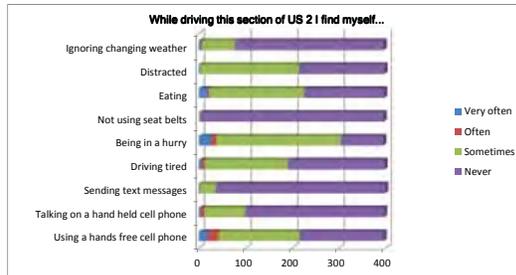


23

**US 2 Corridor Study - Survey**

**While driving this section of US 2 I find myself...**

Answer Options	Very often	Often	Sometimes	Never	Rating Average	Response Count
Using a hands free cell phone	19	23	174	180	1.71	396
Talking on a hand held cell phone	4	8	87	298	1.30	397
Sending text messages	1	2	33	363	1.10	399
Driving tired	6	7	177	208	1.53	398
Being in a hurry	26	11	267	91	1.89	395
Not using seat belts	0	0	3	393	1.01	396
Eating	18	4	203	172	1.63	397
Distracted	3	0	211	184	1.55	398
Ignoring changing weather	5	2	70	319	1.22	396
<i>answered question</i>						<b>400</b>
<i>skipped question</i>						<b>13</b>

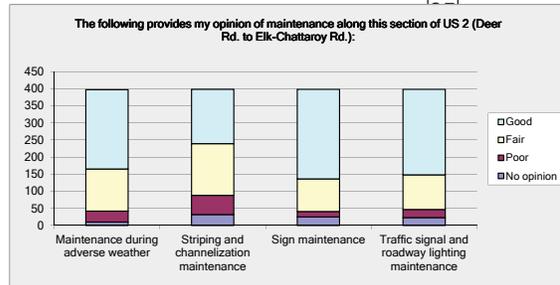


24

**US 2 Corridor Study - Survey**

**The following provides my opinion of maintenance along this section of US 2 (Deer Rd. to Elk-Chattaroy Rd.):**

Answer Options	Good	Fair	Poor	No opinion	Response Count
Maintenance during adverse weather	232	123	32	10	397
Striping and channelization maintenance	159	151	56	32	398
Sign maintenance	262	95	16	25	398
Traffic signal and roadway lighting maintenance	250	101	24	23	398
<i>answered question</i>					<b>399</b>
<i>skipped question</i>					<b>14</b>



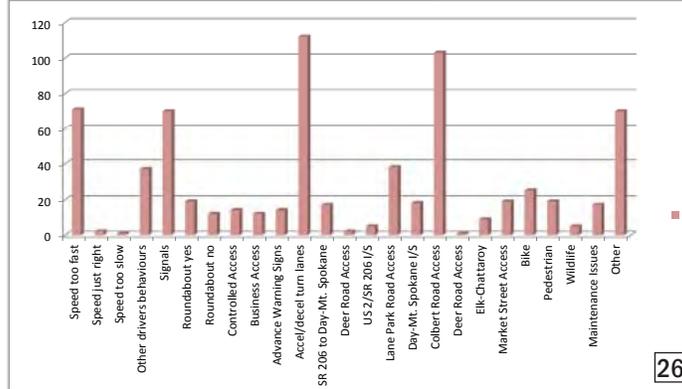
25

**Meetings & Outcomes**

**US 2 Corridor Study - Survey**

What changes would you most like to see along US 2 (Deer Rd. to Elk-Chattaroy Rd.)?

Answer Options	Response Count
<i>answered question</i>	324
<i>skipped question</i>	89

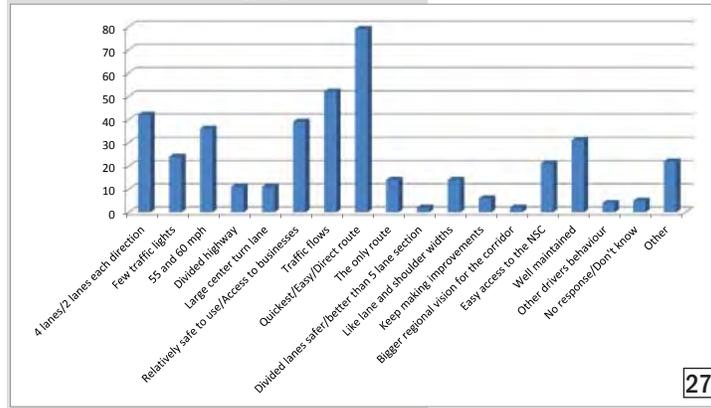


26

**US 2 Corridor Study - Survey**

What do you currently value most about the corridor now?

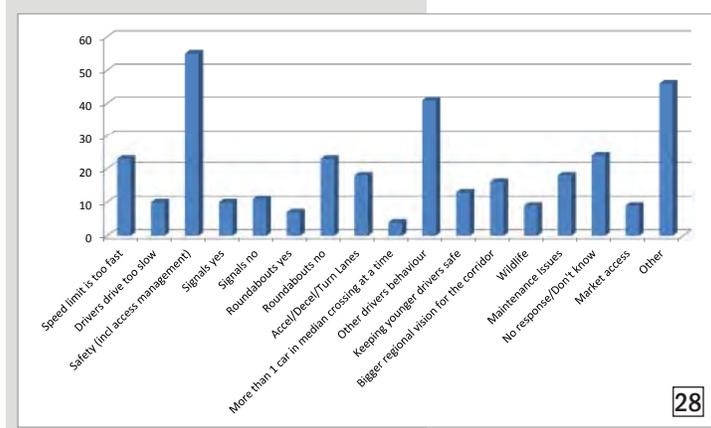
Answer Options	Response Count
<i>answered question</i>	299
<i>skipped question</i>	114



27

Is there anything else about US 2 (Deer Rd. to Elk-Chattaroy Rd.) that you would like to tell us?

Answer Options	Response Count
<i>answered question</i>	237
<i>skipped question</i>	176



28

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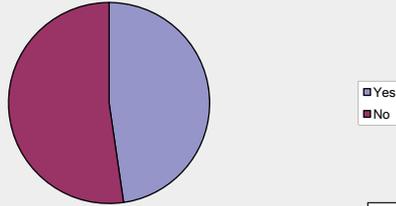
collision data is prohibited from use in any litigation against state, tribal or local government that involves the location(s) mentioned in the collision data.

**US 2 Corridor Study - Survey**

Did you know that WSDOT is required by law to prioritize safety projects for state highways based on potential to reduce fatal and serious collisions?

Answer Options	Response Percent	Response Count
Yes	47.7%	188
No	52.3%	206
<i>answered question</i>		<b>394</b>
<i>skipped question</i>		<b>19</b>

Did you know that WSDOT is required by law to prioritize safety projects for state highways based on potential to reduce fatal and serious collisions?



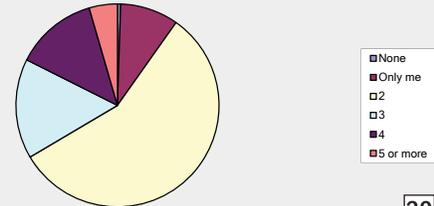
29

**US 2 Corridor Study - Survey**

Including yourself, how many people in your household have a drivers license?

Answer Options	Response Percent	Response Count
None	0.5%	2
Only me	9.3%	37
2	56.7%	225
3	15.9%	63
4	13.1%	52
5 or more	4.5%	18
<i>answered question</i>		<b>397</b>
<i>skipped question</i>		<b>16</b>

Including yourself, how many people in your household have a drivers license?



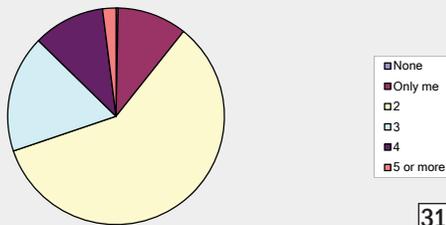
30

**US 2 Corridor Study - Survey**

Including yourself, how many of the licensed drivers in your household have their own vehicle?

Answer Options	Response Percent	Response Count
None	0.3%	1
Only me	10.4%	41
2	59.1%	233
3	17.5%	69
4	10.7%	42
5 or more	2.0%	8
<i>answered question</i>		<b>394</b>
<i>skipped question</i>		<b>19</b>

Including yourself, how many of the licensed drivers in your household have their own vehicle?



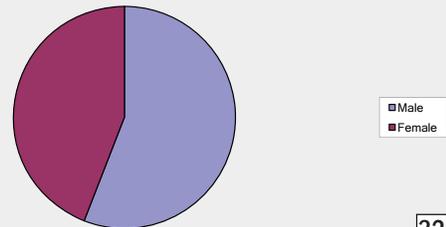
31

**US 2 Corridor Study - Survey**

I am

Answer Options	Response Percent	Response Count
Male	55.9%	218
Female	44.1%	172
<i>answered question</i>		<b>390</b>
<i>skipped question</i>		<b>23</b>

I am



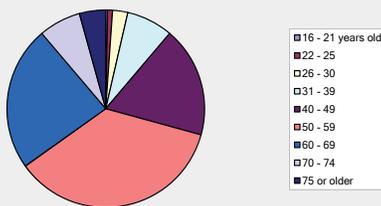
32

**US 2 Corridor Study - Survey**

I am in the following age group:

Answer Options	Response Percent	Response Count
16 - 21 years old	0.3%	1
22 - 25	0.8%	3
26 - 30	2.5%	10
31 - 39	7.6%	30
40 - 49	18.1%	71
50 - 59	35.9%	141
60 - 69	23.7%	93
70 - 74	6.9%	27
75 or older	4.3%	17
<i>answered question</i>		<b>393</b>
<i>skipped question</i>		<b>20</b>

I am in the following age group:



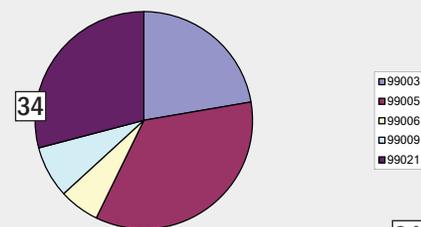
33

**US 2 Corridor Study - Survey**

My residential zip code is:

Answer Options	Response Percent	Response Count
99003	22.3%	81
99005	34.9%	127
99006	6.0%	22
99009	7.7%	28
99021	29.1%	106
Other		33
<i>answered question</i>		<b>364</b>
<i>skipped question</i>		<b>49</b>

My residential zip code is:



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## April 2014 - Public Outreach Outcome Continued:

Question 28 for example asked, **“Is there was anything else about US 2 that you would like to tell us?”** Respondents sent a mixed message about speed limits, with half saying the current speed of (55 mph) was too fast; while one third thought it was too slow. The community also shared a range of opinions about access management, driver behaviors, and maintenance. A large group of respondents did not support providing a roundabout on US 2. Many had various ideas about roadway design, including lane widths, turn lanes, acceleration lanes and/or merge lanes would be beneficial. See Survey Question 28 ([Survey Summary All Plots.pdf](#)).

Question 26 asked, **“What changes would you most like to see along US 2?”** There was a reoccurring theme: the speed limit is too fast, lane geometrics (turn lanes, acceleration lanes and merge lanes) need to be improved or modified, and concerns about driver behavior. Signals and access management at Lane Park Rd. and Colbert Rd. were also brought up. See Survey Question 26 ([Survey Summary All Plots.pdf](#)).

## Public Outreach - Identified and Developed Concepts Chart

### Identified & Developed Concepts: *With partners through workshops, surveys, and community meetings*

Measures: Desirable, Feasible, Acceptable, Initial Safety Focus Area	Initial Safety Focus Area	Desirable	Feasible	Acceptable	Benefit/Cost	Meets Aim
<input checked="" type="checkbox"/> Satisfies measure <input checked="" type="checkbox"/> Does not satisfy measure <input checked="" type="checkbox"/> Not Evaluated		- +				
<b>Modify Highway Access</b>	<input checked="" type="checkbox"/>	■■■■■■■■■■	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.9	<input checked="" type="checkbox"/>
<ul style="list-style-type: none"> <li>No left turns out at Walker Rd, Lane Park Rd, and Moody Rd</li> <li>Right in/right out at driveways</li> <li>Two way left turn lane replaced with raised median</li> </ul>		<i>Potential benefits: Reduced vehicle conflict locations, reduced collisions, and reduced delay</i>				
<b>Advanced Warning Flashers</b>	<input checked="" type="checkbox"/>	■■■■■■■■■■	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5.2	<input checked="" type="checkbox"/>
<ul style="list-style-type: none"> <li>Install Advanced Warning Flashers with existing signal systems at SR 206 and Day Mt Spokane Rd intersections</li> </ul>		<i>Potential benefits: Reduced rear-end collisions by providing drivers additional information describing the operation of the traffic signal</i>				
<b>Speed Reduction/Complete Streets</b>	<input checked="" type="checkbox"/>	■■■■■■■■■■	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.1	<input checked="" type="checkbox"/>
<ul style="list-style-type: none"> <li>Reduce speed limit</li> <li>Reallocate space for enhanced pedestrian and bicycle facilities</li> </ul>		<i>Potential benefits: Improved speed limit compliance, reduction in collision injury severity, improved safety for pedestrians and bicyclists</i>				
<b>Roundabout<sup>1</sup></b>	<input checked="" type="checkbox"/>	■■■■■■■■■■	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.3	<input checked="" type="checkbox"/>
<ul style="list-style-type: none"> <li>Day Mt Spokane Rd: Construct a two-lane roundabout</li> </ul>		<i>Potential benefits: Reduced collision injury severity, lower operating speed, reduced delay, and improved 24 hour traffic flow</i>				
<b>Right Turn Lane</b>	<input checked="" type="checkbox"/>	■■■■■■■■■■	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5.2	<input checked="" type="checkbox"/>
<ul style="list-style-type: none"> <li>Day Mt Spokane Rd: Provide a northbound right-turn lane</li> </ul>		<i>Potential benefits: Reduced rear-end collisions</i>				

<sup>1</sup> Through this study's community workshop and survey a number of participants have expressed concern about a roundabouts effectiveness at this location. Before and after studies in the US show that when measured by safety, societal cost and environmental impacts, roundabouts are often the better choice. When societal costs associated with collisions are accounted for, roundabouts are often less expensive than other intersection control alternatives. Today, there are 220 roundabouts across Washington State and 58 of those are on state highways.



Meetings & Outcomes

## Identified Concepts Not Satisfying Measures & Not Developed: *With partners through workshops, surveys, and community meetings*

Measures: Desirable, Feasible, Acceptable, Initial Safety Focus Area

✓ Satisfies measure    ✗ Does not satisfy measure    ◻ Not Evaluated

Initial Safety Focus Area

Desirable  
- +

Feasible

Acceptable

Benefit/Cost

Meets Aim

### Install a Signal

- Lane Park Rd: Install a signal

**Feasibility:** The analysis of an added signal at US 2 and Lane Park Rd indicates a likely increase in collisions and delay. Factoring installation cost, annual operating cost, and expected benefits results in a negative 4.8 Benefit/Cost ratio

**Acceptability:** Traffic volumes are not predicted to meet warrants necessary to justify installation

### Modify Intersection - The following intersections are outside of the initial phase 1 safety focus area and were therefore not analysed; Current funding is not applicable

- Added turn/acceleration lanes, Signals/Roundabout, Median Treatment

	Initial Safety Focus Area	Desirable	Feasible	Acceptable	Benefit/Cost	Meets Aim
Colbert Rd	✗	■■■■■■■■■■	✗	✗	✗	✗
Market/SR 206	✗	■■■■■■■■■■	✗	✗	✗	✗
Day Mt Spokane Rd	✗	■■■■■■■■■■	✗	✗	✗	✗
Woolard Rd	✗	■■■■■■■■■■	✗	✗	✗	✗
Elk Chattaroy Rd	✗	■■■■■■■■■■	✗	✗	✗	✗
Green Bluff Rd	✗	■■■■■■■■■■	✗	✗	✗	✗

### Develop Alternate Routes

- Improve the local road network by developing alternate routes such as Freya St and Yale Rd

**Feasibility:** Funding is not currently available  
This concept has been shared with Spokane County

Washington State Department of Transportation  
Eastern Region Planning  
January 2016

Meetings & Outcomes

## Other Identified Goals: *With partners through workshops, surveys, and community meetings*

Measures: Desirable, Feasible, Acceptable, Initial Safety Focus Area

✓ Satisfies measure    ✗ Does not satisfy measure    ◻ Not Evaluated

Initial Safety Focus Area

Desirable  
- +

Feasible

Acceptable

Meets Aim

### Rear-End Collisions

- Reduce Rear-End Collisions

**Identified countermeasures:** Modified access management, roundabout, right-turn lane, and advanced warning flasher system developed concepts address this identified concern

### Intersection/Driveway Collisions

- Reduce Intersection/Driveway Collisions

**Identified countermeasures:** Modified access management, roundabout, right-turn lane, and advanced warning flasher system developed concepts address this identified concern

### Wildlife Collisions

- Reduce wildlife collisions

Only fifteen percent of wildlife collisions occurred on the phase one study section; No countermeasures have been identified for this section

### Driver Behavior

- Address Slow Drivers, Speeding Drivers
- Address Aggressive Drivers, Distracted Drivers
- Address Young Drivers, Older Drivers

**Enforcement and Education:** Target Zero - Washington State Strategic Highway Safety Plan is a resource for potential strategies to address fatal and serious injury collisions related to driver behaviors

### Road Maintenance

- Address Pavement Condition, Debris on Road
- Increase Maintenance of Painted Road Markings

Ongoing conversation and coordination to monitor and address

Washington State Department of Transportation  
Eastern Region Planning  
January 2016

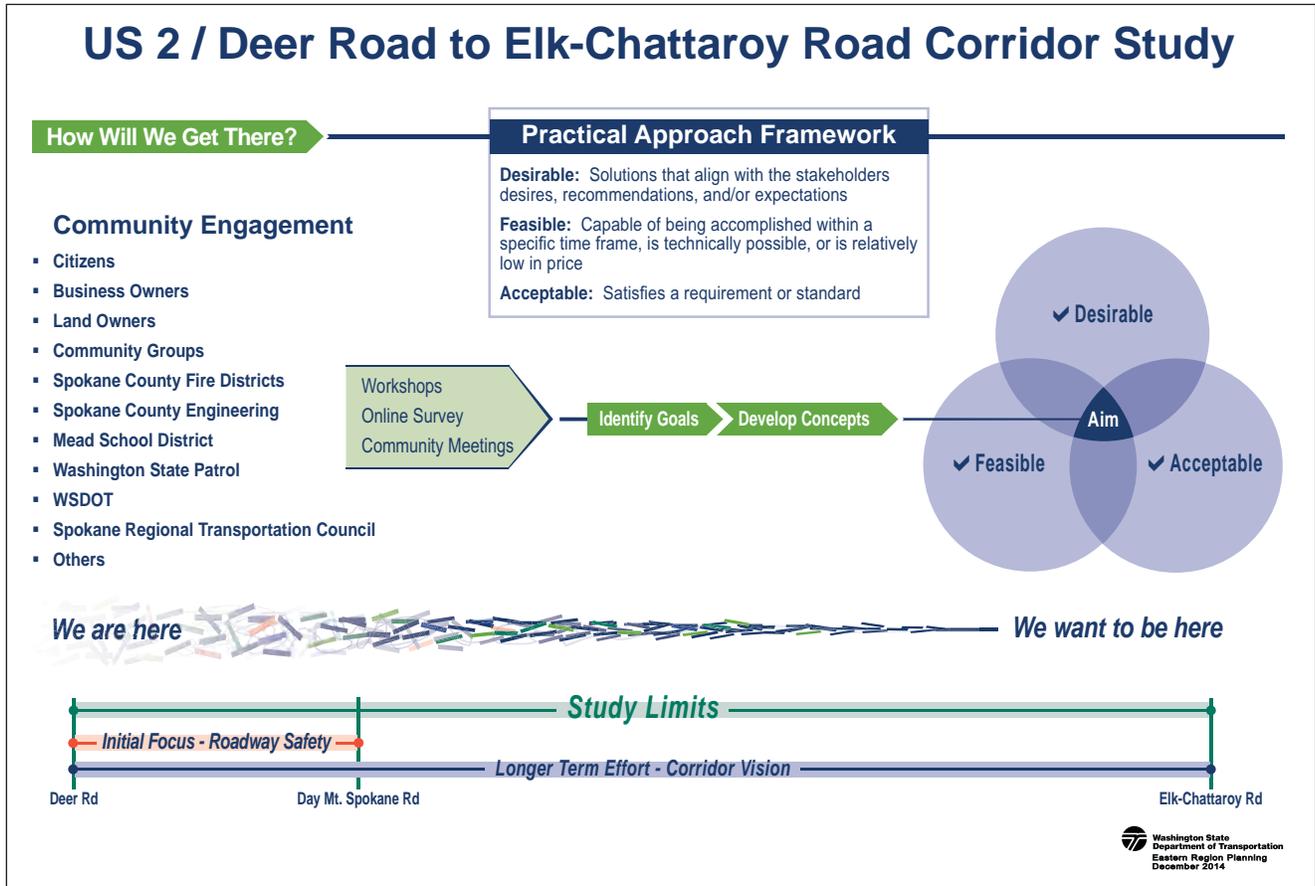
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## April 2014 - Public Outreach Outcome Continued:

The information collected from the online survey and previous meetings or from individual conversations helped all involved to better understand the safety issues, challenges and possible solutions. This in turn enabled WSDOT to prepare applicable educational materials and displays featuring possible conceptual solutions that addressed speed, lane widths, access management and intersection control safety concerns and challenges for the upcoming Public Workshop, held May 2014.

## Public Outreach - Practical Framework Approach Graphic



See Figure 4, in main document for larger and complete Community Engagement - Practical Framework Approach graphic.

# Community Workshop

## May 2014 - Community Workshop - Summary:

The community workshop provided an opportunity to:

- ▶ View displays and handouts of the current roadway configuration along with high level benefit/cost analysis of various improvements having crash reduction potential and complete street features.
- ▶ Engage in a formal presentation featuring possible low cost countermeasures that addressed speed, lane configuration, access management and intersection control.
- ▶ Participate in group breakout brainstorming sessions and share key safety concerns about the corridor with WSDOT. The participants shared personal experiences, observations and ideas to reduce crashes and provide a more “complete street”.

## Community Workshop - Agenda

### Welcome to the US 2 Corridor Workshop.

**Workshop**

- During tonight's workshop you will have the opportunity to:
- Learn more about the purpose of the study and what the study will evaluate.
- Talk with planning staff about key issues.
- Provide specific feedback to help WSDOT better understand the transportation-related issues along the corridor, shape a shared vision for the corridor, and ultimately identify potential low cost corridor improvements that will support the needs of the diverse users of this route.
- Get involved in the planning efforts to develop affordable near-term concepts that improve roadway safety, including access and multi-modal mobility opportunities. Provide input on ways to improve access, reduce fatal and severe collisions and enhance transportation choices along the corridor.
- Review upcoming involvement opportunities and next steps.
- Submit written comments.
- Learn about the corridor survey at: [www.surveymonkey.com/s/US2DeerRoadtoElkChattaroy](http://www.surveymonkey.com/s/US2DeerRoadtoElkChattaroy)
- Learn about the corridor website at: [www.wsdot.wa.gov/Projects/US2/DeerRdElkChattaroyRdCR/](http://www.wsdot.wa.gov/Projects/US2/DeerRdElkChattaroyRdCR/)

**Agenda**

**5:00 pm**  
View display boards around the meeting room.

**5:30 pm**  
Introduction of workshop purpose and goals.  
Discuss:

- Community vision,
- Intersection improvements,
- Access control,
- Pedestrians and bicycles,
- Short term/low cost improvements,
- Speed management/traffic calming

• Corridor planning and

• Current project status and next steps.

**6:00 pm**  
Participants discuss key issues with staff.

**7:30 pm**  
Meeting adjourns.

## Community Workshop - Complete Streets Do You Know the Costs?

### US 2 Corridor Workshop Deer Road to Elk-Charattaroy Road

## Do You Know the Costs?

Items	Costs
Landscaping <i>(native grass and compost).</i>	\$12-13K/AC
Landscaping <i>(native woody plants, grass and compost).</i>	\$27-30K/AC
Traffic Signs <i>(without posts and installation).</i>	\$13 SF
Illumination <i>(add \$10,000 to bring in power).</i>	\$15-\$20K
Bicycle Path <i>(asphalt 12 feet wide).</i>	\$30-\$90K
Channelization <i>(raised concrete).</i>	\$32 LF
Concrete Sidewalk <i>(5 feet wide).</i>	\$40 LF
Traffic Signal <i>(US 2 &amp; SR 206 excludes right-of-way the cost will vary per intersection).</i>	\$2.3M
Roundabout <i>(US 2 &amp; SR 206 excludes right-of-way the cost will vary per intersection).</i>	\$3.5M

Washington State Department of Transportation  
May 1, 2014

Meetings & Outcomes

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# Community Workshop - Participants Key Safety Concerns About Segment

A summary of the workshop participants ideas are included.

US 2 Workshop held May 1, 2014

Area	Accel/Decel lane	Advance warning sign	Reduce the corridor speed limit	Traffic signal	Roundabout	Access management	Wildlife crossing	Extend roadways (usually Freya)	Rumble strips	Pedestrian	Other	
Colbert Rd	13	1	2	4	1		2		1		16	
Corridor		2	3		1						2	
Day-Mt. Spokane	1				2						3	
Deer Rd		2				1		3			1	
E Walker Ave								1				
Elk-Chattaroy	2										5	
Green bluff Rd	1											
Lane Park	2	1		10	6	6		2		1	5	
Moody Rd						1						
SR 206	1	3			3	8		4		1	4	
US 2		1	6		1	2				1	2	
Woolard Rd	4											
<b>Total</b>	<b>24</b>	<b>10</b>	<b>11</b>	<b>14</b>	<b>14</b>	<b>18</b>	<b>2</b>	<b>10</b>	<b>1</b>	<b>3</b>	<b>38</b>	<b>145</b>

Meetings & Outcomes

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# Community Workshop - Existing Roadway Configuration



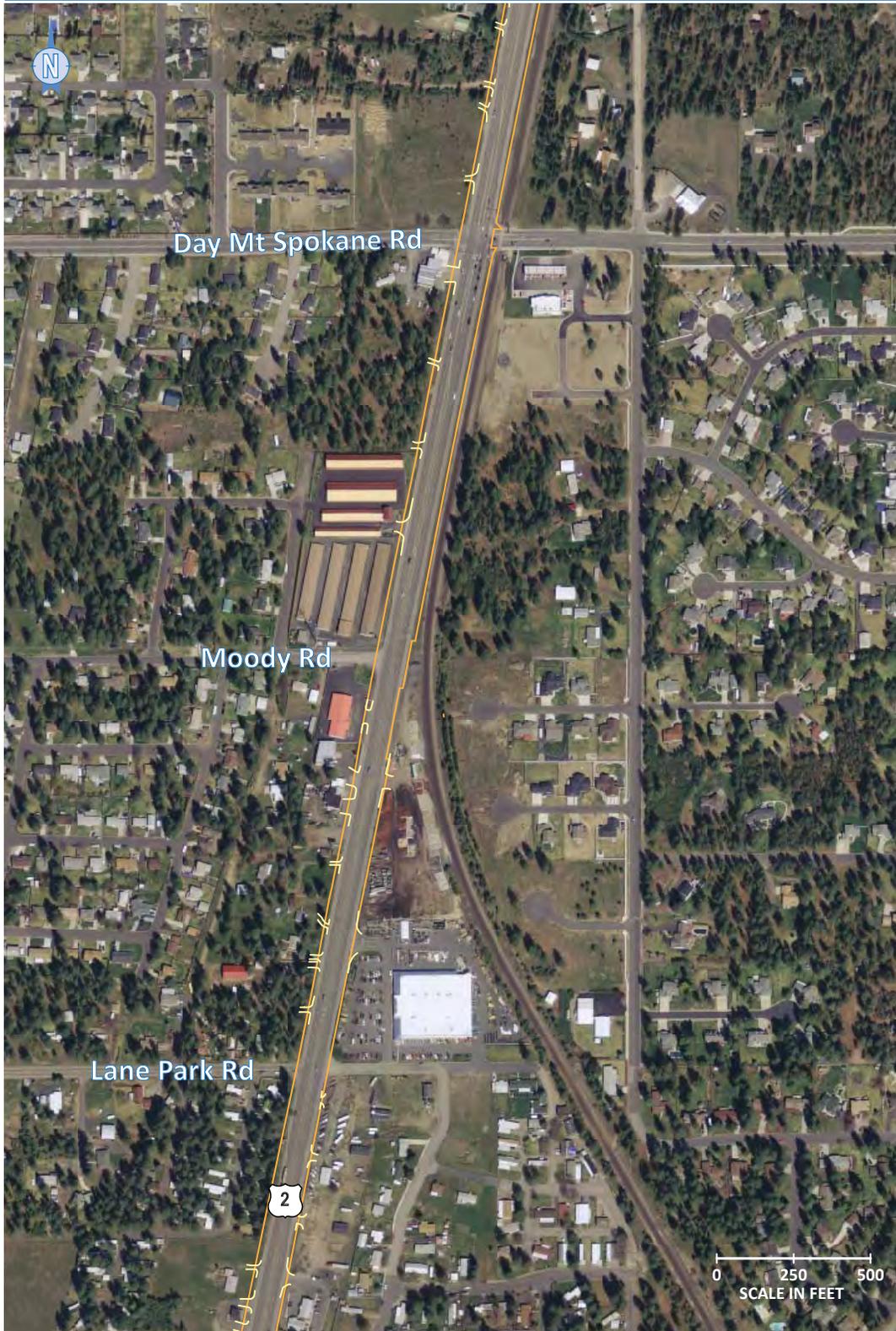
Page 1

Meetings & Outcomes

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# US 2 Corridor Study - Deer Road to Elk Chattaroy Road



Existing Approach      Right-Of-Way

Date: April 2014  
Preliminary Subject to Revision



Meetings & Outcomes

## US 2 Corridor Study - Deer Road to Elk Chattaroy Road

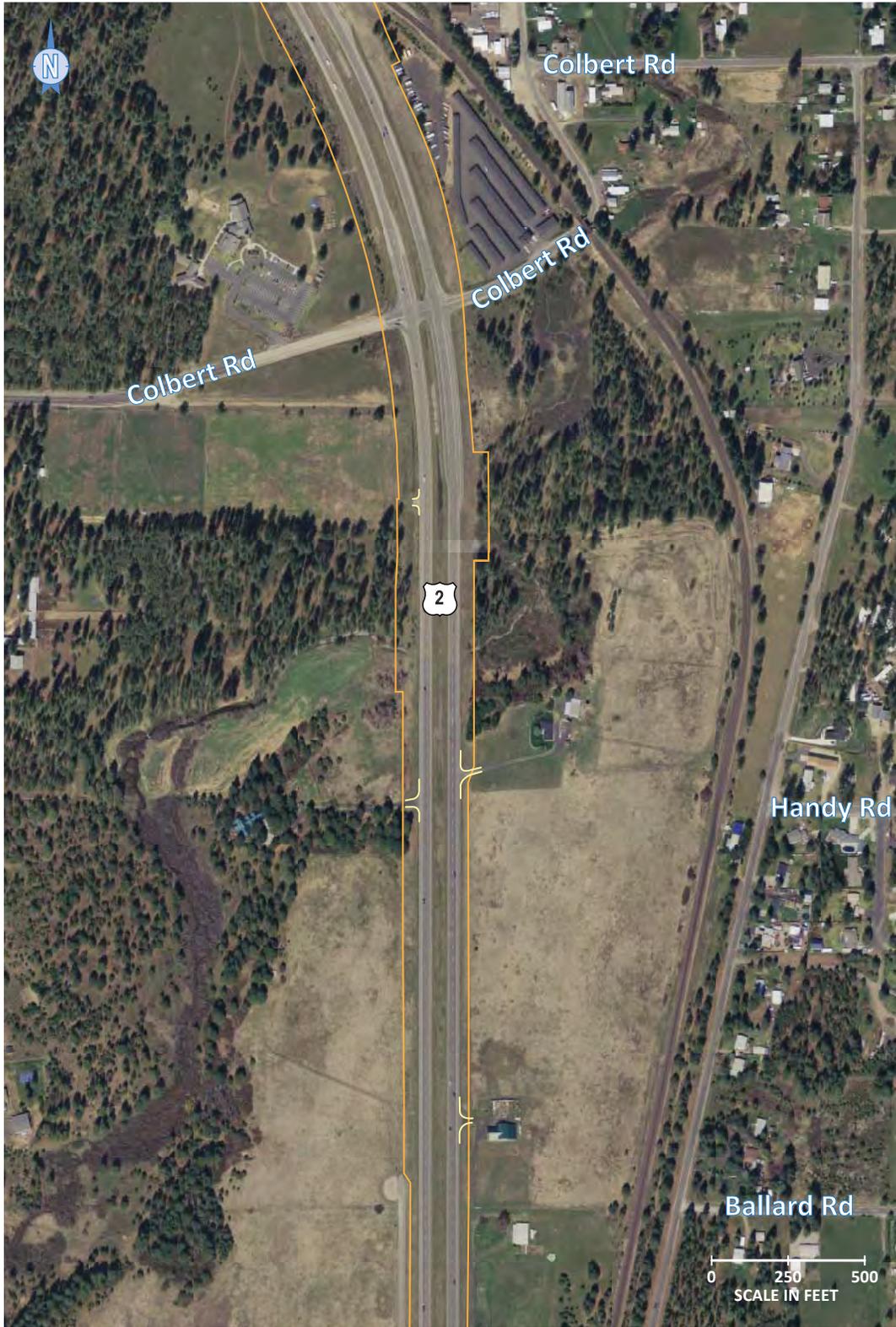


Existing Approach      Right-Of-Way

Date: April 2014  
Preliminary Subject to Revision

Washington State  
Department of Transportation

# US 2 Corridor Study - Deer Road to Elk Chattaroy Road



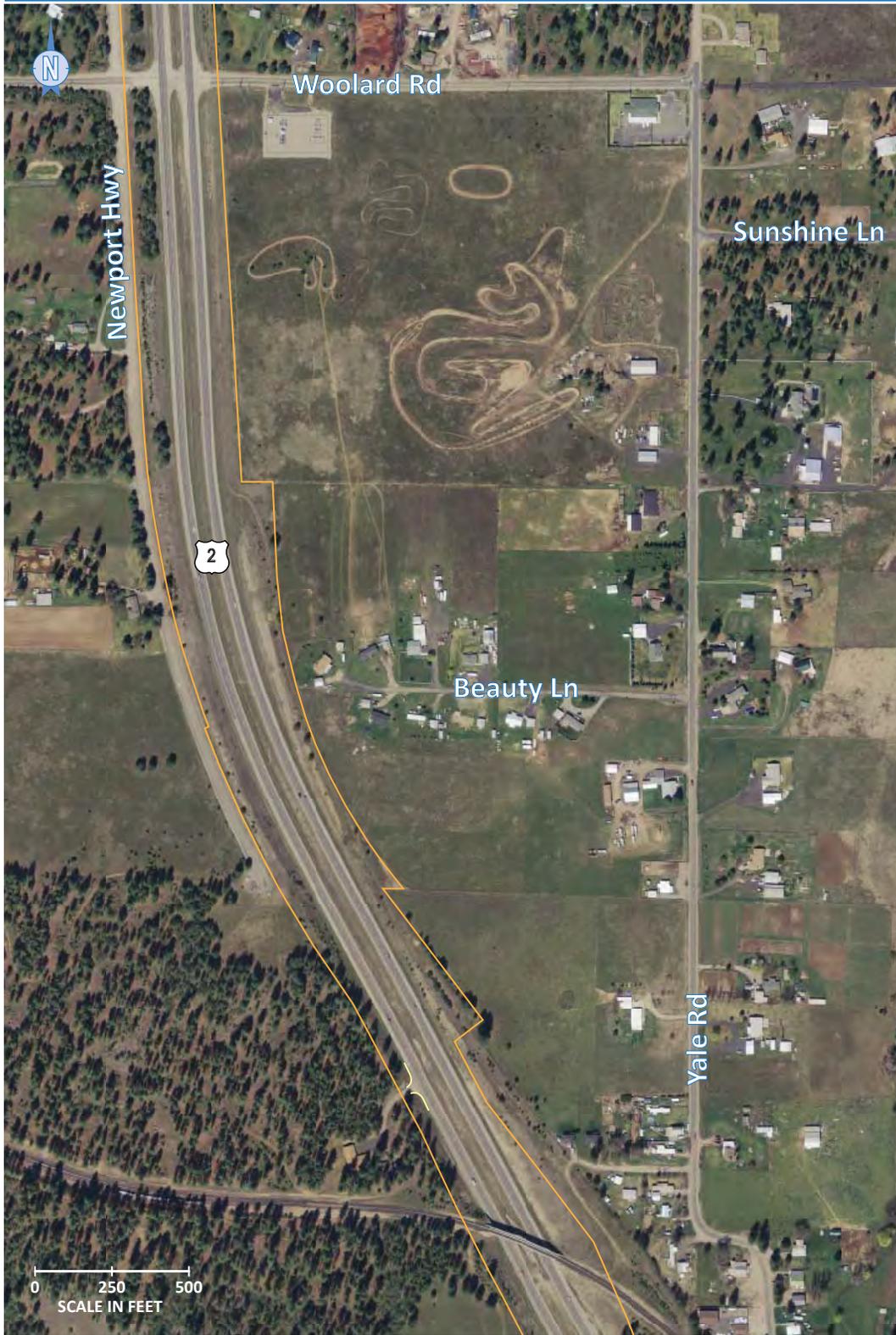
 Existing Approach     Right-Of-Way

Date: April 2014  
Preliminary Subject to Revision

 Washington State  
Department of Transportation

Meetings &  
Outcomes

# US 2 Corridor Study - Deer Road to Elk Chattaroy Road



	Date: April 2014 Preliminary Subject to Revision	
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US 2 Corridor Study - Deer Road to Elk Chattaroy Road



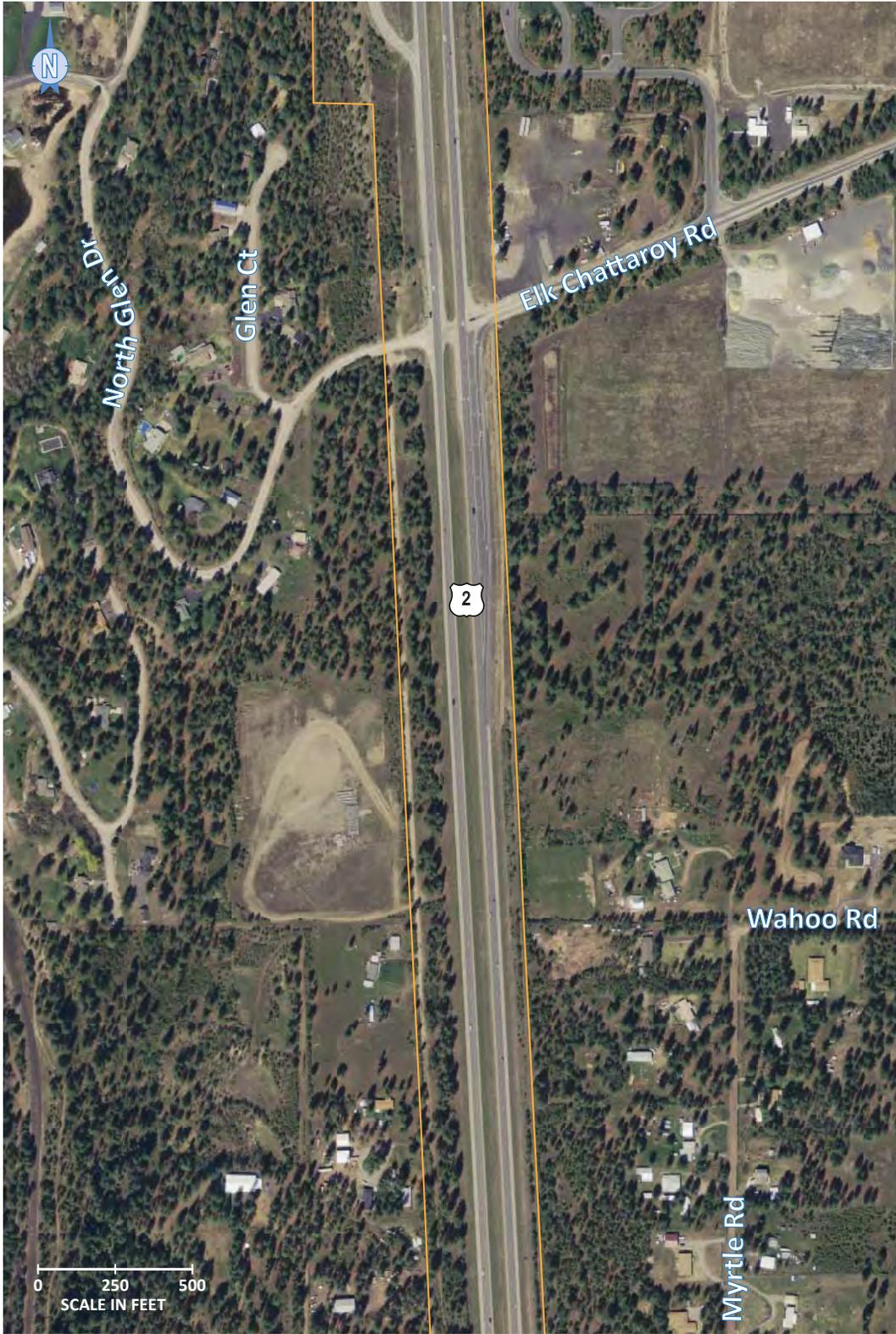
 Existing Approach
  Right-Of-Way

Date: April 2014  
Preliminary Subject to Revision



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# US 2 Corridor Study - Deer Road to Elk Chattaroy Road



Existing Approach      Right-Of-Way

Date: April 2014  
Preliminary Subject to Revision



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## May 2014 - Community Workshop - Outcome:

This community collaboration gave WSDOT and the community a better understanding of potential safety issues, challenges and possible solutions. A wide range of feedback identified a variety of user concerns along with possible solutions to address the corridor safety performance. Based on what we heard, and the feedback we collected from the online survey, WSDOT staff began developing ideas and possible solutions.

A least cost planning approach was used to identify and develop conceptual solutions presented at the first public open house.

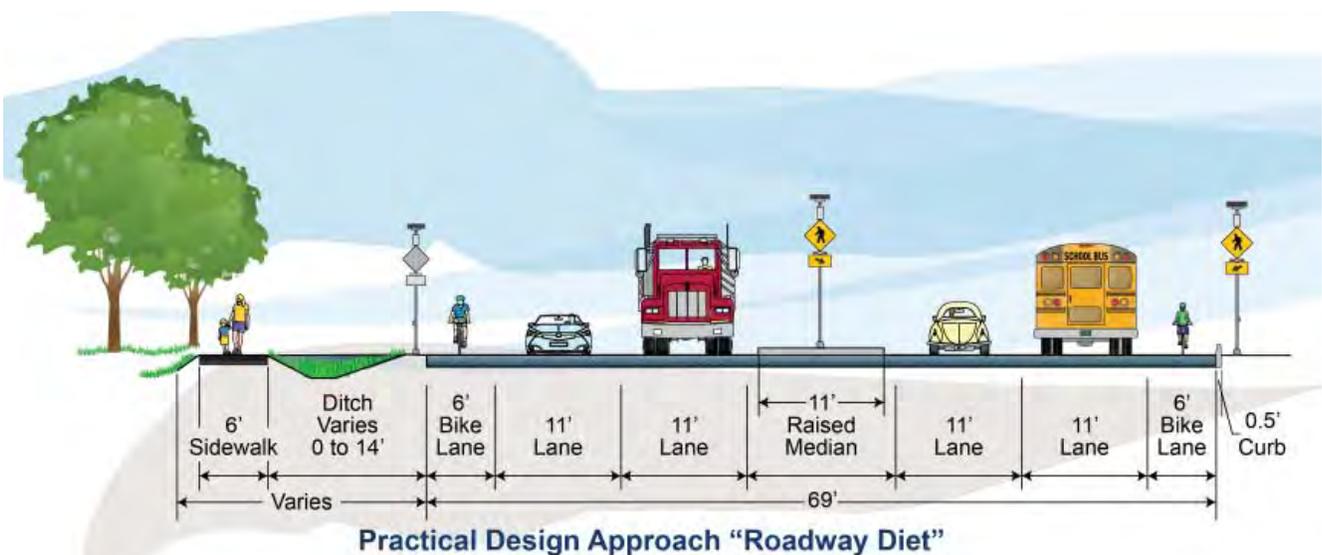
## WSDOT Decision Makers - Meeting

### October 2014 - Meeting with WSDOT Decision Makers - Summary:

Listed below are the planning level analysis and evaluations ER Planning completed and presented at the meeting.

- ▶ Several Different Design Alternatives
- ▶ Emerging Solutions with Safety Benefit to Cost Ratios
- ▶ Level of Service Analysis
- ▶ Cost Estimates
- ▶ Crash Data Analysis
- ▶ Traffic Counts (Included in Traffic Data Section of the Appendix)

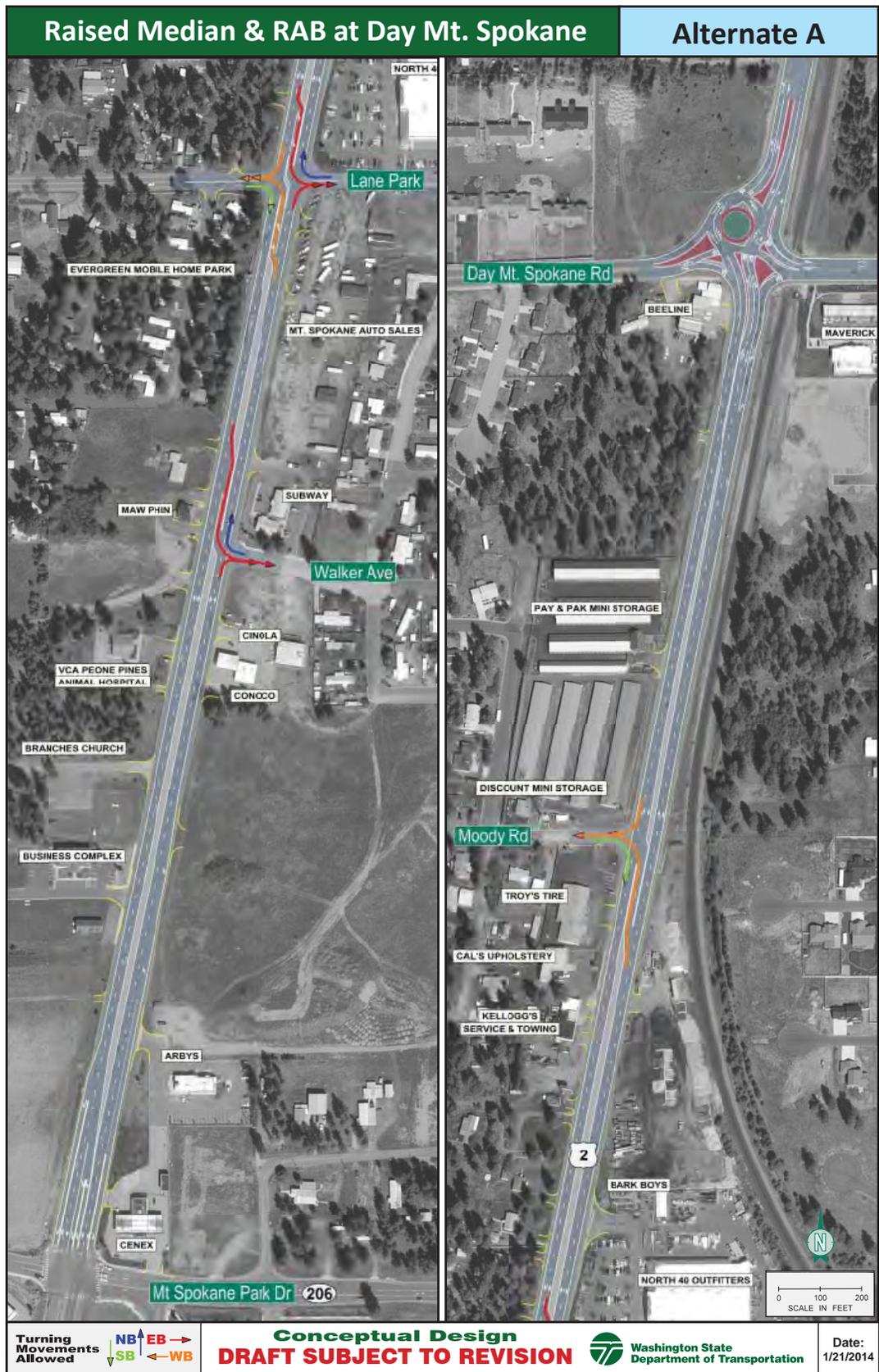
The Planning team presented five alternate design concepts that met low cost practical design principles and provided tangible solutions that addressed the communities concerns regarding crashes, mobility, access, livability and economic development. The concepts included a multitude of solutions: ranging from roundabouts at SR 206, Lane Park and/or Day Mt. Spokane Rd. - to access management, advanced warning signs, lane geometrics improvements or modifications to (turn lanes, acceleration lanes and/or merge lanes). These concepts supported complete street principles including reduced speed limit and reduced lane and shoulder widths to provide pedestrian amenities such as a separated six-foot asphalt sidewalk, and a bike lane by restriping the existing the shoulder.



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# Alternate Design Concepts



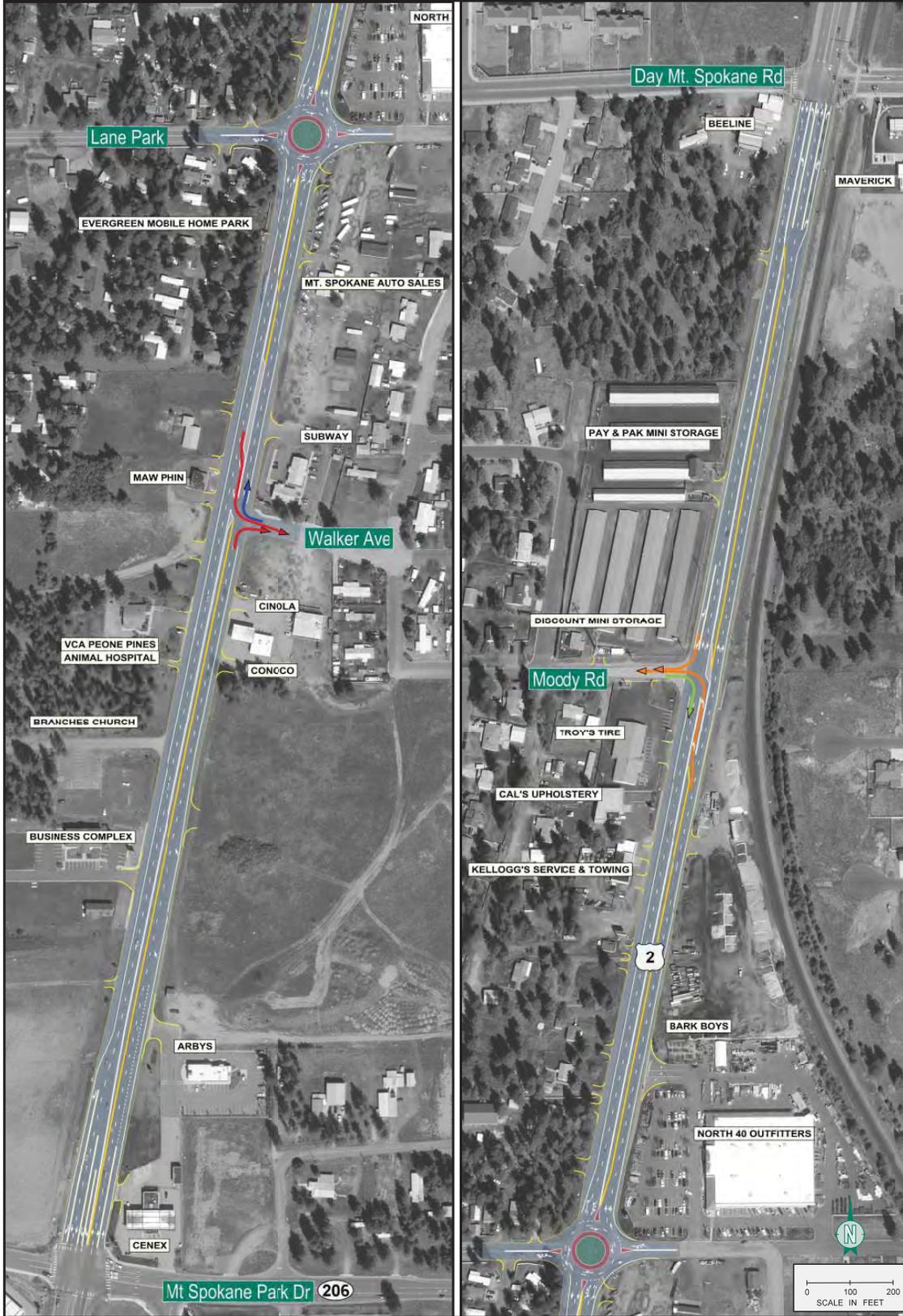
Meetings & Outcomes

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# Raised Median & Roundabout at Lane Park

# Alternate B



Meetings & Outcomes



**Conceptual Design**  
**DRAFT SUBJECT TO REVISION**



Date:  
1/21/2014

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# Raised Median & Yale Road Paved

# Alternative C1



Meetings & Outcomes

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**Raised Median & SB Out at Walker** **Alternate C2**



**Turning Movements Allowed**  
 NB ↑ EB →  
 SB ↓ WB ←

**Conceptual Design**  
**DRAFT SUBJECT TO REVISION**

Washington State Department of Transportation

Date: 1/21/2014

Federal highway safety laws require the state to create this collision database for use in obtaining federal safety improvement funds. Under Section 409 of Title 23 of the United States Code,

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# Raised Median & Roundabout at SR 206

# Alternate D



Turning Movements Allowed  
 NB ↑ EB →  
 SB ↓ WB ←

**Conceptual Design**  
**DRAFT SUBJECT TO REVISION**

Washington State Department of Transportation

Date: 1/21/2014

Meetings & Outcomes

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US 2 Deer Road Elk-Chattaroy Study - Options															
Option Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Comment
Do nothing.	X														Funds have been dedicated to improve safety on US 2 between SR 206 and Day-Mt. Spokane.
Cut off all median access between SR 206 and Day-Mt. Spokane		X	X	X	X	X	X	X	X	X	X	X	X	X	
U turns at US 2/SR 206 and US 2/Day-Mt. Spokane		X	X	X	X	X	X	X	X	X	X	X	X	X	
Construct a NB US 2 Right turn only lane at Day-Mt. Spokane		X	X	X	X	X	X	X	X	X	X	X	X	X	
Allow NB and SB US 2 left turns only at Lane Park			X	X	X	X	X	X	X	X	X	X	X	X	
Construct a roundabout at SR 206															
Construct a roundabout at Lane Park					X			X							
Construct a roundabout at Day-Mt. Spokane						X				X		X		X	
Allow SB US 2 left turns at Walker						X					X	X			
Allow SB US 2 left turns at Walker, allow WB Walker to turn left onto SB US 2							X		X				X	X	
Allow NB US 2 left turns at WB Moody											X	X	X	X	
Construct Advance Warning signs at US 2/SR 206		X	X	X	X	X	X	X	X	X	X	X	X	X	This is a possibility for all of the options, except do nothing.
Construct Advance Warning signs at US 2/Day-Mt. Spokane		X	X	X	X	X	X	X	X	X	X	X	X	X	This is a possibility for all of the options, except do nothing.
Shared use path		X	X	X	X	X	X	X	X	X	X	X	X	X	This is a possibility for all of the options, except do nothing.

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# Level of Service - Chart

**DRAFT**

LOS Summary

Intersection	Existing Network			Alternate A_ Walsh			Alternate B			Alternate C1			Alternate C2			Alternate D				
	Type	Time	LOS	Delay	Type	Time	LOS	Delay	Type	Time	LOS	Delay	Type	Time	LOS	Delay	Type	Time	LOS	Delay
US 2 & Deer Rd	TWSC	AM	C	18.0	TWSC	AM	C	18.0	TWSC	AM	C	18.0	TWSC	AM	C	18.0	TWSC	AM	C	18.0
		PM	B	10.0		PM	B	10.0		PM	B	10.0		PM	B	10.0		PM	B	10.0
US 2 & SR 206	Signal	AM	B	15.8	Signal	AM	B	16.5	Signal	AM	B	16.2	Signal	AM	B	16.2	RAB***	AM	B	14.5
		PM	D	47.9		PM	D	52.3		PM	D	54.5		PM	D	48.9		PM	B	12.8
US 2 & Walker Rd	TWSC	AM	B	11.9	TWSC*	AM	A	9.4	TWSC*	AM	A	9.4	TWSC*	AM	B	12.2	TWSC*	AM	A	9.4
		PM	E	50.0		PM	C	18.5		PM	C	18.5		PM	E	42.9		PM	C	18.5
US 2 & Lane Park	TWSC	AM	B	13.1	TWSC*	AM	C	19.8	RAB**	AM	A	8.4	TWSC*	AM	B	13.3	TWSC*	AM	B	13.4
		PM	E	39.6		PM	B	14.4		PM	A	7.9		PM	B	14.4		PM	B	14.4
US 2 & Big R Approach	TWSC	AM	B	10.8	TWSC*	AM	A	8.7	TWSC*	AM	B	13.9	TWSC*	AM	B	14.1	TWSC*	AM	B	14.1
		PM	C	25.0		PM	B	10.6		PM	A	9.2		PM	A	9.3		PM	A	9.3
US 2 & Moody	TWSC	AM	B	13.7	TWSC*	AM	C	17.8	TWSC*	AM	B	13.9	TWSC*	AM	B	14.1	TWSC*	AM	B	14.1
		PM	A	9.5		PM	B	10.8		PM	A	9.2		PM	A	9.3		PM	A	9.3
US 2 & Day Mt Spokane	Signal	AM	C	27.2	RAB**	AM	B	14.1	Signal	AM	C	25.3	Signal	AM	C	25.6	Signal	AM	C	24.1
		PM	C	24.6		PM	A	8.6		PM	B	16.3		PM	B	16.4		PM	B	17.6

**Notes:**

- 1) Two-way-stop-control (TWSC) delay determined by HSC201.0, Signalized delay by Synchro/SimTraffic 8, and Roundabout (RAB) delay by SIDRA 6;
- 2) Results reflect use of 2014 count data unless noted;
- 3) TWSC = fully functional TWSC with TWLTL;
- 4) TWSC\* = minor leg lefts onto US 2 prohibited;
- 5) TWSC\*\* = analysis not run since volumes are lower or equivalent to Alternate A;
- 6) RAB\*\* = used signal delay criteria for LOS and reported overall intersection delay;
- 7) RAB\*\*\* = results from Larry Frostad's analysis;
- 8) See G:\US 2\2013 US 2 Bpm Study SR 206 to Elk-Chattaroy\Modeling Volumes for Analysis for volumes;
- 9) See G:\US 2\2013 US 2 Bpm Study SR 206 to Elk-Chattaroy\Modeling for analysis worksheets;
- 10) # = used results for 13.6 inscribed diameter RAB.

Intersection	Alternate A_ Walsh Design Life		
	Existing/Historical Volumes	Design Life (1% Growth/Year)	Design Life (1% Growth/Year)
US 2 & Day Mt Spokane (Using 2014 Counts)	RAB	AM	14.1
		PM	15.2
US 2 & Day Mt Spokane (Incorporating 2001 and 2006 Counts)	RAB	AM	8.6
		PM	10.5
US 2 & Day Mt Spokane (Incorporating 2001 and 2006 Counts)	RAB	AM	9.4
		PM	11.8

Notes: 2001 and 2006 counts replaced 2014 counts for NBR, WBL, WBR, and SBL due to Spokane County bridge replacement project on Bruce Rd just south of SR 206. Design life defined by degree of saturation of 0.85, not LOS. Used signal delay criteria and reported overall intersection delay.

**Meetings & Outcomes**

# Level of Service - Chart

## Meetings & Outcomes

US 2 Deer Road Elk-Chattaroy Study Estimate Menu (9/18/2014)															
Available Construction Funds \$4,089,500															
Available ROW Funds \$514,000															
PE Funds \$4,698,500															
Total \$5,212,500															
Alternative	Item	Quantity	Unit/Price	Total	Subtotal	30%	Engineering 25%	Contingencies 4%	Total	Rounded Total	Spokane A - (RAB - Day Mt)	Alternate B - (Raised Median & RAB Lane Park)	Alternate C1 - (Raised Median & Yale Road Paved)	Alternate C2 - (Raised Median & SB Out at Walker)	Alternate D - (RAB - SR 206)
All	Removing Paint Line - (Entire Project)	31,000	\$1	\$31,000	\$1,650	\$1,279	\$2,959	\$908	\$3,806	\$3,806	\$23,600	\$23,600	\$23,600	\$23,600	\$23,600
<b>PREPARATION</b>															
<b>STRUCTURE</b>															
B	Bridge Railing Type BP - (Shared Use Path)	1,650	\$65	\$107,250	\$10,725	\$10,246	\$19,236	\$5,899	\$13,374	\$13,374	\$140,200	\$140,200	\$140,200	\$140,200	\$140,200
<b>HOT MIX ASPHALT</b>															
C1	Paving Yale Road & Conoco to Walker Vicinity	1	\$9,800	\$9,800	\$9,379	\$17,577	\$5,374	\$1,160	\$11,600	\$11,600	\$140,200	\$140,200	\$140,200	\$140,200	\$140,200
Option	Paving Freya and Highland Roads	1	\$320,000	\$320,000	\$310,624	\$57,394	\$17,601	\$4,576	\$457,600	\$457,600	\$1,400,000	\$1,400,000	\$1,400,000	\$1,400,000	\$1,400,000
<b>TRAFFIC</b>															
All	Paint Line - (Entire Project)	24,000	\$0.15	\$3,600	\$360	\$245	\$464	\$138	\$518	\$518	\$5,200	\$5,200	\$5,200	\$5,200	\$5,200
B	Paint Line (Additional for Shared Use Path)	6,800	\$0.15	\$1,020	\$95	\$68	\$129	\$39	\$142	\$142	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400
All	Signage	1	\$10,000	\$10,000	\$10,000	\$9,571	\$17,936	\$5,500	\$14,800	\$14,800	\$143,100	\$143,100	\$143,100	\$143,100	\$143,100
C1 & C2	Advance Warning Signs - (If There is a RAB at SR 206 or Day Mt Spokane)	4	\$25,000	\$100,000	\$5,000	\$4,785	\$8,968	\$2,754	\$7,500	\$7,500	\$71,600	\$71,600	\$71,600	\$71,600	\$71,600
B	Low Profile Barrier Curb Type 1 - (Shared Use Path)	1,650	\$1,500	\$2,475	\$48	\$7,200	\$4,035	\$1,238	\$13,260	\$13,260	\$97,300	\$97,300	\$97,300	\$97,300	\$97,300
A, B & D	Low Profile Barrier Curb Transition A - (Shared Use Path)	15	\$1,500	\$22,500	\$2,250	\$7,200	\$4,035	\$1,238	\$13,260	\$13,260	\$97,300	\$97,300	\$97,300	\$97,300	\$97,300
All-Except B	Extended Curb Type 6, B (Bar. Cement Concrete) Traffic Island	8,500	\$6	\$51,000	\$6,800	\$6,208	\$10,219	\$3,140	\$16,367	\$16,367	\$400,500	\$400,500	\$400,500	\$400,500	\$400,500
All-Except B	Traffic Island (Asphalt Cap)	7,000	\$40	\$280,000	\$28,000	\$26,796	\$50,219	\$15,401	\$40,416	\$40,416	\$400,500	\$400,500	\$400,500	\$400,500	\$400,500
All-Except B	Dual Face Concrete Traffic Curb - (Traffic Island) 24"	1,100	\$20	\$22,000	\$3,190	\$3,039	\$5,721	\$1,755	\$4,618	\$4,618	\$45,700	\$45,700	\$45,700	\$45,700	\$45,700
B - Only	Extended Curb Type 6, B (Bar. Cement Concrete) Traffic Island	1,300	\$6	\$7,800	\$1,040	\$985	\$1,665	\$512	\$1,602	\$1,602	\$16,900	\$16,900	\$16,900	\$16,900	\$16,900
B - Only	Traffic Island (Asphalt Cap)	420	\$40	\$16,800	\$1,680	\$1,608	\$3,013	\$924	\$2,405	\$2,405	\$24,100	\$24,100	\$24,100	\$24,100	\$24,100
B - Only	Dual Face Concrete Traffic Curb - (Traffic Island) 24"	5,000	\$29	\$145,000	\$14,500	\$13,877	\$26,006	\$7,975	\$20,738	\$20,738	\$207,400	\$207,400	\$207,400	\$207,400	\$207,400
All	Traffic Control (not including roundabout items)	1	\$25,000	\$25,000	\$2,300	\$2,393	\$4,484	\$1,375	\$3,768	\$3,768	\$35,800	\$35,800	\$35,800	\$35,800	\$35,800
B	Plastic Bicycle Lane Symbol - (Shared Use Path)	10	\$85	\$850	\$85	\$81	\$152	\$47	\$1,216	\$1,216	\$1,300	\$1,300	\$1,300	\$1,300	\$1,300
All	Plastic Traffic Arrows	46	\$55	\$2,530	\$253	\$242	\$454	\$139	\$3,618	\$3,618	\$3,700	\$3,700	\$3,700	\$3,700	\$3,700
<b>OTHER ITEMS</b>															
Option	Restriping Right Turn Lane at Day Mt Spokane Only	1	\$4,300	\$4,300	\$438	\$419	\$786	\$241	\$6,264	\$6,264	\$6,300	\$6,300	\$6,300	\$6,300	\$6,300
Option	Shared Use Path (Includes Path, Painting & Signage)	1	\$376,200	\$376,200	\$37,620	\$37,620	\$76,000	\$23,700	\$600,000	\$600,000	\$600,000	\$600,000	\$600,000	\$600,000	\$600,000
Option	HMA Path with Seals	1	\$600,000	\$600,000	\$60,000	\$60,000	\$120,000	\$36,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000
All-Except A	Replace Signal Mast and Arm - (Right Turn Lane Day Mt Spokane)	1	\$15,000	\$15,000	\$1,500	\$1,436	\$2,690	\$833	\$2,145	\$2,145	\$21,500	\$21,500	\$21,500	\$21,500	\$21,500
A, B & D	Roundabout (Bach) Day Mt, Lane Park or SR 206	1	\$2,400,000	\$2,400,000	\$240,000	\$240,000	\$480,000	\$144,000	\$600,000	\$600,000	\$2,400,000	\$2,400,000	\$2,400,000	\$2,400,000	\$2,400,000
All	Unknown - Environment, Maintenance, Roadside Cleanup	1	\$10,000	\$10,000	\$1,000	\$1,000	\$2,000	\$600	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
<b>BELOW THE LINE ITEMS</b>															
All-Except A	RR Crossing Arm (Right Turn Lane Day Mt Spokane)	1	\$250,000	\$250,000	\$25,000	\$25,000	\$50,000	\$15,000	\$100,000	\$100,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000
<b>RIGHT OF WAY ITEMS</b>															
A	Day Mt RAB, Baseline - Total Take (SW Corner US 2 & Day Mt Spokane) Right-of-Way for Parcel 6-02338	1	\$986,000	\$986,000	\$98,600	\$98,600	\$197,200	\$59,160	\$1,570,800	\$1,570,800	\$1,570,800	\$1,570,800	\$1,570,800	\$1,570,800	\$1,570,800
A	Day Mt RAB, Baseline - Replace Approaches (SW Corner US 2 & Day Mt Spokane 6-02338)	1	\$45,000	\$45,000	\$4,500	\$4,500	\$9,000	\$2,700	\$18,000	\$18,000	\$45,000	\$45,000	\$45,000	\$45,000	\$45,000
Option	Day Mt RAB, NW Corner - Total Take - Vacant (Right-of-Way for Parcel 6-02338)	1	\$18,700	\$18,700	\$1,870	\$1,870	\$3,740	\$1,122	\$7,340	\$7,340	\$18,700	\$18,700	\$18,700	\$18,700	\$18,700
B	Day Mt RAB, NW Corner - Total Take - Vacant (Right-of-Way for Parcel 6-02338)	1	\$18,700	\$18,700	\$1,870	\$1,870	\$3,740	\$1,122	\$7,340	\$7,340	\$18,700	\$18,700	\$18,700	\$18,700	\$18,700
B	Lane Park RAB - R/W for (RAB Footprint)	1	\$75,000	\$75,000	\$7,500	\$7,500	\$15,000	\$4,500	\$30,000	\$30,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
B	Lane Park Replacement Approaches (RAB at Lane Park)	1	\$45,000	\$45,000	\$4,500	\$4,500	\$9,000	\$2,700	\$18,000	\$18,000	\$45,000	\$45,000	\$45,000	\$45,000	\$45,000
D	SR 206 RAB - R/W for (RAB Footprint)	1	\$11,150,000	\$11,150,000	\$1,115,000	\$1,115,000	\$2,230,000	\$669,000	\$13,380,000	\$13,380,000	\$11,150,000	\$11,150,000	\$11,150,000	\$11,150,000	\$11,150,000
D	SR 206 Replacement Approaches (RAB at SR 206)	1	\$45,000	\$45,000	\$4,500	\$4,500	\$9,000	\$2,700	\$18,000	\$18,000	\$45,000	\$45,000	\$45,000	\$45,000	\$45,000
<b>Right of Way Totals</b>															
Available Construction Funds \$3,806,000															
Available ROW Funds \$1,191,000															
Total Available Construction Funds \$5,000,000															
Balance \$976,700															
Total Available Construction Funds \$5,000,000															
Balance \$976,700															
Total Available Construction Funds \$5,000,000															
Balance \$976,700															

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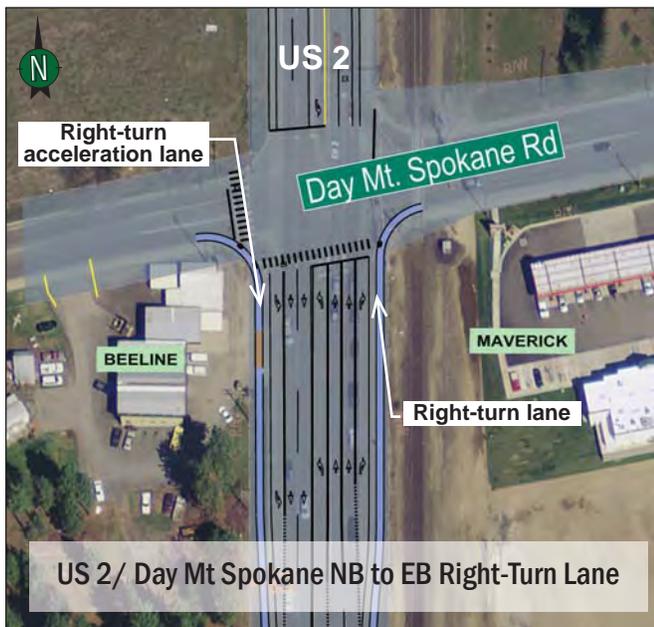
## October 2014 - Meeting with WSDOT Decision Makers - Outcome:

Following the planning level analysis and the development of concepts, the internal WSDOT technical stakeholder team recommended advancing the following concepts.

- ▶ **Access Management**, \$543,500 – Safety Benefit-Cost 1.9
- ▶ **Advanced Warning Signs**, \$71,600 – Safety Benefit-Cost 6.4
- ▶ **US 2/Day Mt. Spokane NB to EB Right Turn Lane**, \$28,000 – Safety Benefit-Cost 5.2
- ▶ **Speed Reduction**, \$600,000 – Safety Benefit-Cost 1.1
- ▶ **Roundabout – US 2/Day Mt. Spokane**, \$3,712,000 – Safety Benefit-Cost 1.1



As a result of further internal WSDOT discussions of the public feedback and the low benefit-cost, the roundabout concepts at SR 206 and/or Lane Park were eliminated from the alternative concepts and the rapid flashing beacons emerged as a possible crash reduction solution and were presented at the public open house, held in December 2014.



## Spokane County Commissioners - Meeting

### October 2014 - Spokane County Commissioners - Summary:

WSDOT presented the emerging solutions (listed in the previous section October 2014 – “Meeting with ER Decision Makers” in this appendix, to include the addition of rapid flashing beacons) to the County Commissioners.

### October 2014 - Spokane County Commissioners - Outcome:

The commissioner generally concurred with the proposed concepts including access management. There was concern about any proposed roundabout along the US 2 corridor segment.

## Fire Districts 4 and 9 - Meeting

### December 2014 - Fire Districts 4 and 9 - Summary:

WSDOT presented the emerging solutions (listed in the previous section October 2014 – “Meeting with ER Decision Makers” in this appendix) to the Fire District representatives.

### December 2014 - Fire Districts 4 and 9 - Outcome:

The fire district staff concurred with the emerging solutions. During the meeting they requested crossing opportunities at select locations through the raised median channelization. We agreed to provide the crossings.

## Business Owners - Meeting

### December 2014 - Business Owners - Summary:

WSDOT presented the emerging solutions (listed in the previous section October 2014 – “Meeting with ER Decision Makers” in this appendix) to the business owners within Segment 1.

## December 2014 - Business Owners - Outcome:

WSDOT to meet one-on-one with business owners on site to share the proposed concepts. We particularly discussed the proposed access management and business owners’ concerns regarding circulation and business impacts. After a few one-on-one meetings some of the business owner requested WSDOT to meet with a newly formed business group to discuss the emerging solutions.

## First Group Meeting with Business Owners

### December 2014 - Business Group - Summary:

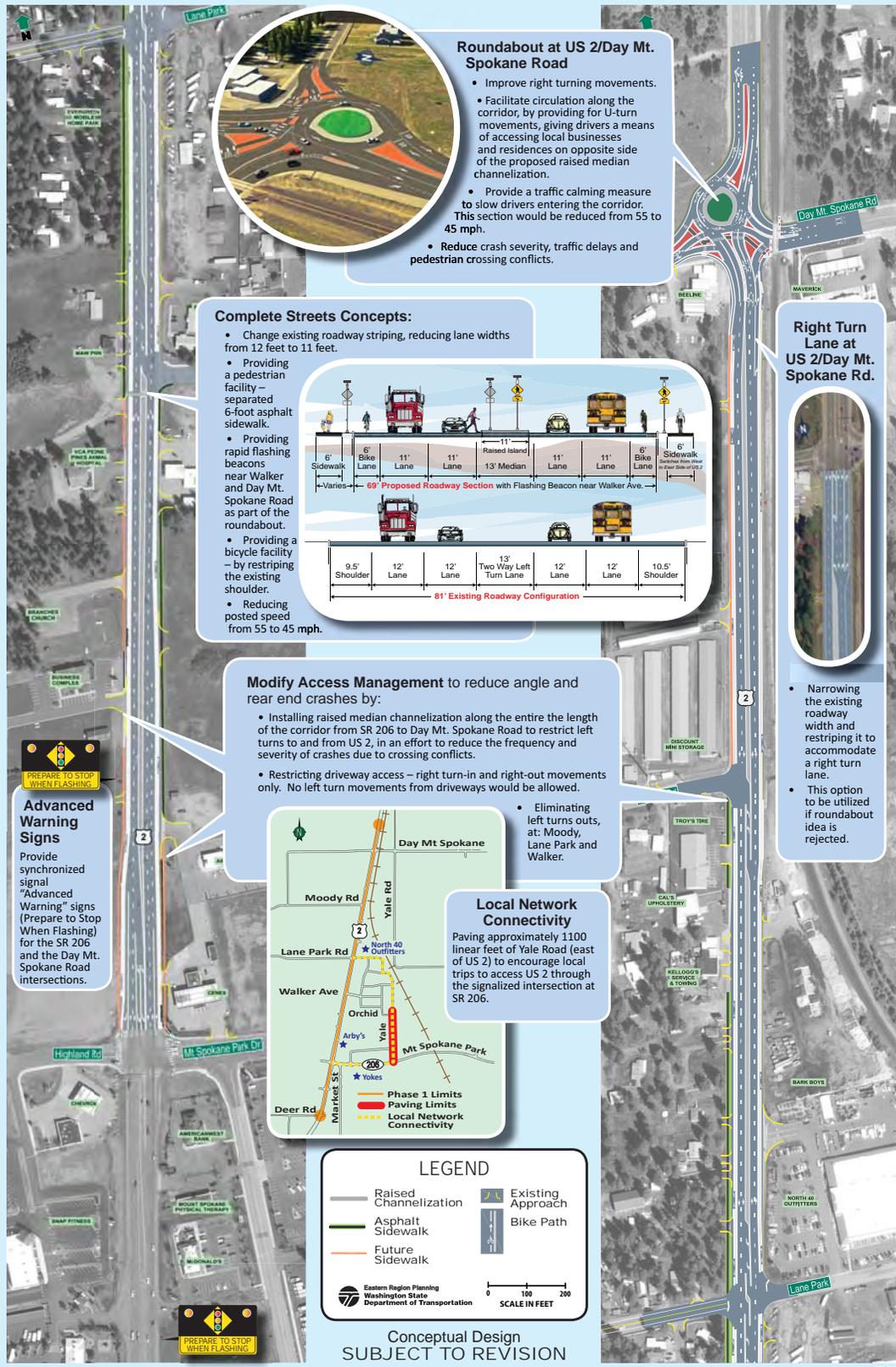
The business owners requested a meeting with WSDOT to discuss the emerging solutions and expressed concerns about proposed access management including restricted left turning movements. The business owners also sought reassurance that large trucks could maneuver around the proposed roundabout at Day Mt. Spokane Rd.

The business owners asked WSDOT to reexamine the allowance of additional left turn access along the corridor along with the need for a roundabout at Day Mt. Spokane Rd. WSDOT was also asked to consider/evaluate a possible roundabout or signal at Lane Park. WSDOT agreed to reexamine these three items and to host a follow-up meeting after receiving feedback during the upcoming community open house (the open house was scheduled later that week).

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# First Open House Emerging Solutions - (12/16/2014)



See Figure 8, in main document for larger and complete First Open House Recommendations graphic.

Meetings & Outcomes

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# First Open House

## December 2014 - First Open House - Summary:

ER Planning presented the following emerging solutions:

### Modify Access Management to reduce angle and rear end crashes by:

- ▶ Installing raised median channelization along the entire the length of the corridor from SR 206 to Day Mt. Spokane Road to restrict left turns to and from US 2, in an effort to reduce the frequency and severity of crashes due to crossing conflicts.
- ▶ Restricting driveway access – right turn-in and right-out movements only. No left turn movements from driveways would be allowed.
- ▶ Eliminating left turns outs, at: Moody, Lane Park and Walker.

### Change existing roadway striping to adopt “Complete Streets” concepts by:

- ▶ Reducing lane widths from 12 feet to 11 feet.
- ▶ Providing a pedestrian facility – separated 6-foot asphalt sidewalk.
- ▶ Providing rapid flashing beacons near Walker and Day Mt. Spokane Rd. as part of the roundabout.
- ▶ Providing a bicycle facility – by restriping the existing shoulder
- ▶ Reducing posted speed from 55 to 45 mph.

### Improve Local Network Connectivity by:

- ▶ Paving approximately 1100 linear feet of Yale Rd. (east of US 2) to encourage local trips through the neighborhood in the vicinity of Lane Park to use this route to access US 2 and SR 206.

### Install Advanced Warning Signs

- ▶ Provide synchronized signal “Advanced Warning” signs (Prepare to Stop When Flashing) for the SR 206 and the Day Mt. Spokane Rd. intersections.

### Install Right Turn Lane at US 2/Day Mt. Spokane Rd. by:

- ▶ Narrowing the existing roadway width and restriping it to accommodate a right turn lane.

### Install a Roundabout at US 2/Day Mt. Spokane Rd. to:

- ▶ Reduce crash severity, traffic delays and pedestrian crossing conflicts.
- ▶ Improve right turning movements.
- ▶ Facilitate circulation along the corridor, by providing for U-turn movement opportunities, giving drivers a means of accessing local businesses and residences on opposite side of the proposed raised median channelization.
- ▶ Reduce corridor speed (from 55 to 45 mph) the roundabout would slow traffic entering the corridor at Day Mt. Spokane Rd.

## December 2014 - First Open House - Outcome:

The complete street concepts, improve local network connectivity, advanced warning signs and the right turn lane at US 2/Day Mt. Spokane Rd. were all well received. However, there was considerable opposition to the roundabout at US 2/Day Mt. Spokane Rd. and the raised channelization in the median. The community also expressed a desire to further reduce the speed limit to 35 mph, if possible.

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## US 2/ Deer Road to Elk-Chattaroy Road Corridor Study

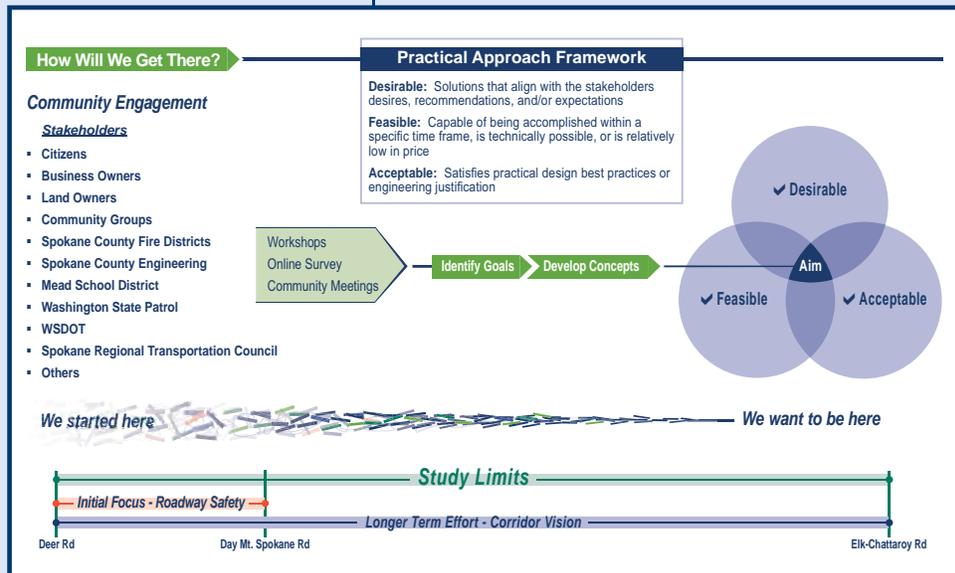
During the past few months, the Washington State Department of Transportation (WSDOT) studied US 2, from Deer Road to Day Mt. Spokane Road (Phase I) to identify opportunities to reduce fatal, severe, and frequent collisions - a Target Zero strategy, as well as enhance transportation choices along the corridor. We used Least Cost Planning (LCP) and practical design tools to identify and develop low cost recommendations that are predicted to return high safety benefits.

The following recommendations were derived through community engagement, highway safety analysis, and other technical evaluations. The integrated planning effort embraced community feedback and involved various

WSDOT technical experts. The emerging low cost-high benefit corridor safety improvements are expected to reduce collisions along this portion of US 2. While the study will provide a corridor vision that can be gradually achieved in the future through various public and private partnerships, the primary study outcome is to identify affordable recommendations that address safety, access, multimodal mobility, and can be achieved in the near-term.

Previous proposals for this corridor included a new alignment and interchange enhancements that

came with a high estimated cost. However, with the use of practical design concepts (a strategy to deliver focused benefits with limited funding) we developed solutions and recommendations that target prominent crashes such as driveway and intersection collisions for this urbanized section of the corridor. These recommendations can be implemented for less than \$6 million.



WSDOT continues to gather input from area residents, corridor users, property owners and business owners that will be used to shape the final corridor plan for the highway.

**The centerfold map and last page of this folio show the low cost-high benefit recommendations that are currently proposed.**

Following Phase 1 of the study, conceptual improvements for Phase II will be identified and presented for the more rural segment of US 2, from Day Mt. Spokane Road to Elk Chattaroy Road.

### Title VI Notice to Public

It is the Washington State Department of Transportation's (WSDOT) policy to assure that no person shall, on the grounds of race, color, national origin or sex, as provided by Title VI of the Civil Rights Act of 1964, be excluded from participation in, be denied the benefits of, or be otherwise discriminated against under any of its federally funded programs and activities. Any person who believes his/her Title VI protection has been violated, may file a complaint with WSDOT's Office of Equal Opportunity (OEO). For additional information regarding Title VI

complaint procedures and/or information regarding our non-discrimination obligations, please contact OEO's Title VI Coordinator Jonte' Sulton at (360) 705-7082.

### Americans with Disabilities Act (ADA) Information

This material can be made available in an alternate format by emailing the WSDOT Diversity/ADA Affairs team at [wsdotada@wsdot.wa.gov](mailto:wsdotada@wsdot.wa.gov) or by calling toll free, 855-362-4ADA(4232). Persons who are deaf or hard of hearing may make a request by calling the Washington State Relay at 711.

December 2014

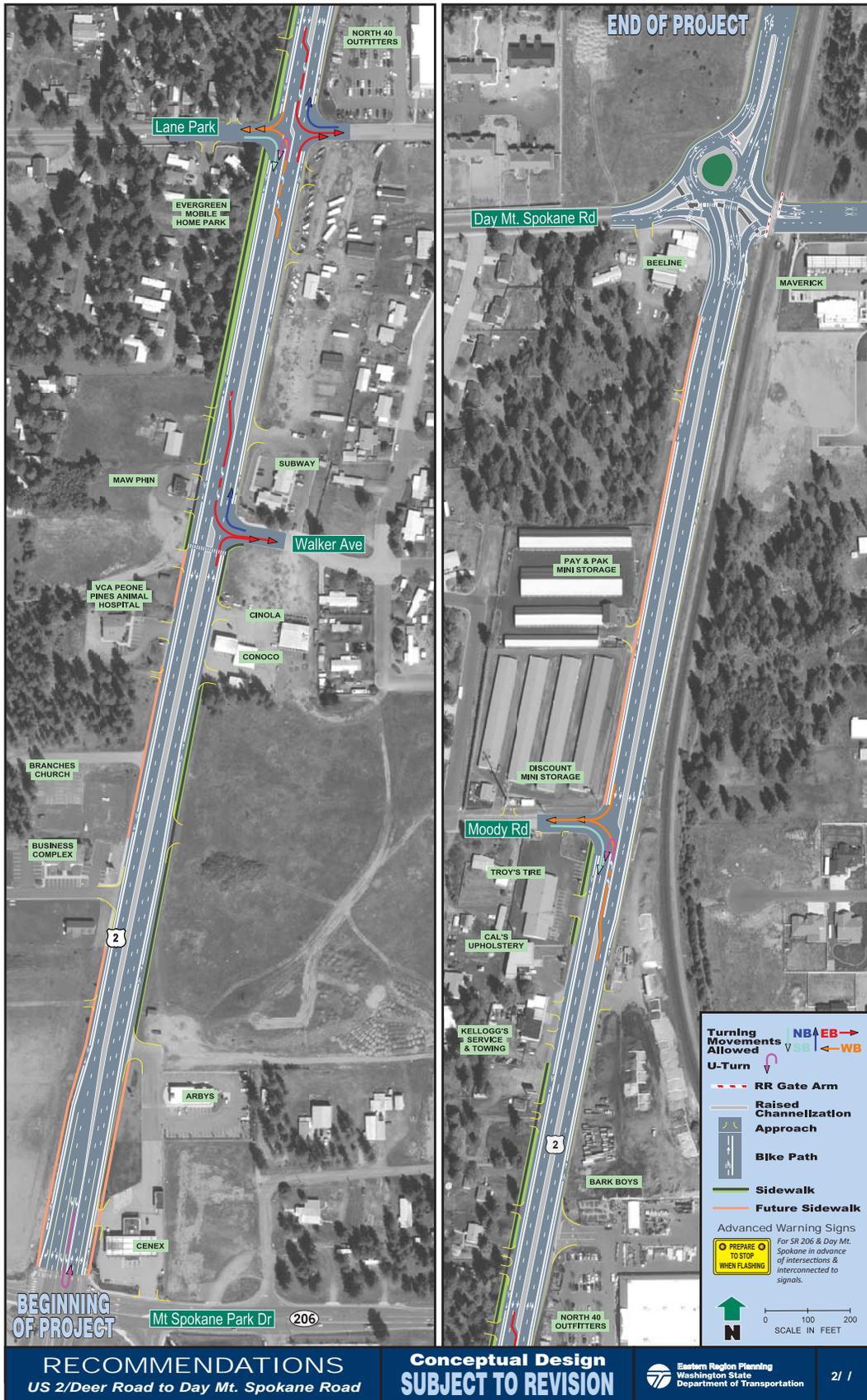


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# First Open House Folio - Page 2 of 3 - Centerfold

Meetings & Outcomes



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## Phase 1 Recommendations US 2/ Deer Road to Day Mt. Spokane Road

The following five low cost – high benefit solutions have emerged as preferred recommendations:

### Access Management

Install raised islands in the median along the entire length of the corridor to minimize conflicting movements.

- Driveways will provide right turn-in and right-out movements only. No left turn movements from driveways will be permitted.
- Left turn (exiting) movements from the following local streets will not be permitted:
  - US 2/ Walker Rd.
  - US 2/ Lane Park Rd.
  - US 2/ Moody Rd.

Benefit/Cost: 1.9

Cost: \$543,500 (approximate)

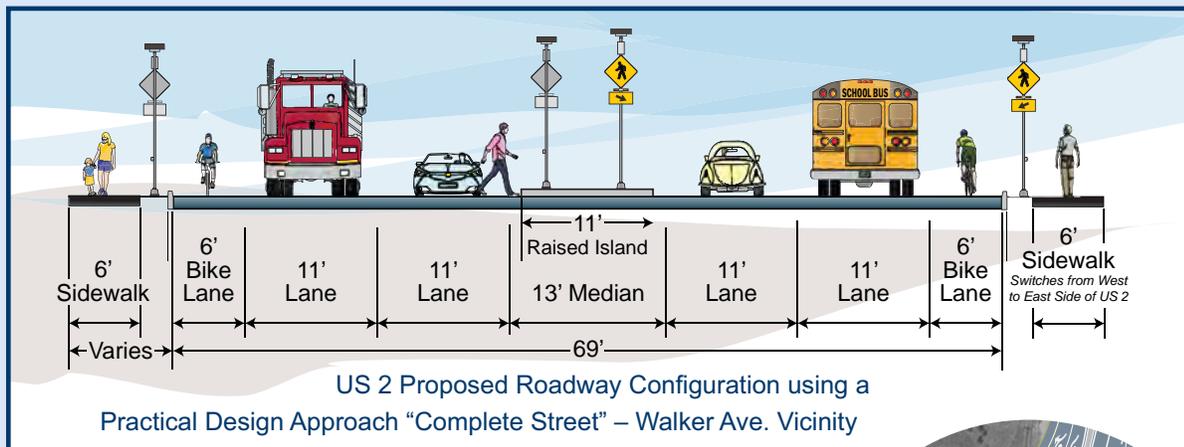
Pave a segment of Yale Rd. to support US 2 access management (Orchard Ave. to SR 206, approximately 1100 linear feet) Cost: \$140,000 additional (approximate)

### Advanced Warning Signs

US 2/ SR 206 - Provide “Advanced Warning” signs in advance of the intersection that are interconnected to the signal system

Benefit/Cost: 6.4

Cost: \$71,600 (approximate)



US 2/ Day Mt. Spokane Right Turn Lane  
Restripe the existing roadway to provide a right turn lane.

Benefit/Cost: 5.2

Cost: \$28,000 (approximate)

Speed Reduction 45 MPH -

“Complete Street” by:

- Reducing lane widths (from 12 ft. to 11 ft.)
- Providing pedestrian facilities - separated 6-foot asphalt sidewalk, and rapid flashing beacons near Walker Ave. and Day Mt. Spokane Rd.
- Providing bicycle facilities – restripe existing shoulder
- Reducing posted speed from 55 MPH to 45 MPH

Benefit/Cost: 1.1 - Cost: \$600,000 (approximate)

### For More Information Contact:

Charlene Kay, P.E.  
Eastern Region Planning  
Engineer  
509-324-6195  
kayc@wsdot.wa.gov

Greg Figg  
Development Services  
Manager  
509-324-6199  
figgg@wsdot.wa.gov

Roundabout -  
US 2/ Day Mt.

Spokane

Provide a  
roundabout  
at the US

2/Day Mt.

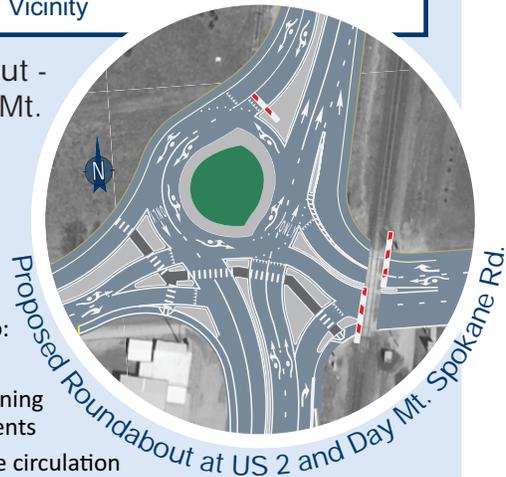
Spokane Rd.

Intersection to:

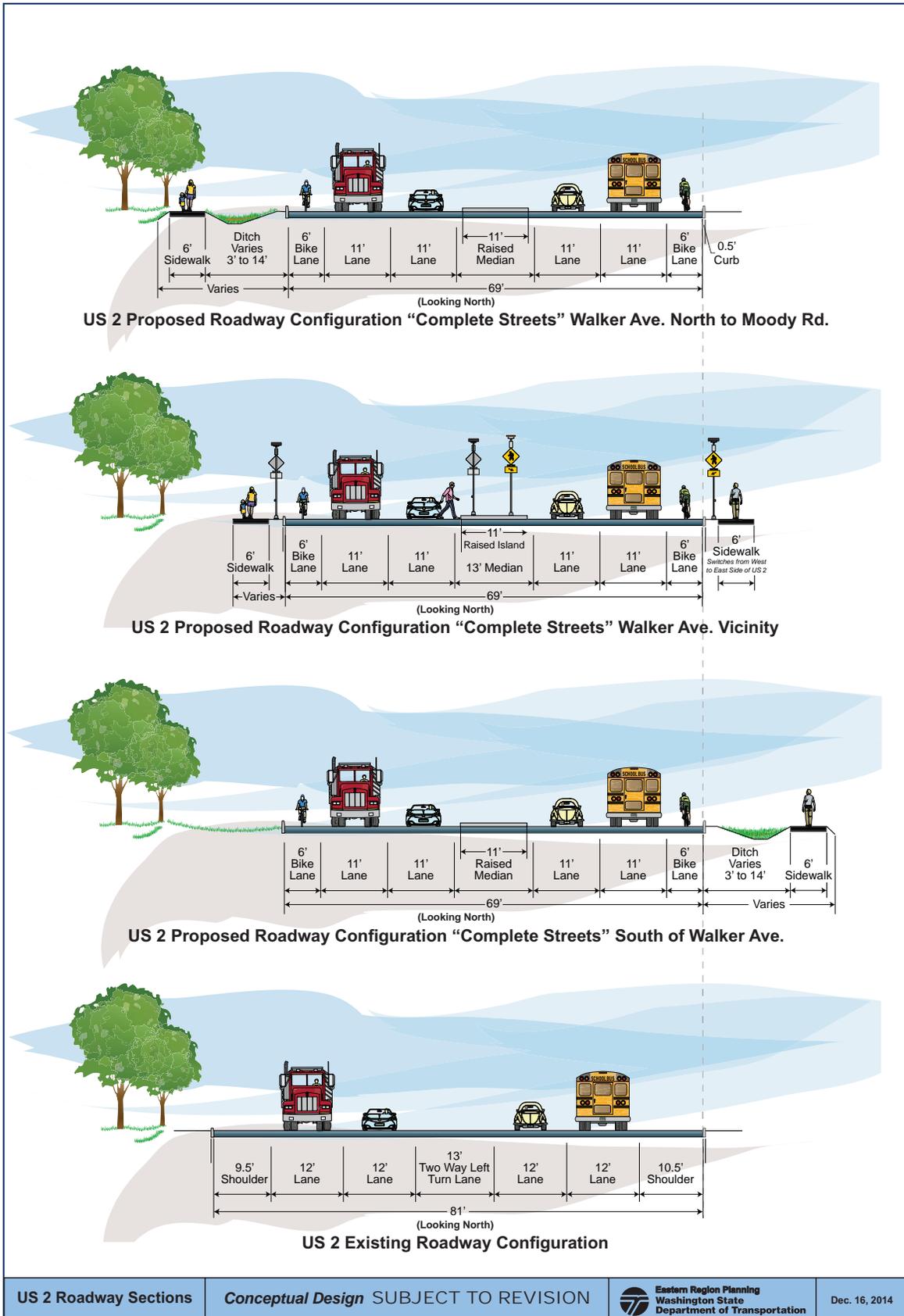
- Improve right turning movements
- Facilitate circulation along the corridor by providing for u-turn moments
- Address existing intersection collisions
- Facilitate corridor speed reduction measures

Cost: \$3,712,000 (approximate)

Benefit/Cost: 1.3 (includes delay cost analysis)



# Existing and Proposed Roadway Cross Sections



Meetings & Outcomes

US 2 Roadway Sections	Conceptual Design SUBJECT TO REVISION	 Eastern Region Planning Washington State Department of Transportation	Dec. 16, 2014
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## Plan Refinements

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### January 2015 - Plan Refinements - Summary:

WSDOT utilized a targeted approach of developing additional practical solutions after reviewing the community comments and internal feedback. The traffic and crash data were further evaluated and the concepts were refined to address the concerns presented by the community, business owners, and the internal technical team.

### January 2015 - Plan Refinements - Outcome:

The revised concepts retained some of the previously presented emerging solutions, including the complete street concepts, improvement to local network connectivity and advanced warning signs.

The roundabout at Day Mt. Spokane Rd. was eliminated; however, the right turn lane northbound to eastbound was kept and a right-turn acceleration lane from eastbound to southbound was added.

The revised concepts eliminated segments of the raised channelization in the median and retained sections at select locations where the existing crash trends indicated a current need. At all other locations the existing two-way left turn lane configuration and striping would remain “as is”.

A reduction to the proposed speed limit changed from 55 to 45 mph. Chicanes were added as a traffic calming measure to encourage lower travel speed. The proposed chicanes also added to the complete street improvements of narrowing the lanes and shoulders throughout the corridor.

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## Second Meeting with Business Owners

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### January 2015 - Second Meeting with Business Owners - Summary:

As promised prior to the first public open house, WSDOT hosted another meeting with the business owners and provided an opportunity to review the revised concepts.

These revisions addressed concerns about access management. The revised concepts

provided raised channelization at select locations where current crash data indicated a need. The roundabout at Day Mt. Spokane Rd. was eliminated.

WSDOT committed to evaluate a signal and/or roundabout at US 2/Lane Park Road. Lane Park Road was further evaluated and it was determined the intersection does not meet signal warrants as outlined in the Manual on Uniform Traffic Control Devices, and the cost for a roundabout would be greater than the benefit in reduced crashes.

### January 2015 - Second Meeting with Business Owners - Outcome:

While the support to reduce the existing 8 to 10-foot shoulder widths to 6 feet was retained, the bike lane symbols were removed from the shoulders.

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## Third Meeting with Business Owners

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### March 2015 - Second Meeting with Business Owners - Summary:

As the plans continued to evolve, additional refinements were added: electronic speed limit signs, illumination, chicanes between Arby's and the Business Complex, sidewalks and driveway modifications to accommodate the new sidewalks, rapid flashing beacons south of Lane Park and advanced warning signs for interior section between SR 206 and Day Mt. Spokane were put back into the plan.

### March 2015 - Second Meeting with Business Owners - Outcome:

The refined concepts were presented at the second public open house.

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# Second Open House

## March 2015 - Second Open House - Summary:

The second open house was well attended with over 360 people signing in. Approximately 11,000 invitations were mailed to residences and local businesses. An announcement was placed in the Spokesmen Review North Voice. Variable message signs were placed on the US 2 to inform corridor commuters of the open house.

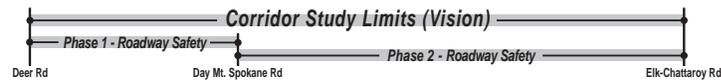


The second open house was well attended with over 360 people signing in.

## Open House | You are invited!

### US 2/Deer Rd to Elk Chattaroy Rd Corridor Study

- ▶ **Purpose:** 1. To provide a status update of Phase 1 improvements currently scheduled for design/construction in 2016 or 2017  
2. To present conditions and potential safety improvements for Phase 2
- ▶ **When:** Thursday, March 12, 2015 5:00 PM to 8:00 PM
- ▶ **Where:** Mountainside Middle School, 4717 East Day Mt Spokane Rd



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Variable message signs were placed on the US 2 to inform corridor commuters of the open house

Approximately 11,000 invitations were mailed to residences and local businesses.



## OPEN HOUSE MEETING

### US 2/Deer Rd. to Elk-Chattaroy Rd. Corridor Study

**Thursday, March 12, 2015**  
**Mountainside Middle School**  
**4717 E. Day-Mt. Spokane Rd.**  
**5:00 pm - 8:00 pm**

US 2 just north of Spokane has a history of collisions that has prompted the WSDOT to study this section for possible improvements.

Planning and Engineering staff for the WSDOT have analyzed the route from SR 206 to Day Mt. Spokane Rd. and have considered the public input received. We will have displays of the new design refinements for this section of US 2.

We will also have information on the northern part of this corridor; Day Mt. Spokane Rd. to Elk-Chattaroy Rd. and will be soliciting input as we begin the analysis of that section.

There will not be a formal presentation so please drop by any time between 5:00 pm and 8:00 pm. WSDOT staff will be on hand to provide information and answer your questions.

**For information contact:**  
**Dan McKernan, Corridor Study Engineer**  
**509-324-6197**



### Washington State Department of Transportation

Accommodation requests for people with disabilities can be made by contacting the WSDOT Diversity/ADA Affairs team or by calling toll-free, 855-362-4ADA (232). Persons who are deaf or hard of hearing may make a request by calling the Washington State Relay at 711.

The above announcement was placed in the Spokesmen Review North Voice.



The refined Phase I concepts were presented. The major revisions involved the channelization and elimination of the roundabout at Day Mt. Spokane Rd.

Modify **Access Management** to reduce angle and rear end crashes by:

- ▶ Installing raised channelization in the median at select locations where the existing crash trends indicated a need. At all other locations the existing two-way left turn lane configuration and striping would be left as is.

**Complete Streets** concepts of:

- ▶ Added chicanes as a traffic calming measure, which cause drivers to slow down.
- ▶ Reducing lane widths from 12 feet to 11 feet.
- ▶ Providing new sidewalks.
- ▶ Providing rapid flashing beacons near Lane Park Rd.
- ▶ Reducing posted speed from 55 to 45 mph.

Improve **Local Network Connectivity** by:

- ▶ Paving approximately 1100 linear feet of Yale Rd. (east of US 2) to encourage local trips through the neighborhood in the vicinity of Lane Park to use this to route to access US 2 and SR 206.

Install **Advanced Warning Signs** to warn drivers of the impending red light at the intersection:

- ▶ Provide interconnected signal “Advanced Warning” signs (Prepare to Stop When Flashing) for intersections at SR 206 and the Day Mt. Spokane.

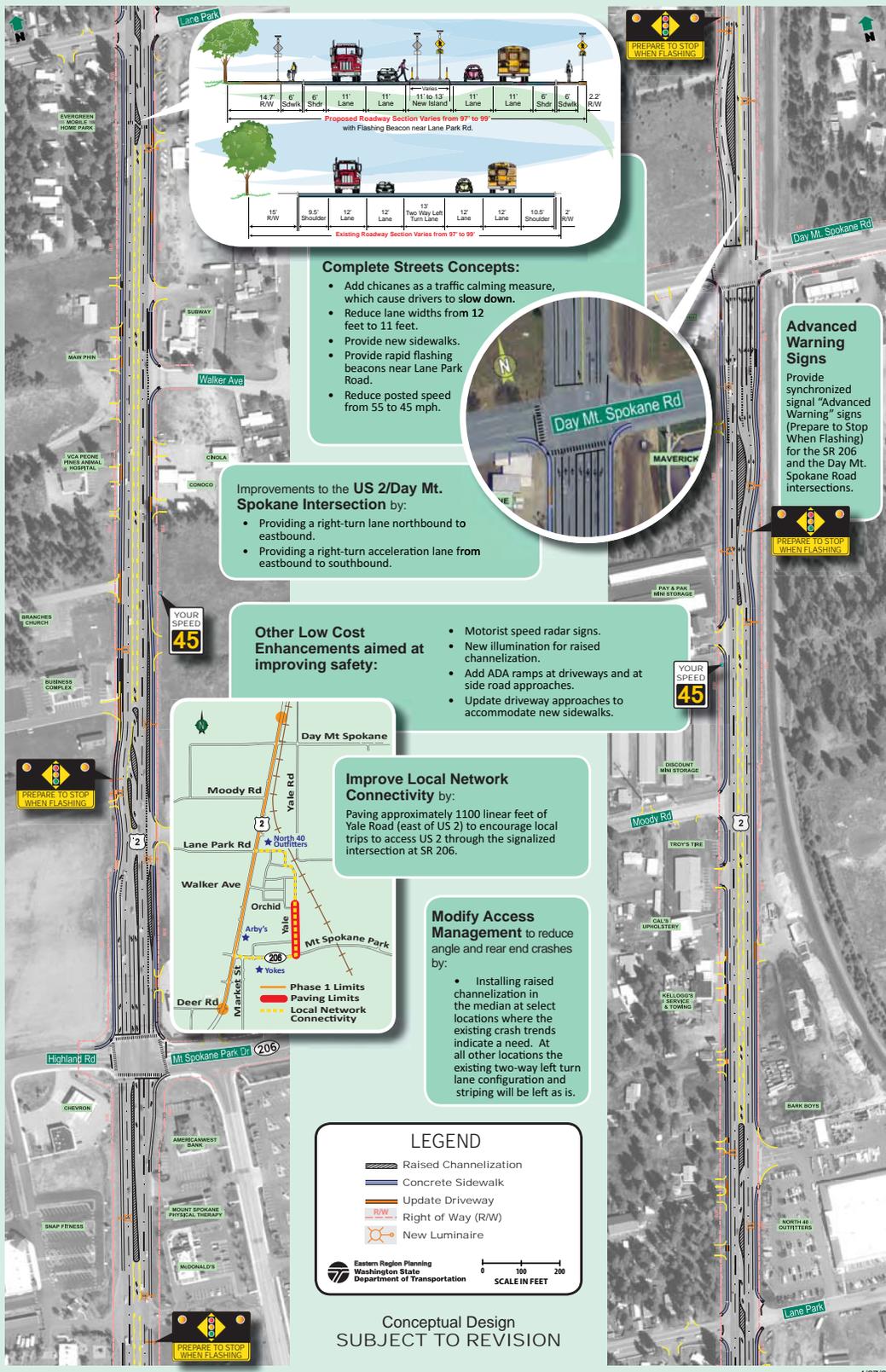
Improvements to the **US 2/Day Mt. Spokane Intersection** by:

- ▶ Providing a right-turn lane northbound to eastbound.
- ▶ Providing a right-turn acceleration lane from eastbound to southbound.

Other **Low Cost Enhancements** aimed at reducing crashes:

- ▶ Electronic speed limit signs.
- ▶ Illumination for new raised channelization.
- ▶ Add ADA ramps at driveways and at side road approaches.
- ▶ Update driveway approaches to accommodate new sidewalks.

# Second Open House Emerging Solutions - (3/12/2015)



Meetings & Outcomes

See Figure 9, in main document for larger and complete Second Open House Recommendations graphic.

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# Concepts for Segment 2 Presented at the Second Open House

The second open house provided an opportunity to present potential concepts for Segment 2, the northern part of this corridor study; Day Mt. Spokane Rd. to Elk-Chattaroy Rd. WSDOT presented information gathered to date; solicited feedback regarding the concepts and other ideals for potential improvements along this section of the corridor.

## US 2/Deer Road to Elk-Chattaroy Road Corridor Study

**Progressive design to:**

- Help improve safety
- Reduce travel time
- Reduce construction costs
- Reduce impacts on the environment

U-turns provide left turn and through movements for vehicles from side streets.

No left turns or crossing traffic from side streets.

**Restricted Crossing U-Turn (RCUT) Intersection**

### Alternative Intersection and Interchange Designs

**RCUT Intersection with Merges**

**Stop-Controlled (RCUT)**

**Vehicular Conflict Points at a Four Approach Conventional Intersection**

**Vehicular Conflict Points at a Four Approach RCUT Intersection**

**Potential Intersection Improvement/Control**

Date: March 12, 2015

## US 2/Deer Road to Elk-Chattaroy Road Corridor Study

**Offset Right-Turn Lane Design at US 2 and Elk-Chattaroy Road**

### Potential Right-Turn Lane Safety Improvements

**Offset Right-Turn Lane Design Concept**

**Sight Obstruction Created with Conventional Right-Turn Lanes**

Date: March 12, 2015

WSDOT present the above potential concepts for Segment 2 at second open house.

**Meetings & Outcomes**

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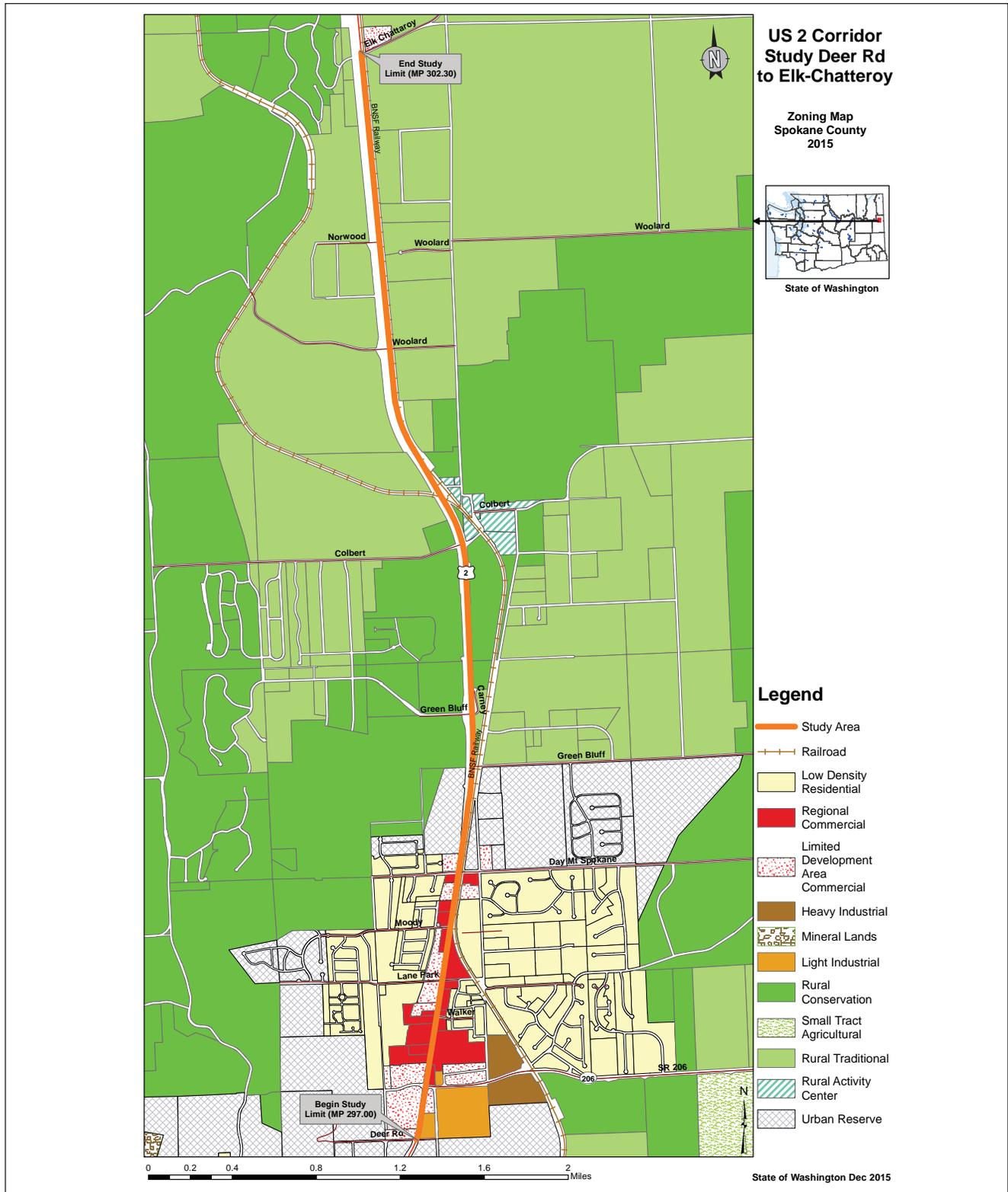
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## March 2015 - Second Open House - Outcome

The concepts were further refined after listening to feedback during the second community open house and after further internal discussion. For the emerging solutions see body of main document.

# Spokane County Zoning Types

## US 2 Corridor Study Area Zoning Map



Zoning Map

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# Title VI - Community Engagement

## US 2 Corridor Study Area - Census Tract Review

The Washington State Department of Transportation (WSDOT) is committed to ensuring no person, on the grounds of race, color, or national origin, as provided by Title VI of the Civil Rights Act of 1964 and the Civil Rights Restoration Act of 1987, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any WSDOT program or activity. This study aligns with the following:

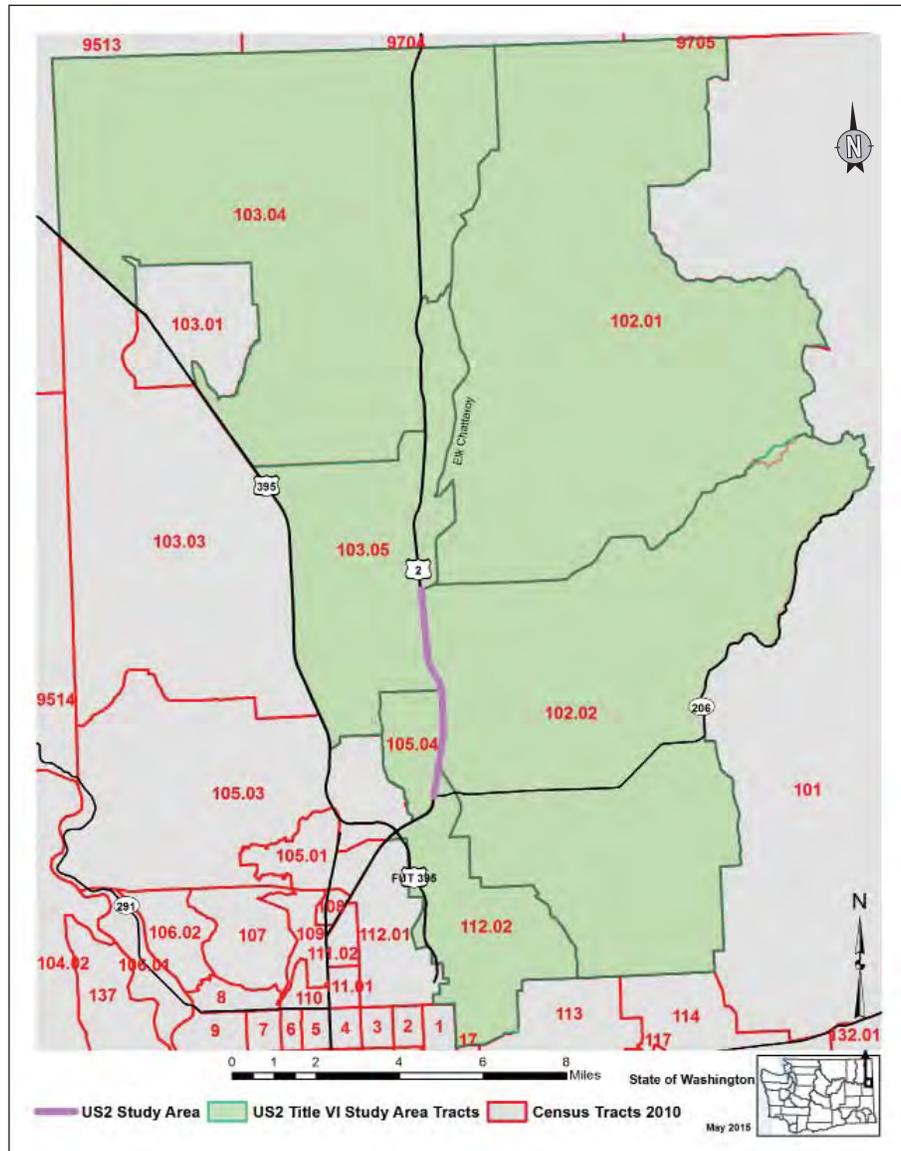
### Executive Order 12898 on Environmental Justice (EJ)

requires WSDOT to adhere to the provisions of Title VI of the Civil Rights Act of 1964 and the National Environmental Policy Act of 1969 in order to avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects on minority populations and low-income populations.

### Executive Order 13166 on Limited English Proficiency (LEP)

is directed at implementing the protections afforded by Title VI of the Civil Rights Act of 1964 and related regulations. Accordingly, it prohibits recipients of federal financial assistance from discrimination based on national origin by failing to provide meaningful access to services to individuals who are limited in English proficiency.

WSDOT has established processes to ensure that its programs, activities, and services normally provided in English are accessible to LEP individuals and do not discriminate on the basis of national origin in violation of Title VI's prohibition against national origin discrimination. These processes include, but are not limited to, providing resources such as bilingual staff, interpreters, and translated materials to ensure



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that information and services are made available in languages readily understood by WSDOT customers, as well as those individuals/ populations impacted by its activities.

Prior to engaging the community in this study we identified and reviewed six U.S. Census Tracts in the vicinity of the US 2 corridor study area. The map identifies the area and the following table presents the various languages spoken by community members in the selected tracts. We found that more than 96% of the community in the selected area “speak only” the English language. In the study area, Russian is the second most language-spoken by community members who do not speak the English “very well” with 0.5% of the population in the six census tracts.

As result of the findings, there was no compelling need to provide translated documents and/or communication prior to a request. There were no requests during the study efforts for translation of any parts of the study communication and/or materials.

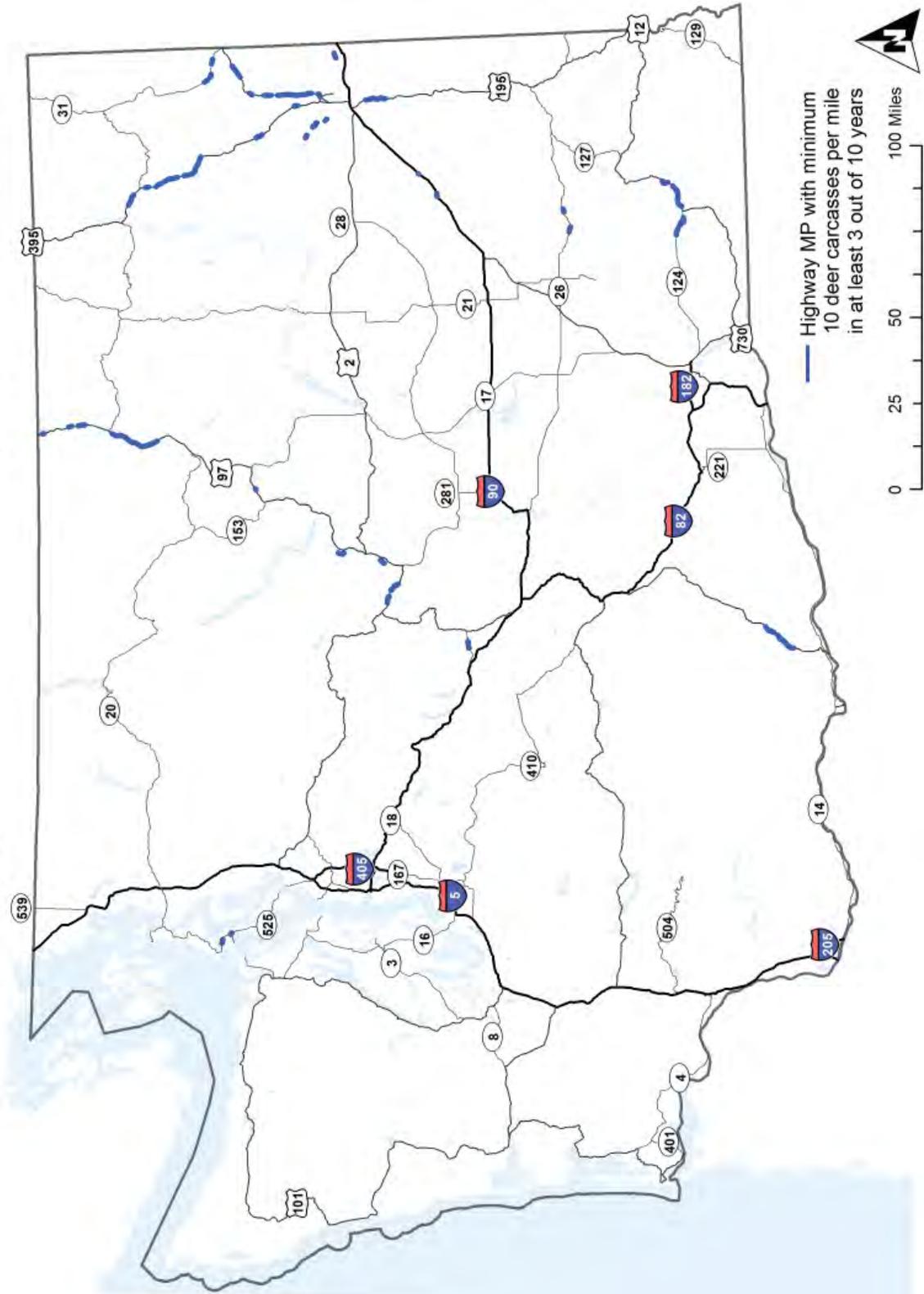
Selected Census Tract Number	102.01	102.02	103.04	103.05	105.04	112.02	Total	% of Total
<b>Population Totals</b>	3,736	7,006	5,062	5,638	3,360	3,615	28,417	100%
<b>Language Spoken</b>								
Speak Only English	3,661	6,734	4,883	5,508	3,121	3,402	27,309	96.1%
Spanish or Spanish Creole:	37	89	136	30	28	49	369	1.3%
Speak English less than "very well"	0	10	63	0	0	0	73	0.3%
French (incl. Patois, Cajun):	0	0	14	0	16	2	32	0.1%
Speak English less than "very well"	0	0	0	0	9	2	11	0.0%
Russian:	26	183	0	0	129	17	355	1.2%
Speak English less than "very well"	14	78	0	0	39	4	135	0.5%
Other Slavic Languages:	0	0	0	12	39	12	63	0.2%
Speak English less than "very well"	0	0	0	0	26	12	38	0.1%
Other Indo-European Languages:	0	0	0	0	0	4	4	0.0%
Speak English less than "very well"	0	0	0	0	0	4	4	0.0%
Thai:	0	0	0	17	0	0	17	0.1%
Speak English less than "very well"	0	0	0	17	0	0	17	0.1%
Tagalog:	0	0	4	0	0	0	4	0.0%
Speak English less than "very well"	0	0	4	0	0	0	4	0.0%
Other Pacific Island languages:	0	0	0	0	0	126	126	0.4%
Speak English less than "very well"	0	0	0	0	0	100	100	0.4%
Other Native North American Languages:	0	0	0	53	0	0	53	0.2%
Speak English less than "very well"	0	0	0	14	0	0	14	0.0%

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# Deer Crossing Sign Locations

## 2004-2013 Statewide Suggested Deer Crossing Sign Locations



Deer Crossing

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