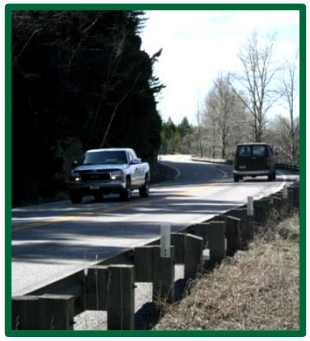
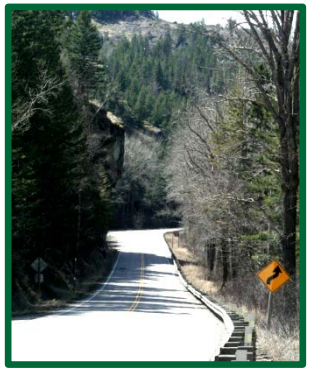


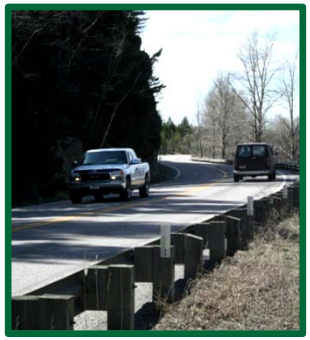


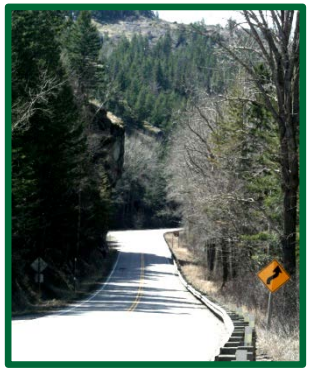
US 2 - Badrock Canyon
Corridor Planning Study

Informational Meeting

Tuesday,
August 28, 2012

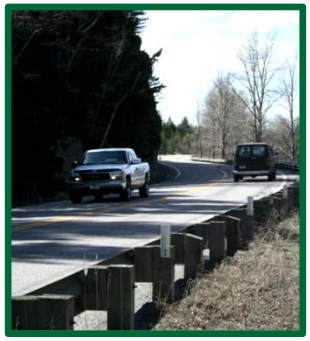
U.S. Forest Service
Hungry Horse Ranger District Office
10 Hungry Horse Drive
Hungry Horse, MT

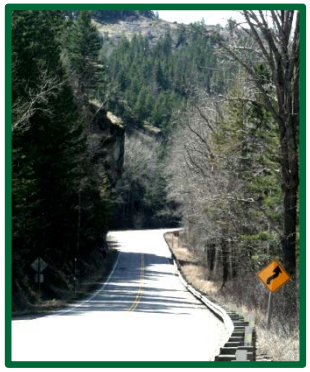




Welcome & Introductions

US 2 - Badrock Canyon Corridor Planning Study

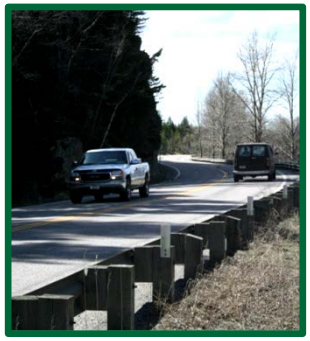


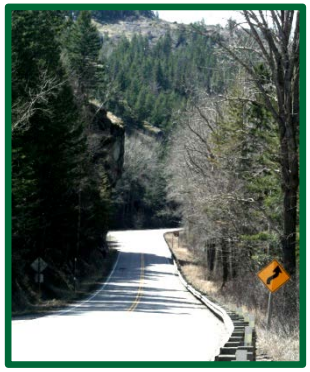


Purpose of Meeting

- Summarize MDT's Previous Efforts in Corridor
- Provide Overview of Corridor Planning Study Process
- Summarize Existing and Projected Conditions
- Present Needs and Objectives
- Discuss Improvement Options
- Solicit Input

MDT's Previous Efforts





1980

1980s: MDT nominated US 2 for reconstruction (Columbia Falls to Hungry Horse)

1990

1995: FEIS/ROD

2000

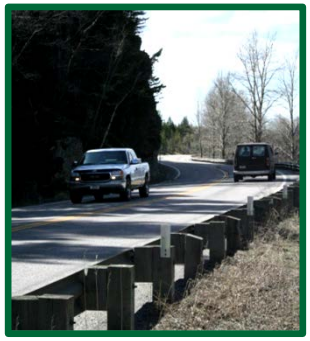
2002: Re-evaluation

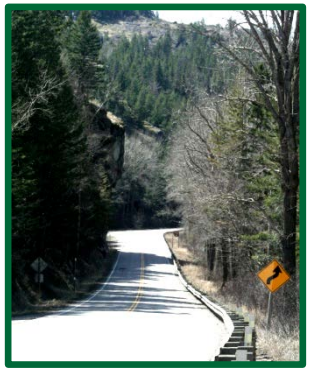
2010

2011: Phase I – Informational Meeting (May 2011)

2012: Phase II – Informational Meeting (April 2012)

US 2 - Badrock Canyon Corridor Planning Study



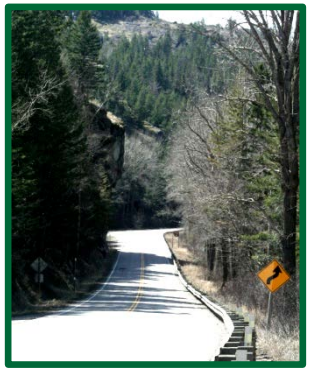


Corridor Planning Process

- Involves conducting a review of **safety, operational, and geometric conditions and environmental resources** to identify needs and constraints.

- This process allows MDT to:
  - Identify realistic strategies given funding or other constraints
  - Identify fatal flaws before initiation of formal environmental process for any future project forwarded from study
  - Eliminate alignments and/or improvement options from further evaluation

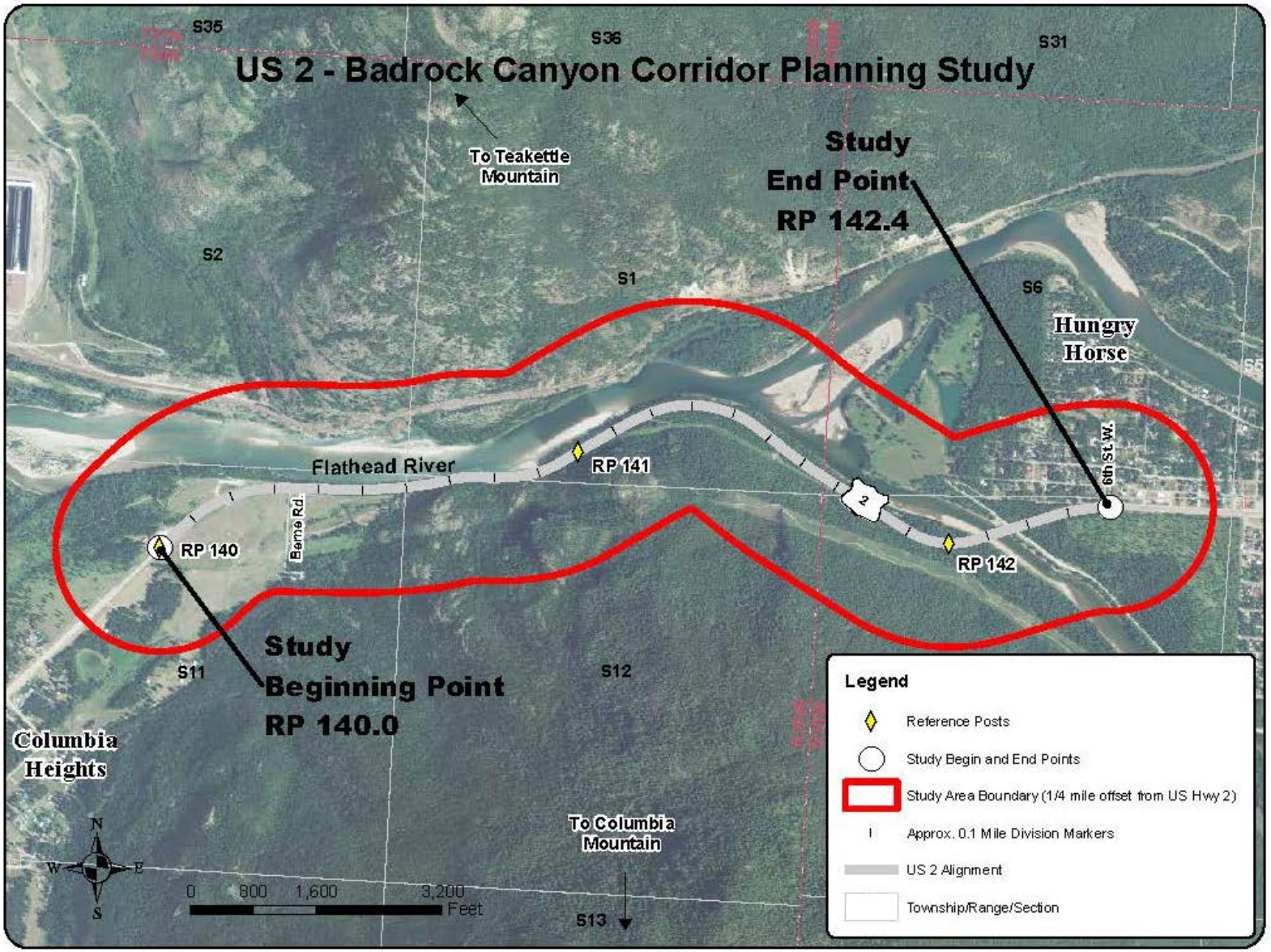
US 2 - Badrock Canyon Corridor Planning Study



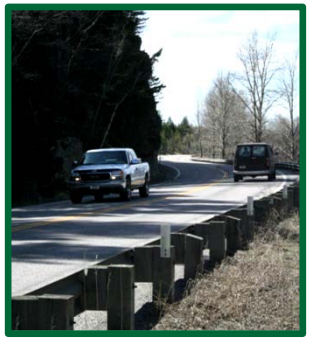
Goals and Purpose

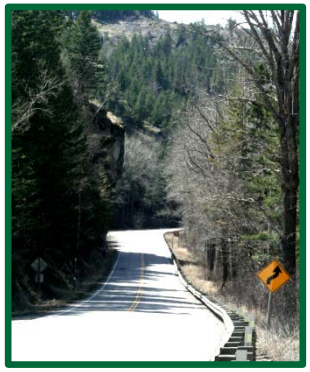
- Engage constituents early
- Identify needs and objectives
- Identify constraints
- Identify short-range and long-range improvements
- Develop planning-level cost estimates
- Develop information and data to be forwarded into the environmental process if a project moves forward from the study

Study Area


US 2 - Badrock Canyon Corridor Planning Study
S35
S36
S31
S2
S1
S6
To Teakettle Mountain
Study End Point RP 142.4
Hungry Horse
Flathead River
RP 141
6th St W.
2
Berne Rd.
RP 140
RP 142
Study Beginning Point RP 140.0
S11
S12
Columbia Heights
To Columbia Mountain
S13
N
W
E
S
0 800 1,600 3,200 Feet
Legend
Reference Posts
Study Begin and End Points
Study Area Boundary (1/4 mile offset from US Hwy 2)
Approx. 0.1 Mile Division Markers
US 2 Alignment
Township/Range/Section

US 2 - Badrock Canyon Corridor Planning Study

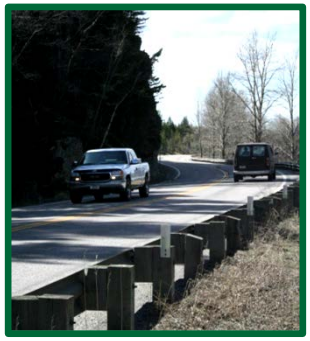


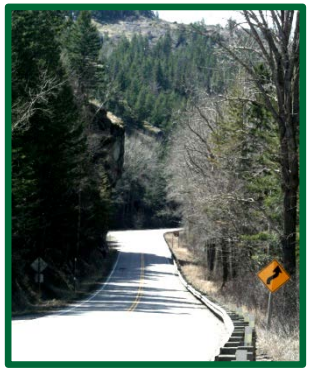


Summary of

Existing and Projected Conditions

Existing Physical Features

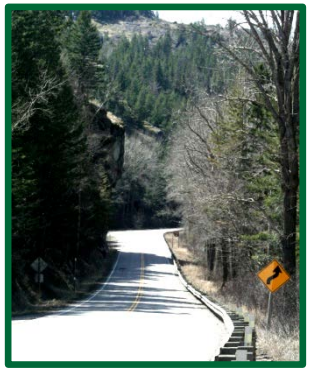




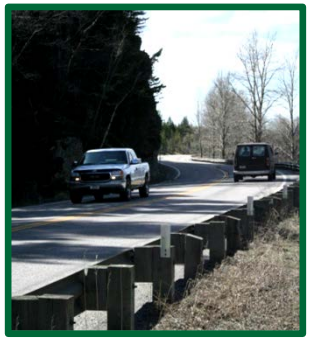
- **South Fork Flathead River Bridge**
  - Functionally obsolete and structurally deficient
- **Utilities**
  - Gas, fiber optics, and power transmission lines
- **Pedestrian & Bicycle Facilities**
  - No dedicated facilities in corridor
- **Physical Constraints**
  - US 2 is located between Flathead River and rock outcroppings

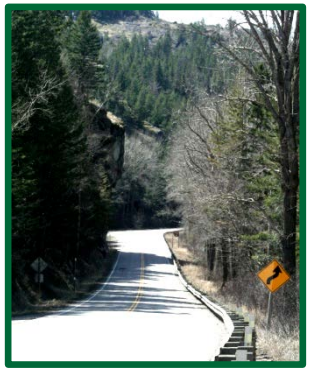
US 2 - Badrock Canyon Corridor Planning Study

Existing Geometric Features



- **Roadway Width**
  - Two 12-foot travel lanes; no shoulders throughout most of the corridor
- **Horizontal Alignment**
  - Nine (9) horizontal curves do not meet current MDT design standards
- **Vertical Alignment**
  - Six (6) vertical curves do not meet current MDT design standards



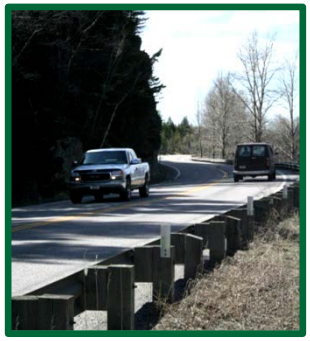


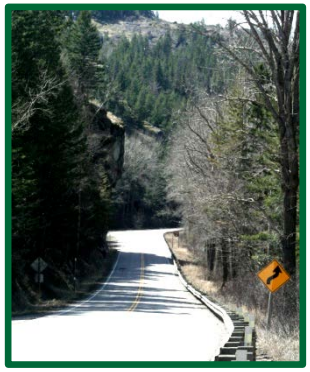
Crash Statistics

Total of 77 Crashes from 2006-2010

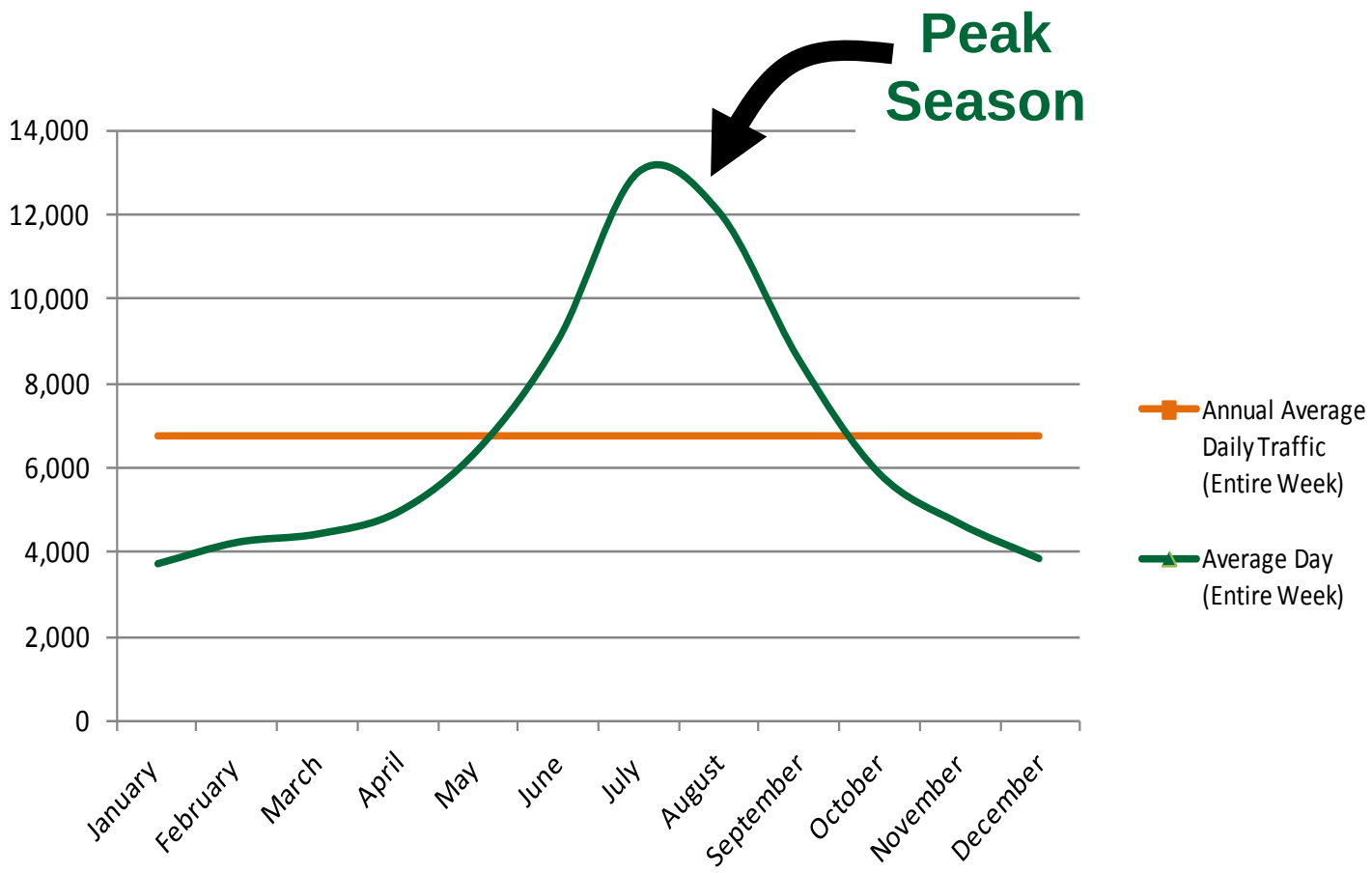
Criteria	Statewide Average for Rural Principal Arterials (NINHS) (2006 – 2010)	US 2 Corridor RP 140.0 – 142.4 (NINHS) (2006 – 2010)	Comparison of US 2 Corridor to Statewide Average (NINHS)
Crash Rate (All Vehicles)	1.04	2.56	**2.46 times higher**
Severity Index (All Vehicles)	2.09	2.68	**1.28 times higher**
Severity Rate (All Vehicles)	2.18	6.86	**3.15 times higher**

US 2 - Badrock Canyon Corridor Planning Study





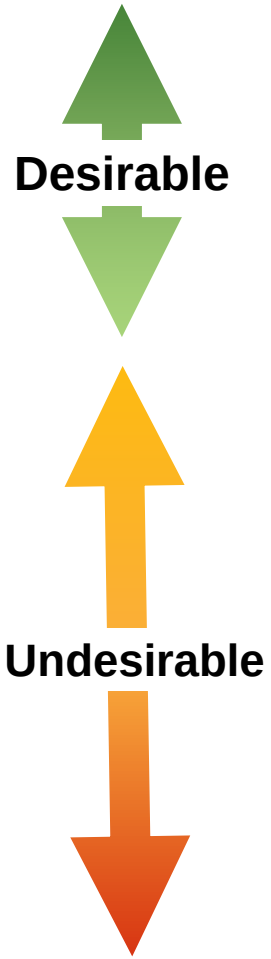
2010 Traffic Volumes



DOWL HKM

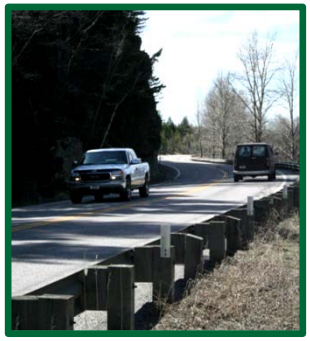
MONTANA MDT DEPARTMENT OF TRANSPORTATION

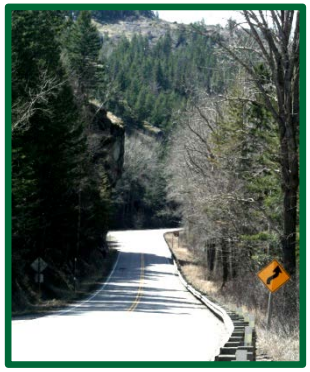
Level of Service (LOS) Concept



- **LOS A:**
  High operating speeds; little difficultly passing
- **LOS B:**
  Passing demand and passing capacity are balanced
- **LOS C:**
  Most vehicles travel in platoons (groups); speeds are curtailed
- **LOS D:**
  High passing demand with minimal passing opportunity
- **LOS E:**
  Passing is virtually impossible; speeds seriously curtailed
- **LOS F:**
  Unstable operating conditions; heavy congestion

US 2 - Badrock Canyon Corridor Planning Study



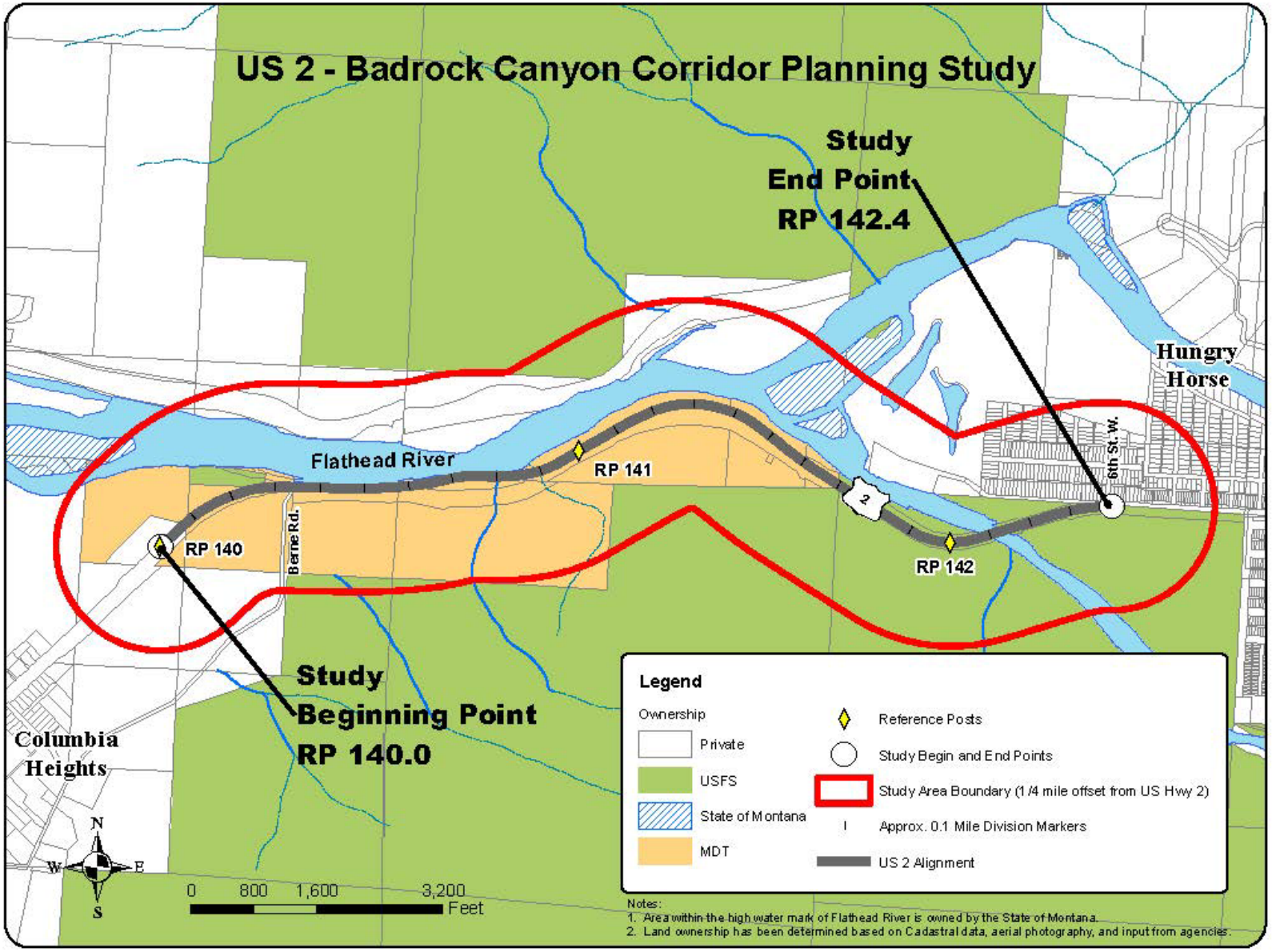


Operations for Two-Lane Facility (No Improvements)

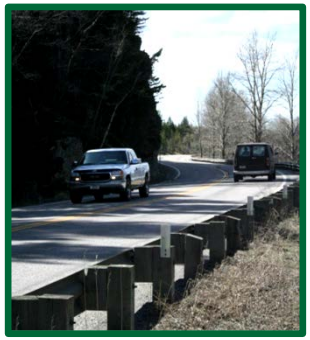
Acceptable operations for a principal arterial facility in rolling terrain is **LOS B**

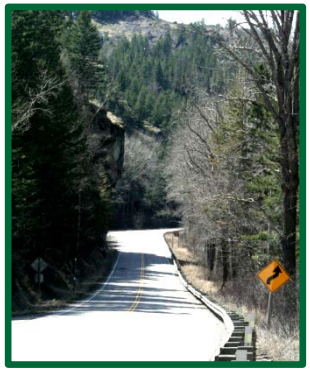
Analysis Period	Existing (Two-Lane Facility) 2011			Projected (Two-Lane Facility) 2035		
	AM Peak Hour	Median Off-Peak Hour	PM Peak Hour	AM Peak Hour	Median Off-Peak Hour	PM Peak Hour
	LOS	LOS	LOS	LOS	LOS	LOS
Peak Season	D	D	D	D	D	E
Annual Average	C	C	D	C	C	D

Land Ownership



US 2 - Badrock Canyon Corridor Planning Study

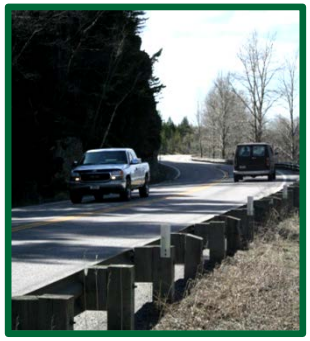


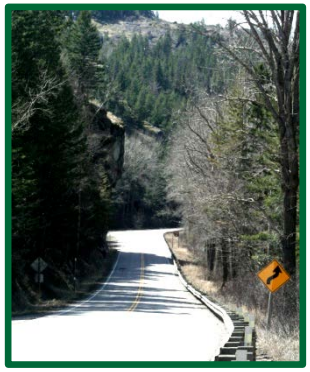


Environmental & Cultural Resources

- **Main Stem and South Fork of the Flathead River**
  - Floodplains, wetlands, riparian vegetation
- **Critical Wildlife Habitat and Wildlife Movement Areas**
- **Recreational Areas**
  - Berne Park, river access, trailheads
- **Cultural Resources**
  - Tote Road, archaeological sites, cultural landscape

Needs and Objectives



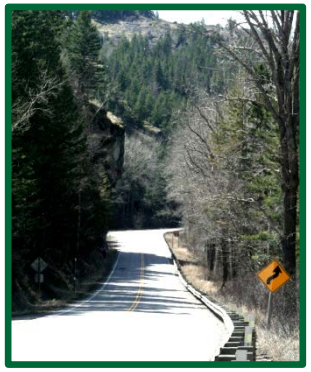


- **<u>Need 1</u>: Improve the safety and operation of the US 2 roadway facility within the study area for all users, where practicable.**
  - **Objectives:** roadway elements; South Fork Flathead River Bridge; guardrail; signing; drainage; operations; non-motorized usage

- **<u>Need 2</u>: Minimize adverse impacts from improvements to the environmental, historic, cultural, scenic and recreational characteristics of the corridor.**
  - **Objectives:** Flathead River; fisheries; historic, cultural, and archaeological resources; scenic resources; recreational sites; wild animals.

- **Other issues to be considered:**
  - Utilities, construction feasibility, funding

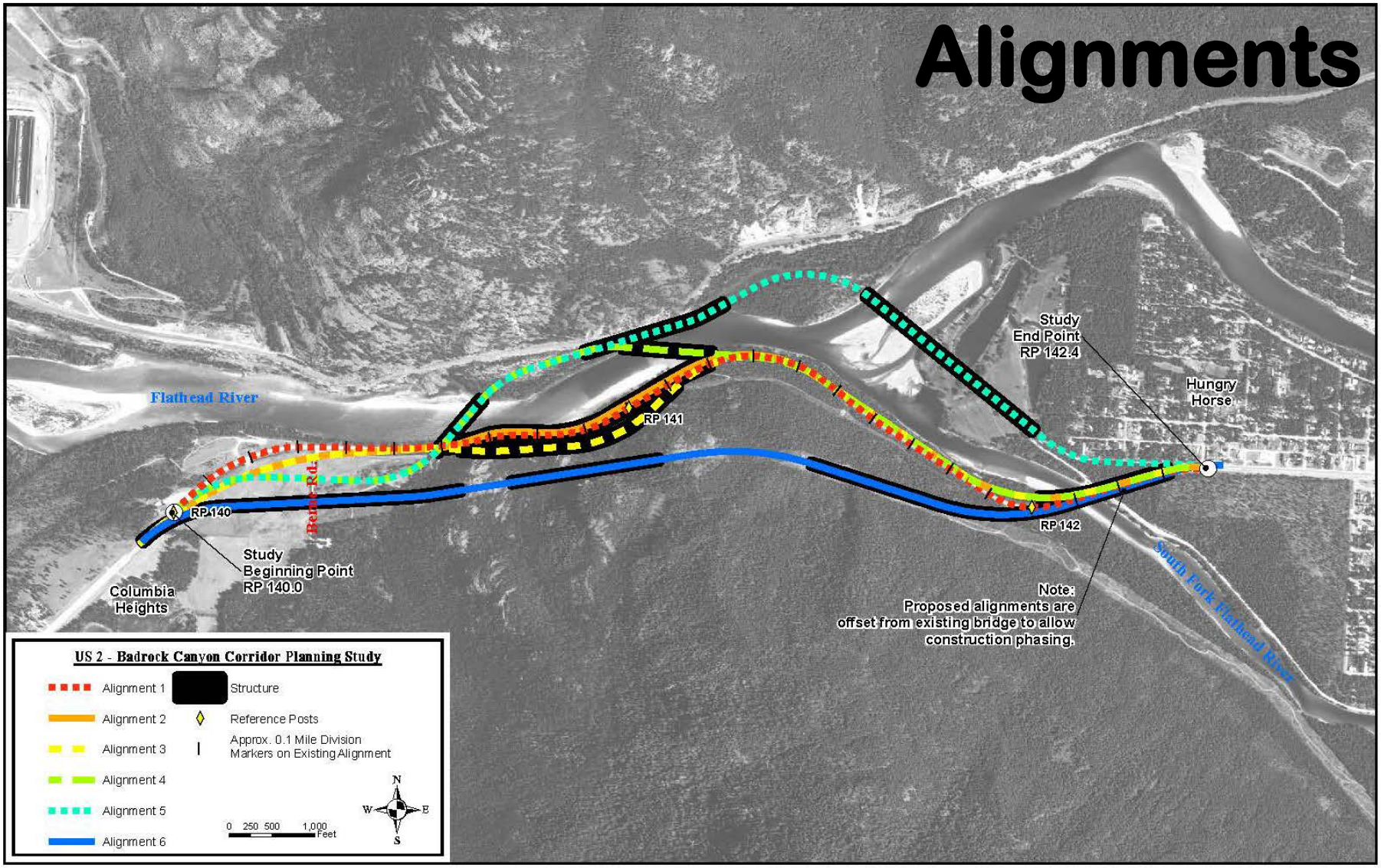
US 2 - Badrock Canyon Corridor Planning Study



Improvement Options

- Alignment Identification & Screening
- Advanced Alignments

Alignments


Flathead River
Study End Point RP 142.4
Hungry Horse
RP 141
Berne Rd.
RP 140
RP 142
Study Beginning Point RP 140.0
Columbia Heights
Note: Proposed alignments are offset from existing bridge to allow construction phasing.
South Fork Flathead River
US 2 - Badrock Canyon Corridor Planning Study
Alignment 1
Alignment 2
Alignment 3
Alignment 4
Alignment 5
Alignment 6
Structure
Reference Posts
Approx. 0.1 Mile Division Markers on Existing Alignment
0 250 500 1,000 Feet
N
W
E
S

Alignment Screening – Summary

Criteria	Alignment 1 Existing	Alignment 2 Optimized Existing	Alignment 3 Tunnel	Alignment 4 Partial Canyon Bypass	Alignment 5 Full Canyon Bypass	Alignment 6 Southern Alignment
Cost	✓	✓	✗	✓	✓	✗
Constructability	✓	✓	✗	✓	✓	✗
Potentially Impacted Resources	✓	✓	✗	✗		✓
RW/Easements	✓			✗	✗	✗
Community Support	✓	✓	✓	✗	✗	✗
Recommendation	Advance	Advance	Eliminate	Eliminate	Eliminate	Eliminate

Alignment Screening - Cost

Alignment 1 Existing	Alignment 2 Optimized Existing	Alignment 3 Tunnel	Alignment 4 Partial Canyon Bypass	Alignment 5 Full Canyon Bypass	Alignment 6 Southern Alignment
Spot Improvements $500 to $4.5M *South Fork Flathead River Bridge* $9.7M to 24.2M	*US 2* $35.9M to $171.0M	*US 2* **$399.0M to $558.0M**	*US 2* $70.1M to $86.4M	*US 2* $89.5M to $110.0M	*US 2* **$307.0M to $379.0M**

Alignment Screening - Constructability

Alignment 1 Existing	Alignment 2 Optimized Existing	Alignment 3 Tunnel	Alignment 4 Partial Canyon Bypass	Alignment 5 Full Canyon Bypass	Alignment 6 Southern Alignment
• South Fork Flathead River Bridge reconstruction • Traffic delays	• South Fork Flathead River Bridge reconstruction • Mobilization into constrained area • Traffic delays • Utility conflicts	• **Geotechnical risks** • South Fork Flathead River Bridge reconstruction • Mobilization into constrained area • Traffic delays • Utility conflicts	• New river crossings • South Fork Flathead River Bridge reconstruction • Mobilization into constrained area • Traffic delays	• New river crossings • Mobilization into constrained area • Traffic delays	• **Steep terrain** • **Geotechnical risks** • South Fork Flathead River Bridge reconstruction • Mobilization into constrained area • Utility conflicts

Alignment Screening - Resources

Alignment 1 Existing	Alignment 2 Optimized Existing	Alignment 3 Tunnel	Alignment 4 Partial Canyon Bypass	Alignment 5 Full Canyon Bypass	Alignment 6 Southern Alignment
• Impacts to multiple resources adjacent to existing alignment	• Impacts to multiple resources adjacent to existing alignment	• **Risk of impacts to water source at Berne Memorial Park** • Impacts to multiple resources adjacent to existing alignment	• **New river crossings** • Impacts to multiple resources adjacent to existing alignment • Impacts to multiple resources along new alignment		• **Risk of impacts to water source at Berne Memorial Park** • Impacts to multiple resources adjacent to existing bridge and along new alignment

Alignment Screening – RW/Easements

Alignment 1 Existing	Alignment 2 Optimized Existing	Alignment 3 Tunnel	Alignment 4 Partial Canyon Bypass	Alignment 5 Full Canyon Bypass	Alignment 6 Southern Alignment
• DNRC easement at river crossing • USFS easement at RP 140.2± and at eastern end of corridor			• **New RW throughout much of corridor** • **Railroad involvement** • DNRC easements at river crossings • USFS easement at eastern end of corridor	• **New RW throughout majority of corridor** • **Railroad involvement** • DNRC easements at river crossings	• **New RW throughout majority of corridor** • **Utility involvement** • DNRC easement at river crossing • USFS easement at eastern end of corridor

Alignment Screening – Community Support

Alignment 1 Existing	Alignment 2 Optimized Existing	Alignment 3 Tunnel	Alignment 4 Partial Canyon Bypass	Alignment 5 Full Canyon Bypass	Alignment 6 Southern Alignment
More Support	More Support	More Support	**Less Support**	**Less Support**	**Less Support**

Alignment Screening – Summary

Criteria	Alignment 1 Existing	Alignment 2 Optimized Existing	Alignment 3 Tunnel	Alignment 4 Partial Canyon Bypass	Alignment 5 Full Canyon Bypass	Alignment 6 Southern Alignment
Cost	✓	✓	✗	✓	✓	✗
Constructability	✓	✓	✗	✓	✓	✗
Potentially Impacted Resources	✓	✓	✗	✗		✓
RW/Easements	✓			✗	✗	✗
Community Support	✓	✓	✓	✗	✗	✗
Recommendation	Advance	Advance	Eliminate	Eliminate	Eliminate	Eliminate

Alignment 1 Improvements

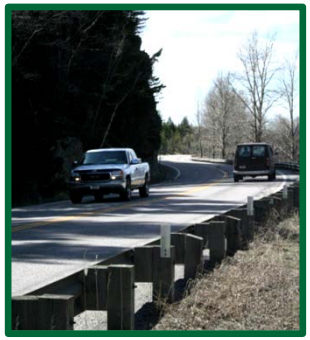
Alignment 1 Improvements		Possible Locations	Planning Level Estimate of Costs	Timeframe	Impacts/ RW
Access Management	Install Concrete Barrier	RP 140.8± to RP 141.0±	$100,000 to $150,000	Short-term	No
Bicycle/ Pedestrian Facilities	Separated Bicycle/ Pedestrian Facility	Throughout Corridor	$3.6M to $4.5M	Mid-term to long-term	Yes
	Bicycle/Pedestrian Overcrossing	RP 140.8±	$1.0M to $2.5M		Yes
Drainage	Install Culverts	RP 140.8± RP 141.2± RP 141.1± RP 142.0±	$4,000 to $10,000 per location	Short-term to mid-term	No
	Re-grade Ditches	RP 140.8± RP 140.9± RP141.8±	$1,000 to $15,000 per location		No
	Install Valley Gutter	RP 141.0±	$3,000 to $5,000		No

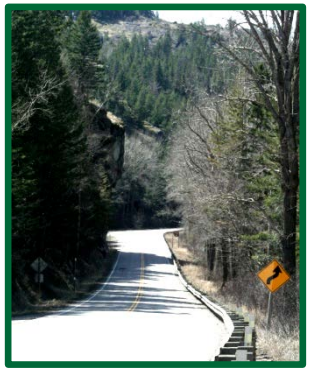
Alignment 1 Improvements

Alignment 1 Improvements		Possible Locations	Planning Level Estimate of Costs	Timeframe	Impacts/ RW
Parking	Construct Parking Lot	RP 140.2±	$400,000 to $500,000	Short-term to mid-term	Yes
Roadside Safety	Install Guardrail with End Treatments	RP 140.3± RP 141.9± RP 142.3±	$3,000 to $5,000 per location		No
Rockfall Prevention	Rockfall Prevention	RP 140.7± RP 141.1±	$200,000 to $1.0M per location		Yes
Rumble Strips	Install Shoulder and Centerline Rumble Strips	Throughout Corridor	$2,100 to $2,700 per mile		No
Sight Distance	Remove Vegetation	RP 140.9± RP 141.3± RP 142.0±	$9,000 to $30,000		Yes

Alignment 1 Improvements

Alignment 1 Improvements		Possible Locations	Planning Level Estimate of Costs	Timeframe	Impacts/ RW
South Fork Flathead River Bridge	Reconstruct South Fork Flathead River Bridge	RP 142.1	$9.7M to $24.2M	Short-term to mid-term	Yes
Traffic Control	Install Static Sign	RP 140.0± RP 140.2± RP 140.4± RP 140.6± RP 141.0± RP 141.1± RP 142.4±	$500 to $1,000 per location		No
	Install Variable Message Sign	RP 140.0± RP 142.3±	$20,000 to $250,000 per location		No
Wildlife Passage	Wildlife Undercrossing	RP 140.2±	$920,000 to $1.1M		Yes



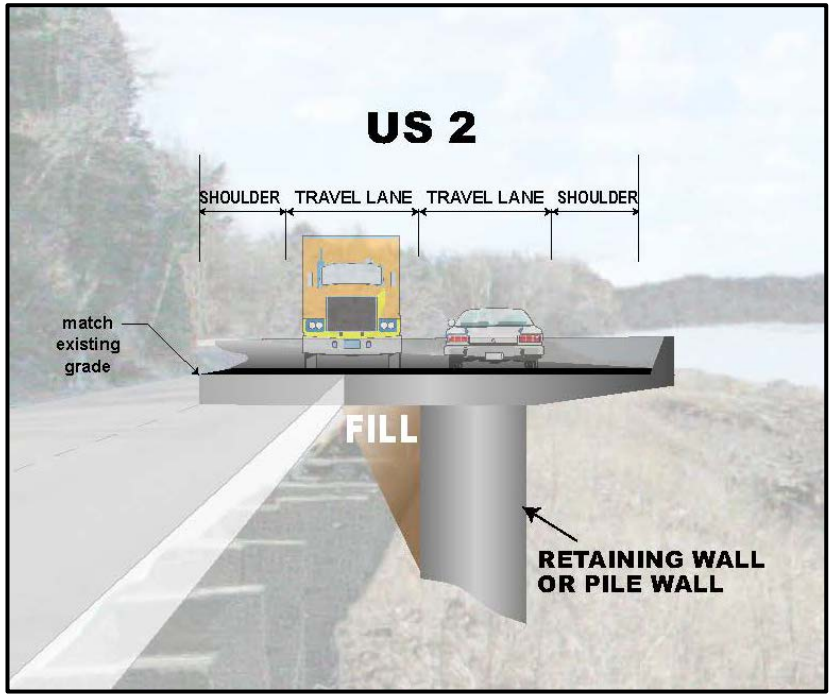


Alignment 2 Improvements

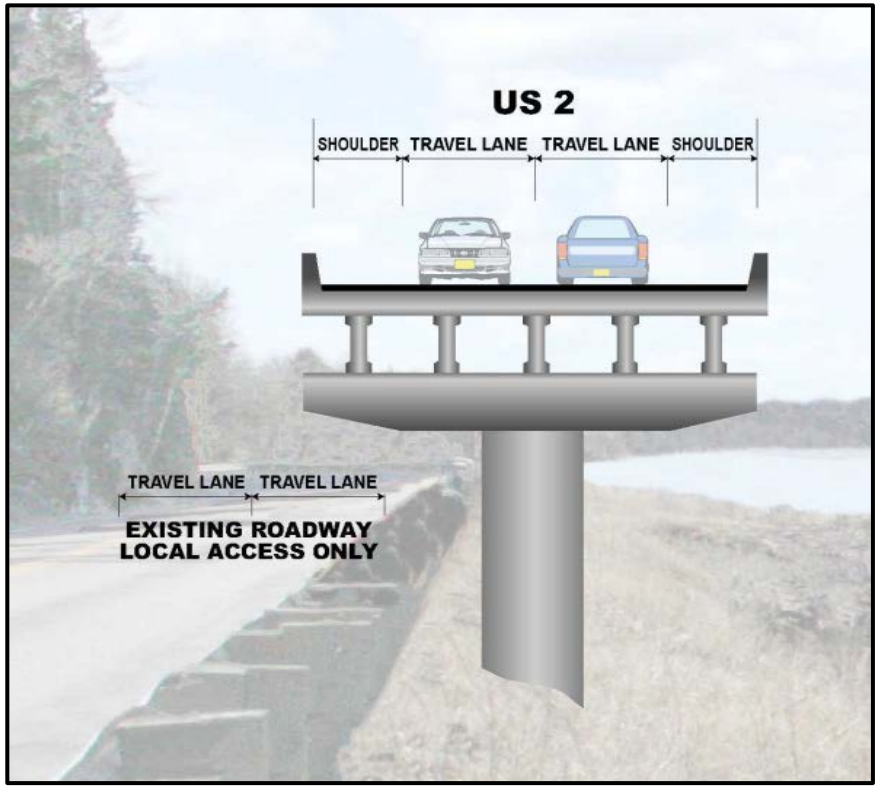
- Structure Types
- Lane Configuration

Structure Types

Cantilevered Structure

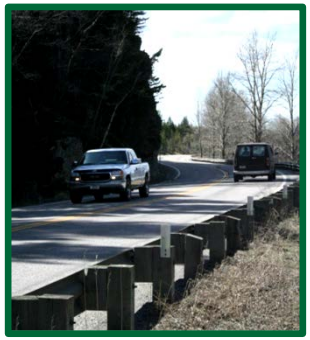


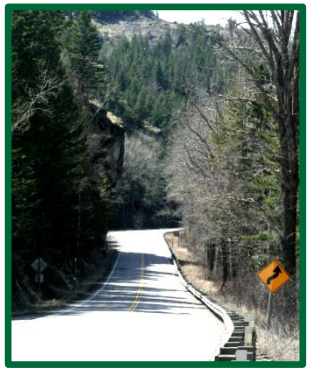
Elevated Structure



Structure Type Screening

Criteria	Alignment 2	
	Cantilevered Structure (RP 140.6± to RP 141.2±)	**Elevated Structure** (RP 140.6± to RP 141.2±)
Planning Level Estimate of Costs	$22.0M to $55.4M	**$71.5M to $138.0M**
Community Support	More Support	**Less Support**
Recommendation	**Advance**	**Eliminate from Further Consideration**

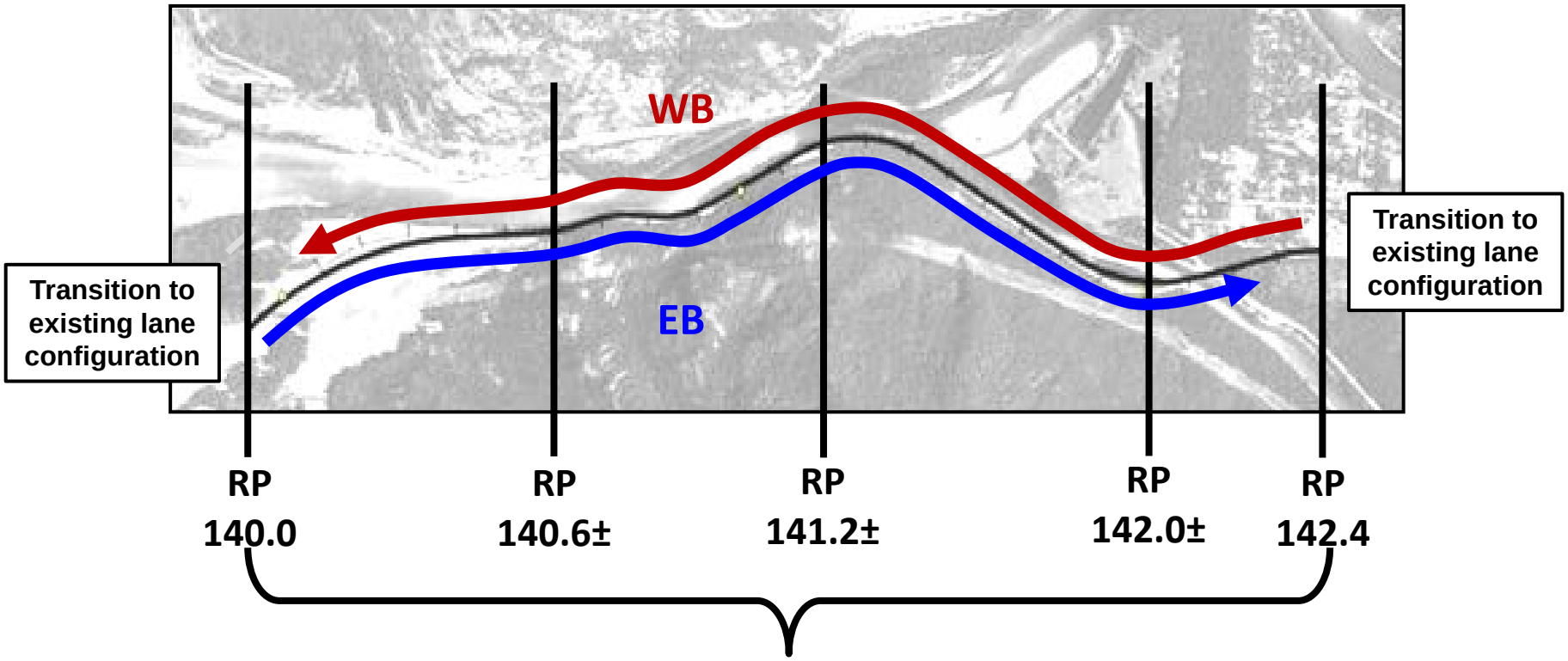




Lane Configurations

- Two-Lane
- 3-2-3-4
- Reverse 3-2-3-4
- 4-2-4
- Four-Lane

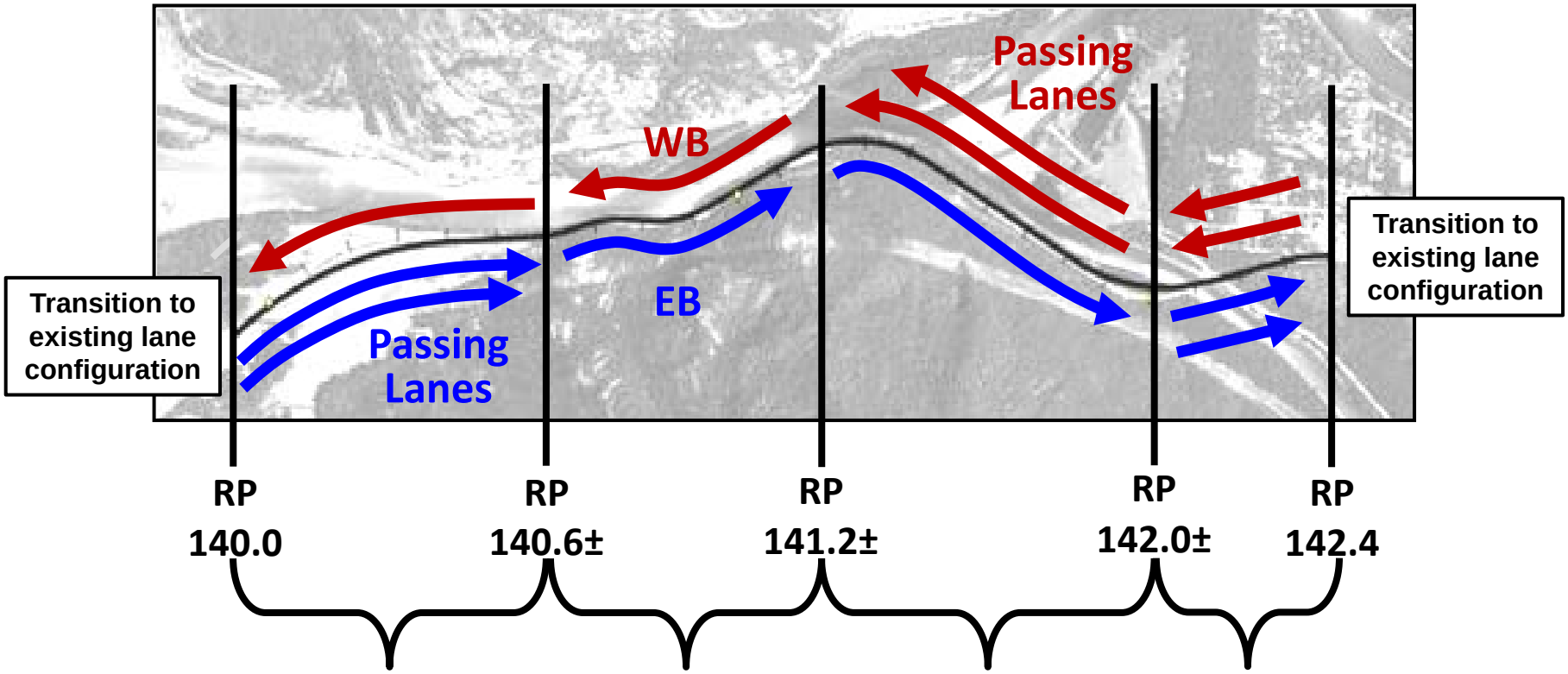
Two-Lane Configuration



2 Travel Lanes Throughout Corridor

(One Travel Lane in Each Direction; ***Cantilevered Structure*** from RP 140.6± to RP 141.2±; Two-Lane South Fork Flathead River Bridge)

3-2-3-4 Configuration



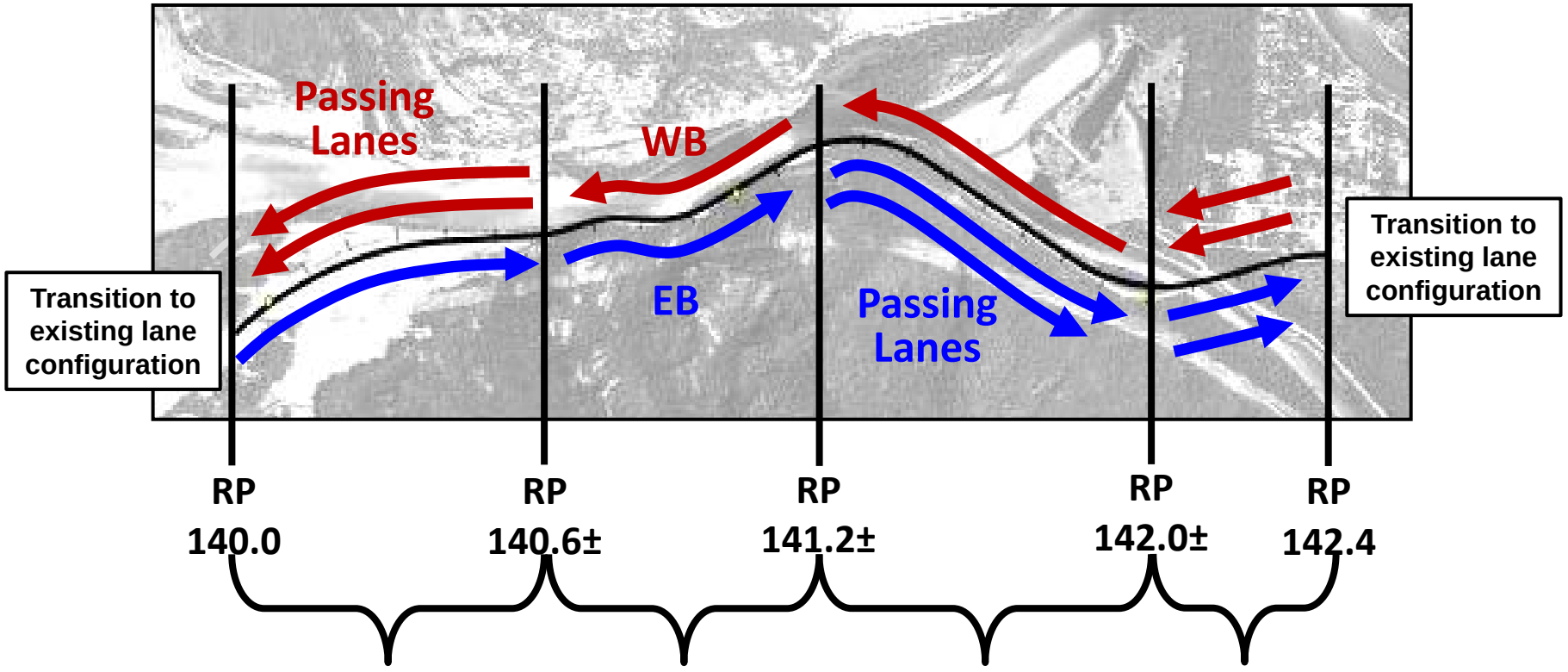
3 Travel Lanes
(Two Travel Lanes in EB Direction and One Travel Lane in WB Direction)

2 Travel Lanes
(One Travel Lane in Each Direction and Transition Sections; Possible Dedicated Left-Turn Bay at Berne Memorial Park; ***Cantilevered Structure***)

3 Travel Lanes
(Two Travel Lanes in WB Direction and One Travel Lane in EB Direction, with Transition Sections)

4 Travel Lanes
(Four-Lane South Fork Flathead River Bridge)

Reverse 3-2-3-4 Configuration



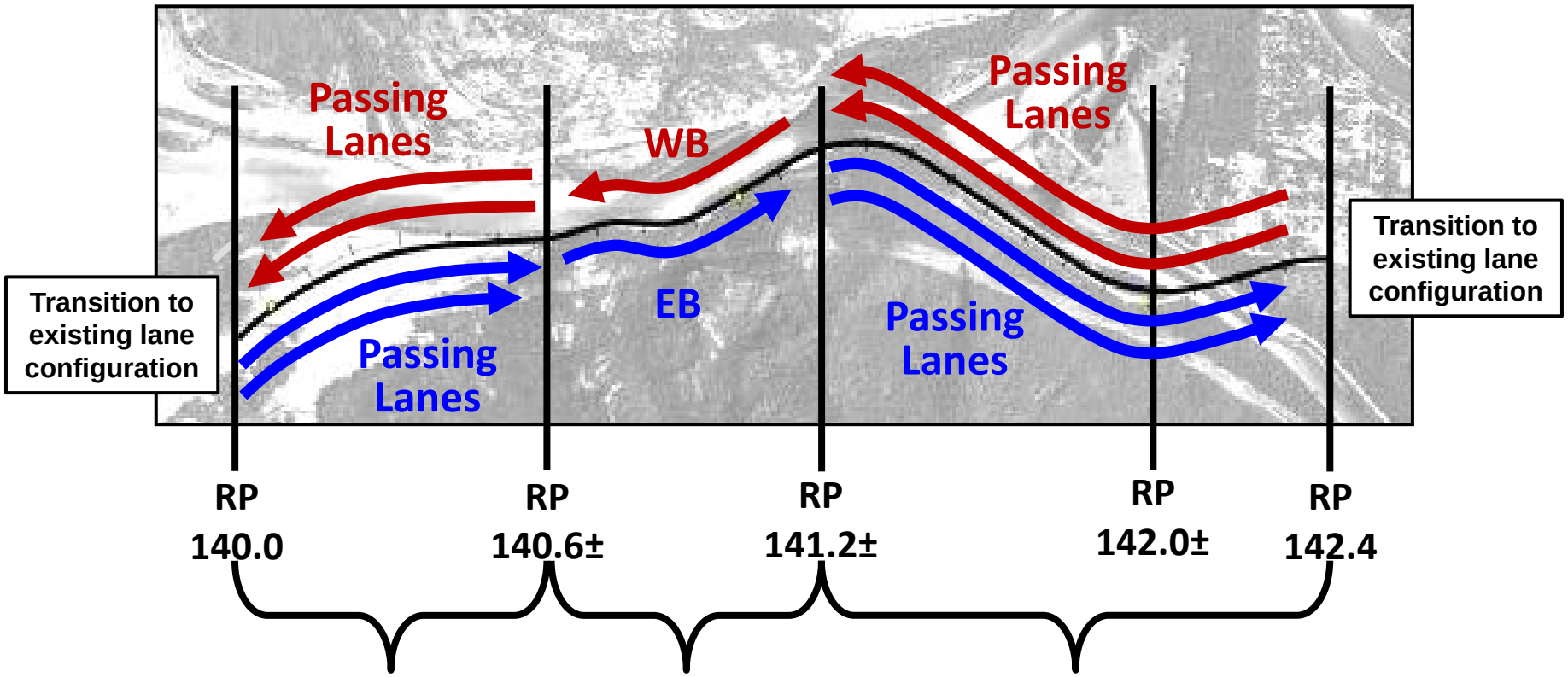
3 Travel Lanes
(Two Travel Lanes in WB Direction and One Travel Lane in EB Direction)

2 Travel Lanes
(One Travel Lane in Each Direction and Transition Sections; Possible Dedicated Left-Turn Bay at Berne Memorial Park; ***Cantilevered Structure***)

3 Travel Lanes
(Two Travel Lanes in EB Direction and One Travel Lane in WB Direction, with Transition Sections)

4 Travel Lanes
(Four-Lane South Fork Flathead River Bridge)

4-2-4 Configuration

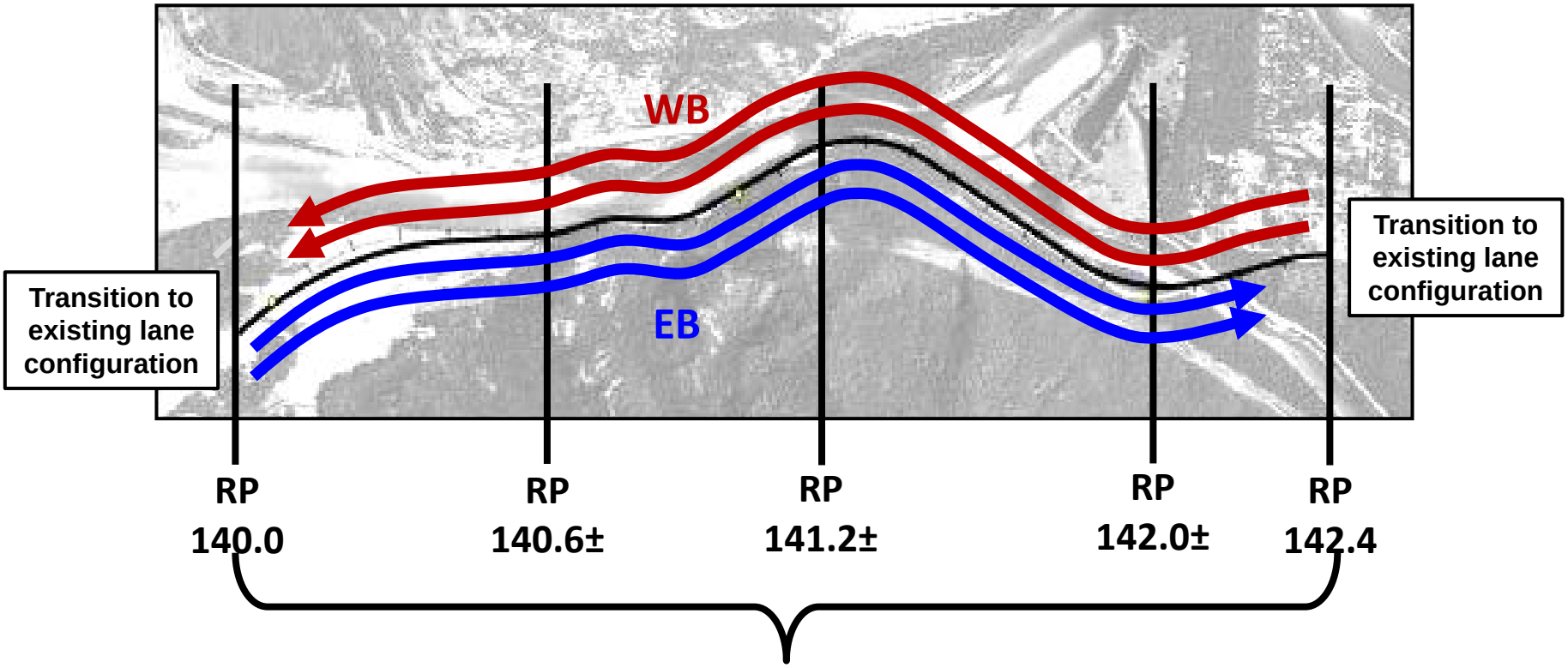


4 Travel Lanes
(Two Travel Lanes Each Direction)

2 Travel Lanes
(One Travel Lane in Each Direction and Transition Sections; Possible Dedicated Left-Turn Bay at Berne Memorial Park; ***Cantilevered Structure***)

4 Travel Lanes
(Two Travel Lanes in Each Direction & Four-Lane South Fork Flathead River Bridge)

Four-Lane Configuration



4 Travel Lanes Throughout Corridor

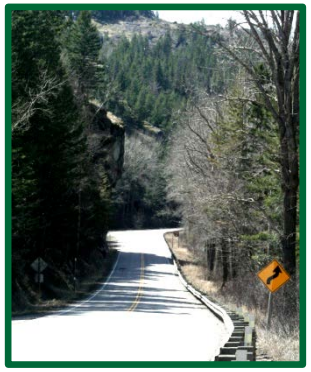
(Two Travel Lanes in Each Direction; ***Cantilevered Structure*** from RP 140.6± to RP 141.2±; Four-Lane South Fork Flathead River Bridge)

Lane Configuration Screening

Criteria	2 Lanes Throughout Corridor	3-2-3-4	Reverse 3-2-3-4	4-2-4	Four Lanes Throughout Corridor
Planning Level Estimate of Costs	$35.9M to $44.3M	$48.0M to $69.5M	$48.0M to $69.5M	$57.2M to $73.1M	$64.6M to $91.2M
Operations Anticipated LOS 2035	**C to E**	A to C	**A to E**	A to C	A
Anticipated Level of Impact	Least Impacts	Moderate Impacts			**Most Impacts**
		Less		More	
Community Support	More Support	More Support	More Support	Less Support	**Least Support**
Recommendation	**Eliminate from Further Consideration**	**Advance**	**Eliminate from Further Consideration**	**Advance**	**Eliminate from Further Consideration**

US 2 - Badrock Canyon Corridor Planning Study

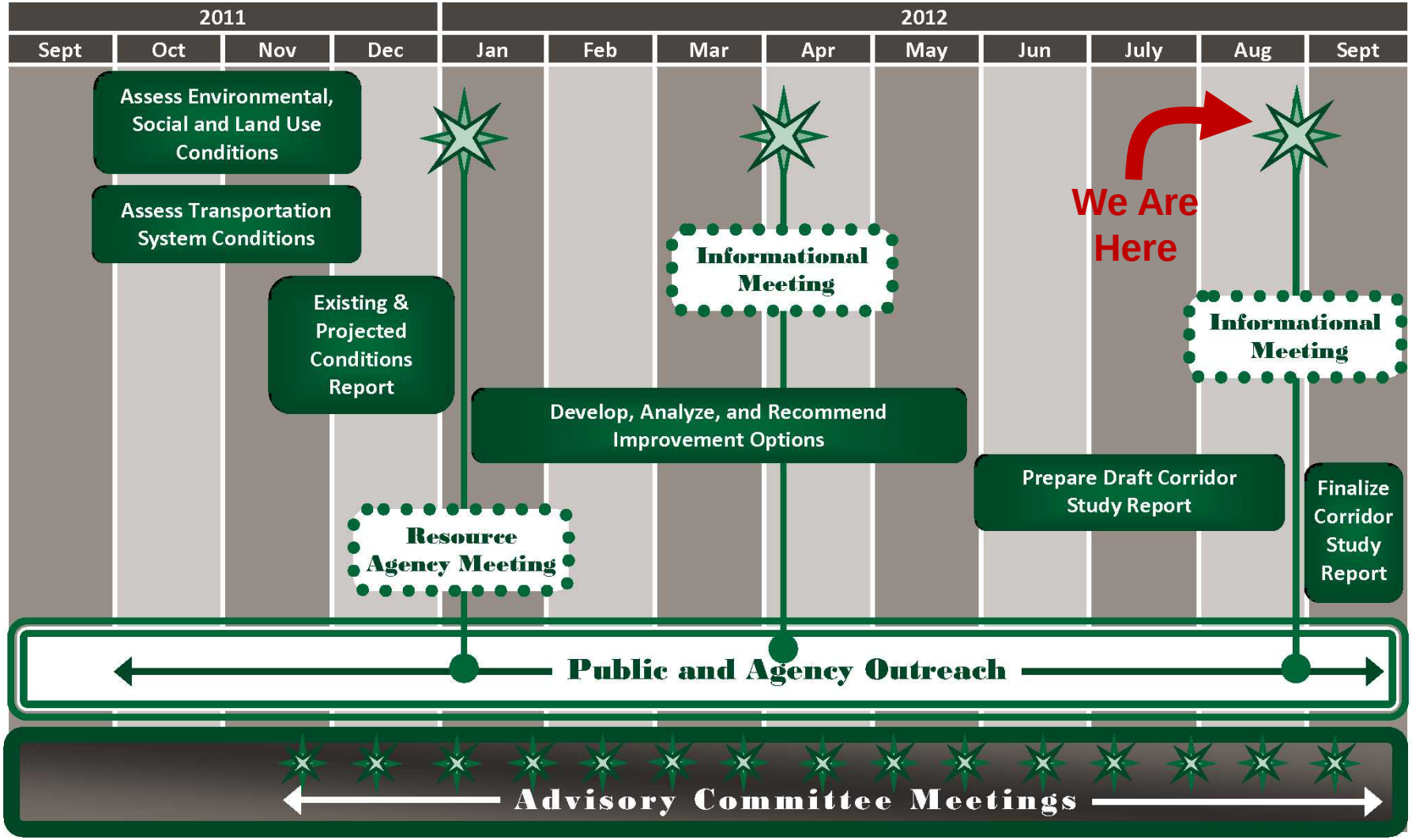
Recommended Improvements



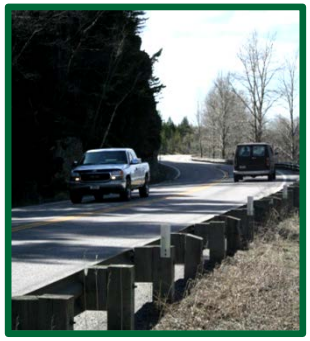
- **Alignment 1** (short-term to long-term)
  - **Spot Improvements**
  - **Reconstruct South Fork Flathead River Bridge**
- **Alignment 2** (long-term)
  - **Reconstruct US 2 with 3-2-3-4 Lane Configuration or 4-2-4 Lane Configuration***
  - **Two-Lane Cantilevered Structure**
  - **Four-Lane South Fork Flathead River Bridge**

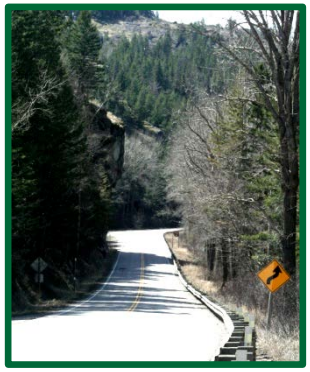
* Both configurations include lane transition areas that would need to be determined at the time of project development and the SEIS.

Corridor Planning Study Schedule



US 2 - Badrock Canyon Corridor Planning Study



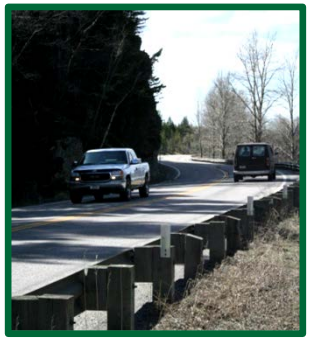


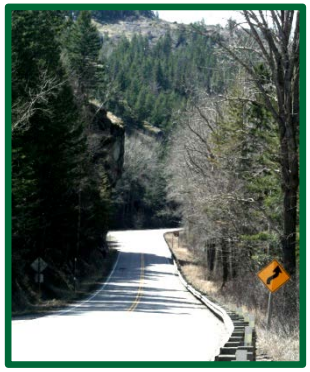
Next Steps

MDT to decide on the following based on funding availability:

- Reconstruct South Fork Flathead River Bridge
- Implement improvements along existing alignment (level of NEPA/MEPA documentation would vary for Alignment 1 improvements)
- Conduct SEIS for full roadway reconstruction on Alignment 2

Please Submit Comments!





- **Submit Comment Sheet Tonight**
- **View Draft Report & Submit Comments on Website**
  http://www.mdt.mt.gov/pubinvolve/badrock
- **Call or email:**
  Shane Stack at 406. 523.5830 or sstack@mt.gov
  Sheila Ludlow at 406.444.9193 or sludlow@mt.gov
  Sarah Nicolai at 406.442.0370 or snicolai@dowlhkm.com
- **Mail comments to:**
  Sarah Nicolai
  DOWL HKM
  PO Box 1009
  Helena, MT 59624

Comments Due
September 14, 2012