

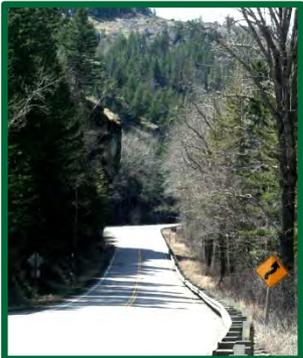
US 2 - Badrock Canyon
Corridor Planning Study

Informational Meeting

Tuesday,
April 10, 2012

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





Welcome & Introductions



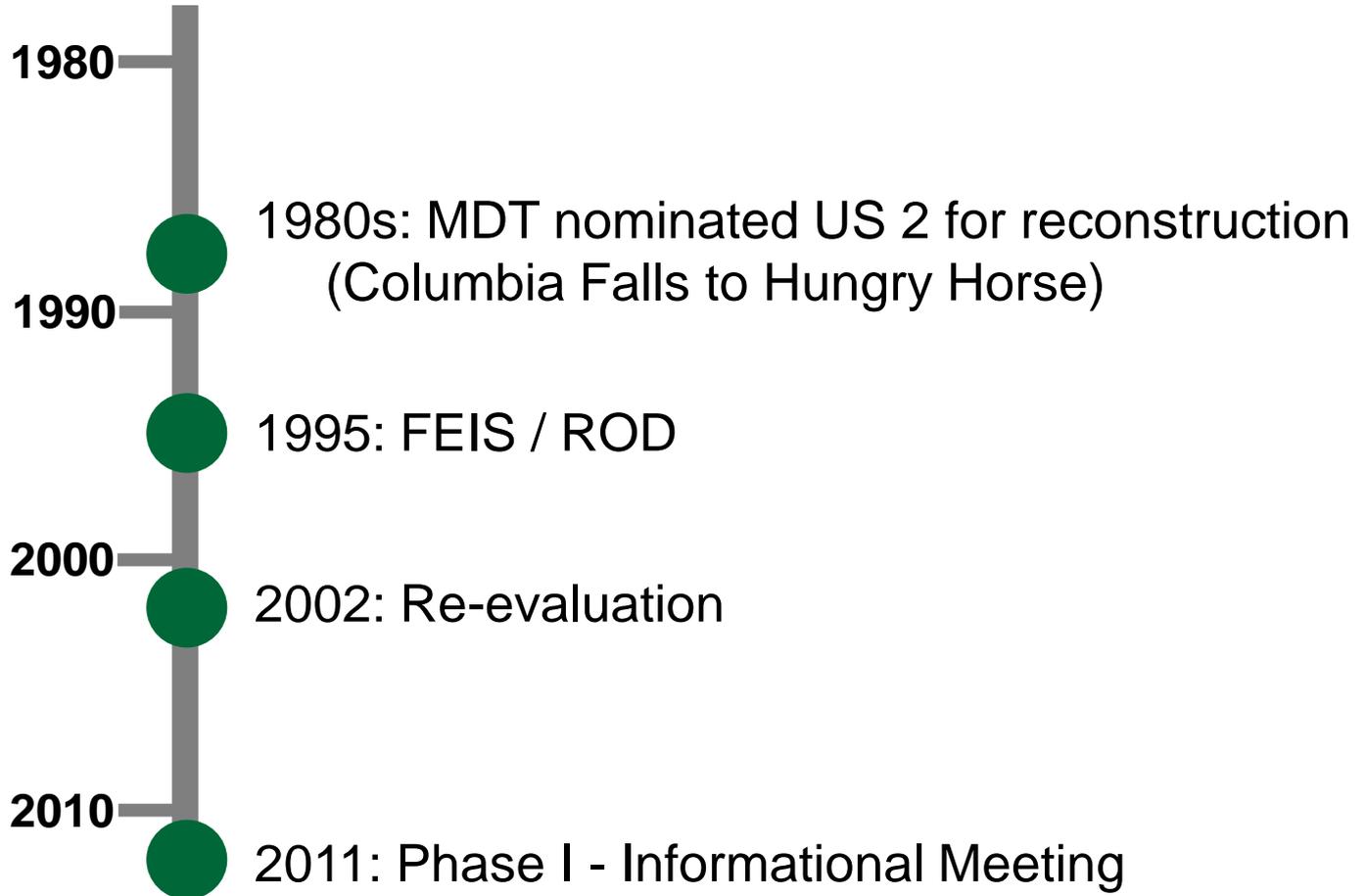
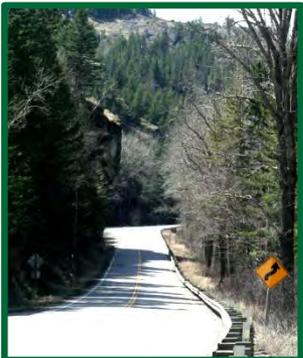
Purpose of Meeting



- Summarize MDT's Previous Efforts in Corridor
- Provide Overview of Corridor Planning Study Process
- Present Key Findings
 - Draft Existing and Projected Conditions Report
 - Draft Environmental Scan Report
- Present Draft Preliminary Improvement Options
- Solicit Input



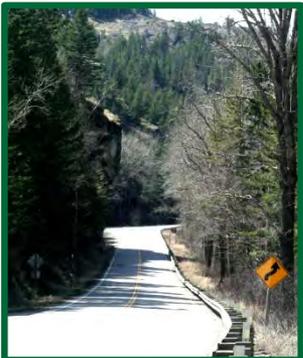
MDT's Previous Efforts





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



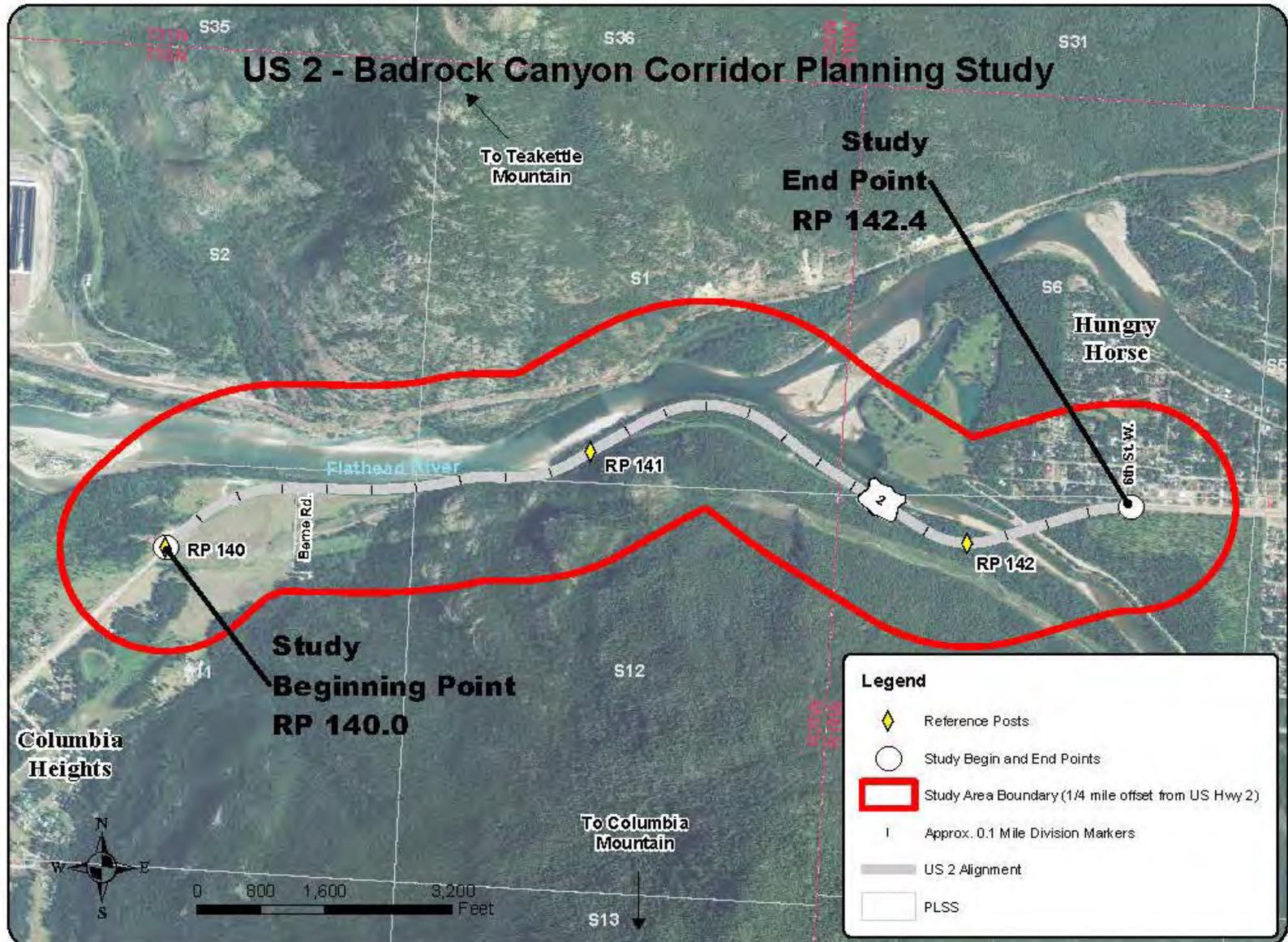


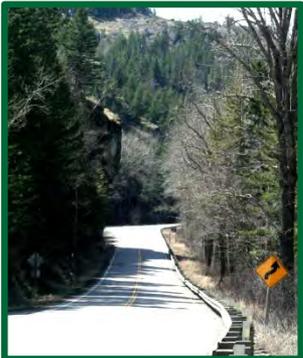
Goals and Purpose

- 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





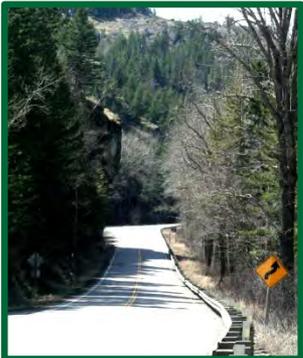
Key Findings

Existing and Projected Conditions Report

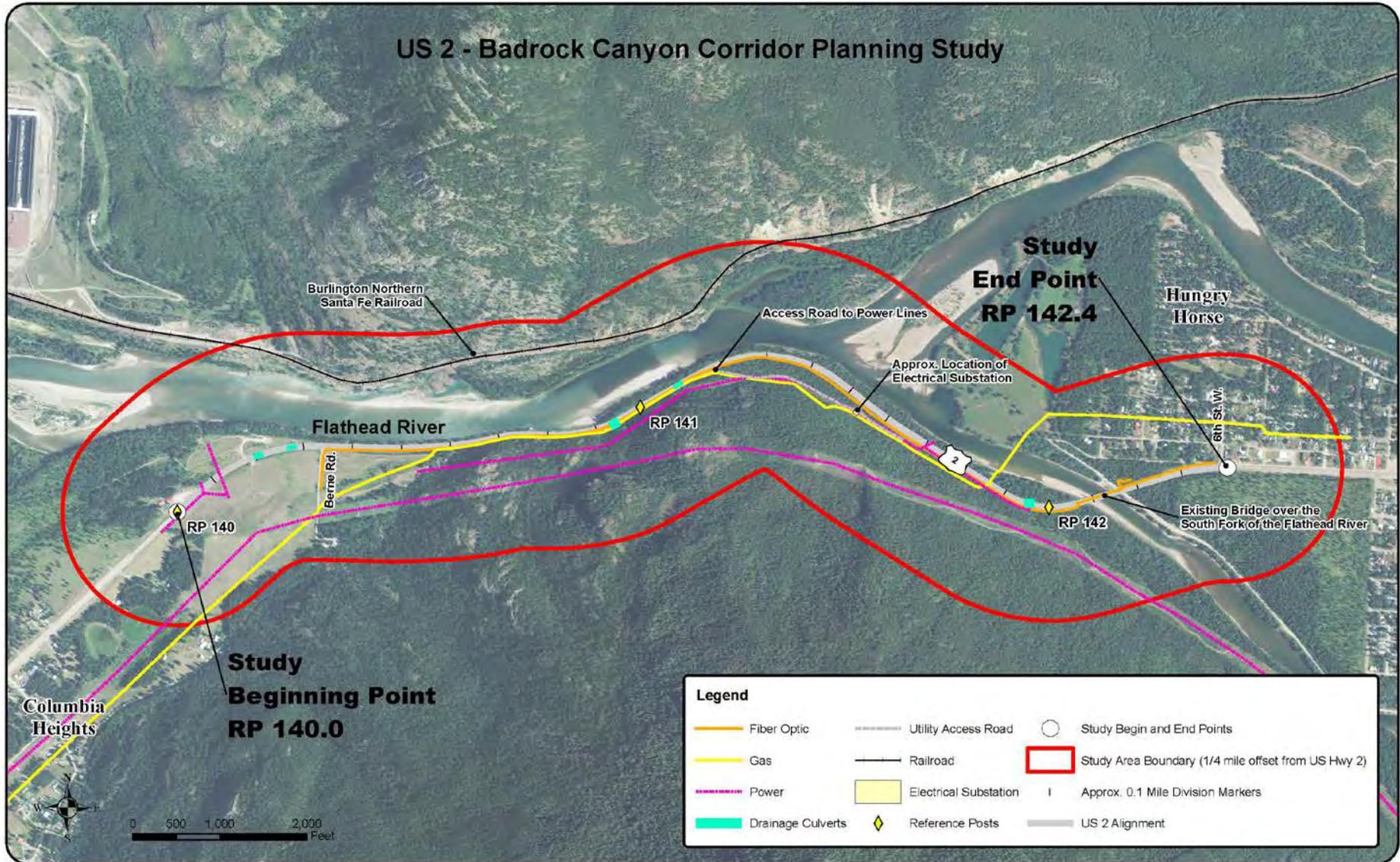


Existing Physical Features

- **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



Existing Physical Features





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

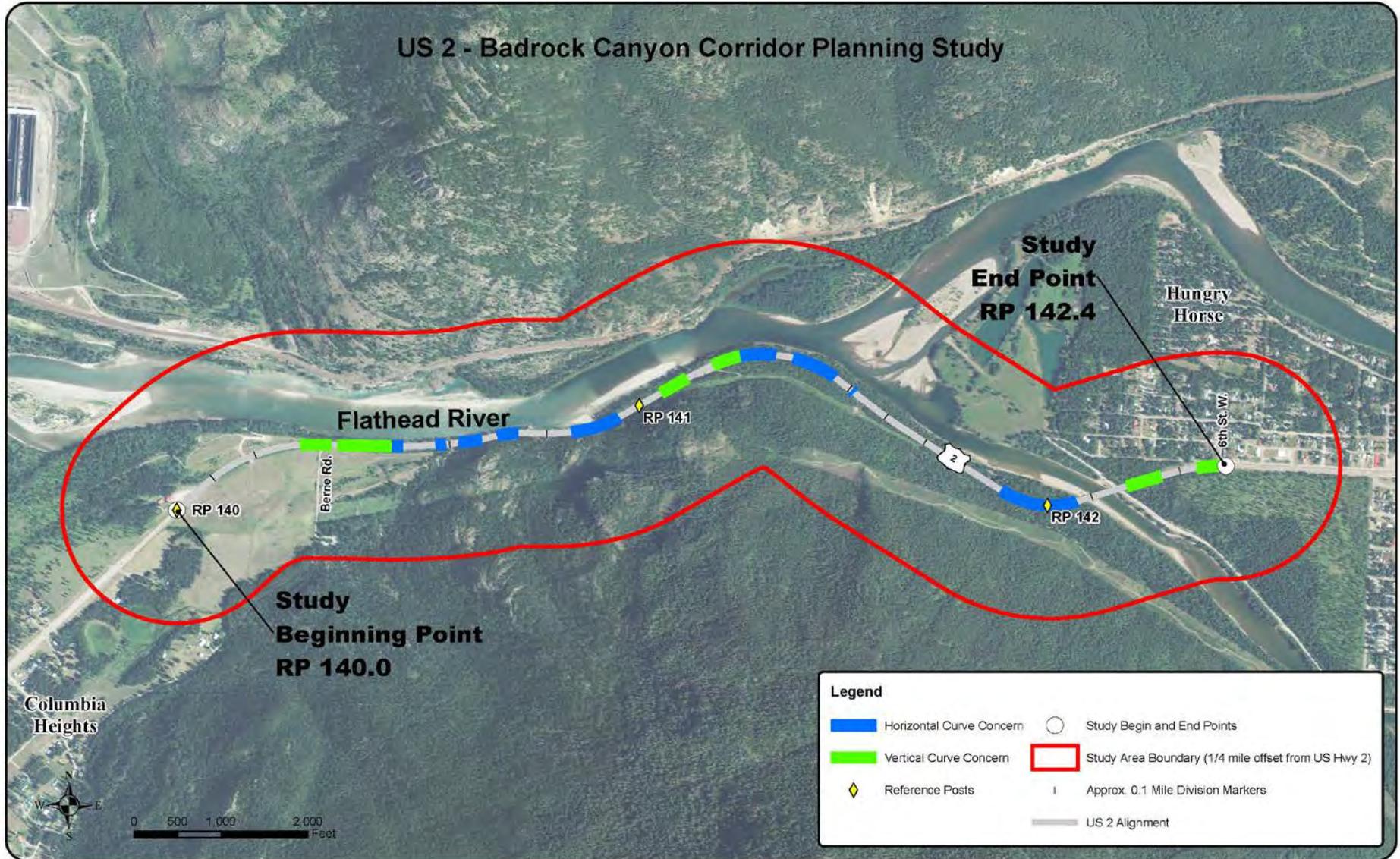


● Vertical Alignment

- Six (6) vertical curves do not meet current MDT design standards

Existing Geometric Features

US 2 - Badrock Canyon Corridor Planning Study

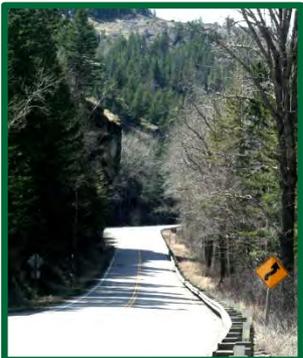




Crash Statistics

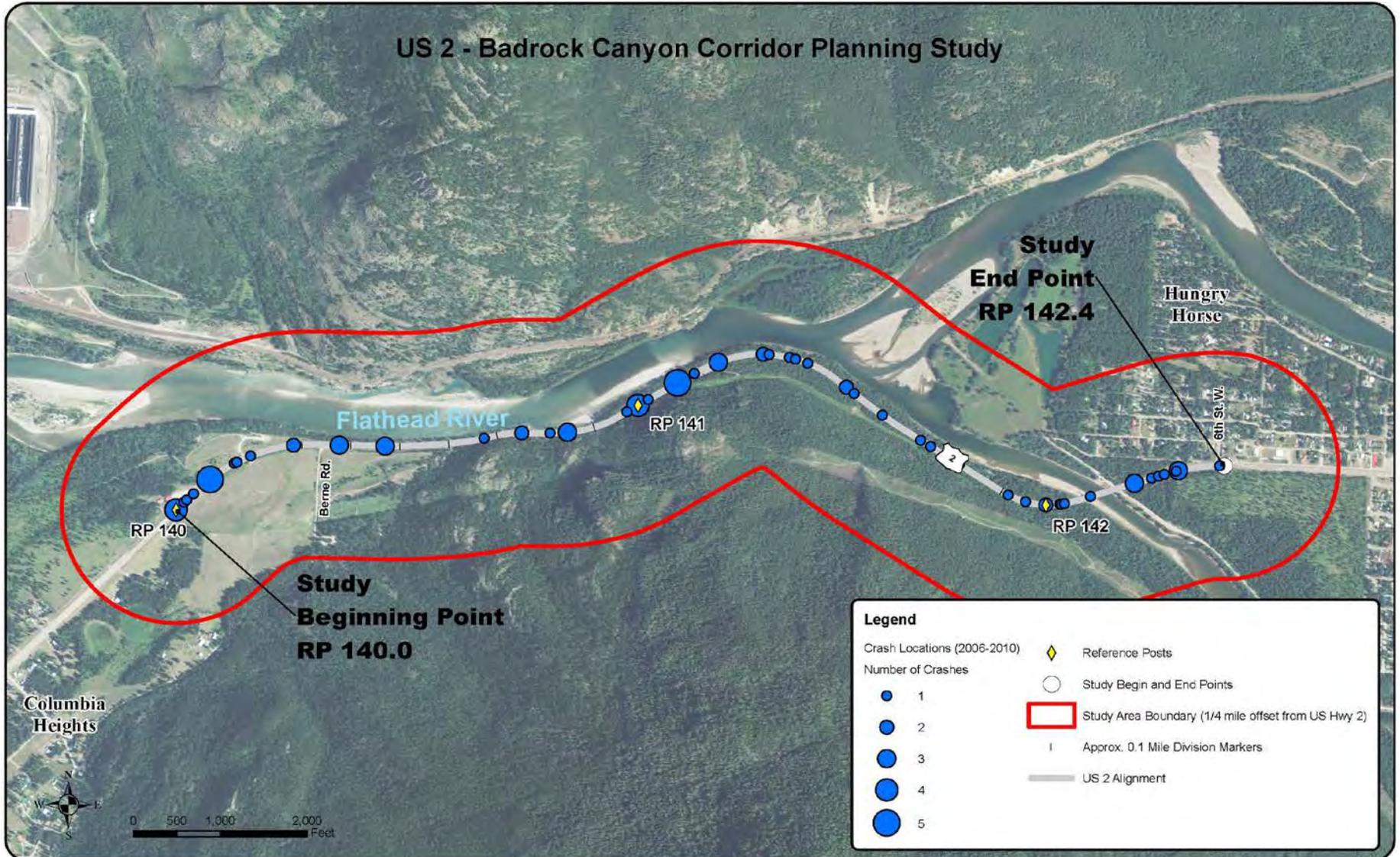
Total of 77 Crashes from 2006-2010

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



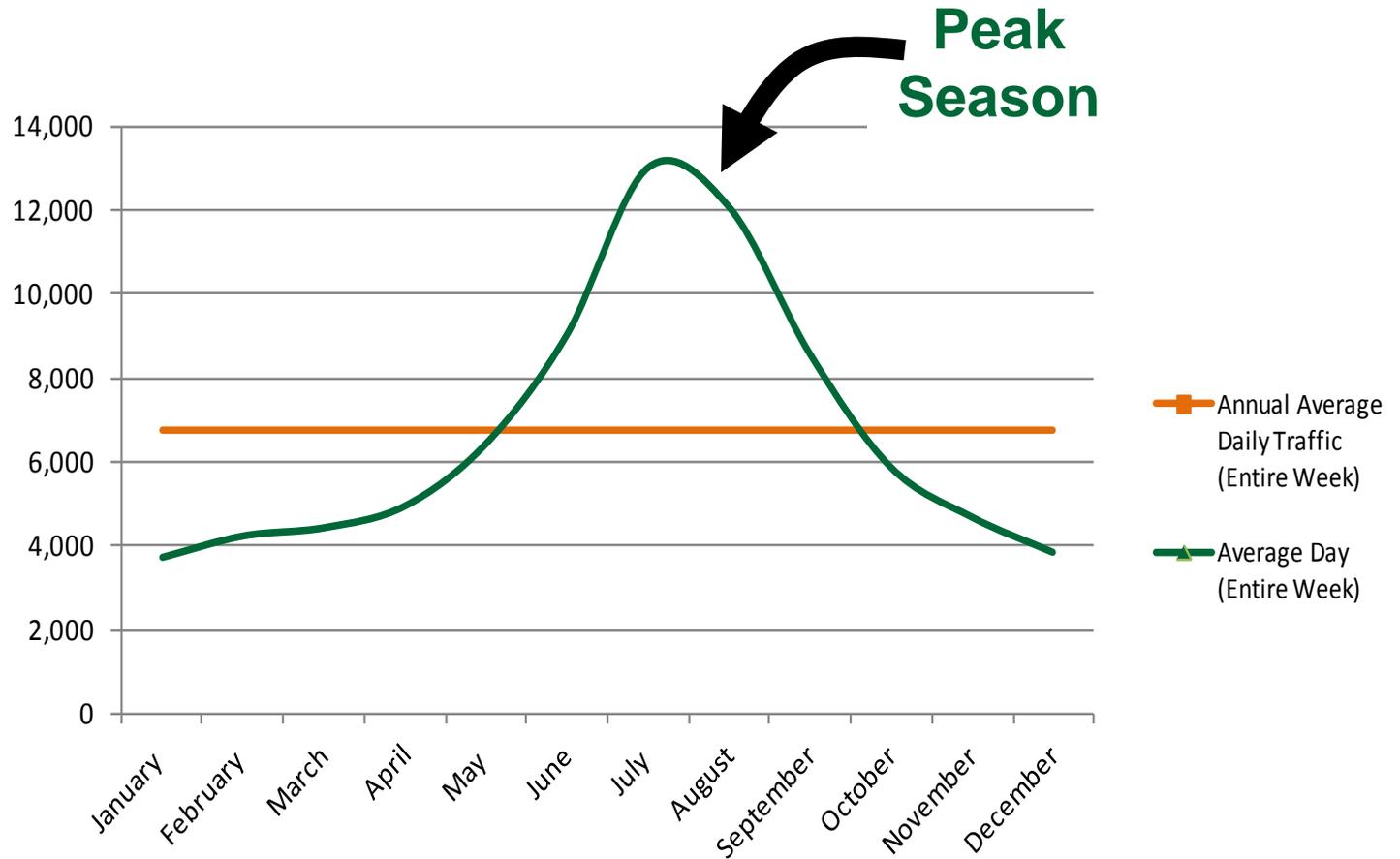
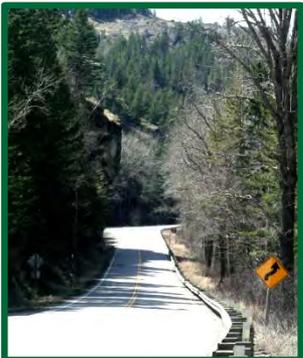
Crash Statistics

US 2 - Badrock Canyon Corridor Planning Study





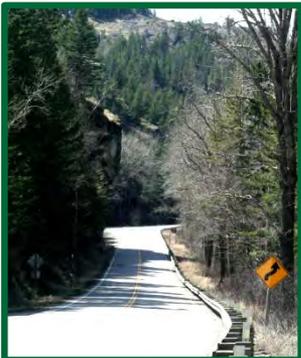
2010 Traffic Volumes



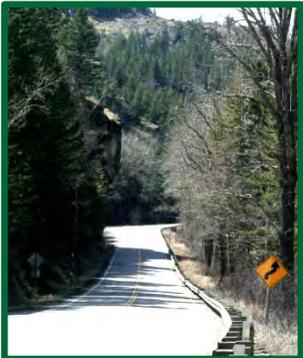


Operations

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



Analysis Period	2011			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

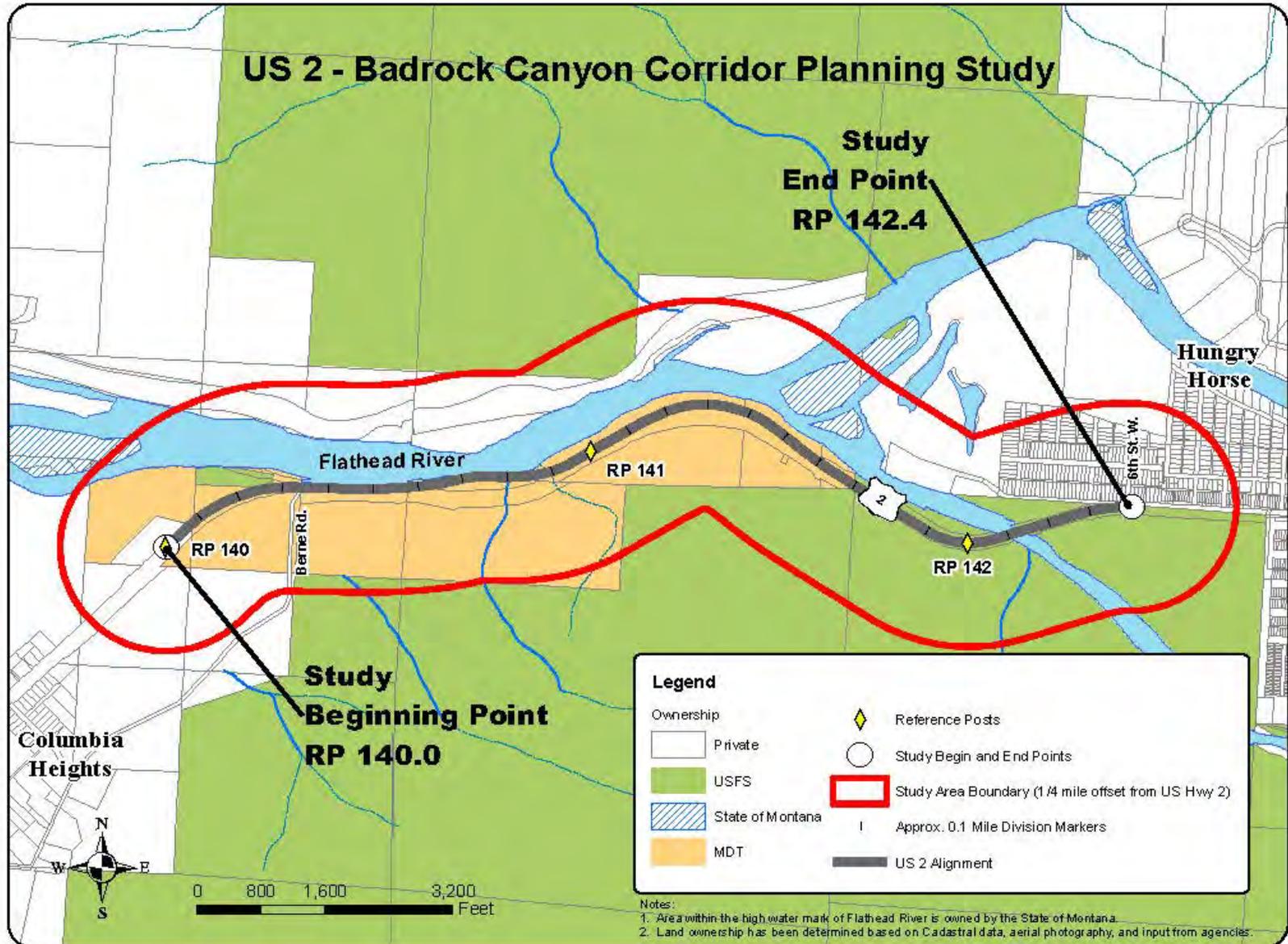


Key Findings

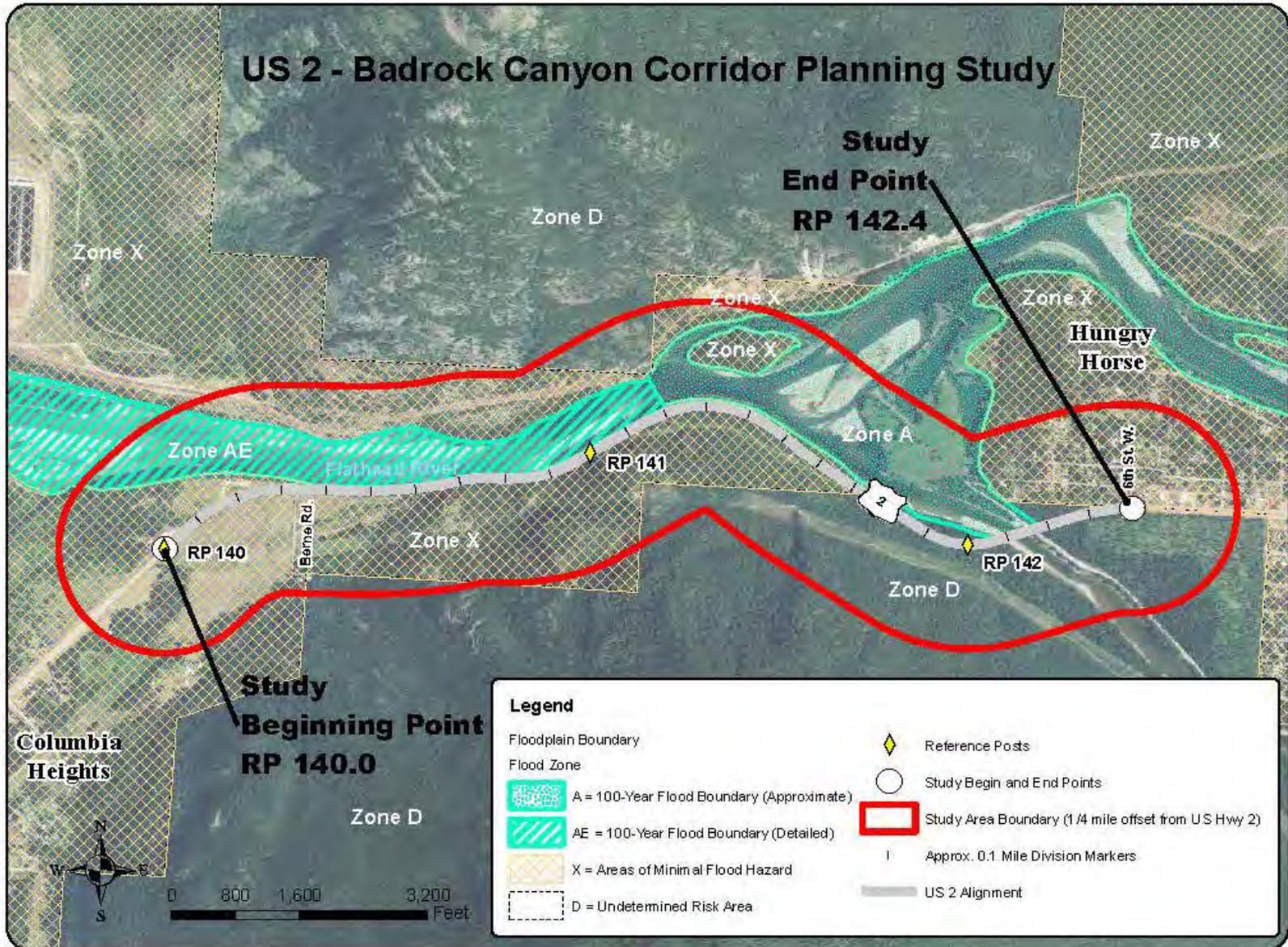
Environmental Scan

Report

Land Ownership



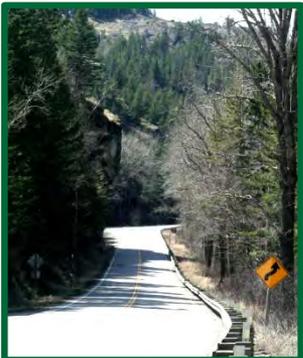
Floodplains



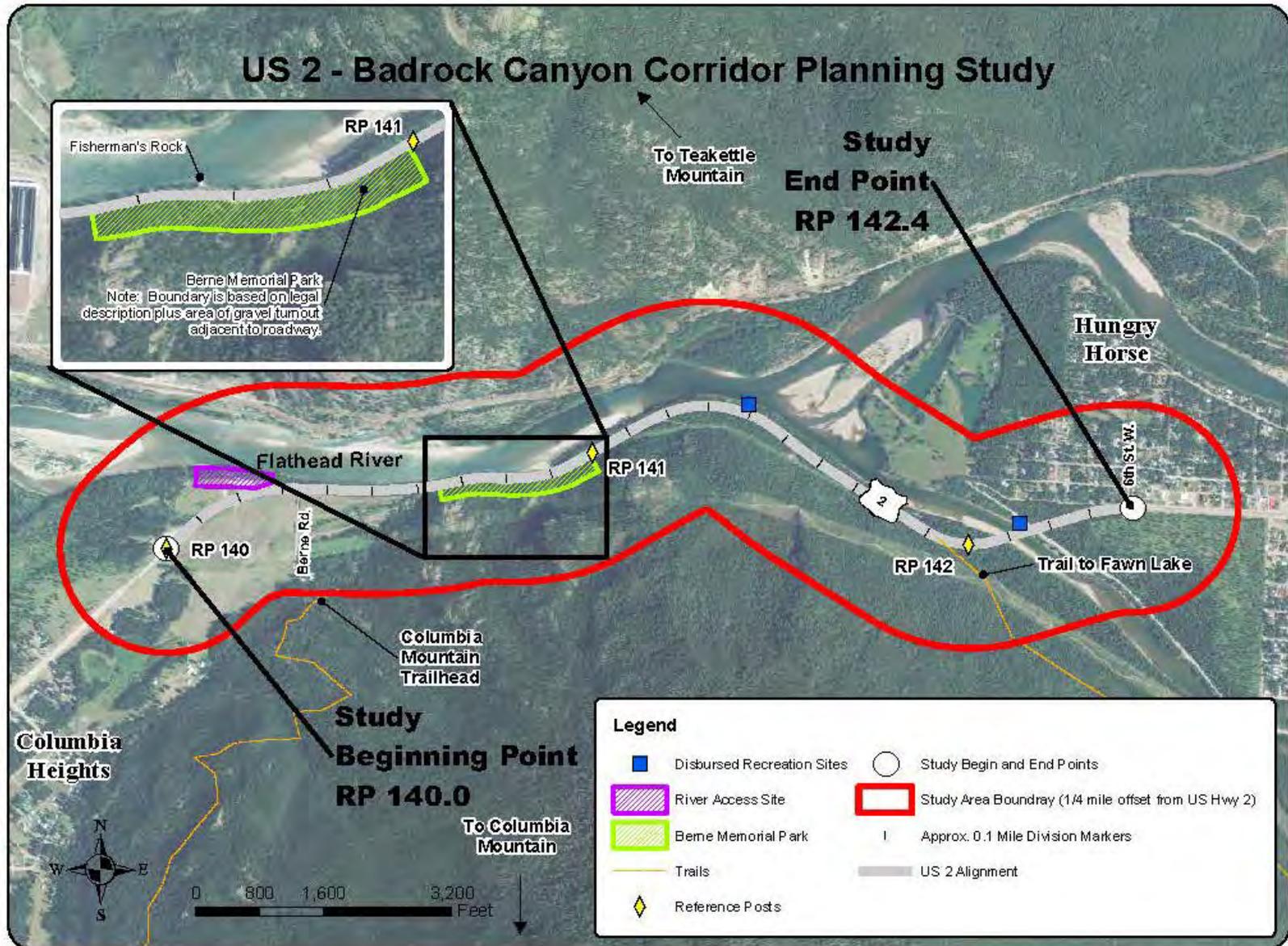


Wildlife Issues

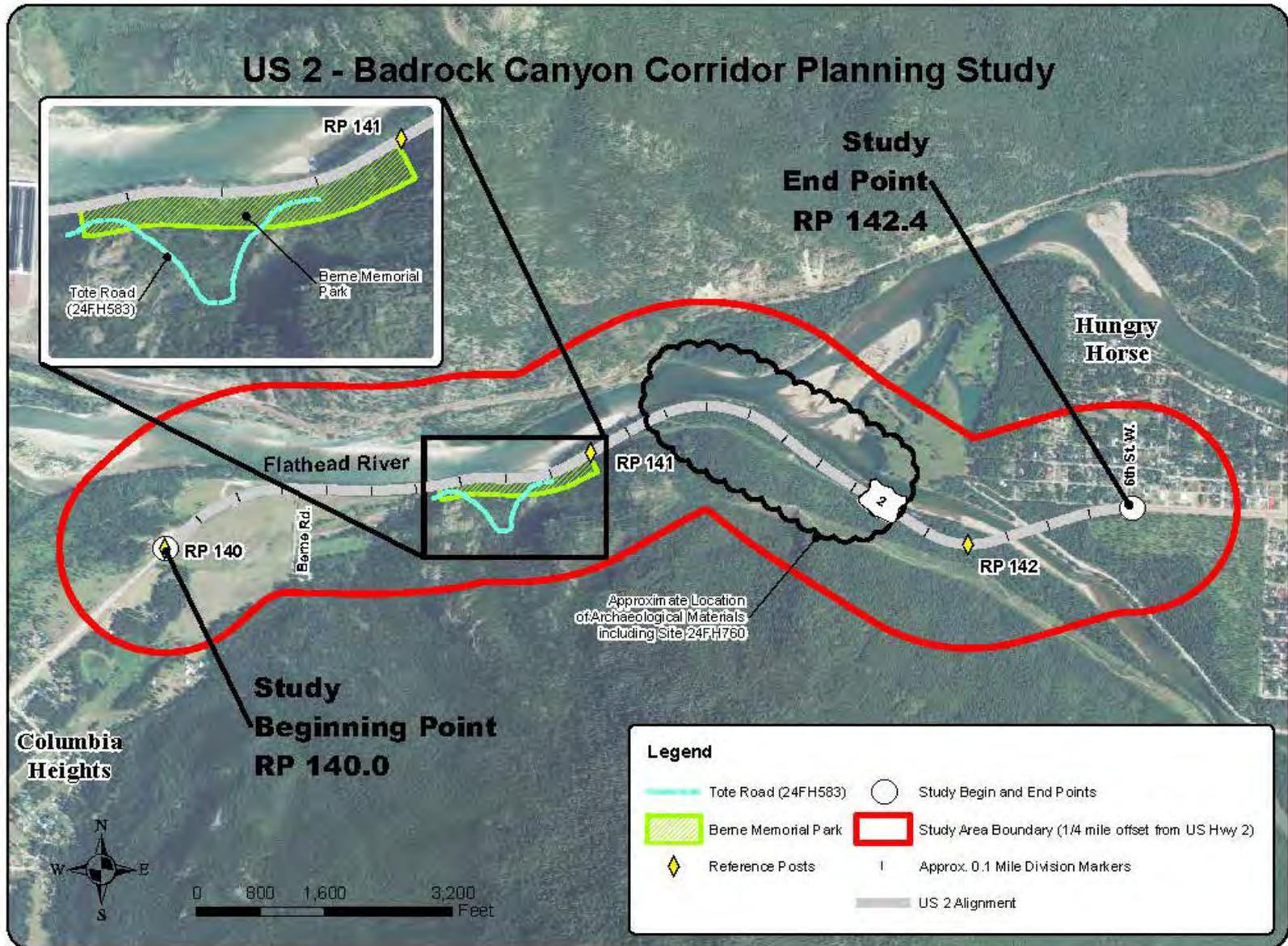
- Critical Habitat
- Wildlife Movement Areas
- Animal-Vehicle Conflicts



Recreational Resources



Cultural and Archaeological Resources





Needs and Objectives



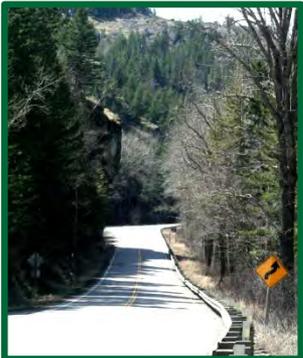
- **Need 1: Improve the safety and operation of the US 2 roadway facility within the study area for all users, where practicable.**
 - **Objectives:** roadway elements; South Fork Flathead River Bridge; guardrail; signing; drainage; operations; non-motorized usage



- **Need 2: 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

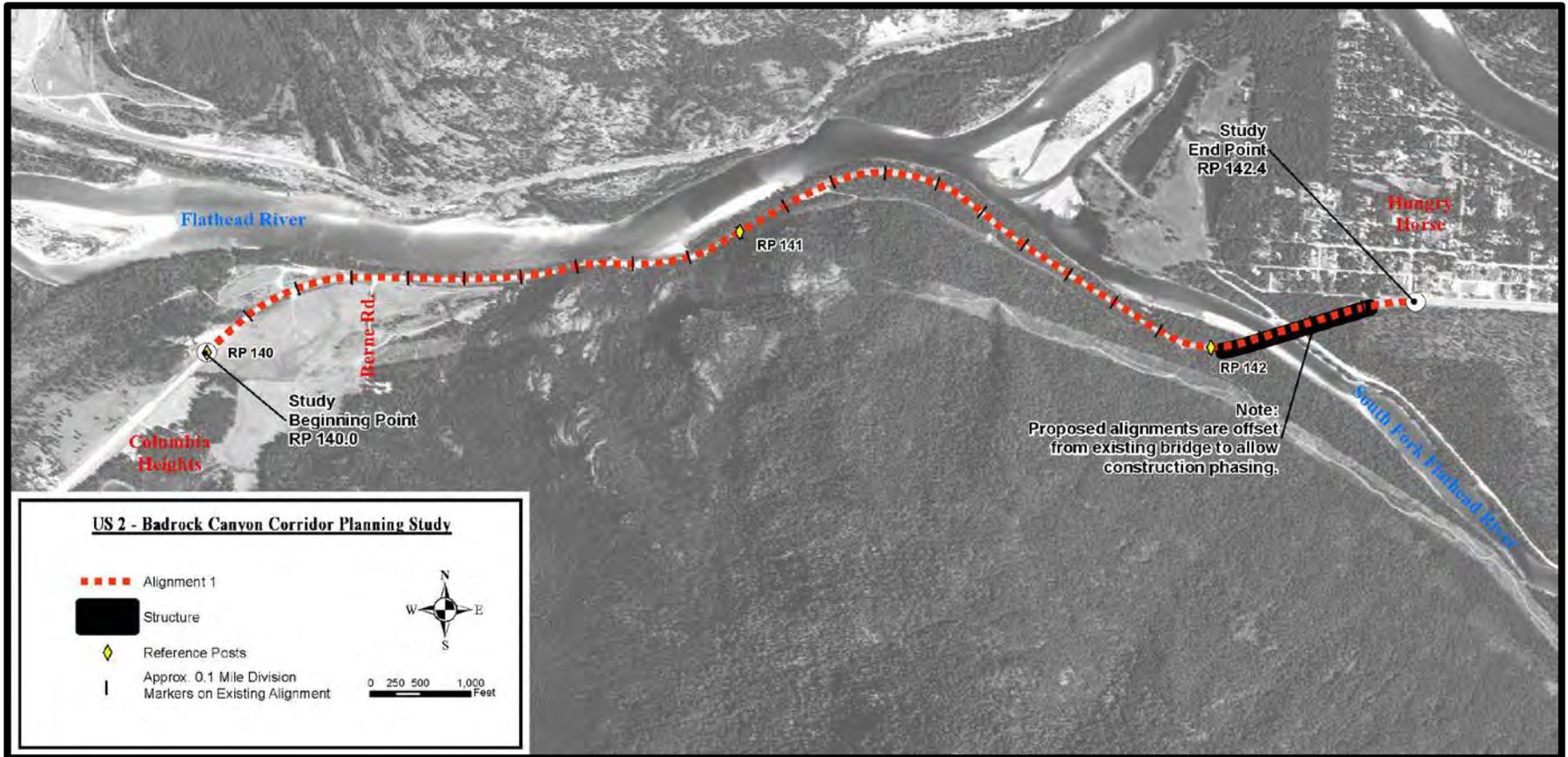


Draft Preliminary Improvement Options

- Alignments
- Lane Configurations
- Spot Improvements

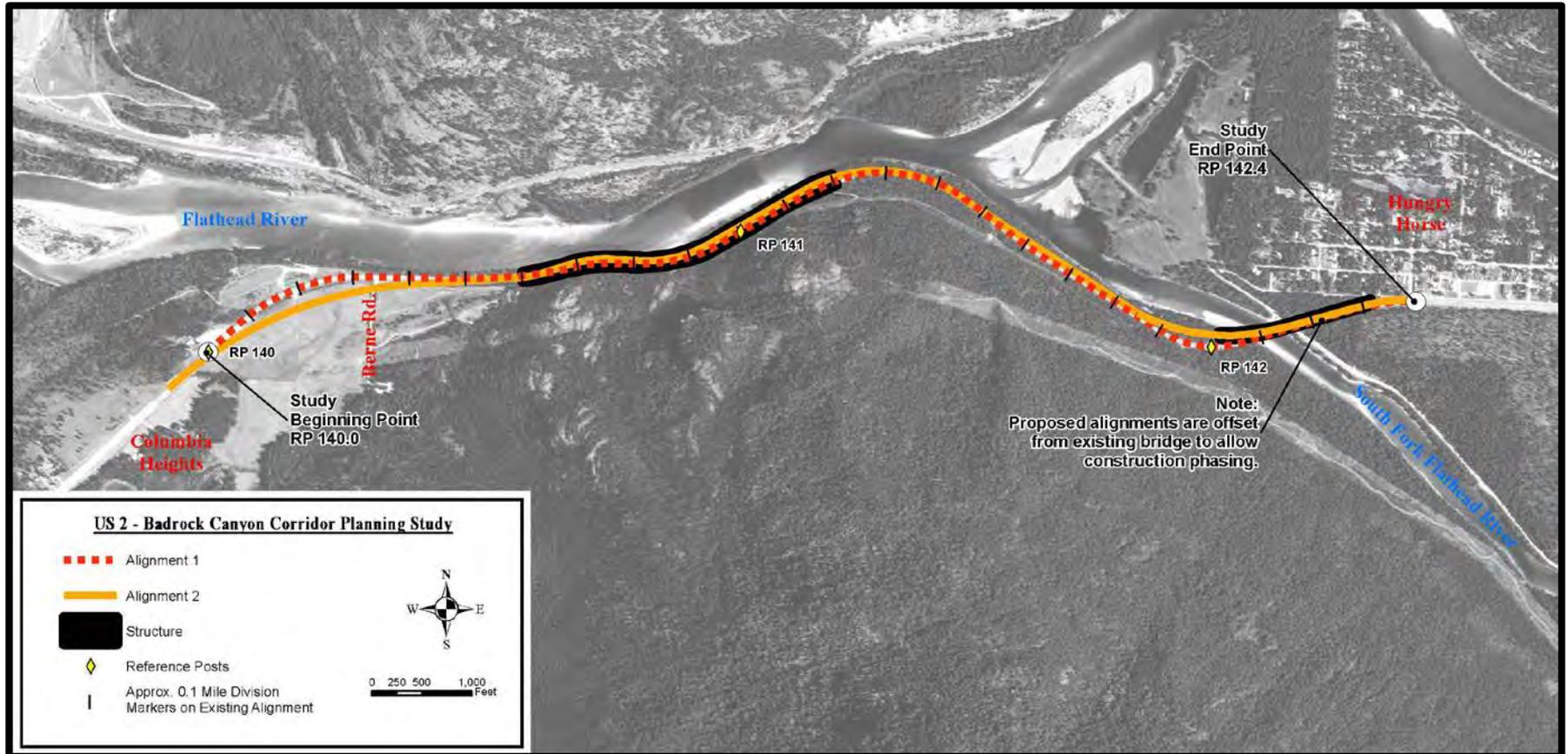
Alignment Option 1

Existing Alignment



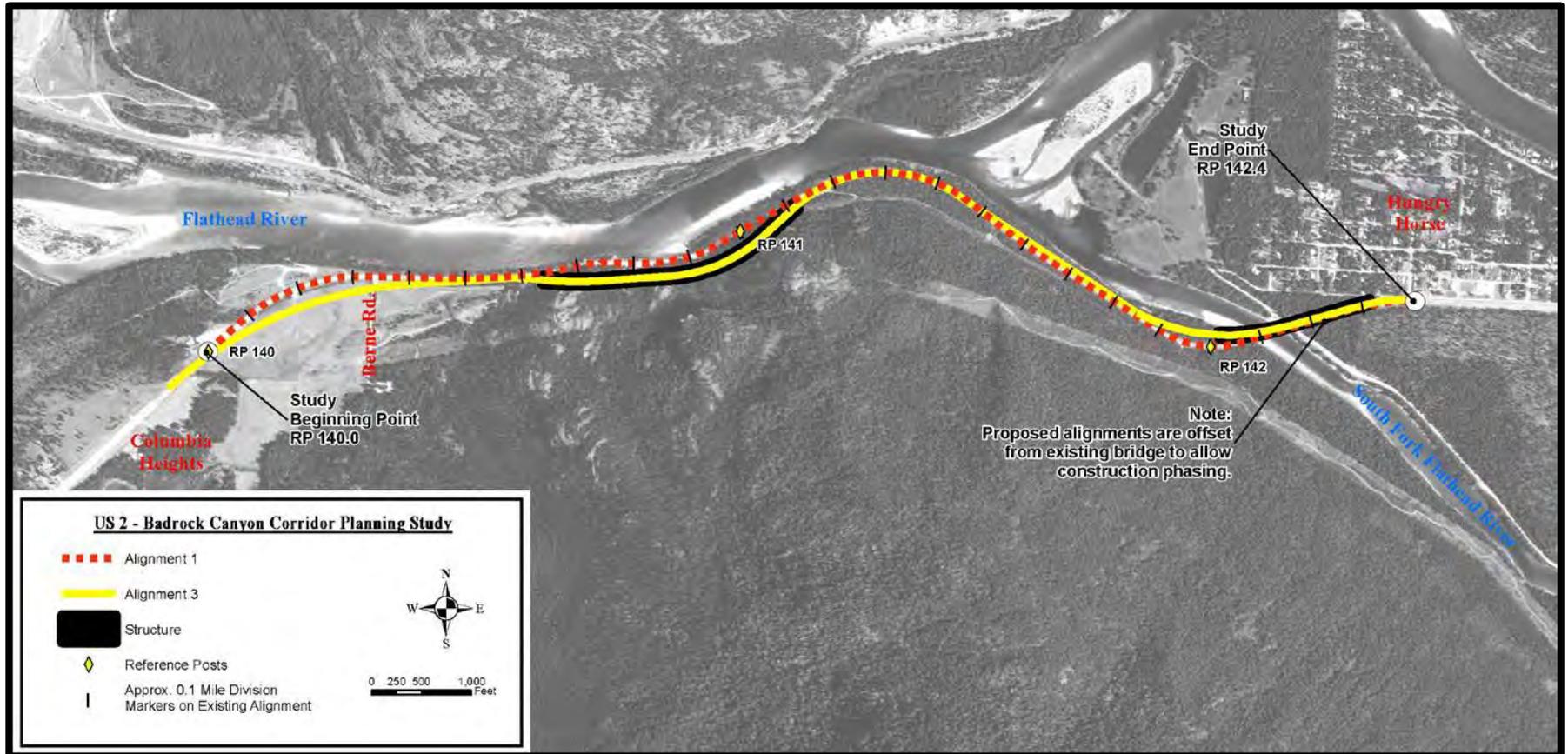
Alignment Option 2

Optimized Existing Alignment



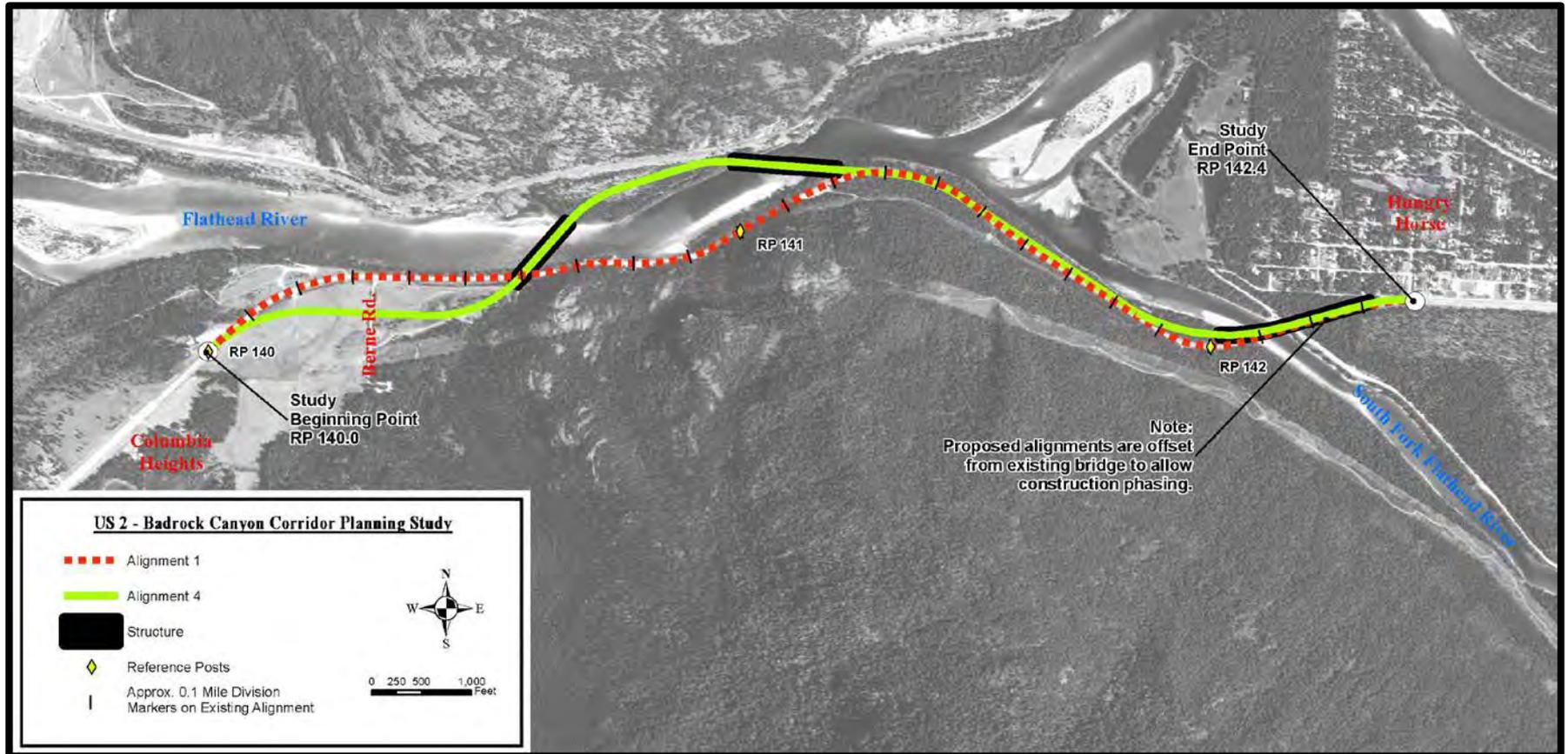
Alignment Option 3

Optimized Existing Alignment with Tunnel



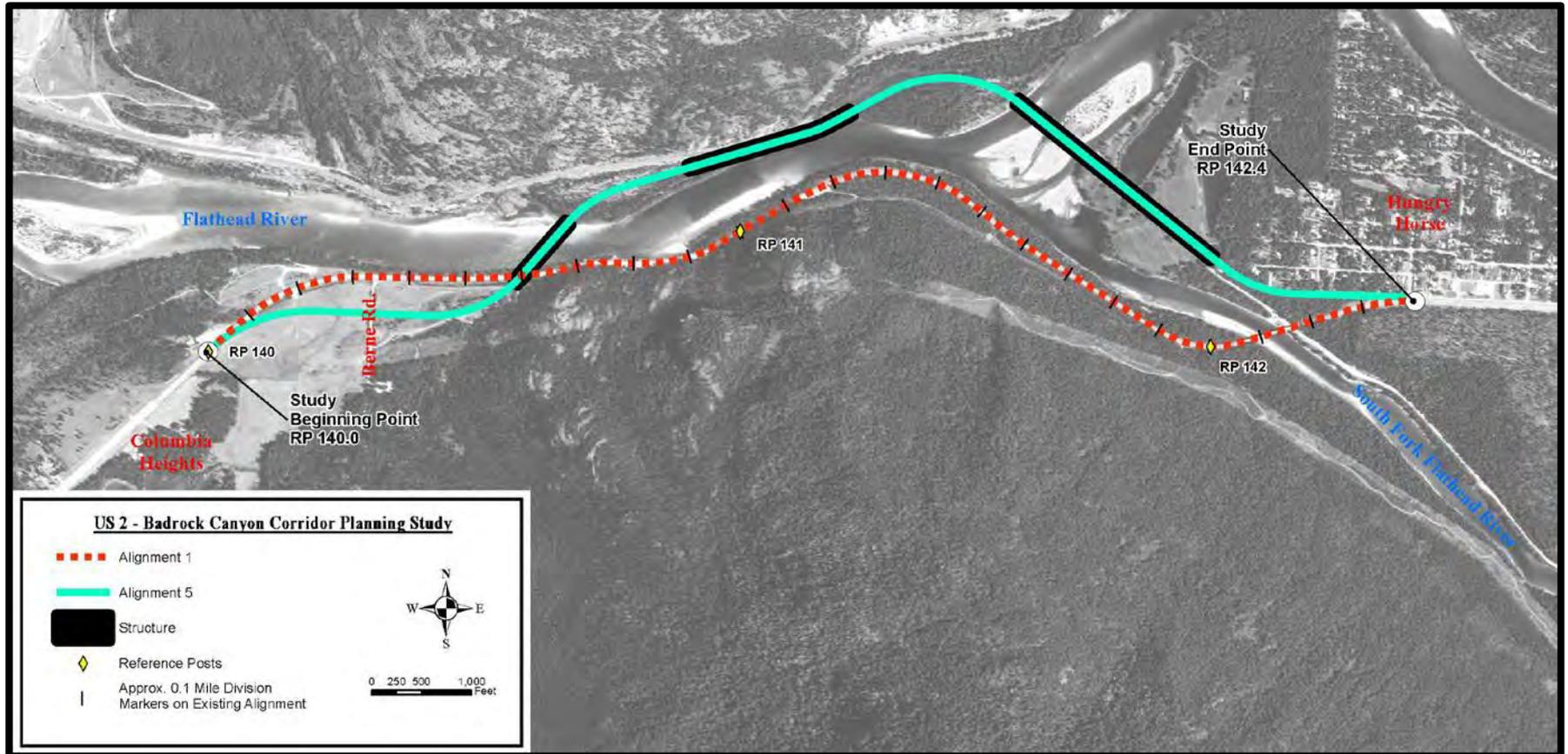
Alignment Option 4

North of US 2 – Partial Canyon Bypass



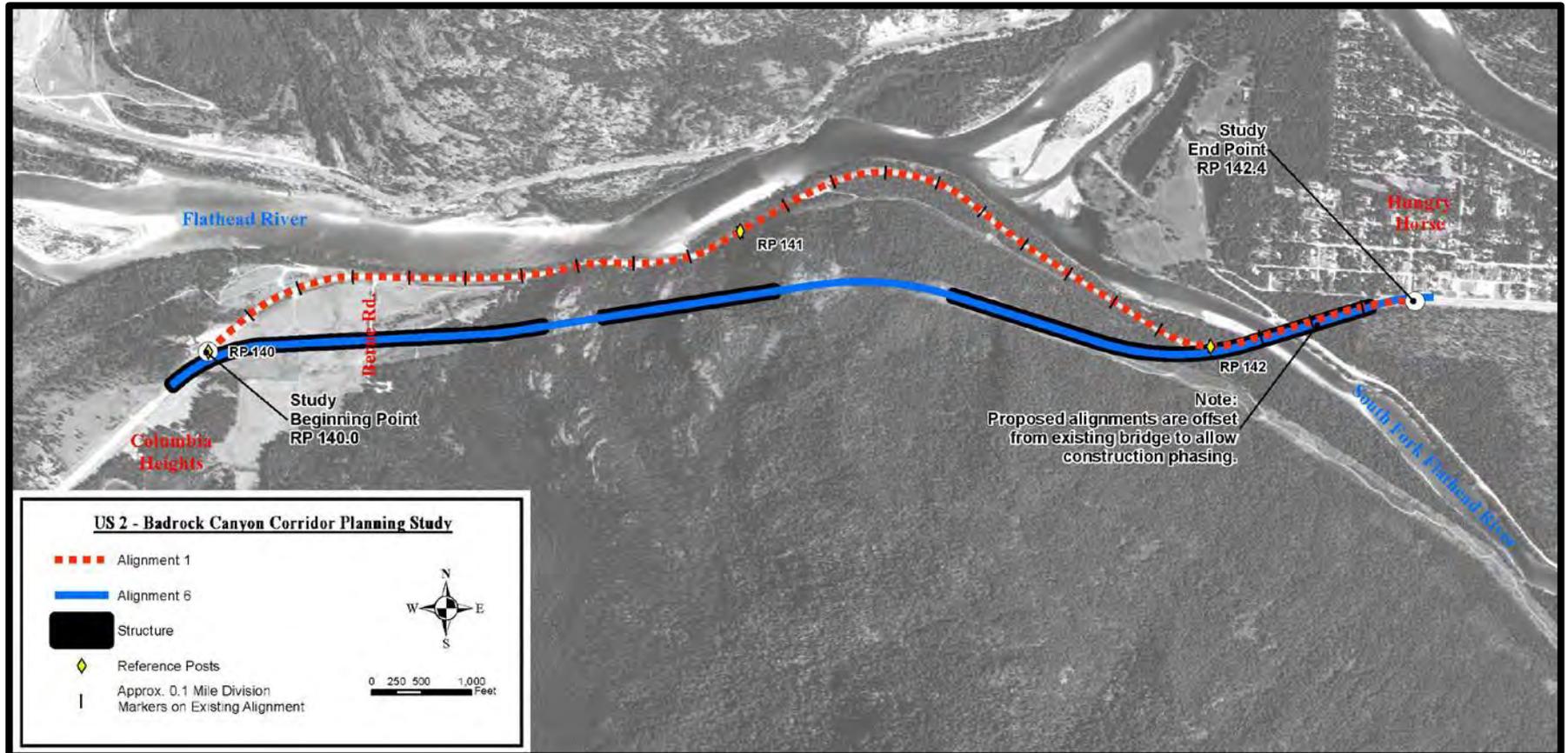
Alignment Option 5

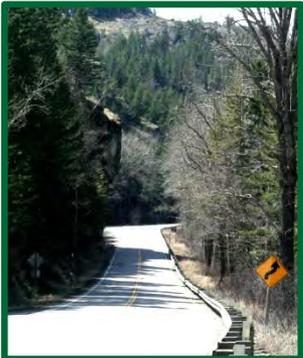
North of US 2 – Full Canyon Bypass



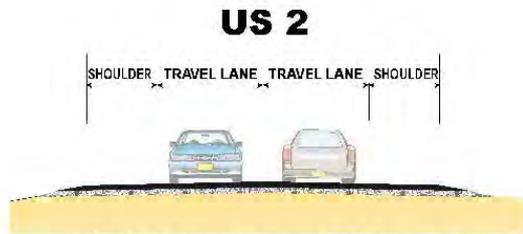
Alignment Option 6

South of US 2

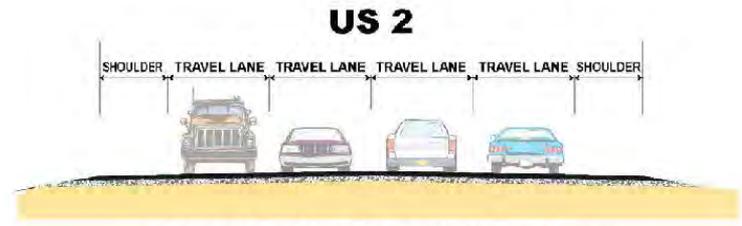




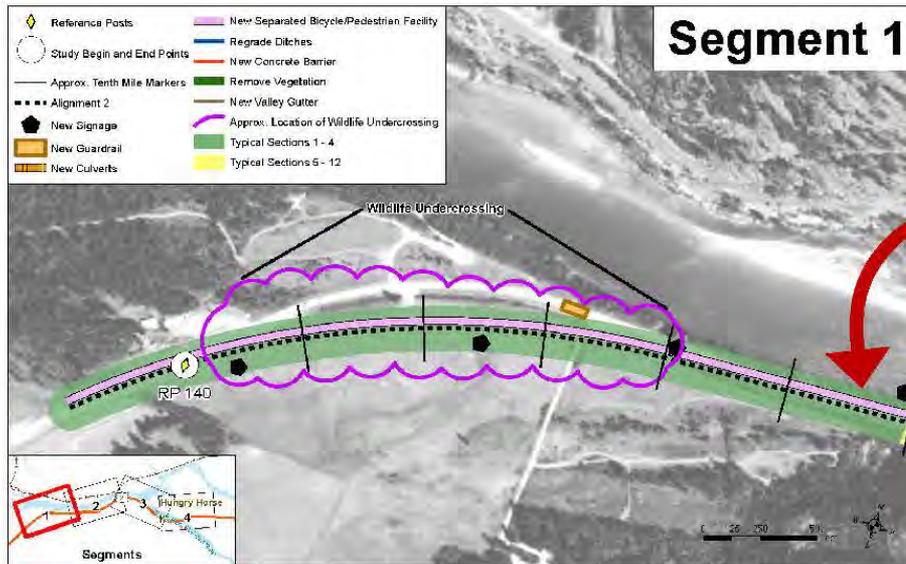
Improvements for Alignments 1 & 2



Typical Section 1: Standard Two-Lane



Typical Section 3: Standard Four-Lane



Segment 1

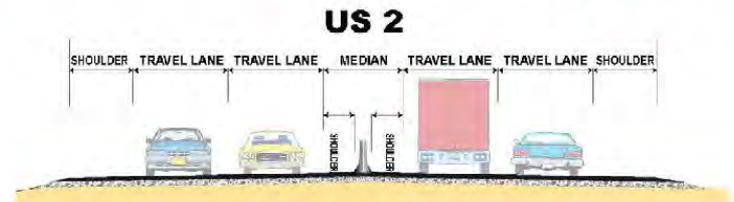
Bicycle / Pedestrian Facility could be constructed with Alignment 1 (existing alignment) or Alignment 2 (optimized / widened alignment). Conceptual illustration of bicycle / pedestrian facility (without roadway widening) is illustrated to the right.



Figures illustrate planning concepts (not engineering designs)



Typical Section 2: Standard Two-Lane with Center Turn Lane



Typical Section 4: Standard Four-Lane with Center Median



Typical Section 6: Two-Lane Cantilever with Center Turn Lane



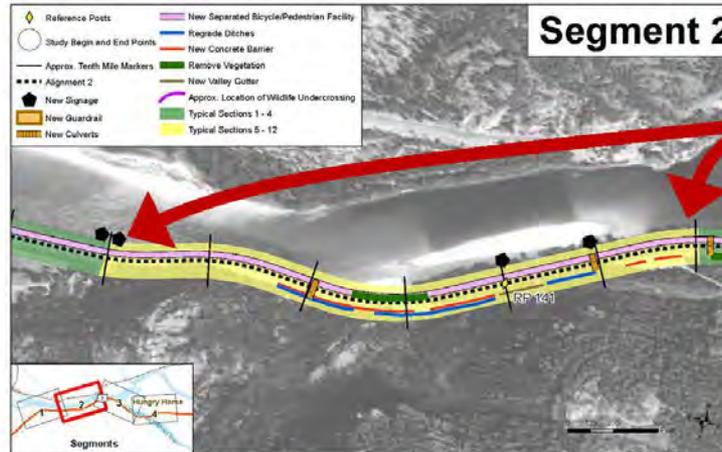
Typical Section 7: Four-Lane Cantilever



Typical Section 8: Four-Lane Cantilever with Median



Typical Section 5: Two-Lane Cantilever

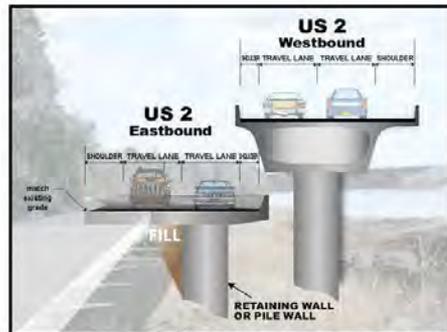


Transition Zones would extend between typical sections involving elevated structures and typical sections at current grade.

Local access roadway would merge with US 2 traffic in transition zones.



Typical Section 9: Two-Lane Elevated Structure



Typical Section 12: Four-Lane Elevated Structure / Cantilever Combination



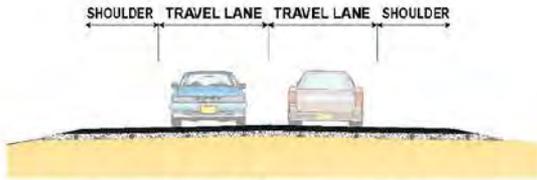
Typical Section 11: Four-Lane Elevated Structure with Median

Figures illustrate planning concepts (not engineering designs)



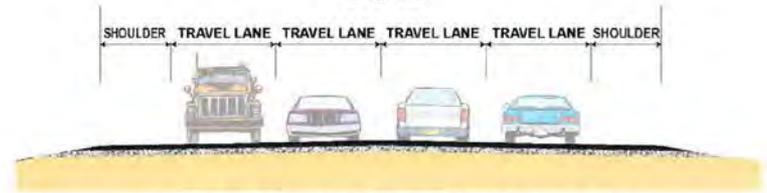
Typical Section 10: Four-Lane Elevated Structure

US 2



Typical Section 1: Standard Two-Lane

US 2



Typical Section 3: Standard Four-Lane



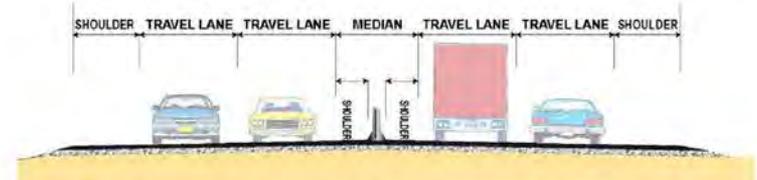
Figures illustrate planning concepts (not engineering designs)

US 2



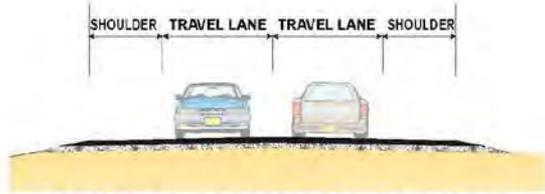
Typical Section 2: Standard Two-Lane with Center Turn Lane

US 2



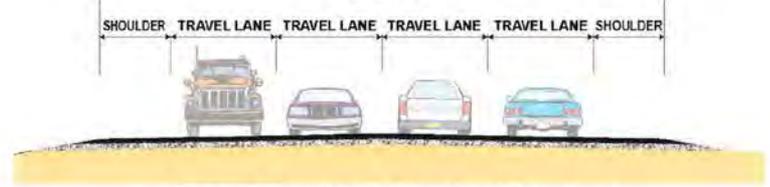
Typical Section 4: Standard Four-Lane with Center Median

US 2



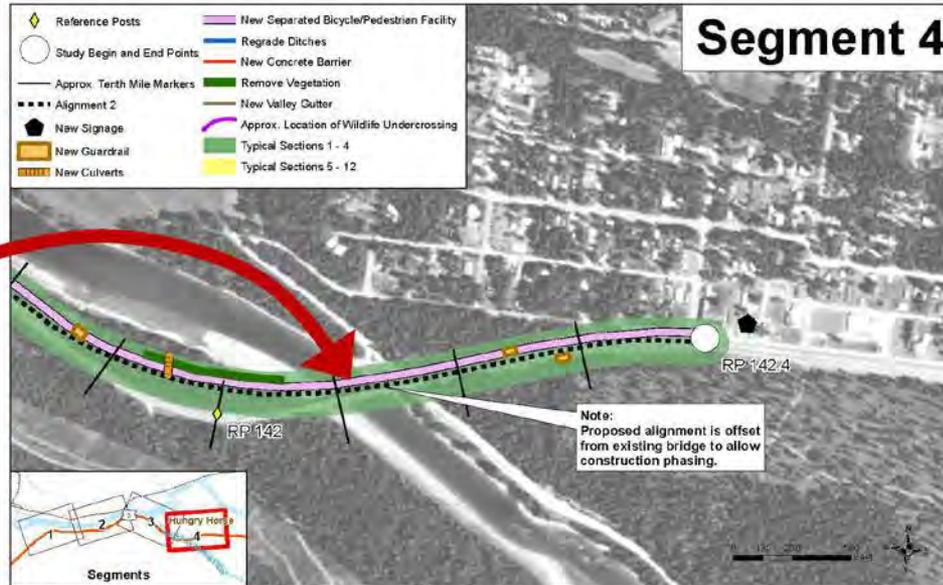
Typical Section 1: Standard Two-Lane

US 2

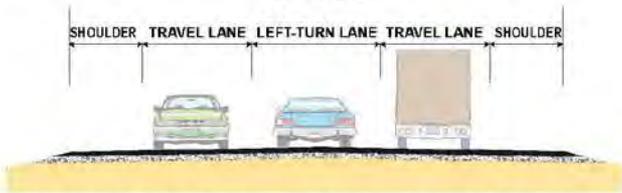


Typical Section 3: Standard Four-Lane

South Fork Flathead River Bridge could be constructed with lane configurations shown in Typical Sections 1, 3, or 4.

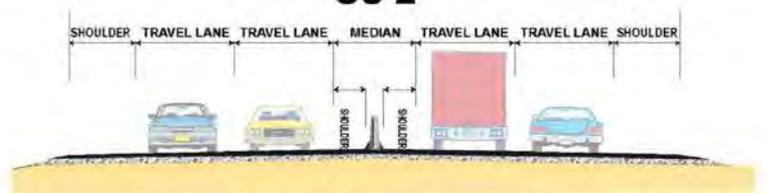


US 2



Typical Section 2: Standard Two-Lane with Center Turn Lane

US 2



Typical Section 4: Standard Four-Lane with Center Median



Please Submit Comments!

- **Mail comments to:**

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2701 Prospect Avenue
PO Box 201001
Helena, MT 59620-1001

- **Questions:**

Sarah Nicolai, DOWL HKM Project Manager
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Visit the website at:

<http://www.mdt.mt.gov/pubinvolve/badrock/default.shtml>

