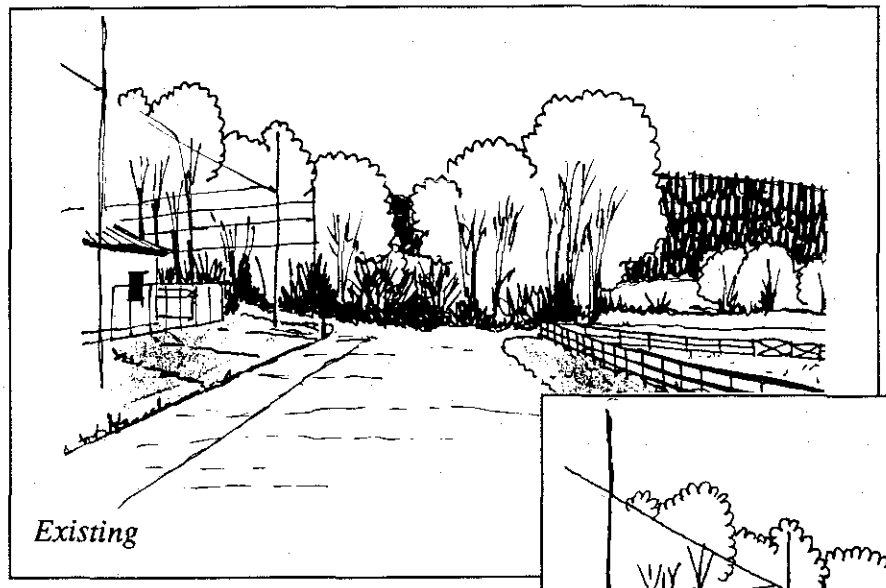
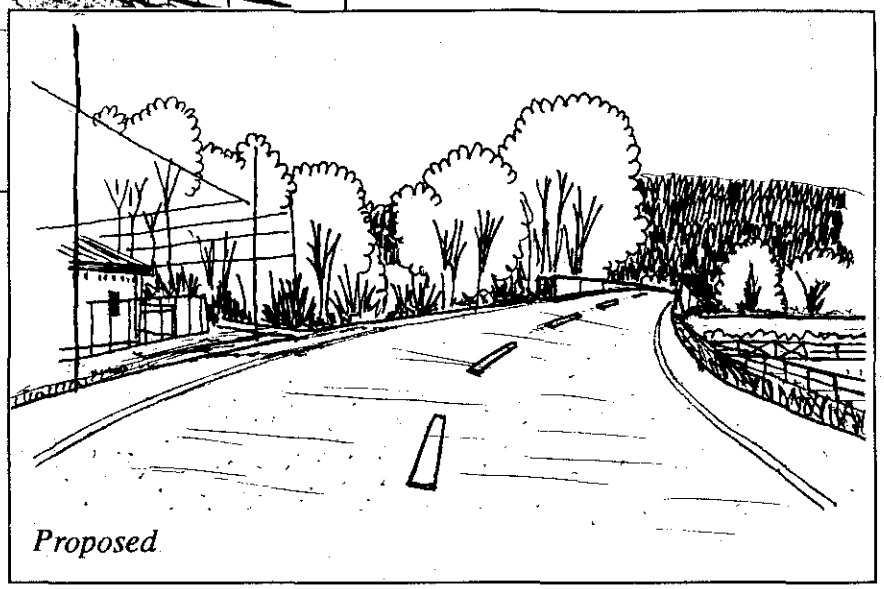
MISSOULA COUNTY

Maclay Bridge
Site Selection Study

Environmental Assessment



Existing



Proposed

Prepared for

Missoula County, Montana

Cooperating Agencies

Montana Department of Transportation
Federal Highway Administration

Prepared by

Carter & Burgess, Inc.

April, 1994

Maclay Bridge Replacement
Missoula County, Montana

Environmental Assessment

Submitted pursuant to 42 USC 4332(2) (c);
49 USC 303; MEPA 2-3-104 and 75-1-101;
and Executive Order 11990

Missoula County

Cooperating Agencies:
Montana Department of Transportation
Federal Highway Administration

4-7-94
Date

Missoula County

4/6/94
Date

Montana Department of Transportation

Document reviewed for content
and Approved for Circulation by:

4-7-94
Date

Federal Highway Administration

Table of Contents

Page No.

Chapter 1.0 Description of Proposed Action 1
1.1 Study Area Description 1
1.2 Description of Preferred Alternative 4

Chapter 2.0 Project Purpose and Need 9

Chapter 3.0 Alternatives Considered 11
3.1 Preliminary Evaluation 11
3.2 Alternatives Considered But Not Advanced 14
3.3 Alternatives Advanced 19

Chapter 4.0 Impacts and Mitigation Measures 22
4.1 **Transportation** 22
4.1.1 Introduction 22
4.1.2 Existing Conditions 22
4.1.2.1 Existing Traffic Volumes 23
4.1.2.2 Existing Level of Service 28
4.1.2.3 Accident History 28
4.1.2.4 Parking 34
4.1.2.5 Transit 34
4.1.3 Projected Traffic and Operations 34
4.1.3.1 Projected Traffic Volumes/Traffic Assignment 34
4.1.3.2 Level of Service Analysis 41
4.1.4 Impacts and Mitigation 41
4.2 **Land Use and Land Use Planning** 45
4.2.1 Existing Conditions 45
4.2.2 Impacts 47
4.2.3 Mitigation 50
4.3 **Prime and Unique Farmlands** 51
4.3.1 Existing Conditions 51
4.3.2 Impacts 53
4.3.3 Mitigation 53
4.4 **Socioeconomic** 54
4.4.1 Existing Conditions 54
4.4.2 Impacts 58
4.4.3 Mitigation 60
4.5 **Right-of-Way** 61
4.5.1 Impacts 61
4.5.2 Mitigation 62

Table of Contents
(continued)

Page No.

4.6 **Pedestrians and Bicyclists** 63
4.6.1 Existing Conditions 63
4.6.2 Impacts 65
4.6.3 Mitigation 66
4.7 **Parks and Recreation** 67
4.7.1 Existing Conditions 67
4.7.2 Impacts 67
4.7.3 Mitigation 68
4.8 **Air Quality** 69
4.8.1 PM_{10} Analysis 69
4.8.2 CO Analysis 74
4.8.3 Mitigation 75
4.9 **Noise** 77
4.9.1 Noise Abatement Criteria 77
4.9.2 Existing Monitored Noise Levels 77
4.9.3 Future Noise Analysis 80
4.9.4 Future Noise Levels 80
4.9.5 Impacts 81
4.9.6 Mitigation 81
4.10 **Water Quality and Fisheries** 83
4.10.1 General Description 83
4.10.2 Water Quality 83
4.10.3 Fisheries 84
4.10.4 Impacts 84
4.10.4.1 Stormwater Runoff and Impervious Surface ... 85
4.10.4.2 Construction Impacts 86
4.10.5 Mitigation 86
4.11 **Wetlands** 88
4.11.1 Existing Conditions 88
4.11.2 Impacts 88
4.11.3 Mitigation 90
4.12 **Floodplain Impacts** 92
4.12.1 Analysis 92
4.12.2 Regulations 94
4.12.3 Impacts 94
4.12.4 Mitigation 95
4.12.5 Permits and Coordination 96

Table of Contents
(continued)

Page No.

4.13 **Wildlife/Threatened and Endangered Species** 97
4.13.1 Existing Conditions 97
4.13.2 Impacts 98
4.13.3 Mitigation 101
4.14 **Cultural Resources** 102
4.14.1 Historical 102
4.14.2 Archaeology 103
4.15 **Hazardous Materials** 104
4.16 **Visual** 105
4.16.1 Visual Character 105
4.16.2 Impacts 105
4.16.3 Mitigation 108
4.17 **Construction Impacts** 115

Chapter 5.0 Comments and Coordination 117
5.1 Public Involvement Activities 117
5.2 Responses to Public Concerns 119
5.3 Agency Coordination 124
5.4 Remaining Public Involvement 125

Appendix A: Agency Coordination Letters

Appendix B: Summary of Public Involvement and Coordination

List of Figures

Figure No.	Title	Page No.
1-1	Location of Study Area	2
1-2	Enlarged Map of Study Area	3
1-3	Graphic of Preferred Alternative (sheet 1 of 2)	5
1-3	Graphic of Preferred Alternative (sheet 2 of 2)	6
1-4	Typical Sections	7
3-1a	Preliminary Evaluation Matrix	12
3-1b	Preliminary Evaluation Matrix	13
3-2	Alternatives Not Advanced	15
3-3	Alternatives Advanced	20
4-1	1993 Traffic Volumes and Level of Service	24
4-2	1993 Traffic Volumes with Maclay Bridge Closed	25
4-3	Existing Distribution of Travel Across Maclay Bridge	27
4-4	Year 2015 Traffic Volumes North 1 Alternative	37
4-5	Year 2015 Traffic Volumes South 1 Alternative (Preferred)	38
4-6	Year 2015 Traffic Volumes South 2 Alternative	39
4-7	Year 2015 Traffic Volumes No-Build Alternative	40
4-8	Existing Land Use	46
4-9	Planned Future Land Use	49
4-10	Farmland/Soils	52
4-11	General Residential Service Areas for Existing Maclay Bridge	56
4-12	Community Services	57
4-13	Existing Primary Bicycle Routes	64
4-14	PM_{10} and CO Non-Attainment Area Boundary	71
4-15	Noise Monitoring Locations	79
4-16	Wetlands	89
4-17	100-Year Floodplain	93
4-18	Winter Range/Habitat	100
4-19	Visual Elements Impacted North Alternative	107
4-20	Visual Elements Impacted South Alternative	109
4-21	Looking West Along South Avenue at Humble	110
4-22	Looking East Along South Avenue Existing and Proposed	111
4-23a	Looking West Along South Avenue	112
4-23b	Looking West Along South Avenue	113

List of Tables

Table No.	Title	Page No.
3-1	Comparative Costs for the Advanced Alternatives	21
4-1	Historical Growth and Classification of Roadways Within Study Area	23
4-2	Existing Level of Service	28
4-3	1987-1992 Accident Summary, South Avenue	29
4-4	1987-1992 Accident Summary, Clements Road	29
4-5	1987-1992 Accident Summary, Big Flat Road	30
4-6	1987-1992 Accident Summary, River Pines Road/Maclay Bridge	31
4-7	1987-1992 Accident Summary, Blue Mountain Road	32
4-8	Build Out Trip Generation, Maclay Bridge (West Bank)	35
4-9	Projected 2015 Level of Service	41
4-10	Acres of Farmland Directly Impacted	53
4-11	Estimated Additional Right-of-Way Requirements	62
4-12	1993 PM_{10} Analysis, Existing	70
4-13	2015 PM_{10} Analysis, No-Build Alternative	72
4-14	2015 PM_{10} Analysis, North 1 Alternative	72
4-15	2015 PM_{10} Analysis, South 1 Alternative	73
4-16	2015 PM_{10} Analysis, South 2 Alternative	73
4-17	FHWA Design Noise Level/Activity Relationships	77
4-18	Noise Monitoring Locations and Results, October 1993	78
4-19	Predicted Noise Levels	80
4-20	Predicted Noise Impacts, Number of Receptors With Substantial Noise Increases	81
4-21	New Impervious Surface	85

Glossary

The following abbreviations and terms are contained within the text of this Environmental Assessment.

AASHTO (American Association of State Highway and Transportation Officials)
AADT (Annual Average Daily Traffic) - *The number of vehicles in one day averaged over one year.*
AC (Advisory Committee)
ADT (Average Daily Traffic) - *The number of vehicles on a street segment on an average day.*
CAC (Citizens Advisory Committee)
CERCLA (Comprehensive Environmental Resource Compensation and Liability Act)
CFR (Code of Federal Regulations)
CFS (cubic feet per second)
CMS (cubic meters per second)
CO (Carbon monoxide)
COE (*U.S. Army*Corps of Engineers)
dBA (Decibels) -*A measure of sound pressure level.*
EA (Environmental Assessment)
FHWA (Federal Highway Administration)
FPS (Feet per second)
fugitive dust - *Airborne particulate matter, or roadway dust.*
g (grams)
GLO (General Land Office)
HEC2 (Hydraulic Engineering Circular 2) - *A hydraulics modeling program.*
kg (kilograms)
km (kilometers)
kph (kilometers per hour)
L_{eq} (Equivalent sound level) - *A measure of sound energy averaged over a certain time period, generally one hour (peak traffic hour).*
LOS (Level of Service) - *A qualitative description of operations for a road segment or intersection.*
MAQB (Montana Air Quality Bureau - a division of the MDHES)
MDHES (Montana Department of Health and Environmental Sciences)
MDT (Montana Department of Transportation)
MPDES (Montana Pollution Discharge Elimination System)
MUTP (Missoula Urban Transportation Plan)
NAC (Noise Abatement Criteria)
NPDES (Non-point Pollution Discharge Elimination System)
PM_{10} (Particulate matter less than 10 microns in diameter)
RCRA (Resource Conservation and Recovery Act)
R/O/B/B (River Pines Road/O'Brien Creek Road/Big Flat Road/Blue Mountain Road intersection)

RSID (Rural Special Improvement District)
SCS (Soil Conservation Service)
SHPO (State Historic Preservation Office)
STAMINA 2.0 - *A transportation system noise level modeling program*
substructure - *Bridge footings, foundations, piers, and abutments.*
superstructure - *Bridge girder beams, deck, railings, and trusses.*
T&E (Threatened and Endangered) species
TIP (Transportation Improvement Program)
USDA (U.S. Department of Agriculture)
USDOT (U.S. Department of Transportation)
USEPA (U.S. Environmental Protection Agency)
USFS (U.S. Forest Service - a division of the USDA)
USFWS (U.S. Fish and Wildlife Service)
VMT (Vehicle-miles-traveled)
VPD (Vehicles per day)

1.0 Description of Proposed Action

1.1 Study Area Description

The project study area is located in western Montana, entirely within Missoula County, and west of the Missoula urban area. (Figure 1-1 and Figure 1-2.) The area of analysis for the proposed build alternatives is bounded on the west by the River Pines Road/O'Brien Creek Road/Big Flat Road/Blue Mountain Road (R/O/B/B) intersection, on the north by the existing bridge alignment connecting North Avenue and River Pines Road, on the east by the west edge of Humble Road, and on the south by South Avenue and a westerly extension of its alignment across the Bitterroot River. Prominent natural features and major land uses located within the study area include:

- The Bitterroot River flows south to north, through the study area and forms a natural barrier between residential and recreational uses to its west, and community and public services to its east.

- O'Brien Creek is located on the west side of the Bitterroot River. It parallels the east-west portion of River Pines Road and flows into the Bitterroot River at a point located between River Pines Road and Blue Mountain Road.

- Areas of open space are located within the study area, predominantly within the Bitterroot River and O'Brien Creek floodplains.

- The existing Maclay Bridge is a one-lane bridge that crosses the Bitterroot River approximately 0.8 kilometers (0.5 mile) south of its confluence with the Clark Fork River, and connects River Pines Road on the west side of the river to North Avenue West on the east side of the river. The east and west roadway approaches to the bridge are each two-lane, two-way roads.

- Residential areas in the immediate study area include a portion of the Orchard Homes Addition Number Six in the Target Range area on the east side of the Bitterroot River and the O'Brien Creek Meadows and River Pines Additions on the west side of the river.

- Community service facilities located east of the project study area along South Avenue West include Target Range School, First Class Child Care, the Missoula Vocational Technical Center, Big Sky High School, Community Medical Center, and the Missoula Rural Fire District.

These land uses are shown on Figure 4-8, and further described in Section 4.2. Community services located near the study area are shown on Figure 4-12 and further described in Section 4.4.

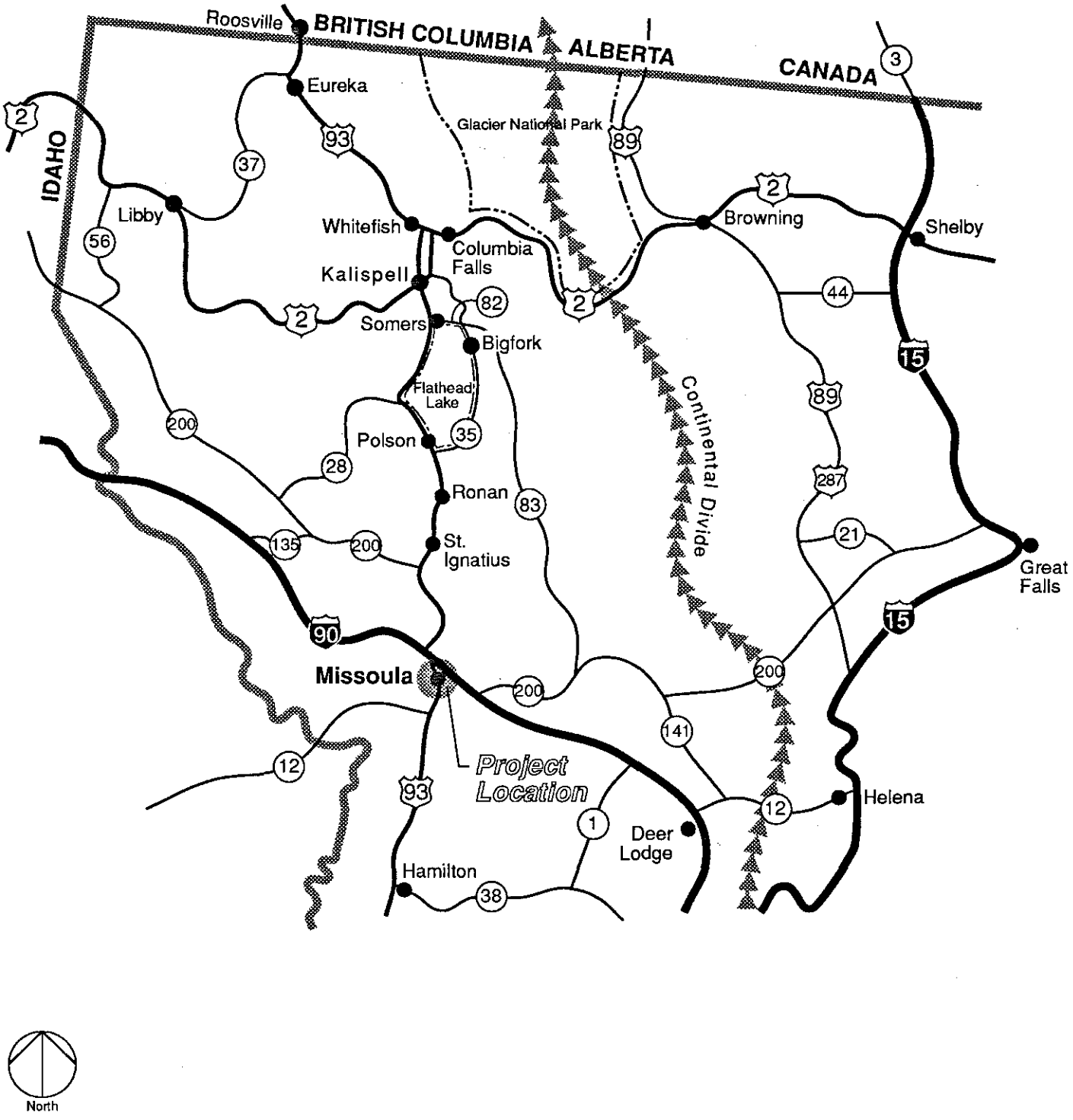


Figure 1-1
Location of Study Area

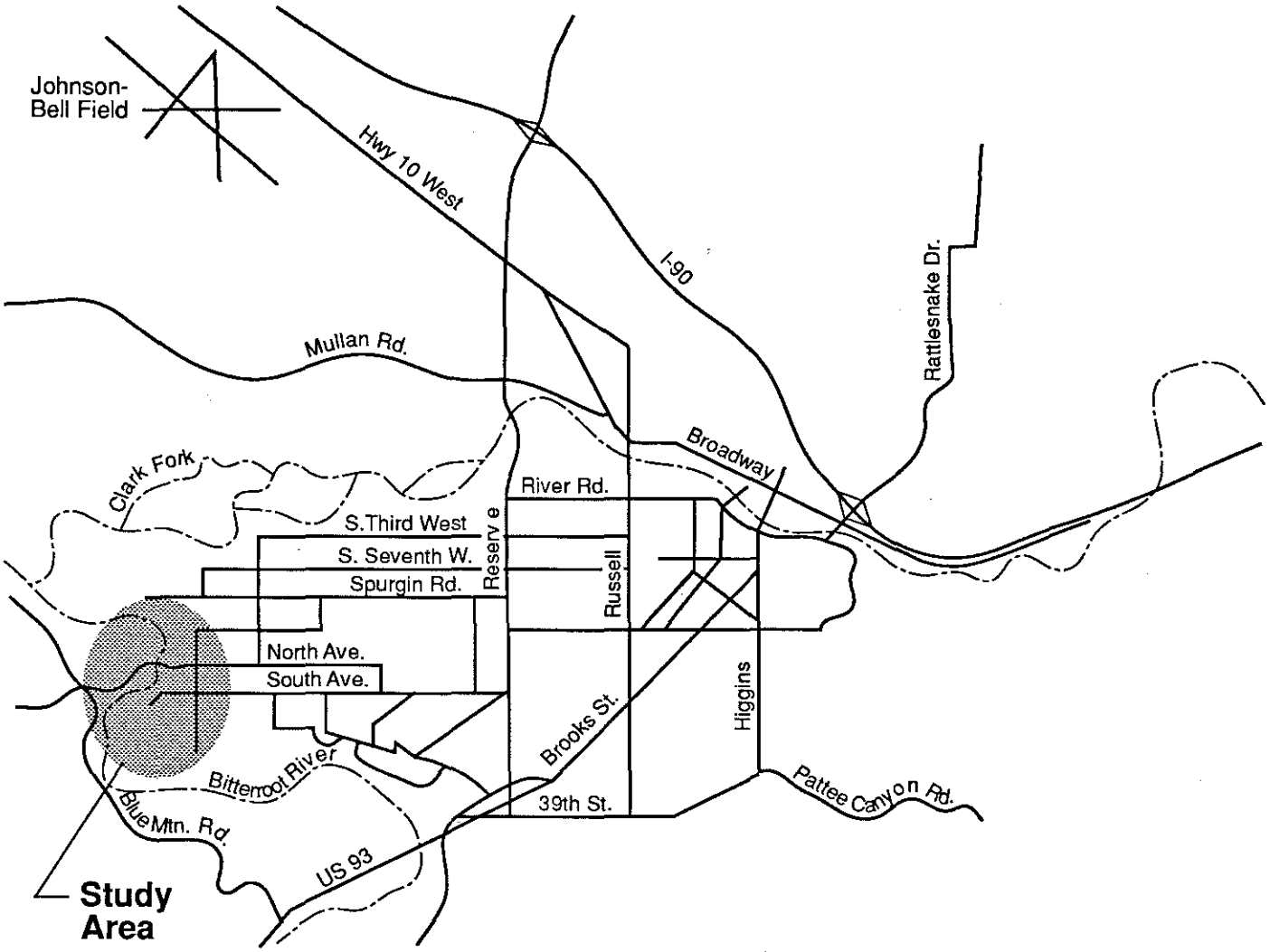
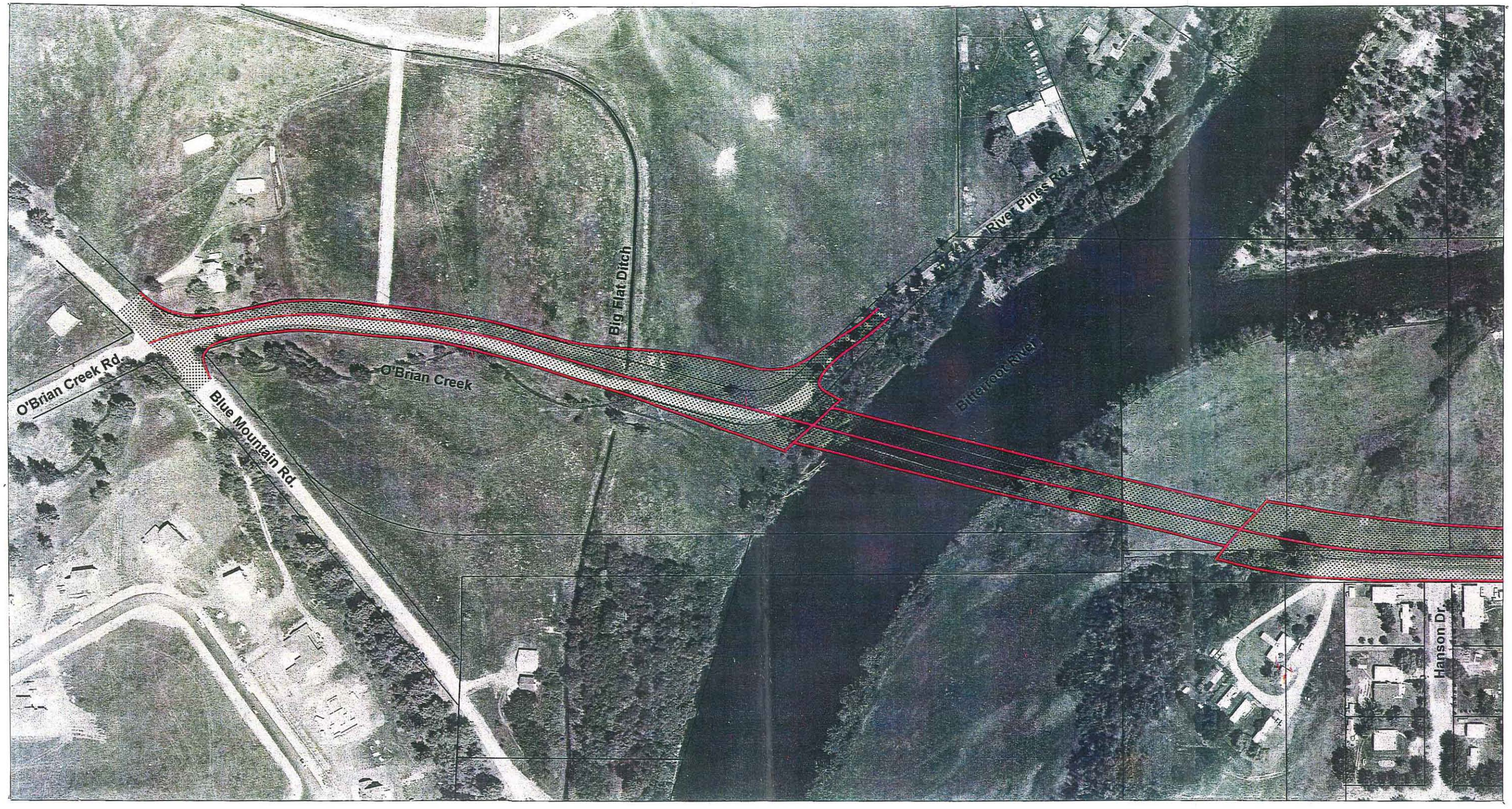


Figure 1-2
Enlarged Map of Study Area

1.2 Description of Preferred Alternative

The Preferred "South 1" Alternative is illustrated in Figure 1-3, with typical bridge and approach road sections shown in Figure 1-4. The primary project consists of a new two-lane (one lane for each direction of traffic) bridge constructed over the Bitterroot River which connects River Pines Road on the west side to South Avenue West on the east side. The Preferred Alternative includes increasing the number of lanes on the bridge from one lane (existing) to two lanes (proposed). The bridge cross section includes adequate shoulders for bicycle travel and a separated pedestrian walkway. In addition to the bridge structure, this project consists of the following design elements:

- Construction of and improvements to the bridge approaches. These activities include:
  - Minor roadway widening at the R/O/B/B intersection, to safely accommodate pedestrians and bicyclists on the roadway shoulders, removal of fixed objects from the clear zone and widening of the turning radii;
  - Filling, grading and minor widening along the east-west segment of River Pines Road to provide a gradual rise in elevation at the west approach to the bridge, and to safely accommodate pedestrians and bicyclists on the roadway shoulders;
  - Construction of fill and a new roadway at the east approach to the bridge;
  - Improving the east approach along South Avenue West, including some fill, excavation, and widening of the existing roadway to its intersection with Humble Road.
- Maintaining vehicle access onto the bridge approaches. These activities include:
  - Reconstructing the existing curve on River Pines Road into a "T" intersection with the west bridge approach;
  - Constructing sloped access drives to adjacent residences at the west end of South Avenue.
- Maintaining existing irrigation ditches on both sides of the Bitterroot River.



Scale 1" = 200'

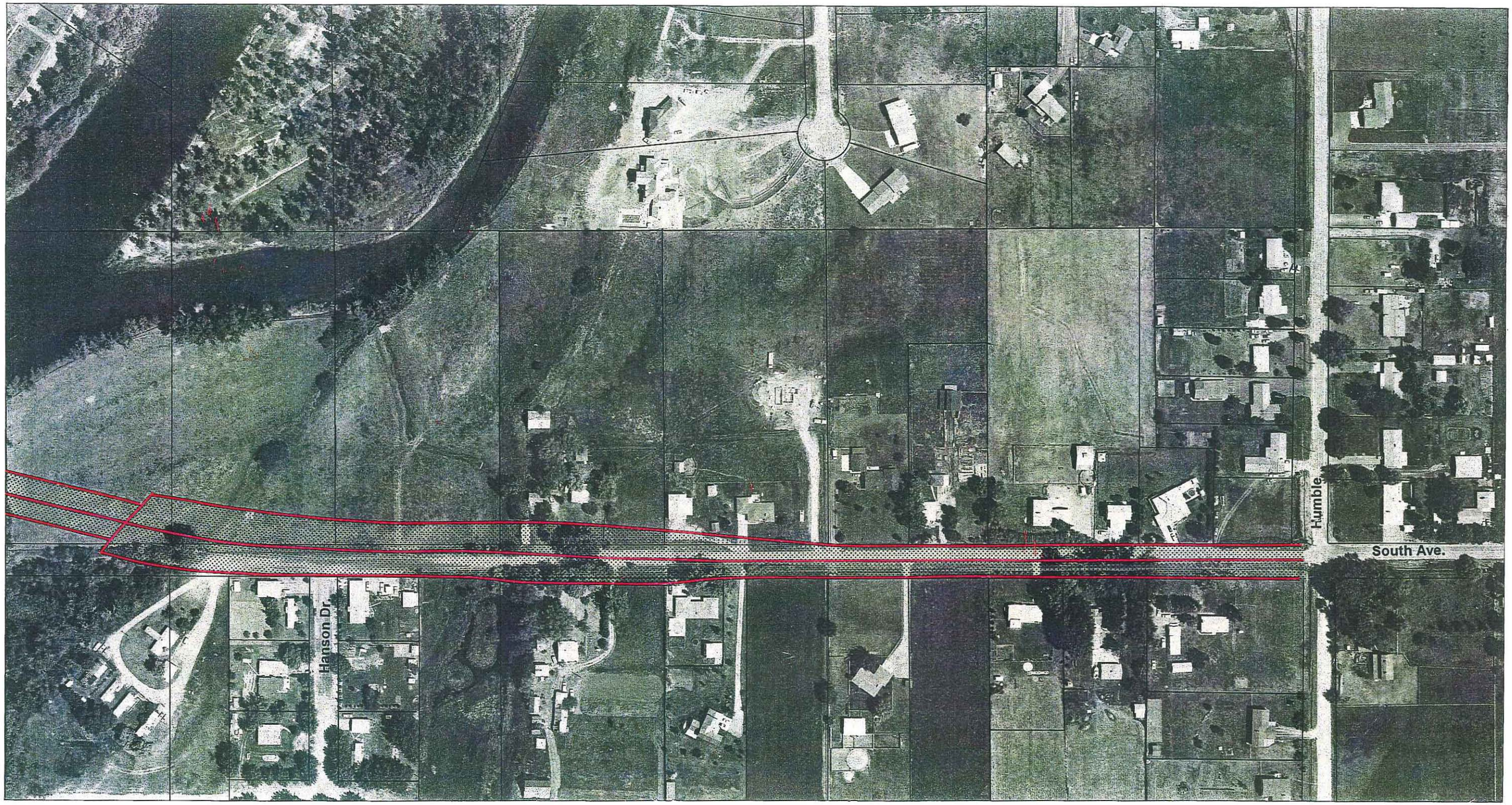
North

MISSOULA COUNTY

Maclay Bridge
Site Selection Study EA

Figure 1-3
Sheet 1 of 2

Graphic of Preferred Alternative
South No. 1



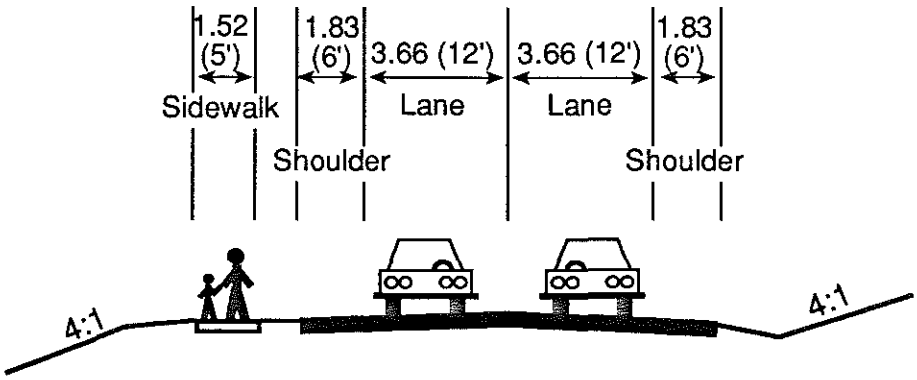
Scale 1" = 200'

North

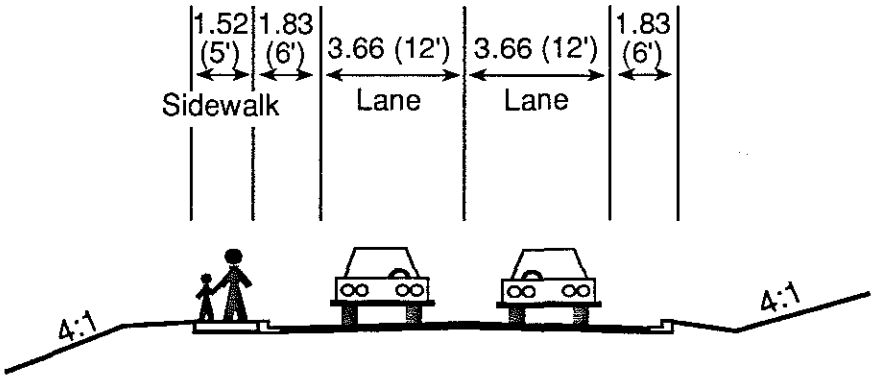
MISSOULA COUNTY

Maclay Bridge
Site Selection Study EA

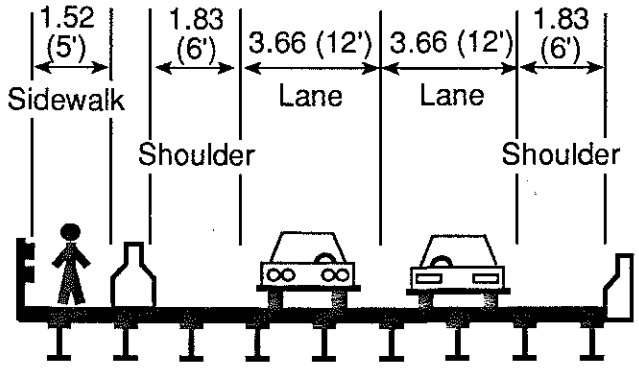
Figure 1-3
Sheet 2 of 2
Graphic of Preferred Alternative
South No. 1



Roadway Section
(Blue Mtn. Road to Hanson Drive)



Roadway Section
Residential Areas
(Hanson Drive to Humble Road)



Bridge Section

Note: All measurements are in meters (feet).

2.0 Project Purpose and Need

The existing Maclay Bridge is a one lane bridge built in 1935 and structurally modified once in the late1940's, and again in 1964. Due to structural deficiencies and increased traffic, the bridge's present load limit is posted at ten tons (9,072 kg). This load limit, enforced by the County, does not allow 18,144 kg (20 ton) fire engines to use the bridge, and barely permits school buses to do so. Within the next ten years, continued deterioration of the structure is expected to reduce the allowable load limit to 4,536 kg (five tons), at which point it will be closed to vehicular traffic. Repairing the bridge to raise its allowable loading cannot be accomplished without removing and rebuilding the bridge super structure and replacing its substructure. Such improvement would constitute a total replacement of the bridge.

The proposed construction of a new bridge across the Bitterroot River in the vicinity of the existing bridge will provide improved safety and operating conditions for traffic using this connecting link in the Missoula area transportation system.

The proposed project is necessary to correct existing safety hazards and roadway deficiencies. While the existing bridge is a one-lane structure, the approaches on both sides are two-lane, two-way roadways. The existing bridge and its approaches do not conform to American Association of State and Highway Transportation Officials (AASHTO) design standards. The horizontal curvature at the two approaches to the bridge limit drivers' sight distance, which has lead to numerous accidents near the structure. There have been 15 vehicular accidents over the past five years near the bridge. A 90 degree turn at the west end of the bridge often causes drivers to slide off of River Pines Road under icy conditions. The bridge's 4.57 meter (15 foot) roadway width does not allow safe passing distance between vehicles and bicyclists and pedestrians. In addition, emergency vehicles using the one lane bridge during peak traffic periods can encounter delays.

Because of the existing bridge's load limit, large fire engines must travel a longer, more indirect route than smaller vehicles in order to access residential areas west of the river. A map compiled by the Intermountain Fire Laboratory classifies much of the private land west of the river as having a high fire hazard rating based upon the density and types of vegetation within this urban/wild land interface. The presence of a growing population amidst this area increases the need for safe, expedient ingress and egress in the event of a large fire. The present route (Reserve Street to US Highway 93 South to Blue Mountain Road) that Missoula Rural Fire District engines travel to reach the west side area adds an average of six minutes to their optimal response time. In the event of a large forest fire west of the river, access could be blocked along both Blue Mountain and Big Flat Roads. In this case, the Maclay Bridge crossing would serve as the only means of access for emergency vehicles and the only means of escape for residents evacuating the area. In addition to the aforementioned benefits, the

proposed project will result in reduced homeowners' insurance rates which currently increase incrementally for every five minute delay in firefighters' average response time.

Closing the Maclay Bridge without providing continued access in the vicinity of the existing structure will result in a total increase in vehicle miles traveled for the Missoula area. With no access accross the Bitterroot River in the vicinity of the Maclay Bridge, vehicles which currently use the bridge will divert to Blue Mountain Road and US Highway 93 or to Mullan Road using the Kona Ranch Bridge. For traffic that currently uses the Maclay Bridge, these alternate routes are each longer than the route over the existing bridge or the proposed route over a new bridge. Blue Mountain Road is a narrow, winding roadway that is unpaved for most of its length and any increase in traffic using this route will exacerbate the facility's existing safety problems. Existing traffic volumes on Blue Mountain Road will nearly double due to closure of the existing bridge.

After a recent redistribution of west side area students between three Target Range School buses, each vehicle marginally meets the existing load limit for the Maclay Bridge. The existing access agreement between the County and the operator of these vehicles is expected to be nullified within the next five years due to ongoing deterioration of the bridge structure. Rerouting these buses will increase their total trip mileage by about 28%, with a bus trip increase of about one half-hour for some students. This longer route will also increase the school districts' annual cost of providing bus service by about 20%.

3.0 Alternatives Considered

A number of alternatives were developed and considered during the study process. The process for the development of the alternatives included a preliminary evaluation used to identify the full range of possible alternatives. A broad base of criteria for evaluating the alternatives was developed and each alternative was evaluated using these criteria. Alternatives that showed substantial impacts were not considered reasonable and were eliminated from further evaluation. Alternatives that were not screened out during the preliminary evaluation were advanced to a more detailed level of analysis. The public involvement program, described in Chapter Five of this document, provided input into the alternatives development and analysis.

3.1 Preliminary Evaluation

Four general categories of criteria were utilized for this preliminary evaluation and are summarized as follows:

- **Land Use/Farm and Social-Economic.** This criterion considers the effects on existing and proposed land uses, displacement of residences or businesses, impacts to prime, unique, or locally important farmland, and effects on neighborhoods and the community.

- **Environmental.** This criterion considers impacts to wetlands, wildlife, threatened and endangered species, water quality, fisheries, floodplains, pedestrians and bicyclists, parks and recreation, cultural resources, air quality, noise, visual quality, and hazardous materials.

- **Traffic/Operations.** This criterion considers impacts to the projected traffic volumes, projected traffic operations, safety, and functional road classifications.

- **Construction Cost.** This criterion considers the lengths of roadway and bridge construction, as well as difficult construction conditions. Construction lengths were used in the evaluation of the alternatives instead of cost estimates due to the conceptual nature of the alternatives at the time of this analysis.

The preliminary evaluation matrix used to compare the impacts of each alternative under each of the general criterion is contained in Figures 3-1a and 3-1b. Because the No-Build alternative is automatically evaluated in the EA, it was not considered during the preliminary alternatives evaluation. The CAC and the AC symbols denote the conclusions of the Citizens Advisory Committee and the Advisory Committee, respectively. This process is more fully described in Chapter Five.

MACLAY BRIDGE
Site Selection Study
Preliminary Evaluation Matrix

● Substantial Impact ◒ Moderate Impact ○ Minimal Impact

Criteria	Alternatives						
	North No. 1	North No. 2	South No. 1	South No. 2	Sundown No. 1	Sundown No. 2	Blue Mountain Road
Land/Farm Social - Economic	• Least impact upon farm issues. • Number of property impacts are a function of design speed. CAC ● AC ◒	• Impacts island owned by Five Valleys Land Trust. • Impacts prime irrigated farmland south of North Avenue (small area). • Potential impacts to private driveways off of River Pines Road. CAC ● AC ●	• Possible construction - structure impacts residences on west end of South Avenue. • Access restrictions for 5 unit trailer park and 2 residential properties. • Impacts prime irrigated farmland east of river. CAC ◒ AC ◒	• Possible construction - structure impacts residences on west end of South Avenue. • Access restrictions for 5 unit trailer park and 2 residential properties. • Impacts prime irrigated farmland both sides of river. CAC ◒ AC ◒	• Construction and structure impacts for property access drives. • Displaces one residence. CAC ◒ AC ◔	• Construction and structure impacts for property access drives. CAC ◒ AC ◒	• Impacts access to several properties, could displace 1 structure. • Some prime farmland impacts. CAC ● AC ●
Environmental	• Riparian/wildlife habitat impacts. • Narrow floodway. • Visual impacts on previously disturbed area. • Existing noise impacts on South and Clements unchanged. CAC ◒ AC ○	• Riparian/wildlife habitat impacts. • Narrow floodway. • Visual impact in undisturbed area (island). • Noise impacts (see North No. 1). • Institutional constraint (conservation area). CAC ● AC ●	• Impacts some riparian/wildlife habitat, slight wetland impact. • Moderately wide floodplain. • Visual impacts in undisturbed area. • Noise impacts increased slightly on Clements to Humble; could be unchanged east of Clements; large increase West of Humble; decreases on Humble. CAC ◒ AC ◒	• Riparian/wildlife habitat impacts. • Possible impacts to archaeological campsites. • Wide floodplain. • Visual impacts in undisturbed area. • Noise impacts (see South No. 1). • Slight wetland impact. CAC ◒ AC ◒	• Impacts large area of riparian/wildlife habitat. • Possible wetland impacts. • Wide floodplain. • Visual impacts in undisturbed area. • Noise impacts increased on Humble South of South, reduced on Humble North of South. CAC ● AC ◔	• Impacts large area of riparian/wildlife habitat. • Possible wetland impacts. • Wide floodplain. • Visual impacts in undisturbed area. • Noise impacts (see Sundown No. 1). CAC ● AC ◔	• Impacts Maclay Flats Recreation Area. • Riparian/wildlife habitat impacts. • Wetland impacts. • Moderately wide floodplain. • Significant visual impacts (scenic open space). • Noise impacts possibly increased on South. CAC ● AC ●
Operations/Traffic	• Travel patterns will be similar to existing. • Aligns with collector road. • Favors continuity with O'Brien Creek Road at intersection. • Trips would remain along South and Clements. • Difficult geometrics. • Safety on River Pines Road. CAC ◒ AC ●	• Travel patterns will be similar to existing. • Aligns with collector road. • Favors continuity with O'Brien Creek Road at intersection. • Trips would remain along South and Clements. • Safety on River Pines Road. CAC ◒ AC ●	• Best alignment for east/west travel patterns. • Minimal out-of-direction travel. • Aligns with minor arterial. • Trips could remain east of Clements. • Slight increase in trips Clements to Humble. • Large increase of trips west of Humble. • Reduces trips on Humble. • Good emergency access. CAC ○ AC ○	• Best alignment for east/west travel patterns. • Minimal out-of-direction travel. • Aligns with minor arterial. • Trips could remain east of Clements. • Slight increase in trips Clements to Humble. • Large increase of trips west of Humble. • Reduces trips on Humble. • Good emergency access. • Additional intersection on west side. CAC ◒ AC ○	• Poor continuity to MSLA street network. • Aligns with local street. • Favors Big Flat at intersection. • Reduces trips on Humble north of South. • Increases trips on Humble south of South. CAC ◒ AC ●	• Poor continuity to MSLA street network. • Aligns with local street. • Favors Big Flat at intersection. • Reduces trips on Humble north of South. • Increases trips on Humble south of South. • T-intersection. • Shaded intersection. • Irrigation canal. CAC ● AC ●	• Favors north/south traffic while traffic is generally east/west. • Large out-of-direction travel. • Could divert trips from west side. • Possible increase of trips on South. CAC ● AC ●
Construction Lengths (Cost)	• 2100' of total construction. • 400' of construction within floodway. • Length of reconstruction will vary with the selected design speed. • River Pines Road needs improvements, possibly by increasing length of structure on west side. CAC ● AC ◔	• 1500' of total construction. • 900' of construction within floodway. • Length of construction will vary with the selected design speed. CAC ◒ AC ◔	• 1400' of total construction. • 1300' of construction within floodway. • West side – in O'Brien Creek floodplain. • South Avenue West will need improvements in addition to listed lengths. CAC ◒ AC ●	• 2100' of total construction. • 1600' of construction within floodway. • South Avenue West will need improvements in addition to listed lengths. CAC ◒ AC ●	• 1500' of total construction. • 1000' of construction within roadway. • Sundown Road will need improvements in addition to listed lengths. CAC ◒ AC ◔	• 1650' of total construction. • 900' of construction within floodway. • Sundown Road will need improvements in addition to listed lengths. CAC ● AC ◔	• 6600' of total construction. • 900' of construction within floodway. CAC ● AC ●

Figure 3-1a
Preliminary Evaluation Matrix

MISSOULA COUNTY

Maclay Bridge Site Selection Study EA

MACLAY BRIDGE
Site Selection Study
Preliminary Evaluation Matrix

● Substantial Impact ◒ Moderate Impact ○ Minimal Impact

Criteria	South 3rd West	Spurgin	Mount No. 1	Mount No. 2	Edwards No. 1	Edwards No. 2
	Alternatives					
Land/Farm Social-Economic	• Highest number of property impacts. • Impacts prime irrigated farmland (large area). • Highest number of residences displaced. • Displaces historic Maclay Homestead.	• Potential for high number of property impacts. • Impacts prime irrigated farmland (large area). • Some property displacement. • Displaces historic Maclay Homestead.	• Possible property impacts. • Impacts prime irrigated farmland (moderate area). • Displaces historic Maclay Homestead.	• Structure could impact access to several properties. • Impacts prime irrigated farmland (moderate area). • Displaces residences. • New driveways needed on River Pine Road.	• Could displace several residences, impacts access to one property. • Impacts prime farmland (moderate area). • Displaces historic Maclay homestead.	• Displaces several residences. • Impacts prime farmland (moderate area).
	CAC ● AC ●	CAC ● AC ●	CAC ● AC ●	CAC ● AC ●	CAC ● AC ●	CAC ● AC ●
Environmental	• Substantial impacts. • Wide floodplain. • Visual impact in undisturbed area. • Noise impacts increased on 3rd Avenue, reduced on South, Clements & Humble.	• Riparian/wildlife habitat impacts. • Wide floodplain. • Visual impact in undisturbed area. • Noise impacts increased on Spurgin, reduced on South, Clements & Humble.	• Riparian/wildlife habitat impacts. • Wide floodplain. • Visual impact in undisturbed area. • Noise impacts increased on Mount and Spurgin, reduced slightly on Clements and South.	• Riparian/wildlife habitat impacts. • Moderately wide floodplain. • Visual impact in previously disturbed area. • Noise impacts (see Mount No. 1).	• Riparian/wildlife habitat impacts. • Moderately wide floodplain. • Visual impact in previously disturbed area. • Noise impacts increased on Mount, reduced slightly on Clements and South.	• Riparian/wildlife habitat impacts. • Moderately wide floodplain. • Visual impact in previously disturbed area. • Noise impacts (see Edwards No. 1).
	CAC ● AC ●	CAC ● AC ●	CAC ● AC ●	CAC ● AC ◕	CAC ● AC ●	CAC ● AC ◕
Operations/Traffic	• Good east/west continuity. • Some out-of-direction travel. • Added roadway length. • Favors continuity with O'Brien Creek Road at intersection. • Reduces trips on South, Clements & Humble. • Increases trips on 3rd Avenue. • Increases emergency and bus travel times.	• Some east/west continuity. • Aligns with local road. • Favors continuity with O'Brien Creek Road at intersection. • Reduces trips on South, Clements and Humble. • Increases trips on Spurgin.	• Poor continuity to Reserve. • Aligns with local road. • Favors continuity with O'Brien Creek Road at intersection. • Some reduction of trips on Clements and South. • Increases trips on Mount. • Increases trips on Spurgin.	• Poor continuity to Reserve. • Aligns with local road. • Favors continuity with O'Brien Creek Road at intersection. • Some reduction of trips on Clements and South. • Increases trips on Mount. • Increases trips on Spurgin. • Safety concerns on River Pines Road.	• Poor continuity with MSLA streets. • Aligns with local road network. • Favors continuity with O'Brien Creek Road at intersection. • Some reduction of trips on Clements and South. • Increases trips on Mount.	• Poor continuity with MSLA streets. • Aligns with local road network. • Favors continuity with O'Brien Creek Road at intersection. • Some reduction of trips on Clements and South. • Increases trips on Mount.
	CAC ● AC ◒	CAC ● AC ●	CAC ● AC ●	CAC ● AC ●	CAC ● AC ●	CAC ● AC ●
Construction Lengths (Cost)	• 9600' of total construction. • 600' of construction within floodway. • Difficult construction conditions along Clark Fork floodplain.	• 6,200' of total construction. • 600' of construction within floodway.	• 5300' of total construction. • 600' of construction within floodway.	• 2800' of total construction. • 500' of construction within floodway. • River Pines Road needs improvements, possibly by increasing length of structure on west side.	• 4800' of total construction. • 400' of construction within floodway.	• 2300' of total construction. • 500' of construction within floodway. • River Pines Road needs some improvement, possibly by increasing length of structure on west side.
	CAC ● AC ●	CAC ● AC ●	CAC ● AC ●	CAC ● AC ◒	CAC ● AC ◒	CAC ◒ AC ◒

Figure 3-1b
Preliminary Evaluation Matrix

3.2 Alternatives Considered But Not Advanced

The following alternatives were considered but not advanced for further consideration in the EA due to physical constraints, environmental impacts and limited benefits. These alignments are shown on Figure 3-2 and described below:

- **South Third West.** This alternative extends from the west end of South Third Street West and follows the Clark Fork River southwesterly to the end of South Seventh Street West. From this point the alignment travels southwest across Spurgin Road and the Bitterroot River and continues to the R/O/B/B intersection. This alternative presents substantial impacts under the Land/Farm/Social-Economic, Environmental, and Construction Length criteria. This alternative does have some positive aspects since it aligns with a minor arterial roadway; however, the impacts outweigh the possible benefits.

- **Spurgin.** This alternative begins at the east curve of a set of reverse curves on Spurgin Road. It turns southwest across the Bitterroot River and continues to the R/O/B/B intersection. This alternative presents substantial impacts for all of the criteria.

- **Mount 1.** This alternative extends due west from the west end of Mount Avenue. It turns southwest, crosses the Bitterroot River and continues to the R/O/B/B intersection. This alternative presents substantial impacts for all of the criteria.

- **Mount 2.** This alternative proceeds from the west end of Mount Avenue in a southwesterly direction across the Bitterroot River toward River Pines Road at the west end of the existing Maclay Bridge. This alternative presents substantial impacts for all of the criteria, particularly for the Land/Farm/Social-Economic, and Operations/Traffic criteria. This alternative also presents a high level of environmental impacts in the area of the River Pines Addition. Although the magnitude of construction will be reduced due to the narrow floodway in the area of this alternative, a principal reason for its screening was that it has poor traffic continuity with Reserve Street, and it aligns with a roadway currently classified as a local street.

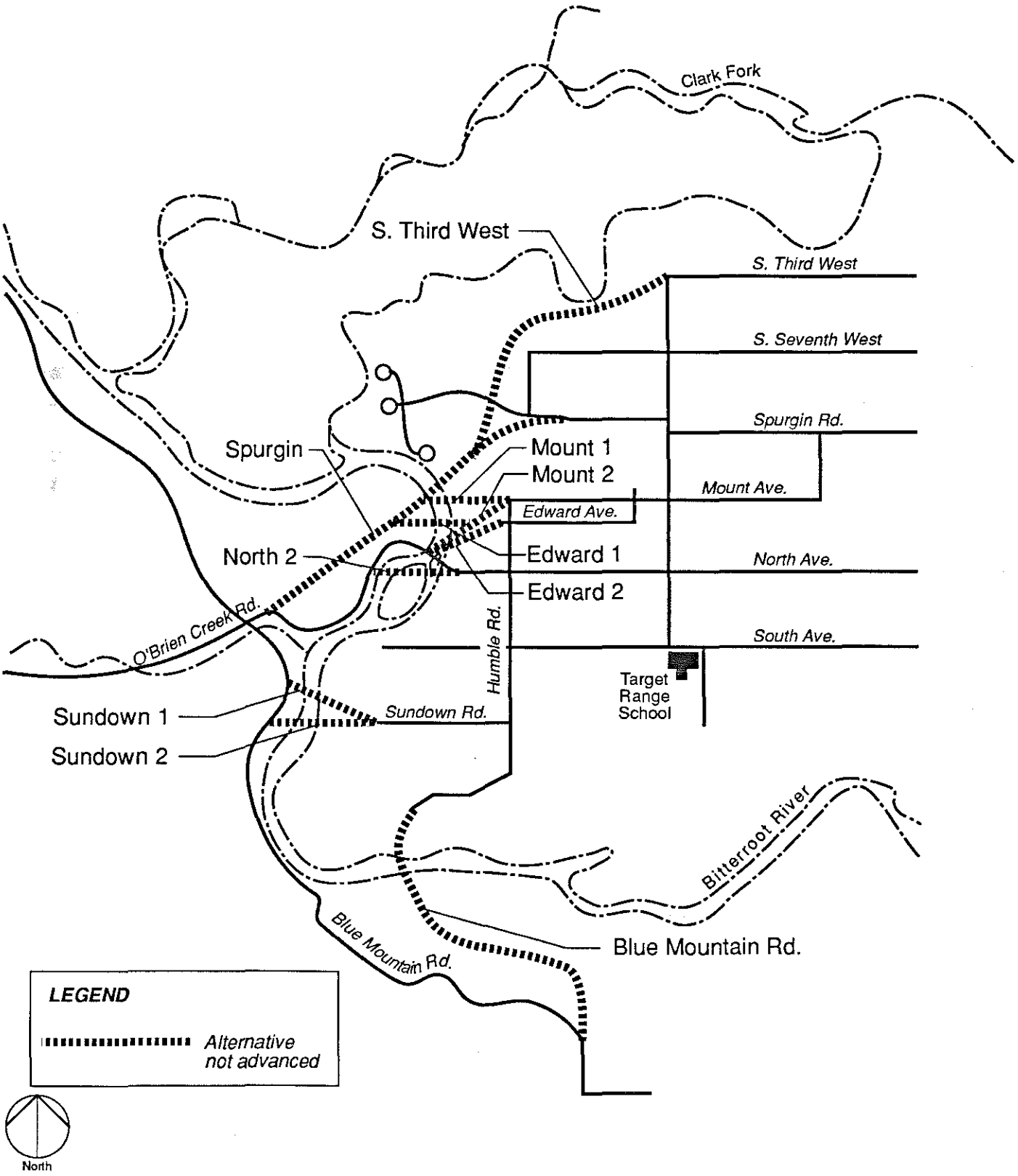


Figure 3-2
Alternatives Not Advanced

- **Edward 1.** This alternative extends due west from the west end of Edward Avenue. It turns southwest, crosses the Bitterroot River, and continues to the R/O/B/B intersection. This alternative presents substantial impacts under the Land/Farm/Social-Economic, Environmental, and Operations/Traffic criteria. While the magnitude of its construction is reduced by the shorter bridge length required at this location, the impacts outweigh the potential cost advantages.

- **Edward 2.** This alternative proceeds from the end of Edward Avenue in a southwesterly direction across the Bitterroot River to River Pines Road at the west end of the existing Maclay Bridge. This alternative presents substantial impacts under the Land/Farm/Social-Economic, and Operations/Traffic criteria. This alternative also presents a high level of environmental impacts in the area of the River Pines Addition. Although the magnitude of its construction will be reduced due to the narrow floodway in the area of this alternative, the principal reasons for screening this alternative were that it provides poor continuity with Reserve Street and it aligns with a roadway currently classified as a local street.

- **North 2.** This alternative extends due west from the east-west portion of North Avenue, crossing the island upstream from the existing structure and connecting to River Pines Road. This alternative presents substantial impacts under the Land/Farm/Social-Economic, and Environmental criteria. There are direct impacts to the large island just upstream of the existing Maclay Bridge. The island has considerable ecological value since it is a large undisturbed riparian area.

- **Sundown 1.** This alternative begins at the west end of Sundown Road. It extends northwesterly across the Bitterroot River to a sharp curve on Blue Mountain Road. This alternative presents moderate to substantial impact under the Environmental and Operations/Traffic criteria. The principle reasons for screening this alternative were that it provides poor continuity with Reserve Street and it aligns with a roadway currently classified as a local street.

- **Sundown 2.** This alternative extends due west, from the end of Sundown Road across the river, to a point on Blue Mountain Road. This alternative presents moderate to substantial impact under the Environmental and Operations/Traffic criteria. The principle reasons for screening this alternative were that it provides poor continuity with Reserve Street, and it aligns with a roadway currently classified as a local street.

- **Blue Mountain Road.** This alternative begins at the very south end of Humble Road and follows a due south course across the Bitterroot River to

Maclay Flats. The alternative turns east across Maclay Flats then south to the end of a north-south segment of Blue Mountain Road. This alternative presents substantial impacts under all of the criteria.

In addition to the alternatives described above, the following alternatives were also evaluated:

- **Rehabilitation of the Existing Maclay Bridge.** The existing bridge is inspected at two-year intervals. The last inspection, completed in 1992, resulted with a sufficiency rating of 49.7. At the time of the inspection in 1989, the remaining life of the bridge was estimated to be 10 years. The following factors contribute to the overall inadequacy of the structure:

  - Major Span. The floor beams and stringers are undersized and will only support a 9,072 kg (ten ton) load. In order to upgrade the capacity of these members, the entire superstructure for this span would need to be removed and replaced

  - Pony Truss. A portion of the truss has been damaged by overweight loads.

  - Foundations. The sandy soil below the existing river piers has been washed away. Rip rap has been placed to protect the piers; however, the foundations may still be susceptible to scour to depths below the footings.

  - Approaches. Poor roadway alignments and lack of a guardrail at the bridge approaches create safety hazards for all types of traffic.

  The bridge will need to be reconstructed in order to correct these deficiencies. A new bridge will need to meet current floodplain regulations and design standards, neither of which is met by the existing one-lane bridge.

- **Replacement of the bridge with a new one-lane bridge.** The concept of the construction of a new one-lane bridge was initiated through the public involvement process. A one-lane structure could limit the traffic using the bridge, and it would not result in a new visual impact within the river corridor. This alternative also involves the following aspects:

  - The alignment of the existing one-lane structure results in an unusually high accident rate near the existing bridge. These safety problems and corresponding accident rates will not be resolved by constructing a new one-lane bridge at the present location.

  - Longer span lengths to meet the floodplain requirements will inhibit bridge users' ability to see oncoming traffic from the ends of the structure.

- The construction of a new one-lane bridge at present traffic volumes will not meet accepted design standards. The AASHTO-Geometric Design of Highways and Streets allows one-lane bridge in cases where the average daily traffic (ADT) is less than 50. The existing ADT on Maclay Bridge is approximately 1,900, and the projected ADT in year 2015 is 3,300.

- Construction of a bridge and roadway alignment that does not meet accepted design standards will expose the county to increased liability and will severely limit funding options.

As part of the public involvement process there were inquiries as to the cost of replacing the existing bridge with a one lane structure. The conceptual cost estimate for this option is approximately $2.4 million. This cost includes the same work to the roadway approaches as the North 1 Alternative, a one lane structure with a 1.83 meter (6 foot) width for pedestrians, a waterway opening that meets the current floodplain requirements, and signalization at either end of the structure.

3.3 Alternatives Advanced

The alternatives analyzed within this document are shown on Figure 3-3 and described as follows:

- **No-Build.** This alternative represents the situation of maintaining the existing structure and utilizing it in is present configuration. Since the structure is nearing the end of its useful life, it is expected that the existing Maclay Bridge will need to be closed to vehicular traffic within the next ten years.

- **North 1.** This alternative is an alignment that lies just south of the existing Maclay Bridge. It will involve improvements to the alignment of North Avenue at the intersection of Edward Avenue. The roadway curves on the west side of the river will need to be improved to eliminate the 90-degree bend at the west end of the existing bridge. Improvements will be made to the alignment along River Pines Road, as well as improvements to the R/O/B/B intersection.

- **South 1** (Preferred Alternative). This alternative is an extension of South Avenue in a northwesterly direction across the Bitterroot River to align with the east-west portion of River Pines Road. This alternative includes improvements to South Avenue west of Humble Road as well as improvements to the R/O/B/B intersection.

- **South 2.** This alternative is a due west extension of South Avenue across the Bitterroot River that intersects with Blue Mountain Road south of River Pines Road. This alternative includes improvements to South Avenue west of Humble Road as well as improvements to the R/O/B/B intersection.

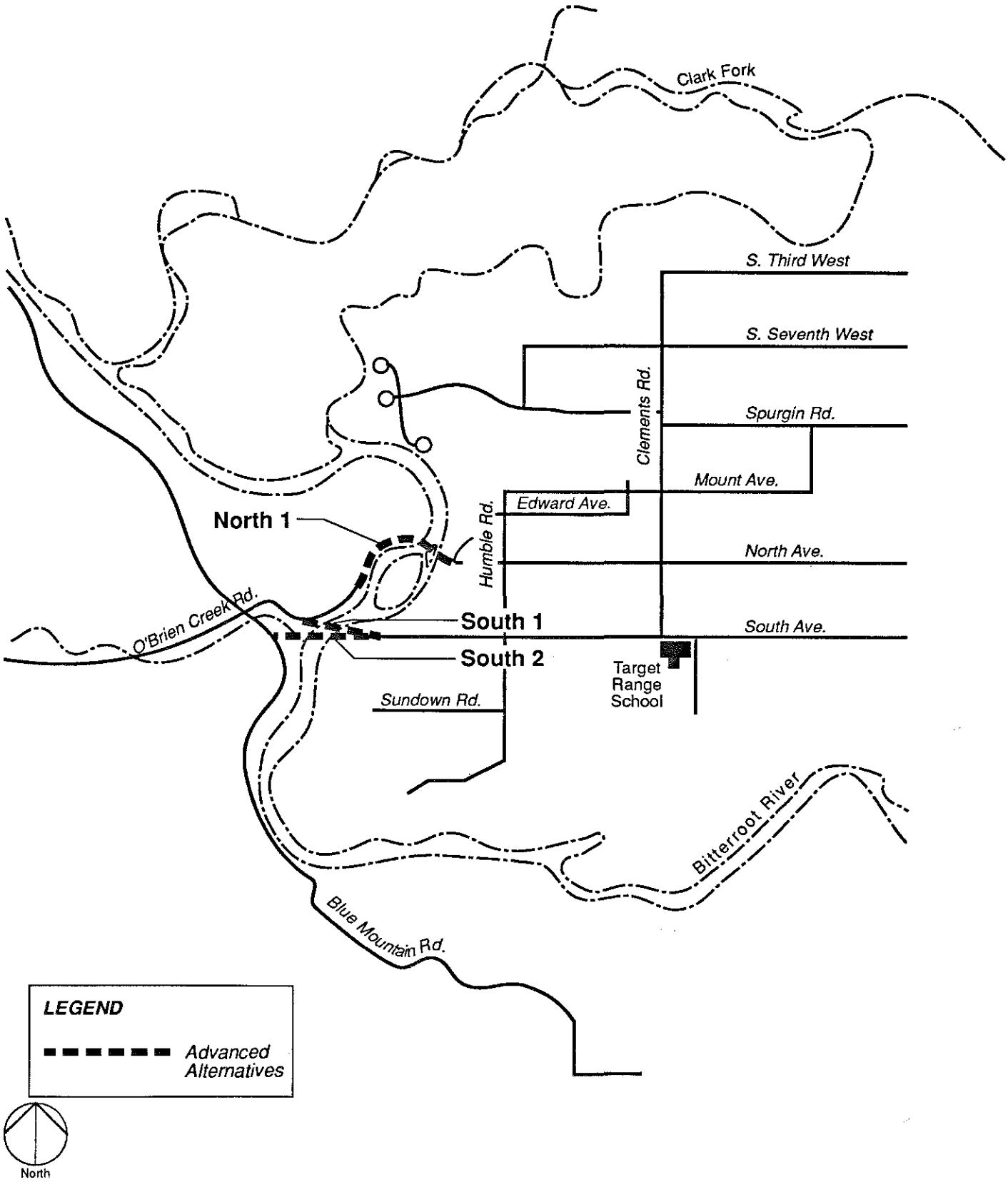


Figure 3-3
Alternatives Advanced (Includes No-Build)

Table 3-1 provides a general cost comparison of the Advanced Alternatives. These costs are conceptual in nature and are intended only for the purpose of comparing major cost differences between the alternatives. Minor items that occur in each of the alternatives have not been shown.

Table 3-1
Comparative Costs

Alternative	Approaches	Structure	right-of-way	R/O/B/B Int.	TOTAL
No-Build	NA	NA	NA	NA	NA *
North 1	$670,000	$2,000,000 **	$465,000	$230,000	$3,365,000
South 1	$560,000	$2,810,000	$25,000	$230,000	$3,625,000
South 2	$388,000	$4,800,000	$23,000	$230,000	$5,234,000

* The No-Build will not result in direct construction costs, however, it is anticipated that once the Maclay Bridge is closed to vehicular traffic Blue Mountain road will need to be paved. The Missoula County Capital Improvement Program has identified an $800,000 cost to pave Blue Mountain Road. It is also anticipated that a traffic signal would also be required at U.S. 93 at an approximate cost of $80,000.

** This cost assumes that the existing Maclay Bridge will remain in place.

The costs shown in Table 3-1 do not represent the actual construction costs, nor do they address future operation and maintenance of each proposed project. The operation and maintenance of each of the build alternatives is expected to be similar in type and magnitude. The following operation and maintenance measures will be conducted during the life of the facility:

- Snow removal and de-icing
- Periodic sweeping
- Cleaning ditches and culverts
- Cleaning bridge drain gates
- Pavement maintenance, such as overlay and pothole repairs as required
- Annual mowing along the pavement edge

The existing bridge will likely require periodic deck replacement until it is closed to vehicular traffic.

4.0 Impacts and Mitigation Measures

This chapter provides a description of the impacts and mitigation measures for the No-Build and build alternatives described in Section 3.3.

4.1 Transportation

4.1.1 Introduction

The "Missoula Urban Transportation Plan (MUTP)- 1985 Update" was prepared as a guide for providing the necessary short-term and long-range improvements to Missoula's major street network. Due to the bridge's location outside the urban area at the time of the 1985 Update, the Maclay Bridge replacement project was not included among the projects identified in this document. An update of the transportation plan is scheduled to proceed in 1994. It is anticipated that the existing bridge's eventual closure will be addressed in the upcoming document.

Several goals and objectives noted in the MUTP are applicable within the framework of the Maclay Bridge Environmental Assessment. These are:

- Reducing travel time
- Increasing health and safety
- Minimizing disruption during construction

4.1.2 Existing Conditions

The Maclay Bridge is one of three bridge crossings over the Bitterroot River providing vehicular access to the predominantly residential population along the west banks. The Maclay Bridge crossing is the middle of the three crossings and currently serves approximately 1,900 vehicles per day (vpd) on the single lane structure. The two other crossings include Kona Bridge, which provides access approximately four miles downstream and Buckhouse Bridge approximately three miles south of the existing Maclay Bridge structure. Existing traffic volumes for roadways within the study area are shown on Figure 4-1.

The structural integrity of the bridge limits its carrying capacity to ten tons. This posted weight limit restricts the vehicle type to predominantly passenger vehicles.

4.1.2.1 Existing Traffic Volumes

Traffic has been growing at the Maclay Bridge structure at an average annual rate of 9.9% over the past 17 years. Along with the traffic increases on the structure, the roadway network within the study area has also been increasing. The roadways that are or will be influenced by the elimination or replacement of the Maclay Bridge structure include the north-south and east-west roadways east of the Bitterroot River, including Humble and Clements Roads, and North and South Avenues. On the west side of the river, River Pines Road, O'Brien Creek Road, Big Flat Road, and Blue Mountain Road are evaluated in the vicinity of their four-legged intersection. Table 4-1 indicates the historical growth and the current roadway classification of each facility. This historic growth rate is presented to provide information on the past growth activity for individual roadway segments. It also provides a basis of comparison for future projections. Future projections as presented in Section 4.1.3 are based on the future construction of single family dwelling units as indicated in the Missoula Comprehensive Plan.

Table 4-1
Historical Growth and Classification of Roadways Within Study Area

	Existing Traffic Volume Vehicles Per Day (vpd)	Historical Annual Growth Rate[1]	Roadway Classification[2]
North Avenue - Maclay Bridge to Clements Road	1,900	9.9	Collector
South Avenue - Humble Road to Clements Road	1,600	2.0	Collector
Clements Road - North Avenue to South Avenue	3,300	2.6	Minor Arterial
Humble Road - North Avenue to South Avenue	1,000	N/A[3]	Collector
O'Brien Creek Road	750	36.0	N/A
River Pines Road	1,900	12.3	N/A
Big Flat Road	1,300	8.5	N/A
Blue Mountain Road	650	56.0	N/A

[1]Growth rate was determined from 1988 to 1992.
[2]Roadway classification is preliminary pending Missoula approval.
[3]No historic traffic information is available.

Traffic counts were collected in August, 1993 to identify travel patterns and evaluate traffic characteristics, as shown on Figure 4-1. In addition, the Maclay Bridge was closed three days in August 1993 for redecking. This allowed traffic volumes to be counted to determine travel patterns if the bridge structure was not in place (see Figure 4-2).

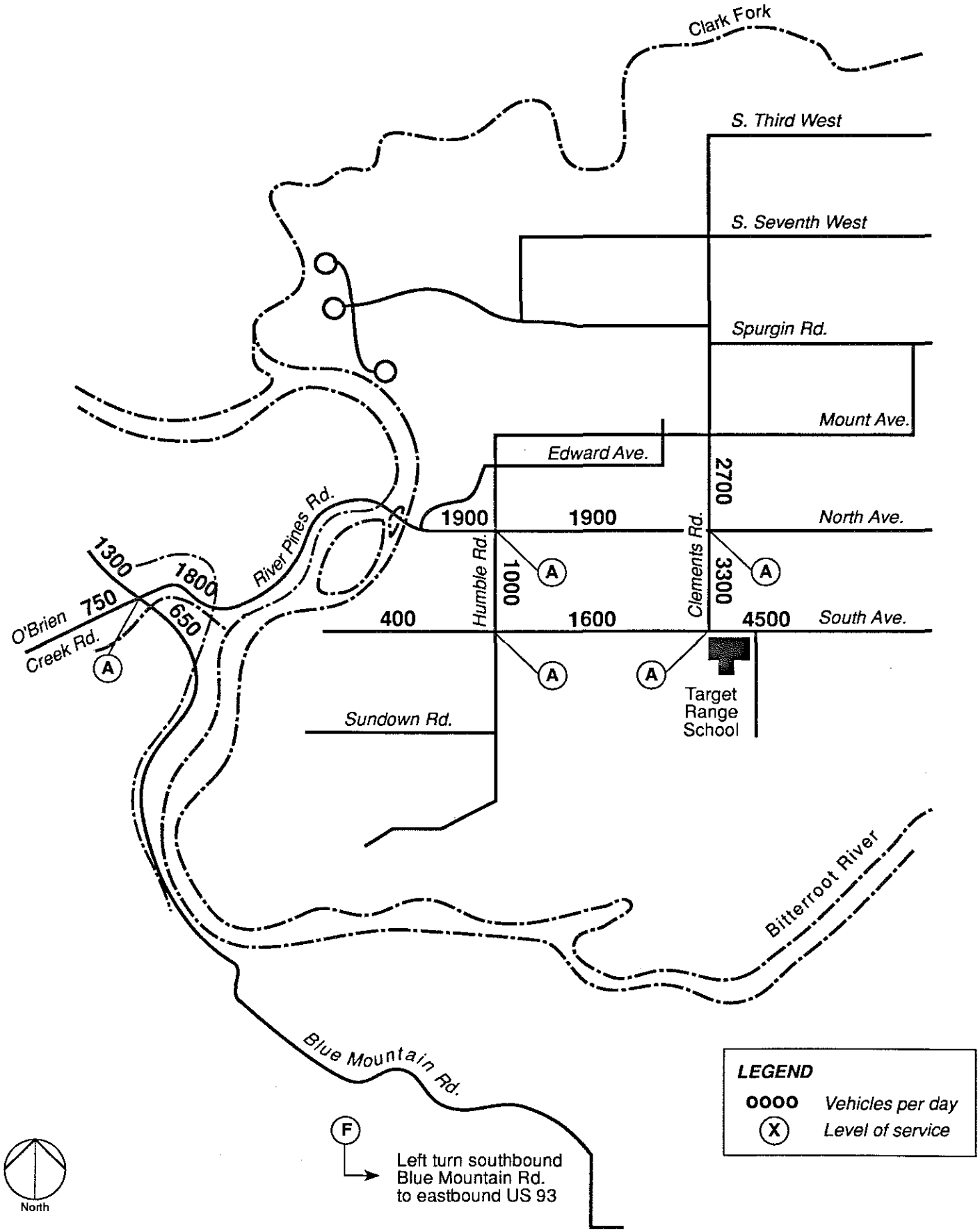


Figure 4-1
1993 Traffic Volumes and Level of Service

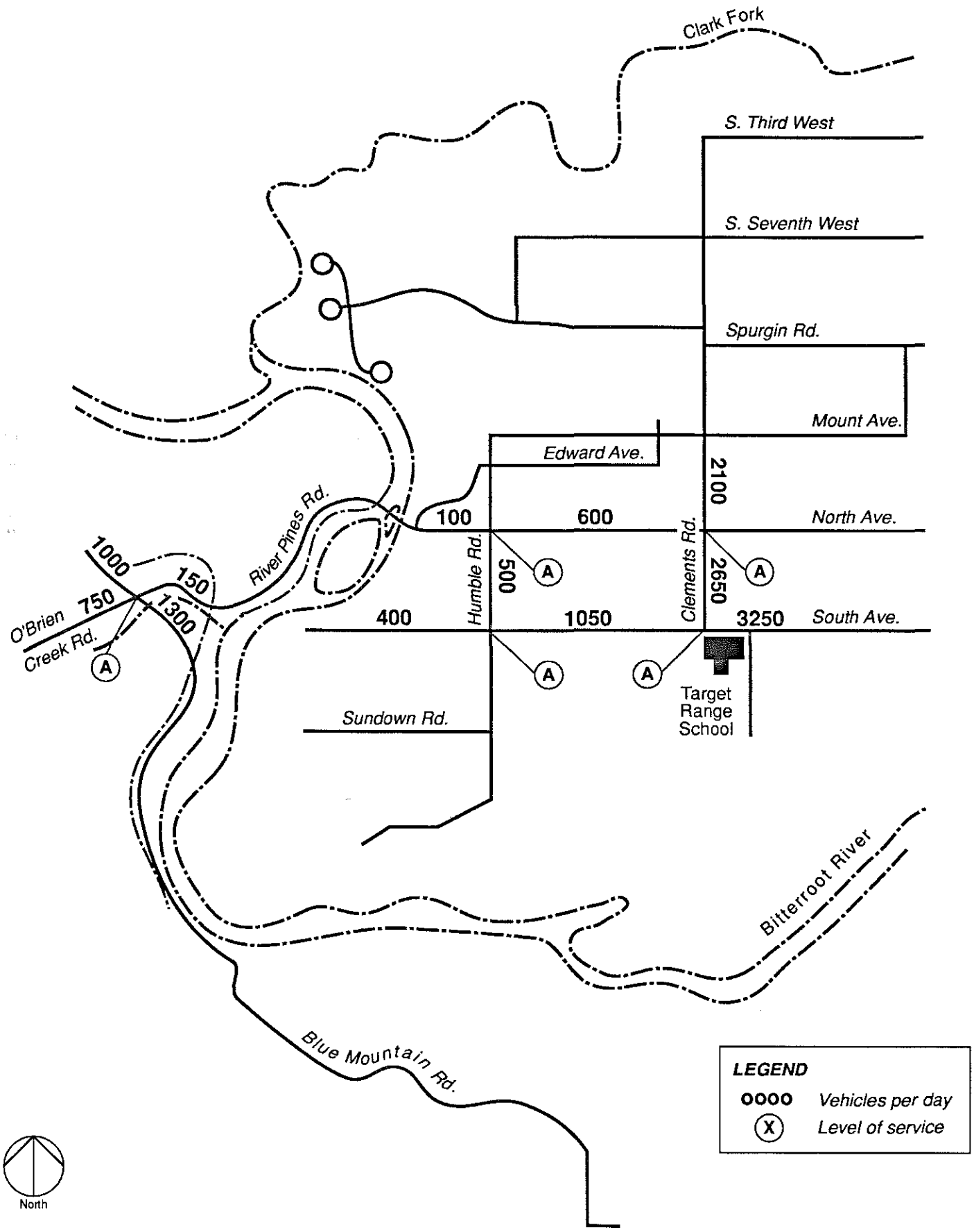


Figure 4-2
1993 Traffic Volumes with Maclay Bridge Closed

Existing distribution of travel across Maclay Bridge is shown on Figure 4-3. The predominant AM peak period traffic movement is eastbound, providing for the home to work trip into the major employment areas east of the Bitterroot River. Conversely, the PM peak period travel is primarily westbound, providing for the work to home trip. In addition, a mid-afternoon traffic peak occurs at the intersection of Clements Road and South Avenue. This traffic increase is attributable to Target Range School, located south of this intersection. Based on traffic counts in the study area, the travel patterns established are as follows:

- East of the Bitterroot River: 70% of the trips crossing Maclay Bridge use South Ave east of Clements Road. Of the 70%, 40% use Clements Road and the other 30% use Humble Road. 30% of the trips crossing Maclay Bridge use Clements Road to the north.

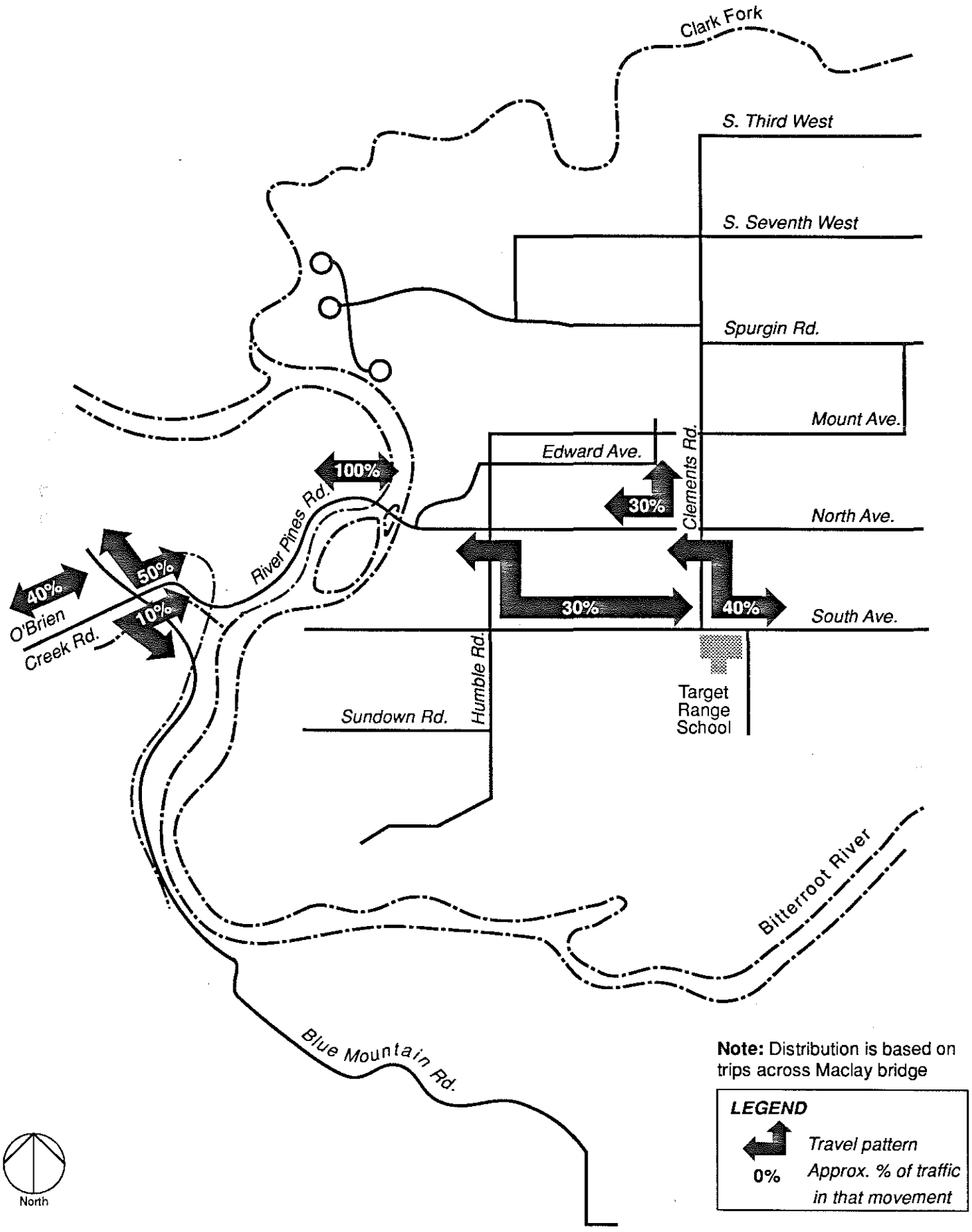
- West of the Bitterroot River: 50% of the trips utilize Big Flat Road. 40% of the trips utilize O'Brien Creek Road. 10% of the trips utilize Blue Mountain Road.

In addition, the following travel patterns were observed during the closure of the Maclay Bridge:

- Traffic typically using Big Flat Road to cross the Bitterroot River at Maclay Bridge will divert to the Kona Bridge;

- Traffic typically using Blue Mountain Road to cross the Bitterroot River at Maclay Bridge will divert to Buckhouse Bridge;

- Traffic using O'Brien Creek Road will use either Blue Mountain Road or Mullan Road.



MISSOULA COUNTY

Maclay Bridge
Site Selection Study EA

Figure 4-3

Existing Distribution of Travel across Maclay Bridge

4.1.2.2 Existing Level of Service

Level of service (LOS) defines the extent of congestion, with "A" meaning little or no delay or congestion, and LOS "F" meaning unacceptable delay and congestion. Currently, all intersections in the study area operate at LOS A.

Maclay Bridge is currently a one-lane structure providing for two-way traffic flow. Existing bridge traffic experiences a LOS B to D with anticipated average delays up to one minute for the opposing traffic during the peak traffic periods.

Table 4-2
Existing Level of Service

Intersection	Movement	AM Peak Hour/ PM Peak Hour LOS
• River Pines/O'Brien Creek/Big Flat/Blue Mtn.	WB LT/TH River Pines EB LT/TH O'Brien Creek SB LT Big Flat NB LT Blue Mtn.	A/A A/A A/A A/A
• Humble Road/South Avenue	SB LT Humble Road EB LT South Avenue	A/A A/A
• Humble Road/North Avenue	NB LT Humble Road WB LT North Avenue	A/A A/A
• Clements Road/South Avenue	SB LT Clements EB LT South Avenue	A/A A/A
• Clements Road/North Avenue	NB LT Clements Road EB LT North Avenue	A/A A/A
• US 93/Blue Mtn. Road	SB LT Blue Mtn. Road	F/F

WB = Westbound *NB = Northbound*
EB = Eastbound *SB = Southbound*

4.1.2.3 Accident History

Accident data was obtained from Missoula County for the 5-year period between 1987 to 1992. Summaries by roadway are shown in Tables 4-3 to 4-7. No accidents were identified along North Avenue between the river and Clements Road or Humble Road, between North and South Avenues. Historically, the west end of the Maclay Bridge has been a high accident area. Based on the "Missoula County Accident Cluster Site Selection Study", the west end of the Maclay bridge was identified as the 15th worst intersection within the County jurisdiction with 5 accidents occurring within the 4-1/2 year period leading up to 1987. Within the study period of 1987 to 1992, accidents have tripled even though signage and pot hole improvements were made in 1988. The 15 accidents reflect the unsafe curve on the west side of the bridge structure.

Table 4-3
1987-1992 Accident Summary
South Avenue

Intersection Location	Date of Accident	Weather G=good B=bad	Day or Night D=day N=night	# Veh.	Collision Type	Accident Cause Other Than Inattentiveness				
						Bad Road	Inexperi - ence	Vehicle Control	Internal Distrac - tion	Animal
@ Humble	1/92	B	N	2	mv/side	X				
@ Humble	3/91	B	D	2	mv/angle	X				
@ Humble	12/89	B	N	1	Overturn	X				
@ Humble	2/91	B	D	I	FO					
@ Humble	12/89	B	D	2	mv/rear-end					
@ Humble	3/91	B	D	2	mv/angle	X				
@ Clements	10/92	G	D	1	Ped.		X			
@ Clements	1/88	B	D	2	mv/angle	X				
@ Clements	3/87	G	D	2	mv/angle		X			
@ Clements	3/87	B	D	2	mv/angle	X				
@ Clements	1/87	B	D	2	mv/angle	X				
@ Clements	4/90	B	D	2	mv/angle					
@ Clements	12/89	B	D	2	mv/angle	X				
@ Clements	12/89	no info.								

Collision Type:
MV -- accident involved another motor vehicle.
FO -- accident involved a fixed object.

Table 4-4
1987-1992 Accident Summary
Clements Road

Intersection Location	Date of Accident	Weather G=good B=bad	Day or Night D=day N=night	# Veh.	Collision Type	Accident Cause Other Than Inattentiveness				
						Bad Road	Inex-peri-ence	Vehicle Control	Internal Distrac - tion	Animal
@ North Ave.	11/92	B	N	2	mv/side	X				
@ North Ave.	12/92	B	D	2	mv/rear	X				
@ North Ave.	1/92	B	D	2	mv/angle	X				
@ North Ave.	10/89	B	D	2	mv/angle		X			
@ North Ave.	8/87	G	N	2	mv/angle					X
@ South Ave.	11/87	B	N	2	mv/backed into					
@ South Ave.	11/87	G	N	1	FO/fence					
@ South Ave.	11/91	G	D	2	mv/side					
@ Dairy	5/87	G	D	2	mv/angle					
@ Dairy	9/89	no info								
@ Dairy	12/90	B	D	2	mv/angle					
@ Dairy	3/89	no info								

Collision Type:
MV -- accident involved another motor vehicle.
FO -- accident involved a fixed object.

Table 4-5
1987-1992 Accident Summary
Big Flat Road

Intersection Location	Date of Accident	Weather G=good B=bad	Day or Night D=day N=night	# Veh.	Collision Type	Accident Cause Other than Inattentiveness				
						Bad Road	Inex-peri-ence	Vehicle Control	Internal Distrac - tion	Animal
@ R/O/B/B[1]	11/92	B	N	1	FO/tree					
@ R/O/B/B[1]	7/92	G	N	1	FO/sign					
@ R/O/B/B[1]	2/89	B	D	1	FO/power pole	X	X			
@ R/O/B/B[1]	4/91	G	D	1	FO/rock					
@ R/O/B/B[1]	12/88	B	N	1	FO/sign		X			
@ R/O/B/B[1]	6/89	G	N	1	FO/tree					
@ R/O/B/B[1]	12/88	B	N	1	FO/tree				X	
@ R/O/B/B[1]	10/91	G	D	1	FO/tree		X			

[1]Intersection of River Pines Road/O'Brien Creek Road/Big Flat Road/Blue Mountain Road

Collision Type:
MV -- accident involved another motor vehicle.
FO -- accident involved a fixed object.

Table 4-6
1987/1992 Accident Summary
River Pines Road/Maclay Bridge

Intersection Location	Date of Accident	Weather G=good B=bad	Day or Night D=day N=night	# Veh.	Collision Type	Accident Cause Other than Inattentiveness				
						Bad Road	Inexperi -ence	Vehicle Control	Internal Distrac - tion	Animal
@ Maclay Bridge	12/92	B	D	1	FO/tree	X				
@ Maclay Bridge	5/92	G	D	2	mv/side	X				
@ Maclay Bridge	3/89	G	D	1	FO					
@ Maclay Bridge	12/88	B	D	2	mv/head-on	X				
@ Maclay Bridge	3/89	B	D	1	FO/guard rail	X				
@ Maclay Bridge	2/88	G	N	1	FO/power pole				fell asleep	
@ Maclay Bridge	6/90	B	D	1	FO/bridge		X			
@ Maclay Bridge	1/90	B	D	1	FO/guard rail		X			
@ Maclay Bridge	3/90	G	N	1	FO/guard rail					
@ Maclay Bridge	4/90	B	N	1	FO/bridge	X				
@ Maclay Bridge	12/89	B	D	1	FO			X		
@ Maclay Bridge	5/89	G	N	1	FO/sign					
@ Maclay Bridge	9/90	G	N	1	FO/fence				fell asleep	
0.8 km (0.5 mile) east Big Flat	11/91	B	N	2	FO/tree	X	X			
0.48 km (0.3 mile) east Big Flat	8/90	G	D	1	FO/tree					X
0.48 km (0.3 mile) east Big Flat	7/90	G	D	2	mv/head-on		X			
Woodland	8/89	G	D	2	mv/ backed into					
0.48 km (0.3 mile) east of Big Flat	3/90	B	D	2	mv/angle	X				
0.48 km (0.3 mile) east of Big Flat	4/88	G	D	1	overturn/ tree					
Big Flat Rd.	8/87	G	N	2	mv/head-on					
Big Flat Rd.	6/91	G	D	7	FO/tree					
Big Flat Rd.	7/92	G	N	1	FO/power pole				X	

Collision Type:
MV -- accident involved another motor vehicle.
FO -- accident involved a fixed object.

Table 4-7
1987-1992 Accident Summary
Blue Mountain Road

Inter-section Location	Date of Acci-dent	Weather Η=ηοοδ Β=βαδ	Day or Night Δ=δαϑ Ξ=ξιηβυ	# Veh.	Collision Type	Accident Cause Other than Inattentiveness					
						Bad Road	Inex-peri-ence	Vehicle Control	Other Vehicle	Internal Distrac-tion	Animal
MP 0.100	2/88	no info									
MP 0.3	1/92	B	D	1	Overturn						
MP .4	5/88	G	D	1	FO/fence						
	10/90	G	D	1	Overturn						
.6	8/91	B	D	2	mv						
0.9	7/89	G	D	1	FO/fence					fell asleep	
1.0	7/88	4	N	1	Overturn/tree				X		
1.2	1/89	B	N	1	Overturn	X					
1.4	12/91	G	D	2	mv/side		X				
	9/92	G	D	1	FO/tree		X				
1.5	1/89	B	D	1	Overturn/tree		X				
	8/88	G	D	1	Overturn						
	1/87	B	N	1	FO/tree						
1.6	8/90	B	N	1	FO/tree			X			
	12/92	G	D	1	FO/fence	X					
1.7	6/92	G	D	1	FO/slope				X		
1.8	7/90	G	N	1	Overturn					fell asleep	
	1/88	B	N	1	Overturn						X
2.0	6/89	G	D	1	Overturn				X		
	10/90	B	N	1	Overturn			X			
	3/90	G	N	1	Overturn				Avoid ped.		
2.1	6/90	B	N	1	?					X	
2.2	6/87	G	D	2	mv/side						
2.3	12/87	B	N	1	FO/slope	X					
	9/89	G	D	1	Overturn			X			
	8/90	G	D	2	mv/angle						
2.5	11/90	B	N	1	Overturn	X					
2.6	9/91	G	D	2	mv/side				X dust		
	12/92	B	N	1	FO/tree		X				
	1/91	B	D	1	FO/tree	X					
	2/91	G	N	1	FO/tree						
	12/88	B	D	1	FO/tree	X					
	5/87	G	D	1	FO/tree		X				
	12/91	B	D	2	MV/tree	X					
2.7	12/87	G	N	1	Overturn		X				
	1/88	B	D	1	FO/tree	X					
	6/87	G	N	1	Overturn						
	5/88	G	N	1	FO/slope		X				
	3/91	B	D	2	mv/side	X					
	6/90	B	N	1	Overturn		X				
	1/90	B	N	1	Overturn	X					
	12/92	B	N	1	FO/tree	X					
2.8	4/89	B	D	1	FO						
	8/92	B	D	1	Overturn						
2.9	2/91	G	N	1	Overturn	X					
	8/92	B	D	2	mv/angle						

Collision Type: MV -- accident involved another motor vehicle. FO -- accident involved a fixed object.

A summary of the above accident data provides the following conclusions :

- All 12 accidents on South Avenue between Humble Road and Clements Road occurred between the months of October and April, typically when bad weather occurs and daylight periods are shorter. 50% of the accidents were related to inclement weather and one accident involved a pedestrian.

- All 10 accidents on Clements Road between South Avenue and North Avenue were intersection-related. This indicates that driver expectancy and sight distance are problems along Clements Road. In addition, 80% of the accidents were a result of inclement weather, 40% were at night time when visibility is poor, and 40% of the accidents occurred at the access to the dairy.

- All 8 accidents that occurred on Big Flat Road within the vicinity of the R/O/B/B intersection involved only one vehicle colliding with a fixed object within the roadway. 50% were a result of inclement weather, 40% were at night, and 37% involved younger drivers.

- 45 accidents occurred along the 4.67 km (2.9 mile) segment of Blue Mountain Road between US 93 and the south approach to the R/O/B/B intersection. Over 50% of the accidents were a result of inclement weather, 40% occurred at night, and 80% involved only one vehicle.

Construction of the Preferred Alternative is expected to reduce the accident levels associated with the existing bridge for the following reasons:

- Adequate sight distance will be designed at improved intersections.

- Fixed obstacles will be removed within the clear zone.

- Substandard geometry will be improved to meet AASHTO design standards by improving curves, sideslopes, sight distances, etc.

- Signage will be improved in the bridge approach areas.

4.1.2.4 Parking

There is currently no designated parking along any of the existing roadways approaching the Bitterroot River. There are areas where vehicles park along North Avenue, South Avenue, and River Pines Road; however, there is not adequate room provided for vehicles to park safely in these areas. People accessing the river typically park along neighborhood streets; however, this use has prompted the need for a parking district to restrict parking in the area. Designated parking is not proposed for any of the alternatives.

4.1.2.5 Transit

The Missoula Urban Transportation District (MUTD) operates "Mountain Line" buses which provide transit service to the Missoula urban area. Mountain Line's Route 9 bus provides two-way service between downtown Missoula and Community Hospital, located in the Target Range area on South Avenue West. This bus currently travels through the Target Range area using South Avenue, Clements Road, and portions of South Seventh West and South Third West. Of the 13 Mountain Line bus routes serving the Missoula area, Route 9 consistently ranks among the top six in average daily ridership.

None of the proposed alternatives will affect the area's existing transit service and the MUTD has no current plans to extend transit service west of Clements Road.

By discontinuing direct vehicular access between the west side and Target Range areas, the No-build Alternative will limit the options for extending future transit service west of the Bitterroot River in an efficient manner.

Each of the build alternatives will maintain vehicular access across the river in the vicinity of the existing bridge and could adequately accommodate transit service to the west side area if the MUTD considers this to be a likely future route.

4.1.3 Projected Traffic and Operations

4.1.3.1 Projected Traffic Volumes/Traffic Assignment

Traffic volume forecasts on Figure 5 (page 31) of the MUTP show a 190% increase over the 1985 traffic volumes on South Avenue just east of Clements Road. Forecast traffic volumes for each of the build alternatives are consistent with the MUTP's forecasts for this section of South Avenue.

The method used to forecast future traffic growth, the "build out" assumption for year 2015, is described in Section 4.4.2. For the build alternatives, travel patterns are anticipated to be similar to the existing travel patterns except for the concentration of east-west travel. Table 4-8 provides a summary of these projected increases.

Table 4-8
Build Out Trip Generation*
Maclay Bridge (West Bank)

Single Family Dwelling Units	Average Daily Traffic (vpd)	AM Peak Hour		PM Peak Hour	
		In	Out	In	Out
150	1,500	30	35	100	55

**Rates generated utilizing Institute of Transportation Engineers, "Trip Generation – An Informational Report," 5th Edition, 1991.*

The South Avenue alternatives will direct traffic onto South Avenue and reduce travel on North Avenue. In addition, two frequent left-turn movements will be substantially reduced since the majority of traffic follows the most direct route along South Avenue. These turn movements are:

- southbound Clements Road to eastbound South Avenue; and
- northbound Clements Road to westbound North Avenue.

The following summarizes the overall impacts and benefits to the surrounding roadways under each alternative:

- **No-Build.** This alternative is the least responsive to the route that most traffic currently follows. Each trip would have approximately 4.8-9.7 km (3-6 miles) of out-of-direction travel for at least 70% of all trips on the west side of the Bitterroot River.

  Traffic is projected to increase by 1,150 vpd on Blue Mountain Rd.;

  Traffic is projected to decrease by:
  - 1,800 vpd on North Avenue between Bitterroot River and Humble Rd.;
  - 550 vpd on South Avenue between Humble Road and Clements Road;
  - 1,250 vpd on south Ave east of Clements Road; and
  - 500 vpd on Humble Road.

- **North 1.** This alternative is similar to the existing traffic patterns with major left turn volumes occurring at the intersections of Clements Road/North Ave and Clements Road/South Avenue.

  Traffic is projected to increase by:
  - 500 vpd on Humble Road;

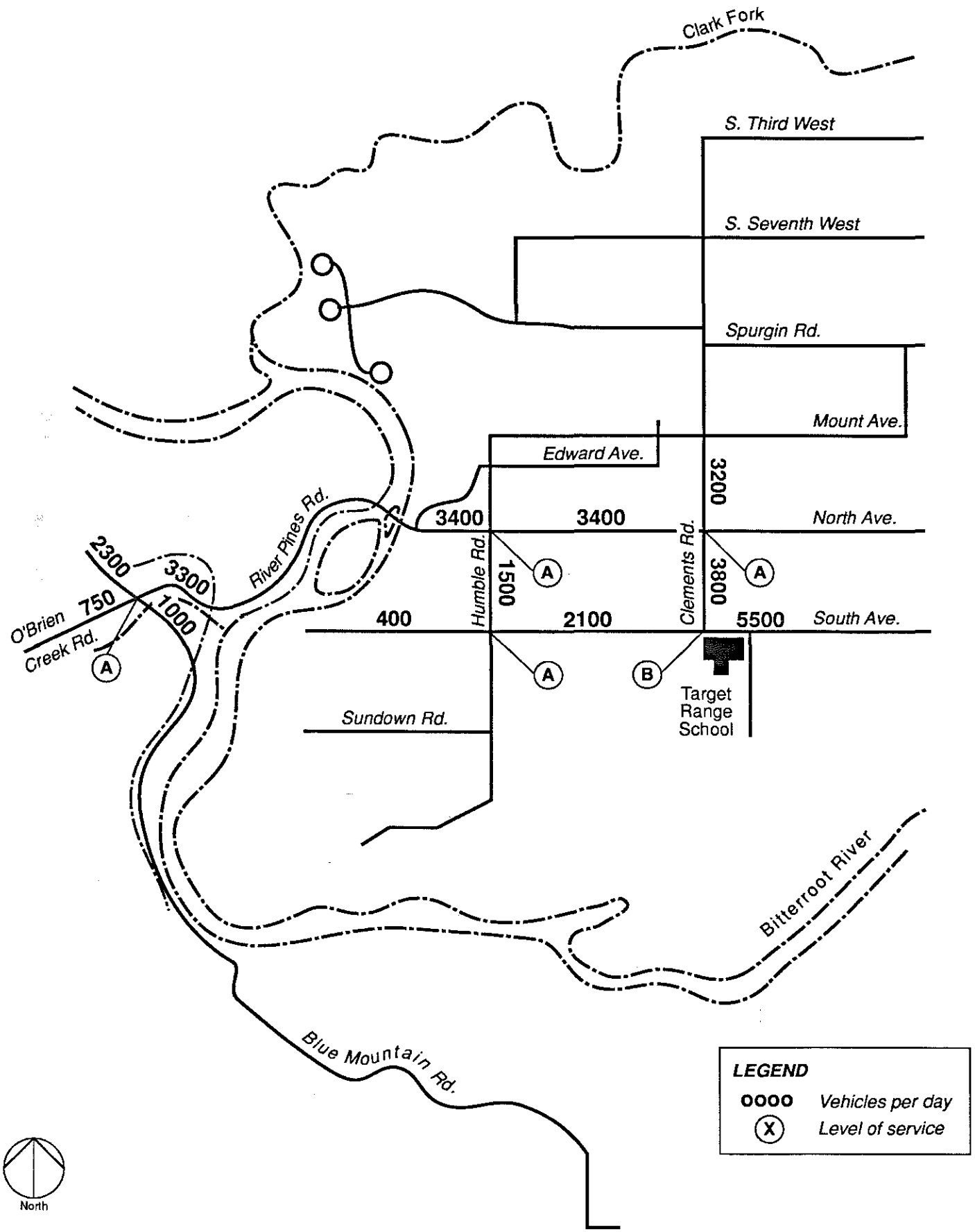
- 1,500 vpd on North Ave;
- 500 vpd on Clements Road;
- 500 vpd on South Ave between Clements Rd and Humble Rd; and
- 500 vpd on River Pines Road.

- **South 1** (Preferred Alternative). This alternative aligns with South Avenue, a minor arterial east of Clements Road.

  Traffic is projected to increase by:
  - 1,500 vpd on River Pines Road;
  - 3,300 vpd on South Avenue between Bitterroot River and Humble Road;
  - 2,300 vpd on South Avenue between Humble Road and Clements Road;
  - 500 vpd on Clements Road.

  Traffic is projected to decrease by:
  - 1,800 vpd on North Avenue between the Bitterroot River and Humble Road; and
  - 500 vpd on Humble Road.

- **South 2.** Traffic projections will be similar to the South 1 Alternative plus the reduction of 1,500 vpd on River Pines Road.



MISSOULA COUNTY

Maclay Bridge
Site Selection Study EA

Figure 4-4
Year 2015 Traffic Volumes
North 1 Alternative

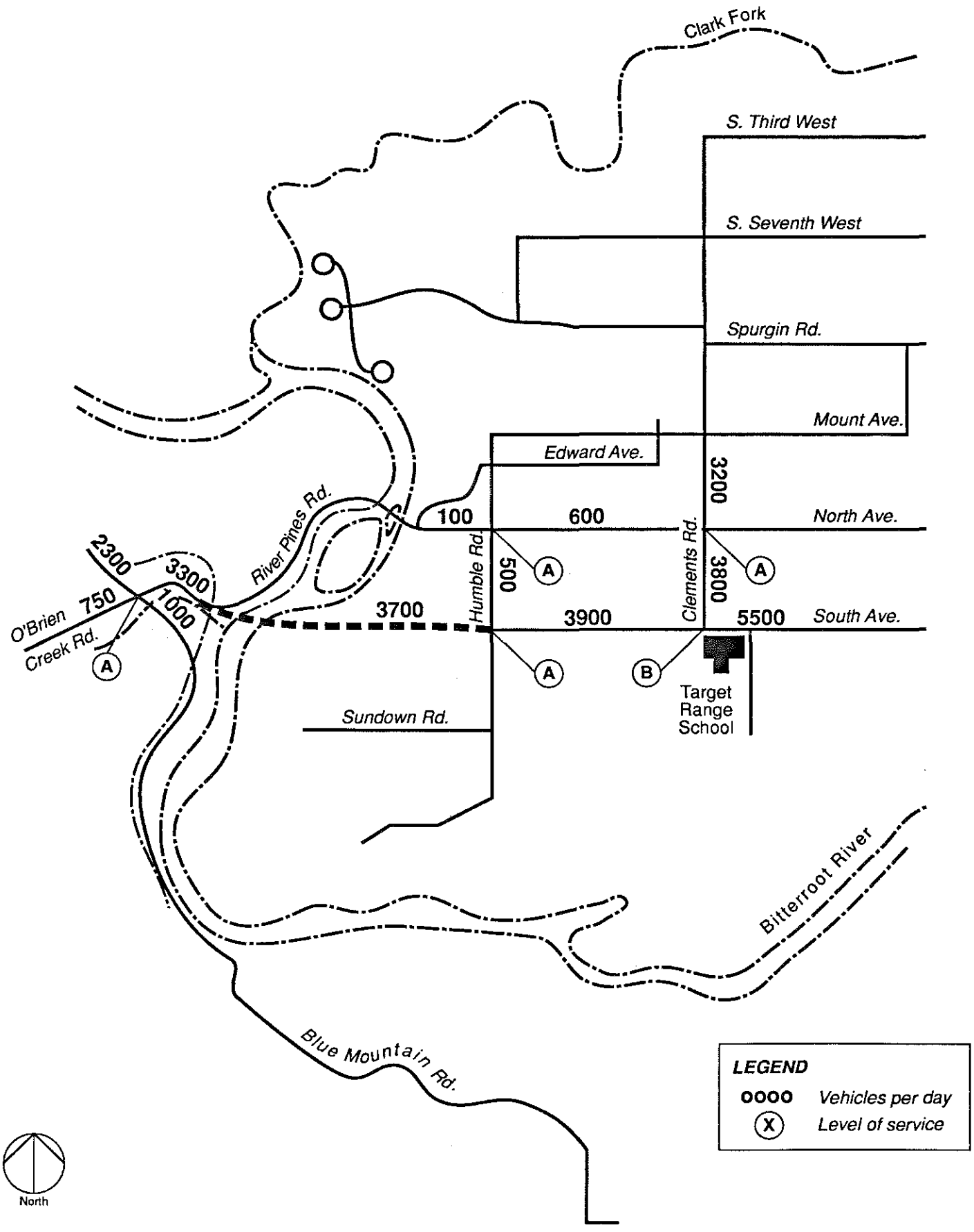


Figure 4-5
Year 2015 Traffic Volumes
South 1 Alternative (preferred)

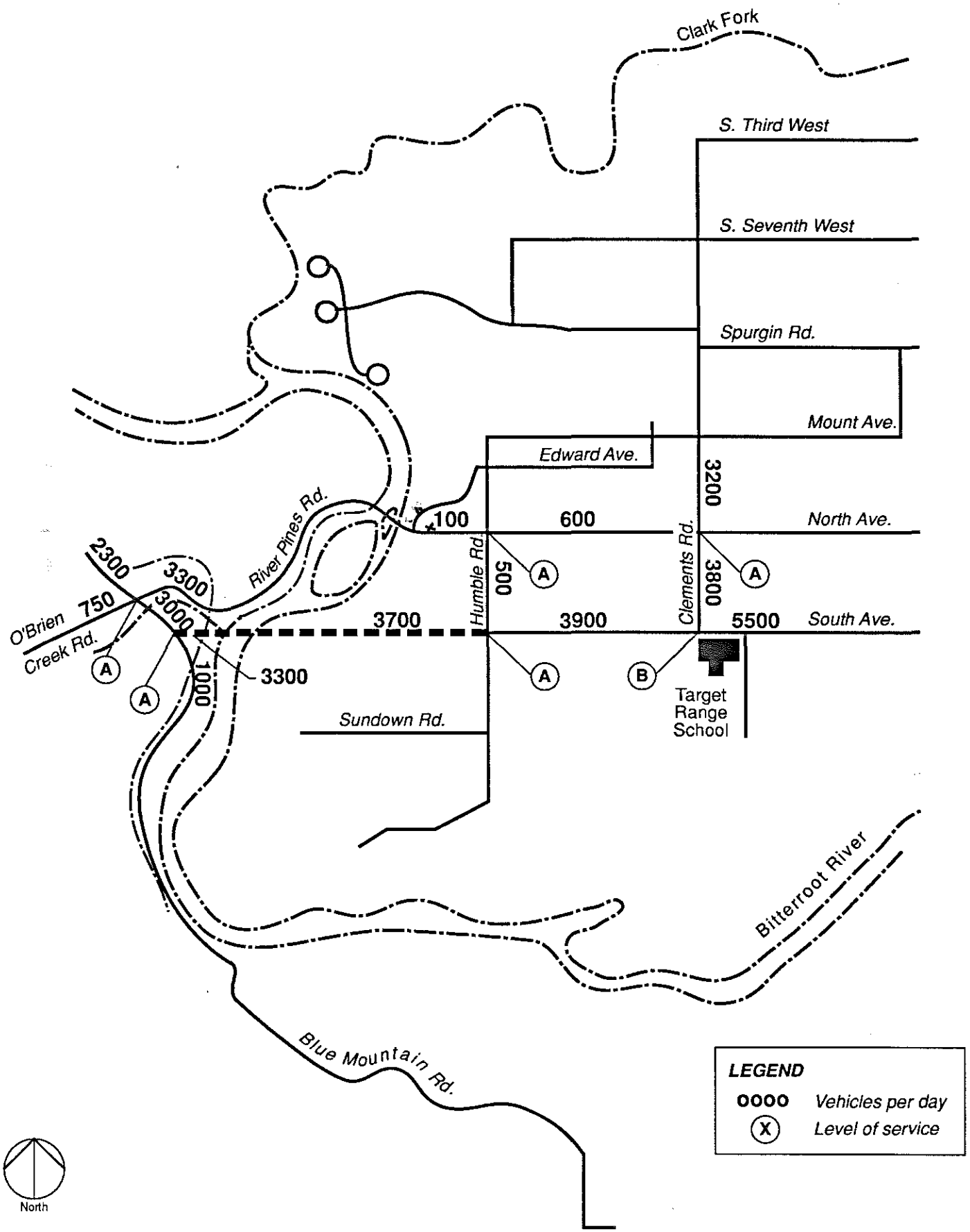
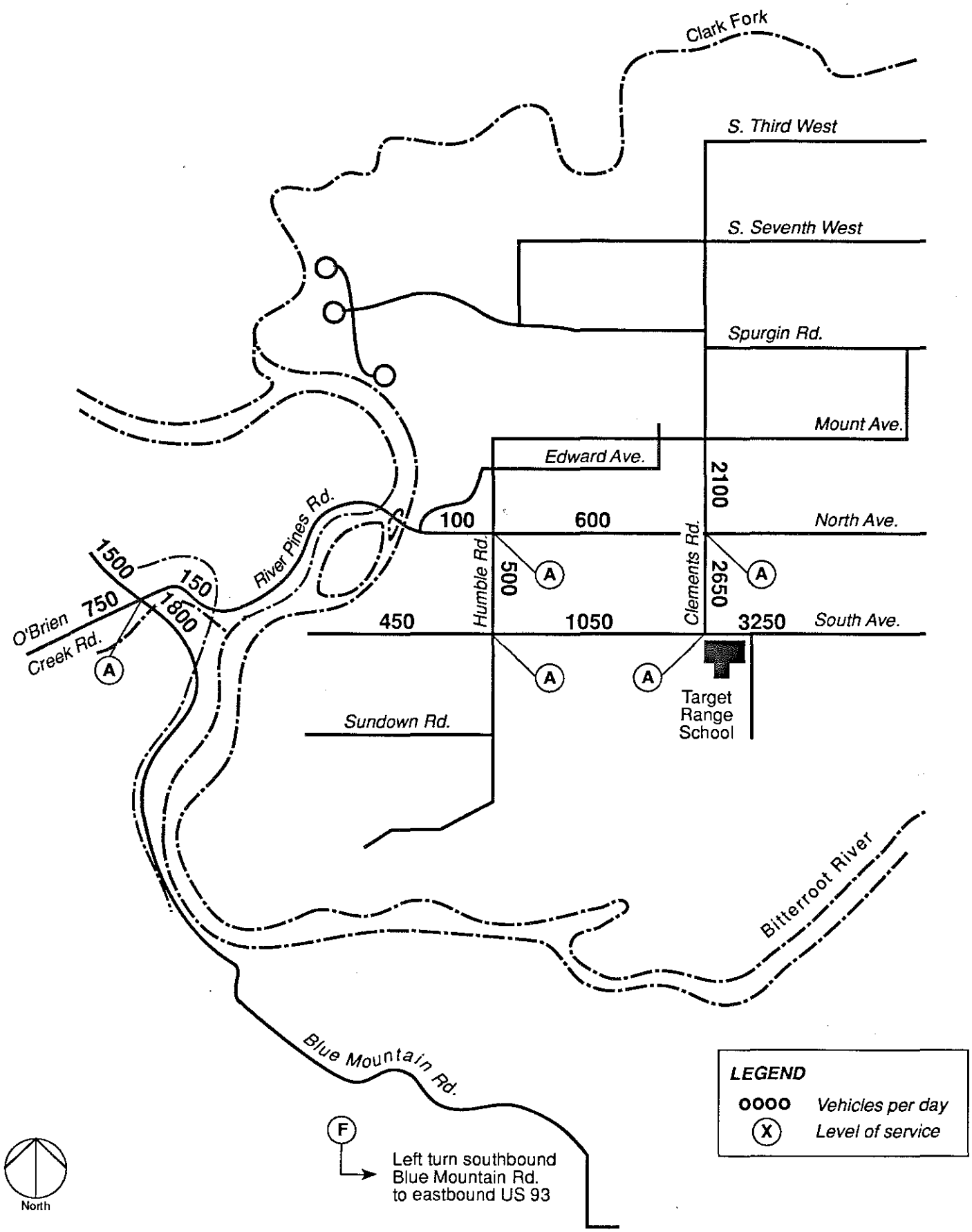


Figure 4-6
Year 2015 Traffic Volumes
South 2 Alternative



MISSOULA COUNTY

Maclay Bridge
Site Selection Study EA

Figure 4-7

Year 2015 Traffic Volumes
No-Build Alternative

4.1.3.2 Level of Service Analysis

Analysis of the traffic volumes and road capacities conducted for each alternative is presented in Table 4-9.

The results of these analyses indicate that all intersections and roadways are anticipated to operate at an overall intersection Level-of-Service of B or better in the year 2015.

Table 4-9
Projected 2015 Level of Service

Intersections	Movement	Level of Service (AM/PM)		
		North #1	South #1 & #2	No-Build
River Pines/O'Brien Creek/Blue Mtn./Big Flat	WB LT/TH River Pines	A/A	A/A	A/A
	EB LT/TH O'Brien Creek	A/A	A/A	A/A
	SB LT/TH Big Flat	A/A	A/A	A/A
	NB LT Blue Mtn.	A/A	A/A	A/A
Humble Rd./South Ave.	SB LT Humble Rd.	A/A	A/A	A/A
	EB LT South Ave.	A/A	A/A	A/A
Humble Rd./North Ave.	NB LT Humble Road	A/A	A/A	A/A
	WB LT North Ave.	A/A	A/A	A/A
Clements Rd./South Ave.	SB LT Clements Rd.	B/C	B/C	A/A
	EB LT South Ave.	A/A	A/A	A/A
Clements Rd./North Ave.	NB LT Clements Rd.	A/A	A/A	A/A
	EB LT North Ave.	A/A	A/A	A/A
US 93/Blue Mtn. Rd.	SB LT Blue Mtn. Rd.	F/F	F/F	F/F

LT = Left turn *WB = Westbound* *NB = Northbound*
TH = Through *EB = Eastbound* *SB = Southbound*

4.1.4 Impacts and Mitigation

The following is a description of the impacts for the No-Build Alternative.

- Traffic will be diverted from the existing route of travel.
- Travel times and overall VMT for residents west of the Bitterroot River will increase. This is not consistent with the goal of the Missoula Urban Transportation Plan.
- Traffic will be reduced through the residential areas east of the Bitterroot River on North Avenue, Clements Road, Humble Road and South Avenue. This alternative results in reduced traffic in front of Target Range School.
- Traffic will increase on Blue Mountain Road, which already has a high number of accidents due to poor alignment, poor sight distances, dust, dark areas and icy spots.

- This alternative compounds the already poor operation of the southbound left-turn lane for Blue Mountain Road at US 93.

- Response times for certain emergency services will increase as a result of this alternative.

The following is a description of mitigation measures for the No-Build Alternative:

- Improve the cross-section, surface course, and alignment on Blue Mountain Road.

- Install a traffic signal at the intersection of Blue Mountain Road and US 93. The additional traffic on Blue Mountain Road will likely warrant a signal at US 93. This traffic signal will create a delay for the major through movements on US 93.

The following is a description of the impacts for the North 1 Alternative:

- Travel patterns will remain the same as the current conditions. There will be continued out-of-direction travel for 70% of the east-west traffic.

- Traffic volumes will continue to increase at the R/O/B/B intersection by the year 2015. This intersection already experiences accidents related to vehicles colliding with fixed objects (trees, power poles, etc.).

- High volume turning movements will continue to increase, by the year 2015 at the intersections of Clements and South, Clements and North, Humble and South, and Humble and North. Each of these intersections has substandard geometry, small turning radii, poor pedestrian facilities, and fixed objects close to the travel lanes. There will be increased potential for accidents at these locations.

- This alternative does not reduce the travel distances from the existing condition.

- Traffic will continue to increase on North Avenue, Humble Road, Clements Road, and South Avenue east of Humble by the year 2015. These increases in traffic volumes include the traffic in front of Target Range School.

- Traffic on South Avenue west of Humble will continue to be limited to local traffic.

The following is a description of mitigation measures for the North 1 Alternative:

- Improve the R/O/B/B intersection to remove fixed objects within the clear zone. Improve the existing intersection geometry by constructing larger turning radii and safer roadway approaches.

- Improve the intersections of Clements and South, Clements and North, Humble and South, and Humble and North by removing fixed objects from the clear zone, increasing turning radii, and adding pedestrian cross-walks.

- Improve the new roadway alignment to eliminate sharp curves at the ends of the bridge and to meet current AASHTO Standards.

- Consider improving North Avenue, Humble Road, Clements Road, and South Avenue east of Humble by removing fixed objects from the clear zones, and providing sidewalks for pedestrians and wider shoulders for bicyclists.

- Monitor the intersection of Clements and South for signal warrants. Signal installation could improve the safety for school children crossing both Clements Road and South Avenue.

- Install sidewalks and cross-walks at Target Range School and flashing beacons in advance warning of the school zone.

The South 1 and South 2 Alternatives have similar impacts. Overall, the anticipated travel patterns are best served with a bridge on South Avenue. Each South Avenue alternative meets a goal of the Missoula Urban Transportation Plan by reducing travel distance for the majority of traffic. For purposes of clarity, both of the South Avenue alternatives are discussed together as follows:

- These alternatives represent the most direct route for 70% of the traffic.

- These alternatives minimize turning movements at the intersections of Humble and South, Clements and South, Clements and North, and Humble and North. There is a potential for reduction of traffic accidents at these locations.

- Traffic volumes will continue to increase at the R/O/B/B intersection by the year 2015. This intersection is already experiencing accidents related to single vehicles colliding with fixed objects (trees, power poles, etc.).

- Existing traffic volumes on South Avenue west of Humble will increase by 4 to 5 times the existing traffic volumes, resulting in a local roadway needing to be reclassified to either a major collector or a minor arterial by the year 2015. Increased traffic volumes will impact residential land uses west of Clements Road.

- Traffic volumes will increase on South Avenue east of Humble Road (including in front of Target Range School) by the year 2015.

- Traffic volumes will decrease on North Avenue (approximately 75%).

- Traffic volumes will decrease on Humble Road (approximately 50 - 75%).

The following is a description of mitigation measures for both of the South Avenue alternatives:

- Construct the bridge and new roadway with horizontal and vertical alignments to meet current AASHTO standards and to provide adequate safety.

- Construct curb and gutter in residential areas to reduce the roadway cross section width and to alert drivers of the transition into a residential area.

- Improve the R/O/B/B intersection by removing fixed objects within the clear zone and improving the intersection geometry with larger turning radii and safer roadway approaches. Accident trends at the R/O/B/B intersection are anticipated to improve by implementing this measure.

- Install sidewalks to minimize accident potential between automobiles and pedestrians and provide adequate shoulders for bicyclists.

- Continue to monitor the intersection of Clements and South for Signal Warrants. Signal installation could improve safety for school children crossing both Clements Road and South Avenue.

- Install sidewalks and cross-walks at Target Range School and flashing beacons in advance warning of the school zone.

4.2 Land Use and Land Use Planning

4.2.1 Existing Conditions

Undeveloped open space and rural and suburban residential development are the primary land uses in the project study area and its environs. Much of the study area is located within the Bitterroot River floodplain - a broad, shallow, corridor that separates the residential and recreational uses on its west side from the Target Range residential area on its east side. The existing Maclay Bridge connects River Pines Road with North Avenue and currently provides access between the west side and Target Range areas.

Existing land use adjacent to each of the three proposed new bridge alternatives (Figure 4-8) includes a mix of single family residences and historic agricultural complexes, uncultivated agricultural land, riparian and wetland areas, drainage/irrigation ditches, and the Bitterroot River which supports various recreational uses. A small group of mobile homes is located at the west end of South Avenue, and land use along North Avenue includes the existing Maclay Bridge and a natural gas substation owned by the Montana Power Company.

Missoula's west side area, including the project study area, has been zoned by Missoula County since 1977. The entire study area is land zoned C-RR1 (rural residential), which is compatible with the area's existing land uses. Section 2.09 of County Resolution 76-113 (as amended) describes the intent of the C-RR1 zoning designation as follows:

> "This district recognizes the existence of rural areas that will come under pressure for residential development. This zone provides for a transitional low density residential district between urbanized areas and agricultural uses, as well as provides a zone that may be used to meet residential needs while limiting density to recognize environmental concerns. Planned unit developments and planned variations are encouraged to preserve agricultural land and to enhance environmental amenities found in rural areas."

The existing land uses within the project study area are consistent with the area's current zoning designation. A maximum residential density of one dwelling unit per acre is permitted in the C-RR1 zoning district. Like other "urban fringe" areas of the County, the west side area is gradually transforming from a sparsely-populated rural setting to a residential suburb. Since the study process commenced in July 1993, three single family dwellings have been constructed on the east side of the Bitterroot River and, on the west side, construction has begun on a 41-unit residential subdivision which the County recently approved.

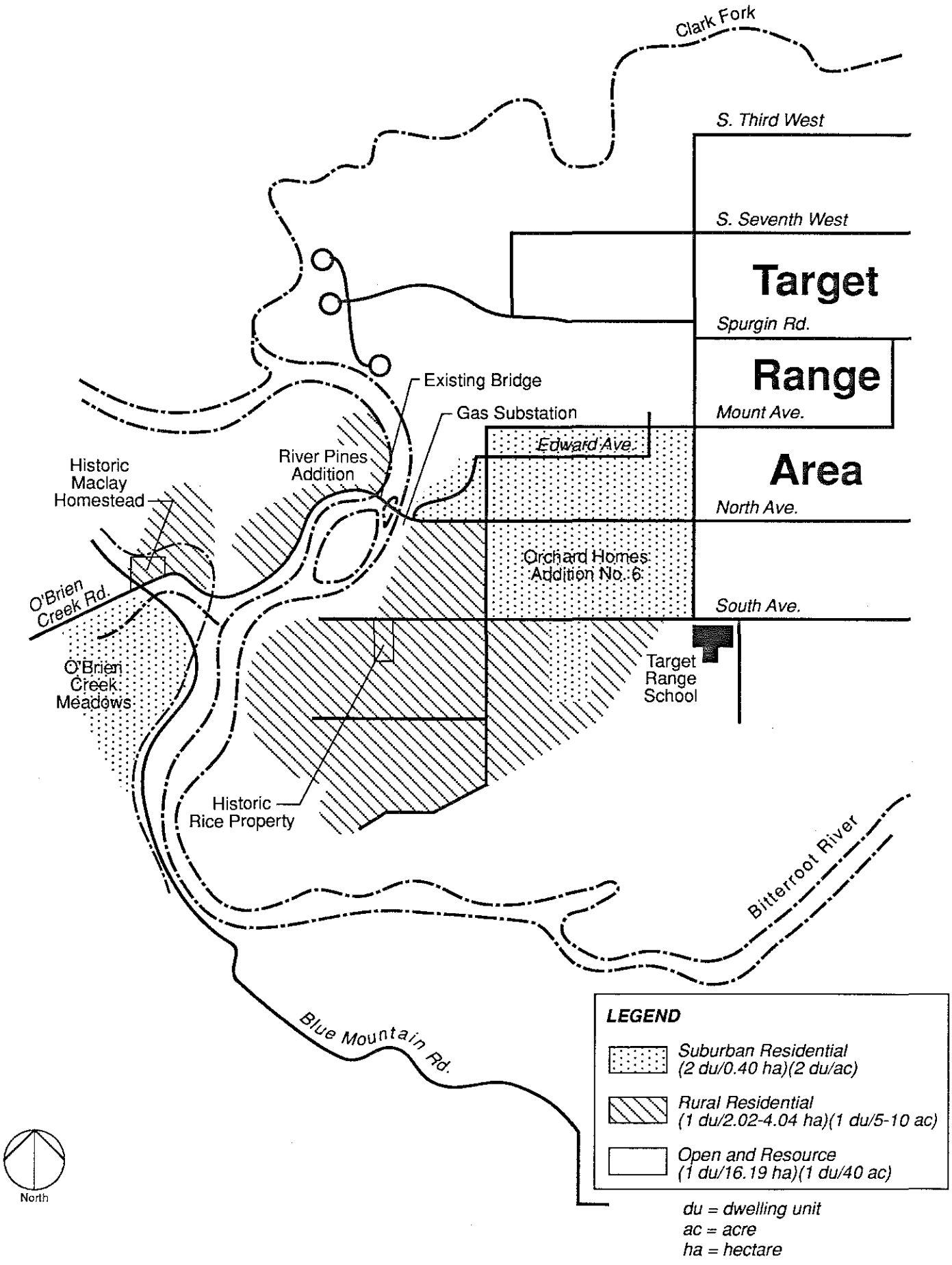


Figure 4-8
Existing Land Use

The 1990 Missoula Comprehensive Plan Update contains various goals and policies intended to guide land use regulatory action within a defined planning area through the Year 2000. The project study area is located within this planning area. The Plan recommends appropriate future land uses for different districts that are illustrated on a Land Use Map included in the document. The project study area includes "suburban residential" and "Parks and Open Space" districts (Figure 4-9) as designated by the Comprehensive Plan. The Plan provides the following definition for each of these districts:

> " Areas adjacent to the service area with no community sewer are recommended for **suburban residential** development at a maximum density of two units per acre, such as Target Range or Linda Vista. Where services are available and there are no environmental constraints, greater density may be approved."
>
> The **Parks and Open Space District** "... is used for large, publicly-owned recreation areas and areas where environmental constraints (such as slope, floodplain, wildlife habitat, etc.) or public values (such as open space, utility corridors, etc.) make development inadvisable. Private land governed by conservation easements is also included in this district.
>
> The Parks and Open Space District is generally intended to eliminate development. One exception to this is where floodfringe portions of the 100-year floodplain associated with streams have been included as part of the Parks and Open Space District. Given the importance of water resources to the future of the urban area, development of these areas should only be undertaken when the goals and policies of this Plan can still be achieved."

4.2.2 Impacts

The No-Build Alternative will have some adverse affects upon existing land uses along Blue Mountain Road due to increased noise associated with a rise in traffic along this route. Discontinuation of the existing bridge access will have beneficial affects upon land uses along River Pines Road, the west end of North Avenue, and Humble Road between North and South Avenues due to decreased noise associated with a reduction in traffic along the existing bridge route.

The No-Build Alternative could decelerate the rate of residential development west of the Bitterroot River in the vicinity of the existing bridge due to the elimination of direct vehicular access to the Missoula urban area, and emergency and community services located in the Target Range area.

The No-Build Alternative is not compatible with the policies contained in Missoula's existing Urban Comprehensive Plan or Urban Transportation Plan due to elimination

of existing access without provision for new access between a residential area and emergency and community services.

Each of the proposed new bridge alternatives, with corresponding improvements, is compatible with policies contained in the existing Urban Comprehensive Plan and Urban Transportation Plan, considered to be an addendum to the Comprehensive Plan. Some of these policies are described as follows:

> "Encourage a residential land use pattern which provides a high quality living environment in a variety of residential settings, protects public health and safety, minimizes local government service costs, and preserves natural resources."
>
> "Increase opportunities for easy access to natural areas and green spaces within and around Missoula."
>
> "Shorten travel distance from residential areas to areas of major trip generating activities by planning for future development."
>
> "Implement spot improvements to reduce vehicular and pedestrian accidents."
>
> "Consider all modes of transportation including bicycle, pedestrian, mass transit, and others when evaluating travel time."

By improving access to Missoula from the west side of the Bitterroot River, each of the build alternatives could accelerate planned development in the west side area. None of the new bridge alternatives will likely cause secondary impacts which are incompatible with planned land uses.

The North 1 Alternative will have adverse affects upon existing land uses along the existing bridge route, including River Pines Road, the west end of North Avenue, and Humble Road between North and South Avenues due to increased noise associated with a rise in traffic.

Each of the South Avenue alternatives will have adverse affects upon existing land uses on the west end of South Avenue due to increased noise associated with a substantial rise in traffic. Longer term implications of either South Avenue alternative may result in more densely developed residential land use as a result of upgrading the west end of South Avenue from a local street to a minor arterial facility that will provide access to Missoula for residents living on the west side of the Bitterroot River.

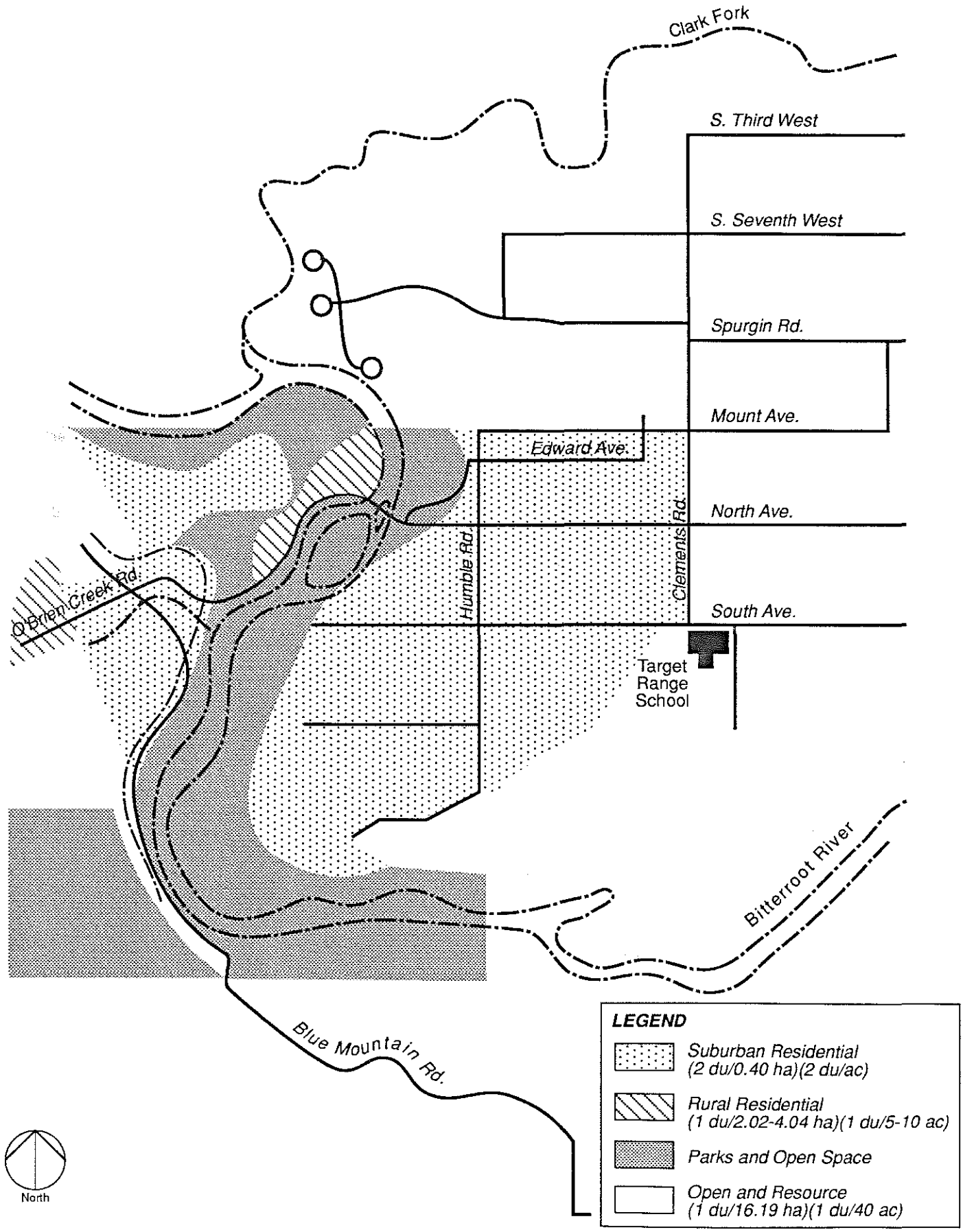


Figure 4-9
Planned Future Land Use

The Preferred Alternative will have beneficial affects upon existing land uses along most of River Pines Road, the west end of North Avenue, and Humble Road between North and South Avenues due to decreased noise associated with a reduction in traffic along the existing bridge route.

The South 2 Alternative will have adverse affects upon existing land uses at the north end of Blue Mountain Road. This alternative will have beneficial affects upon existing land uses along River Pines Road, the west end of North Avenue, and Humble Road between North and South Avenues due to decreased noise associated with a reduction in traffic along the existing bridge route.

Although each of the proposed new bridge alternatives will affect existing land uses within the project study area, each is consistent with the area's existing zoning designation and current development trend. By allowing increased vehicular traffic to cross the Bitterroot River, each of the proposed new bridge alternatives will have adverse impacts on existing land uses along each respective alignment due to increased noise, yet the community at large will benefit from improved access between the west side and Target Range areas.

4.2.3 Mitigation

Refer to Sections 4.1.4, 4.3.3, 4.4.4, 4.5.2, 4.6.3, 4.7.3, 4.9.6, 4.10.5, 4.11.3, 4.12.4, 4.14.3, 4.16.3, and 4.17 for mitigation measures pertaining to land use impacts.

4.3 Prime and Unique Farmlands

4.3.1 Existing Conditions

Agricultural activities within the Maclay Bridge study area are characterized by small acreage pastures, rural residential development, and small scale ornamental tree farming/nursery operations. There are no acres within the study area that are currently and regularly cultivated for commercial or forage crops. The overall character of the study area is of small (4.05 ha to 12.14 ha {10 to 30 acre}) rural/residential home sites, using available land for grazing of animals for personal use, specialty stock, or private food supply.

The majority of the land within the study area is considered "Prime if Irrigated" by the USDA Soil Conservation Service (SCS), as interpreted from their Missoula County Soil Survey performed in 1978. There are also localized areas of "Farmland of Local Importance" within these broader areas of Prime if Irrigated. There are no units of "Unique Farmland" or "Farmland of Statewide Importance" within the study area. Refer to Figure 4-10 for a more graphic description of farmland locations.

The soil and farmland classifications surrounding the immediate area of the Preferred Alternative are (in order of largest to smallest coverage):

Prime if Irrigated

- Grantsdale loam, 0 to 2 percent slopes
- Bigarm gravely loam, 0 to 4 percent slopes

Local Importance

- Moiese gravely loam, 0 to 2 percent slopes

All of these soils are well or excessively drained alluvial soils, formed on the terraced slopes of the Bitterroot River. Permeability is generally moderate to rapid in these soils, making them suitable for small grain, hay and pasture uses, particularly under sprinkled irrigation regimes.

The Bigarm gravely loam is well suited for home site development. The Moiese and Grantsdale units are moderately to poorly suited for development due to water quality/septic infiltration, stability, and dust concerns.

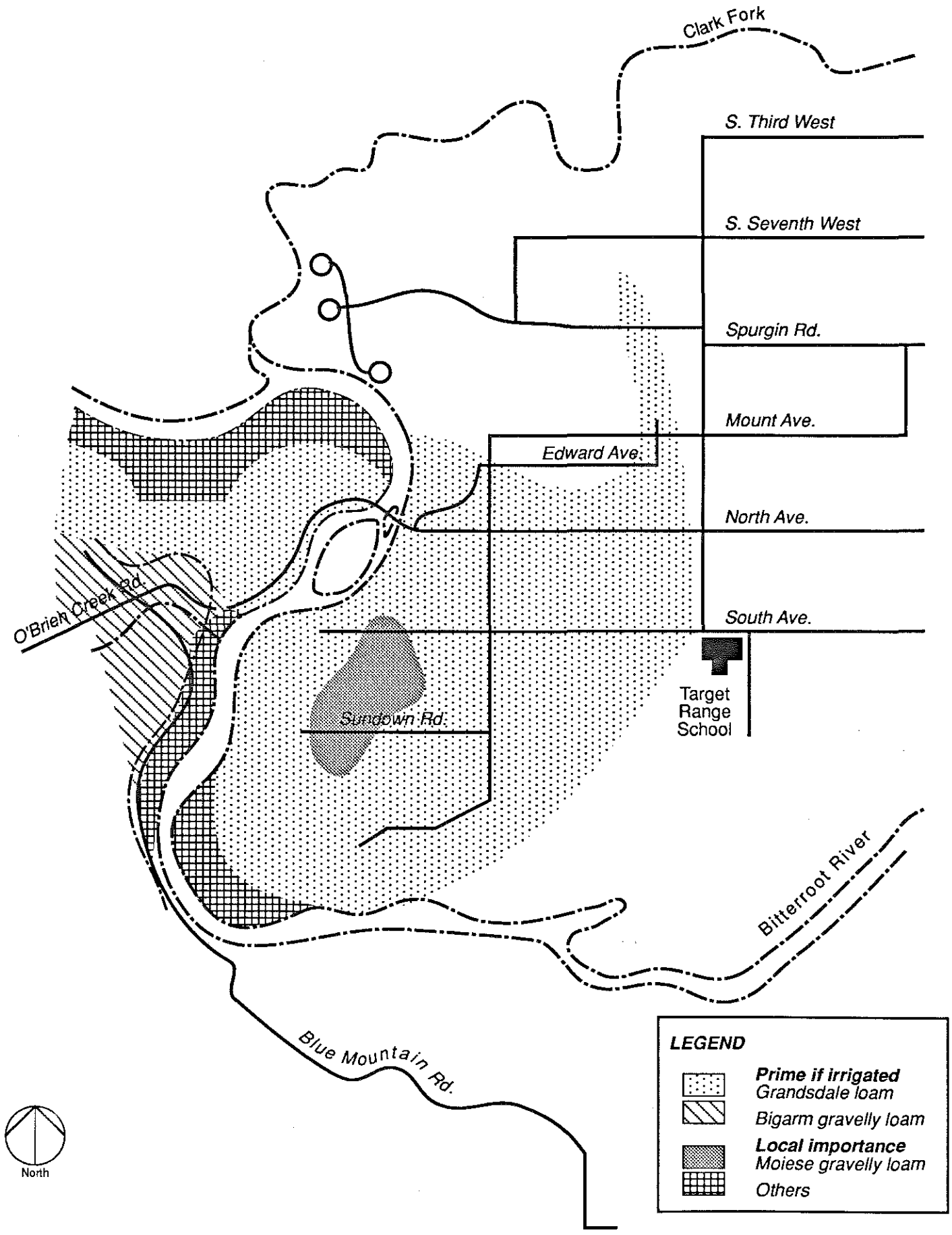


Figure 4-10
Farmland/Soils

4.3.2 Impacts

Direct farmland impacts can result from removal of cultivated or potentially cultivated lands by placement of impervious surface, cut and fill slopes and/or right-of-way. Additionally, reconfiguring transportation routes may adversely affect the transportation of farm or ranch commodities to their markets or impede the necessary grazing, herding or movement of livestock resulting in indirect impacts.

The placement of the Preferred Alternative, as it connects between two existing transportation corridors, creates only marginal direct impacts to farmland and will most likely improve any potential agricultural transportation or movement in the area. There are currently no large livestock or commodity operations using commercial vehicles in the study area. There are no stock grazing patterns that will be interrupted by implementation of any of the alternatives. There will be no indirect impacts to farmland under the North 1 Alternative or the Preferred Alternative. The South 2 Alternative cuts through existing open fields on the west side of the river. This bisection will cause some indirect impacts to this property. There will be increased difficulties related to grazing or cultivation of farmland introduced to this area when it becomes two parcels on either side of a roadway.

The following table (4-10) summarizes the direct impacts of the alternatives on farmland within the study area:

Table 4-10
Farmland Directly Impacted
hectares (acres)

Alternative	Prime if Irrigated	Local Importance
No-Build	0	0
North 1	2.26 (5.58 ac)	0
South 1 (Preferred)	3.04 (7.51 ac)	0.22 (0.55 ac)
South 2	3.26 (8.06 ac)	0.22 (0.55 ac)

Coordination with the SCS has occurred related to these impacts. This is included in Appendix A.

4.3.3 Mitigation

Lands adjacent to the Preferred Alternative are currently flood irrigated by the Big Flat Ditch on the west side of the river and by smaller laterals paralleling South Ave. on the east side of the river. Both of these irrigation supplies will require mitigation during the design and construction phase of the project. Mitigation measures will include redesigning the irrigation supplies so that they function in their existing manner.

4.4 Socioeconomic

4.4.1 Existing Conditions

Maclay Bridge provides access to residents on both sides of the Bitterroot River, but west side residents generate the primary demand for this access. Due to the presence of community services and most employment locations on only the east side of the river, residents of the west side generate most of the traffic using the existing bridge.

The existing bridge's primary west side "service area" extends beyond the immediate project study area and includes the Big Flat, O'Brien Creek, and River Pines Addition residential areas. Residents of this service area (Figure 4-11) generate most of the traffic across the existing bridge for daily trips between home and work, school, shopping, and other services in the urban area. Residents of the Target Range community (Figure 4-8) and other areas east of the river generate a low percentage of trips across the bridge to recreation, residential, and employment areas on the west side of the river.

The public involvement process portion of the project revealed an obvious division between the residents living west of the Bitterroot River who routinely use the bridge for trips between their homes and the Missoula urban area, and the east side residents who are concerned about increased traffic through their neighborhoods resulting from a new bridge in the vicinity of the existing bridge. This polarity represents the socioeconomic tradeoffs between the community and neighborhood values that are associated with the project.

There are no known documented plans for construction of a new fire station, hospital, or school on the west side of the river. The Missoula Rural Fire District, Community Medical Center, Target Range School, and Big Sky High School are located along South Avenue West, in the Target Range area (Figure 4-12).

The 1990 Census population statistics indicate a population of 78,687 for Missoula County. Most of the County population is concentrated in the Missoula urban area. Missoula serves as a major regional trade center for the State of Montana, and wood products is the area's primary industry. Major employers in the area include the U.S. Forest Service, Stimson Lumber Company, Stone Container, Inc., Plum Creek Timber Company, Montana Rail Link, and the University of Montana.

At the time of this document's publication, there were no 1990 Census figures or applicable population forecasts available for the area of concern to this study. The approximate number of households was identified through County Assessor's records and a "windshield survey" was conducted to provide an estimate of occupied parcels and existing development west of the Bitterroot River and in the Target Range area.

Approximately 200 households are located on the west side of the river in the existing bridge's service area.

The service area's future development capacity was estimated by using the aforementioned data combined with existing land use plans. This information was then used to forecast the traffic volumes discussed in Section 4.1.3. Year 2015 bridge traffic forecasts are based upon a "build out" scenario of potential development within the Maclay Bridge service area. This level of development maintains consistency with the densities specified for these areas by the Land Use Map contained in Missoula's existing Comprehensive Plan.

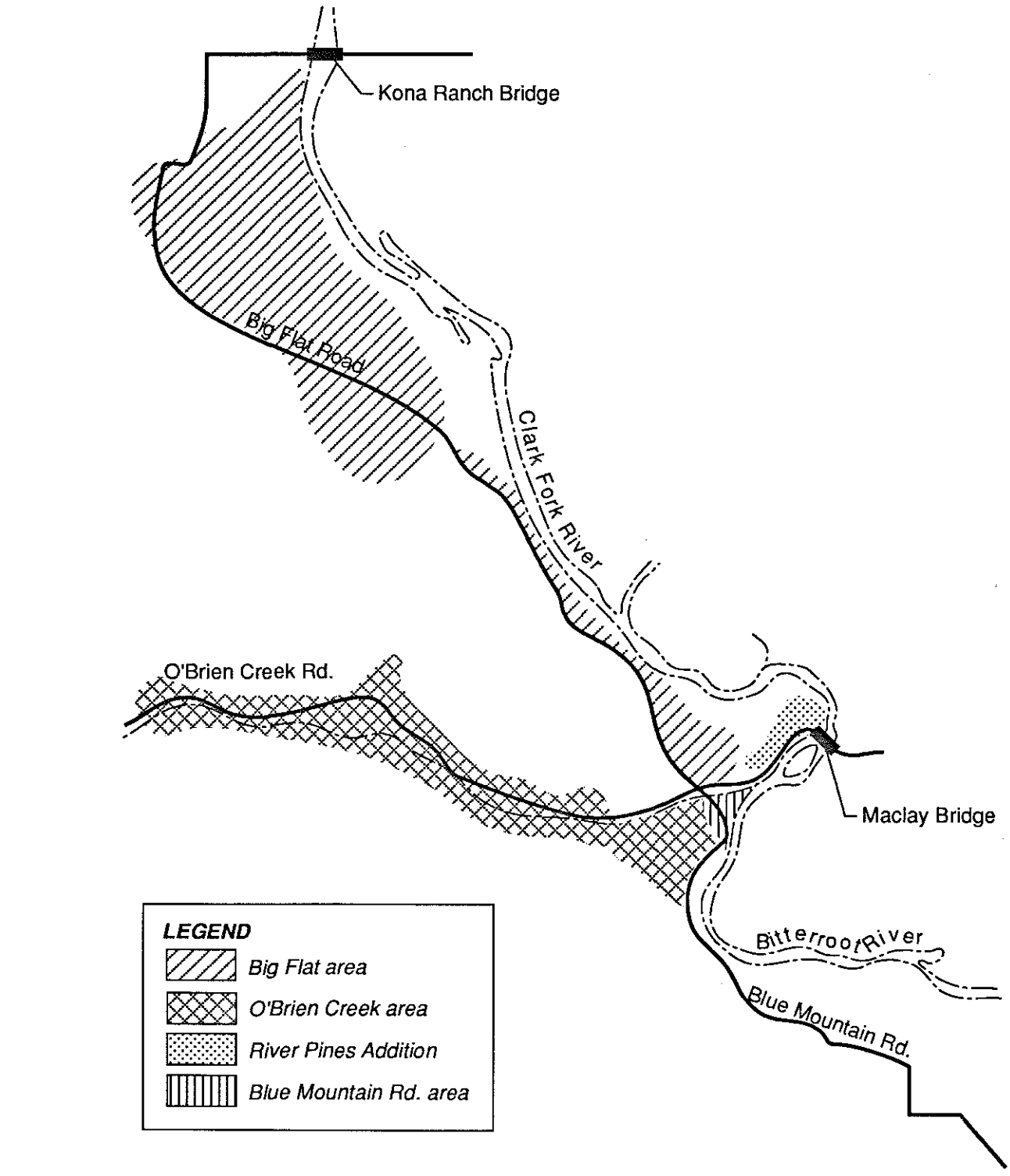


Figure 4-11
General Residential Service Areas for Existing Maclay Bridge

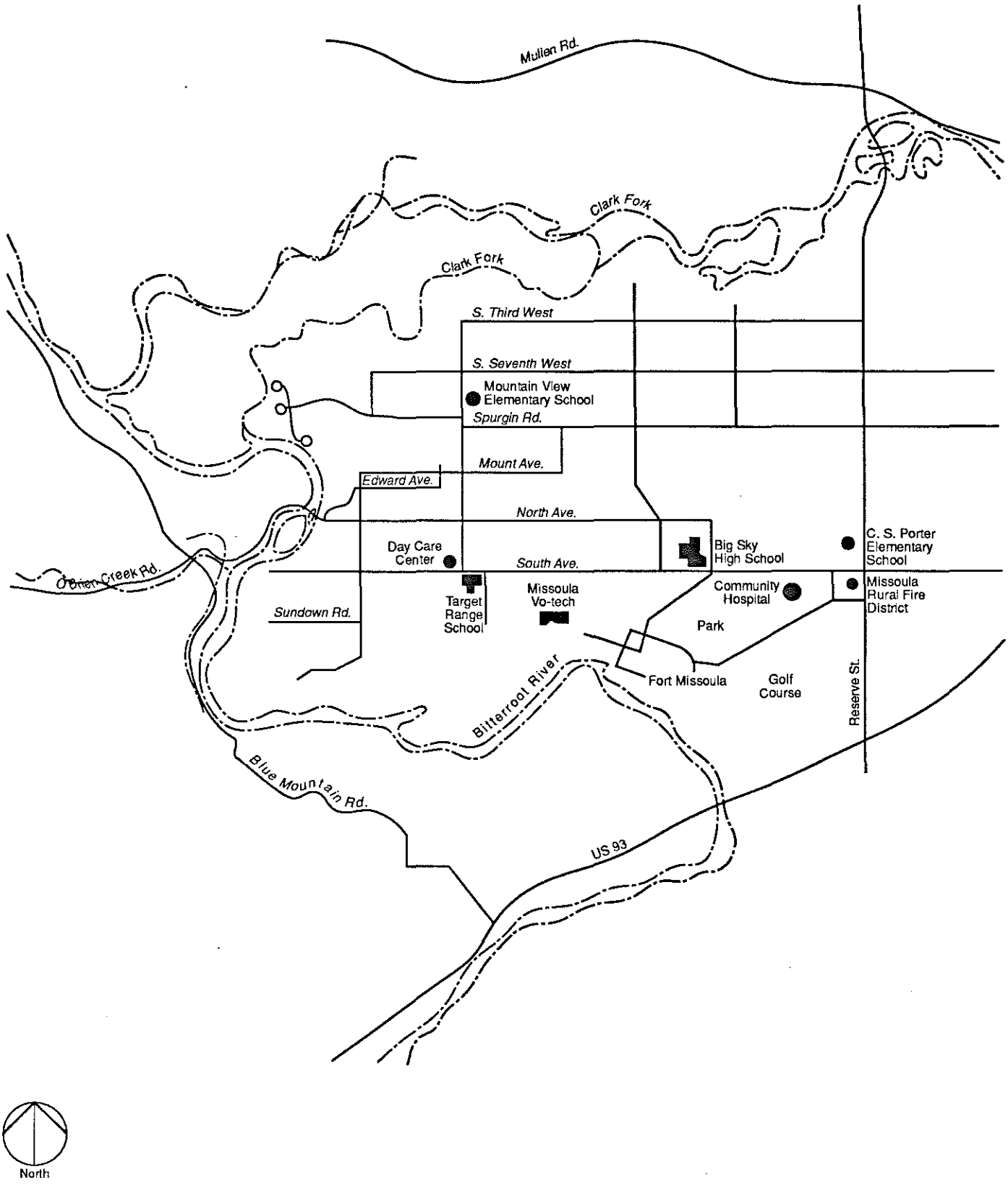


Figure 4-12
Community Services

4.4.2 Impacts

The No-Build Alternative will have adverse effects upon the community due to the eventual elimination of the existing bridge access. Rerouting traffic to and from the west side area along Blue Mountain Road will result in a total increase in vehicle miles traveled to most drivers currently using the Maclay Bridge. Delays encountered by emergency vehicles as a result of the No-Build Alternative will have potential adverse effects upon the safety and property of west side area residents. In addition, closing the existing bridge without replacing it will reduce the community cohesion that exists between the Target Range and west side areas.

The No-Build Alternative will have beneficial effects upon residences located along the existing bridge route, including River Pines Road, North Avenue, and Humble Road, due to decreased noise associated with reduced traffic along this route. Residences along the north end of Blue Mountain Road will experience a slight increase in noise level as a result of the No-Build Alternative.

Each of the build alternatives will benefit the community by improving the west side area's access to emergency and community services and by maintaining the existing community cohesion between the west side and Target Range areas.

The North 1 Alternative will have adverse effects upon residences aligning the existing bridge route due to increased noise associated with a rise in traffic, a new vehicle mix which includes large commercial vehicles, and visual impacts associated with construction of the alternative.

Each of the South Avenue alternatives will have adverse effects upon the future "quality of life" for residents along the west end of South Avenue due to increased noise associated with a substantial rise in traffic, a new vehicle mix which includes large commercial vehicles, and visual impacts associated with construction of either alternative. Each of these alternatives will substantially change the aesthetic rural character of the area along the currently unpaved roadway. The South 2 Alternative will have additional adverse effects upon one residence located at the north end of Blue Mountain Road.

Each of the South Avenue alternatives will have beneficial effects upon residences along the north-south segment of River Pines Road, North Avenue, and Humble Road between North and South Avenues due to decreased noise associated with reduced traffic along the existing bridge route. The South 2 Alternative will have similar beneficial effects upon residences along River Pines Road, as well as improvement in provision of emergency services.

Economic impacts associated with the new bridge alternatives are considered in two respects: site specific for local property owners and region-specific for the eventual

development of unimproved land in the vicinity. In the first instance, studies measuring the effects of noise impacts specifically on property values in developed areas across the country and for different types of facilities have produced dual results. In *Highway Noise and Property Values, a Survey of Recent Evidence* (Journal of Transport Economics and Policy, May 1982), nine empirical studies covering fourteen different housing markets within Canada and the U.S. found average noise discounts of 0.4 percent for noise impacts differing by **20-25 decibels**. Another study, *Impact of Highway Improvements on Property Values in Washington* (Washington DOT, March 1980), found that property values increased by 12 to 15 percent when the highway significantly increased the accessibility of the residences, but the houses closest to the highway had this increase partially offset by a 0.2 percent to 1.2 percent reduction for each 2-1/2 decibel increase in the highway noise level.

Individual property value changes depend upon an individual property's change in access or noise, its proximity to the roadway, and other factors. The impact of an alternate route on property values is not certain and subjective at best.

By ensuring the eventual elimination of direct access across the Bitterroot River between the west side area and community and emergency services, the No-Build Alternative may adversely affect property values within the Maclay Bridge residential service area on the west side of the river. The No-Build Alternative will also result in increased annual vehicle operating costs for most drivers using the existing bridge due to an overall increase in vmt for this alternative.

Elimination of the existing access may result in a decelerated development rate within this west side area. If the demand for owner-occupied housing in Missoula County continues at or near its present rate, however, stagnant development activity in one desirable area of the County will likely be offset by increased development demand in other undeveloped areas. Despite a potential development lull following closure of the Maclay Bridge, the scenic and recreational amenities of the west side area will likely attract residential development over the long-term.

For each of the build alternatives, residences along each of the proposed alternative routes will be adversely affected by noise increases resulting from increased traffic and the presence of along the alternative route. Residents who do not live adjacent to the route will not likely experience noticeable noise increase.

As noted in Section 4.2, each of the proposed new bridge alternatives could accelerate the rate of development in the west side area by improving the existing vehicular access to Missoula. Improvements to existing undeveloped land attributable to construction of improved access will result in "best use" benefits, including facilitation of residential construction within areas of planned development and improved local services for existing and future residents of the west side area. The build alternatives' long-term economic benefits will also include reduced annual vehicle operating costs to area

residents, the Target Range School District, and the Missoula Rural Fire District, as well as reduced homeowners' insurance rates for west side area residents.

4.4.3 Mitigation

Mitigation of socioeconomic impacts resulting from the new bridge alternatives may include the following measures:

- Place speed limit signs at the west bridge approach, east of Humble Road on the north side of South Avenue, and at the east bridge approach.
- Provide adequate landscaping to replace vegetation lost due to construction of an alternative.
- Implement mitigation measures described in other mitigation sections of this document.

4.5 Right-of-Way

4.5.1 Impacts

The No-Build Alternative will not require any additional right-of-way provided that Blue Mountain Road remains unimproved. Should Blue Mountain Road be improved, it is anticipated that substantial, additional right-of-way would be required. Additional right-of-way will be required for each of the build alternatives.

The North 1 Alternative will have substantial right-of-way impacts. This alternative will require right-of-way from ten adjacent properties. This alternative will require the displacement of three residences and will have substantial impacts upon two other residential properties. These five properties will sustain a level of impact such that the remaining portions of each parcel will not be suitable for their intended residential use.

The Preferred Alternative will have moderate right-of-way impacts. A 18.29 meter (60 foot) right-of-way corridor exists for both South Avenue and River Pines Road. Additional right-of-way will be required along these roads in areas of new cuts or fills. In the portion of the alignment between River Pines Road and South Avenue, a new right-of-way corridor will need to be acquired. It is anticipated that additional right-of-way will be required from a total of 10 adjacent properties. No residential or business displacements will occur with this alternative; however, one shed/barn structure will need to be removed.

The South 2 Alternative will require a moderate level of additional right-of-way. A 18.29 meter (60 foot) right-of-way corridor exists for South Avenue. Additional right-of-way will be required along the road in areas of new cuts or fills. A 24.38 meter (80 foot) right-of-way corridor exists for a portion of the alignment from the end of South Avenue west to Blue Mountain Road. It is anticipated that additional right-of-way will be required from a total of 12 adjacent properties. No residential or business displacements will occur; however, one shed/barn structure will need to be removed.

Estimates of the additional right-of-way requirements are shown in Table 4-11. These estimates are based on conceptual alignment configurations which were available at the time this document was prepared. Minor revisions could occur during the preliminary design stages of the project.

Table 4-11
Estimated Additional Right-of-Way Requirements

Alternative	Additional R/W
No-Build	0 ha (0 ac)
North 1	1.66 ha (4.1 ac)
South 1	1.66 ha (4.1 ac)
South 2	1.50 ha (3.7 ac)

4.5.2 Mitigation

All right-of-way acquisition will be done in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

Right-of-way impacts may be partially mitigated by the acquisition of slope easements instead of right-of-way for side slopes.

Construction of a curb and gutter section along South Avenue between Hanson Drive and Humble Road will reduce the amount of required right-of-way through this residential area .

4.6 Pedestrians and Bicyclists

4.6.1 Existing Conditions

Bicycling and walking are popular activities in the Missoula community for both transportation and recreation purposes. The city serves as the headquarters for several national and local bicycle clubs, and most residents of the urban area live within convenient walking or bicycling distance to work, school, and community services.

Extensive pedestrian and bicycle travel occurs throughout the project study area, particularly along neighborhood streets in the Target Range area, along River Pines and Blue Mountain Roads which parallel the Bitterroot River on its west side, and across the existing bridge. Primary bicycle corridors of concern to this project are illustrated in Figure 4-13. Within the project study area, most pedestrian activity is generated by the surrounding residential areas, while bicycle traffic is split between recreational bicyclists from throughout the region areas and local residents routinely traveling between home and work, school, or errands.

There are problems associated with pedestrian and bicycle facilities within and outside of the project study area which are of concern to this project. During the project's public involvement portion, many area residents expressed concerns about the safety of the Target Range School students who walk or ride bicycles between home and school.

Target Range School is located at the southeast corner of the South Avenue/Clements Road intersection. Two pedestrian counts taken during the present school year at this intersection revealed that approximately 140 students walk or ride bicycles to school on a daily basis. A crossing guard accompanies each of these students across South Avenue at a crosswalk located on the west side of Clements Road. Target Range School requires all students to walk across the crosswalks at this location with the crossing guard. About half of these students travel north and south along the west side of Clements Road, approximately 40 students travel along the north side of South Avenue west of Clements Road, and about 25 students cross Clements Road (with the crossing guard) and travel along the north side of South Avenue east of Clements Road.

The following problems relative to pedestrian and bicyclist safety are evident at this intersection and along the approaches to this intersection:

- There are no sidewalks or adequate walkways along either South Avenue or Clements Road.

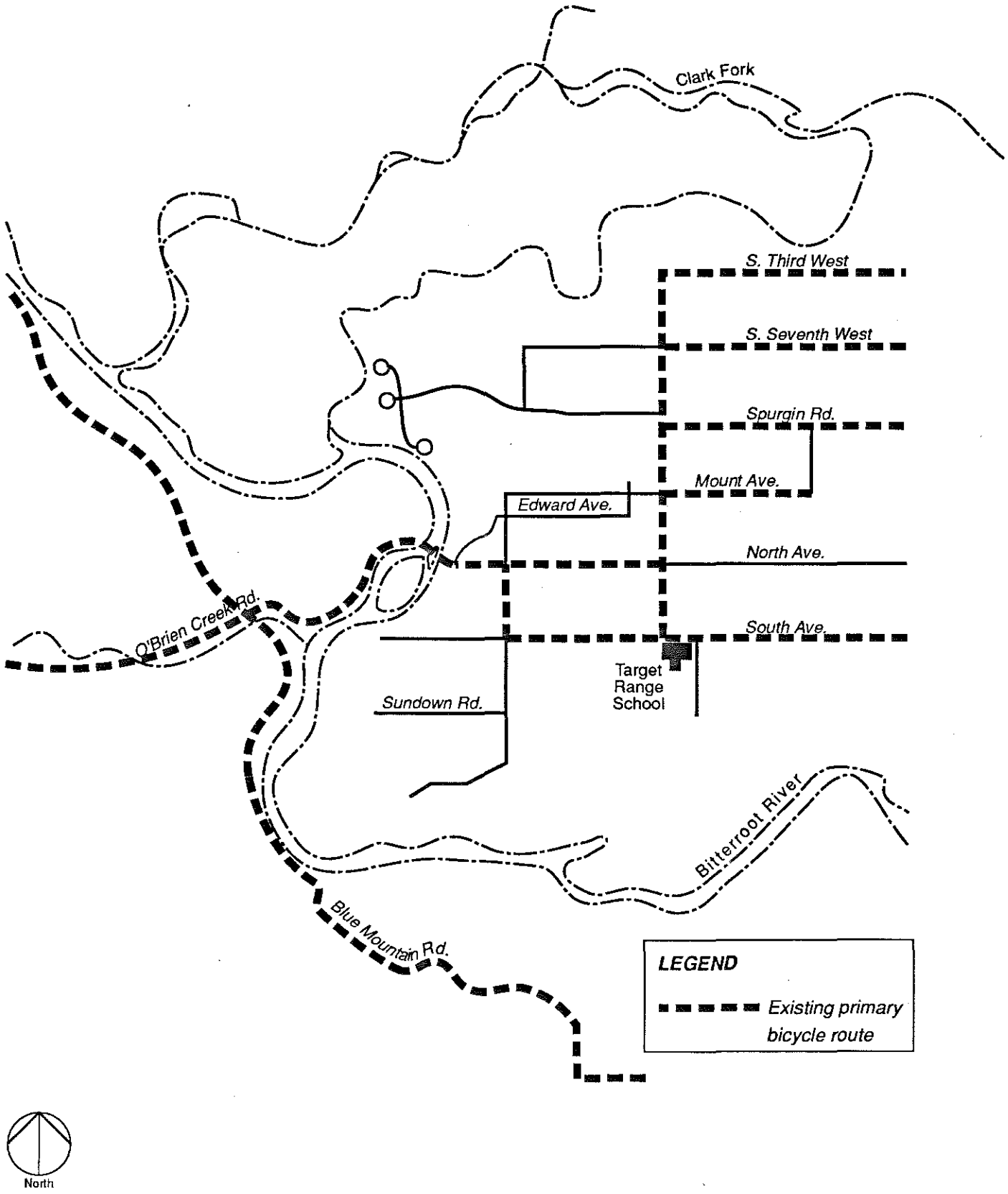


Figure 4-13
Existing Primary Bicycle Routes

- There are no adequate shoulders or bicycle paths along these routes.
- It is difficult for drivers on southbound Clements Road to see oncoming eastbound traffic on South Avenue.
- About 15 percent of all drivers exceed the 30 mph (48.2 kph) posted speed limit on South Avenue and Clements Road.

Similar hazards confront pedestrians and bicyclists in other locations within and around the project study area. Many pedestrians and bicyclists use the existing bridge to access residences or recreation areas on either side of the Bitterroot River. The 15 foot width of the bridge's roadway does not allow safe passage between motorized vehicles and pedestrians or bicyclists. The approaches to the bridge along North Avenue and River Pines Road do not provide adequate shoulders or walkways to safely accommodate pedestrians and bicyclists. The four intersecting roads located on the west side of the river - Big Flat Road, O'Brien Creek Road, Blue Mountain Road, and River Pines Road, receive substantial bicycle and pedestrian traffic, but none of these facilities have adequate shoulders to safely accommodate this non-motorized traffic.

4.6.2 Impacts

For each of the proposed alternatives, this study assumes that the existing Maclay Bridge superstructure will remain intact upon its closure to vehicular traffic, so that it may continue to function exclusively as a pedestrian and bicycle facility.

The No-Build Alternative will have adverse impacts upon pedestrians and bicyclists along Blue Mountain Road due to increased vehicular traffic along this route. This alternative will have beneficial effects upon pedestrians and bicyclists using River Pines Road, North Avenue west of Humble Road, and Humble Road.

The North 1 Alternative will have adverse effects upon pedestrian and bicyclist use on River Pines Road, the existing bridge, North Avenue west of Humble Road, and Humble Road due to increased vehicular traffic along this proposed route. The project will have additional adverse impacts on pedestrian and bicycle access to the existing bridge due to disruption of the existing west bridge approach that will result from construction of a new bridge structure.

The Preferred Alternative and the South 2 Alternative will have adverse affects upon pedestrian and bicycle use on South Avenue west of Humble Road due to a substantial increase in vehicular traffic along this roadway segment. The Preferred Alternative will also have adverse effects upon pedestrian and bicycle use on the east-west portion of River Pines Road.

Each of the South Avenue alternatives will have beneficial effects upon pedestrian and bicycle use on the north-south portion of River Pines Road, North Avenue west of Humble Road, and Humble Road due to decreased traffic resulting from reduced vehicular traffic along the existing bridge route. The South 2 Alternative will have beneficial effects upon pedestrian and bicycle use on the east-west portion of River Pines Road.

4.6.3 Mitigation

This study recommends that the existing Maclay Bridge be maintained as a pedestrian and bicycle facility after it is closed to vehicular traffic. Improvements to Blue Mountain Road, including paving and shoulder widening to accommodate safe pedestrian and bicycle travel, are recommended for the No-Build Alternative. For each of the build alternatives, pavement will be widened to safely accommodate bicyclists at the west bridge approach from the R/O/B/B intersection to the bridge.

For the North 1 Alternative, the existing bridge can be used as a pedestrian and bicycle facility that is separate from the new bridge structure. Safe pedestrian and bicycle access to the existing bridge will be required as a part of the construction of this project. Construction of at least one sidewalk along Clements Road between North and South Avenues is also recommended to mitigate increased traffic along this north approach to Target Range School.

Mitigation of increased traffic along South Avenue as a result of either South Avenue alternative should include installation of a flashing beacon at the east and west approaches to Target Range School along South Avenue and construction of sidewalks along South Avenue from Target Range School to the west. Adequate bicycle shoulders and a separated walkway are proposed for the approaches and bridge structure for the South Avenue alternatives.

4.7 Parks and Recreation

4.7.1 Existing Conditions

The Bitterroot River provides various recreation opportunities, including boating, swimming, fishing, and picnicking. Each of these recreation opportunities exists within the project study area and in the immediate vicinity of the existing bridge.

The bridge structure itself provides access to joggers, recreational walkers, and bicyclists. Despite the presence of signs on the bridge reading, "NO JUMPING OR DIVING ALLOWED", the structure is frequently misused for these activities.

An island located directly south of the bridge and sandbars located beneath the structure serve Bitterroot River recreationists as boating and swimming access areas. A 14 foot deep pool located directly north of the bridge provides a popular swimming and fishing spot. In 1992, the owners of the island south of the bridge established a conservation easement to preserve the island in its present state, as a riparian wildlife habitat and natural recreation area. The conservation easement for the island was established through The Five Valley Land Trust, Inc.

There are no public parks in the project study area. However, the existing bridge provides access to large areas of US Forest Service and State Forest land west of the Bitterroot River. These public lands support numerous public recreation opportunities, including hiking, horseback riding, mountain biking, cross-country skiing, camping, boating, fishing, swimming, target shooting, and hunting.

4.7.2 Impacts

The No-Build Alternative will have adverse effects upon vehicular access to recreation areas west of the Bitterroot River, due to eventual closure of the existing bridge access. Increased traffic along Blue Mountain Road, a direct consequence of this alternative, will have adverse effects upon joggers, recreational walkers, and bicyclists using this route.

Each of the build alternatives will have adverse impacts upon Bitterroot River recreationists due to the presence of new piers, which will create additional obstacles within the river course. Each of the build alternatives will benefit recreationists on the east side of the Bitterroot River by maintaining vehicular access to recreation areas west of the river.

The North 1 Alternative will encroach upon river recreation use in the vicinity of the existing bridge due to the placement of piers on a sandbar and within the narrow

watercourse. The proximity of the new structure to the existing bridge will alter the present bridge access and river access at each end of the existing bridge.
New recreation areas, similar to those surrounding the existing bridge, could form around each of the South Avenue Alternatives.

4.7.3 Mitigation

Mitigation of misuse of the existing bridge structure, i.e. jumping and diving, could include installation of chain-link or other durable mesh material on the outside edge of the bridge side railings.

Obstruction of Bitterroot River recreation use can be mitigated by aligning new piers in the direction of the river flow and spacing the piers to span the most commonly floated portion of the river cross-section.

Pedestrian and bicycle access to the existing bridge should be maintained in concert with construction of the North 1 Alternative.

For the No-Build Alternative, paving and widening Blue Mountain Road to provide adequate shoulders will mitigate the impacts associated with increased vehicular traffic along this route.

4.8 Air Quality

Missoula's topography and weather patterns make the urban area particularly susceptible to air pollution. Primary air pollutants of concern in the Missoula area are particulate matter less than ten microns in diameter (PM_{10}) and carbon monoxide (CO). PM_{10} emissions increase as vehicle-miles-traveled (VMT) increase, and CO emissions increase as congestion increases. Several areas of Missoula have historically exceeded federal air quality standards for PM_{10} or CO emissions. The urban area has, therefore, been designated as a non-attainment area for both PM_{10} and CO. The non-attainment area boundaries provided by the Montana Air Quality Bureau (MAQB) are displayed in Figure 4-14. The easternmost portion of the project study area lies within these non-attainment areas.

4.8.1 PM_{10} Analysis

Traffic-related PM_{10} emissions in Missoula are expected to be highest in the spring when an accumulation of winter sanding material is present on dry road surfaces. Major non-point sources of PM_{10} are re-entrained road dust and vehicle emissions such as engine exhaust.

PM_{10} emissions for the street network within the project study area were estimated using emission factor information from the Environmental Protection Agency (EPA) publication *Compilation of Air Pollution Emission Factors* (AP-42) and traffic information developed as a part of this study.

The total PM_{10} impact is estimated by summing vehicle-miles-traveled (VMT) over individual road segments to calculate total daily VMT, then multiplying total daily VMT by an emission factor (expressed in pounds per VMT) to obtain PM_{10} emissions in pounds per day:

$$PM_{10} \text{ emissions per day} = e * VMT$$

Individual road segments were defined as those with differing average annual daily traffic (AADT) volumes. The road segments analyzed for this study are listed in Table 4-12. The streets in the study area are classified according to AP-42 as collector streets. A collector street is a facility which carries approximately 500 - 10,000 AADT. All street segments analyzed herein are presently carrying less than 10,000 AADT.

Existing PM_{10} emissions were estimated and are recorded in Table 4-12. Daily VMT calculations for the study area are also shown in detail in Table 4-12, as well as descriptions and locations of all segments.

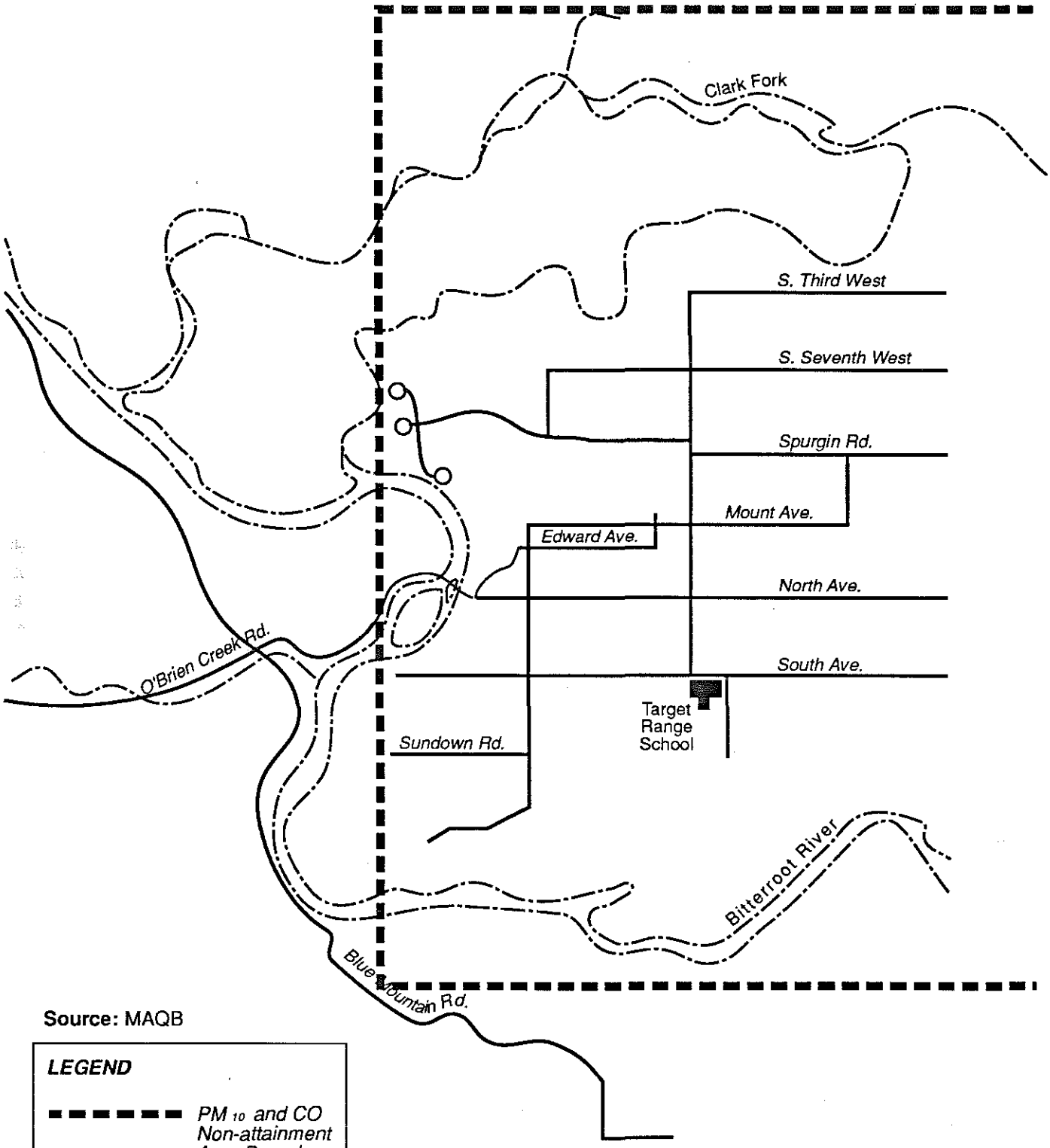
Forecast PM_{10} emissions are also shown in Tables 4-13, 4-14, 4-15, and 4-16 for all the alternatives. The design year used is 2015 and all assumptions represent forecast traffic conditions for that year.

Existing PM_{10} emissions are higher than projected emissions under the 2015 No-Build Alternative. Presently, traffic using the Maclay Bridge travels through the Target Range area and contributes to the area streets' total VMT. The year 2015 forecast for the No-Build Alternative assumes that the existing bridge will no longer provide vehicular access over the Bitterroot River and that most traffic currently using the bridge will be diverted to Blue Mountain Road. The remaining traffic east of the river will then be limited primarily to Target Range area residents. Since traffic volumes will be lower, the PM_{10} emissions will be lower under the No-Build Alternative in 2015 than in 1993 for that area.

The study area analysis of the No-Build Alternative does not include the community-wide PM_{10} impacts which will result from the increased traffic forecast on Blue Mountain Road and Big Flat Road. Higher traffic volumes on these roadways will result in increased total emissions and ambient air quality impacts which extend beyond the immediate project study area. The No-Build Alternative will result in an increase in total daily VMT for the Missoula area which is estimated at approximately 8,000 VMT per day higher than for any of the build alternatives.

Table 4-12
1993 PM_{10} Analysis - Existing

Street	Description of Segment	Length km (mi)	Daily Number of Vehicles	Vehicle Miles Traveled	Roadway Category	Emission Factor g/VMT(lbs/ VMT)	Emissions g/VMT (lbs/day)
Clements Rd.	North to South	0.39 (0.24)	3000	792	Collector	5.9 (0.013)	4.67 (10.30)
Humble Rd.	North to South	0.39 (0.24)	1000	240	Collector	5.9 (0.013)	1.42 (3.12)
North Ave.	Clements to Humble	0.77 (0.48)	1900	912	Collector	5.9 (0.013)	5.38 (11.86)
North Ave.	Humble to River Pines	0.48 (0.30)	1900	570	Collector	5.9 (0.013)	3.36 (7.41)
South Ave.	Clements to Humble	0.77 (0.48)	1600	768	Collector	5.9 (0.013)	4.52 (9.98)
South Ave.	Humble to Hanson	0.64 (0.40)	400	160	Collector	5.9 (0.013)	0.94 (2.08)
TOTALS		3.44 (2.14)	9800	3440			20 (45)



Source: MAQB

LEGEND

PM 10 and CO Non-attainment Area Boundary

North

MISSOULA COUNTY

Maclay Bridge Site Selection Study EA

Figure 4-14

PM_{10} & CO Non-Attainment Area Boundary

Table 4-13
2015 PM_{10} Analysis - No-Build Alternative

Street	Description of Segment	Length km (mi)	Daily Number of Vehicles	Vehicle Miles Traveled	Roadway Category	Emission Factor g/VMT (lbs/VMT)	Emissions kg/day (lbs/day)
Clements Rd.	North to South	0.39 (0.24)	2650	636	Collector	5.9 (0.013)	3.75 (8.27)
Humble Rd.	North to South	0.39 (0.24)	500	120	Collector	5.9 (0.013)	0.71 (1.56)
North Ave.	Clements to Humble	0.77 (0.48)	600	288	Collector	5.9 (0.013)	1.70 (3.74)
North Ave.	Humble to Bitterroot River	0.39 (0.24)	100	24	Collector	5.9 (0.013)	0.14 (0.31)
South Ave.	Clements to Humble	0.77 (0.48)	1050	504	Collector	5.9 (0.013)	2.97 (6.55)
South Ave.	Humble to Hanson	0.64 (0.40)	450	180	Collector	5.9 (0.013)	1.06 (2.34)
TOTALS		3.35 (2.08)	5350	1752			10 (23)

Table 4-14
2015 PM_{10} Analysis - North 1 Alternative

Street	Description of Segment	Length km (mi)	Daily Number of Vehicles	Vehicle Miles Traveled	Roadway Category	Emission Factor g/VMT (lbs/VMT)	Emissions kg/day (lbs/day)
Clements Rd.	North to South	0.39 (0.24)	3800	912	Collector	5.9 (0.013)	5.38 (11.86)
Humble Rd.	North to South	0.39 (0.24)	1500	360	Collector	5.9 (0.013)	2.12 (4.68)
North Ave.	Clements to Humble	0.77 (0.48)	3400	1632	Collector	5.9 (0.013)	9.62 (21.22)
North Ave.	Humble to Riverside	0.48 (0.30)	3400	1020	Collector	5.9 (0.013)	6.01 (13.26)
South Ave.	Clements to Humble	0.77 (0.48)	2100	1008	Collector	5.9 (0.013)	5.94 (13.10)
South Ave.	Humble to Hanson	0.40	400	160	Collector	5.9 (0.013)	2.08
TOTALS		3.44 (2.14)	14,600	5090			30 (66)

Table 4-15
2015 PM_{10} Analysis - South 1 Alternative

Street	Description of Segment	Length km (mi)	Daily Number of Vehicles	Vehicle Miles Traveled	Roadway Category	Emission Factor g/VMT (lbs/VMT)	Emissions kg/day (lbs/day)
Clements Rd.	North to South	0.39 (0.24)	3800	912	Collector	5.9 (0.013)	5.38 (11.86)
Humble Rd.	North to South	0.39 (0.24)	500	120	Collector	5.9 (0.013)	0.71 (1.56)
North Ave.	Clements to Humble	0.77 (0.48)	600	288	Collector	5.9 (0.013)	1.70 (3.74)
North Ave.	Humble to Bitterroot River	0.39 (0.24)	100	24	Collector	5.9 (0.013)	0.14 (0.31)
	Clements to Humble	0.77 (0.48)	3900	1872	Collector	5.9 (0.013)	11.04 (24.34)
South Ave.	Humble to Bitterroot River	0.80 (0.50)	3700	1850	Collector	5.9 (0.013)	10.91 (24.05)
TOTALS		3.51 (2.18)	12,600	5066			30 (66)

Table 4-16
2015 PM_{10} Analysis - South 2 Alternative

Street	Description of Segment	Length km (mi)	Daily Number of Vehicles	Vehicle Miles Traveled	Roadway Category	Emission Factor g/VMT (lbs/VMT)	Emissions kg/day (lbs/day)
Clements Rd.	North to South	0.39 (0.24)	3800	912	Collector	5.9 (0.013)	5.38 (11.86)
Humble Rd.	North to South	0.39 (0.24)	500	120	Collector	5.9 (0.013)	0.71 (1.56)
North Ave.	Clements to Humble	0.77 (0.48)	600	288	Collector	5.9 (0.013)	1.70 (3.74)
North Ave.	Humble to Bitterroot River	0.39 (0.24)	100	24	Collector	5.9 (0.013)	0.14 (0.31)
South Ave.	Clements to Humble	0.77 (0.48)	3900	1872	Collector	5.9 (0.013)	11.04 (24.34)
South Ave.	Humble to Hanson	0.64 (0.40)	3700	1480	Collector	5.9 (0.013)	8.73 (19.24)
South Ave.	Hanson to Bitterroot River	0.48 (0.30)	3300	990	Collector	5.9 (0.013)	5.84 (12.87)
TOTALS		3.83 (2.38)	15,900	5690			34 (74)

4.8.2 CO Analysis

Vehicular CO emissions levels are primarily a function of traffic congestion. Level-of-service (LOS) analyses conducted at intersections in the study area are described in Section 4.1. The following intersections within the Missoula CO Non-Attainment Area were analyzed:

- Clements Road/South Avenue.
- Humble Road/South Avenue.
- Clements Road/North Avenue.
- Humble Road/North Avenue.

Results of LOS analyses for each of these intersections by year and alternative are provided in Sections 4.1.2.2 and 4.1.3.2. The LOS analysis shows that there is limited congestion in the vicinity of Maclay Bridge in 1993, and there is not expected to be any congestion in this vicinity under any alternative in 2015. Therefore, it is expected that CO impacts at any of these study-area intersections will be insignificant.

LOS analyses were also conducted at two intersections outside of the Missoula CO Non-Attainment Area. These intersections are:

- River Pines Road/O'Brien Creek Road/Big Flat Road/Blue Mountain Road.
- US 93/Blue Mountain Road.

With the exception of the left turn movement from Blue Mountain Road to US 93, which currently operates at LOS D, these intersections function at LOS A in 1993, and are expected to function at LOS A in 2015. The left turn movement from Blue Mountain Road to US 93 is expected to operate at LOS F under the No-Build Alternative in 2015. While this intersection currently lies outside the CO non-attainment area, increased congestion at this location will elevate levels of CO emissions in the Missoula area.

The intersection of Brooks Street, South Avenue, and Russell Street was not evaluated in this study. This intersection is located approximately four miles east of the Maclay Bridge site. CO levels at this intersection have exceeded the National Ambient Air Quality standards.

Reserve Street, which has been recently upgraded between South Third West to Brooks Street and designated as US Highway 93 through Missoula, is situated between

the Maclay Bridge and the Brooks/South/Russell intersection. Reserve Street is a major north-south route through Missoula that disperses traffic from east-west connecting facilities, including South Avenue West, between the Maclay Bridge area and the Brooks/South/Russell intersection.

As discussed in Section 4.1, approximately 70% of the traffic using the Maclay Bridge travel along South Avenue, while about 30% travel north on Clements Road. None of the build alternatives are expected to change these existing travel patterns. In addition, none of the proposed alternatives will likely affect forecast traffic volumes or travel patterns at the Brooks/South/Russell intersection.

4.8.3 Mitigation

For the No-Build Alternative, paving Blue Mountain Road will mitigate PM_{10} impacts which will result from increased traffic along this facility. Although installing a traffic signal at the intersection of US 93 and Blue Mountain Road will improve the LOS for northbound left turns onto US 93, stopping traffic along US 93 will not likely improve CO emissions at this location.

For each of the build alternatives, all construction activities will be conducted in compliance with the Montana Department of Transportation (MDT) and Montana Air Quality Bureau (MAQB) requirements for construction-related fugitive dust. Implementation of the following temporary dust abatement measures will be included in the construction documents for the project:

- Daily sweeping of streets carrying construction traffic to and from the construction site.
- Use of appropriate dust suppression measures on disturbed areas. This will include the use of dust palliatives, such as water or magnesium chloride.
- Slash being burned will be stacked with a brush blade and cured.
- Any contractor using rock crushing equipment or portable asphalt plants will be required to obtain air quality permits from MAQB and meet applicable emissions limitations.

In addition to the above temporary measures, the following permanent mitigation measures will be implemented:

- Use of liquid de-icers instead of road sanding materials when possible.
- Rapid response times for street sweeping.

- Provide facilities for pedestrian and bicycle traffic along the proposed route.

It is likely that inclusion of the above mitigation measures will reduce future emission levels in the project study area below those of the No-Build Alternative.

The following strategy is an outline for addressing the project's conformity determination. Once a funding source is identified for the project the following steps will be followed to determine the project's conformity:

1. Place the project on the Transportation Improvement Program (T.I.P.).
2. Perform a regional analysis
3. Submit the analysis for agency review.
4. Assess the conformity of the project with the emissions budget in the State Implementation Plan.
5. Document a conformity finding in the final environmental document.

An air quality conformity determination on this project must be made prior to approval of the project in a final environmental document . The steps listed above must be completed to make this conformity determination.

4.9 Noise

4.9.1 Noise Abatement Criteria

Different land uses are classified under different Federal Highway Administration (FHWA) categories for noise sensitivity. According to FHWA Noise Abatement Criteria (NAC), the residences located along each of the build alternatives fall into Activity Category B and should not receive exterior noise levels greater than 67 dBA L_{eq}. Table 4-17 provides a complete description of the FHWA NAC.

Table 4-17
FHWA Design Noise Level/Activity Relationships

Activity Category	Design Noise Levels - dBA(1)		Description of Activity Category
	Leq (1 hr)	L10 (1 hr)	
A(2)	57 (exterior)	60 (exterior)	Tracts of land in which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, open space, or historic districts which are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
B(2)	67 (exterior)	70 (exterior)	Picnic area, recreation areas, playgrounds, active sports areas, and parks which are not included in Category A and residences, motels, hotels, public meeting rooms, schools, churches, libraries, and hospitals.
C	72 (exterior)	75 (exterior)	Developed lands, properties or activities not included in Categories A or B above.
D	--	--	Undeveloped lands; no standards apply unless development planned, designed, and programmed and likely to be built, then the applicable A, B, C or D regulation applies.
E	52 (interior)	55 (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

(1) Either L10 or Leq (but not both) design noise levels may be used on a project.
(2) Parks in Categories A and B include all such lands (public or private) which are actually used as parks as well as those public lands officially set aside or designated by a governmental agency as parks on the date of public knowledge of the proposed highway project.

Source: Procedures for Abatement of Highway Traffic Noise and Construction Noise. Federal-Aid Highway Program Manual Volume 7, Chapter 7, Section 3. Federal Highway Administration.

4.9.2 Existing Monitored Noise Levels

As shown in Figure 4-15 and Table 4-18, existing exterior ambient noise measurements were taken at three locations along each of the proposed alternatives. All locations were chosen to represent sensitive receptors, which are land uses which fall into Activity Category B, as described above. Each measurement was taken along the facade of the building which faces the road. Noise monitoring was performed during October 1993. The field results are reported in Table 4-18.

Table 4-18
Noise Monitoring Locations and Results
October 1993

Measurement Location	Exterior Reading dBA L_{eq}	Noise Meter Distance to Noise Source	FHWA NAC dBA L_{eq}
Residence River Pines Road	55	15.25 m (50')	67
Residence Blue Mountain Road	52	36.6 m (120')	67
Residence South Avenue	52	13.73 (45')	67

The existing monitored ambient noise levels were below the FHWA criteria in all locations. Existing monitored noise levels represent all exterior noise sources recorded at the site, including natural and mechanical sources and human activities, whereas calculated noise levels represent traffic-generated noise only.

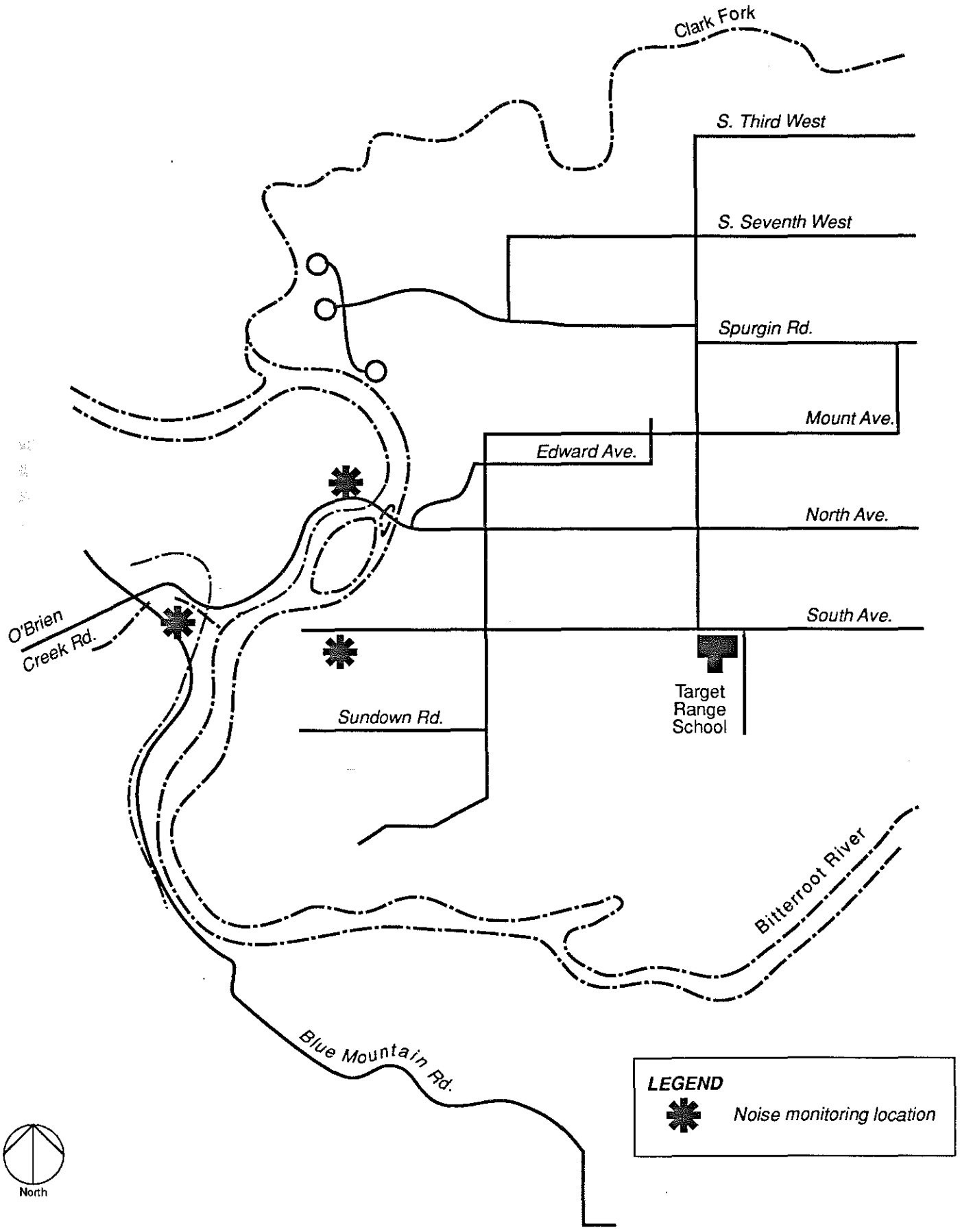


Figure 4-15
Noise Monitoring Locations

4.9.3 Future Noise Analysis

A noise analysis was performed to compare existing noise conditions to predicted future noise levels associated with proposed road alternatives. The noise study was conducted consistent with procedures of Title 23, Code of Federal Regulations (CFR), Part 772. The design year used is 2015 and all assumptions represent probable traffic conditions for that year. Receptors were selected based on proximity to proposed road alternatives and types of land use.

4.9.4 Future Noise Levels

Existing and future peak-hour traffic volumes, operating speeds, and vehicle mix were derived from field observations and a traffic impact analysis. This information was input into the FHWA-accepted STAMINA2.0 noise model to calculate 1993 noise levels and predict 2015 noise levels. The receptors utilized for this analysis are representative of the residences which are closest to each alternative. The calculated noise levels are indicated in Table 4-19.

Table 4-19
Predicted Noise Levels
dBA L_{eq}

	Location				
Alternative	**Humble**	**South**	**North**	**River Pines**	**Blue Mountain**
1993 Measured	NM	52	NM	55	52
1993 Calculated	42-47	37-47	46-53	39-49	42
2015 No-Build	37-42	37-47	39-45	34-51	47
2015 North 1	52-56	41-49	57-64	54-63	46
2015 South 1	42-53	54-65	41-44	37-59	46
2015 South 2	42-53	54-65	41-44	37-51	58

NM: Not measured.

Differences occur between 1993 measured and 1993 calculated noise levels because noise measurements include all exterior noise sources, and traffic characteristics on the day of measurements may differ from those of average afternoon peak-hour traffic. Calculated noise levels represent those generated by average afternoon peak-hour traffic only.

4.9.5 Impacts

The criteria for determining noise impacts are:

- Comparison of predicted noise levels with FHWA NAC. Any predicted noise level which approaches or exceeds the NAC level is considered an impact requiring consideration for noise abatement. MDT has defined the term "approach" to mean 1 dBA L_{eq} less than FHWA NAC.

- Determination of whether a substantial increase will occur from existing to predicted noise levels. MDT has defined a "substantial increase" as one of 10 dBA L_{eq} or greater.

No receptors experience noise levels in 1993 which approach or exceed FHWA NAC. No receptors are expected to experience noise levels in 2015 which approach or exceed FHWA NAC under any alternative.

Under the No-Build Alternative, no receptors are expected to experience substantial noise increases. Under the North 1 Alternative, 24 receptors are expected to experience substantial noise increases. Under each of the South Avenue alternatives, 20 receptors are expected to experience substantial noise increases. Table 4-20 summarizes predicted noise impacts.

Table 4-20
Predicted Noise Impacts
Number of Receptors With
Substantial Noise Increases

	Location				
Alternative	Humble	South	North	River Pines	Blue Mountain
2015 No-Build	0	0	0	0	0
2015 North 1	5	0	13	6	0
2015 South 1	0	19	0	1	0
2015 South 2	0	19	0	0	1

4.9.6 Mitigation

Title 23 CFR 772 requires that noise abatement measures be considered if a traffic noise impact is identified. An analysis of reasonableness of providing noise abatement has been prepared for this project.

Noise barriers do not appear to be reasonable for receptors along existing roads in the vicinity of this project. This is because all of these receptors have direct access to and from the roads and the constant breaks that would be required in order to accommodate this access would severely compromise the effectiveness of a noise

barrier. In addition, noise barriers in these locations would block views from residential areas.

Changes in the horizontal and/or vertical alignment of the road can be effective in reducing noise. In particular, lowering the profile of the road in residential areas can effectively reduce noise by taking advantage of natural topography to screen noise. This mitigation measure can be considered in more detail during final design of the project.

The provision of interior noise insulation is an acceptable noise abatement measure to reduce interior noise levels in public buildings only. Since none of the sensitive receptors of concern is a public building, this would not be an appropriate mitigation measure.

For each of the build alternatives, the major construction tasks are expected to be pile driving, earth moving and removal, hauling, grading, and paving. The most effective means of mitigating construction noise is to allow noise-restrictive construction activities to occur between the hours of 6:00 AM and 10:00 PM and to limit noise-generating construction activities to the period of "normal working hours" between 7:00 AM and 5:00 PM. Constructing noise shields (temporary barriers) and planning detours which do not create additional noise impacts for sensitive receptors are other possible construction noise abatement measures.

4.10 Water Quality and Fisheries

4.10.1 General Description

The study area contains three water features: The Bitterroot River, O'Brien Creek, and Big Flat Ditch. Of these features, the Bitterroot River is the largest and most directly exposed to impacts from the alternatives. The other two, O'Brien Creek and Big Flat Ditch, are located near the actual alternative sites.

The Bitterroot River flows for approximately one mile through the study area and is part of the Clark Fork River drainage system which is part of the western slope of the Continental Divide. The Clark Fork system eventually empties into the Pacific Ocean by way of the Columbia River. The Bitterroot itself drains approximately 9,578 square km (3,698 square miles) of area south of Missoula, Montana. The Bitterroot Basin is located between the Bitterroot Mountains to the west of the stream and the Sapphire Mountains to the south east draining large portions of the Bitterroot National Forest and the Lolo National Forest.

Although up in their higher reaches the Bitterroot and its tributaries have steeper gradients, within the study area itself the gradient of the Bitterroot is low and flat. It has characteristics of a typical meandering stream located in a glaciated valley. There are well developed sand bars, point bar sequences, and some braiding. There is typical variation of depth, dominated mostly by shallow riffle areas 0.30 to 0.60 meter (1 to 2 feet) deep, alternating with deeper holes up to 4.25 meter (14 feet) deep.

4.10.2 Water Quality

The Bitterroot River follows the trend of Montana's generally high quality surface waters. It is classified as B-1 according to Montana's surface water classification scheme (ARM 16.20.6). B-1 waters are summarized as follows:

> Waters classified as B-1 are suitable for drinking, culinary or food processing purposes, after conventional treatment; bathing, swimming and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers, and agricultural and industrial water supply.

Additional technical parameters relating to B-1 waters are included in the complete ARM section.

4.10.3 Fisheries

As a result of its high water quality, the Bitterroot basin has a high quality fishery. The river is used extensively for sport fishing along its length. Species included in the Bitterroot system include:

> Sport Fish - rainbow trout, brown trout, mountain whitefish, cutthroat trout (occasional)
>
> Non-Sport Fish - longnose sucker, course scale sucker, northern squawfish, longnose dace

The State of Montana has identified the Westslope Cutthroat Trout as "species of special concern". This species has received recognition based on its limited range, its sensitivity to habitat fluctuations, harvesting and competition with non-native species.

Spawning areas for the cutthroat trout and other species require specialized stream bed characteristics, one of which is clean gravel. At the time of spawning, species bury their eggs in these characteristic gravels. These eggs require circulating water to supply dissolved oxygen and remove wastes. Without these conditions, eggs die and newly hatched fish may find it impossible to survive by being trapped.

Thus sediment loading is one critical factor in the quality of fisheries in any system. "Spawning/incubation by both species and rearing by bull trout are the life stages most sensitive to sediment effects. Sediment deposition can also affect rainbow and brook trout as well as other fish species by covering spawning gravel, filling in pools, and altering food habits"(Weaver and Fraley Flathead Basin Cooperative Program Final Report 1991).

Other water quality-related issues are nutrient loading, toxic substances, other non-point source substances, and point source discharges. Issues directly related to this study are sediment pollution during construction, snow and ice removal practices, and the dissolution and distribution of road deposited film.

4.10.4 Impacts

Impacts on water resources were assessed by scaling measurements directly from 1 to 2,400 m (1" = 200') aerial photographs overlain by the conceptual design plans of each alternative at 1 to 2,400 m (1" = 200'). Professional judgment was used where quantitative values were not available or appropriate.

Two major issues related to water resources or water quality are:

- Increased impurities in stormwater runoff water from increased traffic flow, increased impervious surface and/or increased maintenance activities.

- Sediment loading during and after construction activities due to the exposure of bare substrate.

4.10.4.1 Stormwater Runoff and Impervious Surface

Surface water quality can be affected and degraded by contaminated highway stormwater runoff. Highway surface runoff contains organic and inorganic chemicals and compounds as well as significant quantities of suspended solids. These components are usually a product of petroleum/combustion products, vehicle and pavement wear, and highway maintenance procedures (Rexnord 1985).

In typical rural roadway sections, storm water runoff is usually collected in roadside ditches and channeled away to the receiving water feature, by way of natural open drainage flows. In such sections water quality impacts on the receiving water feature are usually diminished or completely removed by filtration and dilution of pollutants with vegetation and soils. The threshold of traffic volume for which this natural filtration is adequate protection against water quality degradation is approximately 30,000 ADT (Rexnord 1985). Since none of the alternatives will carry traffic volumes anywhere close to 30,000 ADT, there is a minimal likelihood of water quality impacts from this source.

Although there will not be significant impacts from stormwater runoff, there will be a slight difference in runoff volumes based on the difference in area of required pavement for each alternative. The No-Build alternative will result in the least additional surface runoff since the impervious area will be less. .

Table 4-21 summarizes the new impervious surface that would be created as a result of each alternative:

Table 4-21
New Impervious Surface

Alternative	New Impervious Surface (hectares {acres})
No Build	0 (0)
North 1	0.81 (2.0)
South 1 (Preferred)	1.21 (3.0)
South 2	1.34 (3.3)

4.10.4.2 Construction Impacts

The No-Build Alternative will have no water resource impacts.

During construction of any of the build alternatives, there may be temporary fluctuations in sediment and suspended material loads due to excavation and denudation of surrounding surfaces. If these fluctuations are left uncontrolled, direct impacts to fisheries would result, as described in Section 4.10.3. There will also be a need for dewatering procedures in locations of bridge pier construction. In most instances these temporary situations, if contained and mitigated appropriately, do not create any long term impacts.

Water resource impacts are minimal for each of the build alternatives. Each build alternative overlays or connects to existing roadways with graded profiles which have experienced routine use over a long period of time without excessive water or stream degradation. The overall scheme of each alternative is to regrade only as necessary to meet AASHTO standards.

Due to the adjacency of River Pines Road to the river, the North 1 Alternative has the highest potential to have some impact on water quality during construction along this roadway.

Each of the South Avenue alternatives will cross the Bitterroot River at a relatively perpendicular angle which will minimize water quality impacts.

4.10.5 Mitigation

Although there are no significant impacts associated or predicted for any of the alternatives related to this project, conformance to Montana Department of Health and Environmental Sciences (MDHES) storm water management guidelines is recommended for the implementation of any of the alternatives. Throughout the construction phase of any alternative, procedures described in the MDT Highway Construction Standard Erosion Control Work Plan should be used. Some of these acceptable mitigation measures include:

Long Term Mitigation

- Use vegetative cover and long flow distances in ditches conveying storm water away from roadways to water features to optimize percolation and provide additional water quality protection.

Short Term / Construction Mitigation

- Implement erosion control measures such as temporary and permanent seeding and mulching within a reasonable time following disruption of the soil.

- Implement sedimentation control methods such as check dams, silt fences, and sedimentation basins along drainage routes and adjacent to water features.

- Use temporary and permanent retention ponds to optimize settling time for sediment laden runoff before entering a water feature.

- Use settling ponds for the effluent of dewatering operations.

- Minimize vegetation disturbance and rapidly revegetate areas of disturbance.

- Restrict movements of construction vehicles on unpaved areas where possible.

Permits that may apply to this project include the Montana Stream Protection Act (SPA), the Federal Clean Water Act (Section 404), Short Term Exemption from Montana's Surface Water Quality Standard's (3A Authorization), Montana Pollutant Discharge Elimination System (MPDES), the Montana Streambank Preservation Permit (SB 310), Montana Land-Use Easement, and the Missoula County Floodplain Permit.

4.11 Wetlands

4.11.1 Existing Conditions

In October 1993, a wetlands survey was performed to document the existence and extent of wetlands within the study area. After initial investigations, five sites were chosen to do routine wetland determinations. These five sites are shown in Figure 4-16 and the results of the five site investigations are as follows:

- Site 1 - Site 1 is a gravel bar island located to the south of the existing Maclay Bridge. The island currently supports one of the bridge piers. This site was determined to not be a wetland due to lack of hydrologic and soil features. The area is not flooded more than 15 days during the year to meet wetland criteria.

- Site 2 - Site 2 is an abandoned river channel which now forms a depression in the 100 year floodplain. This site is a jurisdictional wetland occupying a small linear area.

- Site 3 - Site 3 is slightly north and higher than Site 2. This site is not a jurisdictional wetland lacking all three criteria (vegetation, hydrology, and soils).

- Sites 4 and 5 - These sites are also abandoned river channels now forming swales in the 100 year floodplain. Both of these sites are determined to be jurisdictional wetlands occupying small areas. Northern boundaries of both of these wetlands end at the toe of the existing roadway fill.

4.11.2 Impacts

Neither the No-Build Alternative nor the North 1 Alternative will have any direct or indirect impacts on wetlands.

The Preferred Alternative has no direct or indirect wetland impacts. This alternative passes by wetland sites 4 and 5, but will be designed to adequately avoid any direct or indirect impacts to these sites. On the west bank, the Preferred Alternative will align to the north and connect to River Pines Road at the bend, thus avoiding wetland site 2.

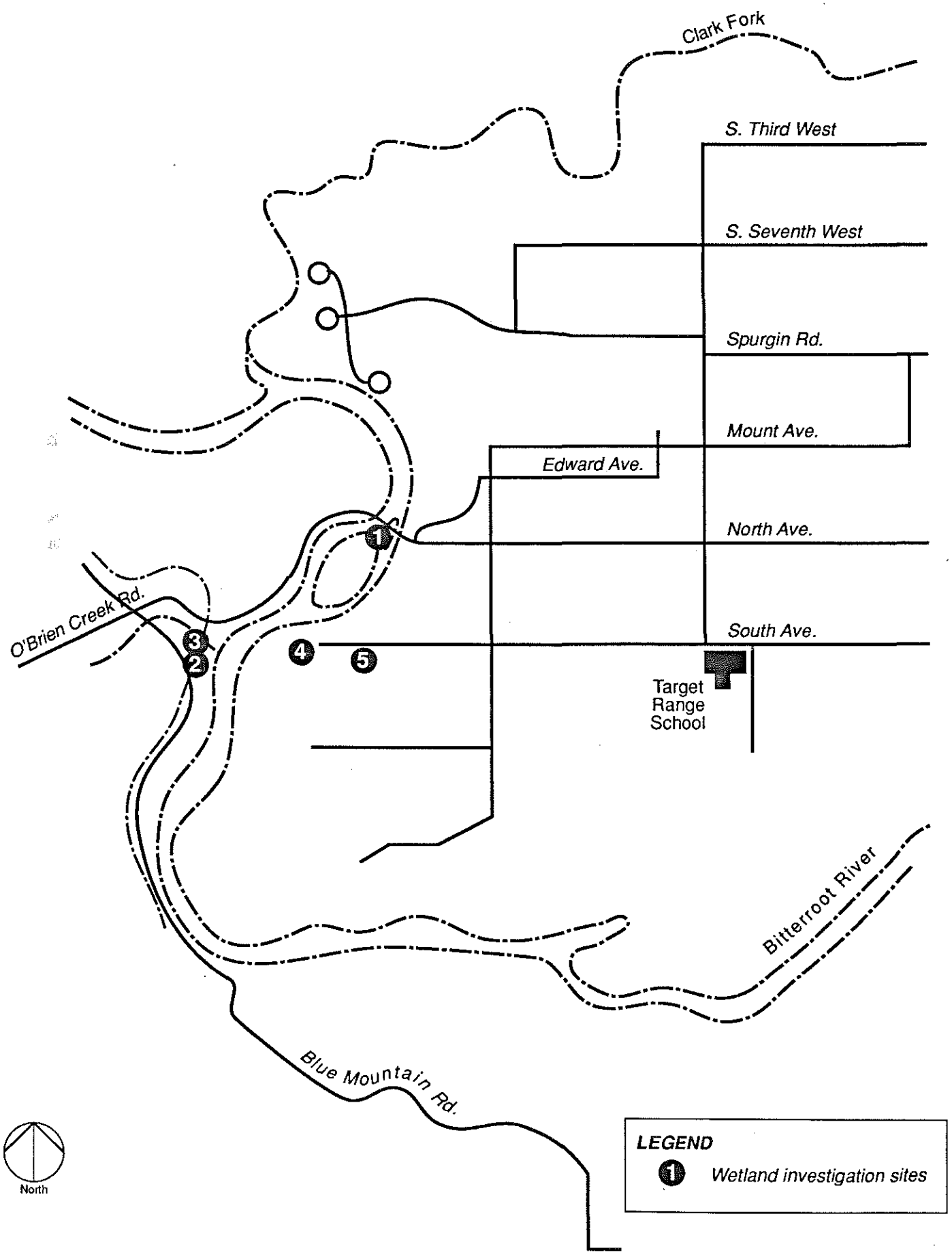


Figure 4-16
Wetlands

The South 2 Alternative has the greatest impacts to existing wetlands. This alternative avoids wetlands sites 4 and 5 in the same manner as the Preferred Alternative. However, on the west side of the river, the South 2 Alternative will have direct and indirect impacts to wetland site 2. Direct impacts have not been quantified but it will be extremely difficult to design an alignment to standards which will avoid this wetland entirely.

4.11.3 Mitigation

Neither the North 1 Alternative nor the Preferred Alternative will require wetland mitigation, because they will not impact any wetland areas. The South 2 Alternative will require on-site wetland mitigation.

Should the South 2 Alternative be implemented, specific sites suitable for replacement or enhancement will be identified. Hydrologic and soil conditions within the study area provide opportunities for these mitigation activities.

Specific mitigation during construction will include:

- Minimize vegetation removal.
- Revegetate all exposed areas to MDT standards to reduce erosion and sedimentation.
- Revegetate areas with desirable ground covers to inhibit invasion of noxious weeds and for aesthetic purposes.
- Coordinate weed control, seeding, and fertilization with the County Weed Control authority and MDT.
- Flag or fence wetland areas during construction to avoid unnecessary disturbance due to construction activities.
- Provide bank stabilization and erosion control to meet standards defined by the MDT Highway Construction Standard Erosion Control Plan.

Perennial stream crossing mitigation measures will be addressed in the following permits:

- The Montana Stream Protection Act (SPA) permit, administered by the Montana Department of Fish, Wildlife and Parks.

- The Stream Bank Preservation Permit (SB 310), administered by the Missoula County Conservation District.

- A Montana Land-Use Easement for the river crossing, administered by the Montana Department of State Lands.

- The Federal Clean Water Act (Section 404) permit, administered by the US Army Corps of Engineers.

4.12 Floodplain Impacts

The Bitterroot River is a meandering river with a wide floodplain (see Figure 4-17 for a map of the Bitterroot floodplain area). The floodplain consists largely of agricultural uses and pasture; however, there has been some residential development within the floodplain. Within the study area, development in the floodplain has occurred west of the existing Maclay Bridge in the River Pines Addition. Floodplain development has also occurred east of the river at the west end of South Avenue and at the west end of Sundown Road.

The existing Maclay Bridge is situated at a natural constriction of the river. The bridge itself is not overtopped during the 100-year storm but River Pines Road south and west of the bridge is overtopped. It is evident that scour has occurred along River Pines Road since riprap has been placed along the slope adjacent to the river.

4.12.1 Analysis

Each of the build alternatives was analyzed using the Corps of Engineers HEC-2 step-backwater computer model. Cross-sections were located using aerial mapping and photographs. Cross-sections were field surveyed across the river channel and were supplemented with topography for the overbanks, obtained through aerial photography. A detailed survey was conducted of the existing Maclay Bridge to determine pier configurations, girder elevations and deck elevations. The analysis utilized the results of the Flood Insurance Study For Missoula County, Montana. As described in the Flood Insurance Study, the 100-year starting elevation is based on the 50-year flood level for the Clark Fork at the confluence, since it is unlikely that flood-event frequencies for the two rivers would coincide. The base elevation of 947.41 meter (3,108.3 feet) corresponds to the 100-year flood elevation at Section A, for the Bitterroot River in the Flood Plain Study. Water surface profiles were developed for each of the alternatives. The 100-year flow of 900 cubic meter per second (31,800 cubic feet per second) developed for the floodplain study was utilized for the analysis.

It was assumed that the existing Maclay Bridge would remain in place for each of the alternatives. The No-Build Alternative modeled represents the existing conditions. The water surface profile developed for this situation closely matches the water surface profile developed for the Flood Plain Study. Various bridge lengths were evaluated for each of the "build" alternatives, until bridges with an adequate opening were found.

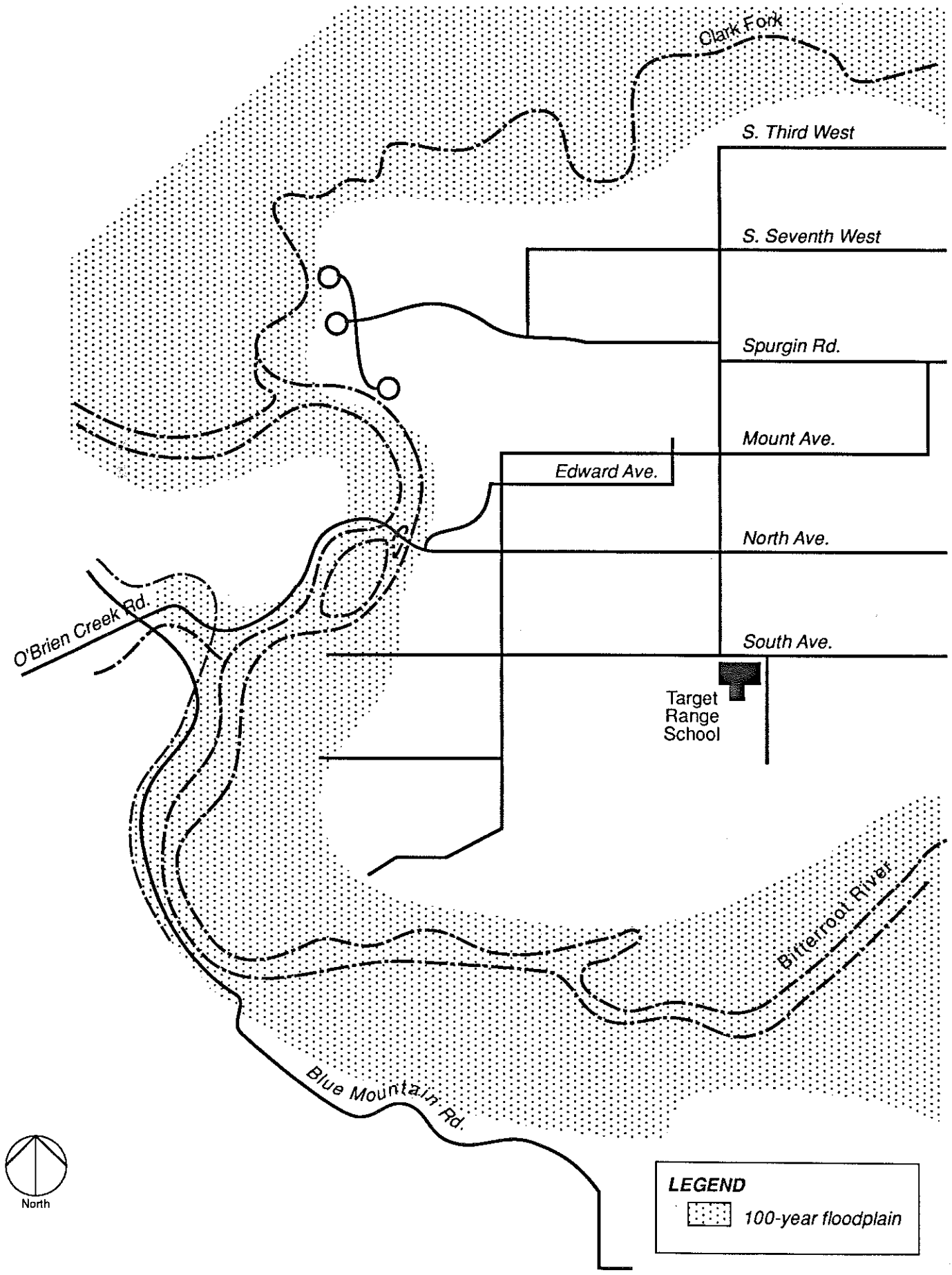


Figure 4-17
100-Year Floodplain

4.12.2 Regulations

Each of the "build" alternatives involves roadway embankment and bridge construction within both the floodplain and floodway. The Missoula County Floodplain Regulations stipulate that a river crossing is an allowable use within the floodway and floodplain. This use, however, requires a permit from the Missoula County Floodplain Administrator. The Floodplain Regulations require that the bridge opening must be sized to convey the 100-year flood event with a rise in the water surface upstream of the crossing of less that 0.15 meter (0.5 foot). The bridge opening must also be sized so that it does not cause a significant increase in velocities. Roadways constructed within the floodplain that provide access for emergency vehicles must also be constructed above the level of 100-year flood event.

4.12.3 Impacts

Since the alternatives were developed to conform to the Missoula County Floodplain Regulations, they create a minimal increase in flooding risks. Each alternative meets the criteria for an allowable increase in the 100-year water surface of less than 0.15 meter (0.5 feet).

Floodplain values such as the natural moderation of floods and the maintenance of groundwater will be unaffected by the project. Since development within the floodplain is controlled by the Missoula County Floodplain Regulations, the project will not encourage incompatible floodplain development. The following describes the floodplain impacts of each alternative:

- **No-Build.** This alternative will have no impacts to the floodplain.

- **North 1.** This alternative crosses the Bitterroot River immediately upstream of the existing structure. Due to the constrained configuration of the river channel at this location, the structure will span the entire floodway and will involve only a minor increase in the water surface profile upstream of the structure. This minor increase can be attributed to the placement of bridge piers within the channel. The bridge structure will be approximately 182 meters (600 feet) long. The velocity in the channel of 2.26 meters (7.4 feet) per second will not be changed significantly. The deck elevation will have to be a minimum of 2.44-3.05 meters (8-10 feet) above the elevation of the existing Maclay Bridge. The roadway approaches will require a considerable amount of fill within the floodplain west of the river which could split the flow to each side of the embankment.

- **South 1** (Preferred Alternative). This alternative crosses the river at a location where the floodway is wider than that found at the existing Maclay

Bridge. This alternative requires a 266 meter (875 foot) structure. This alternative will result in a rise of 0.12 meter (0.38 feet) in the water surface profile immediately upstream of the structure. While there is a rise in the 100-year water surface, the effective increase in width to the 100-year floodplain is negligible. Velocities at the bridge location will increase slightly from 1.98 to 2.10 mps (6.5 fps to 6.9 fps). There are 12 wood frame structure residences and four mobile homes which are situated below the 100-year water surface. It is anticipated that the water surface level will increase between 0.06 and 0.12 meter (0.2 and 0.4) feet at these residences. There are two residences which lie 0-0.30 meter (0-1.0 feet) above the existing 100-year water surface. The rise in the 100-year water surface will approach the floor level of these buildings. The level of the existing roadway at the end of South Avenue will be elevated 1.52-2.13 meter (5-7 feet) to achieve freeboard above the 100-year water surface. Flow patterns will remain the same.

- **South 2.** This alternative crosses the floodway at the widest location of the three "build" alternatives. The required bridge span length is 457 meters (1,500 feet). This alternative will result in a rise of 0.15 meter (0.50 feet) in the water surface profile immediately upstream of the structure. While there is a rise in the 100-year water surface, the effective increase in width to the 100-year floodplain is negligible. Velocities at the bridge location will increase from 1.94 mps (6.38 fps) to 2.45 mps (8.03 fps). There are 12 wood frame structure residences and four mobile homes which are situated below the 100-year water surface. It is anticipated that the water surface level will increase between 0.09 and 0.15 meter (0.3 and 0.5 feet) at these residences. There are two residences which lie 0-0.30 meter (0-1.0 feet) above the existing 100-year water surface. The rise in the 100-year water surface will approach the floor level of these buildings. The length of the structure required at this location will directly impact the access to the adjacent residences at the end of South Avenue West. Existing flow patterns will not change.

4.12.4 Mitigation

The mitigation required for each of the alternatives will be similar. The following measures will be implemented on any of the alternatives:

- Construct the bridge with a minimum freeboard of 0.61 meter (2.0 feet) between the bottom of the girder and the 100-year water surface to allow the passage of debris.

- Construct piers to align with the flow such that the obstruction of the flow is minimized.
- Install revetment, such as riprap, to protect the abutments and embankment from scour.
- Construct the foundation and structure to withstand the effects of scour during the 500-year storm.
- Construct the roadway approaches above the 100-year water surface to provide access for emergency vehicles during a flood event.

4.12.5 Permits and Coordination

Since the preferred alternative involves roadway and bridge construction within the floodway and flood fringe, a permit must be issued by the Missoula County Floodplain Administrator for the project. To evaluate the permit application, the Floodplain Administrator will review construction plans, flood proofing measures, and hydraulic calculations certified by a Professional Engineer.

4.13 Wildlife/Threatened and Endangered Species

4.13.1 Existing Conditions

Missoula County is an ecologically wealthy area. There is an abundance and variety of natural resources available due to the diversity and character of the landscape. The Maclay Bridge study area is no exception. Included both inside and surrounding the study area are many different ecosystems and habitats. These range from riparian habitats to grasslands, agricultural lands, coniferous woodlands, and others.

Specifically, the riparian habitat within the study area is related to three water features: the Bitterroot River, O'Brien Creek, and Big Flat Ditch. The Bitterroot River complex, with its banks, floodplains, terraces, sloughs and islands, supplies typical riparian vegetative environments for wildlife and is the largest of these habitat features. The vegetative composition in these areas is of cottonwoods, ponderosa pine, river hawthorne, birch, willows, redosier dogwood, and sedges. The minor water features of O'Brien Creek and Big Flat Ditch have many of the same qualities, but are not as well developed.

The upland areas associated with this study area can be described by two categories: grasslands and savannah type areas with infrequent small stands or single individuals of ponderosa pine or irrigated pasture lands used for small scale agriculture. There are some limited stands of old growth cottonwood/ponderosa pine located near the river banks that have particular significance for several bird species. These old growth patches are remnants of a more extensive previous forest community.

The existing landscape features support a wide variety of wildlife within the study area. The following is an abbreviated list of species associated with the habitats in the study area:

- Birds - osprey, bald eagle, great blue heron, Canada goose, northern oriole, veery, redeyed vireo, American redstart, belted kingfisher, Lewis' woodpecker, pileated woodpecker, and peregrine falcon.

- Mammals - white-tailed deer, mink, beaver, northern flying squirrel, yellow-bellied marmot, red fox, and coyote.

- Amphibians and Reptiles - spotted frog, leopard frog, bull frog, western yellow-bellied racer, western garter snake, and western painted turtle.

- Sport Fish - rainbow trout, brown trout, mountain whitefish, cutthroat trout (occasional)

- Non-Sport Fish - longnose sucker, course scale sucker, northern squawfish, longnose dace

Additionally, there are areas of winter range for elk, mule deer, and white-tailed deer located on the steeper slopes just to the west of the study area.

Coordination with the U.S. Fish and Wildlife Service (USFWS) in August 1993 determined that only the bald eagle and peregrine falcon are "threatened or endangered" species possibly occurring in the study area. The study area is included as part of the wintering habitat for the species, beginning at the bridge site and following the riparian corridor downstream. Although there have been sightings of bald eagles within the study area, there are no known nest sites located inside or near the study area.

Due to extensive depletion of bull trout populations, it is highly likely that the species will be listed as a threatened or endangered species in the near future. Although no bull trout have been collected from the Bitterroot River in the vicinity of the project study area, this section of river is within the bull trout's native range.

Figure 4-18 indicates the extent of winter range or habitat for the bald eagle, elk, mule deer and white-tailed deer.

Climate, geology, and other biological processes have created an intricate flora in the state and county. There are species of limited distribution drawn from various governmental and non-governmental sources but there are no Montana plant species that have been officially listed by the federal government as "threatened or endangered".

Although they are not "threatened or endangered", there are two reptile species having the special designation of "sensitive species" by Montana Department of Fish, Wildlife and Parks which may be found within the study area. These are the spotted frog and the leopard frog. They are not protected by law but are thought to be declining and should be given special consideration.

4.13.2 Impacts

Due to the nature and location of any work related to the proposed alternatives, there are no project-related impacts to threatened and endangered species (USFWS, September, 1993). Additionally, none of the alternatives intersect, cross or directly traverse through critical habitat areas. There are subtle differences of impacts among the alternatives. In coordination with the Montana Department of Fish, Wildlife and Parks, the following wildlife impacts were assessed:

- **No-Build.** This alternative will have no direct impact upon wildlife habitat or populations.

- **North 1.** This alternative will result in minor loss of riparian vegetation on the east river bank and two islands. Additionally, some loss of older pines will occur if River Pines Rd. needs to be rerouted.

- **South 1 (Preferred Alternative).** This alternative will cause the least loss of habitat among the build alternatives. Minor loss of riparian vegetation and old growth pines and cottonwoods along the river banks will occur.

- **South 2.** This alternative will likely cause the most loss of habitat, compared with other action alternatives. Greater loss of riparian vegetation and older pines and cottonwoods will occur on both river banks as a result of its greater length and oblique angle relative to the river. This alternative is also located near wetlands that may suffer direct impacts.

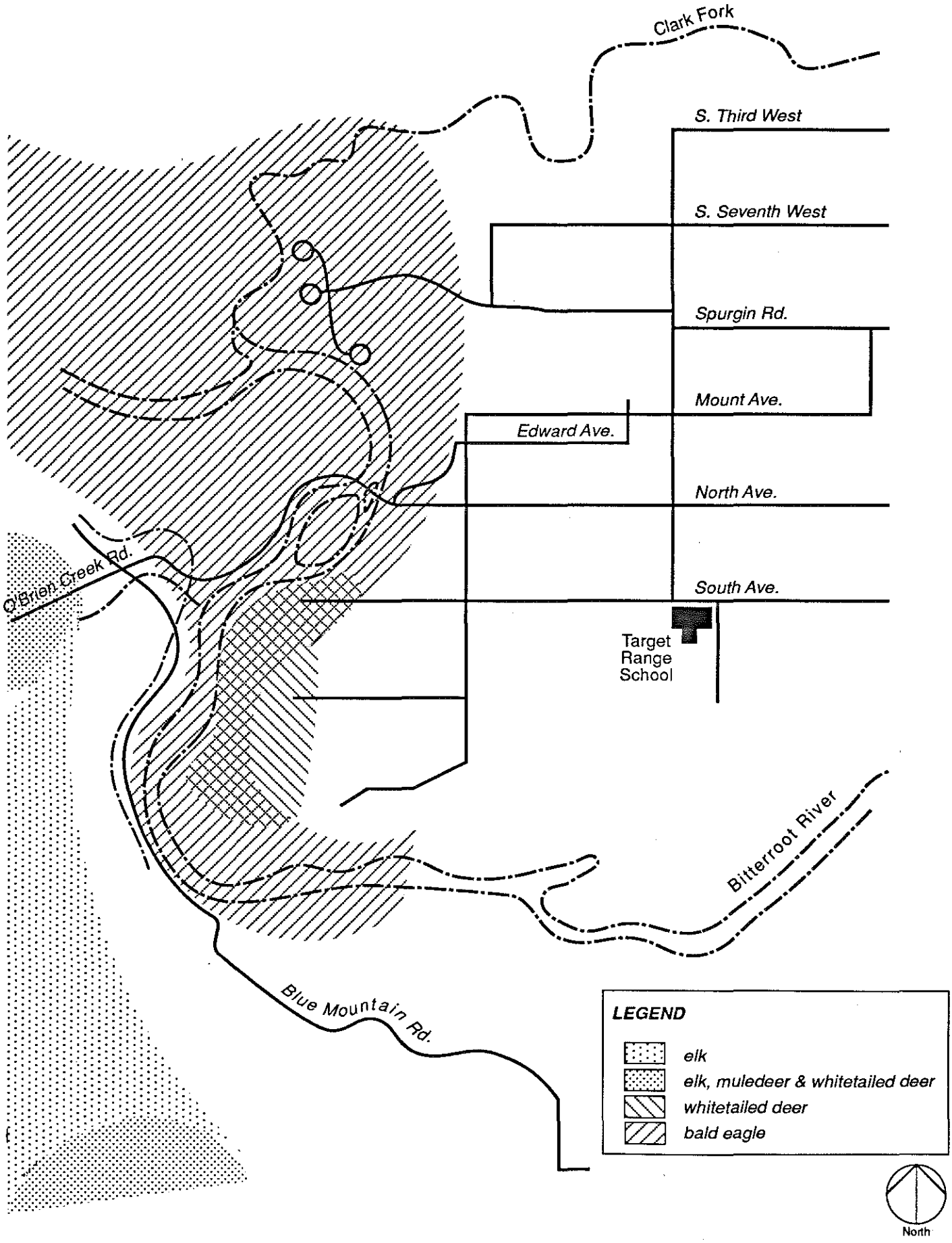


Figure 4-18
Winterrange/Habitat

Indirect wildlife impacts related to the alternatives are:

- **No-Build.** Increased traffic along Blue Mountain Road, a direct result of the No-Build Alternative, will increase the potential for wildlife / vehicular conflict, noise, and dust along Blue Mountain Road. Conversely, this alternative will result in some reduction in wildlife / vehicular conflict along River Pines Road.

- **North 1.** Increased traffic along the Greater potential for wildlife / vehicular conflict and noise along River Pines Road due to projected traffic volumes across the bridge.

- **South 1 (Preferred Alternative).** Greater potential for wildlife / vehicular conflict and noise along River Pines Road due to projected traffic volumes across the bridge.

- **South 2.** Greater potential for wildlife / vehicular conflict and noise along River Pines Road due to projected traffic volumes across the bridge.

4.13.3 Mitigation

The following measures will be taken to mitigate impacts upon wildlife resulting from each build alternative:

- Revegetate all areas disturbed by construction. Revegetate roadway clear zones using unpalatable species to discourage wildlife attraction to the road.

- Avoid large trees and/or snags where possible and replace trees where disturbed.

- Use available techniques for sedimentation control during construction, including:

  - Sediment fencing
  - Detention ponds
  - Immediate revegetation
  - Netting or other mechanical retention devices.

- Place temporary fencing during the interim period before permanent fencing is relocated.

4.14 Cultural Resources

4.14.1 Historical

Pursuant to Section 106 of the National Historic Preservation Act (as amended) and the Advisory Council on Historic Preservation's regulations 36 CFR Part 800, a survey was undertaken in the project study area to determine the potential for impacts to historic resources. In addition to an on-site survey, a file search of published lists of the National Register, past surveys and the State Inventory of Cultural Resources was also conducted to acknowledge sites previously identified. The results revealed no previously identified sites.

Four historic sites were recorded during the on-site survey of the project study area. Two of these sites, the Maclay Ranch (24MO519) and the Rice Property (24MO517) shown in Figure 4-8, were recommended by the Montana State Historic Preservation Office (SHPO) as qualifying for listing in the National Register of Historic Places.

The No-Build Alternative will have no effect upon historic resources.

Each of the build alternatives will have adverse effects upon the Maclay Homestead site due to proposed improvements to the R/O/B/B intersection. The proposed widening and re-alignment of the R/O/B/B intersection will require approximately 1.83 meter (six feet) of right-of-way from the property to accommodate adequate paved shoulders for pedestrian and bicycle use. The proposed intersection improvements will require removal of vegetation and re-alignment of a private irrigation ditch along the south edge of the property.

Each of the South Avenue alternatives will have adverse visual effects upon the Rice Property due to proposed improvements to South Avenue west of Humble Road. The proposed roadway construction includes excavation that will require removal of vegetation, including several mature tree stands, and a fence along the north edge of the property.

4.14.2 Archaeology

An archaeological resources file search was conducted in November, 1993. The file search encompassed the project study area as well as a one-mile buffer surrounding the study area. The file search revealed one previously recorded prehistoric site located approximately one mile south of the project study area.

The Phase II Inventory conducted for the project by Historical Research Associates, Inc. refers to potential prehistoric resources in the area as follows:

> Based upon the physical characteristics of the project area (at the confluence of the Bitterroot River and O'Brien Creek), the long record of use by indigenous people, and the presence of the previously recorded site south of the project area, we felt that the area should be considered a relatively high probability area for the occurrence of prehistoric sites. Specifically, the stable alluvial fan on the west side of the river is the most likely area to contain prehistoric resources. By comparison, most of the undeveloped area on the east side of the Bitterroot River is located within the flood plain - thus periodic flooding events make it less likely to contain intact prehistoric sites.

The No-Build Alternative will have no effect upon archaeological resources.

Completion of a pedestrian inventory and subsurface testing for the Preferred Alternative in March, 1994 revealed no evidence of prehistoric sites within the area of proposed improvements for this alternative.

4.14.3 Mitigation

Mitigation of impacts to the two historic properties should include the following measures:

- Revegetate all exposed cut and fill areas or areas denuded by construction activities.

- Plant vegetation along the right of way using appropriate stock; particularly vegetation displaying obvious architectural purpose such as hedges or hedge rows. Plant a vegetative screen along the north edge of the Rice Property that will eventually provide a visual barrier between the site and the roadway.

- Relocate fences or landscaping elements to an appropriate place outside of the right of way. Re-align the private irrigation ditch on the Maclay Ranch property in order to perpetuate its operation.

4.15 Hazardous Materials

Information regarding the presence of known hazardous material sites or reported hazardous material spills within or near the project study area was requested from the agencies listed below. Site visits were also conducted during the data collection phase of the study.

- Environmental Protection Agency (CERCLA list, RCRA list)
- Montana Department of Health and Environmental Sciences (Non-Priority Site list (NPL), UST and LUST lists, hazardous spill reports)
- Missoula County Environmental Health Department (incident reports)
- Missoula County Office of Disaster and Emergency Services (incident reports)
- Missoula Rural Fire District (incident reports)

There are no known hazardous material sites or reported incidents in the vicinity of the project study area to date. One potential hazardous material site, a natural gas substation owned by the Montana Power Company, was identified in the study area. The site is located at the east end of the Maclay Bridge, on the south side of North Avenue (Figure 4-8).

The No-Build Alternative will not impact any known hazardous materials sites.

Construction of the North 1 Alternative could encroach upon the substation, and implementation of this project will require close coordination with the Montana Power Company in order to mitigate potential impacts to the site.

Neither of the South Avenue alternatives will impact any known hazardous materials sites.

4.16 Visual Impacts

4.16.1 Visual Character

The overall visual character of the study area is one of gentle, bucolic, and low density open space. This existing visual quality begins markedly west of Humble Road. East of Humble Road, the scene has a slightly more developed and suburban look. West of the Bitterroot River, the scene becomes even more pastural and/or natural due to increasing lot size and the presence of adjacent US Forest lands.

Significant portions of lands on the west bank of the Bitterroot from US 93 up to and including the O'Brien Creek sub-basin are designated by the county as Scenic Open Space. These areas are primarily designated as such because they contribute to scenic panoramas which are visible from the public right-of-way. These public areas can be parks, nature preserves, public roads, water bodies, public trails, historic structures, or land areas. These areas can also be designated because they form a visual buffer around an important open space feature.

The study area landscape is composed of grasslands both native and agricultural, interspersed by stands of ponderosa pines and other deciduous trees. The riparian areas are densely vegetated with typical high water species, such as birch and willow.

The topographical character is of broad very flat floodplain terraces each having a distinct relief changes between the other. The Bitterroot River itself is mostly a shallow, swiftly moving river, approximately 300 feet across in most sections. The river meanders typically for a low gradient stream and is filled with sand and cobble bars and steep cutbanks.

4.16.2 Impacts

The No-Build Alternative will leave the existing visual character essentially unchanged. One exception to this will be the increased viewing of vehicles and dust created on Blue Mountain Road as a result of increased traffic at that location.

Impacts which are common to all the build alternatives are increasing the width of pavement in roadway areas, the addition or subtraction of materials (cut and fill) to bring the roadway surface profiles into safety compliance, the removal of individual or small stands of trees or other vegetation, and the imposition of concrete and steel structures. Each alternative includes all of these impacts to varying degrees. The following discussion describes in more detail the impacts of each build alternative:

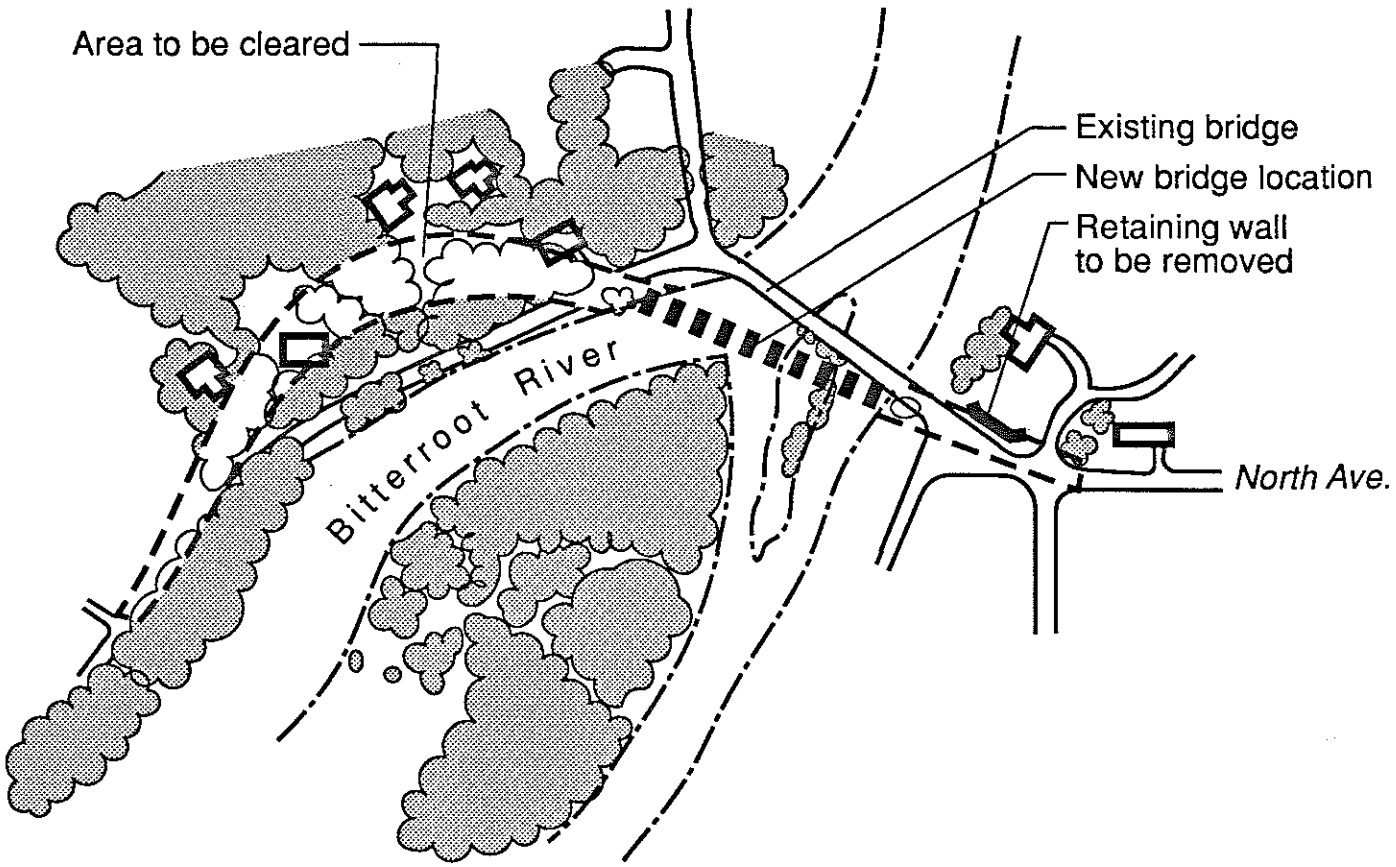
North 1. Due to the sub-standard alignment and profile of the existing bridge and roadway, replacing this bridge with a new structure will have the most severe impacts to the surrounding landscape. Constructing a bridge with approaches and roadway profiles that conform to current AASHTO standards will require the re-alignment of the curves at each end of the bridge and re-alignment of the bridge itself. This alternative will require large areas of excavation from the property located on the north side of North Avenue. The existing retaining wall on the south side of this property will need to be removed and rebuilt. Figure 4-19 shows how the North 1 Alternative will visually affect adjacent land uses and vegetation.

The bridge itself will be rotated slightly counter clockwise (viewed in plan) to provide additional alignment improvement. The most severe impacts will be felt on the west end of the bridge and along River Pines Road, where several residences will be directly impacted and likely relocated. Along with the structures, large areas of mature trees, both deciduous and coniferous, will be removed from these properties leaving large visual scars. This activity will be required to improve the curve radius and sight distances at the bridge approaches.

Additionally, the profile of the existing bridge and approaches will be raised considerably (1.52-3.05 meters {5'-10'}) above the existing grades to accommodate flood waters and to meet County Floodplain Regulations. This activity will result in large fill areas/embankments on both sides of the river leaving additional visual scars, more noticeable due to the adjacent land uses and structures having been built to accommodate the existing roadway.

Due to River Pines Road's proximity to the river, any construction or renovation along its length will have a greater impact on users of the river. Fishermen, boaters etc. will have a longer visual exposure to this alternative than the others.

South Avenue alternatives. The re-alignment of South Avenue between Humble Road and the new bridge, including the approaches, will have the greatest visual impact associated with the South Avenue alternatives. These visual impacts are less severe than those anticipated for the North 1 Alternative. Regrading of South Avenue west of Humble Road will require the removal of several fences fronting the street, several large groups of mature trees, and an existing shed. This activity will also require the relocation of overhead utility lines. Figure 4-20 is a map of the existing layout and



North
No Scale

Figure 4-19
Visual Elements Impacted
North Alternative

facilities that will require alteration as a result of these alternatives. Additionally, Figure 4-21 is a sketch looking west from Humble Road before and after implementation of either South Avenue alternative.

A shed is located just below the steep change in relief associated with the stream terrace. The new road profile will require a cut into this steep slope to even the grade along the length of road. This excavation will directly impact the trees and the shed structure, leaving exposed cutbanks along both sides of the road. Figure 4-22 is a before and after sketch relating to this impact. Due to the location of a wetland area along the south side of the road at the same location, it is not possible to shift the new roadway north to avoid this structure.

Farther west, as the bridge approaches and structure encounter the river banks, existing mature vegetation will be impacted. Removal of these areas of vegetation for construction of the bridge and approaches will create visual discontinuity. Due to its straight alignment, the South 2 Alternative will cause this break in the trees to be much more noticeable from the roadway (Figure 4-23a and 4-23b) than will the Preferred Alternative. The length of the South 2 Alternative's approaches and bridge structure are also longer than those of the Preferred Alternative, thus resulting in the disturbance of a larger vegetated area.

At the western extent of the South Avenue alternatives is where they begin to noticeably differ. The South 2 Alternative will have a greater visual impact because it impacts areas of open space, whereas the Preferred Alternative connects to an existing roadway located directly west of the river. The Preferred Alternative thus requires less new pavement, less disturbance and less overall impervious surface. The Preferred Alternative is likely to need less fill to achieve grade in this portion of the site.

Each of the South Avenue alternatives will have similar visual impact on Bitterroot River recreationists.

Of all the build alternatives, the Preferred Alternative has the least amount of overall visual impacts related to vegetative removal and exposed cut and fill banks. Construction or reconstruction of the bridge under any of the build alternatives will not require a superstructure similar to that of the existing bridge.

4.16.3 Mitigation

Mitigation required for any or all of the alternatives is similar. The following is a list of possible mitigation procedures to be used during the implementation of any of the alternatives:

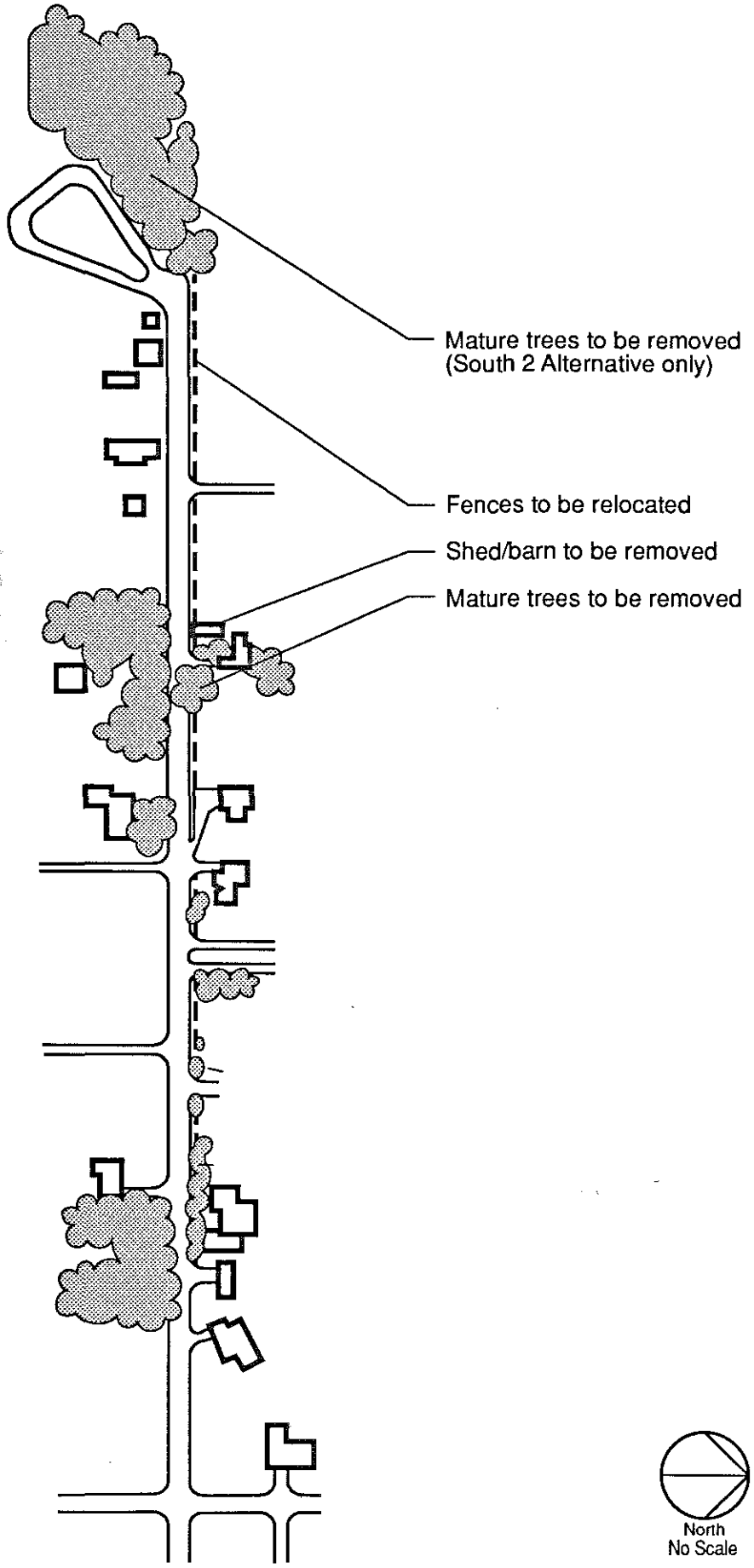
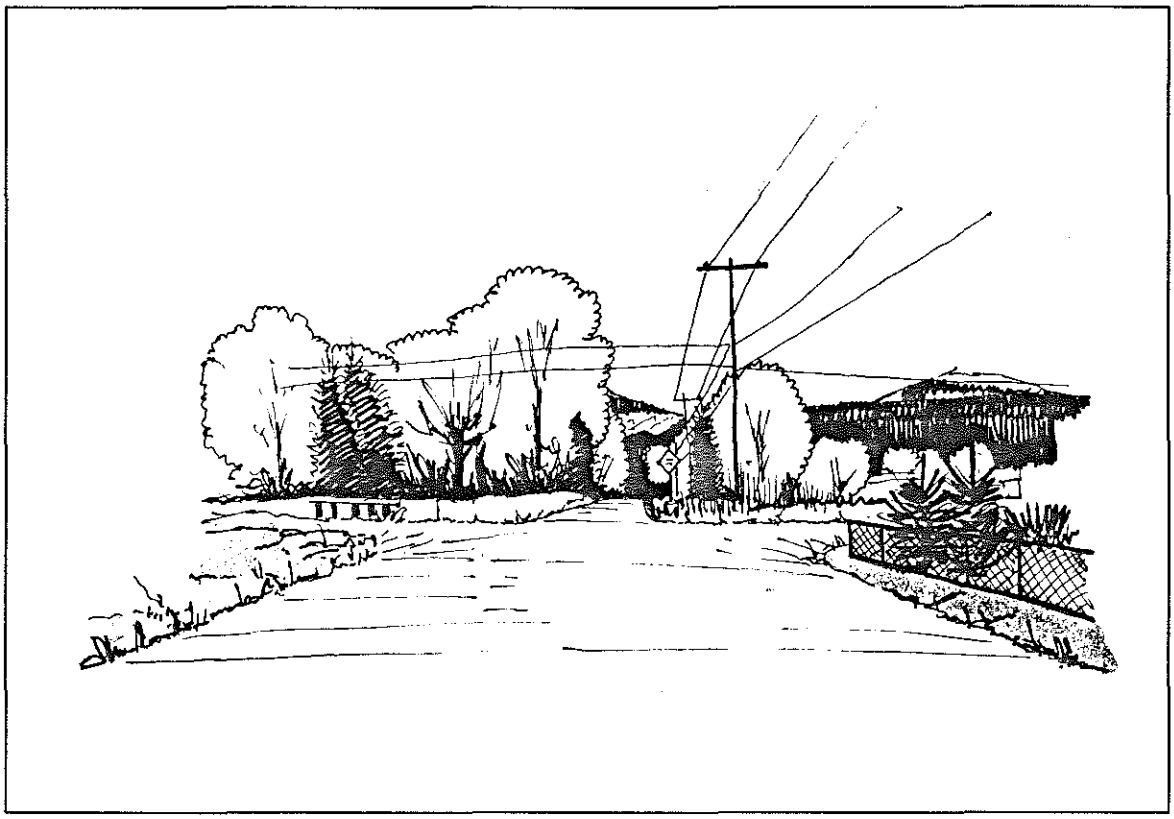
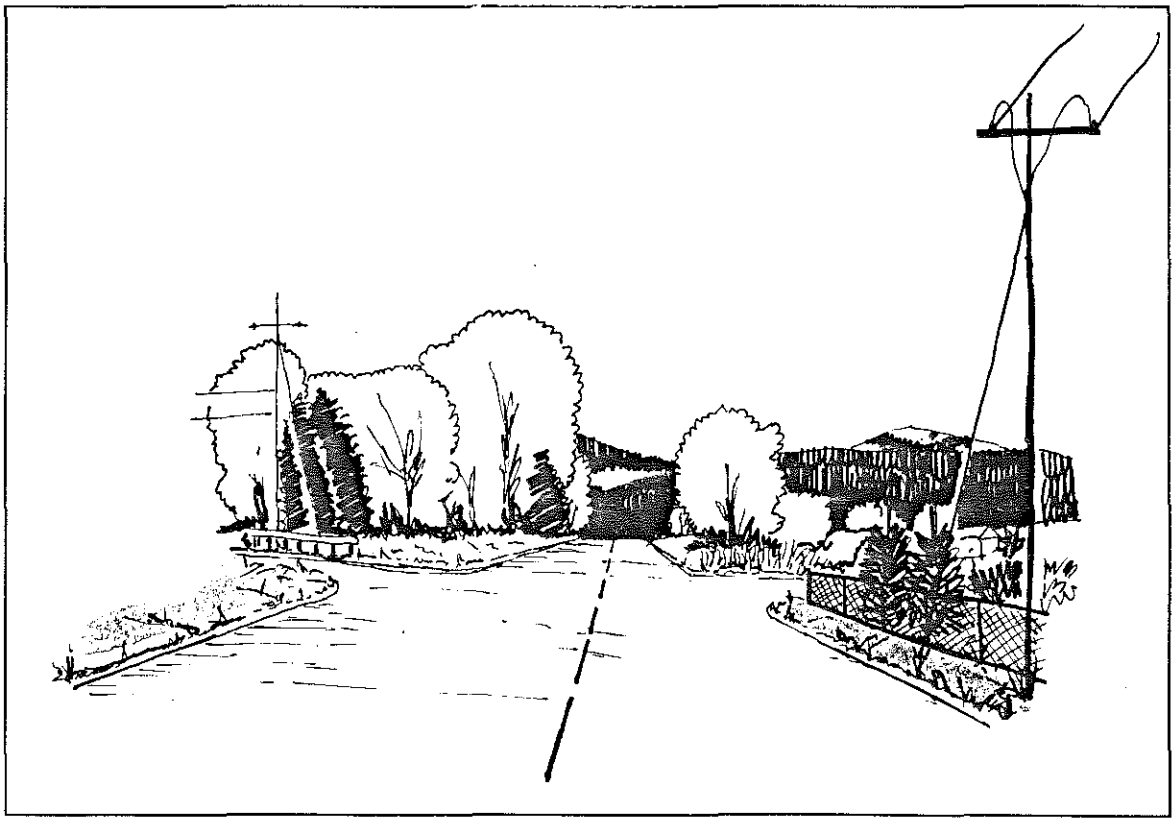


Figure 4-20
Visual Elements Impacted
South Avenue Alternatives



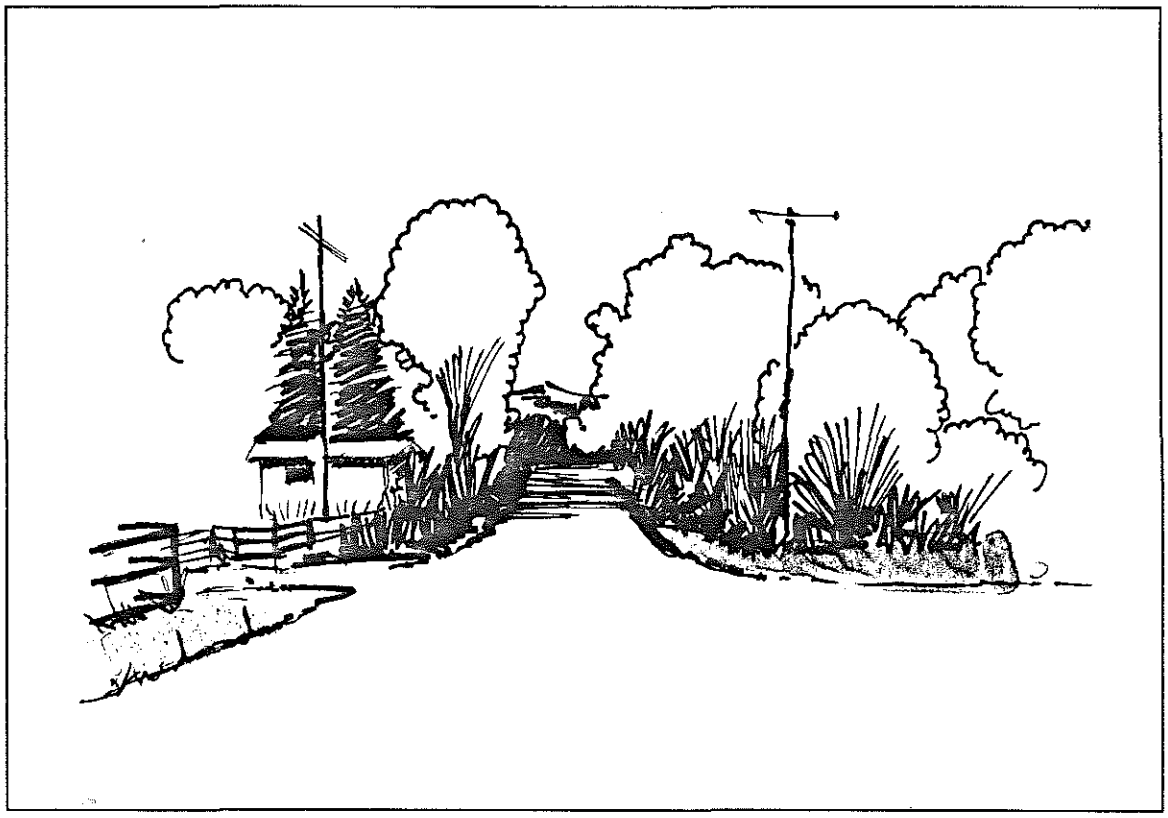
Existing Conditions



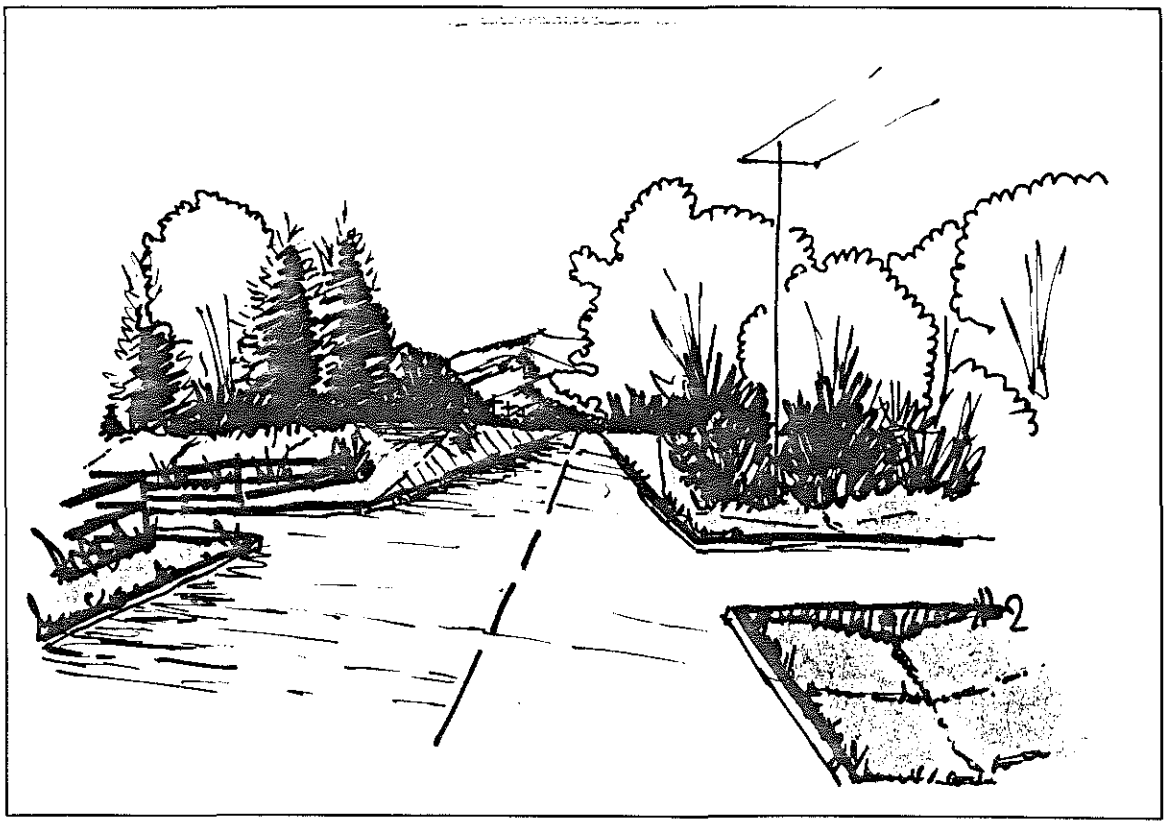
North

Alternatives South 1 and South 2

Figure 4-21
Looking West along South Avenue at Humble



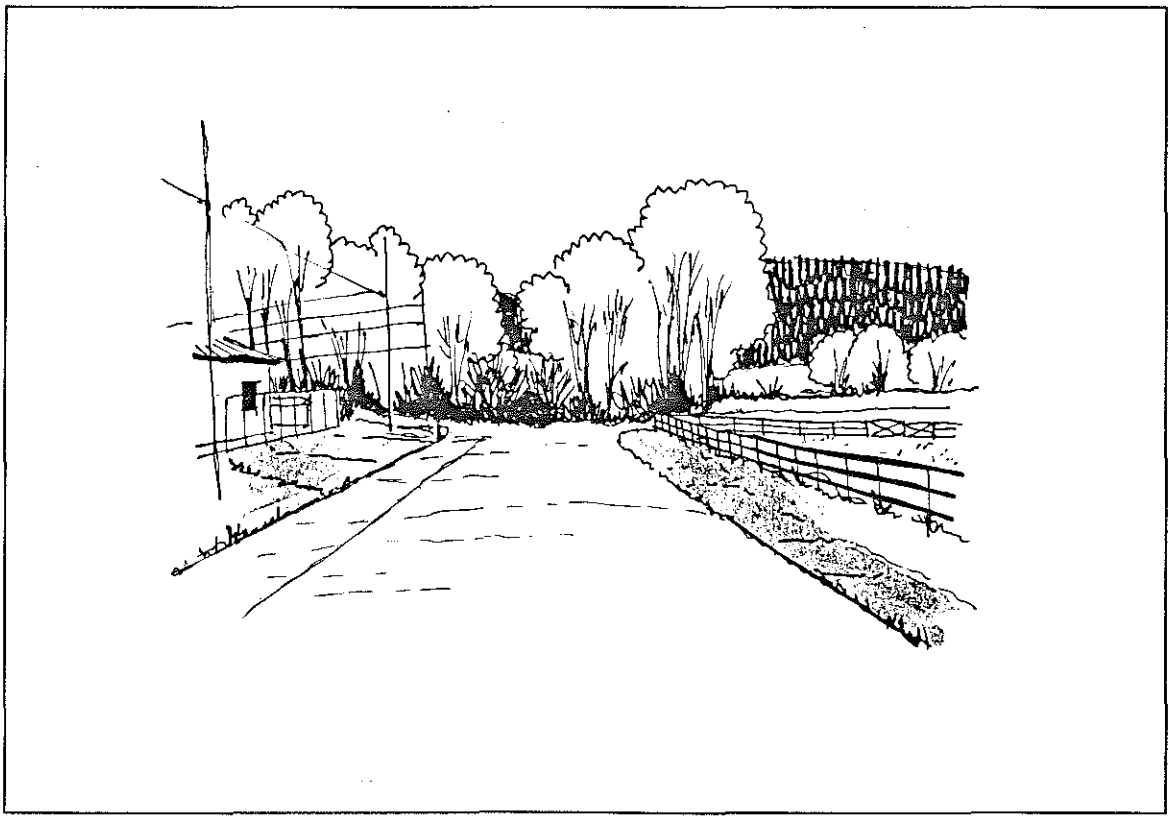
Existing Conditions



North

Alternatives South 1 and South 2

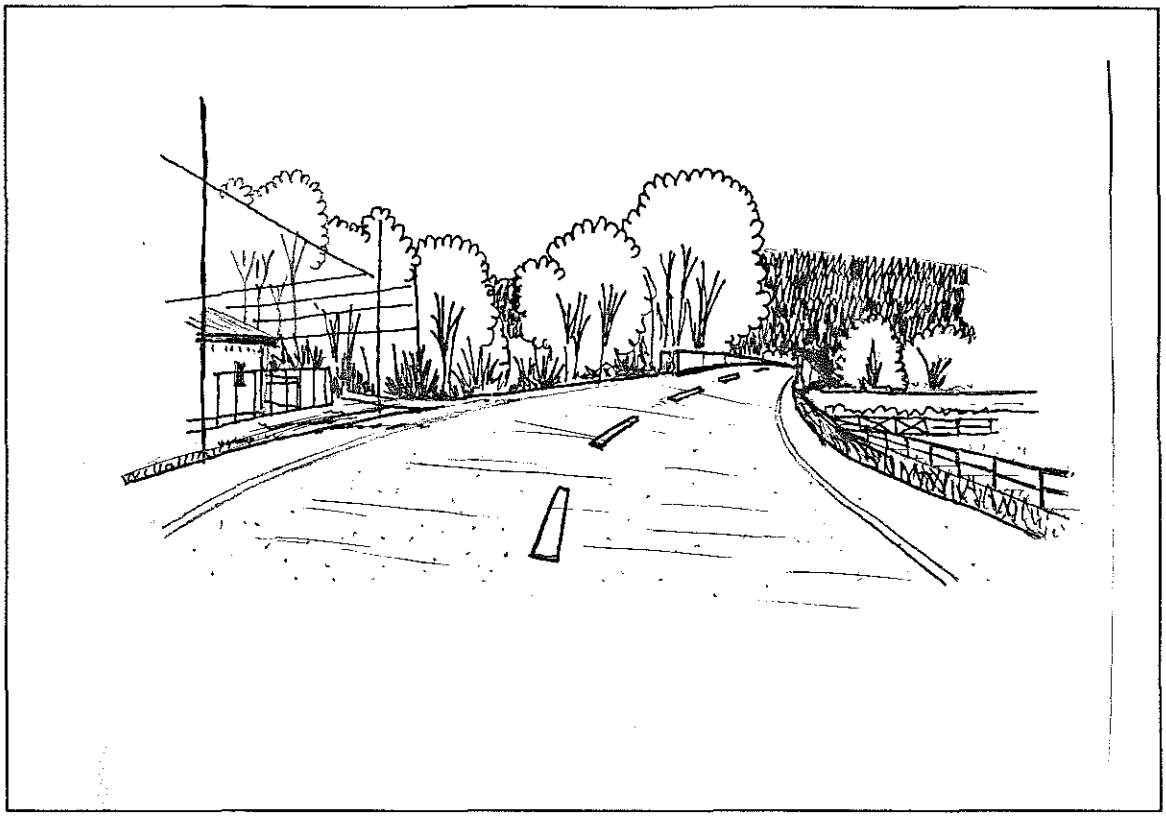
Figure 4-22
Looking East along South Avenue
Existing and Proposed



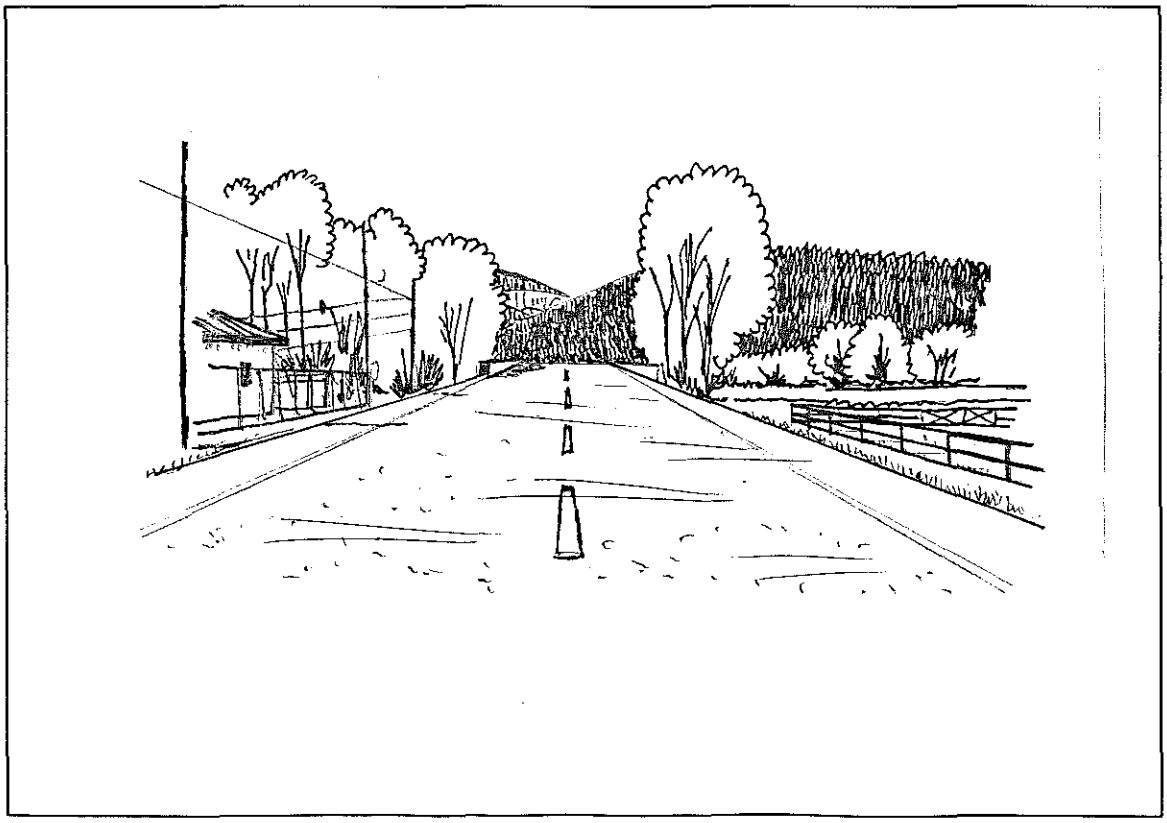
Existing Conditions

North

Figure 4-23a
Looking West along South Avenue



Alternative South 1



North

Alternative South 2

Figure 4-23b
Looking West along South Avenue

- Revegetate all exposed cut and fill areas or areas denuded by construction activities.

- Plant vegetation along the right of way using appropriate stock; particularly vegetation displaying obvious architectural purpose such as hedges or hedge rows.

- Relocate any fences or landscaping elements to an appropriate place outside of the right of way.

- Bury any utilities that may have to be relocated during or after construction.

- Apply the color and finish of any new construction such as bridge substructures, barriers, or retaining walls in an aesthetically-sensitive manner.

- Implement dust abatement measures as described in Section 4.8.3.

4.17 Construction Impacts

There are several impacts associated with the construction of the project. They include:

- Noise. The operation of various types of machinery such as heavy earth moving equipment, paving equipment, power tools, pile drivers, and trucks in close proximity to residences will create an undesirable noise condition.

- Fugitive Dust. The operation of heavy equipment on exposed soils may result in creating fugitive dust.

- Erosion and Sedimentation. Runoff from areas of exposed soils may affect water quality of the river. Sedimentation may occur when eroded soils collect in areas below the construction site.

- Water Quality. Concrete construction within the river channel creates an opportunity for the release of contaminants to the watershed. Petroleum materials can be spilled during the operation and maintenance of construction equipment.

- Visual. Stockpiles of earth materials, stacks of construction materials, and parked equipment may cause a temporary visual impact to the residents within the project area.

- Traffic. Traffic patterns may be disrupted for travelers who utilized the existing Maclay Bridge and River Pines Road. Construction along River Pines Road will interfere with traffic on that road.

- Access. Access to the residences along South Avenue may be disrupted during construction along the roadway.

Construction impacts will be mitigated through implementation of control measures during construction. Careful documentation of the mitigation measures must be made within the plans and specifications. It is essential that the construction inspection and administration enforce the adherence to those mitigation measures contained in the construction documents. These measures include:

- Limit noise-generating construction activities to occur between the hours of 7:00 AM and 5:00 PM near residential areas to minimize noise impacts.

- Require the use of mufflers on construction equipment such that noise emitted is no louder than it would be if the equipment were purchased new.

- Require the use of appropriate dust suppression measures to minimize dust impact associated with the construction activities. This can include the use of dust palliatives such as water or magnesium chloride.

- Require erosion control methods, such as temporary and permanent seeding and mulching within a reasonable time after the soil is disrupted.

- Require sedimentation control methods, such as check dam, silt fences, and sedimentation basins along drainage routes and adjacent to sensitive areas.

- Require that the contractor implement an approved water quality control plan, so that appropriate measures are in place in the event of an accidental spill.

- Require that appropriate dewatering measures are implemented such that water removed from trenches and foundation construction areas are not released without proper treatment.

- Designate a suitable construction staging area, and require that the contractor store materials and equipment within that area to minimize the visual impact.

- Develop construction staging and traffic control plans that minimize the disruption to traffic and access.

- Provide adequate public notice and maintain coordination with area residents to keep the public appraised of the construction progress and to warn of closures and detours.

5.0 Comments and Coordination

Several methods of communicating with the public were utilized during the course of this study. The goals of the project communication program are to:

- provide information regarding the study.
- develop concepts and alternatives.
- determine issues.
- communicate ideas and concepts that are considered.
- receive comments on the study and project.

5.1 Public Involvement Activities

The public involvement activities to this point in the study have involved public workshops, Advisory Committee meetings, Citizen Advisory Committee meetings, small group meetings, newsletters, and meetings with individuals. Detailed meeting minutes and copies of newsletters are included in Appendix B. The following is a summary of the public involvement activities:

- Public Workshops. To date, a series of four public workshops has been held. Each of the meetings consisted of either work sessions or an open house, in addition to a short presentation on the status of the study. Several members of the project team attended each of the meetings to provide an ample number of facilitators to answer questions and to receive comments. The public workshops are described as follows:

  - Public Workshop No. 1. This meeting was held on August 3, 1993. The purpose of this meeting was to develop the project scope, to determine issues, and to hear suggestions on possible alternatives. The meeting consisted of a short presentation, a subsequent question and answer period, and a work session. During the work session, those who attended divided into groups of 8-12 persons. Each group had a facilitator who recorded issues and comments, one aerial photo of the area, and markers to sketch possible alignments.

  - Public Workshop No. 2. This meeting was held on October 6, 1993. This meeting consisted of an open house preceding the meeting, a short presentation, a question and answer period, and a resumption of the open

house. Graphics were utilized to convey issues, alignments, and work progress. The Universe of Alternatives was presented, as well as the Refined Alternative. Specific questions and comments from previous meetings were addressed. Issues and comments voiced at the meeting were recorded.

- Public Workshop No. 3. This meeting, held on November 15, 1993, consisted of an open house preceding the meeting, a short presentation, a question and answer period, and a resumption of the open house. A draft of the Purpose and Need Statement as well as a draft summary of the alternatives analysis were distributed at the meeting. A summary of the work that was conducted since the previous meeting was reviewed and the recommended alternative was presented. Comments and issues were heard and recorded.

- Public Workshop No. 4. This meeting was held on February 23, 1994. An open house was held prior to the presentation where people could view graphics, ask questions, and provide comments. A short presentation reviewed the study process and provided a summary of the Environmental Assessment. The meeting returned to an open house format where questions and comments were recorded.

- Advisory Committee (AC). This committee was formed to provide input from interested agencies into the development and results of the study. Meetings were held at key points during the study when key decisions are made or to review the progress of the project team. Detailed meeting minutes from each of the AC meetings are included in Appendix B. The following agencies or offices were represented on the AC:

  - Missoula County Commissioner's Office
  - Missoula County Surveyor's Office
  - Missoula County Engineering
  - Montana Department of Transportation
  - Missoula Health Department
  - Montana Department of Fish, Wildlife, and Parks
  - Missoula Office of Community Development

- Citizen's Advisory Committee (CAC). This committee was formed of interested residents within the project study area. The project team reviewed the locations of the residents to assure that the representatives were distributed throughout the study area. The CAC decided to limit the size of the committee to ten people, plus alternates who could attend should a CAC member not be able to attend. The purpose of the CAC is to provide a small group format to provide input into the study. The CAC acts as a "sounding

board" that bring issues of the neighborhood to the meetings. Detailed meeting minutes of the CAC meetings are provided in Appendix B. A summary of some of the CAC's recommendations are listed below:

- Consider traffic patterns and continuity with Missoula Transportation Plan.
- Consider impacts on the river including fisheries.
- Consider impacts on the riparian areas and wildlife.
- Consider how a new bridge would affect development on the west side of the river.
- Consider air quality aspects of the each alternative, including additional traffic along Blue Mountain Road with the No-Build alternative.
- Consider additional response times for emergency vehicles in the No-Build alternative.
- Maintain access to the west side of the river.
- Consider impacts of increased traffic and additional trucks in the neighborhood.
- Consider costs of the project.
- Consider the social impacts on the adjacent neighborhoods.
- Consider how the location of the bridge will affect property values.

- Newsletters. Several Newsletters have been distributed. The purposes of these newsletters are to provide information and announce upcoming meetings. The initial mailing area included the entire project study area west of Reserve Street. Subsequent mailings were limited to those people who attended the public meetings or expressed an interest in the project. The newsletters are included in Appendix B.

5.2 Responses to Public Concerns

The following responses are provided to major issues raised by the public at the individual meetings and at the open house. Detailed responses will also be provided at the public hearing to be held after the EA has been available for public review.

1. Who will pay for a new bridge? *Response: The county will pursue special project demonstration funding from Congress.*

2. Who will benefit from a new bridge in the short and long terms? *Response: Existing and future residents of the west side area, services (fire, bus, sheriff, commerce), and area recreation users.*

3. Can the existing bridge be rebuilt as one or two lanes? *Response: No, there are structural several components of the existing structure that limit the bridge*

capacity. The existing geometry of the bridge approaches are also substandard and hazardous. To correct these problems and meet current flood plain requirements it will be necessary to rebuild the bridge in a different configuration.

4. How can the existing bridge be used? *Response: As a bicycle/pedestrian crossing, recycled, or used as scrap.*

5. How are load limits determined for bridges? *Response: An inspection is conducted for the bridge, and structural analysis is performed to determine the capacity of the bridge.*

6. How is right-of-way for a new bridge obtained? *Response: The county acquires right-of-way through outright acquisition from landowners or by condemnation. Condemnation is pursued as a last resort.*

7. How will a new bridge affect adjacent property values? *Response: A new bridge could benefit property values through improved personal access and access for services.*

8. How is this project related to the long-range transportation plan? *Response: The alternatives' analysis considers the level of conformity to the long-range transportation plan.*

9. Are there plans for a west side bypass using Blue Mountain Road and connecting to the Wye? *Response: A west side bypass is not included in the existing long-range transportation plan.*

10. Are there plans for new infrastructure and annexation west of the river? *Response: Currently there are no plans for additional infrastructure or annexation of any areawest of the river at this time.*

11. Will a new bridge stimulate development? *Response: A new bridge could accelerate development and the no-build alternative could decelerate development west of the Bitterroot River.*

12. How can recreation misuse (jumping and diving from the structure) be discouraged on the existing Maclay Bridge and on a new bridge? *Response: Once the existing bridge is closed to vehicular use, it could be removed, or altered to discourage misuse. A new bridge will be designed to discourage misuse.*

13. Can a new bridge be a toll bridge? *Response: No, the county cannot legally operate a toll facility.*

14. What effects will different alternatives have on the Brooks/South/Russell intersection? *Response: The no-build alternative will likely have the largest impact on the Brooks/South/Russell intersection since more people will access the west side by US 93 and Blue Mountain Road.*

15. How are insurance rates affected by each alternative? *Response: According to a representative of the Missoula Rural Fire District, property insurance rates increase for every five minute increase in emergency response time.*

16. Is the existing Maclay Bridge a historic structure? *Response: No.*

17. What do we want to achieve? *Response: Continued access for residents and services and improved safety for bridge users.*

18. Who makes the final decision about the preferred alternative? *Response: The project team makes a recommendation to the county commissioners, who will make the final decision.*

19. How much of the bridge structure and approaches are determined by federal regulations? *Response: All construction components need to meet current design standards that are determined by the American Association of State Highway and Transportation Officials (AASHTO).*

20. What is being done to preserve Maclay Bridge in terms of weight enforcement? *Response: A 10-ton weight limit is posted at each end of the bridge.*

21. How much would a new bridge cost? *Response: The conceptual construction cost estimate for the preferred alternative is $4.3 million.*

22. Could a reserve fund mechanism similar to that used on the Kona Ranch Bridge be used for this bridge? *Response: The reserve fund mechanism that was used for the Kona Ranch Bridge is not available for a project of this size today.*

23. What is the planned size of the new bridge? *Response: The bridge will have enough width for 2-3.65 meter (12 foot) traffic lanes, 2-1.83 meter (6 foot) shoulders for emergency parking and bicycles and a 5 foot separated pedestrian walkway.*

24. How will access at the west end of South Avenue be maintained? *Response: The access roads and approaches will be elevated to meet the new grade of South Avenue.*

25. How much additional right-of-way will be required? *Response: The amount of required right-of-way varies with the amount of earthwork that is needed along the roadway (refer to section 4.10 of the EA).*

26. Statement that, "a new, federally funded one-lane bridge cannot be built", is incorrect; look at the Buffalo Rapids Bridge, it is new, federally funded, and a one-lane bridge. *Response: The traffic volumes on the Buffalo Rapids are much less than those on the Maclay Bridge. The current estimated traffic volume on the Buffalo Rapids Bridge is 50-75 vehicles per day (vpd), and the projected 2010 traffic volume is 50-100 vpd. The current AASHTO criteria (which post-dates the Buffalo Rapids Bridge design) does not allow one-lane bridges for traffic volumes over 50 vpd. The current traffic volumes across Maclay Bridge are 1,900 vpd, and the projected 2015 traffic volumes are 3,300 vpd.*

27. Speed problems need to be studied further; people drive over the speed limit at over 50 mph on neighborhood streets. *Response: Speeds can be influenced by street cross-sections. A possible measure to slow traffic would be to install curb and gutter in residential areas. Curb and gutter sections and the visual transitions in and out of these sections tend to slow motorists; however, they do not directly restrain drivers' speeds.*

27. The County will not accept the liability of building a one-lane bridge, document this liability that the County would incur. *Response: By constructing a facility that does not meet current engineering standards, the County could be held liable for accidents on or near the new structure.*

28. How much fill will be needed for the bridge approaches on South Avenue (height and width)? *Response: The width of the roadway will include 2-3.65 meter(12 foot) lanes, 2-1.83 meter(6 foot) shoulders and provision for a pedestrian walkway. The height will vary but the roadway must be above the level of the 100-year water surface to maintain emergency access.*

29. What is the height of the bridge? *Response: The details of the bridge design have not been determined, but the bridge must be a minimum of 0.61 meter(two feet) above the 100-year water surface so debris may float under it.*

30. Are there plans to improve Blue Mountain Road? *Response: The project for paving Blue Mountain Road is included in the Missoula County Capital Improvement Program.*

31. What would be the load limit of the new bridge? *Response: The new bridge will be designed to carry legal highway loads, therefor, additional load restrictions will not be imposed on the bridge.*

32. How is speed factored into the design for the new bridge? *Response: AASHTO provides guidelines on design speed based on the traffic volumes. The design speed for the volumes on the Maclay Bridge would be 72 kph (45 mph). The actual posted speed limit is not directly related to the design speed.*

33. How can large trucks be restricted from using the new bridge and traveling through the neighborhoods, past the schools, etc.? *Response: Truck traffic cannot be restricted but it can be discouraged by using a different street cross section, such and curb and gutter.*

34. Is any of the evaluation criteria weighted more than others, or are they all equally valued? *Response: The evaluation of the alternatives is not a scoring. Each of the alternatives is evaluated and those that result in the most substantial level of impact or do not meet the need of the project are eliminated.*

35. How is the increase in out-of-direction travel determined? *Response: Out-of-direction travel is based on the existing travel patterns determined by traffic counts at several intersections. A result of those traffic counts is 70% of thhe trips across Maclay Bridge use South Avenue. A comparison of the alternatives resulted in different travel distances. Those travel distances are based on the majority of drivers (not everyone will make the same decision).*

36. Building the bridge will generate traffic that does not use the bridge now. *Response: The construction of the bridge alone will generate little or no additional traffic. The additional traffic will be a result of the new development as planned in the Comprehensive Plan.*

37. Traffic will be generated on Blue Mountain Road with the opening of a new bridge. *Response: Travel times have been evaluated for this route to identify potential trips that would divert from US 93. From this analysis it was determined that to divert from US 93 along Blue Mountain Road to Missoula would not result in time savings. For traffic traveling from south of Missoula into town, the distance from the intersection of US 93 and Blue Mountain road to the intersection of South Avenue and Reserve Street along US 93 and Reserve Street in approximately 4.7 kilometers (2.9 miles). The measured travel time along that route is approximately 4 minutes. The alternative route between the same two intersections along Blue Mountain Road and South Avenue is approximately 10.0 kilometers(6.2 miles). The measured travel time along this route is approximately 9 minutes 20 seconds. Due to the additional distance and travel time for the Blue Mountain Road/South Avenue route it is not anticipated that motorists will choose it as an alternative route into Missoula from the south.*

38. Increased traffic on the R/O/B/B intersection will detract from the safety at that intersection. *Response: The accident history indicates that the majority of the accidents are related to collisions with fixed objects. This EA has recommended that fixed objects be removed from the clear zone.*

39. Traffic from gravel trucks and lumber trucks will be generated with the opening of a bridge without load restrictions. *Response: The traffic forcasts contained in this EA assume that 2% of the future traffic will be trucks. This estimate is consistant with information gathered through coordination with local truck operators.*

5.3 Agency Coordination

Contacts were made with the following agencies or groups regarding this project:

- USDA (Soil Conservation Service)
- USDA (Forest Service)
- US Fish and Wildlife Service
- US Army Corps of Engineers
- Montana Department of Transportation
- Montana Department of Health and Environmental Sciences
  - Solid and Hazardous Waste Bureau
  - Montana Air Quality Bureau
  - Montana Water Quality Bureau
- Montana Department of State Lands
- Missoula City/County Health Department
- Environmental Protection Agency
- Missoula Office of Community Development
  - Floodplain Administration
  - Transportation Planning
- Montana State Historic Preservation Office
- Montana Natural Resource Information System and Natural Heritage Program
- Montana Department of Fish, Wildlife, and Parks
- Missoula County Rural Planning Office
- Missoula Rural Fire District
- Missoula County Surveyors Office
- Community Medical Center
- Target Range Public School District
- Beach Transportation
- Missoula Irrigation District
- Big Flat Irrigation District

5.4 Remaining Public Involvement

Contact will be maintained with local individuals, area businesses, and community groups throughout the remainder of the study and design process.

A Notice of Availability of the EA and planned date for the public hearing will be mailed or delivered to all parties on the project mailing list and advertised in the local newspapers. A notice will be published in the *Missoulian* to inform the general public of the hearing. The date of the public hearing will be advertised 15 days in advance of the hearing.

At the public hearing, the general public will be given the opportunity to provide official comment on the project. Written comment, to be included as an official part of the record, will be accepted during the ten calendar days following the hearing.

Appendix A: Agency Coordination Letters

MISSOULA COUNTY

RURAL PLANNING OFFICE
200 W BROADWAY ST
MISSOULA MT 59802-4292
(406) 721-5700

June 3, 1993

Scott Richman
CRSS
123 West Spruce
Missoula, MT 59802

Dear Scott:

I have completed an initial review of the sites in question for the Maclay Bridge project in accordance with the Missoula County Inventory of Conservation Resources. My investigation has shown the following conservation values to be in the vicinity of the project:

1) The area is designated as **scenic open space** as seen from roads, rivers and creeks.
2) **Bald Eagles** use area north of the site as **wintering grounds.**

Any project in the vicinity of the river should be done in as environmentally sound way as possible, taking in account the riparian vegetation and habitat values and as well open space concerns. Any fishery information should be addressed to MT Department of Fish, Wildlife & Parks Region 2, Missoula.

Please let me know if I can be of any further assistance.

Sincerely,

Tim Hall
Natural Resource Specialist

DEPARTMENT OF
HEALTH AND ENVIRONMENTAL SCIENCES
Solid and Hazardous Waste Bureau
Underground Storage Tank Program
(406) 444-5970

MARC RACICOT, GOVERNOR

FAX # (406) 444-1499

STATE OF MONTANA

OFFICE LOCATION 836 Front Street Helena, Montana

MAILING ADDRESS: Cogswell Building Helena, MT 59620

July 9, 1993

CRSS
Attn: C. Scott Richman
123 West Spruce
Missoula, Montana 59802

Dear Mr. Richman:

We have reviewed your letter requesting information from our agency. You have indicated that you do not intend to use the information provided as a mailing list, or for unsolicited mass mailings, house calls, distributions or telephone calls. Therefore we are able to release the enclosed information to you.

Enclosed please find a copy of the Montana state law which prevents the distribution or sale of mailing lists by agencies. 2-6-109 MCA provides that no list of persons prepared by an agency may be used as a mailing list without first securing the permission of those on the list. We are sending you the enclosed lists in reliance on your written statement that you will not be using thiese list for a mailing or soliciting list of any kind.

Thank you for your interest in our program.

Sincerely,

Karen L. Frisbie

Karen L. Frisbie
UST Program

Enclosures - UST List dated May, 1993
LUST List dated June, 1993
2-6-109 MCA

MISSOULA COUNTY

OFFICE OF THE SURVEYC
200 W BROADWAY
MISSOULA MT 59802-42
(406) 721-57

TO: HORACE S. BROWN, COUNTY SURVEYOR

FROM: FRED L. CRISP, PROJECT ENGINEER, BRIDGES

DATE: JULY 26, 1993
S93-175

RE: MACLAY BRIDGE APPRAISAL
W.O. #93-3002

Missoula County contracted Morrison & Maierle, Inc. in 1975 to inspect and evaluate Maclay Bridge. That inspection revealed that the steel trusses were in relatively good condition and that the steel stringers and floor beams were the members that limited the capacity of the bridge. They recommended that the bridge be posted with a 10 ton load limit and a speed limit of 15 miles per hour. They also noted that considerable streambed material had been removed from around the piers by high flows.

The Montana Department of Transportation contracted the firm of Stensatter & Druyvestein to inspect the bridge again in 1979 with funds provided by the Surface Transportation Act. Their findings confirmed the previous evaluation. Though the steel trusses and other members had not suffered much from natural deterioration and were in good condition, the capacity of the bridge was limited by the size of the stringers and floor beams to around 10 tons. They estimated the practicable remaining life of the structure to be 15 years.

It is important to note that both the Montana Department of Transportation and the engineering firm of Stensatter & Druyvestein made an appraisal of the bridge relative to the highway system and functional classification of which it is a part. Their appraisals were in general agreement that Maclay Bridge meets only the minimum tolerable limits to be left in place as is.

Missoula County routinely inspects the bridge and performs maintenance. The structure was painted and a new deck installed in 1977. It was redecked again in 1987. The deck is scheduled to be replaced again in August of this year. The increasing traffic volume reduces the life expectancy of timber decking.

The current 10 ton load limit restricts the passage of school buses, fire fighting equipment, garbage trucks, road maintenance equipment, and many commercial vehicles. The narrow 15 foot roadway width is particularly hazardous considering the high incidence of simultaneous bicycle and pedestrian and vehicle use.

MISSOULA COUNTY

OFFICE OF THE SURVEYO
200 W BROADWAY S
MISSOULA MT 59802-429

(406) 721-570

July 30, 1993
93-186

Bill Ettenger
CRSS Civil Engineers, Inc.
123 W. Spruce St.
Missoula, MT 59802

Dear Bill:

I have forwarded a copy of the attached letter to Nick Kaufman. This letter covers the history of the bridge as known to Fred Crisp, our Project Engineer, Bridges.

I would like to expand the scope to the traffic use and problems.

The bridge itself is a one lane below standards structure. The 10 ton load limit is handled by the bridge at this time. Any further deterioration of the bridge support may require a 5 ton limit. At that time the bridge will be closed to vehicular traffic.

This bridge is the shortest distance to access to Big Flat, O'Brien Creek and part of Blue Mountain areas. Once the bridge is closed it will greatly increase response times for emergency vehicles, lengthen the trip for citizens who work at the Community Hospital and school busing to the Target Range School.

The need is definitely there for the replacement of this bridge. The replacement will reduce the liability to the County, as this is a one lane below standard bridge. It will be able to handle the additional traffic in the area in a much safer way.

The road geometrics also are not very good. There is a 90 degree left turn at the west end of the bridge. In the winter time vehicles slide off this turn into the borrow ditch. There is a sharp turn to the south of the bridge also. The road is narrow and the sight distance is limited further adding to the non safe condition of the roadway.

Replacing this bridge will provide a much safer crossing for the public and it will move the traffic more smoothly into the area. If the bridge is not replaced than it will eventually be closed. Therefore, a new bridge that is at least two lanes in width will fulfill the purpose and need for this area.

The air quality will also be improved because on a one lane bridge, one lane of traffic must yield to the other until the bridge is clear. This requires idling of the traffic waiting to cross.

If you have any questions that I need to address, please contact me at 721-5700 extension 3275.

Sincerely,

Horace S. Brown
County Surveyor

HSB/jn

Enclosure

825 Mount Avenue
Missoula, Montana 59801
(406) 549-6121
FAX (406) 549-5445

C. Scott Richman
CRSS
123 W. Spruce St.
Missoula Mt. 59802

July 30, 1993

Re: MaClay Bridge

Dear Mr. Richman,

Beach Transportation has served the Big Flat & O'Brien Creek area's for many years. During the school year our school buses cross the MaClay bridge 14 times per day. We have been authorized by Fred Crisp of the Office Of The County Surveyor to exceed the current 10 ton limit by 1/2 ton. The empty weight of our buses are 17,440 lbs. and with a fully loaded bus we are close to the maximum limits.

When approaching MaClay's bridge from west to east we must visually look to make sure no other traffic or pedestrians are on or approaching the bridge. Depending on the above conditions you can wait up to a couple minutes to cross. Because of the length of the school bus we must cross over the center line to make a straight approach. This is not a major problem but it creates one more safety concern.

Beach Transportation feels that if the bridge was condemned and not replaced this would add considerable more time, distance, inconvenience and costs in transporting students. In the event of a emergency situation, there is no question that the need for a new bridge in this area is a MUST.

Sincerely,

Bob Beach

Robert D. Beach
Beach Transportation

MISSOULA RURAL FIRE DISTRICT
2521 SOUTH AVENUE WEST MISSOULA, MT 59801 (406) 549-6172

August 2, 1993

C. Scott Richman
CRSS
123 W. Spruce Street
Missoula, MT 59802

SUBJECT: Maclay Bridge

Dear Mr. Richman:

Missoula Rural Fire District is charged with answering emergency calls of a fire and medical nature throughout its response area. The nature of these calls generally dictates that a timely response is required. In some cases, just a few minutes can make a big difference.

The area served via the Maclay Bridge, Big Flat, O'Brien Creek and Blue Mountain, now must be accessed by going around Blue Mountain Road. The 10 ton load limit makes no provisions for 20+ tone fire apparatus. This access adds five minutes or more to our response times. This also puts our firefighters driving through a more congested corridor.

We feel our responses to the area west of the Maclay Bridge would be greatly improved, from a fire and life safety standpoint, should we gain access to the area via the Maclay Bridge or a suitable replacement.

Sincerely,
MISSOULA RURAL FIRE DISTRICT

Bill Lindstrom

Bill Lindstrom, Interim Fire Marshal

cfs

Community

Community Medical Center
2827 Fort Missoula Road
Missoula, MT 59801
(406) 728-4100
TDD: 728-6724

August 09, 1993

C. Scott Richman
Project Planner
CRSS
123 West Spruce St.
Missoula, Montana 59801

Dear Scott;

Community Medical Center Emergency Department serves the emergent medical care needs of residents of the O'Brien Creek, Big Flat, and Blue Mountain residential areas. Although I cannot represent the ambulance company, my greatest concern about loss of the Maclay Bridge is the lack of emergent care access by first responder vehicles. In our business, there are precious few minutes to restore a heart rhythm or to control excessive bleeding. Lack of rapid access across the river will be a detriment to the safety of those requiring emergent intervention. While access for this growing population can be obtained by other elongated methods, the ease of access and speed of response will be more difficult and lengthy. As that area continues to grow, the difficulties of providing RAPID access will increase as well. My concern increases as I consider the alternate routes to these victims - neither the Big Flat Road nor Blue Mountain Road are easily navigated.

I am unable to provide you with exact figures as to the number of patients we treat in that particular geographical location but my sense is that we see MOST patients seeking EMERGENT care and a large percentage of elective patients. Arrow Ambulance may be able to provide you with exact numbers of Ambulance calls.

If I can provide any furthur opinion or documentation, please feel free to call me.

Sincerely;

Kim A. Powell, R.N.,CEN
Director, Emergency Services

MISSOULA COUNTY

SHERIFF'S DEPARTMENT
200 W BROADWAY ST
MISSOULA MT 59802-4292

Phone (406) 721-5700
Fax (406) 721-8575

August 12, 1993

C. Scott Rickman
CRSS
123 W. Spruce St.
Missoula, Mt. 59802

Dear Sir,

This officer has been continiously employed by the Missoula Co. Sheriff Department since 1975. We have been handling problems at the Maclay bridge every year since that date.

Maclay bridge is a one lane bridge with overhead structure. Whether natural or due to the placement of the bridge there is a fairly deep pool under the bridge making this a prime diving area especially with the overhead metal structure. Most hot spring and summer days this is a congregation area for area teenage swimmers. This recreational area has prompted a need for a permit parking district in the area and a county resolution against fishing, diving, climbing and jumping from the bridge. This last resolution came about due to confrontations on the bridge between motorists and swimmers. These confrontations can be summarized as verbal assault to physical assaults to vandalism as motor vehicles attempt to negotiate the bridge. These problems have forced the department to authorize overtime during the summer months at a large cost to the county.

The above situation is very dangerous and has the continued potential for physical injury. A number of drowning have also occurred in the last 20 years due to undercurrents and at times dangeorus personal conduct.

From a practical point of view other than the above problem the present structure is adequate for this department to fulfill it's law enforcement mission to protect lives and property in the O'Brien creek and Big Flat area. Fire and emergency response for other than law enforcement problems is affected by this inadequate bridge structure due to inability of Rural Fire to use the bridge because of weight limits. I have no firm numbers on this departments use of the bridge as to number per day etc. I can however say as the Captain of the Patrol Division that this bridge/ a bridge is necessary in this approx. location to fulfill our mission. Response times coming from Blue Mountain/93South or Kona Ranch road would not be acceptable in many situations in an emergency. This area is presently assigned to our Zone 3 car. If this bridge were closed the calls would be better handled by a zone 1 or zone 2 car increasing miles and response times. Request for service have increased, due to development in the area west of the bridge.

Capt. Don Morman

Don Morman

Target Range Public School

District #23

4095 South Avenue West • Missoula, Montana 59801

406-549-9239

DATE: August 12, 1993

TO: Scott Richman

FROM: George Bailey, Superintendent
Target Range School

RE: McClay Bridge

Between 120 - 130 students will be affected by the removal of the McClay Bridge. Each student will have between 40 minutes to 1 hour added to their bus ride.

Western Materials

P.O. Box 2790 • Missoula, Montana 59806 • (406) 543-8218

August 13, 1993

Scott Richman
CRSS
123 West Spruce
Missoula, Mt 59801

Re: McClay

Dear Scott:

Western Materials presently cannot use the McClay bridge due to the weight restrictions. All concrete, gravel and asphalt deliveries are accessed thru Blue Mountain Road.

Access thru Blue Mountain causes enormous dust problem for the Missoula Valley.

To accommodate present and future traffic requirements, it is a must to replace the bridge.

Any new bridge should accommodate andy loads that are legal on the connecting roads.

Very truly yours,
WESTERN MATERIALS

Dave ORBE

Memo

To Maclay Bridge Project File

From Scott Richman

Re Project Purpose and Need

Date August 16, 1993

Copies Ettenger, Worrall, Kaufman, Neelan, Lostracco, Brown

Scott Beach, with Beach Transportation, called today to confirm our receipt of a letter from Robert Beach dated July 30, 1993 and to forward information from the Missoula County School Superintendent and Principal of Big Sky High School in lieu of their letters.

I had sent letters to Mary Vagner, County Schools Superintendent, and Darlene Smith, Big Sky High School Principal, requesting information about the number of students who live west of the Bitterroot River and who require bus service to Target Range and Big Sky schools.

Ms. Vagner and Ms. Smith each forwarded these letters to Mr. Beach, and he furnished the following information.

1. There are three buses routed to and from Target Range School west of the river.

2. Two of the Target Range buses carry 50 - 60 students on each bus. The third bus carries approximately 30 students.

3. One bus, carrying approximately 30 students, serves Big Sky High School students west of the river.

csr/mbpn

United States Department of the Interior

FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
100 N PARK, SUITE 320
HELENA MT 59601

IN REPLY REFER TO:

TAKE PRIDE IN AMERICA

September 7, 1993

Mr. C. Scott Richman
Carter-Burgess
123 W. Spruce
Missoula, Montana 59802

Dear Mr. Richman:

We have received your letter on August 19, 1993 regarding your proposed work on Maclay Bridge near Missoula, MT.

Threatened or endangered species which may occur in the project areas include bald eagles (Haliaeetus leucocephalus) and peregrine falcons (Falco peregrinus). However, based upon the nature of the proposed work and the locations of the project, we do not expect any project related impacts to threatened or endangered species.

Regarding your request for National Wetlands Inventory (NWI) Maps, you may call 1-800-872-6277 to place an order. The NWI teams were in Montana during the summer of 1992 ground truthing their maps, so they should be completed by now. When you order you must use USGS quad map designations.

We appreciate your efforts to consider endangered species in your project planning.

Sincerely,

Robert M. Hazlewood

Dale R. Harms
for State Supervisor
Montana State Office

cc: Kalispell ES Suboffice

MEMO

To **Maclay Bridge Site Selection Study Team**

From **Scott Richman**

Re **Telephone Conversation with Rural Fire District Marshall**

Date **September 13, 1993**

Copies **Ettenger, Worrall, Lostracco, Neelan, Kaufman**

The following presents a summary of a recent telephone conversation with Bill Lindstrom, Marshall for the Missoula Rural Fire District.

1. The fire district's large fire engine exceeds the weight load limit for Maclay Bridge and therefore, must use Reserve St. - Highway 93 - Blue Mountain Rd. as its fastest route to the neighborhoods located west of the Bitterroot River.

2. A new bridge in the area would save at least six minutes in emergency response time for the tanker engine.

3. The remaining fire district vehicles are able to use Maclay Bridge. The route used by these vehicles is South Ave. - Humble Rd. - North Ave.

4. Bill Reed, the Missoula Rural Fire District Chief, has specific information pertaining to property insurance rates as a function of fire engine response time. Insurance rates increase incrementally for every five minutes delay in fire engine response time.

5. Bill was not familiar with any potential hazardous materials sites or hazardous material spills in/near the study area. He suggested that we contact the State Department of Health and Environmental Sciences (I have done this also).

csr/mbrfd.993

MEMO

TO: Maclay Bridge Study Team
FROM: Scott Richman
RE: September 13 Conversation with Gary Botcheck
DATE: September 20, 1993
COPIES: Brown, Ettenger, Worrall, Lostracco, Neelan, Kaufman

The following presents a summary of my conversation with Gary Botcheck of the Missoula County School Board regarding the Maclay Bridge Site Selection Study.

1. School Board meetings are held the first Monday of each month.

2. I informed Gary of the study's progress to date; including meetings (AC, CAC), newsletters, and the current data collection activities.

3. Gary noted the School Board is especially concerned about the impact that no bridge, or a new bridge would have on school children, particularly those who walk or ride bikes.

4. He estimates that about 75 percent of Target Range students walk or ride bicycles to/from school, while about 25 percent ride the bus or are driven.

5. The study needs to consider the movement of children between home and school with respect to the different alternatives.

6. If a South Avenue extension is the select alternative, speed limits, sidewalks, crosswalks, and traffic signals need to be considered as means of improving safety conditions around the trailer park on South Avenue West.

7. The intersections of South/Clements and North/Clements are two locations where pedestrian-activated traffic signals may be needed.

8. Gary recommends that the existing bridge be maintained as a pedestrian/bicycle bridge after it is closed to vehicular traffic.

csr/gbcsb1.wp

MEMO

TO: Maclay Bridge Study Team
FROM: Scott Richman
RE: Purpose and Need
DATE: September 20, 1993
COPIES: Brown, Ettenger, Worrall, Lostracco, Neelan, Kaufman

1. In response to a suggestion by Dale Dreyer who is on the Maclay Bridge Study CAC, I contacted Stone Container (large paper-product mill in Frenchtown west of Missoula) regarding employees who use Maclay Bridge to travel to/from work at the mill.

2. Shirley Opie, Stone Container's Human Resource Representative, could not give me the number of employees living in the area just east of Maclay Bridge, but she mentioned the study and listed the C & B Missoula office phone number in their newsletter last week.

3. As of Thursday, September 16, 1993, ten Stone employees have expressed concern about the removal of Maclay Bridge.

4. Nine of these employees want the bridge to remain in its existing location, and one wants it moved to another location.

5. Two Stone Container employees, Court Lee and Jim Haaglund, have also contacted me about the study. I added their names to the project mailing list.

6. Mr. Lee was very vocal about the need for a bridge near the existing structure. He feels that the bridge replacement should be a high priority among Missoula's Public Works needs. County funds currently being used for "unnecessary" paving (i.e. North Avenue) should be put toward bridge construction.

7. Mr. Lee, along with many of his neighbors on the east side of the Bitterroot River, uses the bridge to get to/from work each day.

8. He also noted that many residents in his area use the bridge to access the shooting range at the Blue Mountain Recreation Area. This is one of the few remaining areas of public land that have not enacted recent bans on the use of firearms.

csr/mbstone1.wp

Montana Department
of
Fish, Wildlife & Parks

3201 Spurgin Rd.
Missoula, MT 59801
October 21, 1993

Scott Richman
Carter/Burgess
123 W. Spruce
Missoula, MT 59802

RE: Wildlife and McClay Bridge Site Selection Study

Dear Mr. Richman:

The following is a wildlife inventory and assessment for the McClay Bridge Site Selection Study, prepared at the request of Scott Richman of Carter/Burgess.

The inventory of species was prepared on short notice. While fairly accurate, the inventory is incomplete. It is based only on casual observations made in the general area over the past few years.

General Description of Habitat

The River Bottom/Flood Plain habitat includes the watercourse of the Bitterroot River, its banks, the associated flood plain, a slough and two islands. Vegetation is generally comprised of cottonwoods, ponderosa pine, river hawthorne, birch, willows, redosier dogwood, and sedges. Grass meadows are sometimes in close association with woody vegetation. Some old growth cottonwood/ponderosa pine stand of particular significance to several bird species occurs near the river banks. This is a remanent stand, once part of a more extensive vegetative community.

Inventory

The following is an abbreviated list of representative species associated with this habitat (see tables for additional species):

Birds-osprey, bald eagle, great blue heron, Canada goose, northern oriole, veery, redeyed vireo, American redstart, belted kingfisher, Lewis's woodpecker and pileated woodpecker (Table 1A).

Mammals-white-tailed deer, mink, beaver, northern flying squirrel, yellow-bellied marmot, red fox, coyote (Table 1B).

Amphibians and Reptiles-spotted frog, leopard frog, bull frog, western yellow-bellied racer, western garter snake, and western painted turtle (Table 1C).

Endangered Species

The bald eagle has been observed in the study area. No known nest sites for this species occur there. However, bald eagles do nest along the river near Lolo, and suitable bald eagle nest sites may occur within the study area. Eagles are commonly seen, particularly in winter, roosting and feeding along the river in the study area.

Sensitive Species and Species of Special Concern or Interest

Several species that occur in the study area deserve consideration for being of special concern. Those species either are quite sensitive to habitat alterations, very limited in distribution, occur in low densities, or are thought to be declining in the northwestern United States. The U.S. Forest Service maintains a list of "Sensitive Species." The MT Department of Fish, Wildlife and Parks and the MT Natural Heritage Program maintain a lists of species of special concern. Although not contained in the aforementioned lists, we have added two amphibians, the spotted and leopard frogs, to this designation, as they seem to be declining in western Montana. While these species do not legally carry the status of "endangered" or "threatened", they nevertheless warrant special consideration in land use planning. Those species carry the status "S" in the tables.

Assessment of Alternatives

No Action-We would not expect any change of wildlife habitat or populations, if this alternative were selected.

North No. 1-We would expect minor losses of riparian vegetation on the east river bank and 2 islands, where the new bridge would be constructed, just south of the old McClay Bridge. In addition, some loss of older pines will occur, if River Pines Road needs to be re-routed.

South No. 1-This alternative probably would cause the least loss of habitat among the action alternatives. Minor losses of riparian vegetation and old growth pines and cottonwoods along the river banks will occur.

South No. 2 -This alternative would probably cause the most loss of habitat, compared with other action alternatives. There appears to be the potential for filling of a wetland southwest of where South Avenue currently ends. In addition, some losses of riparian vegetation and older pines and cottonwoods will occur on both river banks.

Thank you for your consideration.

Sincerely yours,

Robert Henderson
Wildlife Biologist

cc:H. Brown, Msla. Co.

Table 1A. Bird species found in the river bottom/flood plain habitat.

SPECIES	PRESENCE P=possible C=confirmed	SEASON B=breeding W=winter Y=yearlong	STATUS E=endangered R=rare S=special concern C=common I=infrequent	COMMENTS
American Kestrel	C	B	C	Native.Cavity nester
American Redstart	C	B		Native. Riparian obligate
Bald Eagle	C	W	E	Native; nest near Lolo;nest & perch lg. tree
Bank Swallow	C	B	C	Native. Bank nester near McCauley Butte
Belted Kingfisher	C	B	C	Native.Streamside obligate
Bobolink	C	B	C	Native.Declining in W.MT. Wet meadows
Canada Goose	C	B/W	C	May nest on islands.
Common Merganser	C	B/W	C	Native.
Common Snipe	C	B	C	Native.Wet meadows
Cooper's Hawk	C	B/W	S	Native.Woodland nester
Goshawk	C	W	S	Native.Forest nester
Great Blue Heron	C	B/W	C	Nesting habitat suitable

TABLE 1A CONT.				
Great Horned Owl	C	B/W	C	Native.Nests in lg trees
Green-Winged Teal	C	B	C	Nests upstream.
Killdeer	C	B		Native.Ground nestor.
Lewis' Woodpecker	C	B	C	Old growth river bottom obligate.
Mallard Duck	C	B	C	Native. Nests meadows
Northern Oriole	C	B	C	Native.Nests cottonwoods
Osprey	C	B	S	Native. Need lge. trees for nest and perch.
Pileated Woodpecker	C	B	S	Native. Old growth cavity nester.
Red-eyed Vireo	C	B	C	Native. Riparian nester.
Ring-necked Duck	C	B	C	Native.Nest wooded rivers and ponds.
Solitary Vireo	C	B	C	Native.
Spotted Sandpiper	C	B	C	Native. Ground nest near stream
Yellow-rumped Warbler	C	B		
Warbling Vireo	C	B		
Wood duck	C	B		Nesting occurs upstream.

TABLE 1A CONT.				
Western-Screech Owl	C	B	S	Native.Cavity nester, woodlands

Table 1B. Mammal species found in the river bottom/flood plain habitat.

SPECIES	PRESENCE P=possible C=confirmed	SEASON B=breeding W=winter Y=yearlong	STATUS E=endangered R=rare S=special concern C=common I=infrequent	COMMENTS
Beaver	C	B	C	Native.River and stream obligate.
Mink	C	B	C	River and stream obligate
Moose	C	Y	I	Associated w/ river bottom population
Mountain Cottontail	C	Y	C	Limited to low elev. shrublands
Muskrat	C	Y	C	Sloughs
Porcupine	C	Y	C	
Northern Flying Squirrel	C	Y	S	Nocturnal cavity nester in lg.trees
Raccoon	C	Y	I	River bottom woodlands

TABLE 1B CONT.				
White-tailed Deer	C	Y	C	Area provides winter range for migrating WT too
Yellow-bellied Marmot	C	Y	C	Lg. visible burrow dweller in rip-rap

Table 1C. Amphibian/reptile species found in the river bottom/flood plain habitat.

SPECIES	PRESENCE P=possible C=confirmed	SEASON B=breeding W=winter Y=yearlong	STATUS E=endangered R=rare S=special concern C=common	COMMENTS
Bullfrog	C	Y	C	Exotic; May cause decline of spotted frog.
Bull Snake	P	Y	C	Native.
Common Garter Snake	C	Y	C	Native.
Leopard Frog	P	Y	S	Native; Rapidly declining in western Montana.
Long-toed Salamander	P	Y	C	Native.
Painted Turtle	C	Y	C	Native.
Spotted Frog	P	Y	S	Native; Rapidly Declining in western Montana where the bullfrog exists.
Western Garter Snake	C	Y	C	Native.
TABLE 1C CONT.				
Western Toad	P	Y	C	Native.

Western Yellow-bellied Racer	C	Y	C	Native.

LAND & WATER CONSULTING INC

Principals
Barry L. Dutton Charles Vandam
Ross D. Miller John Heffernan

P.O. BOX 8254 • MISSOULA, MONTANA 59807 • 406-721-0354 • FAX: 721-0355
P.O. BOX 258 • HELENA, MONTANA 59624 • 406-442-5510 • FAX: 449-8443

October 24, 1993

Michael Worrall
Carter Burgess
123 W. Spruce St
Missoula, MT 59802

RE: WETLAND DELINEATION - MACLAY BRIDGE AREA

Dear Mr. Worrall,

This letter summarizes my wetland delineations along route options for the Maclay Bridge project west of Missoula. Several small areas which qualify as jurisdictional wetlands were observed.

Five sites were chosen to perform routine wetland determinations. Data sheets from these five sites are attached. Also included are copies of the air photo you provided me with locations of the five sites. I have also mapped the extent of wetlands near your alternative routes. This mapping is provided as a clear acetate overlay for your air photo. Copies of the floodplain map and the 1972 flood photos are also provided.

Site 1 is a gravel bar island at the existing Maclay Bridge site. A support pier for the existing bridge is located on this island and the replacement bridge would be likely to have a similar support. I have determined that this site is not a wetland due to a lack of hydrologic and soil features (not flooded >15 days during growing season). However, Army Corp. officials in Helena indicate that the bridge support would still require a clean water act permit from their office.

Site 2 is an abandoned river channel which now forms a swale in the 100 year floodplain. This site is a jurisdictional wetland but only occupies a small area and can be avoided by locating the roadway north of the wetland boundary.

Site 3 is just north of Site 2 and slightly higher. This site is not a jurisdictional wetland and lacks all three wetland criteria (vegetation, hydrology, soils).

Sites 4 and 5 are also abandoned rivers channel which now form swales in the 100 year floodplain. These sites are jurisdictional wetlands but only occupy small areas and can be avoided by locating the roadway north of the wetland boundaries. Wetland boundaries end at the current roadway.

If the proposed project intends to alter, fill or otherwise affect these wetland areas, a formal permit will need to be obtained from the US Army Corp. of Engineers. Further information will be required for obtaining a permit.

Please contact me if you have further questions or comments. I look forward to working with you in the future.

Sincerely,

Barry L. Dutton

Barry L. Dutton
Certified Professional Soil Scientist

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*		Date Of Land Evaluation Request	3-31-94
Name Of Project	Maclay Bridge Site Selection - EA	Federal Agency Involved	Federal Highway Administratic
Proposed Land Use	roadway and bridge	County And State	Missoula, Montana
PART II *(To be completed by SCS)*		Date Request Received By SCS	

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply – do not complete additional parts of this form).*	Yes	No	Acres Irrigated	Average Farm Size
	☒	☐	23,930	535

Major Crop(s)	Farmable Land In Govt. Jurisdiction	Amount Of Farmland As Defined in FPPA
Beef, Alfalfa, Pasture, Spring Wheat	Acres: 140,850 %11.4	Acres: 59,880 %4.9

Name Of Land Evaluation System Used	Name Of Local Site Assessment System	Date Land Evaluation Returned By SCS
None	None	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	5.58	8.06	8.61	
B. Total Acres To Be Converted Indirectly	0	0	0	
C. Total Acres In Site	50	39	41	
PART IV *(To be completed by SCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	5.58	7.57	8.06	
B. Total Acres Statewide And Local Important Farmland	0	0.55	0.55	
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	0	0	0	
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	NA	NA	NA	
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	NA	NA	NA	

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use		7	7	7	
2. Perimeter In Nonurban Use		5	5	5	
3. Percent Of Site Being Farmed		11	11	11	
4. Protection Provided By State And Local Government		0	0	0	
5. Distance From Urban Builtup Area		NA	NA	NA	
6. Distance To Urban Support Services		NA	NA	NA	
7. Size Of Present Farm Unit Compared To Average		3	3	3	
8. Creation Of Nonfarmable Farmland		0	0	0	
9. Availability Of Farm Support Services		5	5	5	
10. On-Farm Investments		18	18	18	
11. Effects Of Conversion On Farm Support Services		0	0	0	
12. Compatibility With Existing Agricultural Use		7	7	7	
TOTAL SITE ASSESSMENT POINTS	160	56	56	56	
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100				
Total Site Assessment *(From Part VI above or a local site assessment)*	160	56	56	56	
TOTAL POINTS *(Total of above 2 lines)*	260				

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☒

Reason For Selection:

(See Instructions on reverse side)

Form AD-1006 (10-83)

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
215 NORTH 17TH STREET
OMAHA, NEBRASKA 68102-4978

REPLY TO
ATTENTION OF

March 2, 1994

U.S. Army Corps of Engineers
1520 East 6th Avenue
Helena, MT 59620-2301
(406)444-6670

Horace Brown
Missoula County Surveyor
200 West Broadway
Missoula, Montana 59802

Dear Mr. Brown:

Reference is made to our review of the Environmental Assessment of the Maclay Bridge Site in Missoula County, Montana.

Under the authority of Section 404 of the Clean Water Act, Department of the Army permits are required for the placement of dredged or fill material below the ordinary high water mark of our nation's rivers, streams, lakes or in wetlands.

From our review, it appears that if the preferred alternative, South 1, is selected the project may be authorized under Nationwide Permit #14 (Road Crossing), if the bridge construction can comply with the general and 404 conditions associated with this authorization. Enclosed is a fact sheet that explains the conditions that must be adhered to in order for the Nationwide permit to be valid. Please note Condition 12 in respect to Historic Properties.

Please fill out the enclosed application and return to this office, along with a sketch or drawing of the proposed work for a determination if a Department of the Army permit may be required.

Thank you for the opportunity to review this Environmental Assessment. If you have any questions, please let me know.

Sincerely,

Robert E. McInerney

Robert E. McInerney
State Supervisor,
Helena Regulatory Office

Encl.

Target Range Public School
District #23
4095 South Avenue West • Missoula, Montana 59801
406-549-9239

March 3, 1994

Board of County Commissioners
Missoula County
200 West Broadway
Missoula, MT 59802

Dear Commissioners,

The Board of Trustees of Target Range School District #23 would like to express the following concerns regarding the proposed Maclay Bridge.

The safety of students walking and riding to school is our ultimate concern. The current streets offer very little protection to our students. The projected traffic increases would put our children in serious jeopardy.

Closing of the existing bridge to vehicle traffic would have a major fiscal impact on our district. We estimate that our district taxpayers would be forced to spend an additional $12,000 - $15,000 on transportation costs. Also students on the west side of the Bitterroot River would have between a 20 - 30 minute increase in their time on the bus.

Thank you for listening to our concerns.

Sincerely,

George Bailey
Superintendent

MISSOULA RURAL FIRE DISTRICT
2521 SOUTH AVENUE WEST MISSOULA, MT 59801 (406) 549-6172

March 10, 1994

Scott Richman
Carter & Burgess
123 W. Spruce
Missoula, MT 59802

Dear Scott:

Representatives of Missoula Rural fire District drove and timed the distance from Station #1, 2521 South Avenue West, to the intersection of Blue Mountain Road and O'Brien Creek Road. They also drove from Station #6, 8455 Mullan Road, to the intersection of Blue Mountain Road and O'Brien Creek Road. Checks were made under normal driving conditions, i.e., stop signs, stop lights, traffic, posted speed limits. The results are as follows:

St. #1 via McClay Bridge: 3.8 miles, 5 min/50 sec.
St. #1 via Reserve/Hwy 93: 6.0 miles, 11 min/10 sec.
St. #6 via Kona Bridge/Big Flat Road: 8.2 miles, 14 min/6 sec.

Major factors on Blue Mountain Road and Big Flat Road are lack of paving, narrow, curving roads, traffic and grades.

If you have any questions please call me at 549-6172.

Sincerely,
MISSOULA RURAL FIRE DISTRICT

Bill

Bill Reed, District Fire Chief

cfs

State Historic Preservation Office
Montana Historical Society
1410 8th Avenue • PO Box 201202 • Helena, MT 59620-1202 • (406) 444-7715

March
April 14, 1994

Gordon J. Stockstad, Acting Chief
Environmental and Hazardous Waste
Montana Department of Transportation
2701 Prospect Avenue
Helena, MT 59620-1001

Re: Maclay Bridge Cultural Resource Report

Dear Gordon:

Thank you for requesting our comments on HRA's inventory and your agency determinations of eligibility. We understand that unsuitable field conditions prevented adequate inventory for prehistoric resources, and that we will be asked to comment at a later date on those findings. We want to take this opportunity to commend HRA for their sensitive Native American consultation and site identification procedures. Their careful attention to both is a good example for us all.

Based on the very good development of context for this project area, we concur with both HRA and your agency that the Maclay Ranch (24MO519) will qualify for Register listing under Criteria A and C. We agree that the proposed boundaries are appropriate.

We also concur with your evaluation that the Rice Property (24MO517) will qualify for listing under the same criteria. Buildings 2 and 3 will not contribute. We understand HRA's comment that it is a close call, but agree that sufficient integrity remains to warrant eligibility. This is a particularly interesting property, given its history. I wonder whether there is an ethnic affiliation or cultural tradition connected with the self supporting nature of the farmstead and collection of sons' homes on the place?

It was with distinct pleasure that I read explicit discussions of historic landscape values and a cogent evaluation of their potential eligibility. Thanks.

We have not commented separately on the EA, and trust that our comments to you will suffice.

Sincerely,

Katherine M. Huppe
Historical Survey Reviewer

cc: Horace S. Brown, Missoula County

File: Comp/ MDT project file
CD/ 24MO517 (Rice)
CD/ 24MO519 Maclay Ranch

DEPARTMENT OF
HEALTH AND ENVIRONMENTAL SCIENCES
AIR QUALITY BUREAU

COGSWELL BUILDING
1400 BROADWAY

STATE OF MONTANA

(406) 444-3454
FAX (406) 444-1374

PO BOX 200901
HELENA, MONTANA 59620-0901

March 21, 1994

Mr. Horace Brown
Missoula County Surveyor
200 W. Broadway
Missoula, MT 59802

Dear Mr. Brown:

Re: Maclay Bridge Site Selection Study Environmental Assessment

I have reviewed the Environmental Assessment of the Maclay Bridge Site Selection Study and have the following comments.

Conformity Determination

Because this project is taking place within the PM-10 and carbon monoxide (CO) nonattainment boundaries of Missoula, a conformity determination must be performed for both pollutants as required by 40 CFR Part 51, Subpart T (released in Federal Register November 1993). The responsibility for the conformity determination lies with the sponsoring agency. The Air Quality Bureau's role is strictly a consultative one. However, if issues are unresolved, the bureau may escalate disputes to the Governor. If the issues are escalated, the project may not continue until conformity is then determined with the Governor's concurrence.

Analysis Years

The recommended analysis years for the conformity determinations are 1995, 2005, and 2015.

Status of State Implementation Plans

The Missoula PM-10 State Implementation Plan (SIP) has been approved by the EPA, thus it follows the Control Strategy SIP criteria in the conformity rule.

The Missoula CO SIP is nonattainment for CO and no control strategy or SIP submittal is required by the Federal Clean Air Act, thus it follows the Interim Period SIP criteria in the conformity rule.

Status of Transportation Project

Is the project from a conforming Transportation Plan or Transportation Improvement Program (TIP)? If so, this should be stated as part of the conformity determination. If the project is not in a conforming Plan or TIP, the sponsoring agency must perform a regional emissions analysis which shows that the project will conform to the SIP if implemented.

Regional Emission Analysis

A regional emissions analysis is required for both the PM-10 and CO nonattainment areas. The bureau would like to review all completed analysis.

CO Analysis

According to the conformity rule, a Build/No-Build analysis and a Build/1990 Base Year Emissions analysis must be completed for the CO nonattainment area of Missoula. The Build must be shown to be less than No-Build, and less than 1990 emissions. The bureau recommends that a Mobile 5A model be used to determine all of these levels. The analysis should include emissions from transportation projects from within the nonattainment area only.

Although a control strategy or SIP was not required to be submitted to EPA, an emission inventory document was required for submittal and will be the basis for a redesignation submittal in the future. The bureau recommends that the same input as used in the emission inventory document be used for the conformity determination. Attached is the input data used in the emission inventory document.

PM-10 Analysis

A regional emissions analysis must be performed for the PM-10 nonattainment area of Missoula. The regional emissions analysis must demonstrate that emissions from the area with the project will be equal to or less than emissions in the area without the project. The regional emissions analysis must also demonstrate that emissions from transportation projects in 1995, 2005, and 2015 will not exceed the emission budget in the SIP.

There may be difficulty meeting the emission budget in the Missoula PM-10 SIP since PM-10 emissions are so closely tied to VMT and were determined to be a major contributor to PM-10 emissions. If the emission budget is not met, mitigation must be quantified and committed to in the conformity determination.

Emission Budgets in the SIPs

An attainment demonstration has been submitted to EPA for the PM-10 SIP. The attainment demonstration establishes emission limitations (emission budget) for vehicle PM-10 emissions in the nonattainment area. In order for a conformity determination to be

approved, analysis of emissions from the project will need to be within the emissions budgets of the SIPs. The calculated emission budget is included for your information. The bureau recommends that similar emission factors that were used in the SIP be used for purposes of conformity analysis. Additional assistance may be required from the bureau in order to determine if the project conforms to the SIP.

An attainment demonstration or emission budget was not required to be submitted for the Missoula Carbon Monoxide SIP. For CO analysis a comparison between a Build scenario and a No-build scenario and 1990 emissions is all that is required.

Mitigation

If the project is found not to conform to the PM-10 or CO SIPs, there must be written enforceable commitments from the project sponsor that necessary project-level mitigation or control measures will be implemented in order to meet conformity. These mitigations must be quantified in order to determine conformity.

Control strategies that are already accounted for in the SIP cannot be considered for conformity mitigation. Control strategies currently accounted for in the SIP for the MaClay Bridge project area require the use of washed sanding materials and increased street sweeping.

Construction Mitigation

In addition to any mitigation necessary to meet conformity with the SIP, highway projects during the construction phase have historically contributed significant emissions of PM-10 (inhalable particulate matter under 10 microns in size) from re-entrained road dust, increased traffic flow through detours, and slash burning from right-of-way clearing.

In order to reduce the emissions of PM-10 from this project, the bureau strongly suggests the following during the construction phase of the project:

1) Daily street sweeping on both ends of the project during the construction phase. This will reduce the major carry-on of dirt from the project onto paved streets.

2) Unpaved detours or any other fugitive dust emission sources from construction/demolition should be watered and/or chemically stabilized so that the emissions are less than 20% opacity. The fugitive dust can also be reduced by detouring traffic to paved surfaces and, if necessary, routine sweeping of the paved approaches to the construction site.

3) Any slash being burned due to right-of-way clearing should be stacked with a brush blade and cured. Open burning restrictions must be followed and a major open burning permit and fee may be required from the county.

4) Any portable rock crushing equipment or portable asphalt plants necessary to complete the project will be required to obtain air quality permits from this agency and meet applicable emission limitations. Since it usually takes at least 75 days to obtain an air quality permit, any contractors planning to perform crushing or paving work should apply for permits well in advance.

Conclusion

The Air Quality Bureau realizes that in an attempt to interpret and meet the requirements of the new transportation conformity rule you may require additional assistance from our bureau. The bureau is willing to meet with you or any of your staff. Please contact either me or Karen Moore at 444-3454.

Sincerely,

Gretchen Bennitt

Gretchen Bennitt
Air Quality Specialist

GB:tjl

Attachments

Missoula PM-10 Emission Budget

The emission budget was determined from the attainment demonstrations and emission inventory document submitted to EPA for the Missoula PM-10 SIP. The percent (%) control identified in the attainment demonstration was used to calculate the quantity of PM-10 emissions remaining after controls. These emissions (emission budget) must not be exceeded in order to keep the nonattainment area in compliance. The relationship between ambient air quality levels and emissions was established by the 1986-1987 Chemical Mass Balance study. This study was used to develop the attainment demonstration. Therefore if the emission factors used to establish the demonstration are different than those used in the conformity determination the attainment demonstration will need to be re-developed with the new emission factors.

The Air Quality Bureau recommends that since an emission budget for the years of 2005 and 2015 has not yet been submitted as part of the SIP, then the emission budget for those years be the same as the 1995 budget.

24 Hour PM-10 Emission Budget Calculations

Road Dust Emissions

Emission inventory (no control): 29,131 lbs/day *
Growth Rate of 1%/year for 8 years: 31,461 lbs/day

% control from sweeping
and ordinance sand: 62% **

1995 Controlled Emissions: 31,461(1-.62)= 11,955 lbs/day

Tailpipe Emissions

Emission Inventory (no control): 246 lbs/day
Growth rate of 1%/year for 8 years: 266 lbs/day

% Control from federal tailpipe
standards: 10.9%

1995 Controlled Emissions: 266(1-.109) = 237 lbs/day

* Spring road dust emissions were used for daily emissions.
** If the project, TIP, or plan redistributes VMT between local, collector and major streets differently than in the SIP, a new control efficiency may need to be calculated. Similarly, if a different emission factor than is used in the SIP is used to determine emissions.

Annual Emission Budget Calculations

Road Dust Emissions

Emission Inventory (no control): 1766 Tons PM-10/year
Growth rate of 1%/year for 8 years: 1907 Tons PM-10/year

% control from sweeping and
ordinance sand: 40%

1995 Controlled Emissions: 1907(1-.40) = 1,144 Tons

Tailpipe Emissions

Emission Inventory (no control): 45 Tons PM-10
Growth rate of 1%/year for 8 years: 49 Tons PM-10

% Control from federal
tailpipe standards 10.9%

1995 Emission Inventory Controlled: 49(1-.109) = 44 Tons

The PM-10 emission budget will be the sum of the road dust and tailpipe controlled emissions from the emission inventory.

24 Hour Emissions

Road Dust = 11,955 lbs PM-10/day
Tailpipe = 237 lbs PM-10/day

11955 + 237 = 12,192 lbs PM-10/day

Annual Emissions

Road Dust = 1144 Tons PM-10
Tailpipe = 44 Tons PM-10

1144 + 44 = 1,188 Tons PM-10

Summary

In order to meet conformity with the SIP, the following PM-10 emissions can not be exceeded for all years of analysis.

24-Hour: 12,192 lbs PM-10/day
Annual: 1,188 Tons PM-10

Montana Department
of Transportation

2701 Prospect Avenue
PO Box 201001
Helena MT 59620-1001

Marc Racicot, Governor

March 23, 1994

Mr. Horace Brown
Missoula County Surveyor
200 W. Broadway
Missoula, MT 59802

Subject: McClay Bridge Environmental Assessment

Attached are comments to the initial Environmental Assessment on the above proposed project. In addition to those comments, we have the following:

Section 4.3
Was a Farmland Conversion Impact Rating form (#AD-1006) completed for this proposed project?

Section 4.10.5
The Montana Stream Protection Act (SPA Permit) will also apply to this project. This is administrated through the Montana Department of Fish, Wildlife and Parks.

Since this proposed project will involve construction activity below the low water mark of the Bitterroot River, a Montana Land-Use License or easement from the Department of State Lands will be required. The Bitterroot River is a commercially navigable waterway.

Section 5.3
There has been no agency coordination with the U.S. Army Corps of Engineers (Section 404 permit), the Montana Natural Heritage Program (rare plants, species of special concern), the Department of State Lands, or irrigation districts.

Gordon J. Stockstad, Acting Chief
Environmental & Hazardous Waste Bureau

Attachment
cc: file

Montana Department of Transportation
Helena, Montana 59620-1001

Memorandum

To: Files

From: Stan Sternberg, Supervisor
Hazardous Waste Section
Environmental & Hazardous Waste Bureau

Date: March 23, 1994

Subject: Maclay Bridge Environmental Assessment

The environmental assessment for the Maclay Bridge in Missoula (dated February 2, 1994) was reviewed by the MDT's Hazardous Waste Section for air quality, noise and hazardous waste concerns. Comments are as follows:

Air Quality

Emissions are predicted to increase in the study area for all alternatives except for the no-build alternative. This is reasonable since the build scenarios will allow additional traffic to enter and leave the residential area on the west side of the Bitterroot River. While emissions will increase, it is not a detrimental factor to total air quality levels and may ease congestions along other corridors into the central part of Missoula.

The EA did not address impacts that may be caused by traffic impacting the intersection of South, Russell and Brooks (Malfunction Junction). CO levels at this intersections have shown exceedances of the National Ambient Air Quality Standards. However, local traffic may choose to use the newly constructed Reserve Street instead of causing additional congestion at Malfunction Junction.

Noise

Predicted noise impacts for the build scenarios are expected to increase over the no-build scenarios. No receptors are expected to approach or exceed FHWA Noise Abatement Criteria (NAC). Some mitigation measures may be considered during the final design of the project. Noise should not be a major problem.

Hazardous Materials

The EA noted that there were no known hazardous material sites or reported incidents in the vicinity of the project study area to date. One potential hazardous material site, a natural gas substation was identified in the study area. There may be some encroachment concerns with one of the alternatives.

The findings in the EA are consistent with our knowledge of the area. The area is primarily residential with little or no commercial or industrial development.

MISSOULA CITY-COUNTY
MISSOULA

OFFICE OF COMMUNITY DEVELOPMENT
435 RYMAN
MISSOULA, MONTANA 59802-4297
(406) 523-4657

TO: Scott Richman, Planner
Carter/Burgess

FROM: Michael E. Kress, AICP
Planner II

Doris Fischer
Planner II

DATE: 28 March 1994

RE: MACLAY BRIDGE ENVIRONMENTAL ASSESSMENT

You have asked us to comment on whether or not the "preferred alternative" identified in the EA is consistent with the goals of the Missoula Urban Comprehensive Plan (1990 Update) and the 1985 Missoula Urban Transportation Plan. This letter contains those comments, and also comments on some other issues. Page 47 of the EA outlines a few of the relevant policies contained in these plans. There are additional Urban Comprehensive Plan (UCP) and Transportation Plan (TP) goals and objectives which need to be considered in evaluating which alternative may offer the greatest community benefit with the least negative impact. These include:

- Maintain and improve air quality in the urban area (UCP).

  ** Increase the efficiency of the area street network (UCP).

- Maintain wildlife as a viable presence in the urban area environment (UCP).

  ** Minimize the impact of land development in and adjacent to less critical areas through appropriate design (UCP).

- Preserve critical plant communities such as species of limited distribution and riparian vegetation (UCP).

- Encourage a land use pattern which facilitates all modes of transportation -- vehicular, bicycle, pedestrian and bus service -- for safe, efficient and convenient access for residential, commercial and

industrial uses (UCP).

** Integrate street improvement plans with land use plans and goals; allow for input from those affected by planned improvements and mitigate negative impacts (UCP).

** Strive to keep urban area streets functioning at level of service "C" or better and review impact of new development on existing street capacity (UCP).

o Create a safe environment in which urban area residents live and work (UCP).

** Provide the public improvements needed for public safety in newly developed areas (UCP).

** Encourage a land use pattern which facilitates provision of emergency services (UCP).

o Promote the natural beauty within and surrounding the urban area (UCP).

** Increase opportunities for easy access to natural areas and green spaces within and around Missoula (UCP).

** Preserve areas with scenic open space value (river corridors, vistas) through carefully planned development... (UCP)

o Reduction of Travel Time (TP).

** Shorten travel distance from residential areas to areas of major trip generating activities by planning for their future development (TP).

** Consider all modes of transportation including bicycle, pedestrian, mass transit, and others when evaluating travel time (TP).

o Increased Health and Safety (TP).

** Provide safer pedestrian travel facilities (TP).

** Provide exclusive or shared transportation facilities for bicycle

travel (TP).

** Design and maintain future transportation improvements to sustain federal air quality standards. Missoula is presently considered a non-attainment area by federal standards (TP).

o Lower operating costs (TP).

** Adopt design life standards to be used in the design of new facilities and the reconstruction of existing facilities (TP).

o Minimizing disruption (TP).

** Disruption to existing land uses should be minimized during construction of new or improved facilities (TP).

** Utility improvements should be coordinated with improvements to transportation facilities to minimize disruption to both systems (TP).

o Reduction of energy consumption (TP).

** A network of pedestrian travelways should be developed to encourage this mode of travel (TP).

o Reduce costs of future facilities (TP).

** The long-range improvement plan should be adopted based upon ability-to-pay so that projects can be scheduled, designed and constructed on a systematic basis (TP).

The concept of a replacement bridge clearly meets the goals of the Missoula Urban Comprehensive Plan, in light of the deterioration of the existing Maclay Bridge. The extent to which existing bridge deficiencies already threaten public health and safety -- safe travel and fire protection in particular -- have been well documented. Under a scenario of eventual bridge closure and no bridge replacement, the resulting transportation system inefficiencies could be detrimental to Missoula Valley's air quality as well.

However, in determining the "best" location and design of a replacement bridge, adequate consideration must be given to minimizing negative impacts

upon neighborhood character, the scenic river corridor, wildlife movement and habitat, and riparian vegetation. Since the Urban Comprehensive Plan calls for relatively little additional development in the Big Flat/O'Brien Creek area in the foreseeable future, any replacement bridge should be sized only to serve a limited demand. Has the Lolo National Forest shared its projections of any increased public usage of the Blue Mountain Recreation Area and adjacent forestlands to the north? This would be useful information in projecting future demand on the existing or replacement bridge. It might also be helpful for the EA to state explicitly that the proposed replacement of Maclay Bridge is in no way regarded as a step towards County consideration or approval of a major west-side bypass around Missoula.

As you continue to evaluate the replacement bridge location alternatives, you may want to check back with the Soil Conservation Service for their assessment of which location and what type of bridge design would have the least impact upon the river, riverbank, and associated riparian areas. We would encourage your continued attention to not just locating the bridge appropriately, but also designing the facility and revegetating around it, in ways that will fully respect the scenic river setting and the rural character of the neighborhood. The mitigation of noise, traffic speed, and other negative impacts should be an integral part of the overall project. If the County Commissioners proceed with the bridge project, we recommend that the citizens advisory committee continue to function during construction, and serve a monitoring role even once the bridge is in operation.

Given what we know at this point about the South 1 features described in the EA, including the commitment to limited size [but in accordance with widely accepted engineering standards], compatible design and neighborhood impact mitigation, we consider South 1 to be consistent with the goals and objectives of Missoula's urban comprehensive plans.

OTHER COMMENTS:

- The Conformity final rules (40 CFR Part 51, Subpart T) require that regionally significant projects be included in the long range transportation plan as part of the regional emission analysis to determine conformity of the transportation plan with the air quality conformity regulations (40 CFR Part 51.428 (2)). Part 51.430 requires that the TIP only include projects that are consistent with the motor vehicle emissions budget in the implementation plan. I recommend that

this project be proposed for inclusion in the long range plan update for Missoula, so the regional emissions analysis can be performed. Also, you should be aware that a hot-spot emission analysis will also be required, according to Part 51.424. Any project that is considered regionally significant must satisfy the above-mentioned criteria, regardless of the funding source.

- The concept of a west-side bypass has also come up during work on the Maclay Bridge EA. This concept will also need to be addressed through the Missoula long range transportation plan update process.

We hope our comments are helpful to your continued evaluations.

Mike Kress

Michael E. Kress, AICP
Planner II

Doris Fischer

Doris Fischer
Planner II

PlumCreek Timber Company, L.P.

Clearwater Unit

March 29, 1994

Mr. Scott Richmond
Carter and Burgess
123 West Spruce
Missoula, MT 59802

Dear Scott:

This is a follow-up on our telephone conversation concerning the approximate amount of loaded log truck traffic that would use the new Maclay Bridge.

Since all of Plum Creek Timber Company's road access to its lands occur to the west of the Kona Bridge location, very little, if any, log truck usage would occur at the Maclay Bridge site. However, in the future, Plum Creek Timber Company may purchase timber from woodlot owners in the O'Brien Creek area causing some need to use the Maclay Bridge. Currently Plum Creek Timber Company has a lot of activity in the O'Brien Creek area as a result of purchasing private timber, but this activity will conclude early in the fall of 1994.

If you have questions, please call.

Sincerely,

James E. Bentley
Forester

kjg-FOR\MaclayBr.ltr

140 North Russell Missoula, MT 59801 406/728-8350

MONTANA NATURAL HERITAGE PROGRAM
1515 East Sixth Avenue
P.O. Box 201800
Helena, Montana 59620-1800
(406) 444-3009

March 29, 1994

Scott Richman
Carter and Burgess, Inc.
213 West Spruce Street
Missoula, MT 59802

Dear Scott,

This is in response to your request for information on sensitive species for a DOT project near the MacLay Bridge in Missoula. I have checked our database for locations of sensitive species within 1 mile of sections 26, 27, 34, and 35 of Township 13N, Range 20W. Enclosed are 3 element occurrences for this area. An explanatory sheet is enclosed which describes the information contained in these reports.

I have also included a list of vertebrate species known or suspected to occur in Missoula County. An explanatory sheet for this report is also included.

Please remember that the results of a data search by the Montana Natural Heritage Program are not intended as a final statement on sensitive species within a given area, or as a substitute for on-site surveys needed for environmental assessments. In addition, some of the plant community records we track represent communities which are widespread in Montana. We include certain locations as sensitive records, however, because they represent exemplary, relatively pristine examples of certain community types, or because they have been established as study plots.

Please note that this report includes data intended for use within your firm and not for general distribution or publication. In particular, public release of specific location information may jeopardize the welfare of a threatened, endangered, or sensitive species or community. Specific locations of federally-listed threatened or endangered species should be requested directly through the U.S. Fish and Wildlife Service Office.

We are required to send you an invoice you for these services, which will arrive under separate cover. (Database access fee $30.00; printouts - 20 pages @ .25¢ per page $ 5.00; invoice total $ 35.00). Please note, the fee can be waived if work is performed for a federal agency, State of Montana agency, or non-

profit organization. When the invoice arrives, present it to the contracting agency and have them return it to the Montana Natural Heritage Program along with a note stating they have not been charged by you for the services provided by the Heritage Program. We will then cancel the fee.

I hope this information is helpful to you. I have also enclosed our current Plant and Animal Species of Special Concern Lists and a Database Overview. The plant and animal lists identify species currently being tracked by the Heritage Program; the Database Overview describes the types of information available through the Heritage Database. Please call if you have questions or need additional information.

Sincerely,

Cory Craig
Assistant Data Manager

Appendix B: Summary of Public Involvement and Coordination

Summary of Public Involvement and Coordination

The following is a summary of the public involvement activities to date. Copies of detailed meeting minutes are available at the Missoula County Surveyors Office.

July 21, 1993-Advisory Committee Meeting #1

- Discussed the format and agenda for the first Public Workshop.
- Established area for mailing of first newsletter.
- Reviewed graphics to be used at the first Public Workshop.
- Reviewed project issues and requirements of the EA.

August 3, 1993-Public Workshop #1

- Introduction of the project and its purpose.
- The project team responded to questions and documented comments from attendees of the meeting.
- A workshop session was held. Attendees broke into small groups to discuss project issues and concerns.
- Each group utilized aerial photos to sketch possible alignments, and locations of particular issues and constraints.
- The project team solicited volunteers to serve on the Citizen's Advisory Committee (CAC).

August 4, 1993-Advisory Committee Meeting #2

- Review and discussion of the first Public Workshop.
- Reviewed volunteers for the CAC.
- Review and discussion of the technical work efforts.
- Discussion of those individuals and agencies that need to be coordinated with during the study.

August 12, 1993-Citizens Advisory Committee Meeting #1

- Introduction of project and the scope of the study.
- Review of the purpose of the CAC.
- The CAC limited itself to the size of ten persons.
- Review and discussion of comments and issues from the first Public Workshop.

August 26, 1993-Citizens Advisory Committee Meeting #2

- Review of CAC roster.
- Review and discussion of the technical work efforts, including data collection.
- Discussion of the project need and the no-build alternative.
- Discussion of project issues including traffic and environmental issues.
- Review and discussion of the Alternatives from the first Public Workshop. Suggestions for additional alternatives.
- Selection of a CAC spokesperson.

September 1, 1993-Advisory Committee Meeting #3

- Update and discussion of the CAC activities.
- Update and discussion of the Public Involvement actives.
- Review and discussion of the technical work efforts, including data collection, traffic counts and hydraulic survey.

September 14, 1993-Citizens Advisory Committee Meeting #3

- Project update and review of technical work efforts.
- Review and discussion of the EA and project development process.

September 27, 1993-Citizens Advisory Committee Meeting #4

- Review and discussion of the project issues map that has been developed from the data collection effort.
- Review and discussion of the preliminary evaluation matrix.
- The CAC participated in a workshop for the preliminary evaluation of the "Universe of Alternatives."

September 29, 1993-Advisory Committee Meeting #4

- Project update and review of technical work efforts including traffic.
- Presentation of the "Universe of Alternatives" that has been developed through the first Public Meeting and subsequent CAC meetings.
- The Advisory Committee participated in a workshop for the preliminary evaluation of the "Universe of Alternatives," conducted independent of the CAC workshop.

October 6, 1993-Public Workshop #2

- An open house was held prior to a presentation by the project team. People attending the meeting toured the graphics of the Universe of Alternatives, Project Issues, Refined Alternatives, Preliminary Evaluation Matrix, and questions and comments from the first Public Workshop.
- A presentation was given to provide an update on the study and information regarding the development of the alternatives.
- The meeting returned to an open house format. Project team members responded to questions and documented comments.

October 7, 1993-Advisory Committee Meeting #5

- Review and discussion of Second Public Workshop.
- Discussion regarding upcoming tasks.
- Review and discussion of the Preliminary Evaluation Matrix.
- Discussion of possible funding sources.

October 11, 1993-Target Range School Board Meeting

- Update of study status.
- Discussion of project issues.

November 3, 1993-Citizens Advisory Committee Meeting #5

- Review and discussion of comments from the Second Public Workshop.
- Review and discussion of the Project Purpose and Need.
- Review and discussion of the evaluation matrix of the alternatives being advanced through the EA.
- Presentation and discussion regarding the Preferred Alternative.

November 17, 1993-Public Workshop #3

- An open house was held prior to a presentation by the project team. People attending the meeting toured the graphics of the Preferred Alternative, Universe of Alternatives, Project Issues, Refined Alternatives, Preliminary Evaluation Matrix, and questions and comments from the first and second public workshops.
- A draft of the project Purpose and Need as well as a draft alternatives evaluation matrix were handed out.
- A presentation was given to provide an update on the study, information regarding the analysis of the alternatives, and the Preferred Alternative.
- The meeting returned to an open house format and project team members responded to questions and documented comments.

December 20, 1993-Target Range School Board Meeting

- The project team provided an update on the study.
- Possible mitigation measures were discussed.

February 23, 1994-Public Workshop #4

- An open house was held prior to a presentation by the project team. People attending the meeting toured graphics summarizing the findings of the Environmental Assessment, graphics from previous meetings, and graphics with comments and questions from the previous meeting addressed by the project team.

- A presentation was given to provide an update of the study and to summarize the findings of the EA.

- The meeting returned to an open house format and the project team members responded to questions and documented comments.

March 15, 1994-Citizens Advisory Committee Meeting #6

- The CAC and project team members reviewed and discussed comments from the fourth public meeting.

- The CAC and project team members discussed the Environmental Assessment. The CAC members also discussed comments which they had collected from their neighbors.