



Environmental Assessment

for NH0002(110)

North Reserve Street

Control No. 2445

Prepared for:



**Montana Department
of Transportation**

**2701 Prospect Ave.
Helena, Montana 59620**

Submitted by:

**WGM group, Inc.
3021 Palmer St.
Missoula, Montana 59802**

Prepared by:



Carter & Burgess

**113 West Front Street, Suite 103
Missoula, Montana 59802
(406) 721-1471**

August 1996

Environmental Assessment

for

**NH 0002(110)
North Reserve Street
Control No. 2445
in
Missoula County**

This document is prepared in conformance with MEPA requirements and contains the information required for an Environmental Assessment under the provisions of ARM 18.2.237(2)(3) and 18.2.239. It is also prepared in conformance with NEPA requirements for an Environmental Assessment under 23 CFR 771.119.

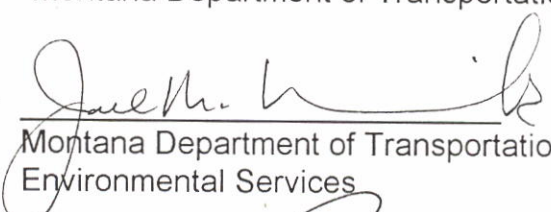
Submitted Pursuant to 42 USC 4332(2)(c)
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by the

U.S. Department of Transportation
Federal Highway Administration
and the

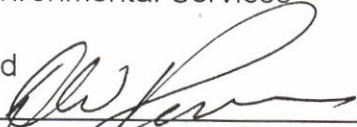
Montana Department of Transportation

Submitted by:


Montana Department of Transportation
Environmental Services

Date: Aug 22, 1996

Reviewed and Approved
for Distribution:


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Date: 8-21-96

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Recipients of the Environmental Assessment

The following agencies, groups and individuals are receiving a copy of the Environmental Assessment:

- City of Missoula Bicycle/Pedestrian Advisory Board
c/o Len LaBuff
534 Cleveland
Missoula, Montana 59801
- City of Missoula Fire Department
200 West Pine
Missoula, Montana 59802
- City of Missoula Non-Motorized Transportation Committee
c/o Missoula Bike/Pedestrian Office
435 Ryman
Missoula, Montana 59802
- City of Missoula Parks and Recreation Department
100 Hickory
Missoula, Montana 59801
- City of Missoula Police Department
435 Ryman
Missoula, Montana 59802
- City of Missoula Public Works Department
435 Ryman
Missoula, Montana 59802
- El-Mar KOA/Hellgate Transportation
3695 Tina Avenue
Missoula, Montana 59802
- Feet First
123 West Spruce
Missoula, Montana 59802

- Friends of Grant Creek
c/o Emily Lauchner
11990 Bench Road
Missoula, Montana 59802
- Hellgate Irrigation Company
c/o Mike Flynn
2275 Roundup
Missoula, Montana 59802
- Missoula Board of County Commissioners
200 West Broadway
Missoula, Montana 59802
- Missoula Chamber of Commerce
825 East Front
Missoula, Montana 59802
- Missoula City/County Health Department
301 West Alder
Missoula, Montana 59802
- Missoula County Surveyors Office
200 West Broadway Street
Missoula, Montana 59802
- Missoula Office of Planning and Grants
435 Ryman
Missoula, Montana 59802
- Missoula Sheriff's Department
200 West Broadway Street
Missoula, Montana 59802
- Missoula Society of Landscape Architects
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Missoula, Montana 59802

- Montana Department of Environmental Quality
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Cogswell Building
1400 Broadway
Post Office Box 200901
Helena, Montana 59620-0901
- Montana Department of Environmental Quality
Solid and Hazardous Waste Bureau
Cogswell Building
1400 Broadway
Post Office Box 200901
Helena, Montana 59620-0901
- Montana Department of Environmental Quality
Water Quality Bureau
Cogswell Building
1400 Broadway
Post Office Box 200901
Helena, Montana 59620-0901
- Montana Department of Fish, Wildlife and Parks
3201 Spurgin Road
Missoula, Montana 59801
- Montana Natural Heritage Program
1515 East Sixth Avenue
Post Office Box 201800
Helena, Montana 59620-1800
- Mountain Line
1221 Shakespeare
Missoula, Montana 59802
- National Resource Conservation Service
5115 Highway 93 South
Missoula, Montana 59801

- State Historic Preservation Office
Montana Historic Society
1410 8th Avenue
Post Office Box 201202
Helena, Montana 59620-1202
- U.S. Department of the Army Corps of Engineers
Omaha District
1520 East 6th Avenue
Helena, Montana 59620-2301
- U.S. Department of the Interior
Fish and Wildlife Service
Ecological Services
100 North Park, Suite 320
Helena, Montana 59601
- U.S. Environmental Protection Agency
Region VIII
999 18th Street, Suite 500
Denver, Colorado 80202-2466
- Washington Corporation
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101 International Way
Missoula, Montana 59802

Executive Summary

The Montana Department of Transportation (MDT) proposes to improve the 5.3-kilometer (3.3-mile) segment of North Reserve Street (US Highway 93) from South Third Street through the Interstate 90 (I-90) interchange in Missoula, Montana. The proposed improvements will complete the northern portion of this principal arterial that serves as the primary route of US Highway 93 through Missoula and the only north/south bypass of the Missoula downtown area. Similar improvements to the portion of Reserve Street extending south from the intersection with South Third Street were completed in 1993. Completion of the northern segment of Reserve Street will create a continuous cross-section and highway facility of sufficient capacity for a 20-year design horizon along the western edge of the Missoula urban area. Two alternatives were evaluated including the No-Build Alternative and the Preferred Alternative.

The proposed improvements (Preferred Alternative) will include widening the existing two-lane (and two-lane with center two-way left-turn lane) facility, including the widening, modification or replacement of four existing bridge structures, to a multi-lane roadway with left-turn lanes at major intersections and approaches, with provisions for stormwater runoff and erosion and sedimentation control. Also included are 2.4-meter (8-foot) bicycle lanes and 1.6-meter (5-foot) sidewalks on both the east and west sides of the roadway. The roadway design speed will be 80 kph (50 mph) and all horizontal and vertical curves will be designed and constructed to meet accepted design standards for this type of facility. The proposed improvements also include modifications to the Reserve Street interchange at I-90 and the interchange at Reserve Street at Broadway.

An assessment of environmental impacts of these proposed actions is included in Chapter Four of this document. Major findings of this Environmental Assessment (EA) include:

1. The Preferred Alternative will attain a consistent roadway section for sufficient vehicular capacity to accommodate existing and future traffic volumes along Reserve Street, which serves regional traffic as the primary US Highway 93 route through Missoula and local traffic as a principal urban arterial.
2. The Preferred Alternative will provide a continuous north/south non-motorized travel route and direct links to major east/west non-motorized facilities planned through Missoula.
3. The Preferred Alternative is consistent with locally-planned, highway-oriented commercial/industrial land uses adjacent to the segment of Reserve Street between the I-90 interchange and the Clark Fork (River).

4. It is estimated that approximately 25 residences are currently impacted by highway traffic noise levels approaching or exceeding the Noise Abatement Criteria for sensitive receptors of 67 decibels. By the Year 2015, an additional 30 residences will receive noise levels which approach or exceed this Noise Abatement Criteria.
5. The Preferred Alternative will result in impacts to approximately 0.2 hectare (0.5 acres) of wetlands in the vicinity of the Clark Fork.
6. Right-of-way acquisition of approximately 0.6 hectare (1.6 acres) from 24 individually-owned properties will be necessary.
7. Relocation of utilities through the corridor will include natural gas, electrical and telephone.

Mitigation for the impacts described above is described in Chapter Four of this document.

Other documents that have been prepared and are applicable to the project include:

- North Reserve Street Widening Project, Traffic Technical Memorandum - Final, prepared by Carter & Burgess, July, 1996.
- North Reserve Street Widening Project, I-90 Interchange Alternative Analysis, prepared by Carter & Burgess, November, 1995.
- North Reserve Street Widening Project, Old Milwaukee Bicycle/Pedestrian Facility Draft Technical Memorandum, prepared by WGM group, December 8, 1995.
- North Reserve Street Widening Project, Public Involvement Status Update Report, prepared by WGM group, June 20, 1996.

1.0 Description of Proposed Action

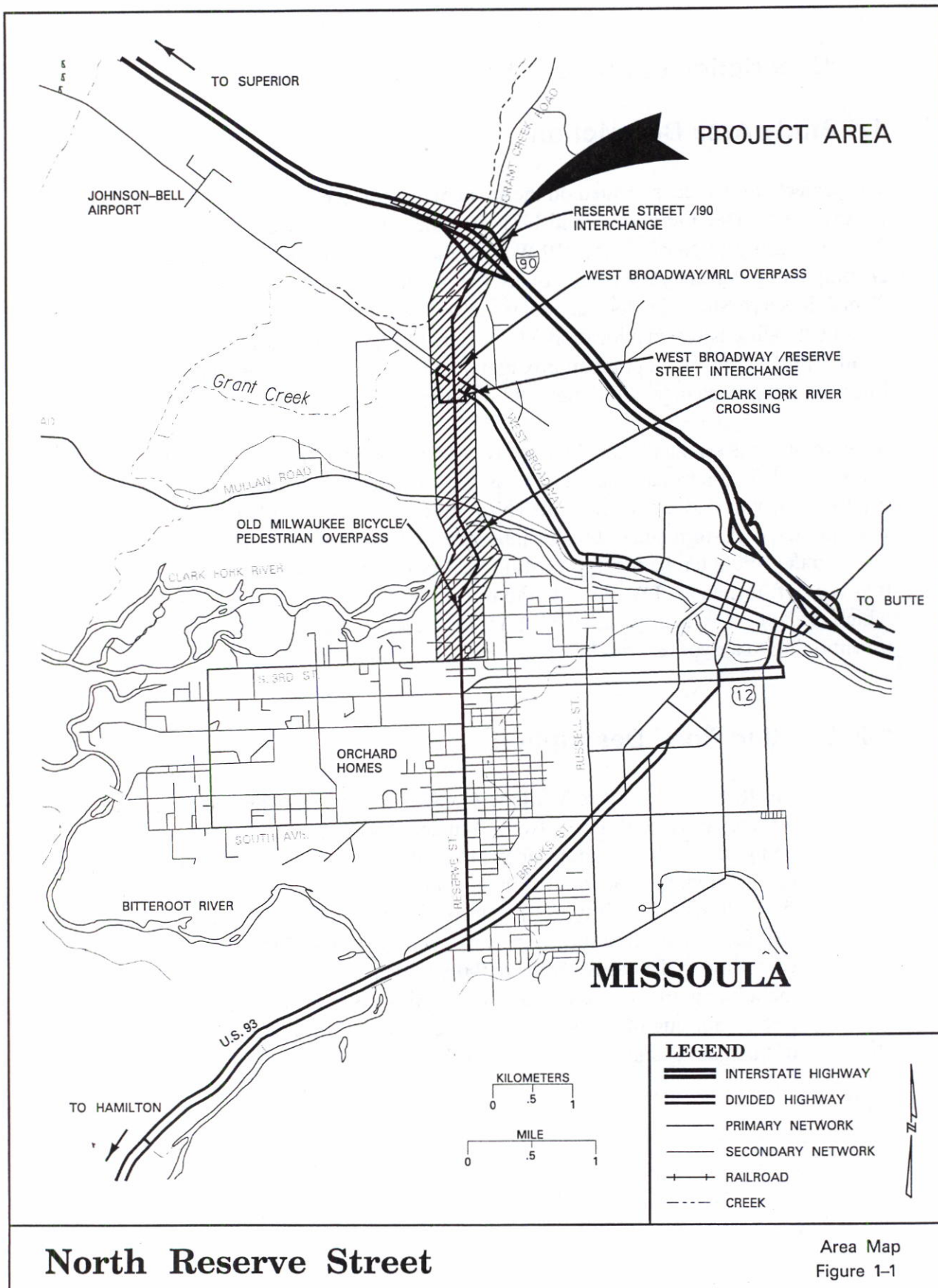
1.1 Study Area Description

The project study area is located on the western edge of the City of Missoula, Montana on Reserve Street (see Figures 1-1 and 1-2). It is located within Sections 5, 7, 8, 17, 18, 19 and 20 of Township 13 North, Range 19 West of the Montana Principal Meridian. The terrain encompassing the study area is relatively flat in nature. The project, hereafter referred to as "North Reserve Street," is located along a 5.3-kilometer (3.3-mile) segment of Reserve Street extending between a location 54.9 meters (180 feet) north of the intersection with South Third Street, and a point approximately 330 meters (1,082 feet) north of the Interstate-90 interchange at kilometer 8.91 (milepost 5.54).

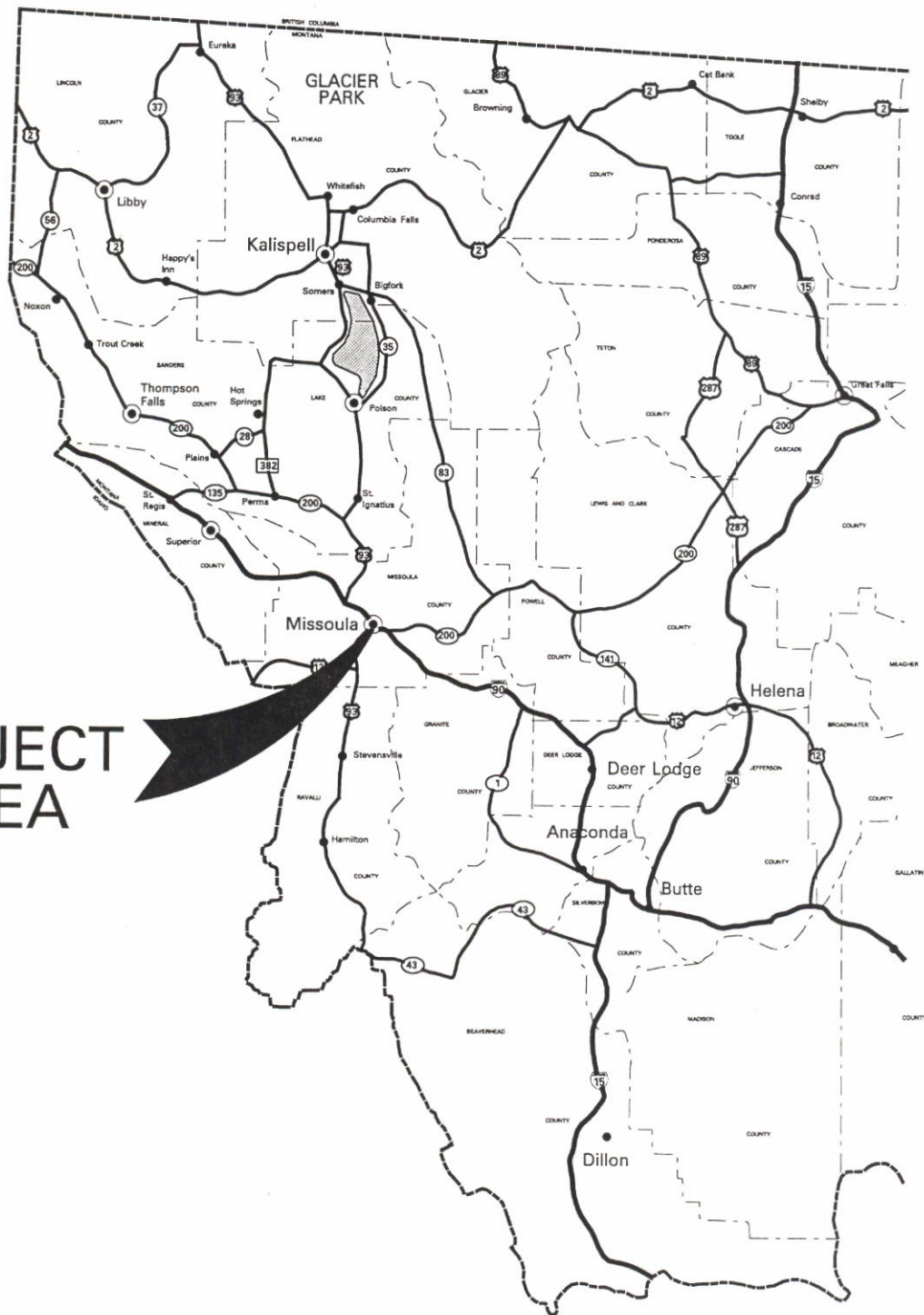
Reserve Street is on the National Highway System and is designated as US Highway 93 connecting US 93 north and south of Missoula. The existing principal urban arterial facility is a two-lane roadway between South Third Street and Stockyard Road/International Drive, with auxiliary left-turn lanes at major intersections. From Stockyard Road/International Drive to the I-90 interchange, the existing facility is a two-lane roadway with a continuous two-way left-turn lane (TWLTL). North of I-90, Reserve Street becomes Grant Creek Road, which is a two-lane facility with a TWLTL for 1.5 kilometers (0.9 miles) before transitioning to a two-lane rural road.

1.2 Existing Road Description

- **South Third Street to Mullan.** Constructed in 1979, this section includes two 3.6-meter (12-foot) lanes, two 3.0-meter (10-foot) shoulders, and concrete curb and gutter with a concrete sidewalk on the east side. When it was originally constructed, this section was intended to be the future northbound lanes of a future four-lane facility. The right-of-way varies from 33.6 to 39.7 meters (110 to 130 feet) from centerline to the west, and 12.2 to 27.5 meters (40 to 90 feet) from centerline to the east. There are three bridge structures located in this section, including a bridge crossing of the old Milwaukee Railroad (now abandoned), a bridge crossing of an overflow channel of the Clark Fork (River), and a crossing of the main channel of the Clark Fork.



PROJECT
AREA



North Reserve Street

Regional Map
Figure 1-2

The adjacent land area is occupied primarily by low- to medium-density residential properties with single-story structures characteristic of a suburban area. The Clark Fork and its wide floodplain traverses this corridor segment. The floodplain vicinity is undeveloped and composed of native grasses and riparian vegetation.

- **Mullan to South of I-90.** This section was constructed in 1968, and includes two 3.6-meter (12-foot) lanes and two 2.4- to 3.0-meter (8- to 10-foot) shoulders. This segment also includes a TWLTL between I-90 and Stockyard Road/International Drive and striped left-turn lanes at intersections within the segment between Mullan Road and Broadway. This section was intended to be the future southbound lanes of a four-lane facility. Right-of-way varies from 27.5 to 30.5 meters (90 to 100 feet) from centerline to the east, and 15.3 to 45.8 meters (50 to 150 feet) to the west. There is one bridge structure located in this section crossing both west Broadway (Highway 10 west) and the Montana Rail Link railroad lines. Most of the adjacent land is occupied by large commercial or light industrial uses and the remaining parcels are either vacant or experiencing development of commercial uses.
- **I-90 Interchange.** This section was built in 1966 as part of the I-90/Grant Creek Interchange construction. It includes two 3.6-meter (12-foot) lanes and two 1.2-meter (4-foot) shoulders, and extends under the existing I-90 structures.
- **Grant Creek Road.** This 1.5-kilometer (0.9-mile) section was reconstructed in 1994 as a two-lane with TWLTL facility. It includes two 3.6-meter (12-foot) lanes, two 2.4-meter (8-foot) shoulders, a 1.8-meter (5.2-foot) sidewalk on the east side, and a 4.2-meter (14-foot) TWLTL. This roadway leads north to areas of low-density residential development within the expansive Grant Creek drainage area and recreational uses in the surrounding mountains. The road then transitions to a narrow, two-lane rural roadway leading to public and private lands and a ski area.

East/west roadways intersecting North Reserve Street on one or both sides of the roadway include:

Roads intersecting North Reserve Street from both directions:

- River Road
- Mullan Road
- West Broadway on and off-ramps
- Stockyard Road/International Drive
- Union Pacific
- American Way
- Raser Drive/Expressway
- I-90 on- and off-ramps

Roads intersecting from the east side at North Reserve Street:

- Palmer
- Northern Pacific
- Lower Grant Creek Road

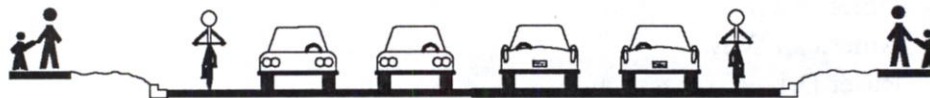
Roads intersecting from the west side of North Reserve Street:

- Clark Fork Drive
- Schramm Road (Wheeler Road)
- Tina Drive
- Michael Road

1.3 Preferred Alternative Description

The Preferred Alternative (shown in Figure 1-3) is a combination four-lane and four-lane with a TWLTL roadway with supplemental turning and storage lanes at major intersections. The Preferred Alternative has a design speed of 80 kph (50 mph). Since this project is on the National Highway System, it will meet National Highway System standards. The posted speed limit along North Reserve Street will be 70 kph (43.5 mph). The Preferred Alternative includes a 2.4-meter (8-foot) striped bicycle lane, and a 1.6-meter (5-foot) concrete sidewalk along both sides of the roadway throughout the project.

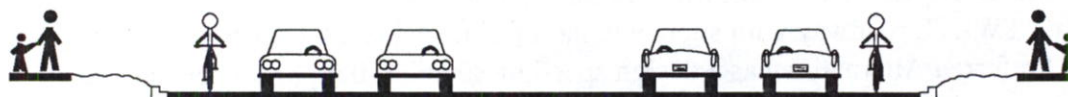
19.2m (63.0ft)									
1.6m (5.2ft)	0-2.4m (0-7.9ft)	2.4m (7.9ft)	3.6m (11.8ft)	3.6m (11.8ft)	3.6m (11.8ft)	3.6m (11.8ft)	2.4m (7.9ft)	0-2.4m (0-7.9ft)	1.6m (5.2ft)
Walk	Varies	Bike Lane	Travel Lane	Travel Lane	Travel Lane	Travel Lane	Bike Lane	Varies	Walk



PREFERRED ALTERNATIVE – FOUR LANE SECTION

Note 4.2m turn lane present at River Road intersection

23.4m (76.8ft)										
1.6m (5.2ft)	0-2.4m (0-7.9ft)	2.4m (7.9ft)	3.6m (11.8ft)	3.6m (11.8ft)	*4.2m (13.8ft)	3.6m (11.8ft)	3.6m (11.8ft)	2.4m (7.9ft)	0-2.4m (0-7.9ft)	1.6m (5.2ft)
Walk	Varies	Bike Lane	Travel Lane	Travel Lane	Turn Lane	Travel Lane	Travel Lane	Bike Lane	Varies	Walk



PREFERRED ALTERNATIVE – FIVE LANE SECTION

* Mullan Rd.-Broadway = 4.2m striped left turn lane

International Way -I-90 = 4.2m TWLTL

NORTH RESERVE STREET

Preferred Alternative Sections
Figure 1-3

Two typical sections were developed for the Preferred Alternative. These sections are shown in Figure 1-3 and described as follows:

- **Four-Lane Section (South Third Street to Mullan Road and the Broadway Overpass)**
 - Four 3.6-meter (12-foot) travel lanes
 - Two 2.4-meter (8-foot) bike lanes
 - Roadway width (curb to curb) is 19.2 meters (63.0 feet)
 - Detached 1.6-meter (5-foot) sidewalks on each side
 - Landscaped or grass, 0 to 2.4-meter (0 to 8-foot) boulevards on each side (not on structures) or where right-of-way is restricted
- **Four-Lane with TWLTL Section (Mullan Road to I-90)**
 - Four 3.6-meter (12-foot) travel lanes
 - A 4.2-meter (14-foot) two-way left-turn lane
 - Two 2.4-meter (8-foot) bike lanes
 - Roadway width (curb to curb) is 23.4 meters (76.8 feet)
 - Detached 1.6-meter (5-foot) sidewalks on each side
 - Landscaped or grass 0 to 2.4-meter (0 to 8-foot) boulevards on each side

Special design features incorporated into the Preferred Alternative include:

- Bike lanes and detached sidewalks
- Lighting
- Landscaping
- Conversion of the Old Milwaukee Railroad overpass to a crossing of non-motorized traffic
- Pedestrian crossing near Lower Grant Creek Road
- Provisions for a future bike trail crossing under North Reserve Street north of the Clark Fork River
- Trail connection on the north end of the study area
- Bus pullouts
- Raised medians immediately south of the Broadway overpass to prevent left turns at the ramp terminals of the Reserve Street/Broadway Interchange.

Stormwater Treatment

Existing stormwater runoff on North Reserve Street is collected in drop inlets and carried to open roadside ditches or swales. Contaminated stormwater is treated in these ditches before being allowed to enter water sources.

The Preferred Alternative will utilize grassy swales where possible. These swales will be located within right-of-way limits. Two detention basins will also be used, as described below:

- A detention basin will be constructed inside the west loop ramp of the Broadway/Reserve Street interchange to provide sedimentation of suspended materials for stormwater collected between I-90 and the Broadway/MRL overpass.
- A detention basin will be constructed south of Mullan Road and east of Reserve Street to provide sedimentation of suspended materials for stormwater collected between Broadway and the Clark Fork before outfalling to the Clark Fork.

Old Milwaukee Bicycle/Pedestrian Overpass

The grade separated crossing of the Old Milwaukee Railroad (abandoned) will be lowered and widened to accommodate the widened roadway cross-section. The structure will be lowered to provide a 3.1 meter (10.1 foot) clearance under the structure. The overpass will provide a grade separated crossing of a bicycle/pedestrian facility that is planned along the Old Milwaukee corridor.

River Crossing

The existing crossing over the Clark Fork consists of two bridges; one over the main channel and one over an overflow channel immediately south of the main channel. The existing structures will be widened to the west to accommodate the four-lane section. The proposed structures will be tied to the existing structures and will match profile, superelevation, pier locations, and span lengths.

Railroad Crossing

The West Broadway/MRL overpass will be widened to the east to accommodate four traffic lanes, bicycle lanes, and sidewalks. The existing bridge deck is near the end of its design life and will be replaced by this project. The profile grade will be lowered approximately one meter (3.3 feet). New abutments will be constructed on both ends of the overcrossing. The existing piers will be extended to accommodate the widening of the structure. The reduced profile grade facilitates large truck acceleration and stopping at intersections adjacent to the overcrossing. The reduced profile grade also improves sight distance and travel conditions for bicyclists and pedestrians. A minimum vertical clearance of 7.2 meters (23.6 feet) will be provided over the existing MRL tracks.

Roadway Alignment

The horizontal alignment of the Preferred Alternative closely follows the existing alignment of North Reserve Street. The alignment will match the centerline of the South Reserve Street project at South Third Street, and the Grant Creek Road centerline at the north end of the project. Construction will involve a shift from the existing centerline to the east or west depending on right-of-way as follows:

- South Third Street to Mullan Road - West Offset
- Mullan Road to south of I-90 - East Offset
- I-90 interchange - West Offset

Intersections

Full movement, stop-sign-controlled intersections will be provided within the four-lane segment between South Third Street and International Drive at River Road, Palmer Street, American Way, Tina Drive, and International Drive/Stockyard Road. At each of these locations only the approaches will be stop sign controlled and Reserve Street will remain uncontrolled. A full-movement tee intersection will remain at Tina Drive and Palmer Street. The existing signalized intersections at Mullan Road, Union Pacific Road, and Northern Pacific Road will be upgraded to accommodate an additional lane and signal phase for left-turn movements. Traffic signals will be installed at the Reserve Street/Broadway interchange on- and off-ramps. The intersection of the Broadway ramps on Reserve Street will be modified to maximize vehicle safety and to accommodate traffic signals.

Clark Fork Drive will be realigned at its intersection with North Reserve Street to improve geometry and accommodate the large trucks accessing this industrial area. Access at this intersection will be limited to right turns in and out because of conflicts with the left-turn bay at Mullan Road. A new roadway is currently being constructed to provide alternate access onto Mullan Road.

In the proposed section between International Drive/Stockyard Road and I-90, full movement stop-sign-controlled (on the intersecting road) intersections will be provided at International Drive, Stockyard Road, Schramm Road, and Michael Road. A right-out intersection is proposed at Lower Grant Creek Road due to the unique alignment and travel patterns and to maximize safety in the vicinity of the interchange. Traffic signals are proposed for Expressway / Raser Drive, and for both I-90 interchange ramps.

I-90 Interchange

The existing structures at I-90, two 4-span bridge structures across North Reserve Street and Grant Creek, will not be modified. Grant Creek will be relocated to a box culvert in the western-most span and the proposed North Reserve Street lanes will occupy the middle two spans of the bridges. Retaining walls will be required in each of the outer two spans to accommodate a combined bicycle/pedestrian path on each side of the roadway. Traffic signals are proposed for both intersections of the ramp terminals and Reserve Street. The west on-ramp and westbound I-90 will be widened to accommodate additional lanes, merge lanes and tapers.

Vertical Alignment

The proposed vertical alignment will generally match the existing North Reserve Street profile; however, slight modifications will be made to provide improved sight distances, clearance requirements, and facilitate drainage. Modification to the Old Milwaukee Railroad overpass will eliminate vertical curvature that currently does not meet the minimum requirements for stopping sight distance. All grades will be less than the maximum allowable seven percent grade. A 3.1-meter (10.1-foot) clearance will be provided at the Old Milwaukee Railroad overpass. The vertical alignment will accommodate all existing access to adjacent businesses and residences. As discussed above, the profile grade line over the Broadway/MRL Railroad crossing will be lowered approximately one meter (3.3 feet). Grades will also be modified under the I-90 overpass to provide adequate vertical clearance under the bridge. The grades will be modified to provide 5.05-meter (16.56-foot) clearance. Grades will also be modified to provide a minimum profile grade of 0.5 percent to facilitate positive drainage.

2.0 Purpose and Need for Action

2.1 Overview

The primary purpose and need for improvements to North Reserve Street is to:

- Move people and products more efficiently by reducing congestion, and improving mobility by providing for existing and projected traffic volumes (average LOS C for a 20-year design life).
- Improve the facilities for other transportation modes, particularly pedestrians, bicyclists, and transit.
- Improve overall safety conditions for pedestrians, bicyclists, and motorized vehicles to reduce the number and frequency of accidents.
- Provide for system continuity for local, regional, and international traffic.
- Provide for ongoing and anticipated growth and development along North Reserve Street.

2.2 Traffic Volumes and Characteristics

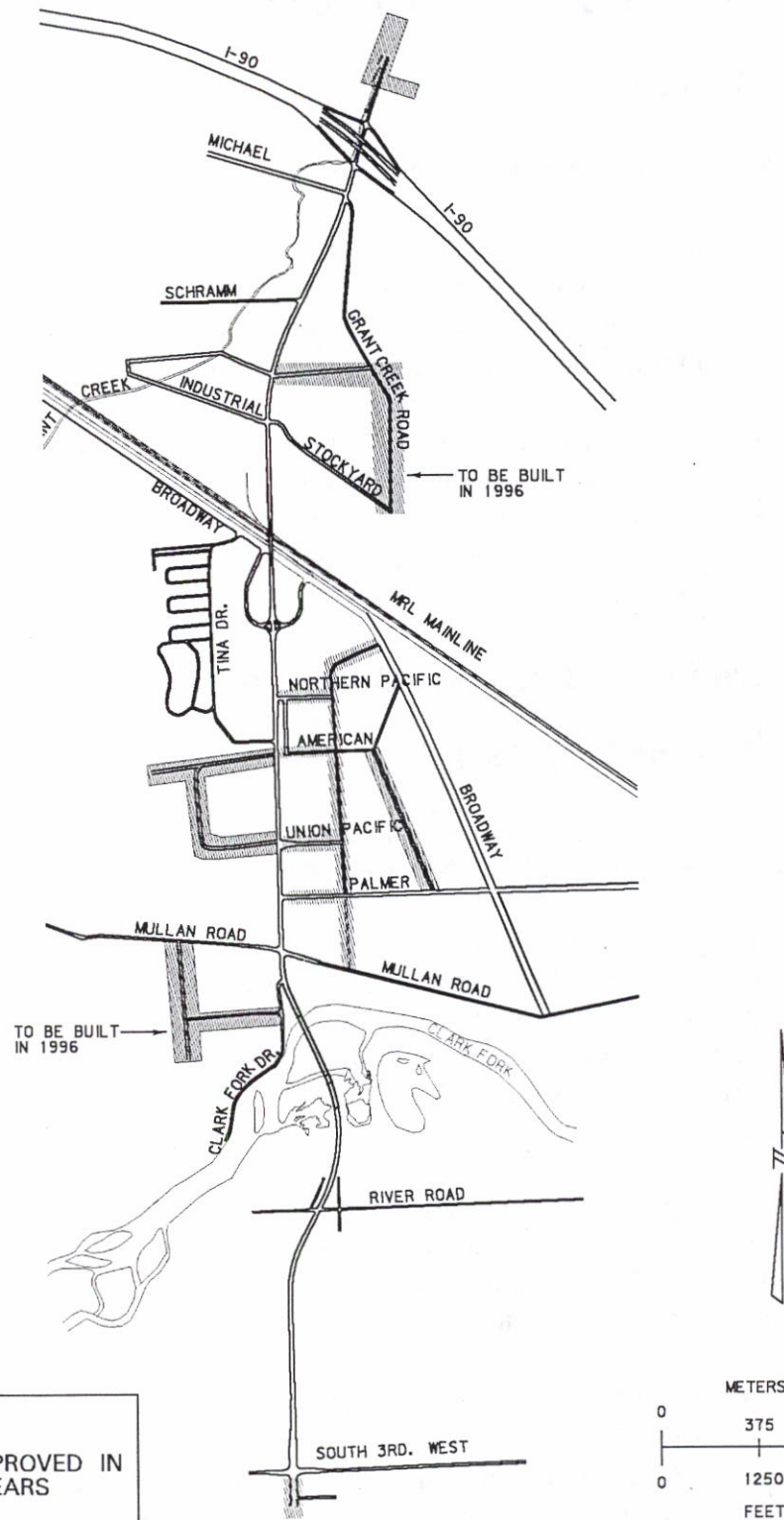
2.2.1 Existing Conditions

Records of the City of Missoula indicate North Reserve Street traffic has been growing at an average annual rate of 11 percent since 1990.

As traffic volumes have increased, the roadway network surrounding the corridor has also been expanding. Newly-constructed roadways have been developed by the County and by developers as part of annexation requirements. Recent roadway improvements have also included the 1992 expansion of Reserve Street between Brooks Street (US 93) and South Third Street. Roadways constructed or improved within the last five years are highlighted in Figure 2-1.

AM and PM peak-hour intersection counts were obtained in May 1995 and are provided in the technical memorandum titled *North Reserve Street Widening Project, Traffic Technical Memorandum - Final* prepared by Carter & Burgess, July 1996. The traffic mix obtained from the 1995 counts includes:

- 7-8 percent of heavy trucks in the AM peak hours (a relatively high portion of trucks)
- 2-6 percent of heavy trucks in the PM peak hours
- Minimal pedestrian volumes (possibly due to the lack of sidewalks and pedestrian facilities).
- Minimal bicycle volumes (possibly due to the lack of bicycle facilities)



North Reserve Street

Recently Improved Roadways
Figure 2-1

Detailed diagrams displaying existing (Year 1995) and forecast (Year 2018) intersection traffic volumes are included in Appendix B of this document.

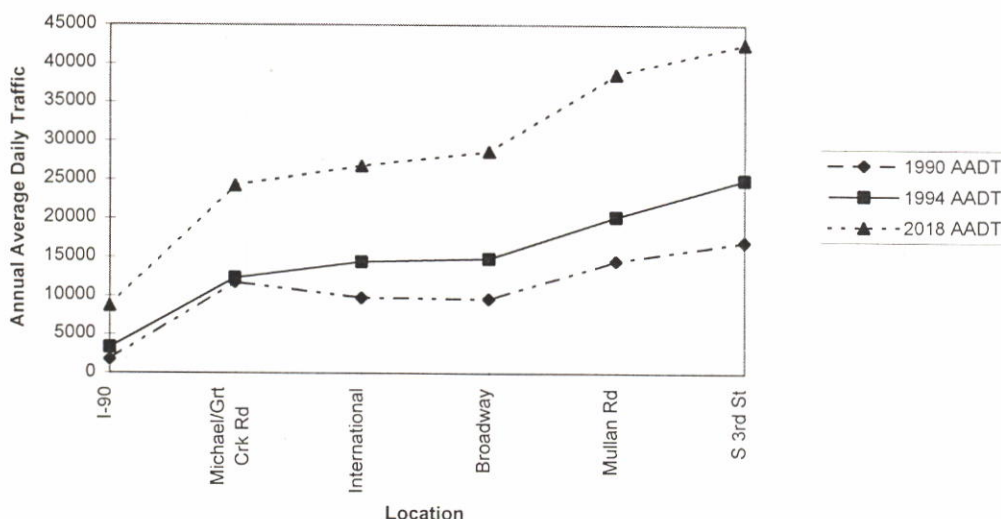
Level-of-Service (LOS) provides a qualitative definition of the extent of congestion with "LOS A" representing minimal delay and congestion, and "LOS F" representing substantial delay and congestion. LOS is graphically described in Figure 2-2.

Existing (1995) intersection LOS for signalized intersections for existing conditions is shown in Figure 2-3.

2.2.2 Projected Conditions

Historic, existing and forecast future traffic volumes along North Reserve Street are shown on Table 2-1.

Table 2-1
Historic, Existing and Future Traffic Along North Reserve Street

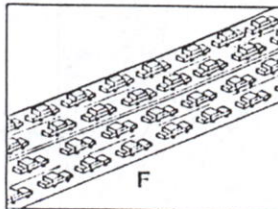
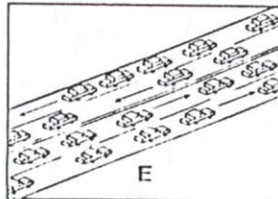
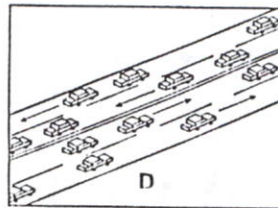
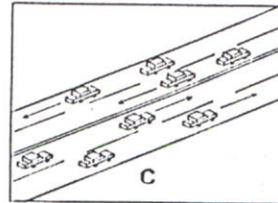


Source: City records, *Missoula Regional Transportation Plan Update* (RTP)

The design year for the North Reserve Street improvements is 2018, 20 years past the expected project completion date of 1998. The three percent growth rate occurring between current conditions and the RTP 2015 projections was extrapolated for three additional years to 2018, as documented in the traffic technical memorandum, titled *North Reserve Street Widening Project, Traffic Technical Memorandum-Final*, prepared by Carter & Burgess, July 1996.

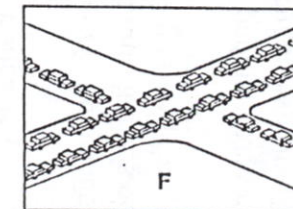
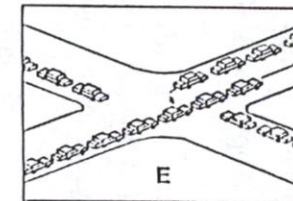
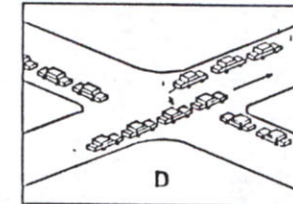
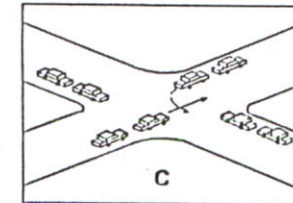
LOS Roadway Segments

- A Free flow, low traffic density
- B Minimum delay, stable traffic flow
- C Stable condition, movements somewhat restricted due to higher volumes, but not objectionable for motorists
- D Movements more restricted, queues and delays may occur during short peaks, but lower demands occur often enough to permit clearing, preventing excessive backups
- E Actual capacity of the roadway involves delay to all motorists due to congestion
- F Forced flow with demand volumes greater than capacity resulting in complete congestion

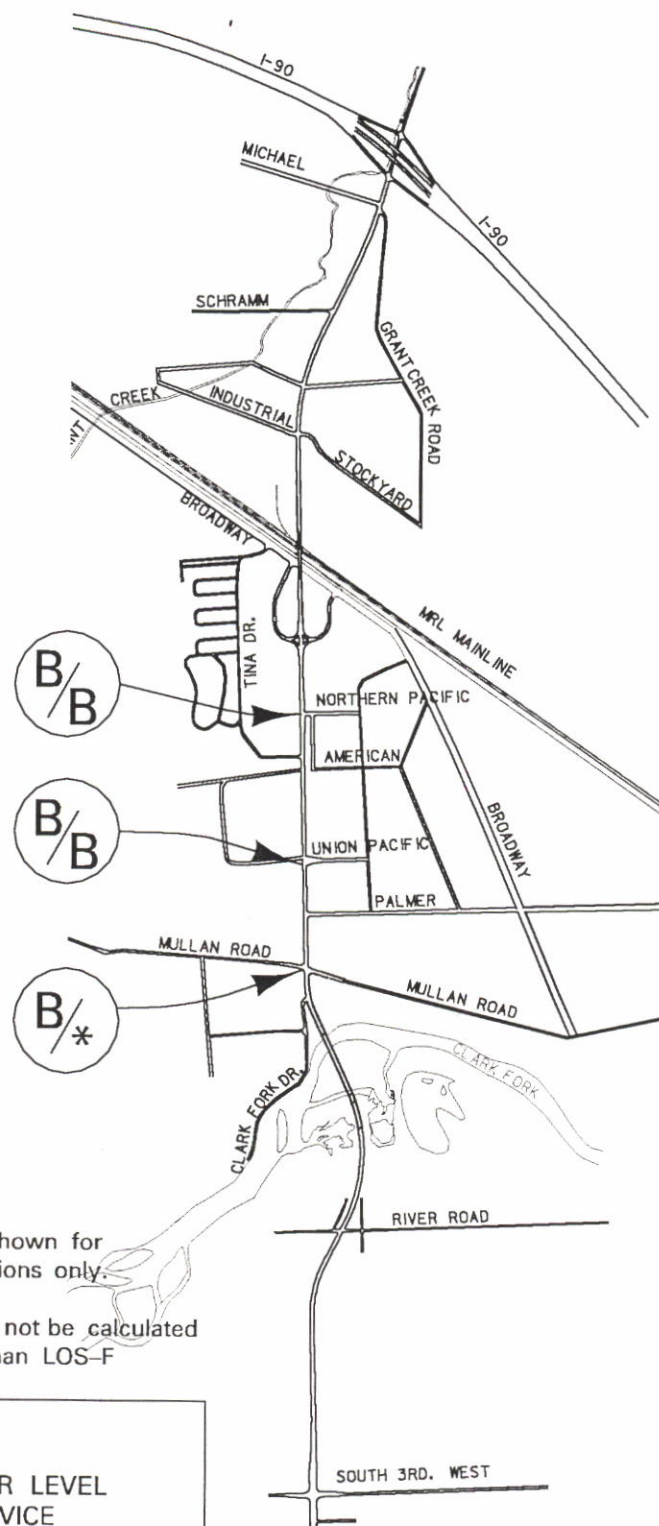


LOS Intersections

- A No vehicle waits longer than one signal indication
- B On a rare occasion vehicles wait through more than one signal indication
- C Intermittently vehicles wait through more than one signal indication, occasionally backups may develop, traffic flow still stable and acceptable
- D Delays at intersections may become extensive, but enough cycles with lower demand occur to permit periodic clearance, preventing excessive backups
- E Very long queues may create lengthy delays
- F Backups from locations downstream restrict or prevent movement of vehicles out of approach creating a "gridlock" condition



Source: Highway Capacity Manual, Special Report 209 Third Edition, Transportation Research Board, 1994



NOTE: Intersection LOS shown for signalized intersections only.

* indicates LOS can not be calculated and LOS is less than LOS-F

LEGEND



PEAK HOUR LEVEL OF SERVICE

North Reserve Street

Existing (1995) LOS
Figure 2-3

Analysis of the future (Year 2018) traffic volumes on North Reserve Street indicates that the existing facility (without any modification) will be operating at LOS D, E or F throughout much of the peak travel period. The gradual deterioration in LOS along North Reserve Street will result in considerable delays to the motorist and exacerbate carbon monoxide pollution in the area. The LOS projected for the year 2018 if no improvements are made (no-build) are shown in Figure 2-4.

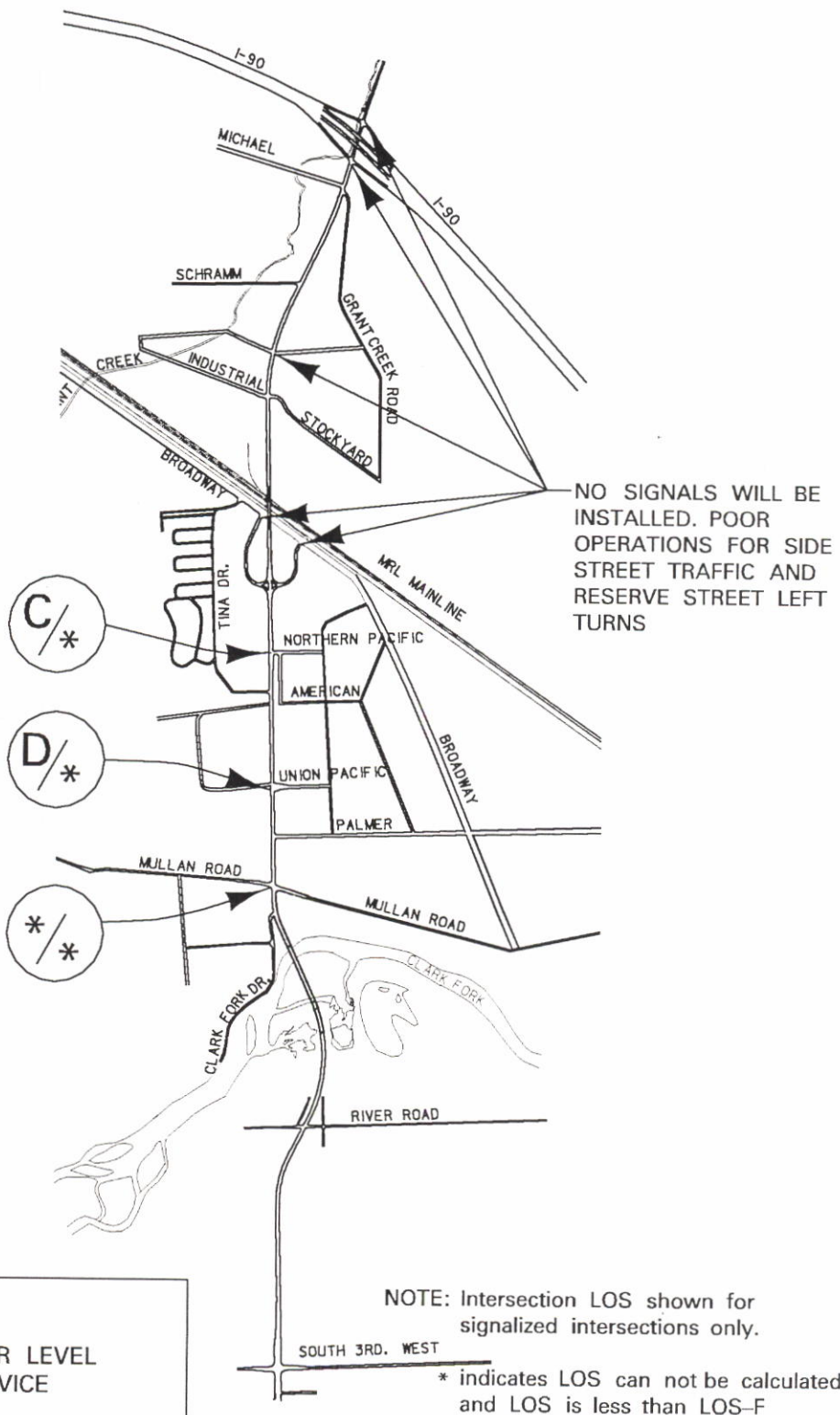
In addition to increasing delays to the motorist, both the Missoula Police Department and the Missoula Fire Department have expressed concern about effect of congestion to their operations (see letters in Appendix A). The Police Department has stated that their officers avoid North Reserve Street during peak traffic periods because they cannot risk being tied up in traffic. If a serious disaster requiring evacuation should occur, the probability of serious injury to a motorist exists. The Fire Department has stated that their emergency vehicles have had to come to a complete stop along North Reserve Street, a situation they have called an "emergency response nightmare."

2.2.2.1 Intersection Level of Service (LOS)

Currently, signalized intersections along North Reserve Street operate between LOS B and LOS F during the hours of peak traffic. Unsignalized intersections along the corridor operate well for Reserve traffic; however, side-street traffic suffers significant delay due to the large volumes on the major street (Reserve) and the lack of available gaps in traffic.

The LOS projected for the design year 2018 for the No-Build is shown in Figure 2-4 and for the Preferred Alternative in Figure 2-5. The No-Build operations would range from LOS B to intersection failure at all non-signalized intersections along the route, resulting in congested roadways throughout the corridor.

The Preferred Alternative is anticipated to provide LOS B through D for all signalized intersections, except Mullan Road, during PM peak-hour conditions in the year 2018. The technical memorandum, previously referenced in this section, details the impacts to the intersection of Mullan and Reserve Street. While the Preferred Alternative will result in optimal operations along North Reserve Street at this intersection, no improvements are committed for Mullan Road. It is projected to carry over 15,000 vpd by 2015 and significant congestion and delay is expected along this major east/west roadway. Additional right-of-way around the intersection of North Reserve Street and Mullan Road will be acquired as part of this project to accommodate an increase in the intersection capacity corresponding to a potential future expansion of Mullan Road.



LEGEND

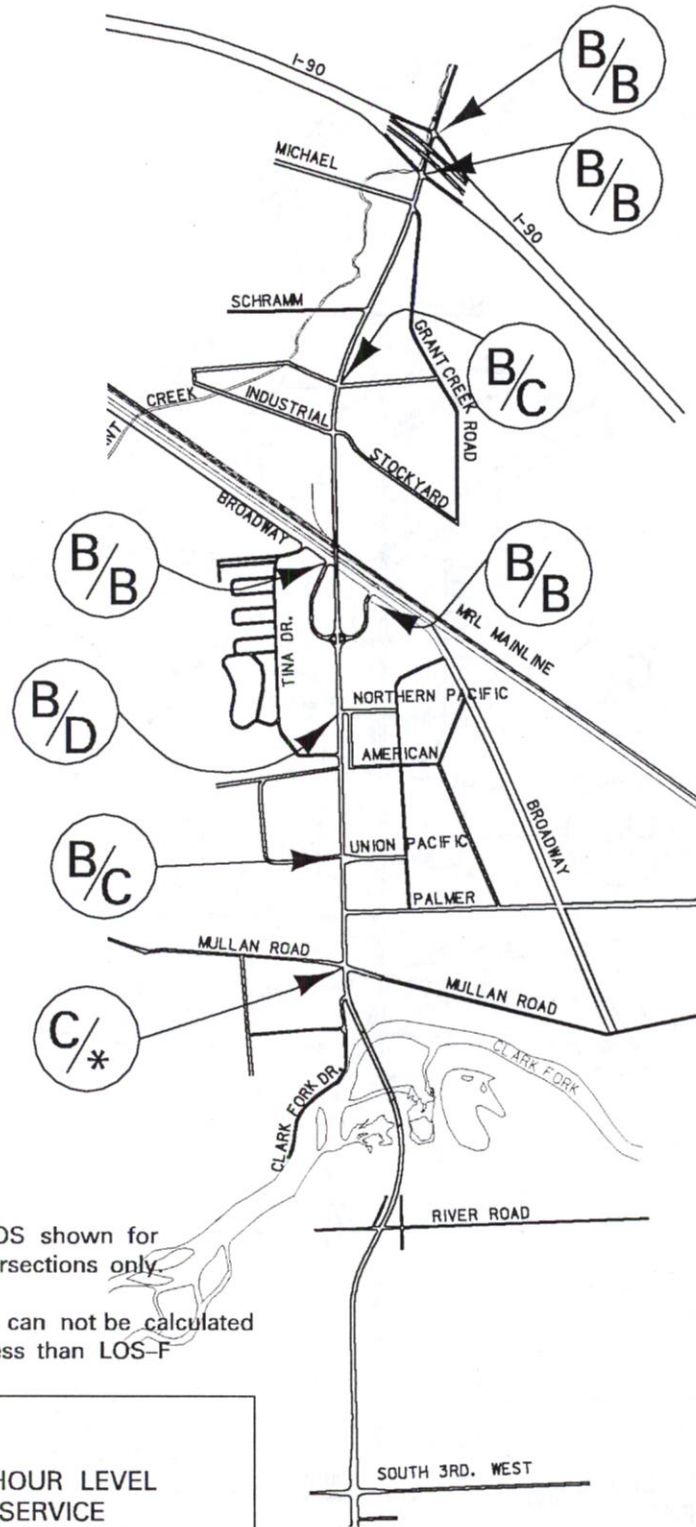


PEAK HOUR LEVEL
OF SERVICE

North Reserve Street

Design Year (2018) LOS for
the No-Build Alternative

Figure 2-4



NOTE: Intersection LOS shown for
signalized intersections only.

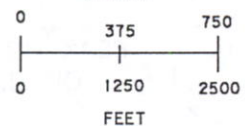
* indicates LOS can not be calculated
and LOS is less than LOS-F

LEGEND



PEAK HOUR LEVEL
OF SERVICE

METERS



North Reserve Street

Design Year (2018) LOS for
the Preferred Alternative
Figure 2-5

2.3 System Continuity

The entire Reserve Street corridor from Brooks Street to I-90 functions as an arterial with similar functional demands throughout. The adjacent development poses traffic demands that are similar and the intensity of through traffic is consistent throughout the corridor between Brooks Street and I-90. The growth rate of the traffic demand on Reserve Street is also projected to be similar throughout its length. Since the entire Reserve Street corridor has the same function, carries similar traffic volumes, and has similar functional demands it is important that there be system continuity throughout the entire corridor with a consistent LOS.

A uniform geometric configuration will promote improved driver expectancy. A higher level of predictability helps the motorist anticipate conflict and improves safety and efficiency.

The section of Reserve Street immediately to the south of the project (Brooks Street to South Third Street) has been upgraded to a five-lane facility. Increasing the capacity of the North Reserve Street section would provide continuity of this basic roadway section, therefore maintaining driver expectancy for the length of Reserve Street.

2.4 Local Access/Circulation

North Reserve Street provides a critical link for US Highway 93 running north/south through Missoula and is one of three existing interchanges with I-90 in the Missoula urban area. It serves regional and local travel as the City's only continuous north/south through route with grade-separated crossings of the MRL mainline tracks, Broadway, and the Clark Fork. As land develops and redevelops along the segment of roadway between Mullan Road and Broadway, this portion of the corridor will increasingly function as a principal urban arterial serving local traffic.

North Reserve Street currently provides access to significant land parcels, many of which are currently being redeveloped from rural to commercial/industrial uses. Because of its grade separations with Broadway, the MRL tracks, and the Clark Fork it also serves as the City's only continuous north/south through route.

Local access demand requires adequate vehicle access, requiring separate turn lanes, vehicle storage provisions, additional traffic control via signals, additional lighting to view roadway conditions (including pedestrians and bicyclists), and provisions of non-motorized facilities. Between South Third Street and Mullan Road, the only access points are at River Road and Clark Fork Drive and the Montana Department of Transportation owns the access control. Ingress/egress at these two approaches is currently constrained during congested periods by a lack of turn lanes and/or signalization.

The segment of North Reserve Street between Stockyard Road/International Drive and I-90 is characterized by multiple approaches to individual properties that are neither clearly defined access points nor aligned with access drives on the opposite side of North Reserve Street. This random configuration of multiple approaches creates confusing and inconsistent circulation patterns and disrupts the flow of through traffic in this segment. It is also difficult for bicyclists and pedestrians to travel Reserve Street where access is undefined.

The No-Build Alternative will not alter the existing access provisions along North Reserve Street. Through travel will become increasingly impaired by vehicles stopping in the travel lanes to attempt left-turn movements at intersections within the segment between Mullan Road and I-90. This alternative will exacerbate the existing difficult turn movements onto North Reserve Street from existing unsignalized approaches.

The Preferred Alternative includes the consolidation of access driveways so that they are aligned directly across from one another along the segment between Mullan Road and I-90. This will improve overall driver, pedestrian, and bicyclist safety.

The River Road intersection will be improved under the Preferred Alternative to provide left-turn and storage lanes. Additional intersection improvements will facilitate turns into and out of the concrete plant east of Reserve Street for large trucks. The Clark Fork Drive intersection will be realigned and limited to right-in/right-out only, while an alternate roadway will provide full access to Mullan Road for other vehicles.

2.5 Accidents / Safety

2.5.1 Existing Conditions

Accident data along North Reserve Street was collected from the MDT for 1994 and 1995. The review of accident data is limited to 1994 and 1995 since South Reserve Street between Brooks Street and South Third Street underwent a major reconstruction and widening in 1992 and 1993. Accidents occurring during the South Reserve Street construction period (1992-1993) would not be indicative of existing travel characteristics and safety conditions in the Reserve Street corridor and were not considered. There were 158 recorded accidents that occurred within the project limits, including the South Third Street intersection, during the 1994 and 1995 period. Statewide averages for accident and severity rates on urban systems are not available, however, the characteristics of the accidents are described within this section.

Figure 2-6 identifies the traffic accident locations for 1994 and 1995 as recorded by the Montana Department of Transportation (MDT). Table 2-2 summarizes accident locations and Table 2-3 summarizes the accident characteristics for that time period. As shown in Figure 2.5 and Table 2-2 a number of accidents occur at the following intersections:

- Reserve Street & South Third Street
- Reserve Street & Mullan Road
- Reserve Street & the Broadway Interchange
- Reserve Street at I-90

The intersection of Reserve Street & South Third West was reconstructed in 1993 and is not a part of the proposed improvements, but remains influenced by the transition to a two-lane roadway immediately to the north of the intersection.

Table 2-2
Reserve Street Accident Summary

Location	Total	Injury	Fatality	Non-Dry Road Conditions	Collision Type		
					Rear- End	Angle	Other
INTERSECTION LOCATIONS:							
On Reserve at South 3rd West	17	4		7	8	9	
On Reserve at River Road	1				1		
On Reserve Street at Mullan Road	26	9		6	9	16	1
On Reserve at Broadway	33	9		10	15	16	2
On Reserve at Stockyard Road	1					1	
On Reserve at Expressway	1	1			1		
Reserve at I-90	23	7		11	10	7	6
Intersection Totals:	102	30		34	44	49	9
Intersection Percentages:	--	29%		33%	43%	48%	9%
SEGMENT LOCATIONS:							
On Reserve between I-90 and S. 3rd West (not associated with an intersection)	56	18	1	15	42	11	3
Segment Percentages	--	32%	2%	27%	75%	20%	5%
Project Totals	158	48	1	49	86	60	12
Project Percentages	100%	30%	1%	31%	54%	38%	8%

Accident characteristics are summarized in Table 2-3 and are separated into roadway segment accidents or intersection accidents. Intersection accidents occur at an intersecting street or are influenced by the nearby intersection. Roadway segment accidents are accidents occurring between intersections.

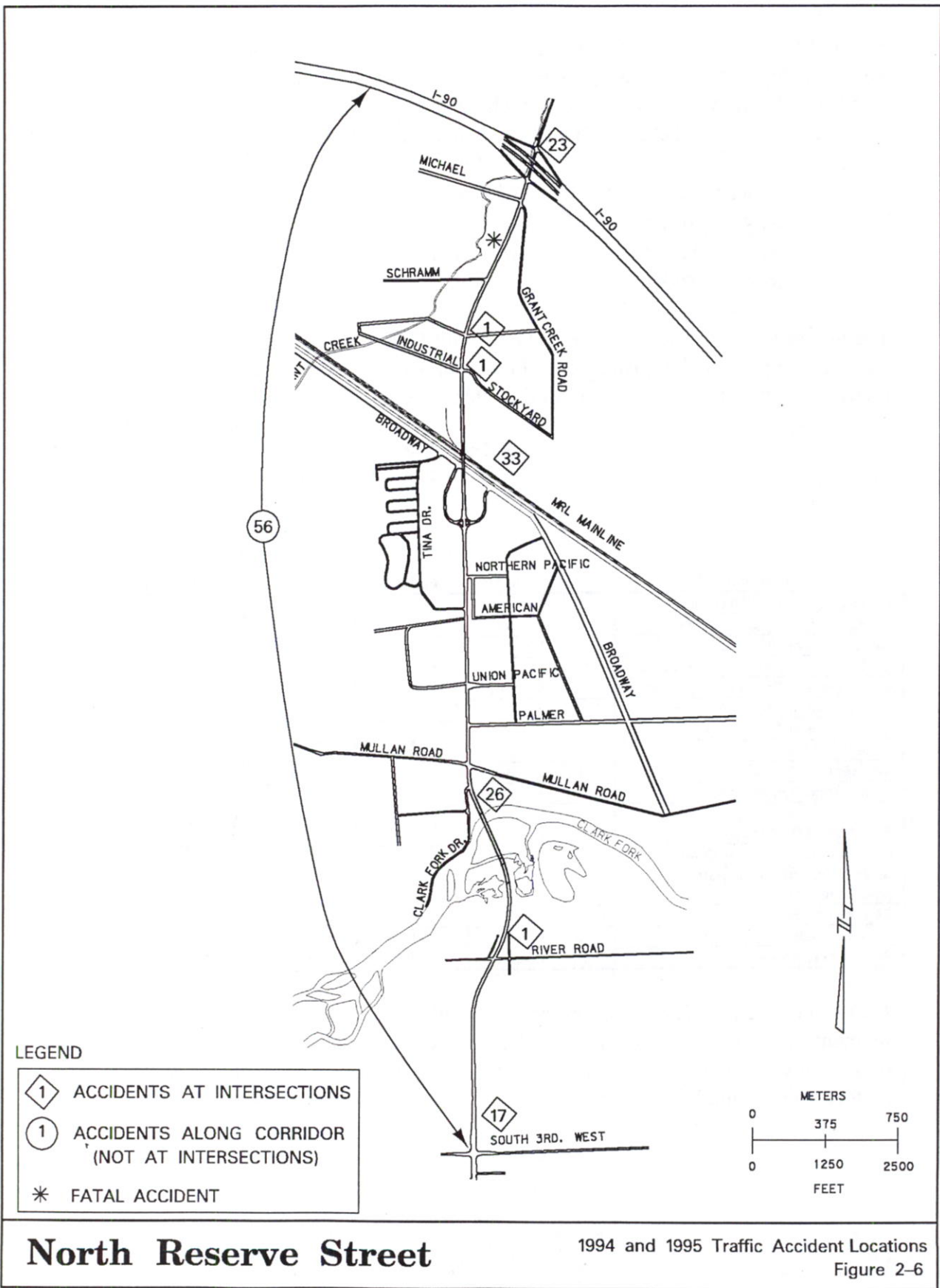
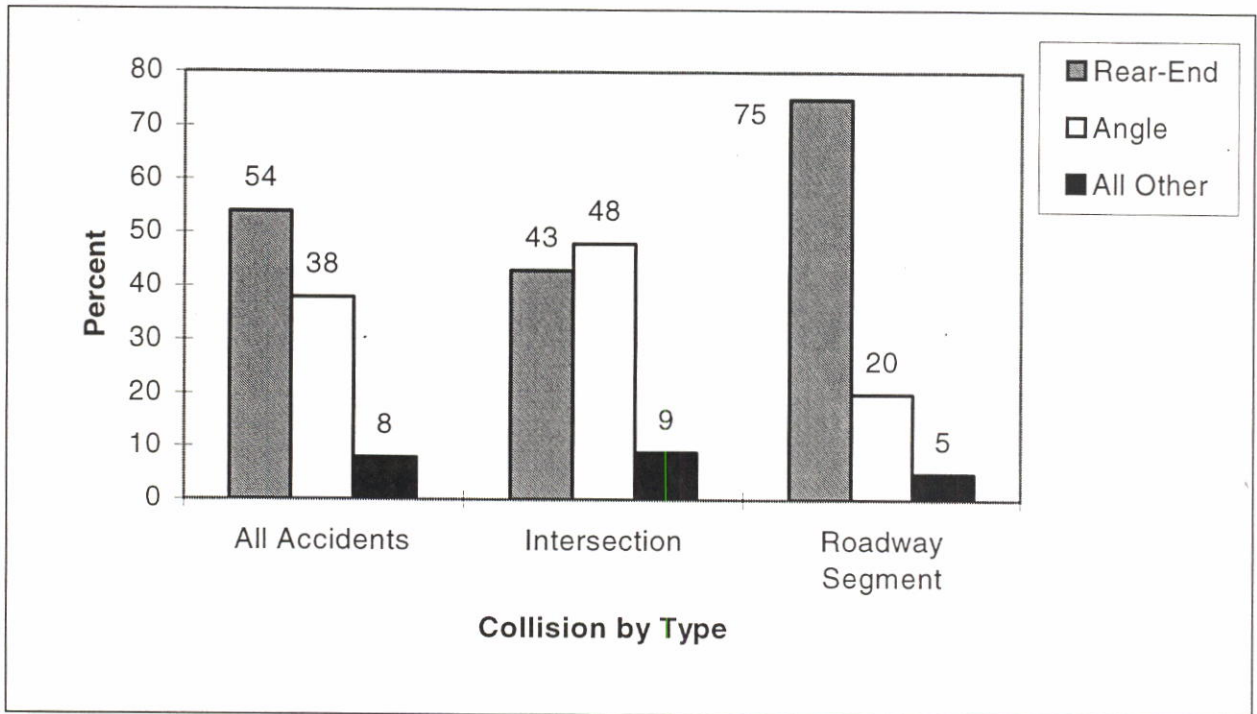
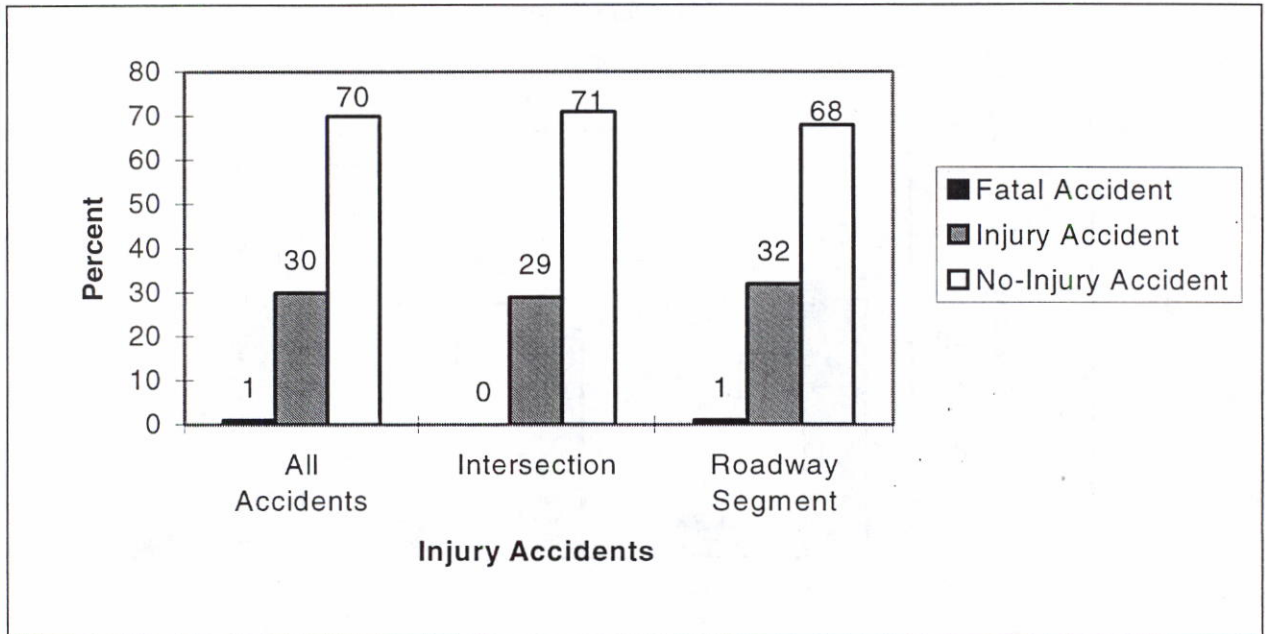


Table 2-3
Accident Summaries (1994-1995)



Note: Of the 158 recorded accidents, 102 were intersection accidents and 56 were roadway segment accidents.

Table 2-3 (continued)



Note: Of the 48 recorded injury accidents, 30 were intersection accidents and 18 were roadway segment accidents.

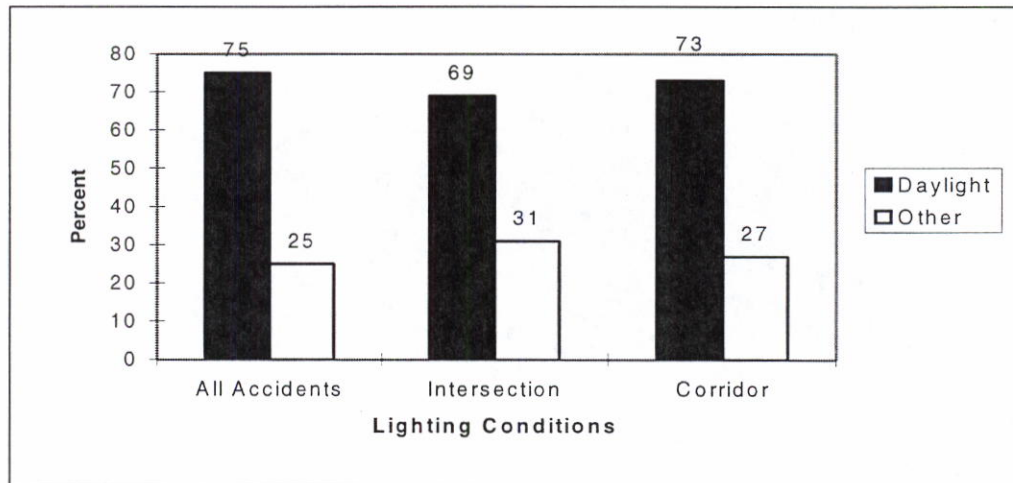
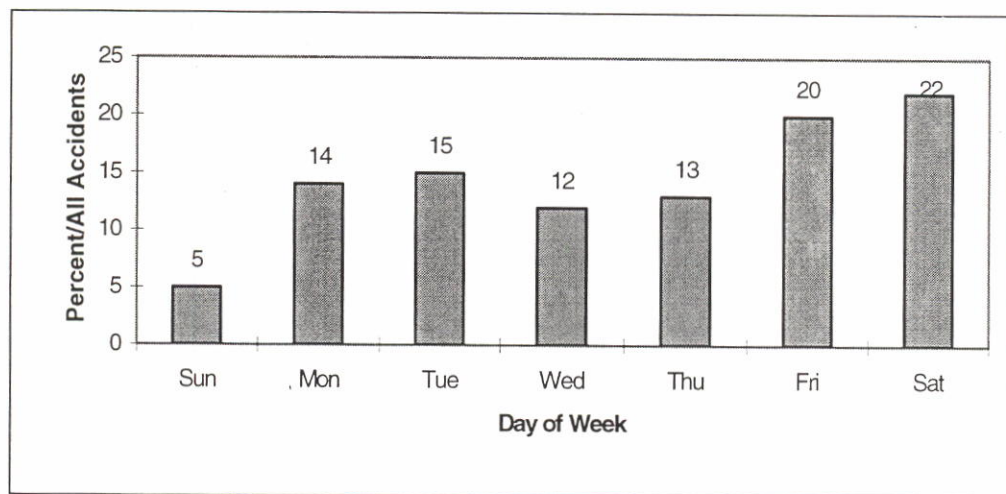
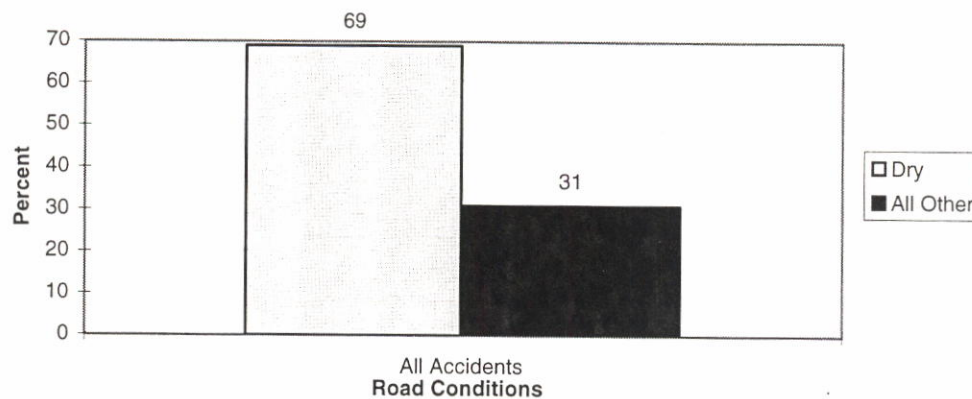


Table 2-3 (continued)



One fatal accident occurred in January, 1995 when a pedestrian crossing Reserve in an unmarked area was struck by a moving vehicle. The accident occurred during dusk or poor light conditions with poor visibility (of the pedestrian) cited. The location was just south of the I-90 and Michael Road intersections.

As shown in Table 2-2, forty eight of 158 accidents (30%) occurring over the two-year evaluation period resulted in injuries to one or more occupants of the vehicles. Based on typical traffic accident experience, 30% is a high proportion of injurious accidents over the two-year period. Causes of injuries may include:

- speed differentials between through traffic and traffic turning on and off of the road.
- a large percentage of heavy vehicles which increase the impact on the other vehicle,
- lack of defined available gaps on Reserve Street for access,
- lack of defined access,
- heavy access to adjacent land uses combined with congested through traffic.

As previously discussed, there are no statewide averages for routes within urban or city limits, such as Reserve Street. Comparable accident rates, however, were evaluated for the section of Reserve Street from Brooks Street to South Third Street which was widened in 1993. The accident rates on that segment decreased by approximately 40 percent after construction, as shown below:

	Accident Rate
South Reserve Street, Brooks Street to South Third Street, before widening	5.43
South Reserve Street, Brooks Street to South Third Street, after widening	3.43

There are also additional accidents that are not typically reported, but are evidenced by damage to facilities on Reserve Street. The intersections of both Mullan Road and the I-90 ramps with Reserve Street indicate guardrail damage from vehicle impacts, due to both sharp turning radii and high speed travel.

As shown in Table 2.3, over 40% of the accidents occurred on Friday and Saturdays, often days with lower traffic volumes and fewer accidents. Reserve Street serves as both the business route for Interstate 90 and as a section of US Highway 93, western Montana's primary north-south highway. These functions concentrate a large number of non-familiar drivers onto the roadway. Their unfamiliarity compounded with the condition of the limited facility (only one through lane and limited turn lanes) and may cause travel at a lower speed. Secondly, Reserve Street also provides local access to a large (and growing) regional commercial area, attracting large numbers of regional shoppers and traffic. These combined uses may add to traffic accidents by:

- introducing slower speed vehicles onto the high speed roadway,
- lack of clear directional signing,
- sign pollution and resulting driver distraction from commercial facilities,
- introducing unfamiliar drivers onto the roadway,
- lack of available gaps or reserve for access,
- lack of defined access.

Over 90% of the accidents occurring on Reserve Street are rear-end or angle accidents, typically related to roads with increasing traffic congestion and a lack of turn lanes at intersections with high turning volumes. Accident causes may include:

- lack of available gaps on Reserve for access,
- lack of defined access,
- heavy access to adjacent land uses combined with high speed through traffic.

2.5.2 Projected Conditions

Accident levels are expected to increase with the No-Build Alternative as traffic volumes increase. The following impacts to safety are expected if no improvements are made:

- Fixed-object accidents will continue.
- Rear-end accidents are expected to increase due to the lack of adequate turn lanes, coupled with higher traffic volumes and congestion.
- Angle-type accidents are anticipated to increase due to increased congestion and driver frustration. Increased congestion increases driver anxiety and frustration resulting in motorist trying to force their way into traffic more frequently.
- The percentage of injury accidents could increase due to the growing traffic volumes and high need for access, although slower speeds caused by increasing congestion may lessen the severity of accidents.
- Bicycle and pedestrian safety will continue to deteriorate as traffic volumes increase with a lack of adequate facilities for non-motorized travel.
- Emergency vehicle response times will continue to deteriorate.

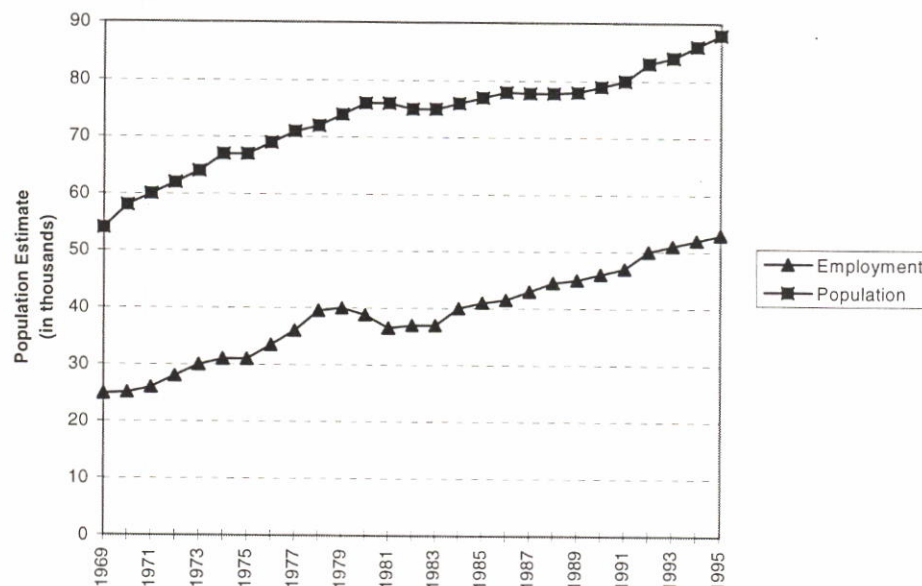
The Preferred Alternative is expected to reduce accident levels for the following reasons:

- Turning and auxiliary lanes will be provided at the numerous intersections along the corridor for both left and right turns onto/from Reserve Street.
- Additional signalization will be provided at Expressway, the Reserve Street ramps at Broadway and at Reserve, and both I-90 ramps to segregate highly conflicting movements and provide effective right-of-way to high traffic demand.
- Full-access locations will be consolidated between South Third Street and Stockyard Road.
- Between Stockyard Road and I-90, left-turn access will be maintained to all driveways with a two-way left-turn lane but an additional through lane will provide additional roadway capacity to lessen vehicle conflicts. Some driveways will be relocated to provide better geometry and sight distance and reduce turning conflicts.
- A signed, pedestrian crossing will be provided between Schramm and Lower Grant Creek Road with a raised refuge island.
- Fixed obstacles will be removed within the clear zone, or guard rail will be provided.
- The existing lane merge for northbound Reserve, north of Third Street, will be eliminated since two through lanes (in both directions) will be maintained to I-90.
- Substandard geometry will be improved to meet American Association of State Highway Transportation Officials (AASHTO) design standards for sight distance at the Old Milwaukee railroad overpass.
- Signing will be improved at the I-90 interchange, including provision of overhead signs.
- Additional vertical clearance will be provided under the I-90 bridges to help prevent truck collisions with the structures.
- Lighting will be provided between Mullan Road and I-90.
- The River Road intersection will provide adequate turning radii for large trucks accessing a concrete plant east of Reserve Street.
- Clark Fork Drive will be realigned to intersect Mullan Road instead of Reserve Street.
- Improved turning radii at I-90 ramps will provide adequate room for trucks to turn.

2.6 Population and Employment Growth

Missoula County and the study area in particular are currently experiencing growth pressure. This trend is expected to continue. Table 2-4 shows historical growth in Missoula County. Between 1969 and 1995, population has increased by over 50 percent and employment has increased by over 100 percent.

Table 2-4
Missoula County Population and Employment Trends
(In Thousands)

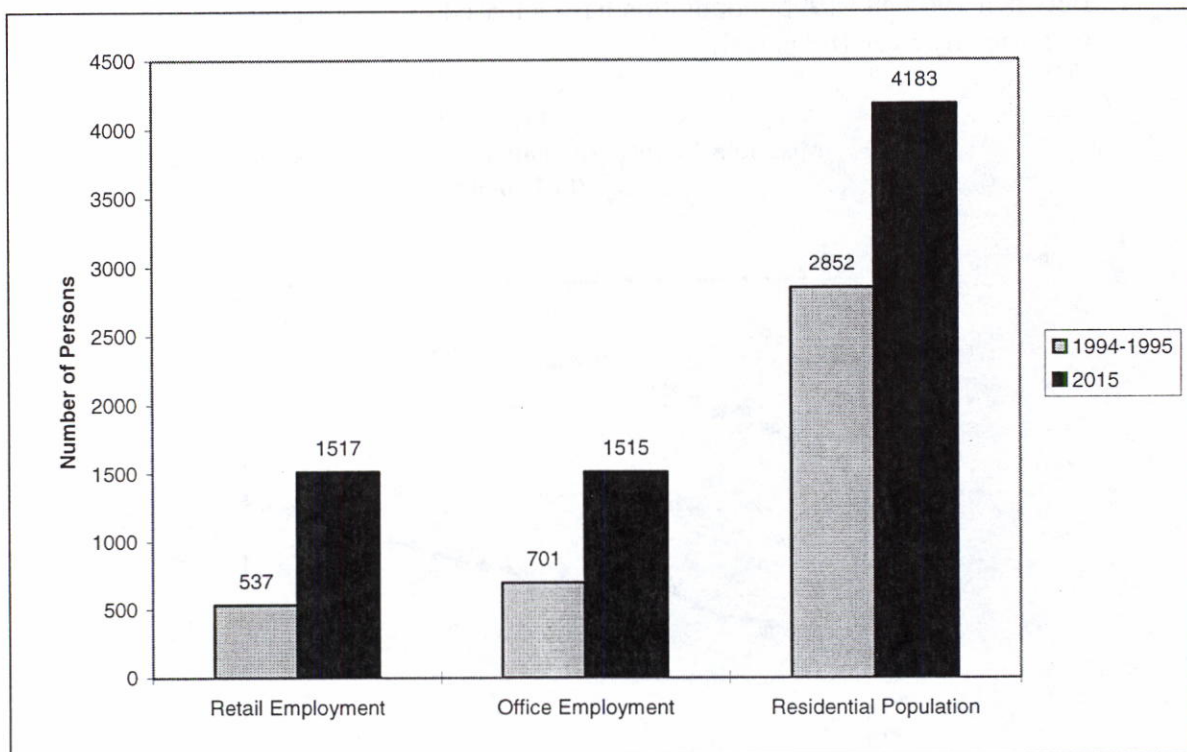


There has been recent commercial growth occurring along North Reserve Street. Notable developments which have occurred since 1990 are:

- New Buttrey's grocery store just north of Mullan Road.
- New Target store, Barne's & Noble store, and Gart Brothers store north of Palmer.
- Costco store south of Broadway and the railroad crossing.
- Hotel and restaurant under construction just north and south of I-90.
- Residential growth in Grant Creek.

In the North Reserve Street area, future employment growth is expected to occur, focused primarily in the retail and office-type sectors. Overall study area population will also increase (see Table 2-5), but at a slower growth rate than retail and office employment.

Table 2-5
Study Area Existing (Year 1995) and Future (Year 2015) Employment and Population



2.7 Roadway Deficiencies

There are a number of deficiencies with existing North Reserve Street. These include:

- Lack of sufficient capacity to carry existing and projected traffic volumes.
- Lack of vehicle turn lanes.
- Unconsolidated and staggered roadway approaches.
- Lack of safe and continuous pedestrian and bicycle facilities.
- Non-standard vertical curves.
- Inadequate lighting and signage.
- Nonstandard vertical clearance at I-90.
- Inadequate turning radius at numerous interchanges, including the West Broadway and I-90 ramp terminals.

The large portion of heavy trucks traveling on North Reserve Street is due to the facility's direct links to US 93 and I-90, its direct access to major commercial and industrial land uses, its function as a continuous north/south arterial through Missoula, nonstandard overhead clearance at Orange Street (the next I-90 Interchange) to the east of Reserve Street, and serves as the only access to the Missoula landfill. Truck volumes have recently increased due to closure of the Yellowstone pipeline. Gas that used to be carried by the pipeline is currently hauled by trucks from a depot in Missoula just east of Reserve Street to Thompson Falls.

Heavy trucks typically have difficulty:

- Negotiating turns on Reserve, thus slowing traffic and encroaching into the limited two-lane cross-section.
- Accelerating quickly, thus slowing traffic.
- Decelerating on downgrades (note that the City does not allow the use of compression braking), often increasing noise generated by traffic.

A typical loaded commercial motor vehicle requires more lane space (length and width), stopping distance, acceleration time, and turning room than most other vehicles. Trucking activity in the North Reserve area is not expected to decrease.

3.0 Alternatives Considered

Various design concepts were considered for the development of alternatives for the following elements:

- ☐ The No-Build Alternative
- ☐ Roadway/Intersection
- ☐ Special Design Elements
 - Alternative Transportation Modes
 - Travel Demand Management (TDM)
 - Old Milwaukee Railroad Crossing
- ☐ Interstate 90 Interchange

3.1 Alternatives Considered But Not Advanced

The following alternatives were considered but not advanced for further consideration in the EA.

3.1.1 Roadway Alternatives

☐ **Six-Lane Roadway.**

A six-lane alternative would widen North Reserve Street to provide three through lanes in each direction, with supplemental turning lanes at select intersections. Vehicular capacity would be increased beyond the projected 20-year demand.

This alternative was not forwarded for the following reasons:

- Excessive costs.
- Capacity is beyond the projected demands.
- Greater environmental impacts including impacts to adjacent land owners.
- Greater right-of-way impacts.

☐ **Alternative Route (Western Bypass).**

This alternative considers construction of a supplemental roadway that would provide a regional connection to draw away the north/south through traffic volumes from North Reserve Street onto a separate roadway located west of Missoula.

This alternative was not forwarded for the following reasons:

- The development of a specific alignment alternative has not been recommended in current planning documents.
- It does not appear to be a viable alternative to the Reserve Street corridor since it probably will not divert sufficient traffic from Reserve Street.
- Substantial environmental impacts.
- Excessive costs.
- Low projected traffic volumes
- This alternative would not meet the purpose and need for the project, due to its inconsistency with the *Missoula Regional Transportation Plan Update* (RTP) and its failure to adequately increase vehicular capacity, improve safety conditions through to US 93 South, or facilitate local access along the Reserve Street corridor.

☐ **Widen Reserve Street, Mullan Road to I-90 Only**

This alternative would widen North Reserve Street from Mullan Road north through the I-90 interchange. A four-lane section (without TWLTL) would be constructed between Mullan Road and International Drive/Stockyard Road, with a four-lane with TWLTL continuing north to I-90. Vehicular capacity would be increased and separate turn lanes for turning traffic north of Mullan Road would provide improvements where the majority of redevelopment is occurring. The existing two-lane roadway would be maintained between South Third Street and Mullan Road, with the Old Milwaukee overpass remaining at existing grades and width. This alternative would perpetuate the congested northbound lane merge north of South Third Street, and would develop an additional merge for southbound traffic south of Mullan Road.

This alternative was not advanced for the following reasons:

- It does not address safety considerations south of Mullan Road.
- It does not provide system linkage and continuity.
- It does not meet the purpose and need of the project.
- There are safety problems associated with the presence of a two-lane to one-lane merge for southbound traffic at Mullan Road.
- It does not provide capacity requirements for existing and projected traffic volumes.

☐ **Four-Lane with Raised Median**

An alternative that included a raised center median was considered. This alternative included a raised median for a majority of the project. The raised median would be 5 meters (16.4 feet) in width with 0.6 meters (2 feet) shy distances from the driving lane to face-of-curb, for an overall 6.2-meter (20.3-foot) width. Median openings and left-turn bays would be provided at all major intersections.

This alternative was not forwarded for the following reasons:

- Additional right-of-way would be required.
- Additional costs.
- Substantial maintenance requirements to maintain either landscaping or clean a hard surface treatment.
- Impaired access. There are several businesses between the Broadway/MRL crossing and I-90 which depend on left-turn movements for access. The presence of a raised median would eliminate that access movement.

3.2 Special Design Elements

The following elements listed below were not solely advanced as exclusive alternatives, but each is incorporated into the Preferred Alternative.

☐ **Alternative Transportation Modes**

Several alternative transportation modes were considered for North Reserve Street, including:

- Transit facilities (bus)
- Pedestrian
- Bicycles

These concepts were not forwarded as stand-alone alternatives since it is not anticipated that a shift from vehicular travel to alternative mode would be sufficiently large to reduce projected traffic volumes. The *Missoula Regional Transportation Plan Update* (RTP) considered the increased use of alternative transportation modes in the development of the planning-year traffic projections. The volume of automobile and truck traffic still requires that additional traffic capacity be provided on Reserve Street.

While alternative transportation modes do not reduce traffic sufficiently on their own, these elements were incorporated into the Preferred Alternative. The Preferred Alternative includes the following:

- Bus pullouts for bus stops at several key locations to provide connectivity to other bus routes, bus service to business and commercial areas, and intermodal connections.
- Bicycle lanes 2.4 meters (8 feet) in width in both directions of travel.
- Separated 1.6-meter (5-foot) walks on both sides of the road.

☐ **Travel Demand Management**

Travel Demand Management (TDM) alternatives are intended to reduce single-occupant vehicle (SOV) trips or to divert SOV trips to different modes of travel or to non-peak travel periods. TDM strategies could include carpool programs, parking management, flexible work schedules, telecommuting, alternate mode facility and service improvements, and many more. Improvements to encourage increased use of alternative modes could include modification to existing transit service and facilities, provision of HOV lanes, and/or provision of bicycle and pedestrian facilities.

TDM improvements and resulting traffic reductions are regional in nature, and are being evaluated concurrently in the RTP. Because the traffic volumes used in this study originate from the forecast volumes contained in the RTP, any traffic volume reductions occurring across the Missoula area due to planned TDM improvements are reflected in the RTP and thus included in the Preferred Alternative. The RTP suggests that implementation of planned TDM improvements throughout Missoula could result in a six to seven percent reduction in traffic volumes that could otherwise occur without these improvements.

TDM improvements are most effectively implemented on a regional level, not within a single transportation corridor. TDM improvements are not forwarded as a stand-alone alternative because they would not divert enough vehicle trips to alternate modes to sufficiently accommodate the projected traffic demand.

Certain additional TDM elements are included in the Preferred Alternative. Pedestrian, bicycle, and transit facilities improvements along North Reserve Street are incorporated into the Preferred Alternative. These elements of the Preferred Alternative are consistent with the RTP and the desires for the area-wide planning effort to incorporate optional travel modes throughout the community.

☐ Old Milwaukee Bicycle/Pedestrian Overpass

A separate technical memorandum entitled *North Reserve Street Widening Project, Old Milwaukee Bicycle / Pedestrian Facility Draft Technical Memorandum*, prepared by WGM group, December 8, 1995, provides a detailed description of the three conceptual alternatives considered for replacement of the North Reserve Street overpass crossing the Old Milwaukee Railroad alignment. The technical memorandum considered three grade-separated crossing alternatives of North Reserve Street for non-motorized travel along the old alignment of the Milwaukee Railroad.

A grade-separated crossing is being advanced for the following reasons:

- It meets the goals of the Missoula Area Non-motorized Transportation Plan.
- The Old Milwaukee Railroad is designated as a future bicycle and pedestrian trail.
- Positive public input was received from Feet First (the Missoula Area Non-motorized Transportation Steering Committee) and the City of Missoula Bicycle/Pedestrian Advisory Committee
- There is a recognized need to provide bicycle/pedestrian features that facilitate non-motorized travel in the region.

The two involved steering committees strongly recommended Alternative 2, described in the above referenced Technical Memorandum, that consists of lowering and widening the existing overcrossing structure. The engineering design team supports this alternative, with slightly greater (comparative) costs as it improves roadway safety and maximizes non-motorized visibility and lighting while maintaining a grade-separated crossing of North Reserve Street. Lowering and widening the existing overcrossing structure is included as a component of the Preferred Alternative.

3.3 Interstate 90 Interchange

Several concepts were considered for the interchange on Reserve Street and I-90. The analysis is fully described in a separate technical memorandum entitled, *North Reserve Street Widening Project, I-90 Interchange Alternative Analysis* prepared by Carter & Burgess, November 1995, and provides a detailed description of 13 concepts initially considered for the Reserve Street/I-90 interchange. These 13 concepts were evaluated for comparative impacts to traffic operations, the bridge structures, Grant Creek,

bicycle/pedestrian facilities, right-of-way, and comparative costs. The concepts are as follows:

- **Concept A.** This concept involves realigning Grant Creek into a concrete-lined channel in the western-most span. Traffic is shifted to the west to utilize the two existing middle spans. Both northbound and southbound lane configurations include one through lane, one left-turn lane, an on-street bicycle lane, and sidewalk, all located within the middle spans.
- **Concept A - modified.** This concept is the same as Concept A, but includes a double left turn for northbound traffic. Due to the additional lane width, northbound bicycle/pedestrian traffic is moved to a shared 3-meter (10-foot) wide path located in the east span.
- **Concept B.** This concept places Grant Creek in a box culvert underneath the southbound lanes in its existing location. Traffic is shifted to the west to utilize the two existing middle spans. Both northbound and southbound lane configurations include one through lane, one left-turn lane, an on-street bicycle lane, and sidewalk, all located within the middle spans.
- **Concept B-modified.** This concept is the same as Concept B, but includes a double left turn for northbound traffic. Due to the additional lane width, northbound bicycle/pedestrian traffic is moved to a shared 3-meter (10-foot) wide path located in the east span.
- **Concept C.** This concept maintains the existing alignment of Grant Creek and shifts traffic east, "squeezing" the northbound lanes through the existing eastern-most span. Both northbound and southbound lane configurations include one through lane, one left-turn lane, and an on-street bicycle lane and sidewalk. This concept requires excavating the eastern-most bridge pier, and narrower shoulder and bicycle lane widths for northbound traffic.
- **Concept D.** This concept maintains the existing alignment of Grant Creek and shifts traffic east. The eastern-most span is reconstructed to accommodate the northbound lanes. Both northbound and southbound lane configurations include one through lane, one left-turn lane, an on-street bicycle lane, and sidewalk.
- **Concept D-modified.** This concept is the same as Concept D, but includes a double left turn for northbound traffic.
- **Concept E.** This concept is similar to Concept B. Traffic is shifted to the west to utilize the existing middle spans, and Grant Creek is placed in a box culvert. Southbound lanes include two through lanes and one left-turn lane. Northbound

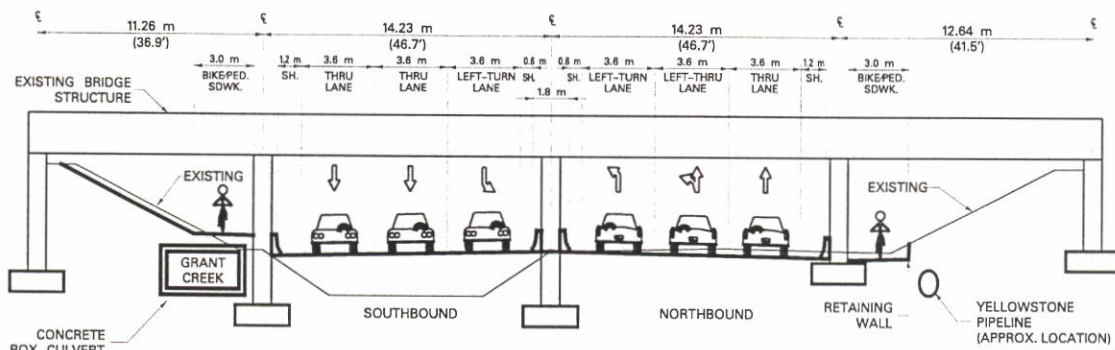
lanes include one through lane and one left-turn lane. Southbound bicycle/pedestrian traffic is moved to a shared 3-meter (10-foot) path in the western-most span.

- **Concept E-modified.** This concept is the same as Concept E, but includes a double left-turn lane for northbound traffic. Both northbound and southbound bicycle/pedestrian traffic is moved to shared paths in the outside spans.
- **Concept F.** This concept is similar to Concept D. Traffic is shifted to the east, and the eastern-most span is reconstructed to accommodate the northbound lanes. Grant Creek is maintained in its existing location. Southbound lanes include two through lanes, and one left-turn lane. Northbound lanes include one through lane and one left-turn lane. Southbound bicycle/pedestrian traffic is moved to a shared 3-meter (10-foot) path in the same span as Grant Creek.
- **Concept F-modified.** This concept is the same as Concept F, but includes a double left-turn lane for northbound traffic. Both northbound and southbound bicycle/pedestrian traffic is moved to shared paths in the outside spans.
- **Concept G.** This concept includes a loop ramp for both northbound and southbound traffic heading west on I-90. The typical section under the I-90 bridges for this concept is similar to Concept C. Grant Creek is maintained in its existing location, and traffic is shifted east, "squeezing" the northbound lanes through the eastern-most span. Northbound lanes include one through lane and one right-turn lane. Southbound lanes include two through lanes and left-turn lanes for both westbound and eastbound I-90. Northbound bicycle/pedestrian traffic is accommodated with a bicycle lane and sidewalk in the eastern-most span, while southbound bicycle/pedestrian traffic is moved to a shared path in the Grant Creek span.
- **Concept H.** This concept considers the use of a Single-Point Intersection. The typical section on either side of the intersection for this concept is similar to Concept F. Total reconstruction of the I-90 bridges is required to provide a clear span over the intersection. Grant Creek is maintained in its existing channel. Northbound lanes include one through lane and one left-turn lane, while southbound lanes include two through lanes and one left-turn lane. Bicycle/pedestrian traffic is accommodated with on-street bicycle lanes and sidewalks.

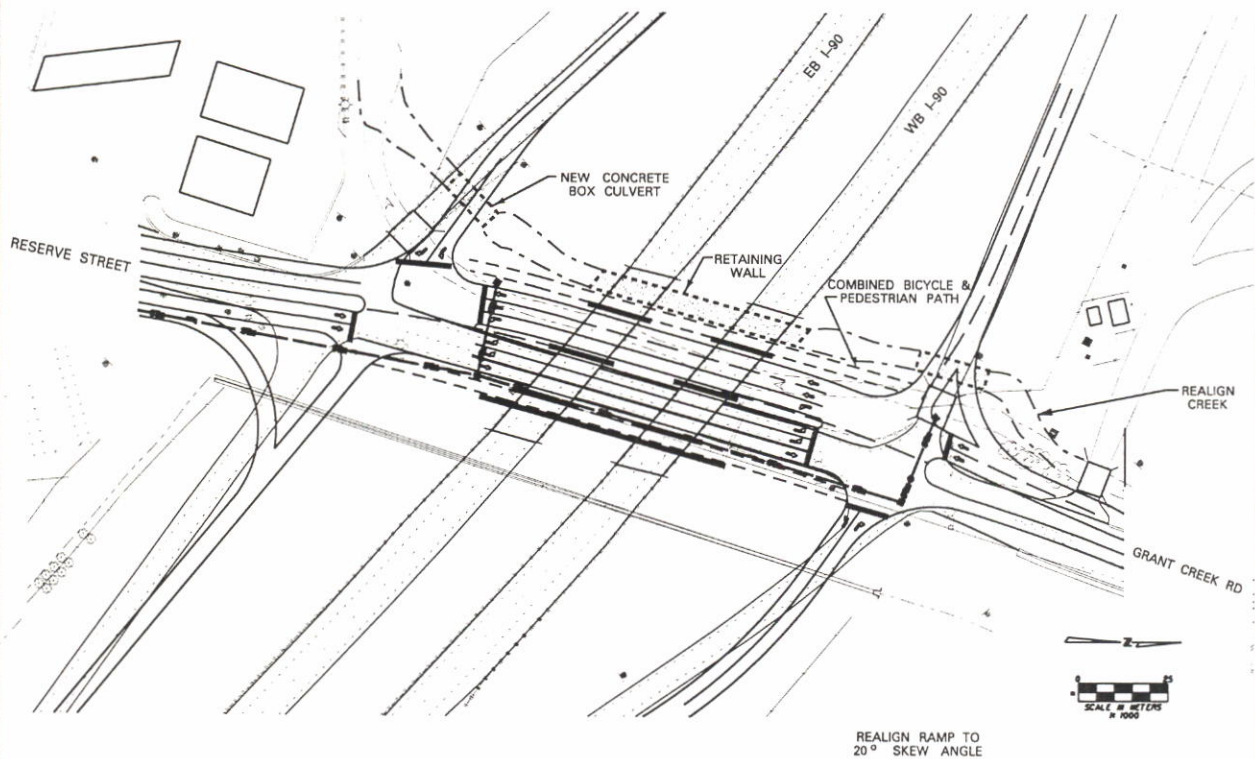
From initial screening of the design concepts documented in the technical memorandum, previously referenced in this section, two alternatives were developed entitled, "West-shift" and "East-shift" described below:

- **West Shift (Tight-Diamond).** The West Shift Alternative is a combination of Concepts A and C, described above. This alternative involves shifting southbound traffic to the west to utilize the existing middle spans and realigning Grant Creek to the western-most span. Grant Creek can be placed in either a box culvert or a concrete-lined channel. A double left-turn lane and one through lane are included for northbound traffic, while two through lanes and one left-turn lane are included for southbound traffic. The two intersections are moved together to create a "tight-diamond" to allow better signal coordination and thus improve traffic operations. Bicycle/pedestrian traffic is accommodated on shared 3.0-meter (10-foot) wide paths in the outside spans.
- **East Shift (Tight-Diamond).** The East Shift Alternative is similar to Concept F-modified, described above. This alternative involves shifting northbound traffic to the east and reconstructing the eastern-most span. Grant Creek is maintained in its existing location with this option. A double left-turn lane and one through lane are included for northbound traffic, while two through lanes and one left-turn lane are included for southbound traffic. The two intersections are moved together to create a "tight-diamond" to improve traffic operations. Bicycle/pedestrian traffic is accommodated on shared 3.0 meter (10-foot) wide paths in the eastern-most span and in the Grant Creek span.

The results of a secondary screening recommended the "West-shift" due to lower construction costs and fewer impacts to traffic operations during construction. The West-shift alternative is included as an element of the Preferred Alternative, and is shown in Figure 3-1.



CROSS SECTION



North Reserve Street

I-90 Preferred Alternative West Shift Alignment

Figure 3-1

3.4 Cross-Sectional Elements

The following cross-sectional elements were evaluated in the development of the Preferred Alternative:

- The use of 3.35-meter (11-foot) lane was considered. This was not forwarded due to the presence of a high volume of truck traffic. Since the through traffic lanes are adjacent to the bike lane, it is likely that the use of narrower lanes [less than 3.6 meters (11.8 feet)] would result in vehicles crowding the bicycle lanes.
- A 4.2-meter (13.78-foot) lane was considered instead of a 4.8-meter (15.74-foot) TWLTL which is typically used on urban arterials. The 4.2-meter (13.78-foot) TWLTL was included in the Preferred Alternative to minimize the need for additional right-of-way and reduce cost.
- Alternative widths were considered for the bicycle lane. Widths of 1.5 meters (4.92 feet) and 2.8 meters (9.18 feet) were considered. A 2.4-meter (7.87-foot) lane was used since it provides for bicycle traffic travelers in the same direction as vehicular traffic and provides adequate space between bicycles and vehicles.

3.5 Alternatives Advanced

The following alternatives were advanced for further consideration in this document.

- **No-Build.** The No-Build Alternative would retain the existing two-lane roadway with intermittent improvements required by individual developments within the subdivision or annexation process.
- **Four-Lane/Four-Lane with TWLTL Combination Section (Preferred Alternative).** This alternative is described in Section 1.3 and shown in Figure 1-3.

4.0 Existing Conditions, Impacts, and Mitigation Measures

This chapter provides a description of existing conditions and the impacts and mitigation measures associated with the No-Build Alternative and the Preferred Alternative described in Section 1.3.

4.1 Land Use, Zoning and Land Use Planning

4.1.1 Existing Land Use

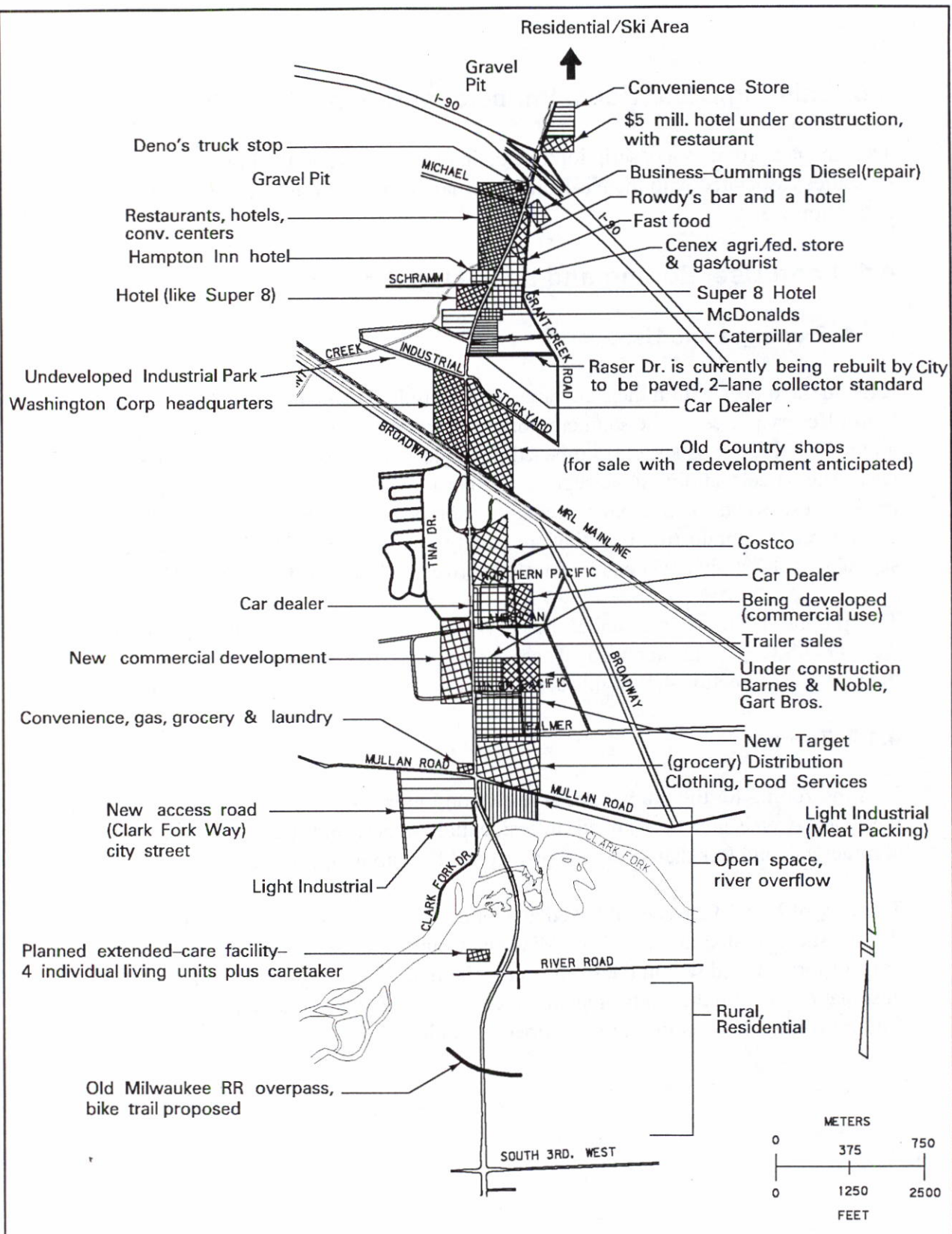
Existing land uses within the study area are shown in Figure 4-1. The land use adjacent to North Reserve Street at the southern portion of the study area, between South Third Street and the Clark Fork, is largely composed of single-family residences with some agricultural uses. The parcels adjoining the segment of the study area between the river and the MRL tracks/West Broadway are experiencing development of primarily large retail uses. Commercial and industrial uses that are largely oriented toward highway travel comprise the segment of the study area corridor located between West Broadway and I-90.

This proposed action is also under the provisions of the U.S. Department of Transportation Act (49 U.S.C. 303) as amended. There are no properties in the study area which are within the purview of Section 4(f) of this act.

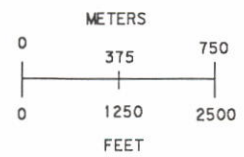
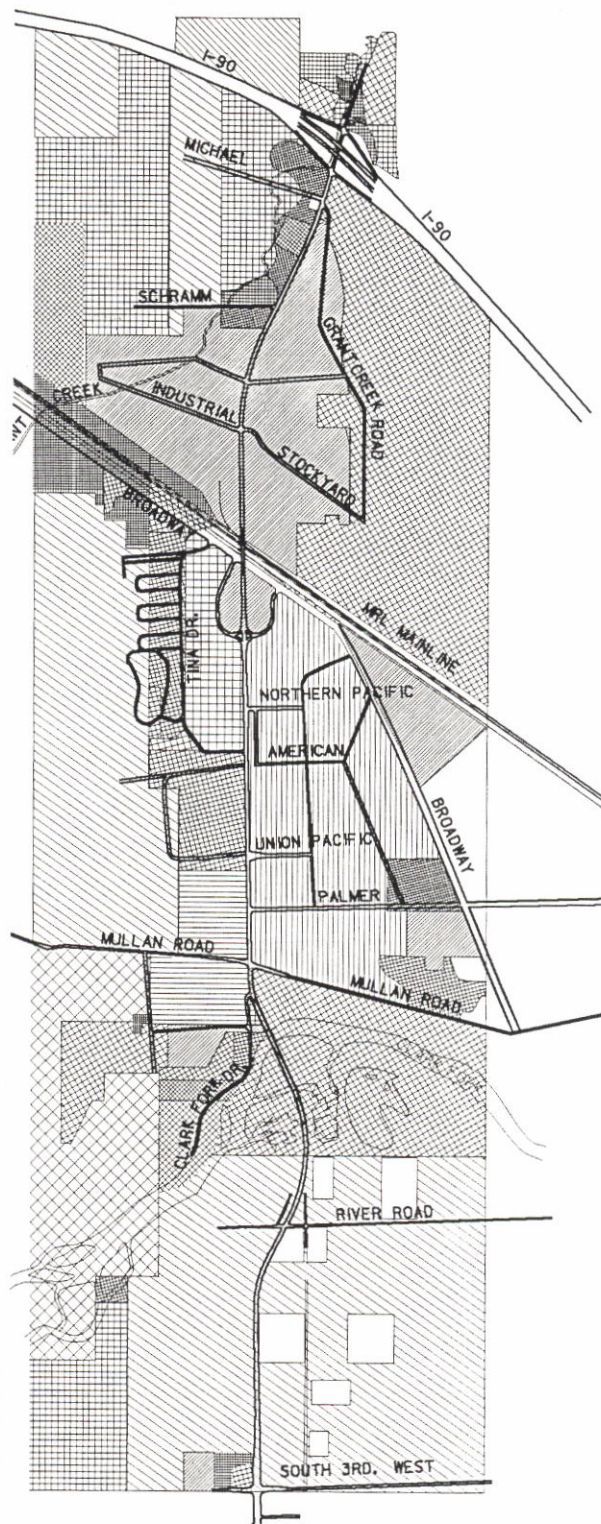
4.1.2 Zoning

Existing zoning for the Study Area is shown on Figure 4-2. Approximately 50 percent of the Study Area is generally zoned for residential, 40 percent for industrial, 10 percent for commercial, and less than one percent is zoned for public open space.

The City of Missoula has established zoning designations for the portions of the study area that are incorporated into the City. Missoula County has designated zones for the unincorporated land within the study area. The individual City of Missoula zoning designations within the study area are described in Table 4-1 and individual Missoula County zoning designations are described in Table 4-2.



- RIII
- RIV
- CRR1
- CRR3
- CLB
- CRR3MH
- C-II/EC
- PI
- PII
- SD2
- I1
- I-II
- C-R2
- UZ
- C-CZ
- CI1
- BC
- R-VI
- D
- CI1
- CI2
- C
- CG
- Z.D.13



North Reserve Street

Existing Zoning
Figure 4-2

Table 4-1
City of Missoula Zoning Designations Within the Study Area

Zone	Zoning Designation and Permitted/Conditional Uses
UZ	Unzoned. No designation identified.
R-II	Two-family Residential district. Single family dwellings; parks and playgrounds; churches and temples; duplexes; fire stations; libraries; private schools; public schools and colleges; public utilities; residential accessory uses; community residential facilities serving eight or fewer persons; nursing homes; day-care homes serving twelve or fewer children.
RLD-IV	Residential Low Density District. One and two-family dwellings; parks and playgrounds; residential accessory uses; community residential facilities serving eight or fewer persons; day-care homes serving twelve or fewer children. Conditional uses include nursing homes; churches; and public and private elementary schools.
R-VI	Mobile Home Park and Multiple-dwelling Residential district. R-II uses described above; triplexes and fourplexes; accountants; barber and beauty shops; convents and monasteries; credit union offices; dental clinics; doctor's offices; lawyer's offices; multiple dwellings; nurseries; public parking area; real estate offices; insurance offices; and mobile home parks approved in accordance with Missoula County Title 16.
BC	Restricted Commercial district. Any R-II uses described above; triplexes and fourplexes; R-VI uses described above, with exception of mobile home parks; enclosed assembly halls or theaters with a maximum capacity of 150 people; banks, boarding and lodginghouses; cafes; laundry and dry cleaning businesses; community residential facilities serving thirteen or more residents; hospitals, clinics, business or professional offices; retail stores with maximum gross floor area of 232.5 square meters (2,500 square feet).
C	Commercial district. Any BC uses described above; apartment houses in certain locations as approved by the board of adjustment; public utility buildings where no business office, repair or storage facilities are maintained; bakeries and delicatessens; clothing stores; drugstores; food stores; jewelry store; private clubs and lodges; shoe store; public office buildings; police station; auditoriums; billiard halls; commercial printing and publishing; bowling alleys; bus terminals; catering establishments; commercial schools; confectionery; dance halls; veterinary hospitals; drive-in food stands; sporting equipment; funeral homes; hospitals and sanitariums; visual arts studios; wholesale suppliers; load agencies; mini-warehousing, subject to the Conditional Use standards and criteria; motels and hotels; electronic repair shops; parking structures; music stores and schools; restaurants; retail stores; and tailor and valet shops.
C-II	Commercial district. Any C uses described above; auto body and paint shop; car washing establishments; ceramic manufacturing; Christmas tree sales; electrical shops; frozen food lockers; pawnshops; plumbing sales; sheet metal shops; public garages and car sales; radio and TV transmitting stations; sign shops; taxidermy shops; trailer sales lots; vehicle rental shops; and used car lots.
C-G	Commercial gasoline station district. A single purpose "overlay" zone that allows gasoline stations and commercial uses.
CLB	Commercial on-premises liquor and beer establishments district. A single purpose "overlay" zone that allows consumption of beer, wine and liquor on premises.
I-1	Light Industrial district. Any uses permitted in C-I, C and C-II commercial districts except all residences, day centers, private clubs, lodges, nurseries, nursing homes and institutions such as public and private colleges, churches, convalescent homes, convents, hospitals, libraries, monasteries, public and private schools and temples. Also allowed are a variety of light industrial uses.
D	Industrial district. All buildings and premises, except as otherwise provided for in this chapter, may be used for any use permitted in the I-I light industrial.
I-II	Heavy Industrial district. Any use permitted in C-I, C and C-II commercial district and I-I light industrial district. The manufacture of acetylene gas, chlorine, ammonia, brick and tile, concrete and cement products, acid, plastic, spring and bearing, and cement block are permitted. The following uses are also authorized: boiler works; flour and feedmills; freight yards; iron, steel, brass or copper foundries; tanneries and hide and fur warehouses; rocks, sand and gravel distribution, smokehouses; tractor equipment sales and service; and large scale industries.

Table 4-1
City of Missoula Zoning Designations Within the Study Area
(continued)

Zone	Zoning Designation and Permitted/Conditional Uses
P-1	Open Space district. Public parks, parkways, trails, pathways, nature walks, gardens, arboretums, land reserves, undeveloped open space and related public facilities; public golf courses, playgrounds, playfields, tennis courts and other public grounds for non-profit games or sports; flood plains, natural drainage areas, conservation areas, land reclamation areas and wildlife refuges; timber and crop land uses excluding the raising or feeding of animals; and open land owned by government or other public agencies.
P-II	Public Lands and Institutions district. Any use permitted in the P-I district; public and non-profit quasi-public institutions; orphanages, charitable institutions, children's homes, mental institutions, rehabilitation centers and correctional institutions provided that no building so used shall be within one hundred feet of any other zoning district; governmental offices and administrative buildings; public zoos, historic and cultural exhibits, libraries, museums and art galleries; publicly owned or non-profit quasi-public coliseums, assembly halls, stadiums, gymnasiums and other similar activities; other public buildings, memorials, statuary and fountains; country clubs and publicly owned or non-profit quasi-public swimming pools and beaches, boat marinas, docks and piers; cemeteries, columbariums, crematories and mausoleums, public or non-profit camps; airports and landing fields; military installations; public water systems; utilities installations; and private physician offices and clinics in the immediate vicinity of a public medical facility.
EC	Enterprise Commercial District. Retail businesses with a total gross floor area of not more than one hundred and fifty thousand square feet per lot, and a gross floor area to lot size ratio not to exceed 50%. Uses permitted in the underlying zoning for the property.
SD2	City Special District #2. Mixed residential/commercial with development standards.

Source: *Missoula City Zoning Ordinance - Title 19*, January 1991.

Table 4-2
Missoula County Zoning Designations Within the Study Area

Zone	
UZ	Unzoned. No designation identified.
C-RR1	Single family residential including accessory buildings and uses. Agriculture on lots five acres or larger, including any and all structures or buildings needed to pursue such activities, except intensive agriculture use such as feed lots and poultry farms. Mobile homes on lots five acres or larger.
C-RR3	Single family residential including accessory buildings and uses. Agriculture on lots five acres or larger, including any and all structures or buildings needed to pursue such activities, except intensive agriculture use such as feed lots and poultry farms. Mobile homes on lots five acres or larger.
C-R2	Single-family and two-family residential including accessory buildings and uses. Boarding house. Agriculture on lots five acres or larger, including any and all structures or buildings needed to pursue such activities, except intensive agriculture use such as feed lots and poultry farms. Mobile homes on lots five acres or larger.
C-C2	Permitted uses are for general commercial and include the following: transient lodging; automotive, mobile home, marine, recreational vehicle, and accessories sale and service; outdoor recreation, amusement and cultural facility; building materials, hardware, and farm equipment sale and service; eating and drinking establishment; contract construction service; wholesale trade; farm and garden supply; accessory buildings and uses; and the natural resource management office.

Table 4-2
(continued)

Zone	
C-11	Permitted uses are for light industrial which do not require an operational permit from the Missoula County Health Department as described in Section X of the Missoula City-County Air Pollution Control Program and which do not require a construction permit as described in M.A.C. 16.8.1102. Additional authorized uses include the following: retail and service facilities, buildings or uses which are accessory to the principal uses; public utility offices and installations; veterinary services, animal hospitals, and kennels; research laboratories; accessory buildings and uses; industrial mini-warehouse; and the natural resource management office.
C-12	Heavy industrial uses are permitted provided they do not require an operational permit from the Missoula City-County Health Department as described in Section X of the Missoula City-County Air Pollution Control Program and which do not require a construction permit as described in M.A.C. 16-2.14(1) - S1400(2). Additional authorized uses include the following: retail and service facilities, buildings or uses which are accessory to the principal use; public utility offices and installations; veterinary services, animal hospitals, and kennels; research laboratories; accessory buildings and uses; industrial mini-warehouse; and the natural resource management office.

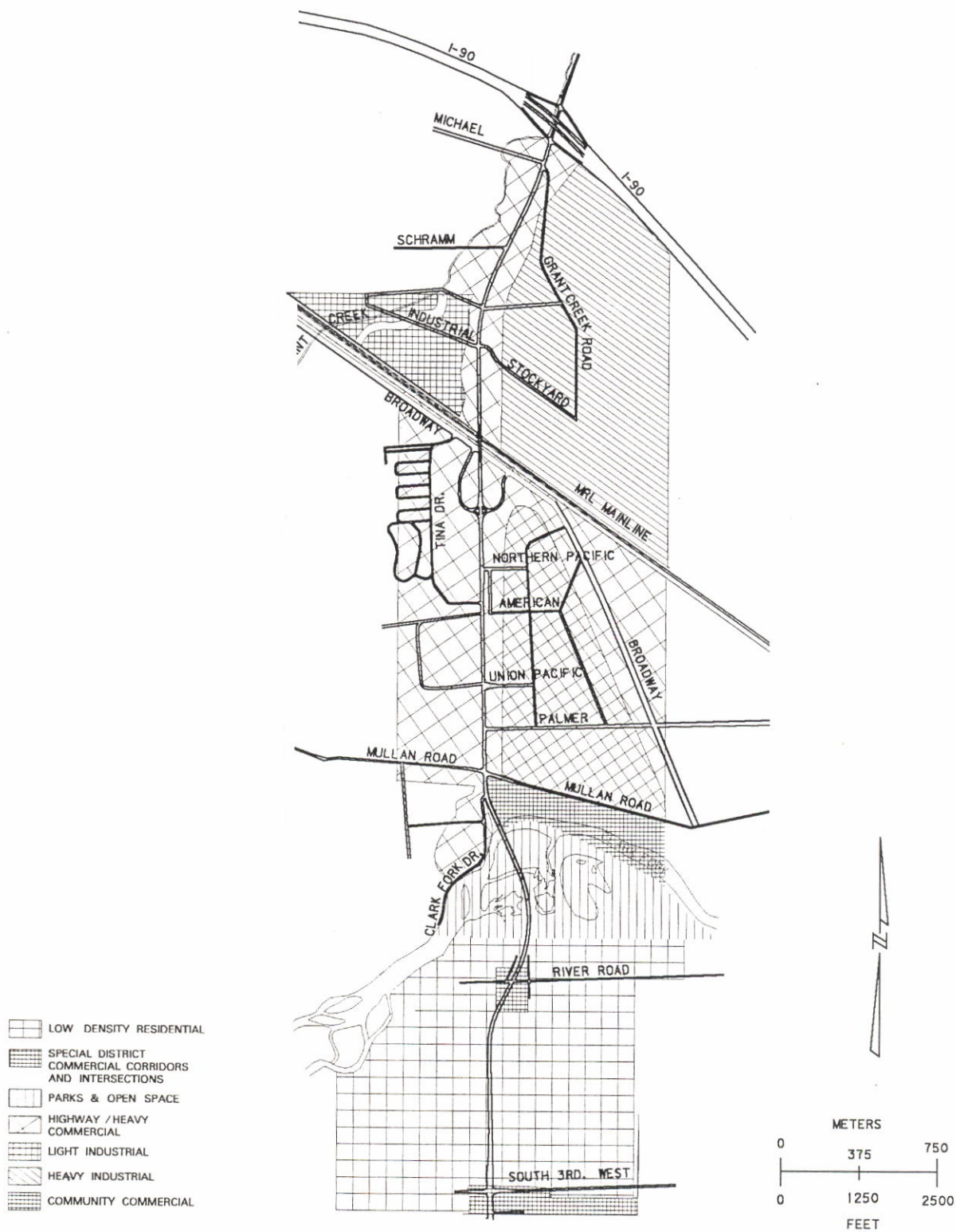
Source: *Missoula County Zoning Resolution - Resolution No. 76-113*, July 1976.

4.1.3 Land Use Plans

Figure 4-3 shows future land uses within the portion of the North Reserve Street study area located north of the Clark Fork as recommended in the *Missoula Urban Comprehensive Plan* and in the segment located between the River and South Third Street as identified by the *Reserve Street Area Plan - 1995 Update*.

The 1990 Update of the *Missoula Urban Comprehensive Plan* (the Plan) contains various goals and policies intended to guide land use regulatory actions within a defined planning area surrounding the City of Missoula through the Year 2000. The Plan was prepared by the Missoula Office of Community Development (OCD), now the office of Planning and Grants, the joint City/County agency that is responsible for guiding short-range land development and long-range planning activities within the planning area identified in the Plan.

The North Reserve Street study area is contained entirely within the Missoula planning area. The Plan identifies appropriate general land uses for different districts that are shown on a Land Use Map included in the document. The Land Use Map shows "Highway/Heavy Commercial" uses for over 80 percent of the land adjoining the portion of the study area corridor north of the Clark Fork. It also displays areas of "Light Industrial" land on the west side of the roadway north of the MRL tracks and east of the study north of Mullan Road. The map shows a relatively small area of "Community Commercial" land located directly north of the Clark Fork on the east side of the roadway, and a relatively large "Heavy Industrial" area extends east of the project area north of the MRL tracks. "Parks and Open Space" corridors are shown along the Clark Fork and Grant Creek.



North Reserve Street

Future Land Uses
Figure 4-3

The *Reserve Street Area Plan - 1995 Update* (the Area Plan), was completed by the Missoula OCD in July, 1995. The Area Plan amends the *Missoula Urban Comprehensive Plan* and provides an update to the earlier *Reserve Street Area Plan* prepared in 1980. The Area Plan focuses on a formerly unincorporated area surrounding Reserve Street that the City of Missoula annexed in 1994. The study area addressed in the Area Plan includes the south portion of the North Reserve Street study area located between the Clark Fork and South Third Street.

The southern portion of the study area covered by the *Reserve Street Area Plan* shows "Low Density Residential" [four dwelling units per 0.4 hectare (one acre)] land use for approximately 90 percent of the land adjacent to this portion of the study area. Relatively small "Special District Commercial" districts are shown around the intersection with River Road and along South Third Street.

4.1.4 Impacts

The No-Build Alternative is inconsistent with the existing and planned highway-oriented commercial and industrial land uses in the study area vicinity. Access to these existing and planned commercial developments will become increasingly inhibited by the increased congestion and reduced mobility associated with the No-Build Alternative.

The Preferred Alternative is compatible with the existing and planned land uses within the portion of the North Reserve Street study area located north of the Clark Fork due to the improved access to the adjacent commercial industrial uses that this alternative will provide. Although the improved access to land uses in the study area vicinity will also benefit those uses in the southern portion of the corridor, this alternative is generally inconsistent with the existing and planned suburban residential land uses located along this segment of North Reserve Street. This inconsistency is due to the noise impacts that will result from the Preferred Alternative. Noise impacts and mitigation are described in Section 4.8.

4.2 Socioeconomic

4.2.1 Existing Conditions

4.2.1.1 Social

Population and economic information contained in this section is based upon information collected for the RTP process that is currently in progress.

Population and employment information for individual Transportation Analysis Zones (TAZs) within the Missoula Urban Planning Area is compiled by the Missoula OCD. Population and employment forecasts were also prepared as a component of the Missoula RTP update process. This data indicates an estimated 1994 population of 48,000 for the City of Missoula and a 1994 population of 86,000 for the Missoula Urban Planning Area.

The population forecasts for the year 2015 are approximately 67,000 for the City of Missoula and 112,000 for the Missoula Urban Planning Area. The total population for TAZs encompassing the study area is expected to increase from 2,852 persons in 1994 to 4,183 persons by the year 2015.

4.2.1.2 Economic

Missoula serves as a major regional trade center for western Montana and central Idaho. Wood products is the area's primary industry. Major employers located in the Missoula area include the US Forest Service, Stimson Lumber Company, Stone Container, Inc., Plum Creek Timber Company, Montana Rail Link, the University of Montana, and Community and St. Patrick's Hospitals. Tourism and Financial, Insurance, and Real Estate (FIRE) industries are the fastest-growing sectors of the local economy.

While most of Missoula's recent population growth has occurred in exurban areas surrounding the City - a trend that is expected to continue for the next few decades -- the City of Missoula sustains the majority of the area's economic activity. The City supports over 90 percent of all jobs and sales in the Missoula Urban Planning Area and it is expected to remain the region's economic center over the next two decades.

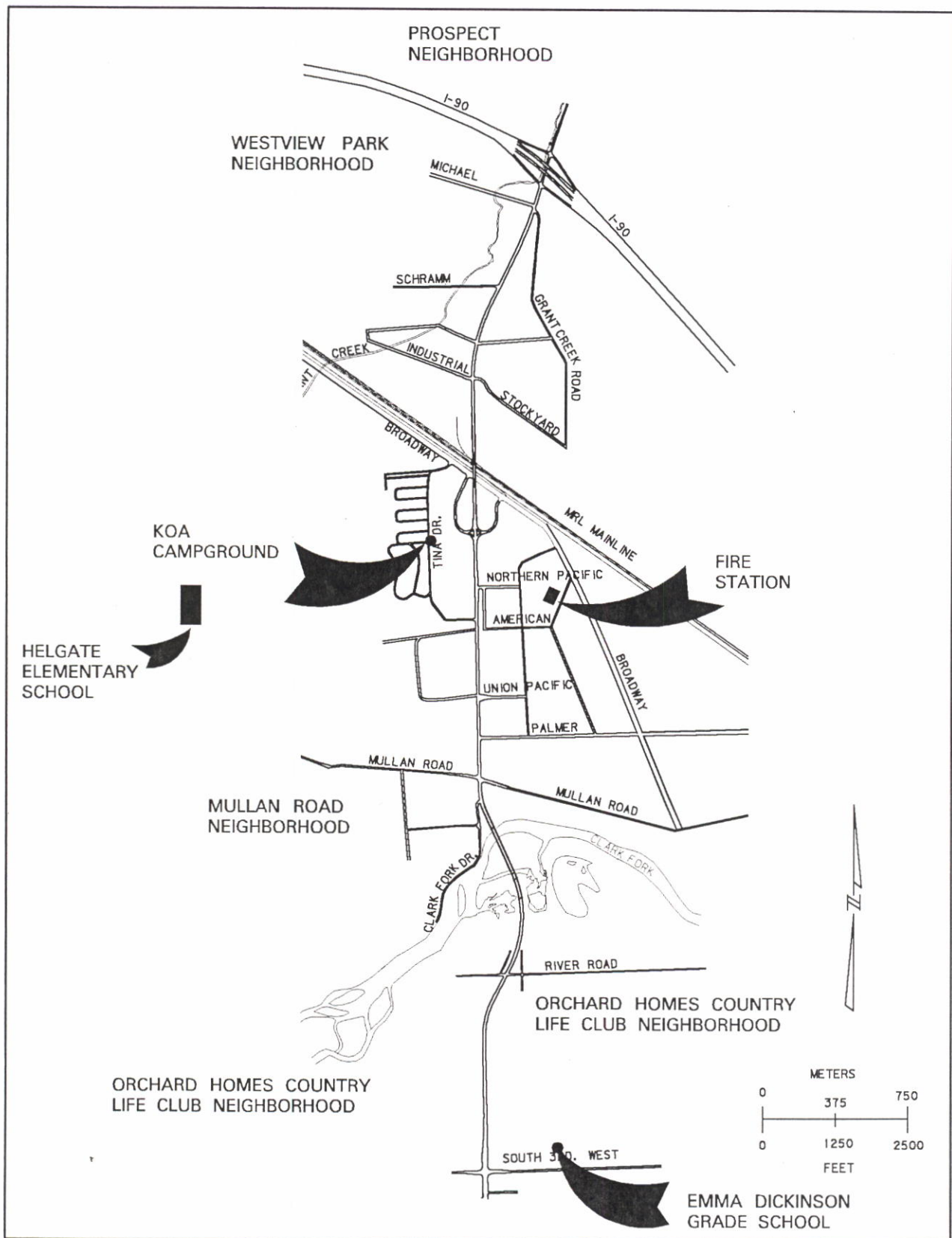
Missoula retail and service businesses are concentrated in the City's Central Business District (CBD) and dispersed along major roadway corridors throughout the City. North Reserve Street is currently the fastest-growing commercial corridor segment in Missoula. Many of the businesses located along North Reserve Street are oriented to serving highway travelers and local tourists. These types of businesses tend to have greater sales volumes and more employees than CBD businesses.

Estimated 1994 total employment for the Missoula Urban Planning area is approximately 54,000 and this number is expected to increase to 77,000 by the year 2015. 1994 total employment within the City is estimated at 44,000, with an increase to 61,000 projected by the year 2015. Employment for the TAZs within the study area is forecast to increase from 2,279 in 1994 to 2,445 in year 2015.

Emergency service providers in the City of Missoula consist of fire, police and ambulance services. The Montana Power Company also responds to emergencies involving gas or electrical systems in the Missoula area. North Reserve Street provides a primary route for emergency vehicles since it is one of only several roadways that provides a grade-separated crossing of the Clark Fork and the MRL mainline tracks. Congestion along North Reserve Street interferes with efficient use of this corridor by emergency vehicles, and the Missoula fire and police departments have both expressed concern with the delays and associated problems caused by the existing two-lane section of the roadway. Letters that document the specific concerns of these two agencies are included in Appendix A of this document.

While North Reserve Street benefits the Missoula economy by providing a vital commercial transport link, it also forms a community barrier to pedestrian and bicycle travel between the residential neighborhoods and community facilities (shown in Figure 4-4) located east and west of the roadway. The roadway's barrier effect is exacerbated during peak traffic periods when the roadway reaches its highest congestion levels. The community barrier effect is most prominent in the southern portion of the study area between South Third Street and the Clark Fork where residential neighborhoods align the roadway.

The combination of vehicular congestion and an overall lack of facilities to adequately accommodate non-motorized travel along North Reserve Street constrains access to and from commercial/community facilities located near the corridor.



North Reserve Street

Reserve St. Community Facilities
Figure 4-4

4.2.2 Impacts

4.2.2.1 Social

For both the No-Build and Preferred Alternatives, the east/west non-motorized trails planned along the Old Milwaukee Railroad corridor and the Clark Fork will ameliorate the neighborhood barrier effect of North Reserve Street in the southern segment of the corridor by providing safe, grade-separated crossings between the residential areas.

The No-Build Alternative will not provide any congestion relief for travelers using North Reserve Street or adjacent neighborhoods. Continued increases in traffic congestion along the existing facility will impair local and regional access to residential areas, community facilities (Figure 4-4), and commercial areas that require travel along North Reserve Street.

Increased traffic congestion and delays resulting from the No-Build Alternative will likely encourage some drivers to alter their routes to avoid driving on North Reserve Street. Use of Grove and Davis Streets and River Road for drive-through travel will intensify traffic impacts to these neighborhoods and could depreciate property values for residences located adjacent to these local roadways. Flynn Lane (to the west of Reserve Street) is currently used as an alternative route between Mullan Road and Broadway.

As congestion increases on North Reserve Street, it will further delay response times and create additional hazards for local police, fire, and ambulance vehicles.

The Preferred Alternative will improve traffic flow, turning movements, and conditions for pedestrians and bicyclists traveling along the roadway. This alternative will improve local and regional access to residential areas, community facilities, and businesses that require travel along North Reserve Street. Improved traffic flow will likely decrease drive-through traffic in the residential neighborhoods aligning Grove and Davis Streets and River Road, along Flynn Lane, and will help to preserve the existing neighborhood character and property values along these local streets.

People living and working in close proximity to North Reserve Street are exposed to traffic noise, pollution, loss of privacy, and inconveniences associated with a heavily-traveled roadway. The Preferred Alternative will bring traffic lanes and their related impacts closer to residences and businesses along North Reserve Street. Impacts due to the closer proximity to traffic will be offset by smoother traffic flows, which will reduce pollution and noise levels emitted from passing vehicles. Reducing the grade at the Old Milwaukee overpass will also help reduce illegal use of compression braking and associated noise.

The Preferred Alternative will facilitate provision of expedient and safe emergency services due to the increased capacity that will allow adequate passageways for emergency vehicles, even during congested periods.

4.2.2.2 Economic

Neither the No-Build Alternative nor the Preferred Alternative will substantially affect overall trends for growth and decline in real estate development, tax revenue, public expenditures, retail sales, employment opportunities, or the overall Missoula area economy. Development of large vacant properties located adjacent to North Reserve Street into commercial uses is likely to continue with or without implementation of the Preferred Alternative.

As North Reserve Street traffic increases, increased congestion resulting from the No-Build Alternative will slow travel times for local and regional commerce and contribute to less efficient operation of commercial vehicles; thus increasing the costs of conducting business in and through Missoula. Deterioration of safety conditions related to increased congestion will also contribute to increases in the incidence of traffic accidents, and result in greater personal and business economic losses due to accidents.

Worsening traffic congestion due to the No-Build Alternative will limit the ability of businesses located along North Reserve Street to fully benefit from growth in the area's population and economy. Where keen competition exists among similar types of businesses, establishments becoming less accessible are likely to lose potential customers to rival businesses with more convenient access. Business locations where traffic signals and/or turn bays are provided will experience location advantages over areas where turning movements are less protected.

The Preferred Alternative will reduce travel times and contribute to more efficient operation of vehicles along North Reserve Street; thus reducing the costs of conducting business in and through Missoula. Improvements in the safety conditions will reduce personal and business economic losses due to traffic accidents.

The Preferred Alternative will provide improved left-turn access for business properties located along North Reserve Street and will more evenly distribute the business development benefits of traffic growth along the roadway.

Access to businesses along North Reserve Street will be provided during construction of the Preferred Alternative. It is expected, however, that there will be delays and interruptions associated with using the access during construction. These specific access provisions will be addressed in the design phase of the project. Increases and decreases in Reserve Street business sales during construction of the Preferred Alternative will partially depend on the timing of construction, length of delays, the locations of detours, and the quality of

temporary access provisions. Road and bridge construction activities associated with the Preferred Alternative are likely to interfere with normal traffic flows along Reserve Street for about two years. When construction delays or driving inconvenience are substantial, local drivers and knowledgeable drive-through travelers are likely to use alternate routes through Missoula. The Preferred Alternative includes measures to minimize detours and delays to the fullest extent possible by the use of accelerated paving techniques.

Construction of the Preferred Alternative will provide a short-term benefit to the local area economy by supplying residents of the Missoula area with construction-related job opportunities related to the construction of the roadway improvements.

4.2.3 Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898 requiring federal agencies to incorporate Environmental Justice considerations into the NEPA planning process. The purpose of this order is to ensure that low-income households, minority households, and minority business enterprises do not suffer a disproportionate share of adverse environmental impacts resulting from federal actions.

The North Reserve Street study area does not include any residential areas that are dominated by low-income or minority residents. Therefore, neither the No-Build nor the Preferred Alternative will have adverse impacts on low-income or minority residents.

4.3 Pedestrians and Bicyclists

Many Missoulians who walk or bicycle for transportation or recreation purposes use the area street network for the direct links between places of origin and destination. Reserve Street provides the longest continuous north/south route for vehicular and non-motorized travel through the Missoula area. North Reserve Street also provides one of only a few grade-separated crossings over the Clark Fork and the MRL mainline tracks.

Deficient pedestrian and bicycle facilities that exist along North Reserve Street include narrow roadway shoulders, particularly along the bridge structures, and a narrow [1.5-meter (5-foot)] sidewalk that is limited to the segment between South Third Street and Mullan Road along the east edge of the roadway. When combined with the continuously-growing traffic volumes and a large proportion of trucks along North Reserve Street, these deficient facilities result in a relatively uninviting environment for pedestrians and bicyclists. The lack of defined access also creates an unsafe environment for pedestrians and bicyclists. North Reserve Street poses a barrier to pedestrians and bicyclist attempting to cross between the east and west sides of the major thoroughfare.

The Old Milwaukee Railroad right-of-way crosses under North Reserve Street approximately 300 meters (1,000 feet) north of the intersection with South Third Street. This former railroad corridor bisects Missoula on a general east/west alignment and is designated as a future multiple-use trail in the City's Non-Motorized Transportation Plan, *Guidelines for Creating a Non-Motorized Travel Network in the Greater Missoula Area*.

The No-Build Alternative will result in prolonged discontinuity for non-motorized travel along this major north/south corridor on Missoula's west side. It will also perpetuate the currently inadequate conditions that pedestrians and bicyclists confront along North Reserve Street. Conditions are expected to deteriorate as traffic volumes and congestion increase.

The Preferred Alternative will provide a north/south non-motorized travel link on the western edge of the Missoula urban area and will facilitate development of a major east/west link along the Old Milwaukee multi-use facility that extends through the community. The addition of sidewalks and bicycle lanes along North Reserve Street will likely attract an increased number of non-motorized users to this corridor. The addition of grade-separated crossings and traffic signals will provide better facilities for crossing North Reserve Street.

A technical memorandum titled *North Reserve Street Widening Project, Old Milwaukee Bicycle/Pedestrian Facility Technical Memorandum*, prepared by WGM group, December 8, 1995, contains an evaluation of three alternatives for a new grade-separated crossing of the Old Milwaukee Railroad at North Reserve Street. The alternative recommended in this technical memorandum and incorporated into the Preferred Alternative consists of lowering the profile of the North Reserve Street bridge structure spanning the Old Milwaukee Railroad and accommodating the planned non-motorized trail by means of an underpass.

A second grade separated bicycle/pedestrian crossing is planned along the north side of the Clark Fork. This facility would pass under the existing and proposed North Reserve Street bridges that span the River. The Preferred Alternative includes grading and retaining wall construction for a future river front trail crossing.

4.4 Transit

The Missoula Urban Transportation District (MUTD) operates "Mountain Line" buses that provide regularly-scheduled public transportation (transit) service along 12 fixed routes within the Missoula urban area. Each route originates and terminates at the Missoula County Courthouse, located in downtown Missoula. None of the current bus routes use North Reserve Street. Route 2 provides a connection to the area around the Target store located on the east side of North Reserve Street between Union Pacific and Palmer Streets. Route 9 travels through the Orchard Homes residential area to Missoula Community Hospital and crosses North Reserve Street at South Third Street. Route 10 crosses North Reserve Street along both Mullan Road and Broadway. A recently-completed MUTD service analysis recommends Reserve Street for a future route. However, it can not currently be provided given existing congestion.

The No-Build Alternative will have a minimal effect upon existing bus routes that pass through the corridor. As peak-period traffic operations at the North Reserve Street intersections with Broadway, Mullan Road and South Third Street continue to deteriorate, timed bus schedules may become less reliable due to delays caused by increased congestion. This alternative will limit the MUTD's ability to provide future bus service along North Reserve Street due to the continued increase in traffic volumes and related congestion along this roadway.

Bus operations improvements for the three routes traveling through the corridor will coincide with improvements in the levels of service at the North Reserve Street intersections with Broadway, Mullan Road and South Third Street resulting from the Preferred Alternative. Accommodations for bus stops and turnouts included with this alternative will facilitate the provision of future bus service by a new route along the Reserve Street corridor. Bus pullout areas will consist of 3.7-meter (12-foot) wide shoulders where bus stops are planned. The addition of sidewalks and bicycle lanes along the corridor will improve access to transit service for non-motorized travelers within this corridor. The location of the new Target store on Reserve Street (shown in Figure 4-1) may serve as a hub for buses, and a future park-n-ride on Grant Creek road is planned.

4.5 Right-of-Way

4.5.1 Impacts

The No-Build Alternative will require no additional right-of-way.

The MDT owns the majority of right-of-way required for construction of the Preferred Alternative, however, acquisition of approximately 1.4 hectares (3.46 acres) of additional right-of-way and 0.53 hectares (1.31 acres) of construction permits by the MDT will be needed.

Twenty-four parcels have been identified that are likely to require some portion to be acquired. This information is preliminary and will be refined when more detailed right-of-way and design information is available. This does not include right-of-way that may be needed for construction, utility or slope easements.

Figure 4-5 shows the locations of the 26 parcels. Table 4-3 provides information about the uses of these parcels.

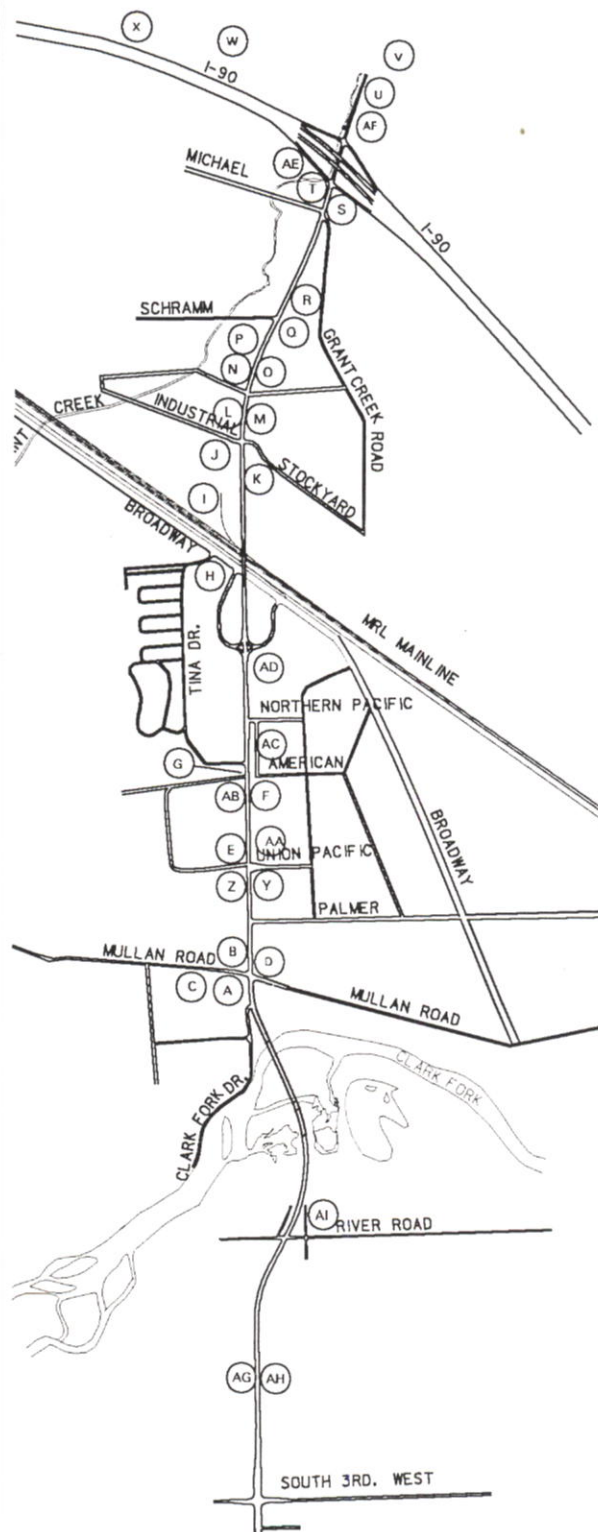
Table 4-3
Potential Right-of-Way Involvement

	Owner	Existing Use	Reason for Involvement
a.	Triple W. Equipment, Inc., attn. Ken Williams	Vacant	Clark Fork Drive realignment, Mullan Road approach
b.	J. Gary Loquete	Vacant	Corner right-of-way
c.	Hellgate Irrigation Company, attn. Mike Flynn	Irrigation ditch	Flynn-Lowry Ditch - extension of pipe arch at Mullan Rd.
d.	Town Pump North West Missoula, Inc.	Gas Station	Construction Permit
e.	William O. & Beverly R. Ryan	Restaurant	Corner right-of-way
f.	Gateway Limited Partnership	Restaurant	Corner right-of-way
g.	Harold, Mary, Daniel Jay, William Lee, & Robert Earl Lake, & Lorraine Lake Smith	Vacant	Corner right-of-way
h.	Russell, William & Louis Kinney & Mitzie Clouse	Residence	Ditch rights for drainage crossing of MRL/W. Broadway
i.	Montana Rail Link	Business	Ditch rights and easement for drainage and maintenance
j.	Washington Corporation	Business	Ditch rights and easement for drainage and maintenance
k.	Ronald F. & Lee Ann Jarosch	Business	Corner right-of-way
l.	WC Leasing Corp.	Vacant	Corner right-of-way
m.	Dennis R. Washington	Vacant	Corner right-of-way

	Owner	Existing Use	Reason for Involvement
n.	Bruce T. Blotkamp	Business	Corner right-of-way and driveway relocation
o.	Long Machinery, attn. Howard Long	Business	Corner right-of-way
p.	Wendell V. & Eva V. Jones, c/o John Waggoner & Haskell V. Holeman Limited Partnership	Business	Driveway relocation
q.	McDonald's Corporation	Restaurant	Driveway relocation
r.	MGB Partnership, dba Traveler's Inn Partnership (Rowdy's)	Hotel / restaurant	Driveway relocation and corner radius
s.	John Durbin & Associates	Business	Revisions to access
t.	D.C. Petroleum, Inc.	Gas station	Stream relocation, revisions to access.
u.	Seven Bar R Stores, Inc.	Convenience store	Right-of-way
v.	Grant Creek Village, Inc.	Vacant	Right-of-way
w.	Dennis R. Washington	Gravel pit	Right-of-way
x.	William J. Blanchev Wheeler	Agriculture	Right-of-way
y.	First Interstate Bank of Commerce	Business	Corner Const. Permit
z.	Northwest Farm Credit Services, ACA	Business	Corner Const. Permit
aa.	Missoula Federal Credit Union	Business construction	Corner Const. Permit
ab.	Jeff M. Smith Jr.	Business	Corner Const. Permit
ac.	Gateway Limited Partnership	Vacant	Corner Const. Permit
ad.	Costco Wholesale Corporation	Business	Corner Const. Permit
ae.	Clifford W. & Katherine E. Phillips	Vacant	Corner right-of-way
af.	Grant Creek Village	Vacant	Corner Const. Permit
ag.	Hugh Martinsen	Vacant	Right-of-way, underpass
ah.	Francis T. & Mittie Carrol	Vacant	Right-of-way, underpass
ai.	Harold N. & Sharon L. Jeszenka	Residence	Corner right-of-way

No demolition or relocation of buildings will be required as a result of right-of-way impacts

LOCATION	NAME
(A)	TRIPPLE W. EQUIPMENT, INC., ATTN KEN WILLIAMS
(B)	J. GARY LOQUETTE
(C)	HELLGATE IRRIGATION COMPANY, ATTN. MIKE FLYNN
(D)	TOWN PUMP NORTH WEST MISSOULA, INC.
(E)	WILLIAM O. & BEVERLY R. RYAN
(F)	GATEWAY LIMITED PARTNERSHIP
(G)	HAROLD, MARY, DANIEL JAY, WILLIAM LEE & ROBERT EARL LAKE, & LORRAINE LAKE SMITH
(H)	RUSSELL, WILLIAM & LOUIS KINNEY & MITZE CLOUSE
(I)	MONTANA RAIL LINK
(J)	WASHINGTON CORPORATION
(K)	RONALD F. & LEE ANN JAROSCH
(L)	WC LEASING CORPORATION
(M)	DENNIS R. WASHINGTON
(N)	BRUCE T. BLOTKAMP
(O)	LONG MACHINERY, ATTN. HOWARD LONG
(P)	WENDELL V. & EVA V. JONES, CO. JOHN WAGGONER & HASKELL V. HOLEMAN LIMITED PARTNERSHIP
(Q)	MCDONALD'S CORPORATION
(R)	MCB PARTNERSHIP, DBA TRAVELER'S INN PARTNERSHIP (ROWDY'S)
(S)	JOHN DURBIN & ASSOCIATES
(T)	D.C. PETROLEUM, INC.
(U)	SEVEN BAR-R STORES INC. CONV. STORES
(V)	GRANT CREEK VILLAGE INC.
(W)	DENNIS R. WASHINGTON
(X)	WILLIAM J. & BLANCHE V. WHEELER
(Y)	FIRST INTERSTATE BANK OF COMMERCE
(Z)	NORTHWEST FARM CREDIT SERVICES, ACA
(AA)	MISSOULA FEDERAL CREDIT UNION
(AB)	JEFF M. SMITH JR.
(AC)	GATEWAY LIMITED PARTNERSHIP
(AD)	COSTCO WHOLESALE CORPORATION
(AE)	CLIFFORD W. & KATHERINE E. PHILLIPS
(AF)	GRANT CREEK VILLAGE
(AG)	HUGH MARTINSEN
(AH)	FRANCIS T. MITTIE CARROL
(AI)	HAROLD N. & SHARON L. JESZENKA



North Reserve Street

Right-of-Way Impacts
Figure 4-5

4.5.2 Mitigation

For those properties when acquisition of private land for right-of-way is required, the acquisition process will be negotiated in a fair and equitable manner, using market value estimates determined by expert appraisers as required. For residential occupants potentially relocated as a result of the proposed action, comparable replacement housing is available within the project area.

The MDT will comply with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (P.L. 91-646) and the Uniform Relocation Act Amendments of 1987 (P.L. 100-17). The purpose of this act is to provide for uniform and equitable treatment of all persons displaced from their homes, businesses, or farms. All relocatees are given a minimum of 90 days in which to find replacement housing or business locations. All qualified relocatees receive monetary payments, rent supplements, replacement housing, down payments, and interest differential payments.

No person shall be displaced by a federal-aid project unless and until adequate replacement housing has been offered to all affected persons regardless of race, color, religion, sex or national origin.

In addition to full compliance with the Uniform Relocation Assistance Act of 1970, as amended, the MDT will provide assistance to any eligible owner or tenant in relocating their business or residence at the time of displacement. Benefits under the Act, to which each eligible owner or tenant may be entitled, will be determined on an individual basis and explained to them in detail in addition to information regarding their financial options.

4.6 Parks and Recreation

4.6.1 Existing Conditions

There are no public parks or recreation areas located within the project study area. The Clark Fork provides various recreational opportunities and adjoins several parks as it flows through the city of Missoula. However, within the proposed project study area, the river is not regularly utilized as a recreation area due to the presence of a large weir directly downstream from the project and the outfall of a wastewater treatment plant. The river is used for fishing in this area.

4.6.2 Impacts

The No-Build Alternative will prolong the existing conditions that limit direct access to parks or recreation areas located outside of the project study area for pedestrians and bicyclists.

Since there are no public parks or recreation areas within the project study area, the Preferred Alternative will have no direct impacts to these areas. Proposed bicycle lanes and sidewalks incorporated into the Preferred Alternative will improve bicycle and pedestrian access to public parks and recreation areas located outside of the project study area.

4.7 Air Quality

4.7.1 Existing Conditions

The geographical and meteorological characteristics of Missoula are a major cause of the air quality conditions that exist within the study area. Missoula is located within a valley at the confluence of the Bitterroot River and Clark Fork. Given this valley setting, the area is highly susceptible to temperature inversions during the fall and winter months. In addition, wind speeds in the valley are low year-round, thus allowing build-up of pollutant concentrations. Temperature inversions coupled with limited wind activity cause the Missoula area to be susceptible to air pollution.

The two pollutants of primary concern in Missoula are carbon monoxide (CO) and particulate matter of less than ten microns in diameter (PM₁₀). Generally speaking, CO concentrations increase as vehicular congestion rises, and PM₁₀ emissions increase with growth in vehicle-miles-of-travel (VMT).

Due to a history of exceedances of federal air quality standards, the City of Missoula is currently designated as a non-attainment area for CO and PM₁₀. These official air quality designations for Missoula have been made by the United States Environmental Protection Agency (EPA).

The highest CO concentrations in Missoula have been recorded at the intersection of Brooks (US 93), Russell, and South. In the early 1990s, Missoula was designated as a "moderate" non-attainment area for CO by the EPA based on various provisions of the Clean Air Act Amendments of 1990.

Missoula County was originally designated as a non-attainment area for PM_{10} by EPA in 1977. During this time, the highest PM_{10} concentrations were recorded in the downtown area near the Courthouse. A later study conducted in 1987 determined that the major sources contributing to Missoula's PM_{10} problem were re-entrained road dust followed by residential wood burning during winter months.

4.7.2 Impacts

The impacts of the North Reserve Street project on CO and PM_{10} cannot be determined until traffic and air quality modeling being done for the RTP is complete.

This impact determination will be done before a final decision document is completed for the North Reserve Street project. An announcement that this impact determination has been completed and is available for public review will be mailed to those people on the project mailing list, including those who attend the Public Hearing.

4.8 Noise

4.8.1 Existing Conditions

Federal Highway Administration 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 the southern portion of the study corridor fall under Activity Category B. Table 4-4 provides a complete description of the FHWA NAC.

Table 4-4
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.

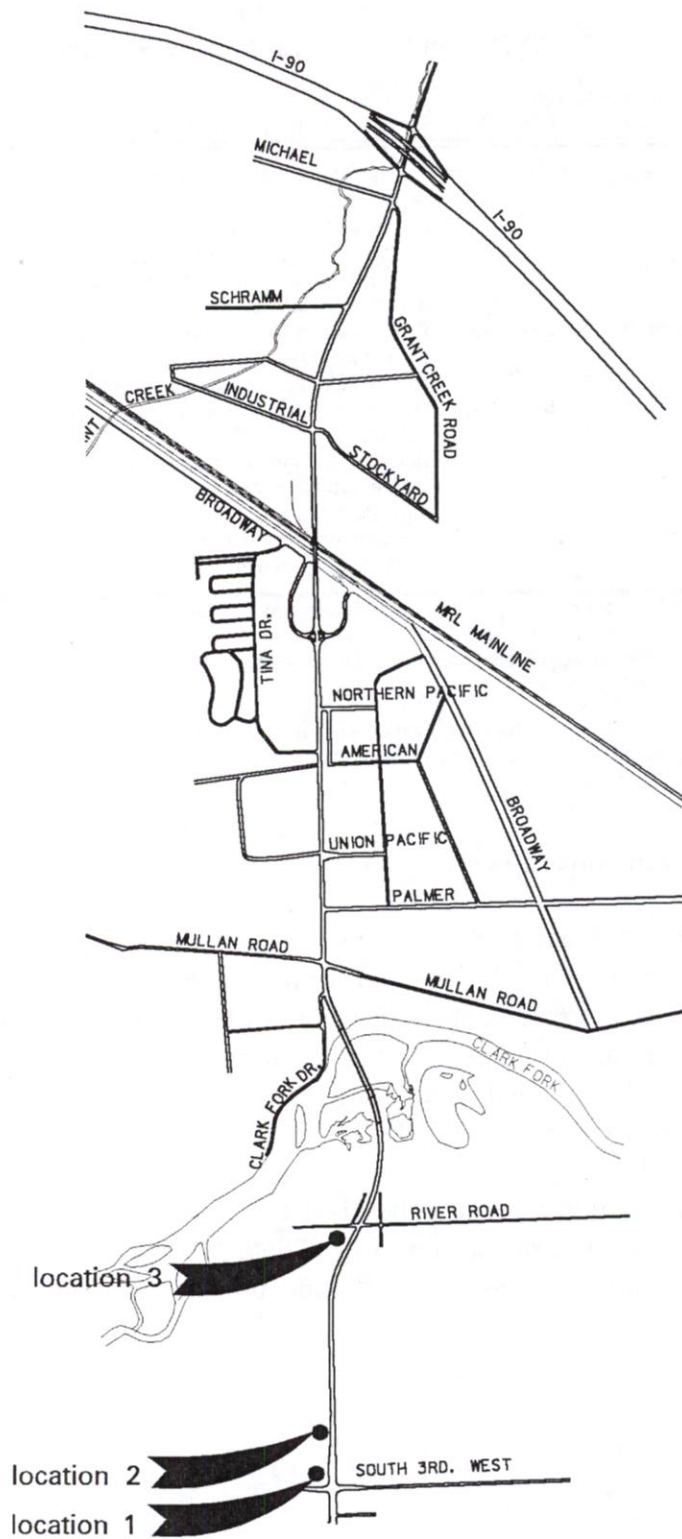
⁽²⁾ Parks in Categories A and B include all such lands (public or private) which are actually used as parks as well as those public lands officially set aside or designated by a governmental agency as parks on the date of public knowledge of the proposed highway project.

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.

Existing Monitored Noise Levels

As shown in Figure 4-6 and Table 4-5, existing exterior ambient noise measurements were taken at three locations along the west side of the southern portion of the study corridor. All locations were chosen to represent sensitive receptors, which are land uses that fall into Activity Category B, as described in Table 4-4 above. Each measurement was taken along the facade of the building which faces North Reserve Street. Noise monitoring was performed on February 7 and 9, 1995 by MDT. The field results are shown in Table 4-5.

More detailed information regarding the MDT noise analysis on North Reserve Street is included in the *Noise Assessment Report - NH 0002(110) - North Reserve Street, Missoula - CN 2445*, completed on May 26, 1995. This document is available at the MDT.



North Reserve Street

Noise Monitoring Locations
Figure 4-6

Table 4-5
Noise Monitoring Locations and Results
February 1995

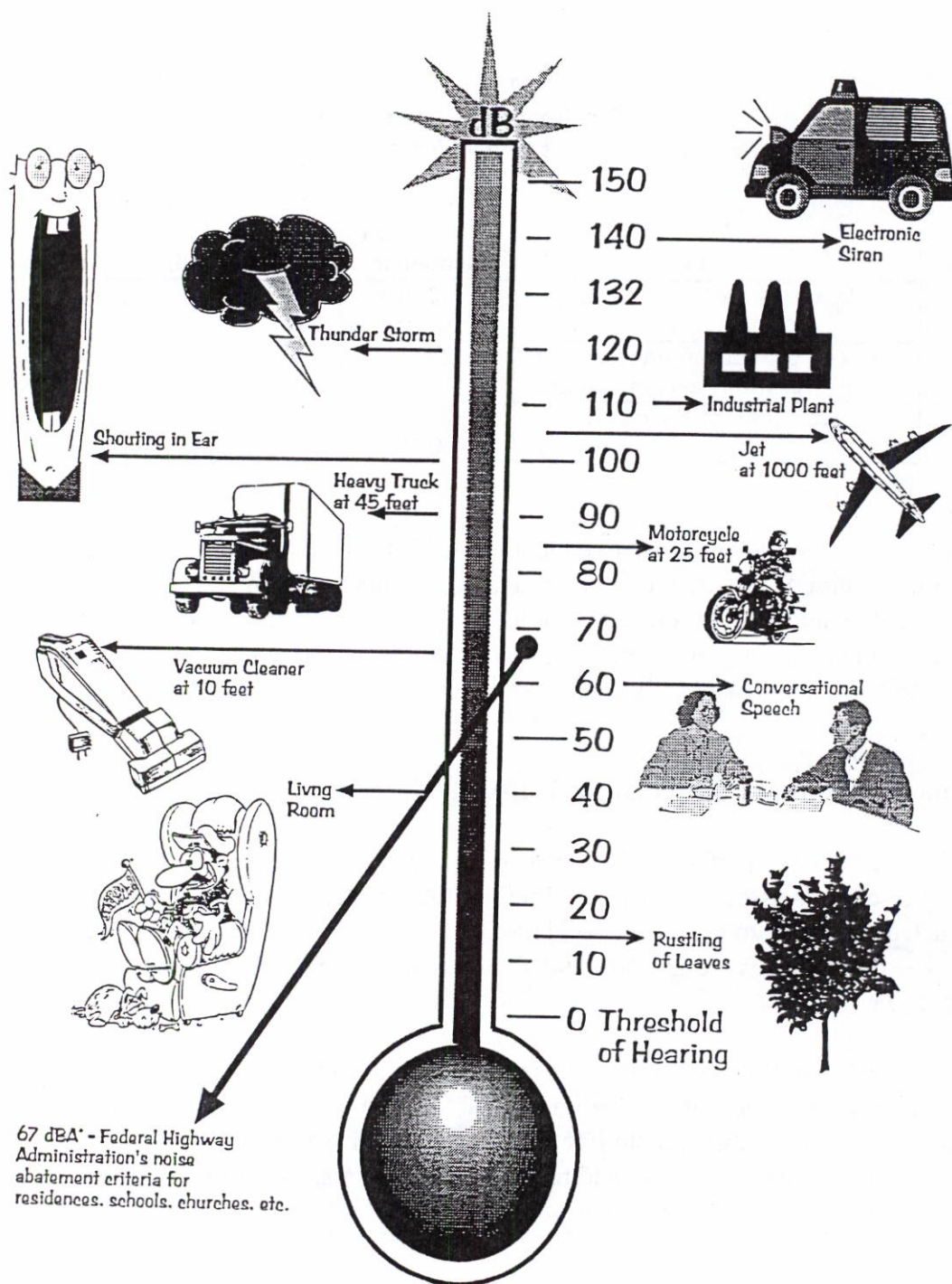
Site	Location	Distance to Centerline	Measured Noise Level dB(A) $L_{eq}(h)$	FHWA NAC dB(A) $L_{eq}(h)$
1	NW corner at S. 3rd Street	30 m (100 ft.)	68	67
2	East end of Gleason on the north side. West of Reserve Street	27 m (90 ft.)	68	67
3	SW corner at River Rd.	24 m (80 ft.)	68	67

The measured noise levels are above the FHWA NAC at all monitored receptors. Vehicles on North Reserve Street are the predominant noise sources. Monitored noise levels represent all exterior noise sources recorded at the sites, including natural and mechanical sources and human activities, whereas calculated noise levels (as shown in Table 4-5 and discussed below) represent traffic-generated noise only.

Existing and Future Calculated Noise Levels

A noise analysis was performed by MDT to compare existing noise conditions to predicted future noise levels associated with the Preferred Alternative. The noise study was conducted according to 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.

Using the FHWA Highway Traffic Noise Prediction Model, sound levels were generated for 1994 and 2015 peak-hour traffic volumes. Table 4-6 shows projected noise levels at varying distances from the roadway centerline. The designation "soft site" is used when there is vegetation between the roadway and receptor, such as grass or shrubs. Figure 4-7 shows a comparison of sound levels from various noise sources.



The Federal Highway Administration's noise abatement criteria are listed as dBA. dBA is a time weighted value for noise, dB represents an individual noise event. dBA for a noise source is generally less than dB.

North Reserve Street

Sound Level Comparisons
Figure 4-7

Table 4-6
Year 1994 and 2015 Noise Levels
Speed 72 kph (45 mph)

Distance to Centerline	1994 $L_{eq}(h)$, soft site	2015 $L_{eq}(h)$, hard site (Preferred Alternative)
18 m (60 ft.)	73 dBA	75 dBA
24 m (80 ft.)	72 dBA	74 dBA
30 m (100 ft.)	71 dBA	73 dBA

4.8.2 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.

Since the NAC is currently being approached or exceeded for both the residential and commercial areas along North Reserve Street, both the No-Build and Preferred Alternative result in noise impacts as determined by the criteria described above.

The No-Build Alternative will result in noise levels which are 2 to 3 dBA higher than existing noise, due to projected increases in traffic volumes.

For residents on the west side of North Reserve Street, between South Third and the river, the Preferred Alternative will move traffic closer to their homes by at least 7.3 meters (24 feet). For residents on the east side of the road, there will be no decrease in the distance between their homes and the roadway, but traffic volumes will increase over time, which will result in a noise increase.

It is estimated that approximately 25 residences are currently impacted by traffic noise levels that approach or exceed the FHWA NAC. By the year 2015, it is estimated that an additional 30 residences will be impacted by highway traffic noise that approach or exceed the NAC.

4.8.3 Mitigation

Title 23 CFR requires that noise abatement measures be considered if a traffic noise impact is identified. The FHWA NAC is currently being exceeded for sensitive receptors along North Reserve Street.

An analysis of reasonableness and feasibility of providing noise abatement has been conducted and can be found in the *Noise Assessment Report* available at MDT. This analysis shows that the nature and location of the project does not allow for noise mitigation. Depending on space available, it may be possible to incorporate vegetation or a low vegetated earth berm between the roadway and first row of houses on the west side of Reserve Street between South Third and the River. Vegetation, such as brush, grass, or trees will not significantly reduce noise levels, but will psychologically improve the intrusion of the roadway. An earth berm, depending on the height, could reduce tire and engine noise of most cars and possibly trucks.

A different surface treatment will be applied to the entire corridor concrete surface -- burlap drag instead of lateral tining. This should lessen noise and lessen dust (small particulates).

These mitigation measures will be evaluated in detail during the final design phase of the project.

4.9 Water Resources/Quality

4.9.1 Existing Conditions

The Clark Fork flows east-to-west through the study area within a shallow floodway with several braided channels and a relatively level gradient typical of a glaciated valley. The river crosses under a North Reserve Street bridge structure located between Mullan and River Roads. The Clark Fork provides a major drainage from the Continental Divide located east of Missoula, and eventually joins the waters of the Columbia River by way of the Pend d'Oreille River, discharging its waters into the Pacific Ocean.

Both the Clark Fork and Grant Creek are 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.

Grant Creek originates in the Rattlesnake Mountains to the north of the study area. Grant Creek is a narrow [less than 4 meters (13.1 feet)] and seasonal drainageway that flows within a steeply-sloped channel north to south along the west side of North Reserve Street/Grant Creek Road at the northern portion of the study area and within the I-90 interchange area. Grant Creek in the area of I-90 has been placed in a artificially channel. The close proximity of Grant Creek to Reserve Street results in snow removed from North Reserve Street being deposited directly into Grant Creek. This activity likely results in some degradation of the water quality within Grant Creek downstream of North Reserve Street due to the presence of petroleum-based impurities, sand, sediment, and road salts contained in the snow removed from the roadway. In the area of the I-90 interchange where the creek is immediately adjacent to Reserve Street, sediments from road sanding operations can be seen in the creek and on the creek banks.

The study area is underlain by the Missoula Valley Aquifer, which has been designated the Sole Source of drinking water for the Missoula Valley. This aquifer covers about 518 square kilometers (200 square miles) and ranges from a depth to the water table from 27.4 meters (90 feet) to less than 3.0 meters (10 feet) below the ground surface. The Missoula valley aquifer is an unconfined aquifer with soils predominantly consisting of coarse sand and gravel. The permeability of these soils makes the aquifer vulnerable to contamination. Spills of contaminated substances can permeate through the soil and affect the water in the aquifer.

The Missoula County Health Department had established a local aquifer protection program. The program has been implemented by the adoption of local regulations providing protection for the aquifer and educational programs to prevent contamination.

The State regards the Clark Fork as a "navigable waterway" on its reach between Deer Lodge and the Idaho state line. Therefore, under 70-16-201 and 70-1-202, M.C.A., the Montana Department of Natural Resources & Conservation (DNR&C, which now includes the former MONTANA DEPARTMENT OF STATE LANDS/DSL) has jurisdiction over the land under this present and proposed bridge widening portion of the project. MDT will request the DNR&C to issue a new easement if necessary.

4.9.2 Impacts

The No-Build Alternative will result in no adverse impacts to the existing water resources that occur in the study area vicinity.

Surface water quality impacts relating to transportation projects generally fall under the following two categories:

- Increased impurities in stormwater runoff from increased traffic, increased impervious surface and/or increased maintenance activities.
- Sediment loading during and after construction activities due to the exposure of bare substrate.

Surface water quality can be affected and degraded by contaminated roadway runoff. Roadway surface runoff contains organic and inorganic chemicals and compounds, as well as substantial quantities of suspended solids. These components are usually a product of petroleum/combustion products, vehicle and pavement wear and roadway maintenance procedures. The Preferred Alternative will create an additional impervious area of 4.47 hectares (11.05 acres).

The Preferred Alternative will result in shifting the existing channel and the construction of a concrete box culvert to contain Grant Creek in the west in the vicinity of the North Reserve Street/I-90 interchange. This action will result in a temporary fluctuation in sediment and suspended solids within the Grant Creek watercourse during construction. It is expected, however, that existing sediment loads will decrease from the existing conditions after construction is complete.

Construction activities associated with the Preferred Alternative in the vicinity of the Clark Fork, including bridge and ramp construction, fill-slope encroachment, and corresponding erosion, will likely result in temporary impacts within the Clark Fork watercourse that are similar in nature to the impacts to Grant Creek.

The Preferred Alternative includes the construction of curb and gutter which will contain stormwater runoff within the roadway cross-section. Stormwater will be collected in inlet drains and carried to the outfalls by a storm sewer system. The Preferred Alternative also includes either flow in open swales or stormwater detention to facilitate sedimentation of suspended solids and contaminants prior to discharge.

The operation of the Preferred Alternative will have no direct impacts to surface water quality. Although this alternative will result in an increased area of impervious surface, the design of the facility and erosion and sedimentation control measures during and after construction will minimize impacts to the Clark Fork and Grant Creek. The relocated channel and culvert covering Grant Creek in the vicinity of the North Reserve Street/I-90 interchange will reduce the sediment loadings and water quality degradation that is presently caused by the direct deposition of snow removed from North Reserve Street into Grant Creek.

The Preferred Alternative will not impact the quality of groundwater contained within Missoula's sole-source aquifer since sump drains are not being used on this project.

Bill Monheiser of the Environmental Protection Agency (EPA) Region VIII has stated in a letter received on June 24, 1996 (see Appendix A) that he has not identified any unresolved issues with the design of this project, and that 90% to 100% design plans will need his review prior to issuance of compliance with the Sole Source Aquifer designation.

4.9.3 Mitigation

Throughout the construction phase of any alternative, procedures described in the *MDT Highway Construction Standard Erosion Control Work Plan* will be used. Some of these acceptable mitigation measures include:

Long Term Mitigation

The measures included in the Preferred Alternative to mitigate water quality impacts are described below:

- An Erosion Control Plan will be submitted to the Montana Department of Environmental Quality's (MDEQ's) Water Quality Division in compliance with their Montana Pollutant Discharge Elimination System Regulations (ARM 16.20.1314) for this proposed project. Best Management Practices will be included in the design of this Plan using guidelines as established in MDT's Highway Construction Standard Erosion Control Work Plan. The objective is to minimize erosion of disturbed areas during and following construction of this proposed project.
- Use of vegetated drainage swales to slow stormwater runoff and allow the settling of suspended solids and contaminants before discharging to the Clark Fork and Grant Creek. This treatment will be used in smaller drainage basins such as the I-90 interchange and portions of Reserve Street.

- Use of stormwater detention to allow the settling of suspended solids and contaminants before discharging to the Clark Fork. The Preferred Alternative includes stormwater detention basins and the loop ramps of the Broadway/Reserve Street interchange and in an area southwest of the Mullan/Reserve Street intersection.
- In accordance with 7-22-2152, and 60-2-208 M.C.A., MDT will reestablish a permanent desirable vegetation community along all areas disturbed by the proposed construction. A set of revegetation guidelines will be developed by MDT that must be followed by the contractor. These specifications will include instructions on seeding methods, seeding dates, types and amounts of mulch and fertilizer, along with seed mix components. Seed mixes include a variety of species to assure that areas disturbed by construction are immediately stabilized by vegetative cover. The Seeding Special Provisions developed for this proposed project will be forwarded to the Missoula County Weed Board for approval.

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.

4.10 Wetlands

4.10.1 Existing Conditions

In November 1994, a wetlands survey was performed to document the existence and extent of wetlands within the study area. This is documented in the Biological Resources Report and Wetland Finding prepared by MDT (see Appendix C). After the initial investigation of three sites, only one was determined to meet the defined criteria for a wetland. This site is shown in Figure 4-8.

The results of the wetland site investigation are as follows:

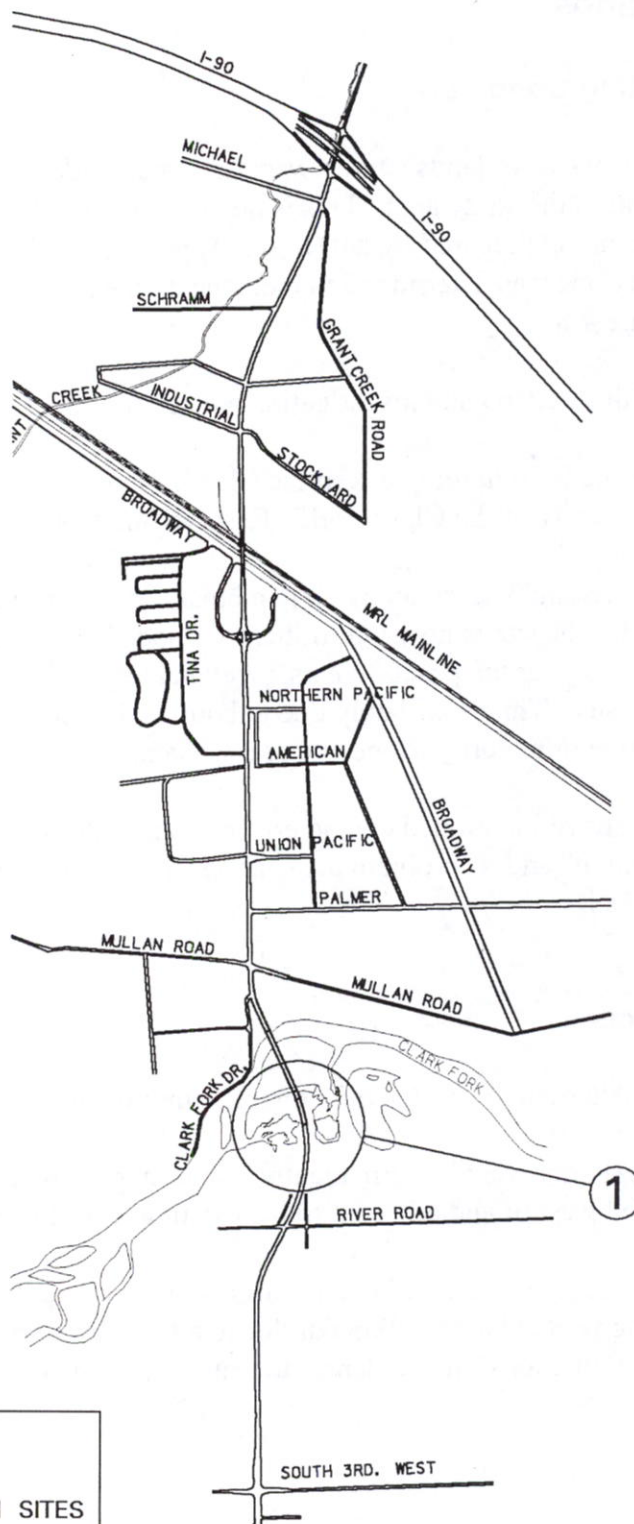
- The site is commonly called the Clark Fork Overflow Channel and is located in the vicinity of the Clark Fork's Reserve Street bridge.
- The wetland was created due to a breach in the upriver dike of the Clark Fork in 1983. The site is now intermittently flooded and has slowly evolved into a wetland over the past 13 years. Wetland vegetation is minimal and lacks in diversity. This is probably due to both the brevity of annual inundation and the relative immaturity of the site as a wetland.
- The above-mentioned characteristics qualify the site as both an "atypical situation" and a "problem area" as defined by the 1987 Corps of Engineers Manual.

4.10.2 Impacts

The No-Build Alternative will have no direct or indirect impacts to the wetland site.

The Preferred Alternative will permanently impact approximately 0.2 hectares (0.5 acres) of wetlands located west of and adjacent to the existing Overflow Channel bridge.

Additional temporary impact will occur during construction. In addition, secondary impacts to the remaining wetland area will occur due to alterations in runoff. Increased runoff from paved surfaces will alter some wetland fluctuations and increase sediment and pollutants from runoff.



LEGEND

① WETLAND INVESTIGATION SITES

North Reserve Street

Wetland Locations
Figure 4-8

4.10.3 Practicable Alternatives

Due to the perpendicular crossing of the Clark Fork, it is not possible to entirely avoid wetland impacts. The design of the Preferred Alternative, however, will include all feasible measures to minimize wetland impacts.

4.10.4 Mitigation

Mitigation to compensate for the 0.2 hectare (0.5 acre) of wetland impact may or may not be required. This will be determined as part of the 404 permit by the U.S. Army Corps of Engineers at the time of permit application.

Specific mitigation during construction will include:

- Minimize vegetation removal.
- Revegetation 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.

Permits for placing fill in wetlands must be obtained from the US Army Corps of Engineers under Section 404 of the Federal Clean Water Act, as amended.

Based upon the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

4.11 Wildlife/Threatened and Endangered Species

Information pertaining to endangered, threatened, rare and sensitive wildlife, fish, herptiles (amphibians and reptiles), and vegetative species was obtained from the US Fish & Wildlife Service (USFWS), Montana Department of Fish, Wildlife & Parks (MDFWP), the Montana Natural Heritage Program (MNHP), a field survey conducted from November 16-18, 1994, and a review of available literature relevant to the area. Documentation is included in the Biological Resources Report, December 1994, MDT contained in Appendix C.

4.11.1 Existing Conditions

Nine species within Montana have been identified as either threatened or endangered by the US Fish & Wildlife Service. These species are listed in Table 4-7:

Table 4-7
Threatened or Endangered Species

Common Name	Status
gray wolf	endangered
peregrine falcon	endangered
whooping crane	endangered
black-footed ferret	endangered
Interior least tern	endangered
grizzly bear	threatened
bald eagle	threatened
piping plover	threatened
water howellia (plant species)	threatened

Source: USFWS

Under the Endangered Species Act of 1973 (as amended, 1988), the term "endangered species" is defined as a species in danger of extinction throughout all or a significant portion of its range; and a "threatened species" are likely to become endangered species within the foreseeable future throughout all or a significant portion of their range. Migratory birds, including raptors, are protected in accordance with the Migratory Bird Treaty Act (16 USC 701-718h).

Only the peregrine falcon (endangered), and the bald eagle (threatened) are potentially affected by the Preferred Alternative. The other species are either not endemic to the project area, or have been absent from the Missoula Valley for several decades.

- **Peregrine falcon** - There are no known nesting locations or foraging areas for the peregrine falcon within many miles of the proposed project. The peregrine falcon is not habitually present within the proposed project area, however the species is likely to be a regular seasonal migrant enroute to more favorable habitats.
- **Bald eagle** - Bald eagles occur in the project area as both migrants and winter residents and are normally associated with the Clark Fork and its floodplains. The raptors have been seen perching, most commonly in the winter months, in mature cottonwoods that border the Clark Fork. There are no known nesting territories within many miles of the proposed project vicinity, however, the river has some significance as a foraging area with greater usage occurring farther away from the city.

Within the project vicinity, Grant Creek and the Clark Fork and its floodplain afford the most significant support for wildlife. The urbanization of the remainder of the study area has left little to encourage wildlife populations.

Grant Creek is a narrow seasonal stream [4 meters \pm (13.2 feet \pm)] which supports black cottonwoods and a few upland plant species mixed with noxious weeds. These include wood's rose, mock orange, nightshade, spotted knapweed, and common tansy. The Clark Fork and its floodplain support a limited range of typical wetland and brushy riparian plants, including cottonwoods, willows, canary-grass, spikebrush, forbs, and broad-leaved cattail.

The existing study area supports a small variety of wildlife. The following is an abbreviated list of species associated with the habitats in the study area:

- White-tailed deer
- Birds - Neo-tropical (song) birds, cliff swallows, ravens, magpies, and crows.
- Various waterfowl including mallard ducks, and Canada geese.
- Cold and warm water fish including the westslope cutthroat trout (State sensitive species), and the bull trout (United States Fish and Wildlife Service (USF&WS) sensitive species).
- Beaver.

Although small furbearing animals may have some potential habitat in the commonly inundated, backwatered portion of the overflow channel, little evidence of use by small, non-furbearing mammals was uncovered.

The survey, conducted in November 1994, precluded any sightings of amphibians and reptiles, though several species common to the valleys of western Montana are likely to be found here.

Despite a long history of water quality problems, the Clark Fork supports a moderately productive fishery. The Montana Rivers Information System (MRIS) has identified up to 13 cold- and warm-water species known to occur within the system. In particular, two notable species include the westslope cutthroat trout and the bull trout.

Grant Creek has been observed to be a non-perennial stream at the point where it crosses under Interstate 90. The Grant Creek streambed contains no evidence of a fishery.

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. In addition, the bull trout is currently being considered for inclusion on the Threatened and Endangered Species List.

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.

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*).

4.11.2 Impacts

No impacts to wildlife or threatened or endangered species will occur due to the No-Build Alternative.

Based on the above, it is determined that implementation of the Preferred Alternative is not likely to adversely affect the peregrine falcon or the bald eagle.

The Preferred Alternative will likely have little impact on existing fish and wildlife populations. Any disturbances from construction are anticipated to be short term.

4.11.3 Mitigation

As no peregrine falcons are known to reside within the project area, there are no required mitigation measures.

Mitigation measures which will be implemented to minimize effect to the bald eagle include the following:

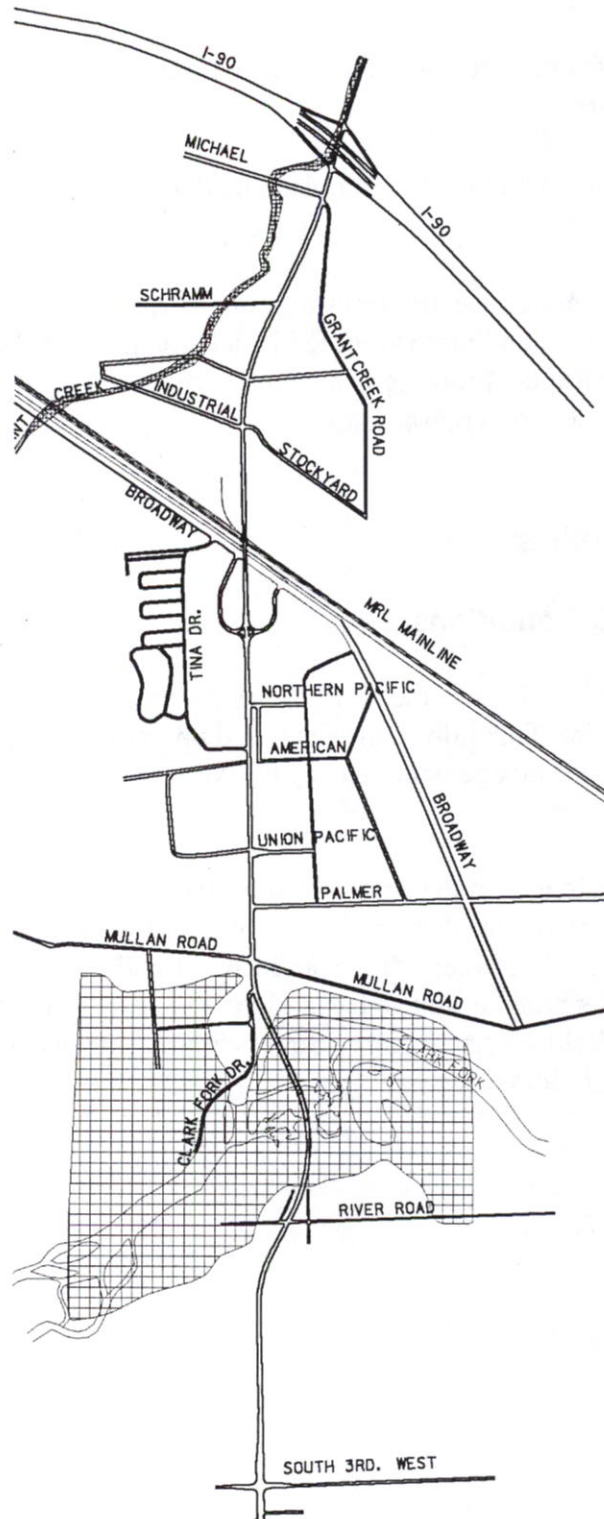
- Any necessary electric transmission/distribution line relocations shall be constructed and raptor-proofed in accordance with the Raptor Research Report No. 4. Raptor-proofing is a policy currently being applied by the Montana Department of Transportation.

4.12 Floodplains

4.12.1 Existing Conditions

Figure 4-9 shows locations of the North Reserve Street study corridor that are within the 100-year floodplain. This information is based upon flood hazard area maps prepared by the Federal Emergency Management Agency (FEMA) for the City of Missoula and for Missoula County.

The two major drainages in the study corridor, the Clark Fork and Grant Creek, are located within a 100-year floodplain. In the North Reserve Street area, the Clark Fork and its floodplain are located between Mullan and River Roads, and a North Reserve Street bridge structure spans this broad drainage basin. In the vicinity of the I-90 interchange, Grant Creek flows parallel to North Reserve Street within a narrow basin flowing north-to-south on the west side of the roadway.



North Reserve Street

One-Hundred Year
Floodplain Boundaries
Figure 4-9

4.12.2 Impacts

The No-Build Alternative will have no impact to the floodplain.

Executive Order 11988 and FHWA's floodplain regulations (23 CFR 650, Subpart A) require an evaluation of the proposed action to determine if any of the alternatives encroach on the base floodplain.

The *Missoula County Floodplain Regulations* stipulate that a river crossing is an allowable use within the floodway and floodplain. 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 than 0.15 meters (0.5 feet). The existing bridges will be modified for the wider roadway, therefore the bridge openings will remain unchanged.

The Preferred Alternative was developed to conform to the *Missoula County Floodplain Regulations* and meets the criteria for an allowable increase in the 100-year water surface of less than 0.15 meters (0.5 feet). This alternative will result in a minimal amount of bridge construction within the 100-year floodplain for the Clark Fork. The area of new right-of-way required for the Preferred Alternative includes approximately 3.2 hectare (7.9 acre) of land located within the 100-year floodplain for the Clark Fork.

The North Reserve Street bridge structure crossing over the Clark Fork will be designed to match the existing bridge and to accommodate 100-year flood levels. Floodplain values, such as the natural moderation of floods and the maintenance of groundwater, will be unaffected by the Preferred Alternative. Velocities of the 100-year flood will also remain unaffected. The project will not encourage incompatible floodplain development.

4.12.3 Mitigation

The following mitigation measures will be implemented for the Preferred Alternative:

- Construct the bridges to match the waterway opening of the existing structure.
- 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.

The Preferred Alternative will require a permit issued by the Missoula County Floodplain Administrator. To evaluate the permit application, the Floodplain Administrator will review the construction plans, floodproofing measures, and hydraulic calculations certified by a Professional Engineer.

4.13 Cultural Resources

4.13.1 Existing Conditions

In order to assure compliance with Federal historic preservation regulations (Section 106 of the *National Historic Preservation Act*), the MDT's historian and archaeologist were consulted to determine whether any cultural resources were potentially located in the project study area. Based upon these consultations, it was determined that a cultural resource survey was not warranted due to the lack of potential to encounter any eligible historic structures or archaeological finds within the study area.

As described in the existing land use section (4.1.1) of this document, the existing roadway corridor is composed of new or relatively new development. No structures within the corridor appear to be over 50 years old.

A local map of the area depicted an Indian burial ground in the general project area. The MDT staff archaeologist conducted investigations into the authenticity of these burial grounds and determined that none existed (Platt, 1996).

4.13.2 Impacts

Neither the No-Build Alternative nor the Preferred Alternative will have impacts to known cultural resources.

4.13.3 Mitigation

If cultural resources are identified during the construction phase of this project, work shall cease and the MDT historian or archaeologist shall be contacted.

4.14 Hazardous Materials

4.14.1 Existing Conditions

The potential for encountering hazardous substance contamination in soil or groundwater during project construction was evaluated by conducting a *Phase I - Environmental Site Assessment* (ESA) and subsequent subsurface tests along the North Reserve Street corridor.

The *Phase I - ESA*, completed in January 1995, identified four sites located in the immediate study area as having significant potential to impact the project due to possible subsurface contamination from petroleum products. Those four sites are shown in Figure 4-10. The *Phase I - ESA* document is on file and available at the Missoula County Courthouse and at the MDT.

Soil tests at these four sites were completed by the MDT's Core Drill Section in March, 1995. The core drill logs can be found in the MDT project hazardous materials file. The results of the subsurface tests indicated detectable levels of hydrocarbons at only one of the four sites of potential environmental concern identified in the *Phase I - ESA*. The levels detected at this site ranged from 0.8 to 1.4 parts per million (ppm), well below MDEQ's cleanup level of 100 ppm for hydrocarbons in soils.

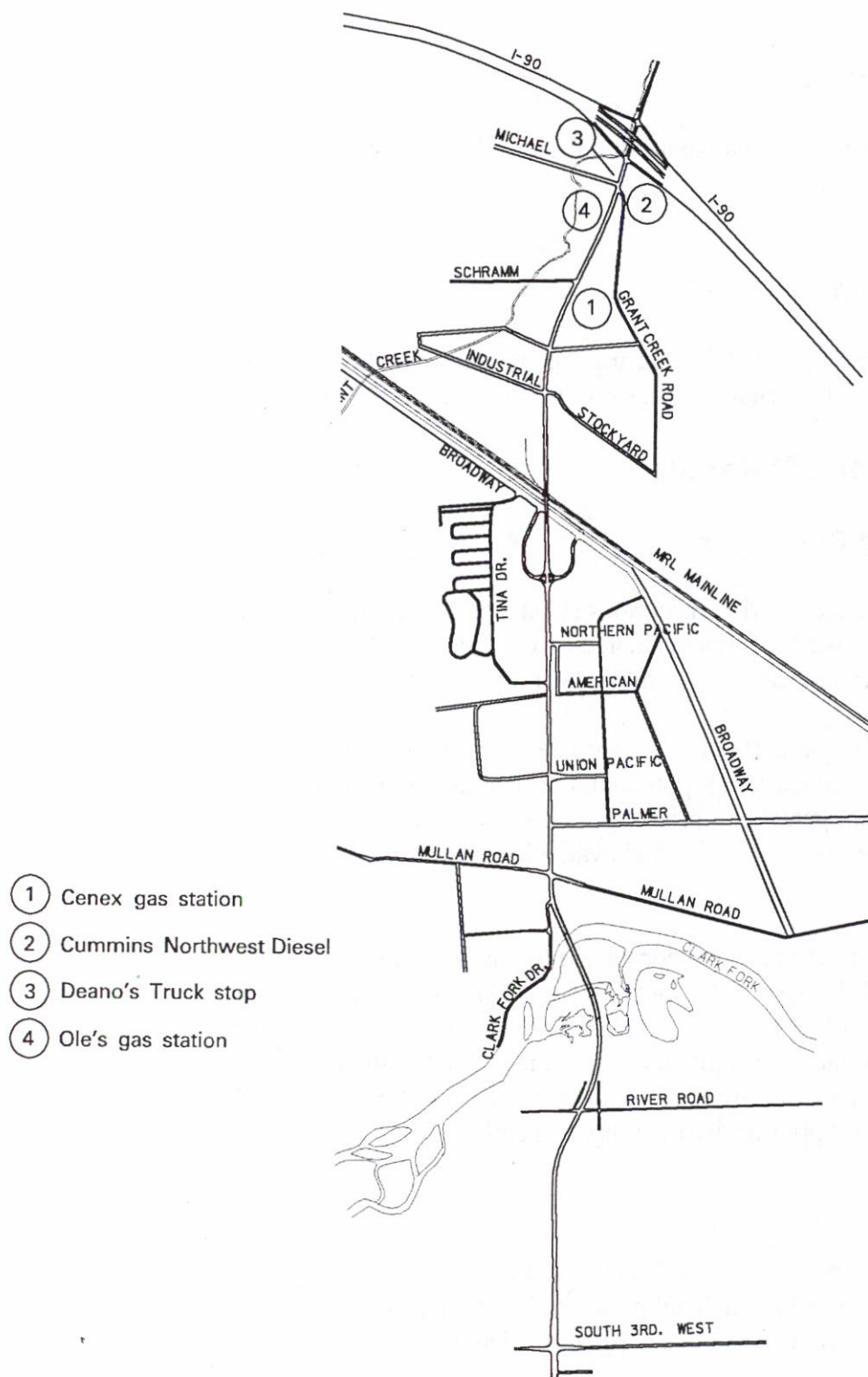
4.14.2 Impacts

In a letter dated April 4, 1995, the MDT stated that the detected levels of petroleum contamination are considered "negligible" and that the project will result in "No Impact" with regard to hazardous waste. A copy of this letter is included in Appendix A of this document.

Based on the letter serving as a statement of No Impact with regard to hazardous waste, no hazardous materials mitigation will be required for this project.

North Reserve Street

Potential Hazardous Waste
Figure 4-10



4.15 Visual

4.15.1 Existing Conditions

The City of Missoula is entirely contained within a broad glacial valley. Views in all directions have glacial moraine or mountain views in the mid and distant background. The valley is bordered by the Bitterroot Range to the southwest and Mount Dean Stone to the southeast. Background views to the north side of Missoula from the study area vicinity include the Rattlesnake Mountains and the North Hills.

Due to the broad, flat glacial nature of the valley itself, the study area, as well as the entire City of Missoula, is relatively flat. There are minor relief changes and some gently rolling hills, but by and large the surface creates a wide, level ground plane from which both human-made and natural features arise.

The study area is located in the northwest quadrant of the Missoula urban area. Travelers heading in either direction along North Reserve Street are exposed to natural pastoral background views in the distance.

Foreground landscape units are those that are immediately visible along the corridor. They are created by such factors as the type of adjacent land use, the width of the roadway pavement, and the character of the adjacent vegetation. Combining these factors provides the traveler with a general character or "feel" of open or closed views along the segment. Foreground landscape units included within this study corridor are as follows:

- Agricultural. There are remnant pieces of agricultural ground located near the study corridor. A few of these parcels are still farmed and can be seen during the seasons at different stages of production. These provide generally open views with little or no tree canopy.
- Riparian. There is one section along the corridor from which the Clark Fork riparian zone is clearly visible in the foreground. Although there are larger trees in the distance along this riparian site, large mature trees do not exist close enough to the roadway edge to enclose the views. The existing alignment also travels over a bridge that rises up and out of the more dense vegetation.

- Residential. There are some views of residential neighborhoods along the corridor. Most of these residential properties have been fenced off with noise or privacy fencing and provide little visual amenity to the traveler or pedestrian along the corridor. The established residential neighborhoods also have mature stands of domesticated trees, providing a canopy for the residences. These canopies are too far removed and/or too thin to provide for the closure of views in the corridor. They instead fill the midground of views below the distant mountainous backdrop.
- Commercial/Industrial. The larger portion of the corridor on both sides of Reserve Street falls into this landscape unit. Many areas along the corridor have large expanses of parking between the curb or pavement edge and the building facade, increasing the visual width of the corridor. Some of the corridor to the north is heavy commercial to industrial in nature with manufacturing and its associated visual aspects, such as strings of parked vehicles and large square metal or concrete warehouse-type buildings. These areas tend to be even more open visually with surrounding vegetation lying low to the ground if it exists.

Locations of Specific Visual Character or Significance, which would include any special views with exiting interpretation or pullouts, views of culturally significant objects or landscapes and/or views that are particularly interesting or unique to the rest of the corridor, are described in the following:

- Looking north approaching the existing I-90 overpass is notable for background and midground views of the Rattlesnake Mountains and the lower portions of the North Hills. Although the existing overpass is well recognized in the foreground, the overall view towards the ranges remains relatively unobstructed.
- Larger, distant views of Missoula and the rest of the valley are brought into sight as one passes over the existing Broadway and Railroad overpass. Views in all directions are available from this raised vantage point.

An analysis of the above-described existing conditions combined with land use and zoning plans for areas within the corridor shows that the general character of the entire study area is of a high-traffic, commercial, and industrial corridor. The future plans indicate that this will continue to be the case in all of the existing areas. The future increase in commercial and/or industrial uses filling in the relic agricultural locations will serve to increase the visible impervious surface and continue to expand the commercial character.

Currently, the large expanses between the built environment and the edge of existing pavement provide for an unnatural but valuable openness. With occasional exceptions, such as those billboards currently located near the Clark Fork drainage, these expanses are currently not cluttered with commercial signs and billboards. As the commercial pads become available and developed there will be a tendency to crowd signs and billboards closer and closer to the traveled way. This will begin to close in the currently open vistas. Near the I-90 interchange there are several signs or billboards relating to the services provided at that exit.

This interchange area along with the entire corridor is positioned to become the "Gateway" into Missoula. The location of this interchange and its access to and through town will divert much of the future traffic that currently enters Missoula farther to the east. This corridor then will become more and more important visually as a symbol of the character of Missoula.

The riparian corridor of the Clark Fork has been provided for and protected in future plans. This will mean that as the remainder of the corridor continues to evolve and develop, this naturalistic location will increase in importance and uniqueness.

4.15.2 Impacts

The No-Build Alternative will result in the continuation of the existing general trends of change to the visual character in the study area vicinity.

The Preferred Alternative will have the following short-term visual impacts during the period of construction:

- Stock-piling of excavated material.
- On-site construction equipment and materials.
- Dust and debris from construction.
- Denuded slopes from the clearing of vegetation.
- Additional traffic congestion and clutter.

The following will become permanent changes in the visual landscape that will occur with the Preferred Alternative:

- Expansion of pavement width.
- Cut and fill sections.
- Landscaping at key locations.
- Additional structures (guardrails, ramps, bridges).
- Organized access points.

Lighting along the project is currently proposed as follows:

- Continuous, commercial-level lighting between I-90 and Broadway.
- Continuous, residential-level lighting between Broadway and Mullan.
- Intersection lighting only at River Road (residential level).
- Propose lighting bike underpass at Old Milwaukee Overpass in this stage of the project. Conduit and luminaires should be installed. This may need to be coordinated with the designers (MDT Bridge Bureau).

4.15.3 Mitigation

Proposed visual mitigation for this project include the following:

- Landscape enhancements at key locations will include the use of native plant materials that will blend with the existing conditions.
- Design and execute a maintenance plan to either share in or be responsible for the ongoing maintenance of the landscaped medians and roadside treatments.

4.16 Farmland

4.16.1 Existing Conditions

The North Reserve Street study area contains no agricultural activity and no acres are regularly cultivated for commercial or forage crops. According to soil maps provided by the National Resource Conservation Service (NRCS), formerly called the Soil Conservation Service (SCS), several soils designated as "prime farmland" are located in the study area vicinity. According to *National Bulletin No. 310-4-6* dated July 13, 1984, distributed by the USDA, SCS: "Prime farmland already in or committed to urban development or water storage will not be considered as farmland."

Based on the definition given by the *Federal Register / Vol. 49, No. 130 / Thursday July 5, 1984 / Rules and Regulations*, and zoning information (maps and zoning definitions) obtained from the City of Missoula Office of Planning and Grants, the land in the study area vicinity meets the criteria for land already committed to urban development, and is therefore not considered prime or unique farmland or farmland of state-wide or local importance.

4.16.2 Impacts

The NRCS confirmed the finding stated above, along with a statement that the proposed project will “not likely have significant impacts for prime farmland loss.” See NRCS letter dated 2/13/96 found in Appendix A.

Based on the findings described above, neither the No-Build Alternative nor the Preferred Alternative will have any adverse impacts to prime or unique farmlands or to farmlands of local or state-wide importance. The completion of a USDA, NRCS Conversion Impact Rating Form (Form AD-1006) and/or additional mitigation measures are not necessary for this project.

4.17 Construction

4.17.1 Impacts

The No-Build Alternative will have minor construction-related effects as minor roadway improvements and maintenance occur. Construction impacts of individual (development-related) roadway improvements will continue as development occurs. These piece-meal improvements will cause delays to the traveling public and may cause construction-related dust problems. Resulting impacts may include increased PM_{10} and CO (due to vehicle delay).

There are several impacts associated with the construction of improvements for the Preferred Alternative. The construction-related impacts include:

- **Noise and Vibration.** 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. Impacts from vibration are also likely during the construction period.
- **Fugitive Dust.** The operation of heavy equipment on exposed soils may result in the release of fugitive dust into the air.
- **Erosion and Sedimentation.** Runoff from areas of exposed soils may affect water quality of the Clark Fork. 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, stored construction materials, and parked equipment may cause a temporary visual impact to the residents near the locations of construction activities.
- **Traffic.** Traffic patterns will be disrupted for travelers who utilize North Reserve Street. Traffic will remain on North Reserve Street during construction of the project and a minimum of one lane in each direction will be maintained. Once construction of the new travel lanes is complete, traffic will be moved to the new portion of roadway while the existing facility is removed and replaced.

There will be detours and construction stages associated with the bridge construction. The Broadway/MRL overpass will be constructed in stages so that traffic will be maintained on the old structure while the widening will be constructed at a lower grade. Once the widening is complete, the existing deck will be removed, lowered, and reconstructed.

- **Access.** Local access to intersecting roads and to businesses and residences along North Reserve Street will be maintained during construction. However, limited access and minor detours will be necessary at certain locations during this period. Pedestrians and bicyclists using North Reserve Street will also experience detours and limited access during construction.

4.17.2 Mitigation

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 the mitigation measures contained in the construction documents. These measures include:

- Limit noise-generating construction activities to occur during daytime 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. Accelerated paving techniques will be used to minimize the duration of intersection detours and closures.
- Provide adequate public notice and maintain coordination with area residents to keep the public apprised of the construction progress and to warn of closures and detours.

4.18 Cumulative Impacts

Cumulative impacts are defined as impacts that “result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) undertakes such other actions.”

Known projects in this vicinity, with an assessment of probable cumulative impact, are:

- ☐ Brooks/South/Russell intersection is a reconstruction of a six-legged intersection to provide improved traffic flow, reduce traffic delays and improve air quality by reducing vehicle idle time. This project is located approximately 2.4 kilometers (1.5 miles) southeast of the Reserve Street project. Changes in traffic patterns from the project have been considered in the RTP. Since the traffic analysis for this project uses projections from the RTP, any influences to traffic from the Brooks/South/Russell project are accounted for in Section 2.0, Purpose and Need, of this document. It is not anticipated that both projects will be constructed at the same time, therefore, no cumulative construction impacts will result.
- ☐ Airport Interchange project is a new interchange located on I-90 approximately 3.2 kilometers (2 miles) west of Reserve Street on I-90. This project is expected to alter traffic flow patterns on I-90, west Broadway, Reserve Street and Expressway. Those traffic characteristics have been estimated by the RTP and considered in the traffic analysis for this project and described in Section 2.0, Purpose and Need. It is not expected that the construction of this project will correspond to the Reserve Street project, therefore, no cumulative construction impacts will result.
- ☐ Missoula Bicycle Lane and Primary Sidewalk Network is a project to provide pedestrian and bicycle facilities on existing street. As a portion of that project, Reserve Street from 39th Street to South 3rd West will be restriped to include on-street bike lanes. This work will provide an improved bicycle link that may result in increased bicycle traffic on Reserve Street from South 3rd West to I-90. The bicycle/pedestrian enhancements provided by this project will result in no cumulative impacts.
- ☐ Bicycle Commuter Network is a project to develop bicycle and pedestrian trails. Included in this project is the extension of a trail along the Old Milwaukee Railroad corridor. The Preferred Alternative includes the provision of a grade-separated crossing of the proposed trail.. This is more fully described in Section 4.3, Pedestrians and Bicyclists. The bicycle/pedestrian enhancements provided by this project will result in no cumulative impacts.

As described above, none of these MDT projects will have any significant cumulative environmental impacts on this proposed action. This proposed new construction and reconstruction project will also have no significant cumulative environmental impacts on these or any other MDT projects in the project vicinity.

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 are to:

- Provide information regarding the study.
- Develop concepts and alternatives.
- Identify issues.
- Communicate ideas and concepts that are considered.
- Receive comments on the study and the project.
- Solicit input from the public as to the appropriate design features for this project.
- Define traffic circulation and parking issues from the adjoining landowners.

5.1 Public Involvement Activities

The public involvement activities to this point have included a public hearing / scoping meeting, a booth at the 1995 Transportation Futures Fair, newsletters, local newspaper articles, television and radio announcements, a public meeting, telephone conversations and written correspondence with landowners and community members, and meetings with various community organizations.

A separate document, the *North Reserve Street Public Involvement Status Update Report* documents the public involvement and communications of the project. The Interim document was initially published in September 1995 and was updated March 29, 1996, and again in June 20, 1996. This document contains all written, public correspondence, media announcements, meeting summaries and the project mailing list.

The public information process for the North Reserve Street project focused on three target areas:

- General public
- Community organizations
- Landowners (affected by the project)

5.1.1 General Public

The general public informational activities include:

1. **Public Hearing/ Scoping Meeting.** Minutes of the October 19, 1994 public scoping meeting are contained in the *Public Involvement Status Update*. The meeting purpose was to:

- Introduce the North Reserve Street improvements project
- Obtain public preferences for the type of improvements planned and to understand their reasoning
- Obtain public comments
- Introduce public officials and MDT staff involved with the project
- Introduce the project design members
- Publicly announce the project as an Environmental Assessment
- Obtain feedback on the level of environmental analysis

The meeting consisted of an open-house format with project graphical information, followed by a short presentation discussing the purpose of the meeting, the project history, the project schedule and project requirements (funding, NEPA, etc.). The meeting closed with a question/answer period and further open house type information.

2. **Transportation Futures Fair.** In conjunction with the *Missoula Regional Transportation Plan Update* (RTP) process, a Transportation Futures Fair was held to solicit public input on transportation needs, facilities and future for the Missoula region. The September 16, 1995 meeting included one booth on the North Reserve Street project. The Futures Fair presentation and comments are summarized in the *Public Involvement Status Update* report. This report is available at the MDT.
3. **Newsletters.** A project informational newsletter was distributed on September 1, 1995. The purpose of the letter was to :
 - Highlight safety concerns on the current roadway
 - Summarize past meetings and events
 - Summarize Reserve Street's transportation function within the City and the State
 - Describe potential improvements to North Reserve Street
 - Provide a graphic representation of the proposed improvements
 - Solicit comments from the public
 - Provide the project schedule to the public

A second newsletter was distributed in May 1996. The purpose of this newsletter was to:

- Announce public meeting on June 5, 1996
 - Review public comment to date
 - Describe proposed improvements to Reserve Street
 - Describe project status
 - Solicit comments from the public
4. **Public Meeting.** A public meeting was held on June 5, 1996 to supplement the public involvement efforts. This meeting provided an additional forum to solicit public input, project comments and concerns.

5.1.2 Community Organizations

Numerous meetings have been held to obtain input from local support and interest groups about the North Reserve Street project; its public involvement, its funding and schedule and the proposed design. These groups include private interest groups, local advisory committees, and local political decision entities. Much of their input has been and will continue to be incorporated into the proposed improvements.

5.1.3 Adjoining Landowners

A series of meetings, beginning in September 1995 and continuing to-date, have resulted in the design team project manager individually contacting each land owner with property adjoining North Reserve Street. Meetings have also been held with land owners with properties significantly affected (but not abutting North Reserve Street). Land owner meetings and communications are summarized in the Public Involvement Status Update report.

The focus of the meetings was to determine their business transportation needs, as related to the proposed improvements. Many of the meetings have focused on individual design issues regarding driveway location, traffic circulation, access to public roads and parking. The results have been included into the design where viable. These land owner meetings will continue through the environmental and design phases of the project.

5.2 Remaining Public Involvement

Contact will be maintained with local individuals, area businesses, and community groups throughout the remainder of the environmental and design processes. One additional newsletter is planned. The newsletter will summarize the feedback from the public meeting held on June 5, 1996, and announce the Public Hearing and EA availability.

5.2.1 Continuing Landowner Meetings

The project design staff will meet with each landowner directly impacted by the project during the summer to review the proposed design, the potential impacts to their property, and potential access modifications.

5.2.2 Public Hearing

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 comments, to be included as an official part of the record, will be accepted for 30 days following the Notice of Availability.

5.2.3 Missoula Regional Transportation Plan Update (RTP) Coordination

Ongoing coordination with the RTP will include attendance of meetings related to the regional planning process, continuous input of information from the RTP process into the North Reserve Street project file, and documentation of RTP information that is pertinent to the North Reserve Street project.

5.3 Remaining National Environmental Policy Act Tasks

Following closure of the comment period on the EA, the following tasks will be undertaken:

1. Summarizing comments received on the EA.
2. Preparing a final decision document which will be either a:
 - Finding of No Significant Impact, or an
 - Environmental Impact Statement, if significant impacts are identified.

5.4 List of Preparers

The following individuals had responsibility for preparing this document:

Name	Project Responsibility	Education/Experience
Woody Germany, P.E.	WGM Project Manager	BS, Civil Engineering. 25 years of experience in planning, design, and construction of Civil Engineering projects.
Brent Campbell, P.E.	WGM Project Engineer	BS, Civil Engineering. Nine years of experience in transportation planning, design, and construction.
Mike Worrall, PE	Civil Engineer	BS, Civil Engineering. Thirteen years of experience in planning, design, and construction of transportation facilities.
Kathy Harris, PE	Traffic Engineer	BS, Civil Engineering. Thirteen years of experience in transportation planning, traffic engineering, and design.
Robert Harris	Biological Resource Report	BS, Wildlife; BS, Fisheries. 20 years of biological analysis.
Jeremy Keene, E.I.T.	Civil Engineer	BS, Civil Engineering. Three years of experience in planning, design, and construction of transportation facilities.
Jeanette Lostracco, AICP	Environmental Analysis	BA, Geography; Masters of Business Administration. Seventeen years of experience in environmental analysis.
Gina McAfee, AICP	Environmental Analysis	BS, Landscape Architecture. Twenty years of experience in environmental analysis.
Joe Murphy, E.I.T.	Civil Engineer	BS, Civil Engineering. Three years of experience in planning, design, and construction of transportation facilities.
Quint Redmond	Natural Resources Analysis	BS, Geology; MS; Urban & Regional Planning and Landscape Architecture. Five years of experience in natural resource analysis.
Scott Richman, AICP	Environmental Analysis	Bachelors, Environmental Design. Five years of experience in environmental analysis.

5.5 List of Agencies with Jurisdiction and/or Permits Required

The following permits or coordination will be required for the Preferred Alternative and will be obtained prior to any relevant disturbance:

- Army Corps of Engineers – Section 404 Permit. The MDT must obtain a Clean Water Act: Section 404 Permit from the Corps of Engineers.
- Montana Department of Environmental Quality, Water Quality Division – Section 401 Water Quality Certification: The MDEQ Water Quality Division must certify that any discharges into state waters will comply with certain water quality standards before federal permits or licenses can be granted.
- Montana Department of Environmental Quality, Water Quality Division – Section 402 NPDES/MPDES Permit: The MDEQ Water Quality Division will review plans and specifications relative to erosion control or a stormwater discharge permit. A Storm Water Erosion Control Plan will be developed for the project.
- Montana Department of Environmental Quality, Water Quality Division – 3A Authorization: This authorization must be obtained from the MDEQ Water Quality Division for construction activities that may cause unavoidable short-term violations of state surface water quality standards for turbidity, total dissolved solids, or temperature.
- Montana Department of Fish, Wildlife, and Parks – Stream Protection Act: This permit is needed from the Montana Department of Fish, Wildlife and Parks to maintain the quality of streams and fisheries affected by highway-related construction.
- Montana Department of Fish, Wildlife, and Parks – Beneficial Water Use Permit: Under the Montana Water Use Act, a temporary water user permit will be required from the MDEQ if water is needed for dust control or other construction-related purposes.

- Missoula County Office of Planning and Grants – Floodplain Development Permit: A floodplain development permit from Missoula County will be required for road and bridge construction and placement of fill in floodplains.
- Montana Department of Environmental Quality, Air Quality Division – Air Quality Permit: The suppliers of asphalt materials and crushed rock needed for construction must have an air quality permit from the MDEQ Air Quality Division.
- Montana Department of Labor and Industry Safety Bureau – Construction Blasting Permit: The Contractor performing any blasting required for the proposed action must be licensed by the Safety Bureau of the Montana Department of Labor and Industry, Worker's Compensation Division.
- Montana Department of Environmental Quality, Air Quality Division – Permits for Open Burning: If open burning occurs with the right-of-way clearing activities for the proposed highway improvement project, fire control permits from DSL and open burning permits from the MDEQ Air Quality division and Missoula County may be required.
- Environmental Protection Agency – Sole Source Aquifer: Region VIII of the EPA must evaluate the 90% - 100% design plans to determine compliance with the Sole Source Aquifer Designation.

5.6 List of Other Agencies, Persons, or Groups Contacted or Have Contributed Information

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

- City of Missoula Police Department
- City of Missoula Engineering and Public Works
- City of Missoula Fire Department
- Members of the Missoula City Council
- Missoula Board of County Commissioners
- Missoula Transportation Policy Coordinating Committee (TPCC)
- City of Missoula Parks and Recreation Department
- Mountain Line
- City of Missoula Bicycle / Pedestrian Advisory Board

- City of Missoula Non-Motorized Transportation Committee
- Missoula Sheriff's Department
- Missoula Transportation Technical Advisory Committee (TTCC)
- Montana Department of Fish, Wildlife & Parks
- Feet First
- Missoula City-County Accident Reduction Committee
- Missoula Chamber of Commerce
- Trout Unlimited
- Missoula Association of Realtors
- The Missoula Society of Landscape Architects
- Friends of Grant Creek, Inc.
- Washington Corporation
- Hellgate Transportation
- El-Mar KOA
- Natural Resource Conservation Service (NRCS)
- US Fish and Wildlife Service
- US Army Corps of Engineers
- Montana Department of Transportation
- Montana Department of Environmental Quality
 - Solid and Hazardous Waste Bureau
 - Air Quality Bureau
 - Water Quality Bureau
- Montana Department of State Lands
- Missoula City/county Health Department
- Environmental Protection Agency
- Missoula Office of Planning and Grants
 - Floodplain Administration
 - Transportation Planning
- Montana State Historic Preservation Office
- Montana Natural Resource Information System and Natural Heritage Program
- Missoula County Rural Planning Office
- Missoula Rural Fire District
- Missoula County Surveyors Office
- Hellgate Irrigation Company
- Missoula Rotary Club

Meetings and comments are summarized in the *Public Involvement Status Update Report*. This report is available at the MDT.

5.7 Cooperating Agencies

The following are Cooperating Agencies on this proposed project:

- City of Missoula
- Missoula County
- U.S. Department of Commerce - Economic Development Administration
- Montana Department of Natural Resources and Conservation

Appendix A

Agency Coordination Letters



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2466

CONCURRENCE COPY

RECEIVED

JUL 24 1996

Ref: 8P2-W-GW

Ms. Jeanette Lastracco, AICP
Carter Burgess
216 Sixteenth Street Mall
Suite 1700
Denver, Colorado 80202-5131

Carter-Burgess
Denver, Colorado

SUBJECT: Improvements to North Reserve Street

Dear Ms. Lastracco:

I am writing this letter to include with the submittal of the Environmental Assessment for the Improvements to North Reserve Street, Project Number NH 0002(110), Control Number 2445.

Personel from Carter Burgess and the U. S. Environmental Protection Agency have been working together to assure that this project is designed to comply with the Safe Drinking Water Act, Section 1424 (e), Sole Source Aquifer. The Missoula Valley Aquifer has been designated the Sole Source of Drinking Water for the Missoula Valley.

We have not identified any unresolved issues with the design of this project. However, I will need to evaluate the 90% - 100% design plans before I can do the final review for compliance with the Sole Source Aquifer Designation.

If you have further questions or wish clarification please contact me at (303) 312-6271.

Sincerely,

William J. Monheiser,
Regional Sole Source Aquifer
Coordinator



Printed on Recycled Paper

Montana Department of Transportation
Helena, Montana 59620-1001

MASTER FILE
COPY

Memorandum

To: Karl M. Helvik, P.E., Supervisor
Environmental Engineering Section

From: Cora G. Helm, Hazardous Waste Section
Environmental Services

Date: April 4, 1995

Subject: HAZARDOUS WASTE ASSESSMENT
NH 0002(110)
North Reserve, Missoula
CN 2445

CGH

This project is a full reconstruct, widening Reserve Street from two to four lanes from South 3rd Street to the I-90 Interchange. MSE, Inc. Consultants performed a Phase I Environmental Site Assessment for the project corridor earlier this year. They concluded that only four sites may impacted highway right-of-way with petroleum product contamination. These four sites include:

1. Deano's Truck Stop, 5055 N Reserve, Sta 273 ±,
2. Cummins Northwest Diesel, 4950 N Reserve, Sta 271 ±,
3. Ole's Country Store, 4901 N Reserve, Sta 267 ±, and
4. Cenex Station, 4570 N Reserve, Sta 256 ±

MDT's Core Drill Section drilled these sites in March. Borings were tested at 5 and 10 foot intervals for presence of hydrocarbons using a photoionization detector. Only one location, at Deano's Truck Stop, registered detectable levels of hydrocarbons. These levels ranged from 0.8 to 1.4 ppm. The action level for hydrocarbons in soils is 100 ppm. The levels detected at this site are considered negligible.

Let this serve as a statement of "No Impact" with regards to hazardous waste.

A copy of MSE's Environmental Assessment and the core drill logs can be found in the project Haz Mat file.

CGH:env

cc: Engineering Services, Missoula
Doug Morgan, Consultant Design



Feet First

123 West Spruce Street • Missoula, Montana 59802 • (406) 523-4762

April 7, 1995

Jim Weaver, District Engineer
Montana Department of Transportation
P.O. Box 7039
Missoula, Montana 59807

RE: BICYCLE/PEDESTRIAN ACCESS POINTS ALONG N. RESERVE ST.

Dear Jim:

This letter will serve to memorialize our March 21 discussion with Brent Campbell of WGM regarding provision for east/west bike/pedestrian access along the North Reserve Street Corridor. Plans for use of portions of the Milwaukee Road right of way and other system improvements for trails are active. The following are necessary accommodations for bike/pedestrian travel as part of the North Reserve Street project. As listed in my previous letter of February 27, there are three critical locations to consider:

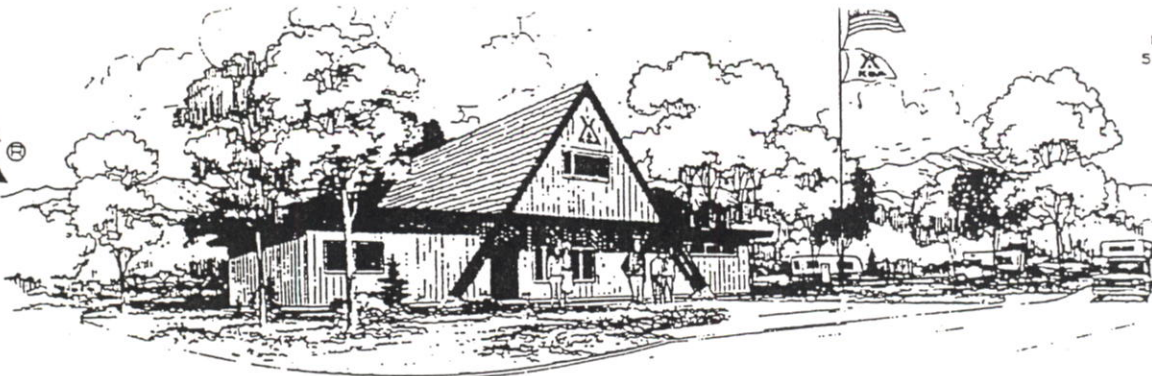
- 1) North Reserve St. at Clark Fork Drive
North and southbound exit ramps from Reserve Street will give access to Clark Fork Drive, and to the proposed Milwaukee Road trail. A connecting trail loop along the north bank of the Clark Fork River will allow separate access from the Milwaukee road trail and to eastbound Mullan Road.
- 2) North Reserve St. at the old Milwaukee row east of Reserve St.
We agreed on preservation of the existing railroad overpass, with head clearance of a minimum of ten feet above finished grade of trail surface. This is necessary, as at-grade, signalized crossings will be limited.
- 3) North Reserve St. at Expressway
Expressway will be a logical connector to several trail elements, provided that a traffic signal is installed. Bike lanes on Expressway are part of the planned Airport Development Park, and are also planned for future improvements to Grant Creek Road. Future improvements to Expressway east of Reserve Street will connect to the Old Grant Creek Road and envisioned North Side Greenway.

Thanks, for arranging the meeting with Brent Campbell to discuss these plans.

Sincerely,

Mary Jean Gilman, L.A.
Project Manager

cc: Brent Campbell



(YOUR
HOSTS)
549-0881

El-Mar KOA

Franchisee of Kampgrounds of America, Inc.

PHONE (406) 549-0881
3695 TINA AVENUE
MISSOULA, MONTANA 59802

Carter and Burgess
125 W. Spruce St
Missoula, MT 59802

Sept 24, 1995

Thank you for your letter of Sept 21, 1995 regarding North Reserve St. improvements. We have two businesses affected by the present congestion.

Hellgate Transportation operates 14 school buses and serves Hellgate Elementary. Our buses are stored on Little Bit St., just off Tina Ave. Tina Ave / Reserve St. is not served by a stop lite and access from Tina onto Reserve is extremely difficult especially north on Reserve. Mullan / Reserve causes us more problems even with a lite. Any vehicle east bound on Mullan wanting to turn left/north onto Reserve must pull out into the intersection prior to lite change because westbound thru traffic on Mullan cannot all get thru the intersection on one lite change. It is imperative that Reserve St. from Mullan to Broadway be improved prior to widening the bridge over the Clarksfork. The bridge is not as restrictive because there is no on/off traffic between River Road and Mullan. Traffic is slower thru areas of on off access from Mullan to Broadway. Construction of the bridge would restrict south bound traffic for several miles if done before widening Reserve from Mullan to Broadway. It is conceivable that the bridge would not need to be widened if Reserve is widened to 5 lanes from Mullan to Broadway.

Missoula/El-Mar KOA generates traffic from May 1st to Oct 1st. Our guests have a very difficult time accessing Reserve St from Tina where there is no traffic lite, particularly if they are turning north. Traffic into the KOA Campground would be better served with a traffic lite. A 5-lane road which includes a middle turning lane should improve Missoula/El-Mar KOA's access and egress. Reserve St. from Mullan Road to Broadway should be improved prior to widening the bridge over the Clarksfork. The bridge is not as restrictive as the present road width where access is more of a factor than road width.

SEP 26 1995

Improvements on North Reserve would improve safety and efficiency
of operation for Hellgate Transportation and Missoula/El-Mar
Campground.

Sincerely,

Elmer Frame
Elmer Frame

cc/Brent Campbell
Jeanette Lostracco



CITY FIRE DEPARTMENT

200 W. PINE • MISSOULA, MT 59802-4220 • (406) 721-2291 • FAX: 728-6690



file: N. Reserve

CC: JIM WEAVER
MARK LEIGHTON
MIKE WERRALL/C.B.
JEANETTE LOSTACI/C.
BRUCE BENDER
BARBARA EVANS

Brent Campbell
WGM group
P.O. Box 3418
Missoula, Montana 59806-3418

RE: North Reserve Street improvements

DATE: September 1, 1995

Dear Brent:

You have asked me to comment on my feelings about the proposed widening of North Reserve Street to five lanes and the need for traffic lights at the Highway 10/ North Reserve Interchange.

I feel vary strongly that both ideas are excellent. Currently the traffic bottleneck caused by the convergence of five lane South Reserve Street with the two lane bridge and two lane North Reserve during high traffic periods creates a emergency response nightmare for the Missoula Fire Department. There are times when our emergency vehicles have had to come to a complete stop and wait for traffic to clear. This type of situation could lead to precious seconds or possibly minutes being lost during a life threatening emergency. I believe the bridge and North Reserve should have the same lane configuration as South Reserve.

Traffic light control is also important for the Highway 10/ North Reserve Interchange. This would allow us to utilize opticon traffic light control to help clear traffic. Also this would create a much safer exit-entrance situation for us and the citizens in general.

If you need any further information or assistance in this endeavor please let me know.

Sincerely,

Charles H. Gibson, Fire Chief

SEP - 5 1995

MISSOULA

**Montana Department
of
Fish, Wildlife & Parks**



3201 Spurgin Road
Missoula, MT 59801
October 3, 1995
406-542-5500

Mr. Brent Campbell
WGM Group
PO Box 3418
Missoula, MT 59807

Dear Brent:

This letter will document some of the items we discussed this morning relative to the North Reserve Project and its effects on Grant Creek at the I-90 Interchange.

We discussed general plans and options for handling Grant Creek where it passes under the Interstate. Please understand that we reserve the option of reviewing the plans in more detail at a later date and recommending changes to the more detailed plans.

In general, whatever can be done to shield the creek from debris and dirty runoff water from the street and highway will be improvements for water quality in Grant Creek. These sorts of improvements could include covering the channel where it is immediately adjacent to the road or screening the creek with berming and vegetation.

One of the other major considerations would be to insure fish passage through whatever conveyance the creek is placed in. Open bottomed arches or box culverts would probably be best from the fishes standpoint. Keeping maintenance chores and disruptions to a minimum over time is important both for the well being of the fish and water quality.

Grant Creek has been channelized and generally abused in the vicinity of the Interstate and Grant Creek Road. There are plenty of opportunities to improve habitat within and adjacent to the highway right-of-way. I hope we will be given a chance to work with you to design some additional improvements as the project design progresses.

The bridges across the Clark Fork River and its side channel will probably not present too many challenges from the fisheries standpoint. I will be interested in reviewing the plans for abutments, center piers and handling waste water when they are available. Anything you can do to reduce runoff from bridge decks will much appreciated. We will need to review the plans and talk

10/3/95

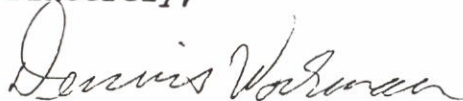
10/3/95

to the other permitting agencies to decide how best to handle the permitting.

Permits required for These projects will probably include Stream Protection Act (124), Corps of Engineers (404), Water Quality Certification (401). There may be other federal requirements that I am not aware of.

Thank you for the opportunity to discuss general plans at this early stage in the design. If the department can be of any further assistance please let us know.

Sincerely,

A handwritten signature in cursive script, appearing to read "Dennis Workman".

Dennis Workman
Fisheries Manager



Feet First

123 West Spruce Street • Missoula, Montana 59802 • (406) 523-4762

- KAREN JA

November 3, 1995

Brent A. Campbell, P.E.
WGM Group
3021 Palmer Street
Post Office Box 3418
Missoula, Montana 59806-3418

Dear Brent:

Thank you for contacting me regarding the opportunity to connect an existing trail and planned extension to improvements on North Reserve Street, near the I-90 interchange. The existing trail is located in the residential development just west of Grant Creek and north of the highway. Having visited the site, I can now offer the following comments.

Feet First supports the inclusion of an approximate 200-foot trail segment within the North Reserve Street right of way, as part of the roadway project. A trail system along Grant Creek is important to residents of the area, as well as to the community in general. Reserve Street is considered part of the primary non-motorized transportation network, as noted in the "Guidelines For Creating A Non-motorized Travel Network In The Greater Missoula Area" (part of Missoula's Comprehensive Plan).

The strong interest of Grant Creek residents in enhancing their opportunities for convenient non-motorized access, lead me to expect that in the future, there will be a more extensive trail system along Grant Creek. Nearby homeowners' associations are actively planning the "capillary" connections that will link to arterials. Feet First is pleased that you are considering these important connections as part of the Reserve Street project.

Thanks for keeping me informed on the progress of the project.

Sincerely,

Mary Jean Gilman, L.A.
Project Manager

Brent -
To you want to
send to the feet
first

YES! X 6

NOV - 6 1995

"Feet First into the 21st Century" with Non-motori



CITY OF MISSOULA
POLICE DEPARTMENT

"Professionalism With Pride"

CC: Carl T.

② Tim Wesner, A
③ Brent Campbell
FYI
BTB

November 21, 1995

Bruce Bender
Public Works Director
City of Missoula

RE: Reserve Street

④. file
SED 5/2
N. Reserve St

Dear Bruce,

As you well know, the expansion of North Reserve Street is still a few years away, however, the traffic issues are mounting at a very fast pace. We, the police department, are finding Reserve Street to be our busiest traffic area, accounting for approximately 16% of all accidents in the city limits. In the first seven (7) months of this year, there were 219 accidents on Reserve Street, including two (2) fatalities. At this rate, I could foresee requiring additional accident investigators just for Reserve Street.

The widening of South Reserve Street has gone a long way to get the traffic flowing and the expansion of North Reserve Street will help, however we have concern in maintaining the "overpass" structure. The overpass has a tendency to generate excess speed which is then carried in either direction, but mostly observed southbound. Eliminating the overpass would keep speed more uniform, reduce some of the rear end collisions occurring, and effect the number of collisions at the traffic controlled intersections of Reserve and Mullan and Reserve and Third Street. If the future plans call for widening the overpass to accommodate additional traffic, I would be certainly like to address such a proposal in lieu of eliminating the overpass.

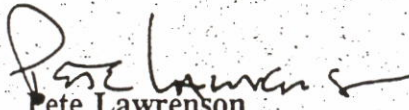
Being a federal highway connecting to the freeway, a 45 mile per hour speed limit seems reasonable, however, the general public seems to believe ten (10) miles per hour above the posted speed limit is acceptable to law enforcement, therefor, it is not uncommon to have speeds in the 55 - 60 mph range or higher. We have tried many hours of traffic enforcement to target speeders, because of the width of the roadway and volume of cars, traffic enforcement is very difficult. I don't know what the effect of reducing the posted speed to 35 mph would be, but I do know 55 mph and higher is not acceptable.

DEC - 1 1995

page 2

These are important issues for consideration as the future of this roadway is considered.
If I can provide additional information or comment, please let me know.

Sincerely,

A handwritten signature in dark ink, appearing to read "Pete Lawrenson", with a stylized flourish at the end.

Pete Lawrenson
Chief of Police



CITY OF MISSOULA POLICE DEPARTMENT

"Professionalism With Pride"

PETE LAWRENSON, Chief of Police

BOB WEAVER, Assistant Chief

CC: JIM WEAVER
MARK LEIGHT
MIKE WORRAL
BRUCE BEND
BARBARA EV

September 11, 1995

Mr. Brent Campbell
WGM Group
P.O. Box 3418
Missoula, Montana 59806

Dear Mr. Campbell,

As we spoke on the phone this afternoon, I fully intended to give you the impression the Missoula Police Department has concerns about the Reserve Street corridor, especially the North Reserve Street area from I-90 south to 3rd Street.

This particular area of Missoula is perhaps the fastest growing commercial area of town I have witnessed since the rapid expansion of south Brooks Street in the 60's. New commercial establishments appear almost overnight, all requiring patronage for success.

As I stated to you, the police department responded to 238 accident related incidents in a six month period on Reserve Street. Not all were on North Reserve Street, but a good majority. This represents 16% of the total accidents for that time period.

With the continued commercialization in the area, traffic congestion will only increase, accidents will continue, and the property damage relating to accidents increases, not to mention personal injury and/or death. In addition to accidents, we have investigated at least two incidents on North Reserve Street where frustrated motorists have threatened other motorists with a firearm.

The concern of the police department is not only based on the sheer quantity of accidents occurring, but also how effectively the police can respond in the area without additional road improvements. In all honesty, from 3:00 p.m. until 6:30 p.m. on weekdays, our officers have to consider avoiding North Reserve Street as the congestion is so bad they can't afford or risk being tied up in traffic. Should we experience a serious disaster requiring evacuation, such as a fire in Grant Creek, the probability of serious injury to a motorists exists.

SEP 13 1995

page 2

The improvement of North Reserve Street to accommodate the flow of traffic is not only logical and necessary, it is imperative for the welfare of the entire community.

Sincerely,

A handwritten signature in dark ink, appearing to read "PETE LAWRENSEN". The signature is fluid and cursive, with a large initial "P" and a long, sweeping underline.

Pete Lawrenson
Chief of Police



BCC 95-571
November 30, 1995

Jim Weaver
Montana Department of Transportation
2100 West Broadway
Missoula, MT 59802

Subject: North Reserve Street Redesign

Dear Jim,

After listening to comments over a considerable period of time and doing some research on traffic and user behavior in the Reserve Street corridor, I am compelled to share some thoughts with you.

While we can never (nor do we want to) return to the days when Reserve was not a through street, it is important to recognize the very real potential that the reconstruction project can, if improperly designed, serve as a divisive barrier in the Missoula community. The experience to date on reconstructed Reserve from 3rd to Highway 93, if known during the design process, would most certainly have resulted in a much more user-friendly design. It is hoped that that experience will give valuable perspective in the new design.

Specific concerns involve user safety, operation and maintenance costs, replacement costs, and patrol efforts. While increased traffic on Reserve will result from the reconstruction, altering the design can result in a more benign and less imposing roadway system.

The safety problem caused by poor sight distance, high travel speed and weather at the old Milwaukee rail crossing can be substantially reduced by removing the existing bridge and fill in favor of an at-grade alignment. The advantages of that action include:

- improvement in safety due to elimination of steep grades and poor sight distances
- reduction of accidents and traffic conflicts
- reduction of noise and air pollution
- reduction of need for additional right of way
- elimination of new and existing vehicular traffic bridges
- elimination of need for rehabilitation of existing bridge
- elimination of bridge replacement costs and reduction of operation and maintenance costs

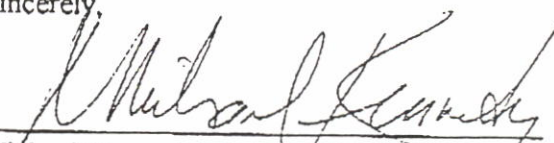
Although this consideration would result in a bike/pedestrian overpass, the advantages are far more cost effective and valuable from a community standpoint in my opinion. I am well acquainted with the design, costs, and construction of bike/ped overcrossings in our climate and which are ADA accessible and I believe that it is a viable solution.

I have received a letter from Chief Lawrenson of the Missoula Police Department (copy enclosed) in which he expresses similar concerns. His letter speaks for itself, although I will reiterate the patrol problems, accident rates and related safety issues which he noted. While the 219 accidents on Reserve in the first seven months cannot be attributed to poor design, we must acknowledge that design can be used to affect driver behavior patterns which result in accidents. Reduction of accident potential through thoughtful design is imperative. Only then can patrol be effective in reducing accident potential.

Lastly, the traffic calming conference brought to our community a host of ideas and experiences which should be helpful during the design phase. While you and I both observed that those efforts were primarily aimed at residential streets and arterials, clearly the concept has application here. It is hoped that thoughtful consideration can be given to the concept as having the advantage of unifying rather than dividing the area.

I'll be looking forward to review of design concepts and designs as the project proceeds. Please know that I'm available to discuss the project at any time.

Sincerely,


Michael Kennedy, Commissioner

MK:ss

cc: Horace Brown, Missoula County Surveyor
Bruce Bender, Missoula Public Works Director
Doug Chase, Missoula County Sheriff
Pete Lawrenson, Missoula City Chief of Police

The Chamber.

MISSOULA

BAFEABA

Jim Weaver
District Engineer
Montana State Department of Transportation
2100 W Broadway
Missoula, MT 59802

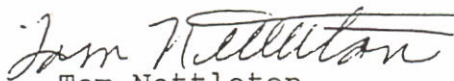
Jim:


Mr. Brent Campbell P.E. Transportation Engineer of WGM Group has made a presentation to both the Chamber Transportation Committee and Board of Directors, regarding the widening of North Reserve Street.

Mr. Campbell's presentation was excellent with graphics and responses to all questions.

This letter is to offer the Chamber of Commerce full support in your continuing efforts to complete the Reserve Street project as expeditiously as possible.

Sincerely,



Tom Nettleton
Transportation Committee,
Chair


Michael Jaworsky
Executive Vice-
President, Chamber

DEC - 5 1985

WGM group





DOUG CHASE
Sheriff
LARRY WEATHERMAN
Undersheriff

December 8, 1995

Jim Weaver
Montana Dept. of Transportation
2100 West Broadway
Missoula, Montana 59802

Dear Mr. Weaver:

I am in receipt of Commissioner Kennedy's letter, accompanied by Chief Lawrenson's letter regarding Reserve Street. I echo the concerns expressed in both letters. The number of accidents on Reserve Street seems to indicate a flaw that truly needs to be corrected. I would quickly acknowledge that the widening of Reserve Street has improved traffic flow on that street considerably. In fact, the number of vehicles using Reserve Street has to have increased. Traffic enforcement in the widened area has to be a real nightmare. Not only due to the width, but the manpower needed, and expense associated with it.

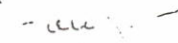
The narrowing of course creates a real bottleneck and the motorist's frustration abounds, especially during high usage time. The overpass just by the very nature of its location in regards to the narrowing appears to be a contributor to accidents or near-accidents.

I'm truly concerned by the speeds of vehicles near the Community Medical Center/Shopko and the South Avenue/Reserve and Third intersections. When traffic is not congested, speeds, especially of semi's and large delivery trucks, is a disaster waiting to happen. We all recognize being struck broadside or head-on by one of these units is going to bring critical injury or death, especially at 45-plus miles per hour. It is only time before this occurs. Having personally witnessed (off duty) these vehicles (especially at night or early morning hours) bearing down at speeds which make it impossible to stop when the light turns only re-enforces the belief a tragedy will occur.

My hopes are as Reserve Street planning continues that speeds will be re-examined in the areas mentioned and the overpass not remain unless there is a compelling reason. While I'm certainly not an engineer in traffic or construction, I just feel these areas of concern are logical.

Thanks for considering my thoughts.

Sincerely,


Doug Chase
Sheriff

DWC/ms



PARKS AND RECREATION DEPARTMENT

100 HICKORY • MISSOULA, MT 59801-1859 • (406) 721-7275

December 17, 1995

Brent Campbell, P.E.
WGM Group
P.O. Box 3418
Missoula, Montana 59806

JIM WEAVER
BARBARA EVANS
MARK LEIGHTON

Sent 12/19/95
RW

Dear Brent,

I recently received a copy of the November 15, 1995, letter to you apparently drafted by Kent Watson and signed by Jennie Meinershagen. I feel the need to clarify some comments in this letter. I was asked by the mayor to attend a Missoula Society of Landscape Architects (MSLA) meeting to inform them of the North Reserve Street Project and suggest that they as a group might want to get involved in the landscaping of this project. I explained how the landscaping of the South Reserve Street Project was accomplished with the City Parks Department involvement which expedited the project and enabled most of the \$200,000 funding to be used for the actual landscaping costs. I also indicated I would like to see a landscaping plan be part of the overall design of North Reserve Street from the onset and MSLA might help to insure this.

I did not, as the letter from MSLA says, represent "the only funds available for any type of landscape treatment for this 3.5-mile corridor will have to come from the City, County and landowners, since the Montana Department of Transportation no longer provides funds for this purpose". It is my understanding at present that \$300,000 has been set aside for landscaping. I would still like to see the MSLA have input into how these funds can best be used.

Furthermore, I take exception to the statement "We (MSLA) are extremely disappointed that the State of Montana regards landscape improvements as superfluous and not worthy of their support". The \$200,000 for South Reserve Street landscaping and the \$300,000 for North Reserve Street landscaping does not support this statement.

It is my hope that MSLA will become involved in the landscaping planning of North Reserve Street and that the Montana Department of Transportation will consider landscaping an integral part of the entire plan.

Sincerely,


Jim Van Fossen

copy to: Kent Watson
Jennie Meinershagen

BICYCLE/PEDESTRIAN ADVISORY BOARD CITY OF MISSOULA

435 RYMAN MISSOULA, MT 59802-4297 (406)523-4626

1995-96

Members

Brenda Desmond
Ralph Frisbey
Maureen Kane
Len LaBuff
Ethel MacDonald
Jancy Quix
Kitty Robins
David J. Taberna

Ex-Officio

Karen F. Jaworsky
Brent Sells

December 22, 1995

TO: Board Members
Press
Interested Parties

The Bicycle/Pedestrian Advisory Board will meet next on Wednesday, January 3, 1996 at 7:00 p.m. in the Council Chambers at City Hall, 435 Ryman Street. Meetings are open to the public.

Call Karen Jaworsky at 523-4626 if you have questions or need additional information.

*You're on
the agenda
as our guest
speaker!
See you
Wednesday
night!*

J.

94-11-07 PL 6

BICYCLE/PEDESTRIAN ADVISORY BOARD
CITY OF MISSOULA

435 RYMAN MISSOULA, MT 59802-4297 (406)523-4626

1995-96
Members

Brenda Desmond
Ralph Frisbey
Vaureen Kane
Len LaBuff
Ethel MacDonald
Nancy Quix
Kitte Robins
David J. Taberna

Ex-Officio

Karen F. Jaworsky
Brent Sells

January 3, 1996

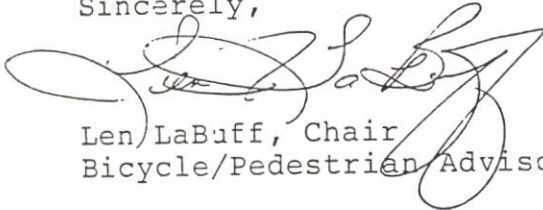
To Whom It May Concern:

At its January 3, 1996 meeting, after hearing a presentation by Brent Campbell on the old Milwaukee Bicycle/Pedestrian Facility, the Missoula Bicycle/Pedestrian Advisory Board endorsed Alternative 2.

The Board also determined that its endorsement of Alternative 2 would be even stronger if the proposal to build an open median on the bridge is implemented.

The Board applauds the efforts of WGM and the Montana Department of Transportation to enhance bicycle/pedestrian access at this location.

Sincerely,



Len LaBuff, Chair
Bicycle/Pedestrian Advisory Board

cc: Bruce Bender, Director of Public Works
Steve King, City Engineer



Feet First

123 West Spruce Street • Missoula, Montana 59802 • (406) 523-4762

January 4, 1996

Brent Campbell, P.E.
Transportation Engineer
WGM Group
3021 Palmer
P.O. Box 3418
Missoula, Montana 59806-3418

Dear Brent:

The Non-motorized Steering Committee thanks you for presenting your technical memorandum on the Old Milwaukee Bicycle/Pedestrian Facility, part of the North Reserve Street widening project, at our December meeting. We appreciate the opportunity to become more fully informed about the issues affecting this important decision for the future of non-motorized transportation in Missoula.

The Steering Committee has agreed unanimously to support Alternative Two, the proposed restructure and elevation drop of the existing bridge structure, as the option which most fully serves the expressed goals of Missoula's Non-motorized Plan. We cannot support any alternative proposing an elevated overcrossing, for reasons stated below.

The Non-motorized Transportation Plan, developed with generous public involvement and review, names the Milwaukee Road Trail as one of the primary greenway corridors for Missoula. While substantial development has occurred surrounding the railroad right-of-way west of Russell Street, there is, nevertheless, strong potential for future development of bicycle/pedestrian facilities utilizing portions of the corridor.

The existing railroad underpass is a critical feature of the planned trail/greenway. Elimination of this potential access under Reserve Street, would destroy a feasible and eminently practical route. It would have the net effect of devaluing the overall greenway plan for a continuous trail west of Higgins Avenue. The existing undercrossing will be the only opportunity to traverse the multi-lane improved North Reserve Street between South Third Street and Mullan Road, a distance of almost two-thirds mile.

The Non-motorized Steering Committee is committed to long-range transportation planning for all types of transportation facilities, including bicycle/pedestrian conveniences. Retention of the undercrossing is imperative. Upon review of the possible types of accommodation for these users, the Committee recommends providing a trail-grade crossing rather than an overcrossing.

JAN - 5 1996

"Feet First into the 21st Century" with Non-motorized Transportation

A primary goal for non-motorized transportation is to give maximum accessibility to the most diverse group of users possible. The Committee is convinced that an overcrossing will not provide the same level of convenience and accessibility offered by Alternative Two. Long ramps (min. 240 feet) to reach the required elevation above truck traffic will create an unnecessary hardship for pedestrians of limited physical capability. Bicyclists will probably be required to dismount and walk the distance. Existing equestrian use would no longer be available. An overcrossing option viewed as too indirect, may not alleviate safety concerns for bicyclists and others wishing to traverse Reserve Street. These factors make an overcrossing unacceptable.

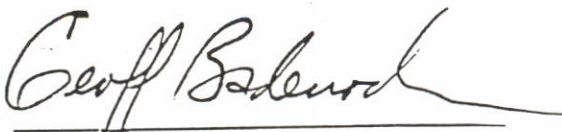
The Committee is aware of the concern for traffic safety at this location, where speeding infractions are exacerbated by the grades up to the overpass. We are satisfied that reduction in the height of the overpass, with attendant reduction in grades of the approaches to approximately two per cent, will remediate this problem. We also recognize that impacts of noise from traffic to the surrounding area will not be appreciably different among the proposed crossing alternatives. The Committee also endorses the option for an open, landscaped median in Reserve Street to enhance the appearance and safety of the trail undercrossing.

Another concern is whether a thirty-foot high crossing overlooking the area could be integrated into the predominantly residential fabric of the surrounding neighborhood. Non-motorized transportation projects must be sensitive to the self-image of Missoula. Our community has demonstrated repeatedly a strong wish to preserve the unique mountain-valley character of the town and its excellent open spaces and vistas. A tall overcrossing would not be in keeping with this self-image. The potential for vandalism, via objects tossed into oncoming traffic, is a documented hazard with these structures, unless the passageway is enclosed with wire mesh. The Non-motorized Steering Committee recommends careful reflection on the suitability of this type of structure, relative to its surroundings. When an economically competitive substitute is possible, as with Alternative Two, it should be given preference.

Funding for a Bicycle Commuter Network (of which this location is a component) has recently been approved by the Montana Department of Transportation. This funding means that realization of this plan is imminent. Review of the history of bicycle/pedestrian planning for this area, from the adoption of the Non-motorized Plan, subsequent intake of project proposals through the Feet First trail program, through the funding proposal and authorization for this element of the Commuter Network, illustrates the interest and commitment of Missoulians to this project. This interest, transformed by the efforts of the Non-motorized Steering Committee, will produce a vital link in bicycle/pedestrian service for Missoula.

Sincerely,

NON-MOTORIZED STEERING COMMITTEE



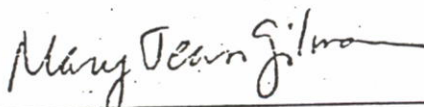
Geoff Badenoch, Director
Missoula Redevelopment Agency



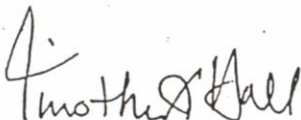
Lee Bastian, Regional Parks Manager
Montana Department of Fish, Wildlife and Parks



Horace Brown, County Surveyor
Missoula County




Mary Jean Gilman, Project Manager
Feet First Non-motorized Transportation Program



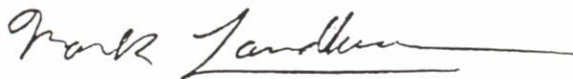
Timothy J. Hall, Planner
Missoula County Office of Policy and Program Development



R. Steven King, City Engineer
Missoula Department of Public Works



Karen Jaworsky, Program Manager
Bicycle/Pedestrian Office



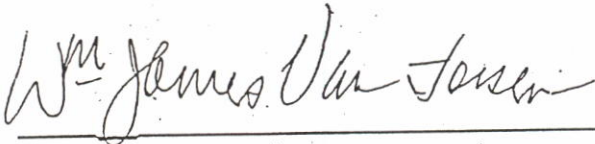
Mark Landkammer, Transportation Planner
Missoula Office of Community Development



Winnie Schreiber, MAVIS Coordinator
Lolo National Forest



R. Kenneth Stolz, Assistant to the Vice President
for Administration and Finance
The University of Montana



Jim Van Fossen, Director
Missoula Parks, Recreation and Urban Forestry

cc: Bruce Bender
Jim Weaver
Janet Stevens

BCC 96-15
January 12, 1996

Jim Weaver
Montana Department of Transportation
2100 W. Broadway
Missoula, MT 59801

Subject: Reserve Street Design Standards

Dear Jim,

Your timely response to my letter concerning the bicycle/pedestrian grade separation north of 3rd Street was appreciated. The selected alternative will result in minimizing most of my concerns at that location.

The purpose of this letter is to discuss the overall roadway section which is centered on four twelve-foot traffic lanes with variations as it proceeds north from 3rd Street. The consequences of constructing that section will include pedestrian safety issues; operation and maintenance issues, including snow removal and storage; storm drainage; landscaping; and project cost to name a few.

In part, all of the above consequences can be mitigated somewhat by reducing the overall section width. I suggest consideration of narrower lane widths, to accomplish this purpose. Eleven foot lanes, and better yet, ten foot lanes, can be used to efficiently and safely carry projected traffic loads. As you know, the twelve foot width came from old Bureau of Public Roads standards which were based on empirical determination of lane widths to maximum safe speed of high speed (Interstate) traffic. On Reserve Street, there is no need for strict adherence to that standard, since the posted speed will be 45 miles per hour.

Additionally, the narrower section will mean safer crossings for pedestrians since their travel distance and time will be shorter. Less concrete means less cost, less drainage, less snow removal and greater boulevard separation.

While this deviation from standards has to be justified, it is my belief that the improvements to safety and reduction in costs are sufficient.

Thank you in advance for consideration of this suggestion.

Sincerely,

Michael Kennedy, Chair
Board of County Commissioners

JAN 15 1996

MK:ss

WGM Group

Robert Campbell, P.E. WGM Group

United States
Department of
Agriculture

Natural Resources
Conservation
Service (formerly SCS)

5115 Hwy 93 South
Missoula, MT 59801
406 251-6317

Subject: Farmland Effects of North Reserve Street Improvement Project Date: 2/13/96

To: C. Scott Richman
Environmental Planner
Carter-Burgess
216 16th Street Mall
Denver, CO 80202

This is in response to your letter of February 7, 1996. Most of the area between the Clark Fork River and West Broadway is in soil map units 34 and 44 (see attached map). These soils are considered prime farmland. The area between West Broadway and I-90 is in soil map unit 72. This soil is not prime farmland. Much of the area along North Reserve Street has either been developed or the soils have been manipulated by filling or topsoil removal. Because of this, and the urban development zoning, widening to a 4 or 5 lane street will not likely have significant impacts for prime farmland loss.

Sincerely,

Neal Svendsen

Neal Svendsen
Resource Soil Scientist

SOIL MAP LEGEND
North Reserve Street

Map symbol	Soil name
34	DESMET LOAM, 0 TO 2 PERCENT SLOPES
44	GRANTSDALE LOAM, 0 TO 2 PERCENT SLOPES
72	MOISSE GRAVELLY LOAM, 0 TO 2 PERCENT SLOPES
73	ORTMENTS, 0 TO 4 PERCENT SLOPES
114	URBAN LAND
136	XEROFLUVENTS, 0 TO 2 PERCENT SLOPES

MISSOULA TRAFFIC SAFETY TASK FORCE
EDUCATION • ENGINEERING • ENFORCEMENT •
Missoula City-County Health Department
301 West Alder Missoula, Montana 59802
(406) 721-5700

March 20, 1996

Brent Campbell, P.E.
WGM Group
P.O. Box 3418
Missoula, MT 59806

Dear Brent:

Thank you very much for your presentation on the North Reserve Street project to the Accident Reduction Committee of the Missoula Traffic Safety Task Force. We strongly encourage all who are connected with the design of this project to consider components that will encourage balanced and shared use of Reserve Street by all: motorists, bicyclists, and pedestrians. Safety should be of utmost concern.

Elements which would ensure these goals could include:

1. strong consideration for pedestrian crossings at regular and frequent intervals;
2. signal coordination and progression to keep both motorized and non-motorized traffic flowing efficiently;
3. restricted direct driveway access;
4. construction of buildings close to the road with parking in the rear;
5. a blend of ambient lighting and street lighting to enhance safety;
6. bicycle facilities (lanes, signing, etc.);
7. boulevard sidewalks, medians, and other landscaping ideas to calm traffic and make pedestrians feel encouraged to use the facilities..

We appreciate the opportunity to offer input and look forward to the completion of this project.

Sincerely,

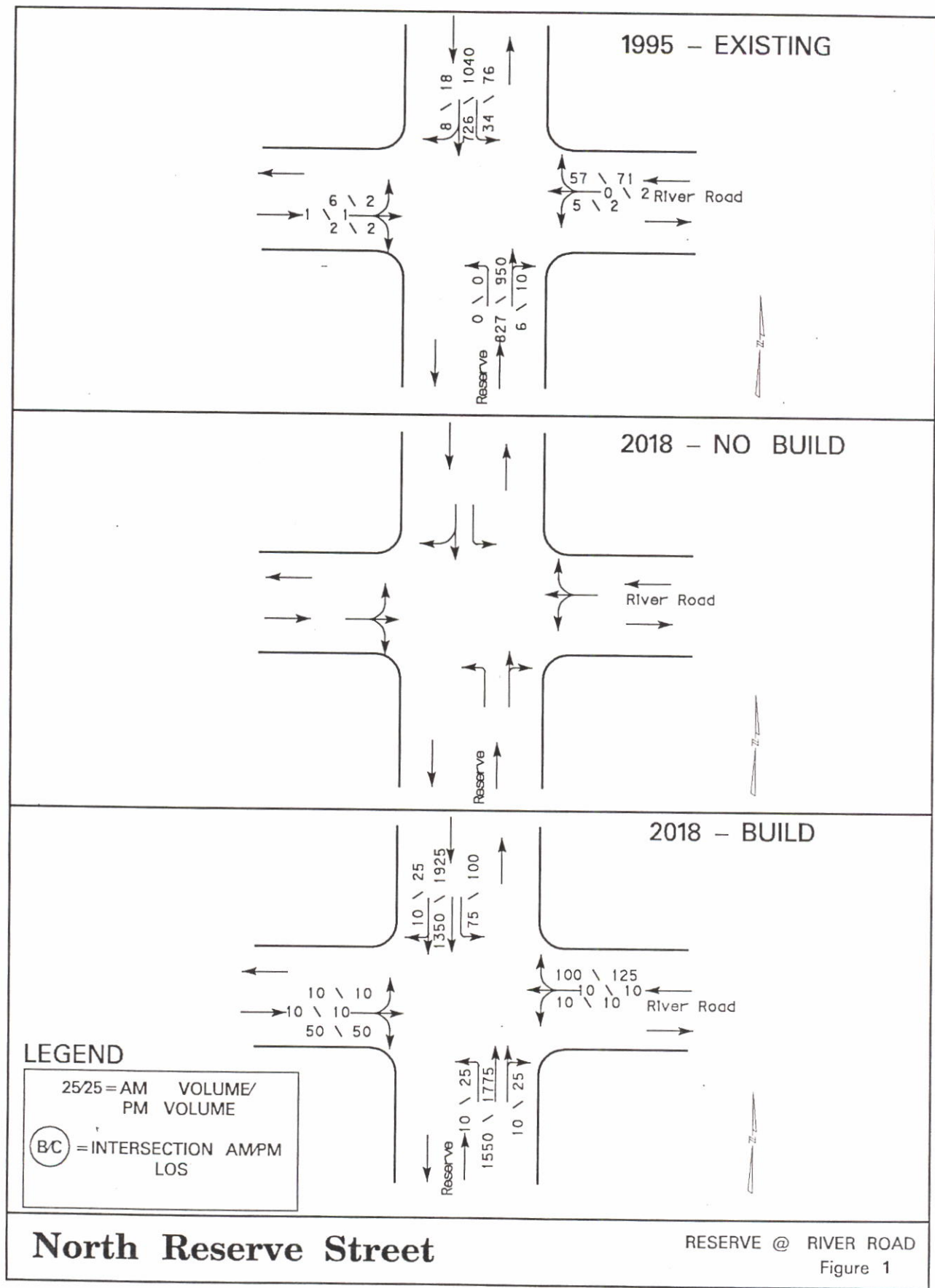


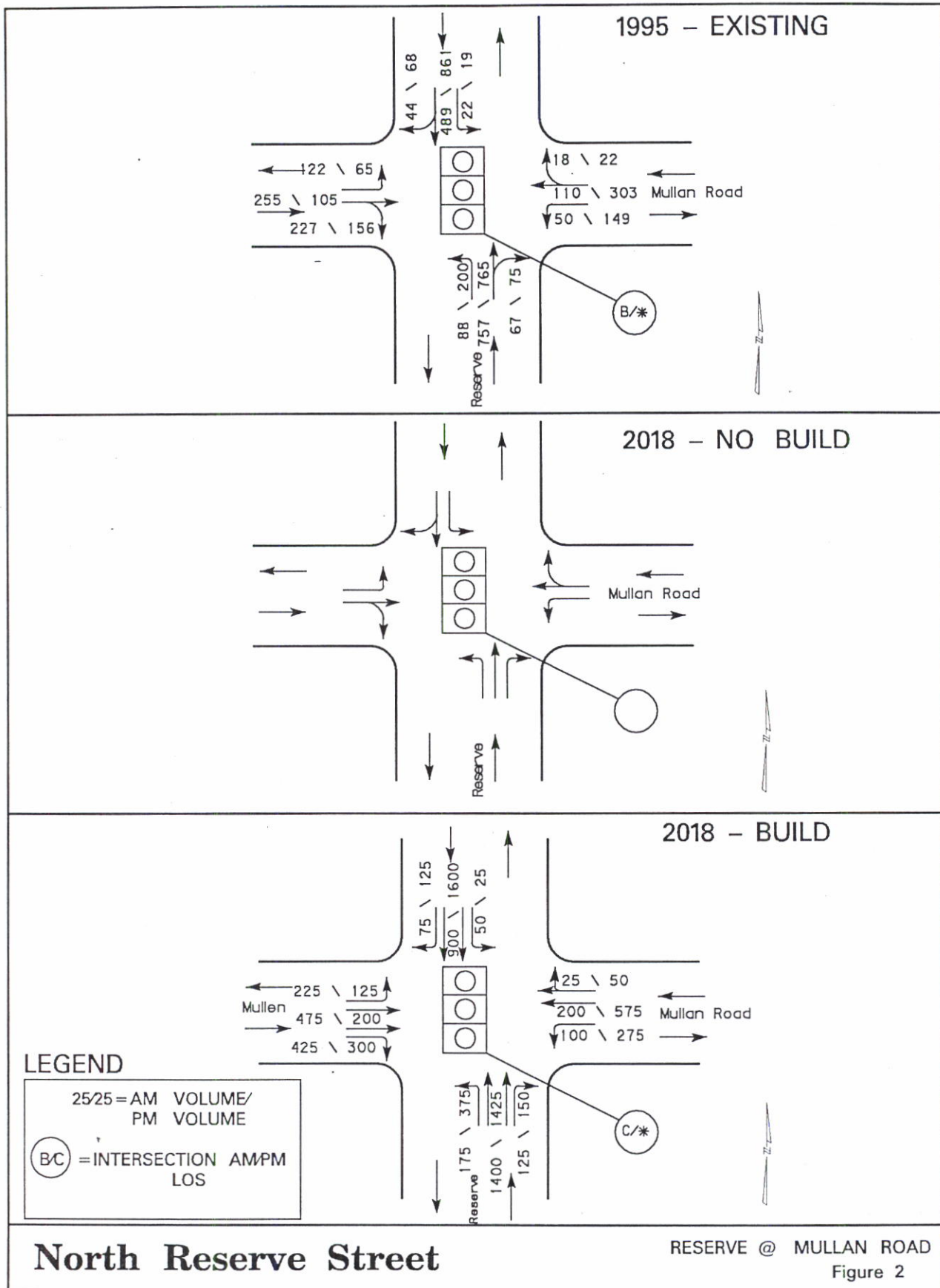
Carl Thompson, Chair
Accident Reduction Committee
Missoula Traffic Safety Task Force

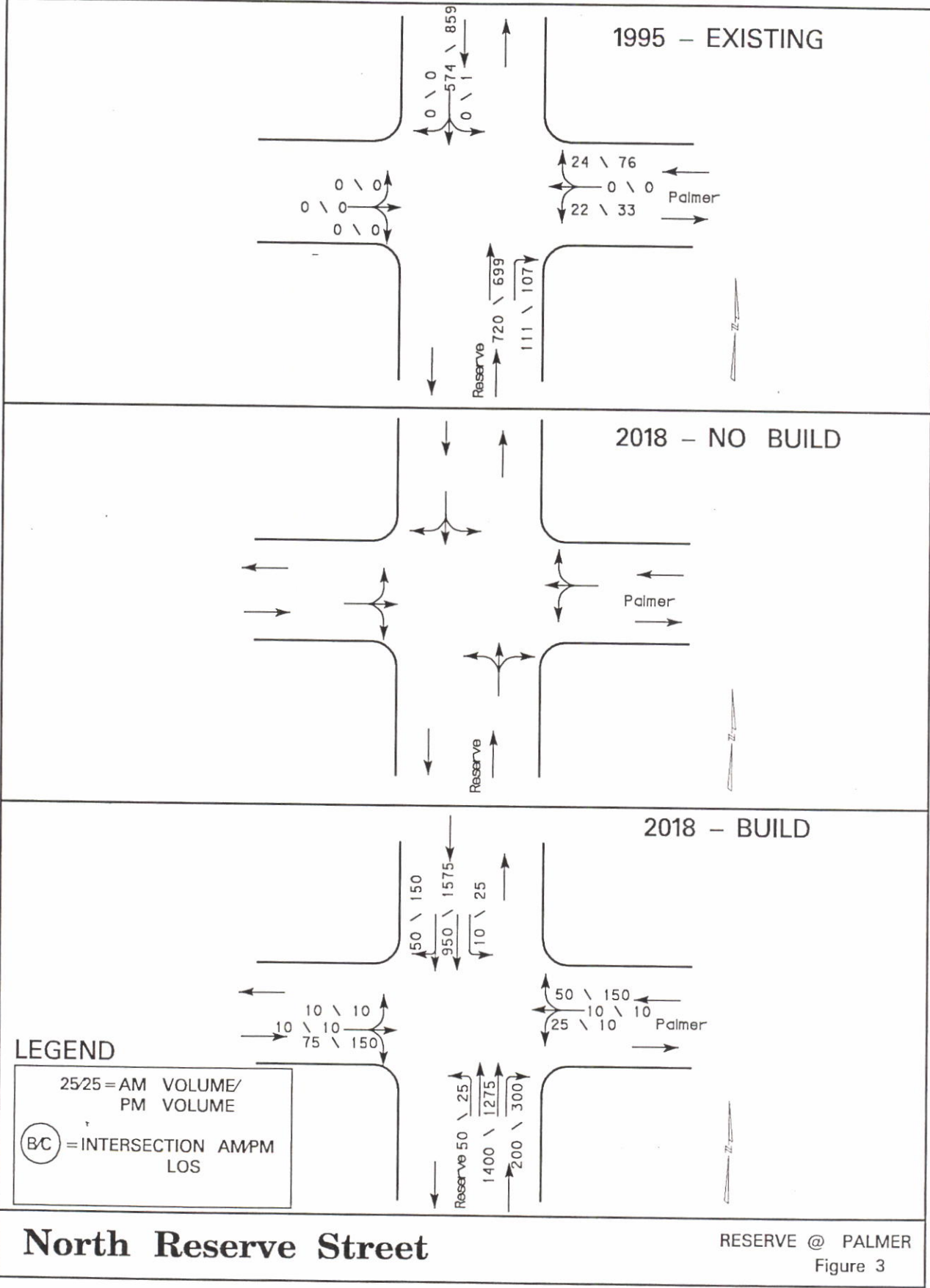
cc: Jim Weaver, MDT District Engineer
Al Goke, Chief, Montana Traffic Safety Bureau

Appendix B

Detailed Traffic Analysis

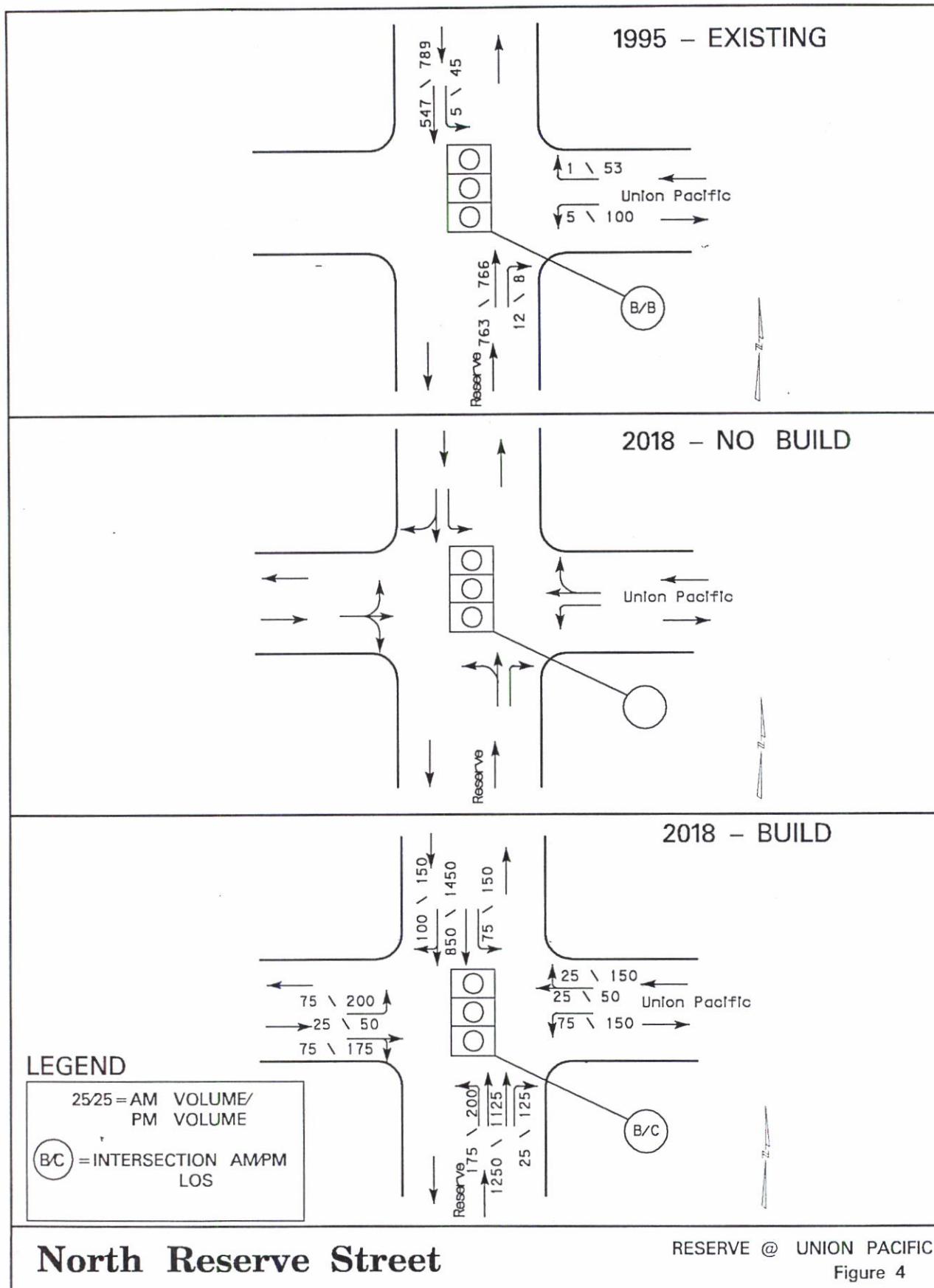


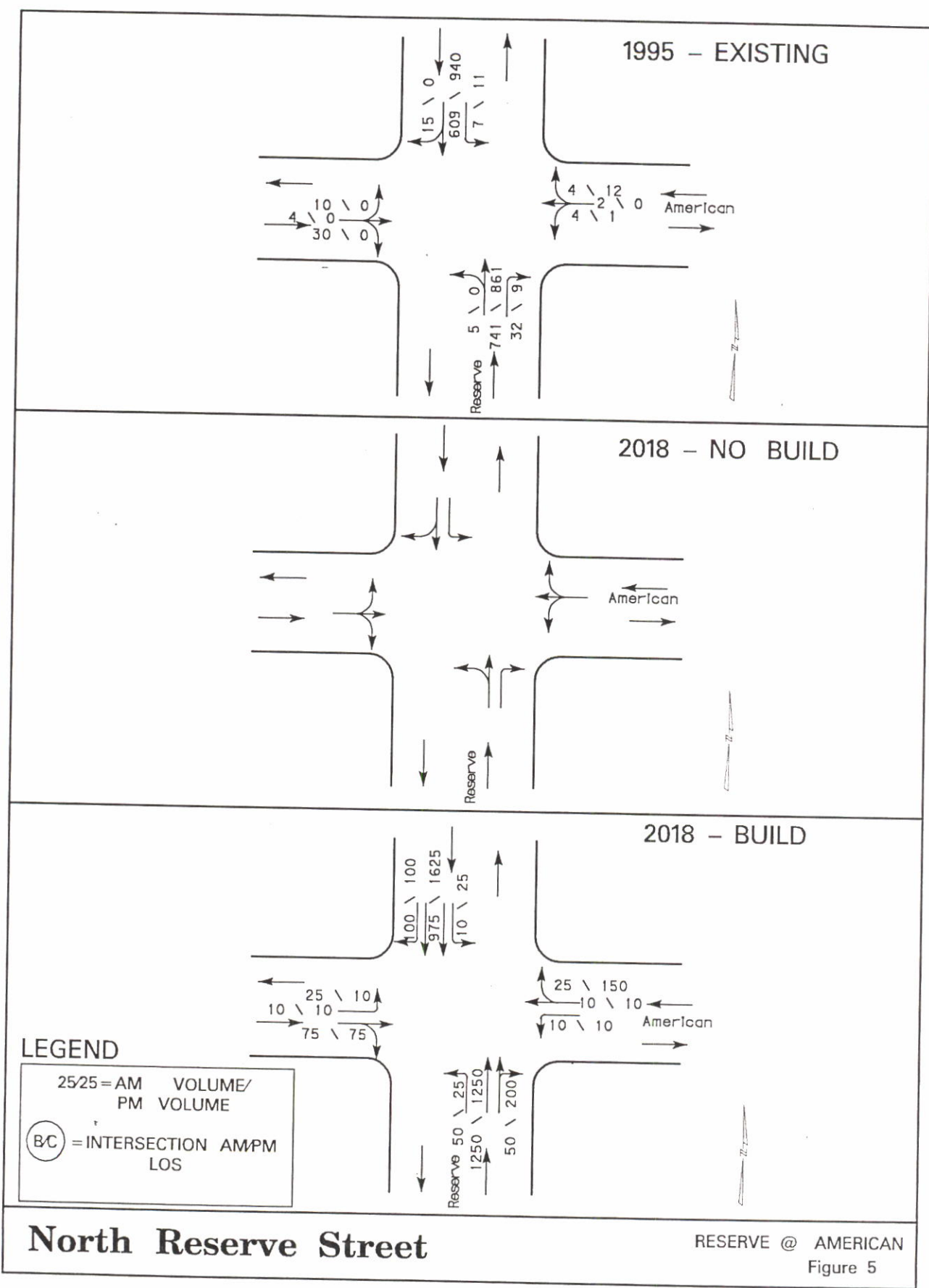


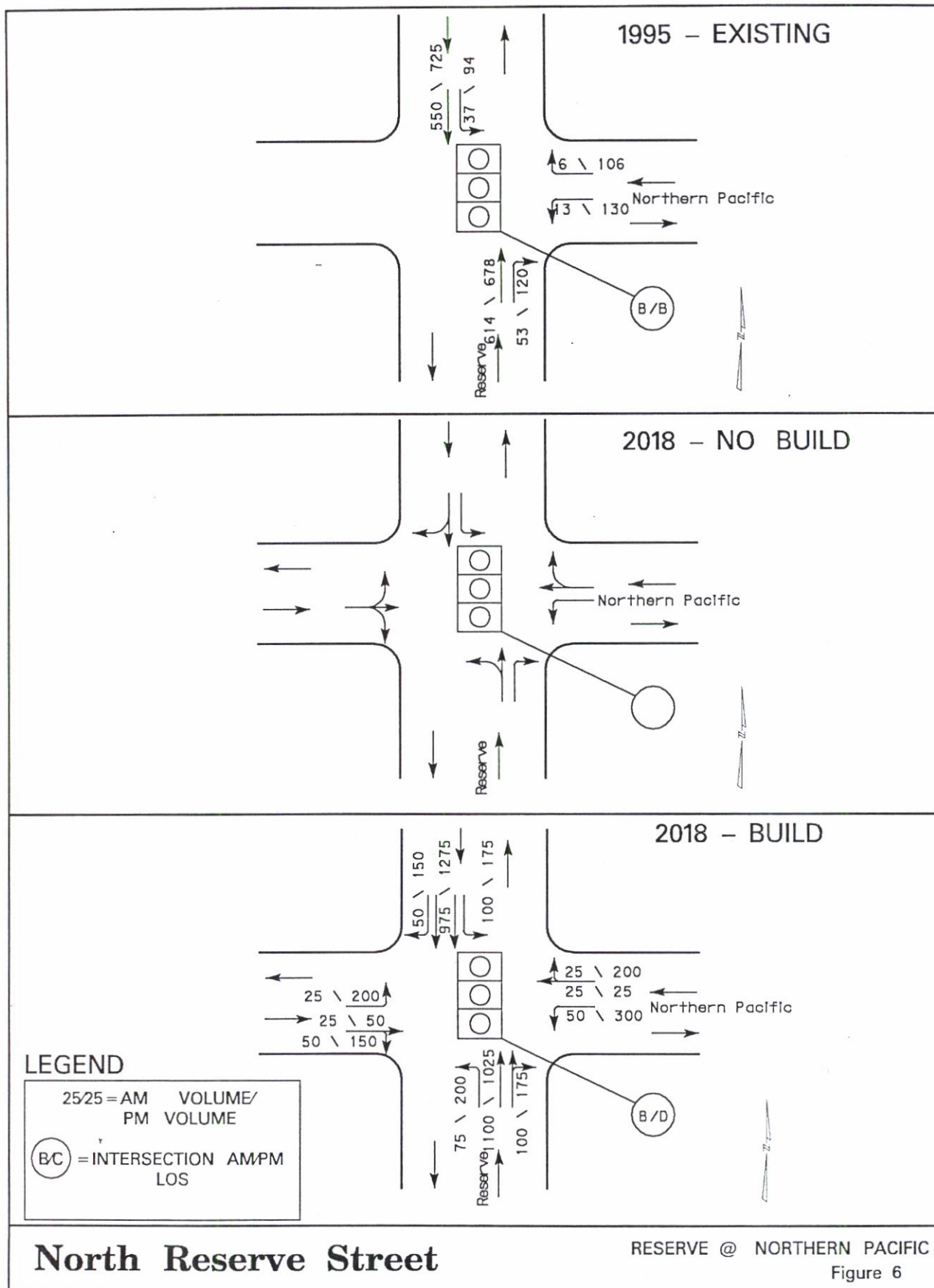


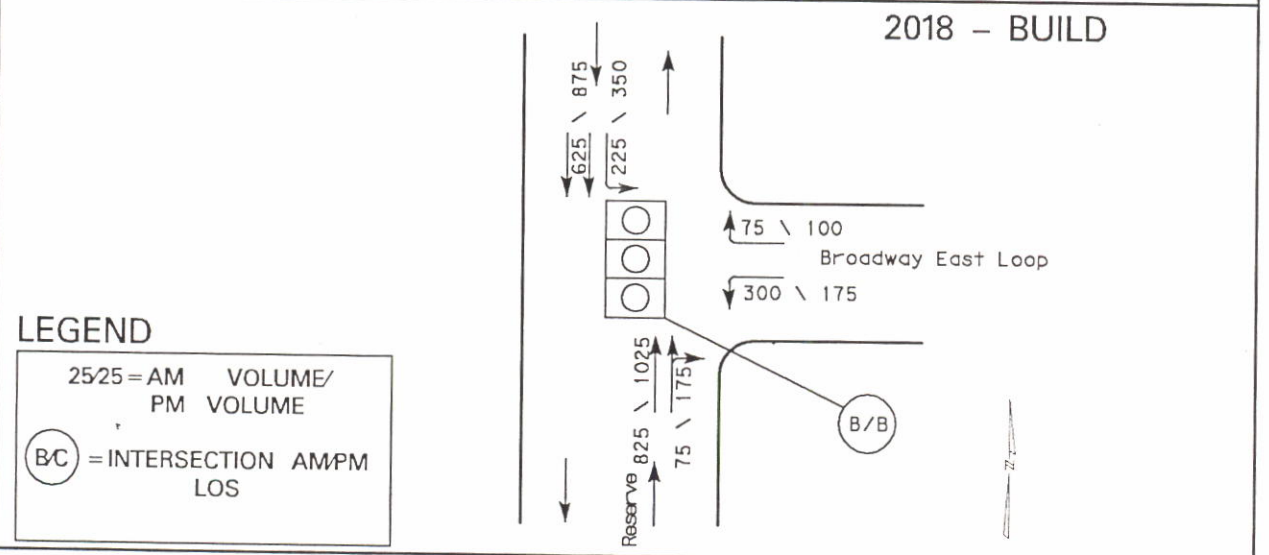
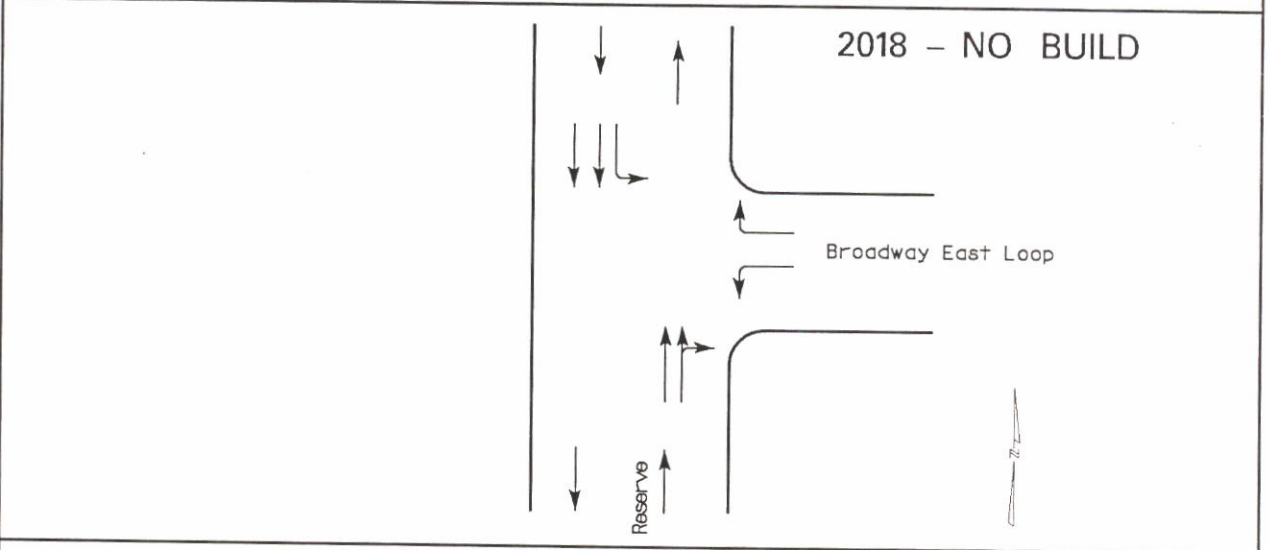
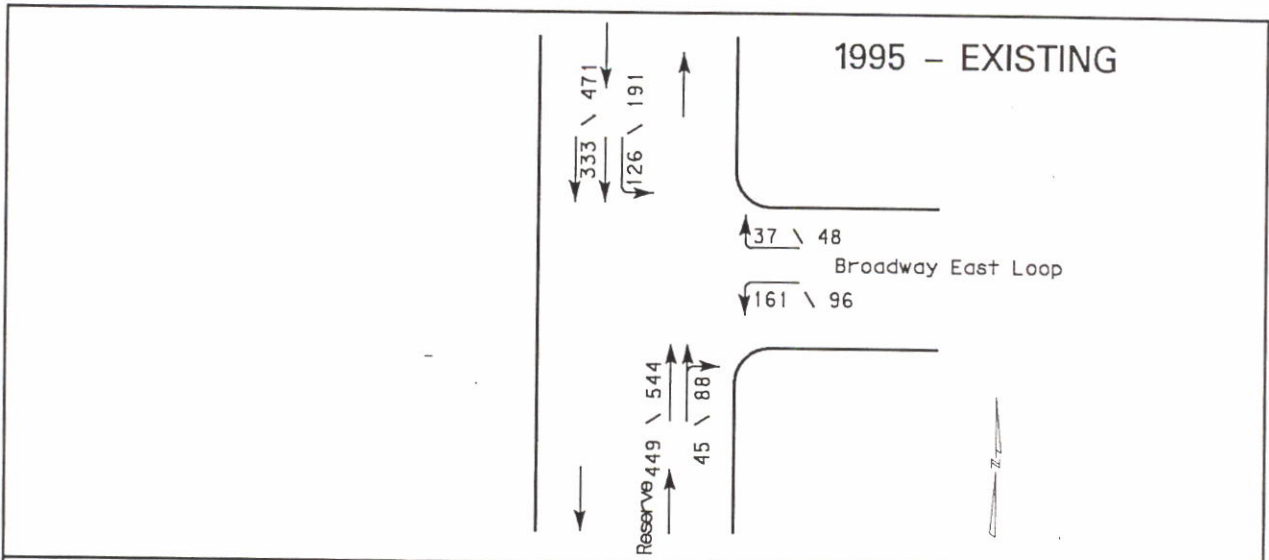
North Reserve Street

RESERVE @ PALMER
Figure 3







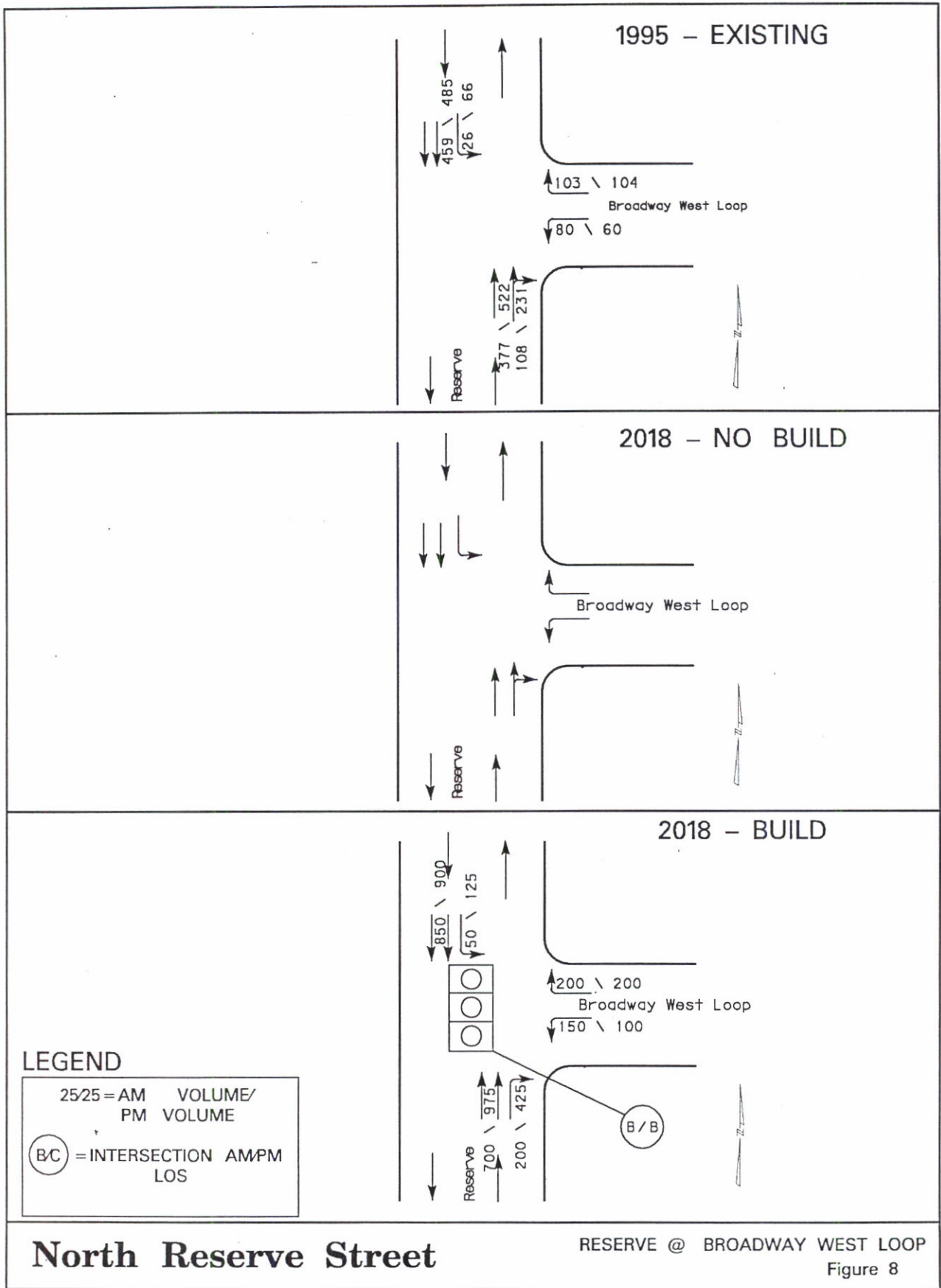


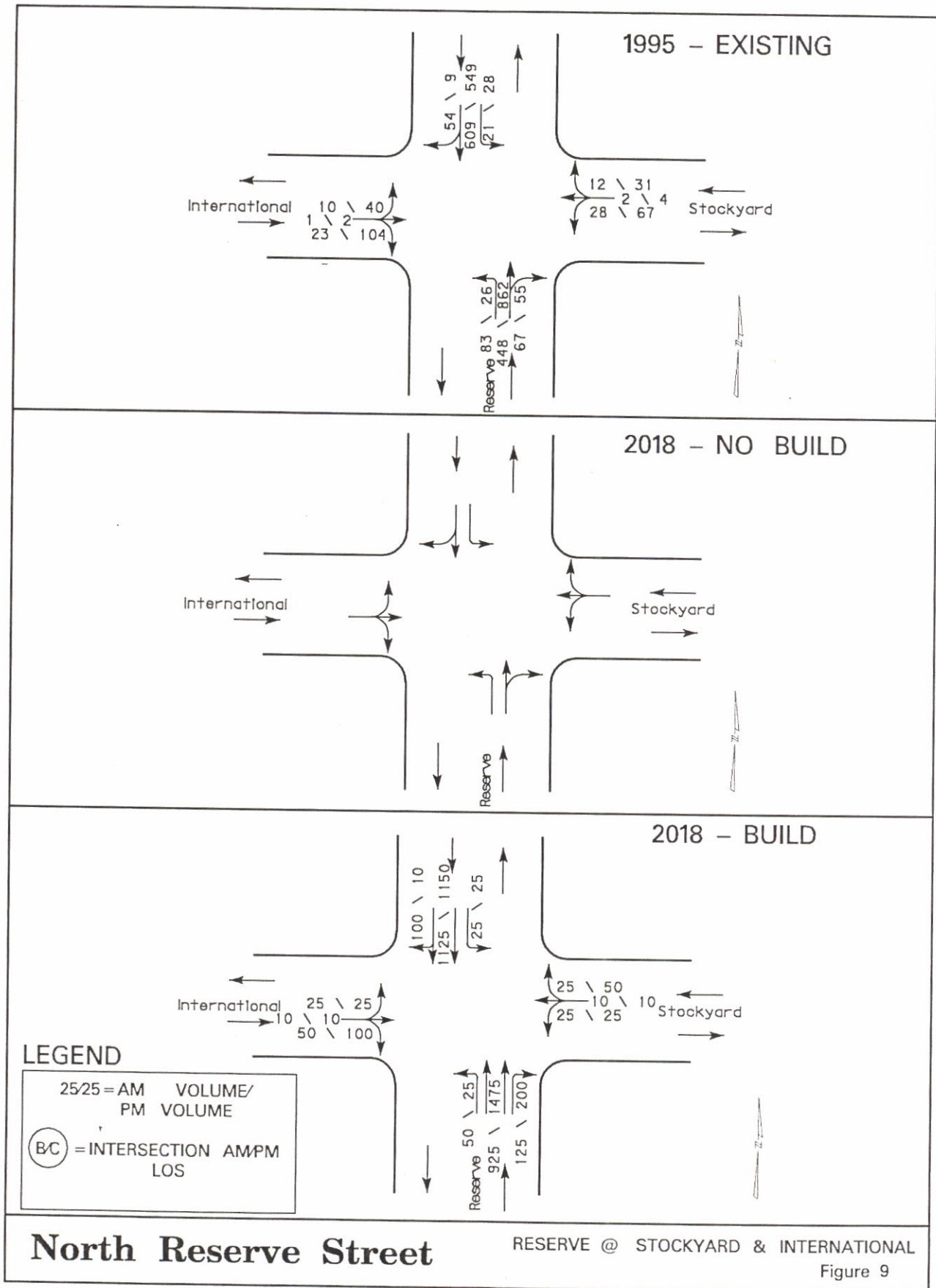
LEGEND

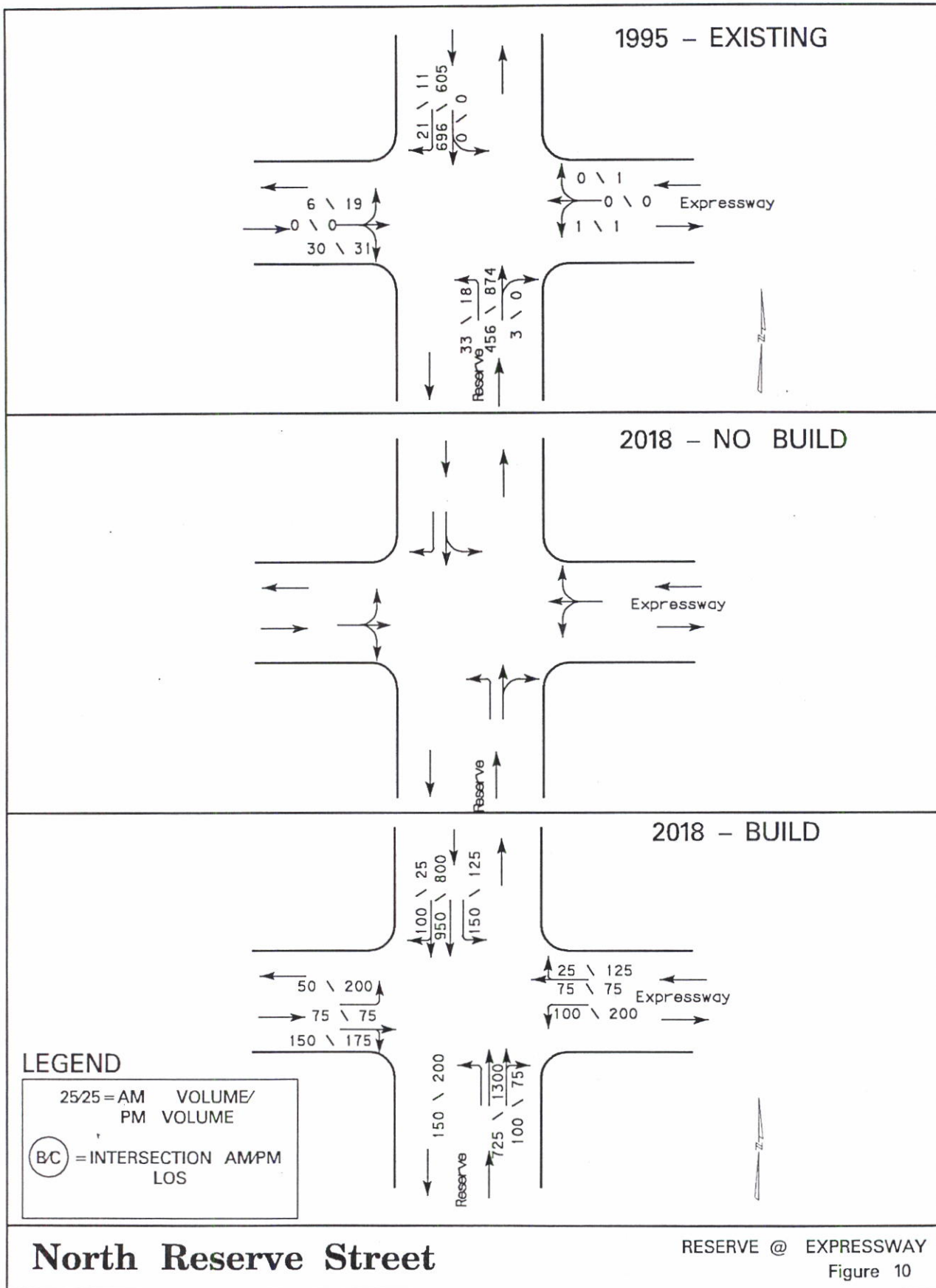
2525 = AM	VOLUME/
PM	VOLUME
(B/C)	= INTERSECTION AM/PM
	LOS

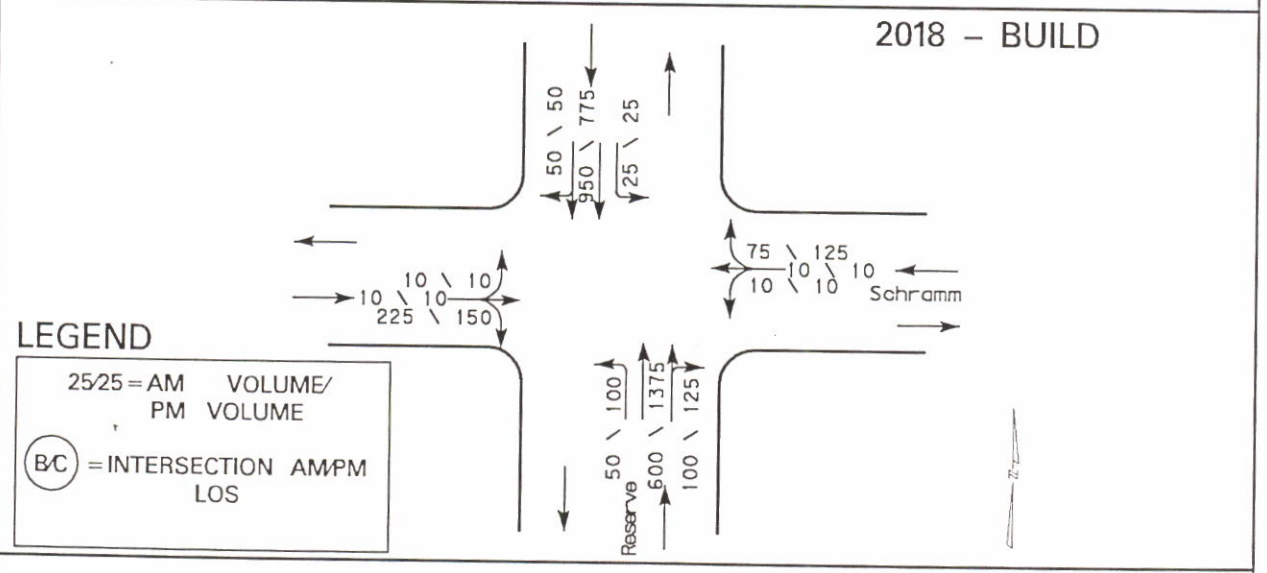
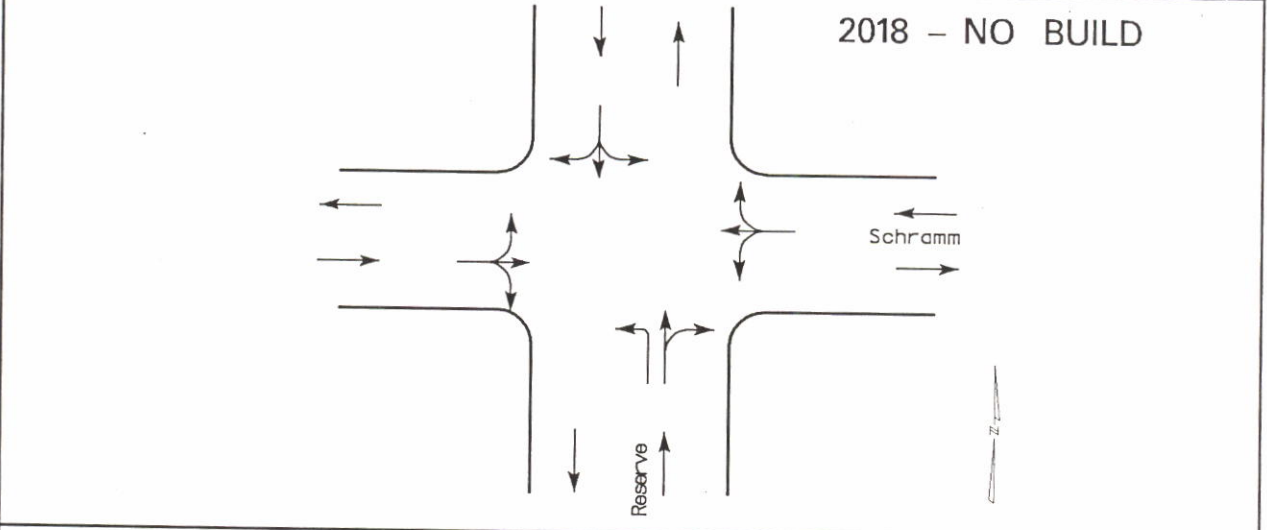
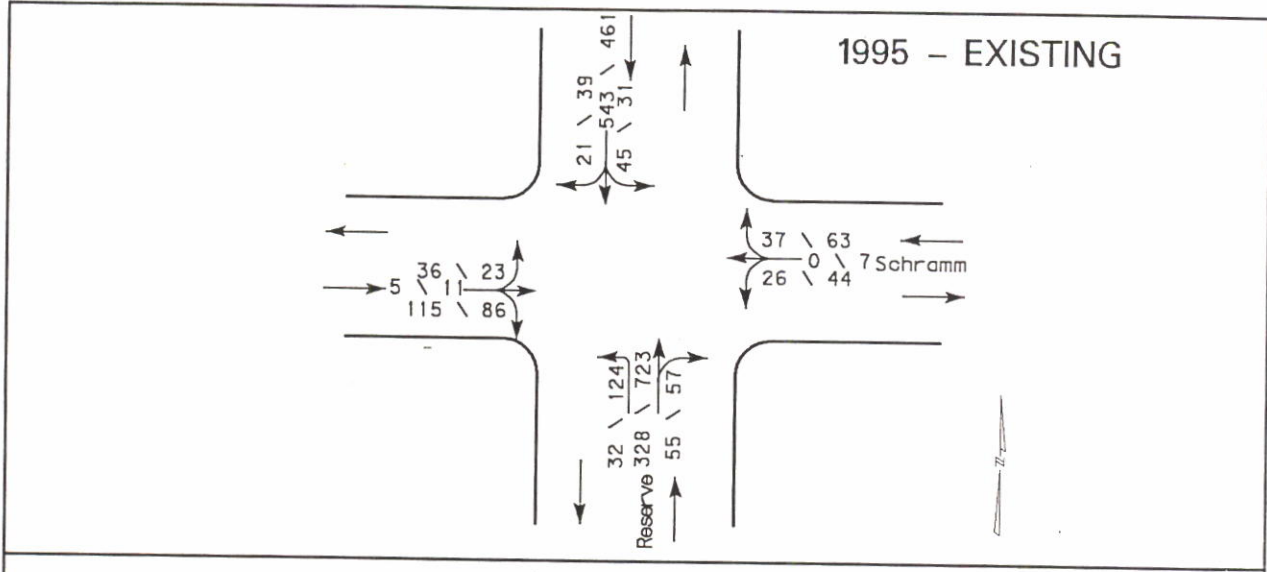
North Reserve Street

RESERVE @ BROADWAY EAST LOOP
Figure 7



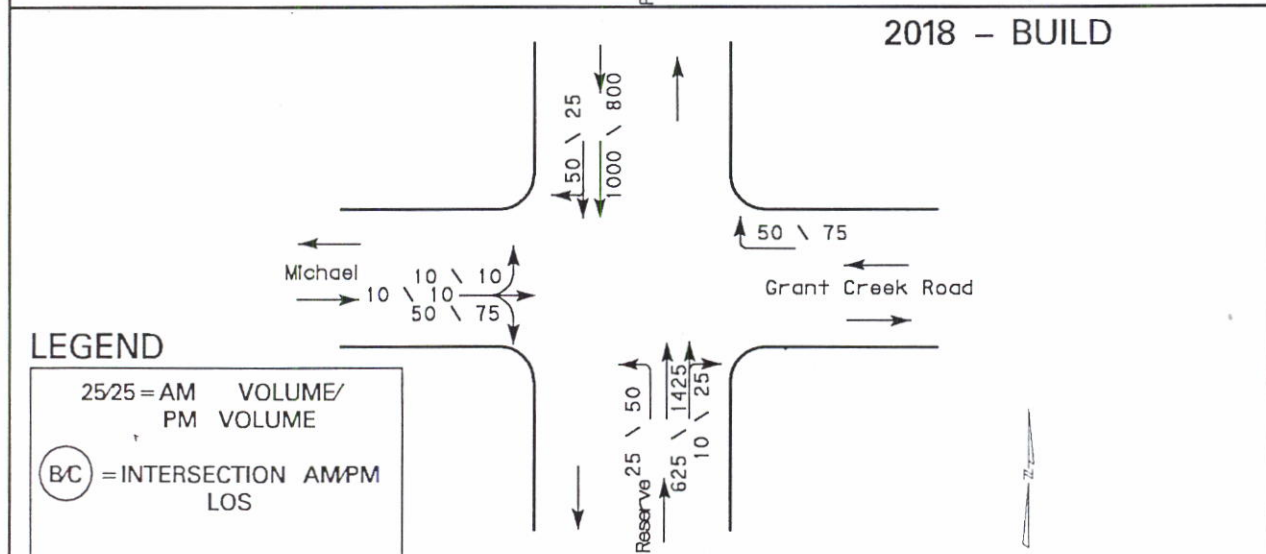
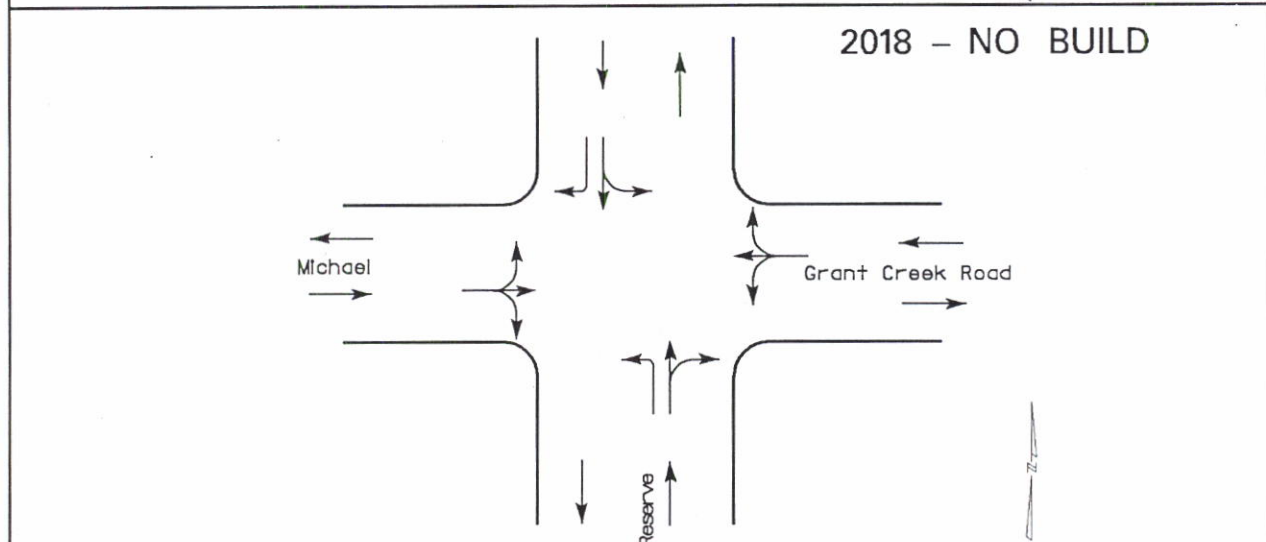
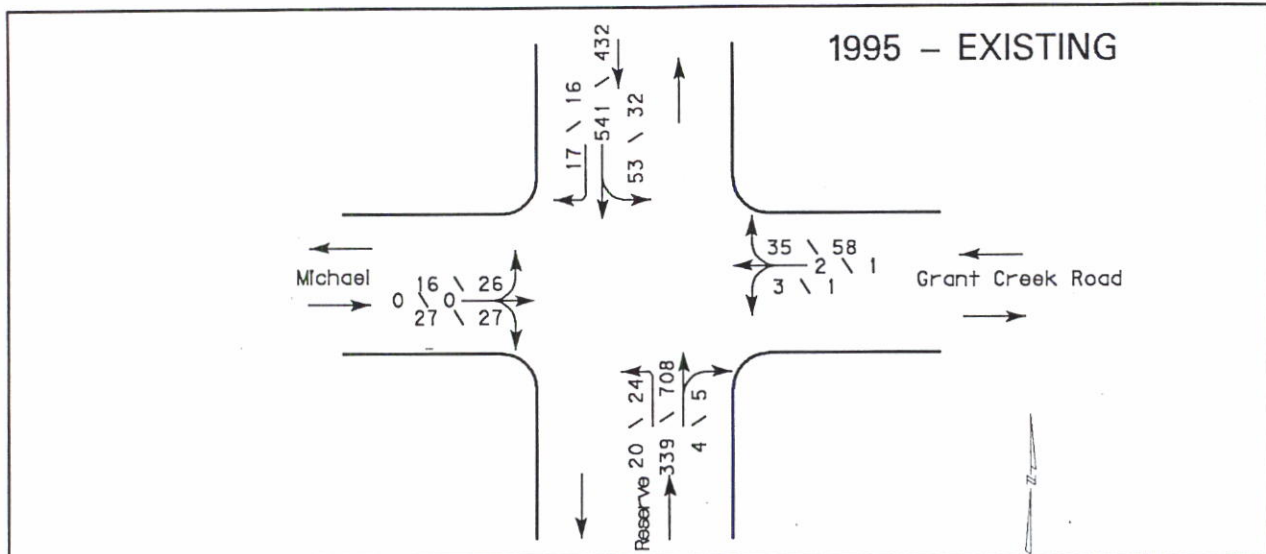






North Reserve Street

RESERVE @ SCHRAMM
Figure 11



North Reserve Street

RESERVE @ GRANT CR. RD. & INDUSTRIAL

Figure 12

Appendix C

Biological Resource Report

MONTANA DEPARTMENT OF TRANSPORTATION
Biological Resources Report

North Reserve Street- Missoula
Project NH 0002(110)
Control Number 2445

Prepared by:

Robert S. Harris, Wildlife & Fisheries Biologist
Turnstone Biological
20 December 1994

EXECUTIVE SUMMARY

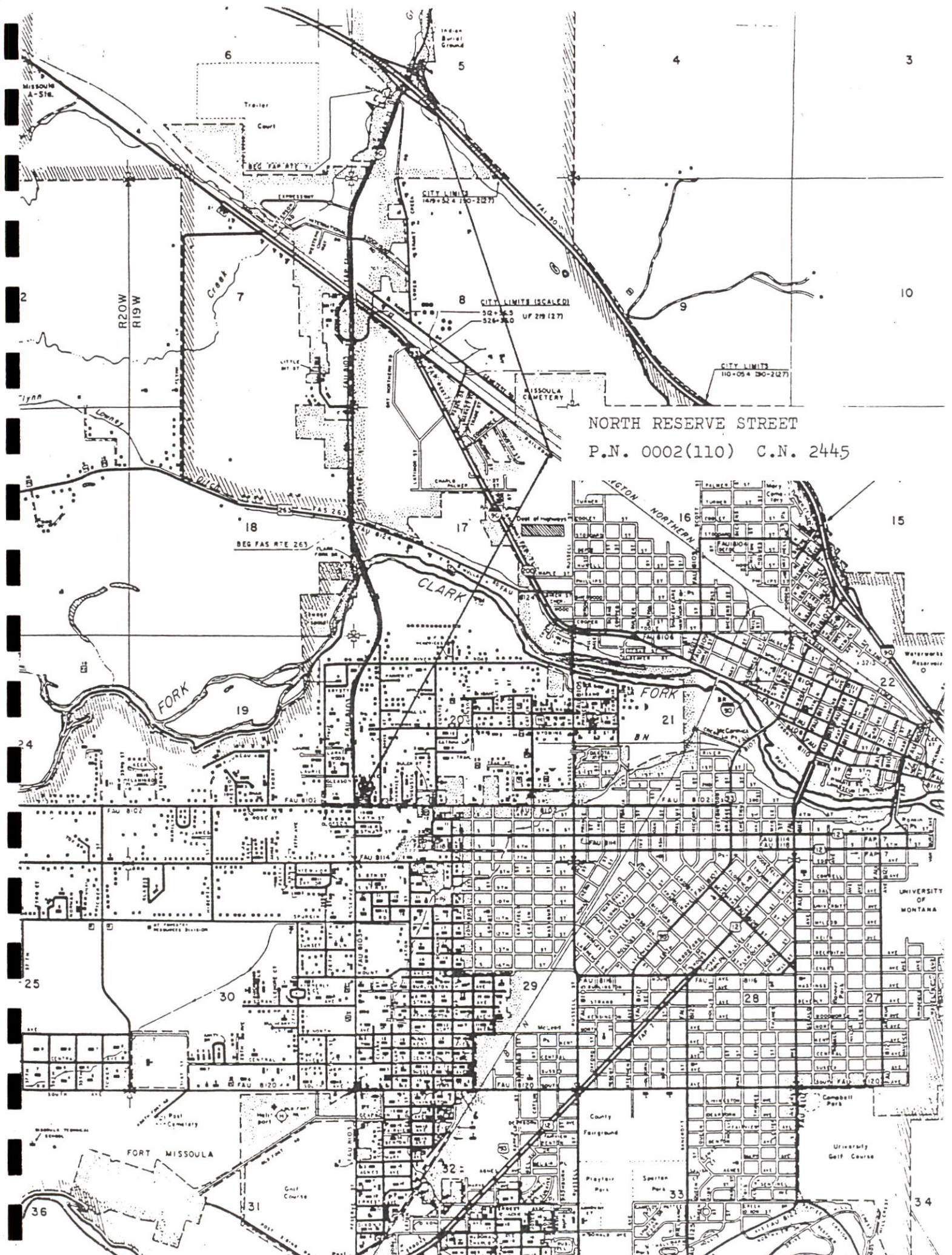
The proposed project entails the full construction of 3.3 miles (5.3 km) of Reserve Street, wherein the existing two-lane facility would be widened to either four- or five-lanes. The project is not likely to adversely affect the endangered peregrine falcon, the threatened bald eagle or their associated habitats. In addition, the action is considered to be a no effect for the remaining threatened and endangered species found in this portion of the state. A corridor delineation of wetlands present along the project route was conducted; however a determination of wetland loss cannot be made as the project is presently in the preliminary design phase. Should the preferred design lie adjacent to the present-traveled-way, as has been suggested, wetland losses will likely be less than one-half acre (<.2 hec.). The most significant biological concern is the protection of water quality throughout planning and construction, especially for those portions having wetland involvement.

INTRODUCTION

The following report discusses the terrestrial, aquatic, and wetland resources present in the vicinity of north Reserve Street-Missoula. Biological resources are addressed, as are the possible impacts from proposed construction activities. This report is based on a field survey conducted from November 16-18, 1994, correspondence and consultation with federal and state agencies, and a review of pertinent literature.

PROJECT and GENERAL AREA DESCRIPTION

The proposed project, located in Missoula County, begins 180 feet (54.9 m) north of the intersection of Third and Reserve Streets (Milepost 2.29, FAU 8103). It extends northerly 3.3 miles (5.3 km) to a point some 500 feet (152 m) north of the Reserve



NORTH RESERVE STREET
P.N. 0002(110) C.N. 2445

Street Interchange of Interstate 90, or MP 5.54. No alternate locations are being considered. Reserve Street is a principal urban arterial connecting U.S. Highway 93 south of Missoula with Highway 93 to the north and Interstate 90 to the east and west of the city. The project proposal seeks to accomodate the increasing traffic volumes along the route, due in part to the rapidly growing commercial development along Reserve Street. The recently completed five-lane facility to the south of this project (M-STPU 8103(6), Reserve Street and Third to U.S. 93, referred to as "Reserve Street") is also a contributing factor.

The proposed design would entail full construction, i.e. widening to 4- or 5-lanes, addition of turn bays where appropriate, construction of several new bridge spans, provisions for storm water and associated hydraulics, surfacing, etc. Right-of-way acquisition will likely be necessary at several of the major intersections. Utilities involvement/relocation along the project will be extensive, to include sewer, natural gas, electric, telephone, and railway.

The physiography of the Missoula Valley is partly a result of past glaciation to the immediate north. Lake Missoula once inundated the entire valley floor with glacial run-off and much of the landscape is flat in nature, having been a former lakebed. This characterizes the general terrain in the project vicinity excepting those portions that fall within the floodplain of the Clark Fork River.

The land use at the southern terminus of the project is residential but converts to rapidly developing commercial use north of the Clark Fork River. The project currently lies outside of city limits, however the City of Missoula recently proposed to annex some residential portions west of Reserve Street. Such action, if taken, would embody approximately 50,000 residents within the city limits.

No prime or unique land resources will be affected by this action, and no significant land use changes are anticipated other than a continuation of commercial development.

There will be construction-related impacts to wetlands associated with the Clark Fork River floodplain. Projected loss of these low to modest quality wetlands is addressed within the wetlands section of this report.

STUDY METHODS

Agency Consultation and Literature Review

Information pertaining to endangered, threatened, sensitive and rare wildlife, fish, herptiles, and vegetative species was sought from the U.S. Fish & Wildlife Service (USFWS), Montana Department

of Fish, Wildlife, and Parks (MDFWP), and the Montana Natural Heritage Program (MNHP). A literature review was conducted and the Montana Rivers Information System (MDFWP 1988) utilized to gather biological resource data for the Clark Fork River.

Field Survey

A field survey was conducted from November 16-18, 1994. The entire existing and proposed rights-of-way were surveyed by walking and driving the 3.3 mile (5.3 km) route. Vegetation communities, wetlands, wildlife, and fisheries resources, as well as habitat utilization were evaluated. Lacking a final design plan, all wetlands within a 500 foot (153 m.) corridor were delineated and rated for their functions and values.

STUDY RESULTS

Resource Classifications

The following section describes the various biological resources just mentioned and assesses the possible impacts that may occur as a result of the proposed project. Rare and sensitive species as listed by the Montana Natural Heritage Program (MNHP) are addressed. Those species monitored by the U.S. Fish & Wildlife and listed as endangered or threatened under the Endangered Species Act are considered separately within this report.

Biological Resources

Vegetation

With the level of current development, meaningful plant communities and usable habitats are scarce within the project vicinity. Commercial encroachment has fragmented much of the land, reducing its value to both wildlife and native plant communities. Remaining vegetation in the more developed areas is generally that of introduced grasses mixed with noxious weeds. Within the confines of the project, only portions of Grant Creek where it approaches the valley floor, and the habitats associated with the Clark Fork River and its floodplain, contain remnant natural communities. (Photos, App. A).

Grant Creek, at the northern terminus of this project, is a narrow (<4 meters) and seasonal stream of steep gradient. Under a thinning overstory of black cottonwoods, this steeply sloped channel supports a few upland plant species mixed with noxious weeds, i.e. wood's rose, mock orange, nightshade, spotted knapweed and common tansy. In spite of the close proximity of Grant Creek Village, there remains some limited habitat for songbirds (neo-tropical) and small mammals within this narrow strip of riparian cover.

As stated, the greater portion of native plant species and communities are found near the river and its floodplain. Please refer to the wetland finding within this report and appended field narratives for a complete vegetative summary of these areas.

There are no rare or sensitive plant species of concern, as listed by the MNHP within the confines of the project. The nearest sensitive species is Missoula Phlox (*Phlox kelseyi* var. *Missouliensis*), which lies on the drier slopes overlooking Grant Creek.

Wildlife

With its development, high traffic volumes, and close proximity to the City of Missoula, the area offers little to encourage wildlife populations within the project vicinity. Not surprisingly, it is the main river and its floodplain that afford the most significant support for wildlife.

There is little evidence to suggest use by any of the larger carnivores, and the white-tailed deer is likely the largest mammal to frequent the riverbottom. The most prevalent user group may be neo-tropical (song) birds which seasonally inhabit the brushy riparian covers that satisfy the requisite functions for their occupancy, i.e. foraging, breeding, nesting, etc. Cliff swallows have also established mud nests along some of the existing bridge spans. The presence of these migrants may, in turn, hold some attraction for certain raptors. Corvids, e.g. ravens, magpies, crows, etc. are a frequently visible user group.

Perhaps because of unfavorable soil materials for burrowing, little use by small, non-furbearing mammals was found. Small furbearing mammals have some potential habitat, if limited, in the commonly inundated, backwatered portion of the overflow channel. Also represented are various waterfowl sometimes seen in the vicinity of open water channel. During the week of survey, mallard ducks and Canada geese were observed along the river's backwater. Use by several of the various groups could likely be enhanced with improvements to riparian and wetland habitats within the floodplain.

Excluding the threatened and endangered species, there are believed to be no rare or sensitive species of concern that inhabit this portion of floodplain (MNHP & MDFWP).

The survey, having been conducted in November, precluded sightings of amphibians and reptiles, though several species common to the valleys of western Montana are likely to be found here. There is no listing for sensitive herptile species of concern in this vicinity (MNHP & MDFWP).

Though construction may have minor wetland impacts, the creation of a wider facility similar to what presently exists will likely have little impact on wildlife populations in general. Any disturbances to wildlife from construction related activities are anticipated to be of short term.

The protection of water quality during all phases of planning and construction will likely be of great significance to remaining wildlife. Any degradation of water resources during construction and/or subsequent storm water run-off activities could have negative consequences for those wildlife species that persist.

Fisheries

This resource within the project area is limited to that of the Clark Fork River. The river supports a modestly productive fishery in spite of a long history of water quality problems. The Montana Rivers Information System (MRIS) lists as many as thirteen cold and warm-water species known to occur in the system. Worth noting are the presence of the westslopes cutthroat trout with a State sensitive species rating of S3; and the bull trout with a USF&WS Category 2 sensitive species listing. The bull trout is currently being considered for inclusion on the Threatened and Endangered Species List.

There are no anticipated impacts to river resources at this phase in the design. It is expected that the additional river crossing will have piercing similar to what currently exists for the two-lanes now in use. This would imply that pierings would entirely span the active portion of the channel. If so designed, there should be no significant impacts. Should a design change call for piercing within the deep water portion of the channel, a reassessment of aquatic resource impacts will be necessary.

Grant Creek, a non-perennial stream at the point where it meets with Interstate 90, does not appear to have a fishery. Though a flow less than two cubic-feet-per-second (CFS) was observed several hundred yards north of the Interstate during the November survey, the stream converted to subsurface flows near the entrance to Grant Creek Village. From this point south, the streambed was found to be dry. No observance of fry or fingerling fish was made in the watered portions, nor were any invertebrates detected within the cobble. No history was found of Grant Creek being manipulated near its junction with the Interstate, however it appears to be so. No fisheries impacts are expected to Grant Creek from the proposed action.

Threatened and Endangered Species

Nine species within Montana have been classified by the U.S. Fish & Wildlife Service as either threatened or endangered. Under Section 7 of the Endangered Species Act, as amended, activities

conducted, sponsored, or funded by federal agencies must be reviewed for their effects on species federally listed or proposed for listing as threatened or endangered. The endangered species are the gray wolf, peregrine falcon, whooping crane, black-footed ferret, and Interior least tern. The continental U.S. populations of grizzly bear, bald eagle, piping plover, and a sole plant species, the water howellia, are listed as threatened.

Of these species, the Interior least tern, black-footed ferret, whooping crane, piping plover, and water howellia are not considered to be endemic to the project area. The grizzly bear and gray wolf have a history of presence in the valley which ended many decades ago. Under this premise, and following personal communications and literature review, it is determined that implementation of the proposed action will have no effect on any of these seven species. The remaining species in need of consideration are the endangered peregrine falcon and threatened bald eagle.

Peregrine Falcon

Analysis. Though nearly extirpated, the peregrine falcon has been a traditional resident of the Intermountain West. Recovery programs begun in the 1970's are determinedly restoring the bird's numbers. However, any presence in the Missoula Valley at this time is probably transitory. There are no known nesting locations or foraging areas within many miles of the project, yet the species is likely to be a regular seasonal migrant enroute to more favorable habitats. There is no reason to suspect the habitual presence of peregrine falcons within the project area.

Mitigation/Coordination Measures. As no known peregrine falcon are known to reside within the project area and no significant impacts are anticipated, there are no required mitigation/coordination measures.

Determination of Effects. Based on the above, it is determined that implementation of the proposed action is not likely to adversely affect the peregrine.

Bald Eagle

Analysis. Bald eagles occur in the project area as both migrants and winter residents. Their presence within the project vicinity is generally associated with the Clark Fork River and its floodplains. They are sometimes seen, most commonly in the winter months, perching in the mature cottonwood trees that overlook the river. The river has some significance as a foraging area for wintering eagles though the preferred habitats with greater usage occur away from the city. There are no known nesting territories within many miles of the project vicinity.

Mitigation/Coordination Measures. Because bald eagles have a limited and sporadic presence in the immediate vicinity, the following measures are required to ensure that impacts are minimized:

- * Any necessary powerline relocations shall be constructed and raptor-proofed in accordance with the Raptor Research Report No. 4 (Raptor Research Foundation, 1981). Raptor-proofing is a policy currently being applied by the Montana Department of Transportation.
- * Avoid the remaining stands of mature cottonwoods during construction, and especially those stringers of trees found west of the Clark Fork Bridge. These are favored perch sites for what eagle use occurs. MDT is not anticipating any involvement with these stands at this time.

Such efforts would have benefits for all raptors frequenting the project vicinity.

Determination of Effects. It is determined that implementation of the proposed action is not likely to adversely affect the bald eagle.

WETLAND FINDING

This section serves as the Wetland Resource Inventory for this project. Wetland delineation was conducted in accordance with the Army Corps of Engineers 1987 Wetlands Delineation Manual (COE 1987). Recognizing Executive Order 11990, MDT intends to avoid and/or minimize wetland impacts where possible in accomplishing this project.

In that this Biological Resources Report was called for in advance of an official Plan-in-Hand, a corridor study of wetlands within a 250 foot (76 m.) reach, each side of centerline, was conducted. A wider scoping of the corridor was performed to provide a delineation that would address any further design changes. However, this assessment of specific wetland losses will need further refinement once the plan is finalized.

Within the 3.3 mile (5.3 km) project are three sites having the hydrology to support wetlands; however, the only wetland signatures found are those at the site of what is commonly called the Clark Fork River Overflow Channel (App. A, aerial photo).

History. A brief site history of this channel dating back to the previous construction of the 1970's is beneficial in understanding recent wetland changes. Prior to 1982-83, the

channel was basically inactive (excepting its most western connection with the main Clark Fork River) because of an upriver dike which protected these portions of the floodplain.

When MDT initially proposed to construct Reserve Street, they applied for the proper permits to fill across the floodplain for the elevated sections of their design. The permit was denied by the County of Missoula because of their concerns for potential flooding across this plain. Wanting to use their original design, MDT then offered to heavily rip-rap the existing dike area to prevent such flooding. This was still unacceptable to the County; and MDT subsequently built the bridge spans in 1977 which serve as the southern approach to the main river bridge. (The Reserve Street/Clark Fork River bridge was built in 1975.)

During this period of construction, MDT requested to use portions of the overflow channel for borrow materials to build the Milwaukee Railroad ROW overpass. This was allowed and the overpass completed in 1978. The borrow sites were designed to accommodate a then popular notion for development of a park in this location.

Nothing apparently came of the park proposal. What did come, however, was an eventual failure of the upriver dike in spring high-water events in 1982-83. Once breached, portions of this channel began to receive seasonal inundation for an average of two to three months. Now, with over ten years of intermittent flooding, this area is very slowly evolving as a wetland. Conversely, the adjacent channel immediately south of the main river, which carried the overflows prior to dike failure, has lost its wetland characteristics.

Because of these events and the changes they are creating, the area fits the definition of an "atypical situation" as given in the Corp's 1987 Manual. Portions would also likely fit the Corp's description of a wetland "problem area" due to the brevity of seasonal inundation.

Vegetation. Most wetland vegetation within the corridor exists as fringes of herbaceous and shrubby plant communities bordering open water areas (when flooded). These hydrophytic species seem few in number for a wetland of this size; the lack of diversity is possibly attributable to both the brevity and "newness" of inundation. An added factor is the significant scouring that occurs with spring run-off. Plant species, listed by scientific name and mapped in Appendix A, are as follows:

S1 - Deciduous shrubs/saplings (willows/cottonwoods predom.)	0.9 ac. (.37 hec.)
S2 - Grass-like communities (canary-grass, spikerush, forbs)	0.5 ac. (.21 hec.)
S3 - Cattail communities (broad-leaved cattail)	0.04 ac. (.02 hec.)
S4 - Exposed cobbles w/willow starts	0.8 ac. (.33 hec.)
S5 - Exposed cobble/sediments	1.0 ac. (.41 hec.)
Open water at time of survey depth <3 ft. (16-18 Nov. 94)	0.9 ac. (.37 hec.)
<hr/>	
Total WL acreage within 500 ft. corridor	4.1 ac. (1.66 hec.)

As mentioned, the former channel lying between the mapped channel and the main river does not meet the wetland parameters and is now vegetated mostly in spotted knapweed. (Colored photos within Appendix A show not only wetlands but those portions of dewatered floodplain as well.)

Soils. The soils mapping done by the Missoula Office of the Soil Conservation Service (SCS) also corroborates the changes that occur on this floodplain. The level of disturbance is such that the soils have been classified to only one Great Group, the Xerofluvents, and one suborder, the Orthents. SCS literature states:

"Xerofluvents consist of very deep, somewhat poorly drained soils that form in alluvium. These soils are on flood plains. Slope 0 to 2 percent. Elevation is 2900 to 3200 feet. The average annual precipitation is 11 to 14 inches, average annual air temperature is 44 to 46 degrees F., and the frost-free season is 90 to 110 days." Xerofluvents are generally considered to be hydric in nature (Swenson, pers. comm.)

"The Orthents consist of very deep, well drained to excessively drained soils that formed in a wide range of disturbed and reworked soil material. These soils are on stream terraces. Slope is 0 to 4 percent. Elevation is 2800 to 3500 feet. The average annual precipitation is 11 to 14 inches, average annual air temperature is 43 to 45 degrees F., and frost-free season is 105 to 120 days."

Soil characteristics were confirmed during the delineation work

where soil probes were obtainable. (Often, soil cores were difficult, if not impossible, to obtain because of abundant river cobble mixed with sands. Please refer to the COE Data Form for specifics re: core samples, App. A.) Soils on the site generally satisfy the COE's hydric parameter, though they are very low in organic content.

Hydrology. The primary indicators for wetland hydrology are numerous in this instance. Aside from inundation, there exists saturation in the upper 12 inches for several portions. Also evident are water marks, minor sediment deposits, and drift lines where appreciable velocities of spring run-off have left debris suspended in surrounding vegetation. This scouring may be impeding the establishment of vegetation in the more barren areas, e.g. under the bridge and immediately eastward.

Two other locations within the project limits meet the hydrology parameter for wetlands but fail to satisfy either the soils or vegetation requirements. These areas are Grant Creek, near the Reserve Street Interchange, and southern portions of the high water bank along the main Clark Fork River where adjacent to the bridge piling. Photos of these locations are also included.

Functions and Values. Within Appendix A is the completed MDT Wetland Evaluation Form which rates an area's various functions and values. This wetland rates as Category III, which is modestly low for one of this size. It could be concluded that there is more wetland potential here than is being realized, if that were a goal. (Please refer to this form as it details the specific wetland benefits that the site is currently providing.)

Conclusions. Any construction immediately west and adjacent to the existing bridge, as has been proposed for the additional two-lanes, will result in a minor loss of wetlands. To what degree these will be affected cannot be known until the final design is chosen, but it is likely to be less than one-half of an acre if similar in design to the existing structure.

Once the preferred design is finalized and the positions of pierings and work areas defined, a biological review should be conducted to determine the actual wetland acreage lost to construction of the new spans.

On-site wetland mitigation is possible for this project. However, it is suggested that MDT inquire into the feasibility of enhancing and restoring portions of the existing wetland (channel) in lieu of creating a partial acre for inclusion into an already substandard system. Perhaps it would be negotiable with the InterAgency Wetland Group (IAWG) to significantly improve the current wetland functions and values, as well as the esthetics, of this highly visible floodplain. If acceptable, this action could prove as cost effective as wetland creation.

REFERENCES

- Flath, Dennis. Non-game Biologist. Montana Department of Fish, Wildlife, and Parks. Bozeman, Montana. Phone conversation on 9 December, 1994.
- Jackson, Scott. Wildlife Biologist. U.S. Fish & Wildlife Service. Helena, Montana. December 9, 1994 phone conversation.
- Montana Department of Fish, Wildlife, and Parks. 1993. Locations of bald eagle nesting territories of record, August 1, 1993. Bozeman, Montana. Unpublished data.
- Montana Department of Fish, Wildlife, and Parks. 1988. The Montana Rivers Information System. Helena, Montana.
- Montana Natural Heritage Program. 1994. Print-out of sensitive species occurrences in area of North Reserve Street project. Helena, Montana.
- Novitsky, R.P.. 1979. An Introduction to Wisconsin Wetlands, Plants, Hydrology and Soils. University of Wisconsin Press. Madison.
- Peil, Carl S. Preconstruction Engineer. Montana Department of Transportation. Helena, Montana. Phone conversation on November 28, 1994.
- Reed, P.B. 1988. National list of plant species that occur in wetlands: Northwest (Region 9). U.S. Fish & Wildlife Service. Washington, D.C. 89 pp.
- Soil Conservation Service, USDA. 1994. Soils data written for the forthcoming Missoula County Soil Survey. Missoula, Montana.
- Swenson, Neil. Soil Scientist. SCS. Missoula County SCS Field Office. November 30, 1994 phone conversation.
- U.S. Army Corps of Engineers. 1987. COE Wetlands Delineation Manual. Wetlands Research Program Technical Report Y-87-1. Department of the Army. Vicksburg, Miss.
- U.S. Fish & Wildlife Service. 1993. November 22, 1993 list, narrative, and statewide distribution map of threatened and endangered species to be considered relative to highway projects throughout Montana. Helena, Montana.
- Weaver, Jim. District Engineer. Montana Department of Transportation. Missoula District. Phone conversations on 16 November and 09 December, 1994.

APPENDIX

REFERENCED SPECIES

COMMON NAME

GENUS and SPECIES

Bald eagle
 Black-billed magpie
 Black-footed ferret
 Bull trout
 Canada goose
 Cliff swallow
 Common crow
 Common raven
 Gray wolf
 Grizzly bear
 Interior least tern
 Mallard duck
 Peregrine falcon
 Piping Plover
 Westslopes cutthroat
 White-tailed deer
 Whooping crane

Haliaeetus leucocephalus
Pica pica
Mustela nigripes
Salvelinus confluentus
Branta canadensis
Petrochelidon pyrrhonota
Corvis brachyrhynchos
Corvis corax
Canis lupis
Ursus arctos horribilis
Sterna albifrons
Anas platyrhynchos
Falco peregrinus
Charadrius melodus
Salmo clarkii
Odocoileus virginianus
Grus americana

Black cottonwood
 Common tansy
 Missoula phlox
 Mock orange
 Nightshade
 Spotted knapweed
 Water howellia
 Woods rose

Populus tricocarpa
Tanacetum vulgare
Phlox kelseyi missouliensis
Philadelphia lewisii
Solanum (nigra)
Centaurea maculosa
Howellia aquatilis
Rosa woodsii

Additional genus/species are found within the wetland vegetation summary, which follows.

Match Line "A"

00-091



Clark Fork River

00-091

Reserve St. (FAU 8103)

WETLAND COMPONENTS

- S1 - Deciduous shrubs/saplings
- S2 - Grass communities
- S3 - Cattails
- S4 - Young willows/exposed cobble
- S5 - Exposed cobble /sediments
- S6 - Sandbar

 Permanent inundation
 Surveyed corridor - 500 ft.

PROJECT NAME North Reserve Street NH 0002(110) CN 2445

WETLAND SITE # Clark Fork Overflow Channel.

DATAPOINT # N/A

AND	GENUS/SPECIES	COMMON NAME	STRATA	INDICATOR
-	<i>Salix exigua</i>	sandbar willow	shrub	OBL
	<i>Salix</i> (sp.)	unidentified willow	shrub	FACW
	<i>Phalaris arundinacea</i>	reed canary grass	grass	FACW
	<i>Eleocharis palustris</i>	creeping spikerush	forb	OBL
	<i>Typha latifolia</i>	broad-leaved cattail	forb	OBL
	<i>Rumex crispus</i>	curly dock	forb	FACW
	<i>Carex</i> (sp.)	sedge species	forb	OBL
	<i>Plantago major</i>	common plantain	forb	FAC+
	<i>Populus tricocarpa</i>	black cottonwood	shrub/sap	FAC
	<i>Mentha arvensis</i>	field mint	forb	FAC
PLAND	<i>Centaurea maculosa</i>	spotted knapweed	forb	
	<i>Tanacetum vulgare</i>	common tansy	forb	
	<i>Populus tricocarpa</i>	black cottonwood	shrub/sap/tree	
	<i>Clematis ligusticifolia</i>	western virgin's bower	vine	
	<i>Bromus tectorum</i>	cheatgrass	grass	
	<i>Agropyron</i> (sp.)	wheatgrass sp.	grass	
	<i>Juniperus</i> sp. (rep. only)	juniper	shrub	
	<i>Pinus ponderosa</i> (rep. only)	ponderosa pine	sapling	

PROJECT NAME North Reserve Street NH0002(110)DATE 16 - 18 Nov 94WETLAND SITE # Clark Fork River Overflow ChannelSTATION (S) N/AMILEPOST N/AAPPROXIMATE ACREAGE 4.1 acres within 500' corridorACREAGE WITHIN ROW N/A

Novitsky Classification System

HYDROLOGIC TYPES	<u>II A/B</u>	AREA	<u>75%</u>	ACREAGE	<u>3.2 ac</u>
	<u>I - nonveg</u>	AREA	<u>25%</u>	ACREAGE	<u>0.9 ac</u>
		AREA		ACREAGE	

NARRATIVE - Wetlands discussed are confined to those associated with the overflow channel and within a 500 ft. corridor delineation. Since the upstream dike failure in 1982-83, this area has been in a greater state of flux than was previously common (see history within Wetland Finding). Because of this, the area meets the 'atypical situation' description and would most likely qualify as a 'problem area' as they are defined within the COE 1987 Wetland Delineation Manual.

At its western end, approximately one acre receives fairly constant inundation due to the backwatering of the main Clark Fork River. The watered portions generally overlay bare sands and cobbles; the lack of aquatic vegetation may be due, in part, to the annual scouring received from high water events.

The balance of wetland within the delineated corridor classified as 3.2 acres of II A/B - seasonally inundated, wetland vegetation herbaceous/shrub. Much of this category receives its primary recharge during spring run-off when the main river overflows into this channel (the large dike mentioned formerly prevented inundation of this area. Since failure, the channel has been annually flooded, its hydrology and vegetation slowly reflecting this change. Wetland plant species are making small gains but a significant portion (1.0 ac. - S5) remains as bare sediments and river cobble with little to no organic content. This is especially true for those sites excavated for borrow materials during the previous construction of the railroad ROW overpass in the late 1970's. Poor substrate and significant scouring during high water are impeding a more rapid establishment of wetland plant species.

With a maximum growing season of 120 frost-free days in Missoula, the minimum period of inundation is 6-14 days (or 5½ to 12% of growing season). Annual flooding of this channel exceeds this hydrologic requirement.

Though the site meets the three wetland parameters of hydrology, vegetation, and soils, they still remain of low quality. The wetland functions and values as rated on MDT's Wetland Site Evaluation form place it as a Category III, or modestly low in spite of its expanse. The lack of both diversity and density of habitat are limiting as may be its location on the edge of the city (residential/industrial). The temporary nature of flows and fluctuations in volumes, as mentioned, is likely restricting wetland development, to include overall functions and values for wildlife. (over please)

Though presently of poor quality, observed during the site visits were a few songbirds, magpies and ravens, a rough-legged hawk, mallard ducks, and a white-tailed deer. The mud nests of cliff swallows are present on some bridge spans. Any improvement in habitat would probably attract a wider variety of wildlife.

A former high water channel which has probably not received much use since the dike failure can be seen in the translite aerial photo just north of the overflow channel and immediately south of the main river. This signature no longer possesses any wetland, though it likely did at one time.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>North Reserve Street NH 0002(110)</u> Applicant/Owner: <u>N/A</u> Investigator: <u>R.S. Harris</u>	Date: <u>16-18 Nov 94</u> County: <u>Missoula</u> State: <u>Montana</u>				
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	<table style="width: 100%;"> <tr> <td style="text-align: center;">Yes <input type="radio"/> No <input checked="" type="radio"/></td> <td style="text-align: center;">Yes <input type="radio"/> No <input checked="" type="radio"/></td> </tr> <tr> <td style="text-align: center;">Yes <input checked="" type="radio"/> No <input type="radio"/></td> <td style="text-align: center;">Yes <input type="radio"/> No <input type="radio"/></td> </tr> </table>	Yes <input type="radio"/> No <input checked="" type="radio"/>	Yes <input type="radio"/> No <input checked="" type="radio"/>	Yes <input checked="" type="radio"/> No <input type="radio"/>	Yes <input type="radio"/> No <input type="radio"/>
Yes <input type="radio"/> No <input checked="" type="radio"/>	Yes <input type="radio"/> No <input checked="" type="radio"/>				
Yes <input checked="" type="radio"/> No <input type="radio"/>	Yes <input type="radio"/> No <input type="radio"/>				
Community ID: <u>N/A</u> Transect ID: <u>N/A</u> Plot ID: <u>N/A</u>					

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Salix exigua</u>	<u>shrub</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Phalaris aundinacea</u>	<u>grass</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Salix sp.</u>	<u>shrub</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Rumex crispus</u>	<u>forb</u>	<u>FACW</u>	12. _____	_____	_____
5. <u>Typha latifolia</u>	<u>forb</u>	<u>OBL</u>	13. _____	_____	_____
6. <u>Populus trichocarpa</u>	<u>shr-sap</u>	<u>FAC</u>	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). _____

Remarks: Little vegetative diversity due in part to the recent hydrologic changes since dike failure. The brevity of inundation during spring high water likely contributes as well.

HYDROLOGY

<p>___ Recorded Data (Describe in Remarks): <u>XX</u> Stream, Lake, or Tide Gauge <u>XX</u> Aerial Photographs ___ Other ___ No Recorded Data Available</p> <p>Field Observations:</p> <p>Depth of Surface Water: as much as <u>36</u> (in.)</p> <p>Depth to Free Water in Pit: <u>N/A</u> (in.)</p> <p>Depth to Saturated Soil: often <u>0 to 12</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><u>XX</u> Inundated <u>XX</u> Saturated in Upper 12 Inches <u>XX</u> Water Marks <u>XX</u> Drift Lines <u>XX</u> Sediment Deposits <u>XX</u> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves <u>XX</u> Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)</p>
<p>Remarks: Major hydrologic changes since failure of dike some ten years ago. At least one highwater channel once seasonally inundated is no longer so. Portions of the present overflow channel <u>slowly</u> continue to develop as wetland.</p>	

SOILS

Map Unit Name		73- Orthents 0-4 percent slopes well drained to excessive		Drainage Class: smwht. poorly to well	
(Series and Phase):		136- Xerofluvents 0-2 percent slopes		Field Observations	
Taxonomy (Subgroup): not specifically mapped because of various disturbances				Confirm Mapped Type? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
I/2 to	A	10 YR 5 2/3	none	N/A	sand/ river cobble
12 inches	deepest probe depth that I was able to obtain due to abundant cobble.				

Hydric Soil Indicators:	
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input checked="" type="checkbox"/> Listed on Local Hydric Soils List Xerofluvent only <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)

Remarks: Significantly disturbed from high water events and borrow operations during the previous highway construction.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Remarks: Area would probably qualify as a problem area under the category of 'seasonal wetland' within the COE 1987 Manual. It is also an Atypical Situation. The brevity of inundation for much of the channel inhibits its development as wetland. Functions and values are typically low. The better wetland portions are those associated with the backwatering of the main Clark Fork R. (lower reach).		

Approved by HQUSACE 3/92

Function & Value Summary and Overall Wetland Rating

for Wetland Site(s): Clark Fork Overflow Channel

Function & Value Parameters	Point Values	Ratings
1. Wetland Size	10	Exceptional
2. Habitat Diversity	3	Moderate
3. Food Chain Support	5	High
4. T&E/Proposed/Candidate Species Habitat	3	Moderate
5. MNHP Species Habitat	1	Low
6. General Fish & Wildlife Habitat	3	Moderate
7. Flood Control & Storage	5	High
8. Sediment Filtration	5	High
9. Erosion Control	3	Moderate
10. Nutrient Cycling	3	Moderate
11. Groundwater Discharge/Recharge	5	High
12. Uniqueness	3	Moderate
13. Recreation/Education Potential	3	Moderate
TOTAL POINT VALUE		

Overall Wetland Rating (Circle appropriate category based on the criteria outlined below):

I II III IV

Category I Wetland - Must satisfy one of the following criteria:

- ♦ Total Point Value of 65 or more; or
- ♦ "Exceptional" ratings for T&E/Proposed/Candidate Species Habitat or Flood Control & Storage or Uniqueness.

Category II Wetland - Does not satisfy criteria for Category I and:

- ♦ Total Point Value of 40 - 64; or
- ♦ "Exceptional" ratings for MNHP Species Habitat or General Wildlife & Fish Habitat; or
- ♦ "High" ratings for Food Chain Support or Uniqueness.

Category III Wetland - Does not satisfy criteria for Category I, Category II, or Category IV.

Category IV Wetland - Does not satisfy criteria for Category I, Category II, or Category III and:

- ♦ Total Point Value less than 26; and
- ♦ "Low" ratings for Wetland Size and Habitat Diversity.

MDT WETLAND SITE EVALUATION FORM
(Revised June 22, 1994)

Project Name: North Reserve Sluiceway Number: NH 0002(110) CH 2445
 Evaluation Date: 16/9 Nov 94 Evaluator(s): Robt. Harris Site Name(s): Clark Fork R. Overflow Channel
 Location: same as site name - vicinity of Clark Fork Reserve Sl. bridge
 Estimated Total Wetland Size: N/A - 11 corridor delineation Estimated Size Within Proposed ROW: ROW WL undetermined
 Conditions During Evaluation: Overcast to Partly Cloudy, 30-40°F, intermittent sun and snow flurries.

Wetland Classification (from MDT Wetland Classification Scheme)				
Water Regime (e.g., permanently flooded)	Wetland Type (e.g., Marsh)	Dominant Species	Modifier (e.g., Impounded) and/or Descriptor	% of Wetland
<u>usually flooded</u>	<u>deciduous shrub & herbaceous emergents</u>	<u>Phalaris arundinacea</u> <u>Salix sp. Rumex crispus</u>	<u>Seasonal wetland on an overflow floodplain</u>	<u>75%</u>
<u>semi-permanent flood</u>	<u>open water</u>	<u>no aquatic vegetation</u>	<u>perpetual backwater of main Clark Fork R.</u>	<u>25%</u>

Wetland Type(s) is (are) locally (circle): Rare Common Abundant

Field Descriptive Summary: see attached field narrative

Actions and Values Assessment

Wetland Size (All size criteria throughout the assessment refer to the size of the entire wetland.)

Size	Score	Calcul.	Rating	Point Value
> 10 acres	<u>10</u>	Score = <u>(circle)</u>	<u>(circle)</u>	<u>(circle)</u>
6 to 10 acres	= 5	1 =	Low	= 1
1 to 5 acres	= 3	3 =	Moderate	= 3
< 1 acre	= 1	5 =	High	= 5
		<u>10 =</u>	<u>Except.</u>	<u>+10</u>

Habitat Diversity (Function of wetland type diversity and presence of open water component.)

# of Wetland Types (not including open water types)	(1 Multiply 1)	Score	Open Water	Calcul.	Rating	Point Value
≥ 3 types	= 5	<u>2</u>	Present	Score = <u>(circle)</u>	<u>(circle)</u>	<u>(circle)</u>
2 types	= 3	1 =	Absent	1 =	Low	= 1
≤ 1 type	<u>1</u>			<u>2-3 =</u>	<u>Moderate</u>	<u>+3</u>
				5-6 =	High	= 5
				10 =	Except.	= 10

Food Chain Support (Function of habitat diversity [HD] and wetland size)

HD Rating (fr. #2 above)	(1 Multiply 1)	Score	Size	Calcul.	Rating	Point Value
Low	= 1	<u>5</u>	> 5 acres	Score = <u>(circle)</u>	<u>(circle)</u>	<u>(circle)</u>
Moderate	<u>2</u>	3 =	1-5 acres	1-2 =	Low	= 1
High	= 3	1 =	< 1 acre	3-9 =	Moderate	= 3
Exceptional	= 4			<u>10-15 =</u>	<u>High</u>	<u>+5</u>
				20 =	Except.	= 10

Habitat for Federally-listed Endangered, Threatened, or Candidate (C1 or C2) Species

Wetland Receptor:	Score	Calcul.	Rating	Point Value
Regular use by such species or is designated critical habitat	= 10	Score = <u>(circle)</u>	<u>(circle)</u>	<u>(circle)</u>
Occasional use (e.g., infrequent, sporadic use)	= 5	0 =	None	= 0
Incidental use (e.g., chance, inconsequential use)	<u>3</u>	<u>3 =</u>	<u>Moderate</u>	<u>+3</u>
No known or suspected use	= 0	5 =	High	= 5
		10 =	Except.	= 10

Habitat for Species Rated "S1", "S2", or "S3" by the Montana Natural Heritage Program (Not including those addressed under #4 above.)

Wetland Provides:	Score	Calcul.	Rating	Point Value
Breeding or other crucial habitat	= 10	Score = <u>(circle)</u>	<u>(circle)</u>	<u>(circle)</u>
Habitat that is used regularly	= 5	0 =	None	= 0
Habitat that is used occasionally (e.g., infrequent, sporadic use)	= 3	<u>1 =</u>	<u>Low</u>	<u>+1</u>
Habitat that is used incidentally (e.g., chance, inconsequential use)	<u>1</u>	3 =	Moderate	= 3
No known or suspected habitat	= 0	5 =	High	= 5
		10 =	Except.	= 10

6. General Wildlife & Fish Habitat (Non-T&E)

Criteria I (apply to each group)		Criteria II (apply to entire group)		Score			
Abundant or significant use	= 5	M Raptors	≥ 6 S's or ≥ 8 M's	= 10	Calcul.	Rating	Point Value
Occasional or moderate use	= 3	M Waterfowl	3-5 S's or 6-7 M's	= 5	Score =	(circle)	(circle)
Little or no perceived use	= 1	L Marsh & Shorebirds	1-2 S's or 3-5 M's	= 3	1 =	Low	= 1
		L Rodents & Insectivores	No S's and ≤ 2 M's	= 1	3 =	Moderate	= 3
		L Carnivores			5 =	High	= 5
		L Ungulates			10 =	Except.	= 10
		L Herpetiles					
		L Fish					
		M Invertebrates					
Calculated Score = 3							

7. Flood Control & Storage (Function of floodwater proximity, wetland size, vegetative composition, and flow restriction; Applies only to sites within a discernable floodplain [based on floodwater proximity, flood deposits, FEMA maps, etc.]; If does not apply, Point Value is 0.)

(1 Multiply 1)				Score			
A. Wetland Size	Score	Score	Vegetative Composition		Calcul.	Rating	Point Value
> 5 acres	= 5	3 =	> 50% forested or shrub or combination		Score =	(circle)	(circle)
1-5 acres	= 3	2 =	10-50% forested or shrub or combination		0 =	None	= 0
< 1 acre	= 1	1 =	< 10% forested or shrub or combination		2-3 =	Low	= 1
					4-8 =	Moderate	= 3
B. Flow Restriction	Score				10-16 =	High	= 5
Outlet restricted or absent	= 2				17 =	Except.	= 10
Outlet unrestricted	= 1						
Calculated Score (A + B) = 12							

8. Sediment Filtration and Water Purification (Function of proximity to potential sediment/pollutant source and emergent vegetative component.)

(1 Multiply 1)				Score			
Ability to Receive Sediment/Pollutants	Score	Score	Emergent Vegetative Component		Calcul.	Rating	Point Value
Substantial accumulations evident or likely	= 2	5 =	> 50% emergent		Score =	(circle)	(circle)
Moderate accumulations evident or likely	= 1	3 =	10-50% emergent		.5-1.5 =	Low	= 1
Accumulations not evident and unlikely	= 0.5	1 =	< 10% emergent		2-3 =	Moderate	= 3
Calculated Score = 5					5-10 =	High	= 5

9. Erosion Control (Flow or wave dissipation; applies only if site is on shoreline of lake [subject to wave action], river, stream, or other defined drainage; If does not apply, Point Value is 0.)

		Score			
Size of Rooted Vegetative Component	Score		Calcul.	Rating	Point Value
> 5 acres	= 5		Score =	(circle)	(circle)
1-5 acres	= 3		0 =	None	= 0
< 1 acre	= 1		1 =	Low	= 1
			3 =	Moderate	= 3
			5 =	High	= 5
			Calculated Score = 3		

10. Nutrient Cycling (Potential to accumulate, process, and export nutrients [expressed as organic matter].)

(1 Multiply 1)				Score			
Organic Matter Accumulation	Score	Score	Proximity to Other Aquatic Habitats		Calcul.	Rating	Point Value
Substantial accumulation evident	= 3	3 =	Adjacent or contiguous to other aquatic habitats		Score =	(circle)	(circle)
Little to no accumulation evident	= 1	1 =	Isolated basin		1 =	Low	= 1
Calculated Score = 3					3 =	Moderate	= 3
					9 =	High	= 5

11. Groundwater Discharge/Recharge

		Criteria	Score			
Wetlands:		A, B, or C true	= 5	Calcul.	Rating	Point Value
A. Is a known discharge or recharge area				Score =	(circle)	(circle)
B. occurs immediately below a dam				1 =	Low	= 1
C. Is a suspected discharge or recharge area due to:		D true, all others false	= 3	3 =	Moderate	= 3
D. has an outlet, but no inlet		A-D false.	= 1	5 =	High	= 5

12. Uniqueness (Function of relative abundance of wetland type in Montana and replacement potential of ecological functions.)

(1 Multiply 1)				Score			
Frequency of Occurrence in Montana	Score	Score	Replacement Potential		Calcul.	Rating	Point Value
Rare	= 3	5 =	Irreplaceable ecological functions		Score =	(circle)	(circle)
Common	= 2	3 =	Ecological functions replaceable with difficulty		1-2 =	Low	= 1
Abundant	= 1	1 =	Ecological functions readily replaceable		3-6 =	Moderate	= 3
Calculated Score = 3					9-10 =	High	= 5
					15 =	Except.	= 10

13. Recreation/Education Potential (Subjective assessment of potential for boating, hunting, birdwatching, photography, and other recreation/education activities; remember to consider access restrictions.)

(1 Multiply 1)				Score			
Recreation Potential	Score	Score	Education Potential		Calcul.	Rating	Point Value
High	= 3	5 =	High		Score =	(circle)	(circle)
Moderate	= 2	3 =	Moderate		1-2 =	Low	= 1
Low	= 1	1 =	Low		3-6 =	Moderate	= 3
Calculated Score = 3					9-15 =	High	= 5

* In present condition

MDT Wetland Classification Scheme
(adapted from Windell et al.[1986] and Cowardin et al.[1979])

Water Regime	Vegetation Type	Substrate	Wetland Type	Modifiers and Descriptors
<ul style="list-style-type: none"> * Permanently flooded * Intermittently exposed * Semi-permanently flooded * Seasonally flooded * Saturated * Temporarily flooded 	Rooted floating, floating-leaved, or submergent	Water, mineral, or organic	Aquatic Bed (standing water)	<u>Modifiers</u> * Excavated ditch
			Aquatic Channel (within channel)	
	Emergent (erect, rooted, herbaceous hydrophytes [includes mosses and lichens])	Organic (peat, muck)	Fen (typically "peatland" dominated by sedges and grasses)	* Excavated basin
			Bog (typically "peatland" dominated by sphagnum mosses)	* Impounded
			Marsh (substrate can be "muck" or mineral; not typically dominated by sedges and grasses)	* Diked
		Mineral	Wet Meadow (dominated by sedges, grasses and rushes)	* Farmed
			Marsh (substrate can be "muck" or mineral; not typically dominated by sedges and grasses)	* Grazed
			Emergent Channel (within channel)	* Partly Drained
	Shrub (woody vegetation less than 20 feet tall)	Organic (peat, muck)	Carr (shrub-dominated fen)	<u>Descriptors</u> * Riparian
			Shrub-bog (shrub-dominated bog)	
	Forested (woody vegetation greater than 20 feet tall)	Mineral	Shrub (coniferous, deciduous, or mixed)	* Deepwater Habitat
			Forested (coniferous, deciduous, or mixed)	* Drumlin Wetland
	Unvegetated	Organic or Mineral	Open Water	* Seasonal Wetland
			Bare Substrate	* Prairie Pothole
		Mineral or Water		* Vegetated Flat

Permanently flooded: Water covers land surface throughout the year in all years.

Intermittently exposed: Surface water present throughout the year except during years of extreme drought.

Semipermanently flooded: Surface water persists throughout growing season in most years.

Seasonally flooded: Surface water present for extended periods, especially early in the growing season, but usually absent by end of season.

Saturated: Substrate saturated to surface during growing season, but surface water seldom present.

Temporarily flooded: Surface water present for brief periods during growing season, but water table well below surface most of the year.

Excavated ditch or basin: Lies within basin or channel excavated by man.

Impounded: Created or modified by barrier or dam which purposefully or unintentionally obstructs water outflow.

Diked: Created or modified by man-made barrier or dike designed to obstruct the inflow of water.

Farmed: Soil surface has been mechanically or physically altered for crop production, but hydrophytes will reestablish if farming discontinued.

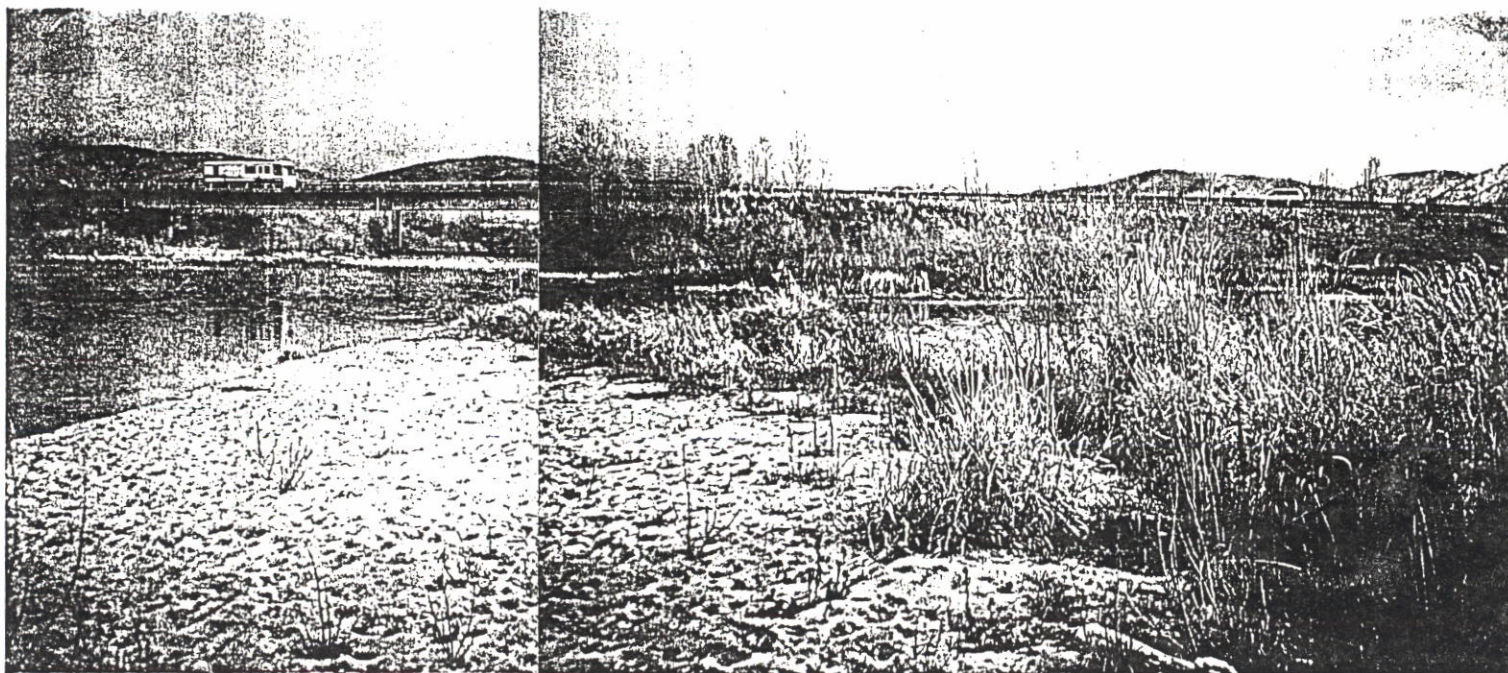
Grazed: Vegetation grazed by domestic stock.

Partly Drained: Water level has been artificially lowered, but soil moisture sufficient to support hydrophytes.

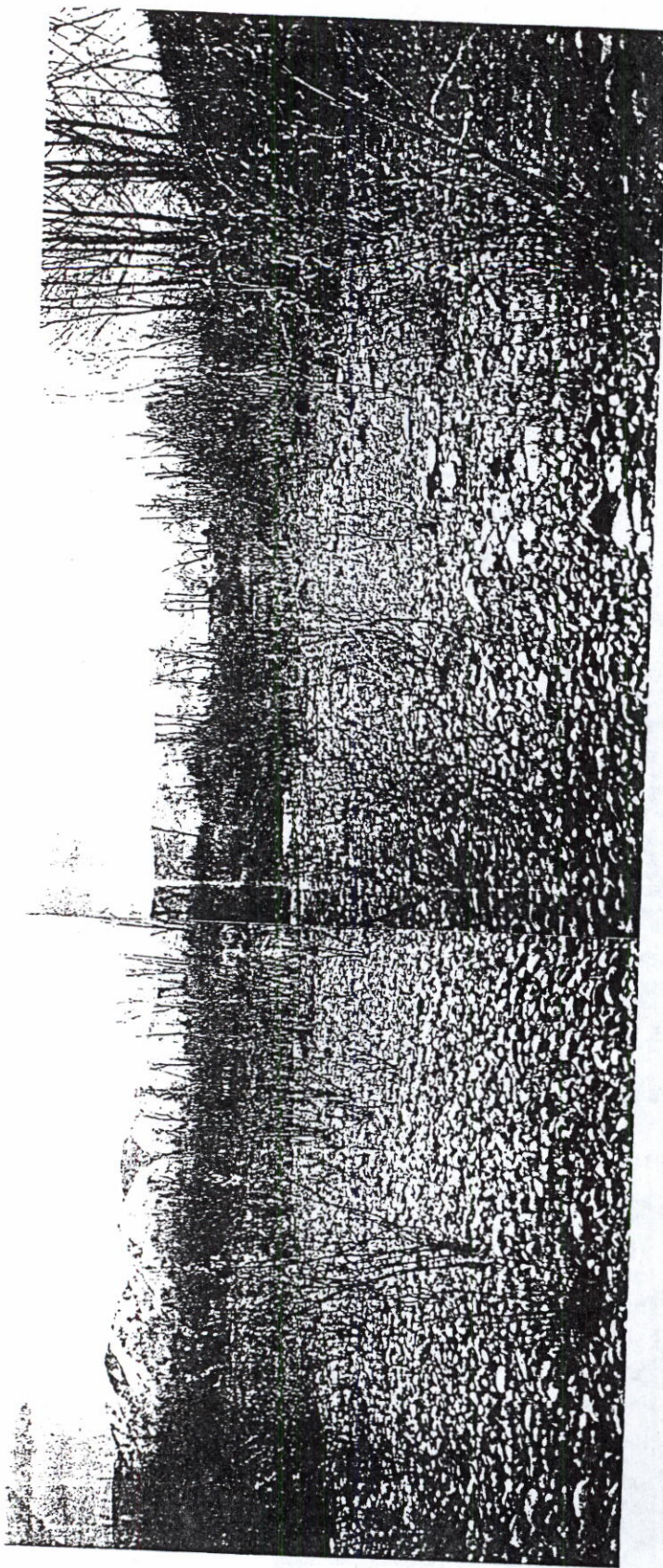
Riparian: Of, on, or pertaining to the bank of a natural watercourse.

Deepwater Habitat: Open water area with a mean annual water depth ≥ 6.6 feet.

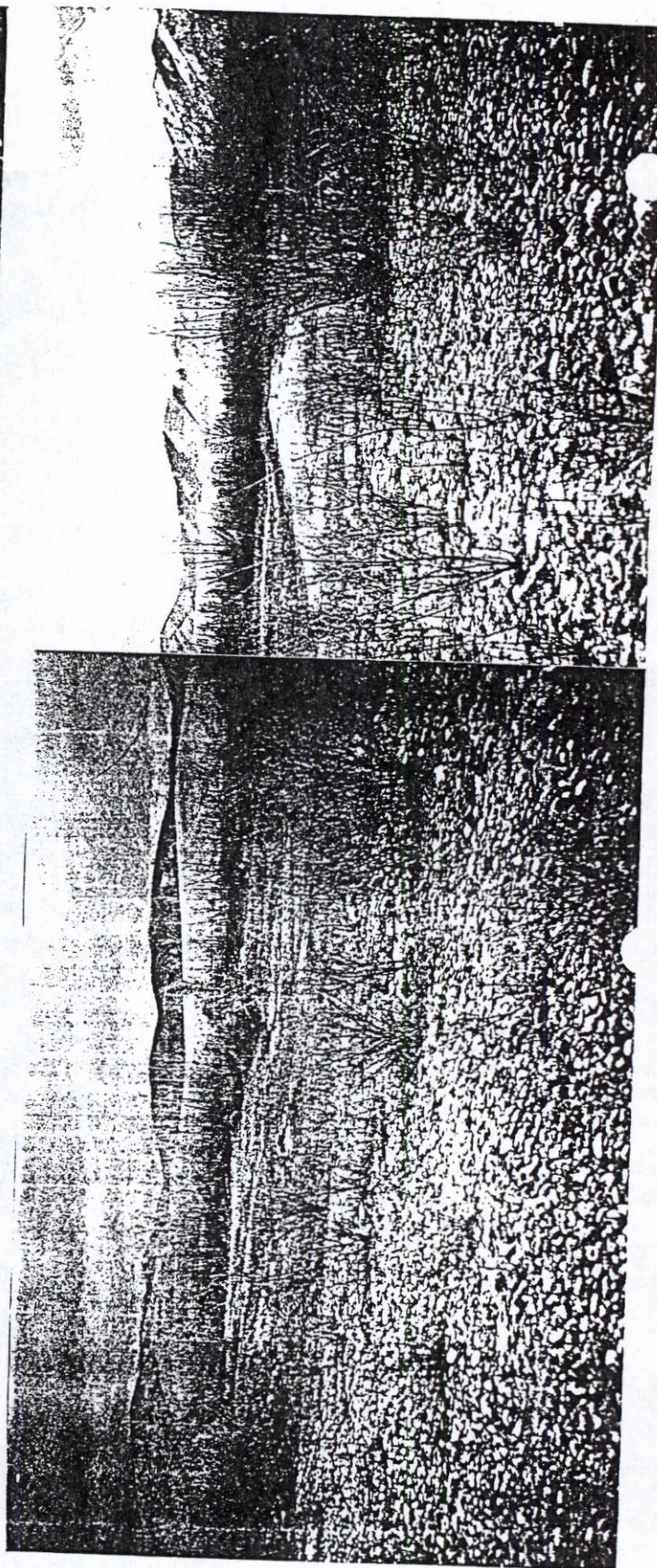
Drumlin and Seasonal Wetlands, Prairie Potholes, and Vegetated Flats: See 1987 COE Wetland Delineation Manual, Section G - Problem Areas.



An easterly view of the overflow
bridge and associated wetland. Photo
taken from sandbar (S6).



Southeast portion of overflow
channel as viewed from the southern
approach to the overflow bridge.



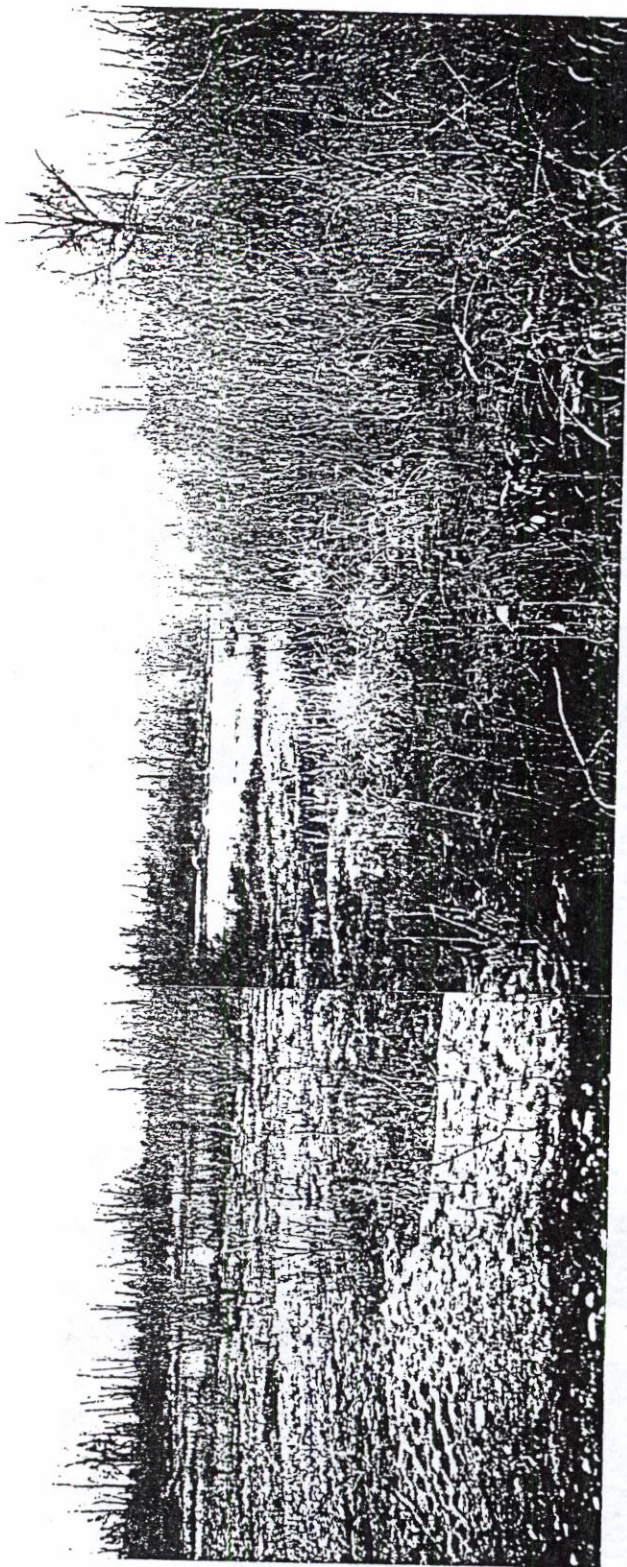
Easterly view of overflow channel
and old borrow materials site.
Same photo location.



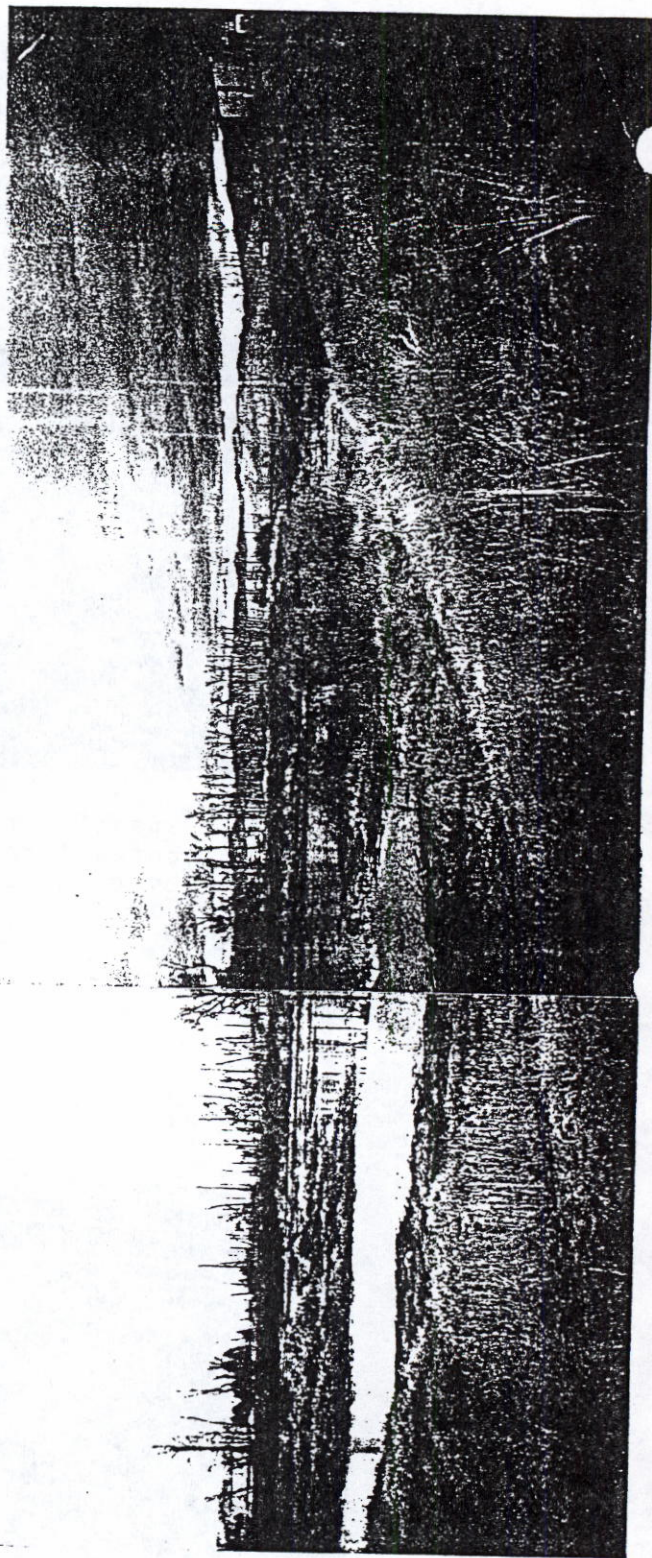
Inactive floodplain that lies
between the Clark Fork R. and the
overflow channel. View to the South



The reach of Grant Creek immediately
north of the interstate. No
wetlands present.



A view to the southwest of the
backwatered portion of channel.
Photo taken from N. end of bridge.



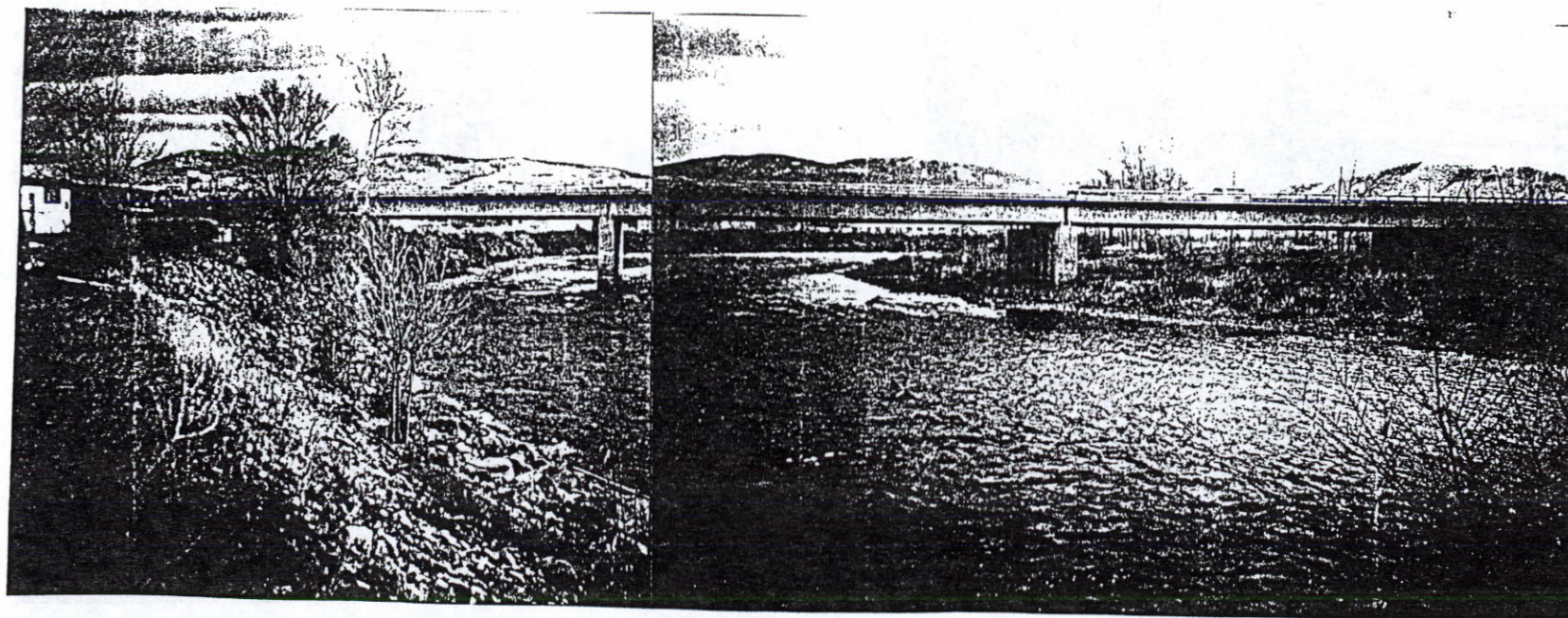
Southwest portion of overflow
channel and inundation caused by a
backwatering of the Clark Fork R.



A typical reach of Grant Creek some
200 yds. north of Interstate 90.
No associated wetlands.



Reach of Grant Creek immediately
north of Interstate. Surface flows
disappeared here at time of photos.



An upstream view of the main Clark
Fork R. taken from the west side.
No wetlands within project limits.

