FHWA-UT-EIS-95-01-F

US - 89
I-15/FARMINGTON TO
HARRISON BOULEVARD/SOUTH OGDEN

DAVIS AND WEBER COUNTIES, UTAH

FINAL
ENVIRONMENTAL IMPACT STATEMENT
AND SECTION 4(f) EVALUATION

Submitted Pursuant to 42 U.S.C. 4332(2)(c)
and 49 U.S.C. 303

By The
U.S. Department of Transportation
Federal Highway Administration
and
Utah Department of Transportation

9 Sept 1996
Date of Approval

For Utah Department of Transportation

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Date of Approval

For Federal Highway Administration

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ABSTRACT:

The action proposed is the reconstruction of a 20.12 km (12.5 mile) segment of US-89, Farmington to South Ogden, through the northern portion of Davis County and southern portion of Weber County. The improvements will preserve a critical transportation corridor, eliminate system deficiencies, and provide safety improvements. The preferred alternative will have six 3.6 m (12 feet) lanes (three in each direction), a center median 7.2 m (24 feet), and 3.0 m (10 feet) paved shoulders. This alternative will require 156 hectares (385 acres) for right-of-way. Property takings will include 136 homes and 22 businesses. Seventeen locations have been evaluated for noise impacts. There will be 6.23 hectares (15.4 acres) of Section 404 wetlands impacted. No threatened or endangered plants or wildlife will be affected. There are some bald eagle nesting places near the project, but no effect is expected. The project will impact eight historic properties that are eligible for the National Register of Historic Places. Three public parks and one recreation area are impacted.

Comments on the Final EIS are due by **OCTOBER 28, 1996** and should be sent to Lynn Zollinger at the address shown above.

SUMMARY

Changes made to Alternative 2 following public comment include: (1) improvements to access across the UPRR Westbound No. 2 Mainline for 6600 South in Uintah; and (2) elimination of the proposed flyover at Harrison Boulevard to make this aspect of Alterative 2 the same as Alternative 3 at this location. These changes have been shown on the maps in Appendix G.

Also to be considered at each interchange location is the Single Point Urban Interchange. Many of those attending the hearing asked that this be considered.

One additional historic property (E23) was defined as a result of the hearing. Also, the grave site (E22) near Uintah Town was determined to be eligible.

Option D is the preferred alternative for Burke Lane. This option will meet the need for future growth of Farmington City while keeping wetland impacts to a minimum.

MAJOR ENVIRONMENTAL IMPACTS

The following comments summarize the major environmental impacts for the Preferred Alternative detailed in Chapter 4.

- The Preferred Alternative will require 156 ha (385 acres) for a right-of-way.

- Three city parks, Shepard Lane, Nicholls, and Pioneer, will be impacted by varying degrees by the Preferred Alternative. Pioneer Park, owned by Layton City, must be relocated. This park is located next to US-89 and has very low usage and poor access. The city has agreed that relocation of this park is acceptable and has identified a new site.

- Residences along US-89 will be relocated because of the Preferred Alternative. Local development of subdivisions in recent years has continued in the areas immediately next to US-89. This makes it impossible to expand the highway without removing some of the homes. The Preferred Alternative requires the taking of 136 homes. Replacement housing is available within 0.8 km (0.5 miles) of the highway project. Mapping was updated in 1995 to show approximate locations of all new homes. Relocations are likely to increase as development continues along the corridor.

- Several businesses will require relocation, but can be rebuilt near the new interchanges or intersections on local roads at more desirable locations with safer access. The Preferred Alternative requires the taking of 22 businesses. Business relocations are also likely to increase as development continues.

- Economic impacts will be adverse as homes and businesses are taken, thereby reducing the existing tax base. However, on a long term basis, the safer and more efficient access to and from US-89 will be an economic advantage. Local planning and zoning will determine the type of development and therefore the extent of the advantage. The desirability of the residential areas around the corridor will be improved because of more direct and safer access to US-89.

- The Preferred Alternative complements existing mass transit with the opportunity to locate park and ride facilities at major interchanges and frontage roads. Local communities can develop according to their master plans, based on the access points provided for local streets as detailed in Chapter 4.

- Air Quality impacts have been evaluated. The Preferred Alternative will have the lowest carbon monoxide (CO) concentrations and will not be above the National Ambient Air Quality Standards (NAAQS).

- Most residential dwellings bordering US-89 are currently impacted by noise. The ability to handle more traffic at the desired speed will produce more noise. The traffic forecasts, upon which the noise study is based for 2015, show the noise impact to be a Severity Level of 1, as defined by UDOT Noise Abatement Criteria. Noise barrier walls will likely be considered as per UDOT Noise Policy where concentrations of dwellings are large enough to meet the policy criteria. At the present time 252 homes, 2 apartment buildings, 3 churches, 3 parks, and 14 businesses are impacted. In the year 2015, noise levels for the build alternatives are predicted to impact 492 homes, 6 apartment buildings, 3 churches and approximately 29 businesses. Under the Preferred Alterative approximately 143 dwelling units, residential and business, impacted by noise will be removed to allow for the necessary right-of-way.

- Wetland impacts for the Preferred Alternative are 6.23 hectares (15.4 acres). Most wetland areas are small and isolated [13 are less than 0.2 ha (0.5 acre)]. All wetlands can be replaced within by either creating new wetlands or enlarging and enhancing existing wetlands. One preferred mitigation site northeast of the US-89/I-15 interchange has been identified by the Corps. This site involves 14± acres and is shown conceptually on Figure 4.13-2.

- Twenty historic structures, one prehistoric archaeological site, and one grave site have been identified within the US-89 corridor. All these are considered eligible for the National Register. Eight are impacted by the Preferred Alternative. The grave site and one historic structure have been added since the DEIS was completed.

- Visual impacts will be degraded during construction of the Preferred Alternative. However, they will be improved as landscaping is completed and native plants are reestablished along the roadside. Distant views will remain the same or be slightly improved by higher elevations of the roadway as far as the view of mountains, valley floor and the Great Salt Lake. Noise walls by their nature will occur in the more developed areas of the project where there are dwellings to protect and, as a result, their visual impacts will be less obtrusive.

CURRENT AREAS OF CONTROVERSY

Following the scoping meetings during May of 1992, the main public concern was defined as safety. The volume of traffic utilizing US-89 does not allow many opportunities for cross traffic. Many accidents have resulted from this conflict of traffic movements. The main controversy was how to solve this problem; for example, traffic signals or interchanges.

Meetings were held with each of the cities, both planning commissions and city councils. Details of each alternative being considered were presented. Because of this educational effort, many of the controversial issues were resolved.

A Study Advisory Committee (SAC) was also utilized as a tool to resolve controversies. Each city, county and special interest group was represented on this committee and the issues and alternatives were discussed. Monthly meetings were held for about a year and design concepts were presented as they evolved so as to develop a consensus.

Several of the cities have been very involved with numerous meetings over the past four years. Farmington, Fruit Heights, Layton and South Weber were most involved. Their issues were related to direct impacts on their communities relative to commercial and residential developments. Most of their concerns have been alleviated. Several have asked that an Urban Interchange be considered to lessen the impacts. This will be evaluated during the design phase.

At the public hearing and public openhouse held on December 4th through 9th, 1995, the main concerns were over whether or not adequate funding could ever be obtained to build the total project.

Most controversial issues were related to the direct impacts on individual homes and the timing for purchase of the houses. Some still feel that the traffic signals (Alternative 3) can solve the safety problem best.

The other communities along the route, Kaysville, South Weber, Uintah, and South Ogden have had considerable involvement and have generally been supportive of the Preferred Alternative with interchanges.

MAJOR UNRESOLVED ISSUES

No major unresolved issues with other agencies are known.

OTHER FEDERAL ACTIONS

A Section 404 permit will be required regarding the wetland mitigation from the U.S. Army Corps of Engineers. A Storm Water Pollution Prevention permit will be required from the Utah Department of Environmental Quality under the NPDES General Permit.

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LIST OF TECHNICAL REPORTS

TECHNICAL REPORT NO.	REPORT TITLE	AUTHOR
1.	Purpose and Need for the Action, US-89	Versar, Inc.
2.	Geologic Investigations and Hazard Report	Chen-Northern
3.	Water Resources Study Report	Versar, Inc.
4.	Threatened and Endangered Plant Inventory Report	Dr. Ron Kass
5.	Wetlands Delineation Report	Versar, Inc.
6.	Land Use and Socio-economic Assessment Report	Versar, Inc.
7.	Noise Study and Modeling Report	Versar, Inc.
8.	Historical and Archeological Resources Report (Restricted Availability)	Sagebrush Archeological Consultants
9.	Preliminary Identification of Potential Hazardous Waste Sites	Versar, Inc.
10.	Air Quality Study Report	Versar, Inc.
11.	Socio-economic Analysis of Alternatives	Bateman, Jackson, & Oveson Consultants
12.	Alternatives Designs Report	Versar, Inc.
13.	Traffic Analysis	Versar, Inc.
14.	Purpose and Need - Burke Lane	Versar, Inc.

NOTE: **Copies of Technical Reports are available for review from those individuals listed on the cover sheet of this document.**

Detailed maps of the Preferred Alternative are included in Appendix G.

LIST OF ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ADT	Average Daily Traffic (Volume)
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CMAQ	Congestion Mitigation Air Quality
CMS	Congestion Management System
COE	U.S. Army Corps of Engineers
CWA	Clean Water Act
dBA	decibels, A-weighted (Noise Measurement Unit)
DOE/FOE	Determination of Eligibility and Finding of Effect
DEQ	Utah Department of Environmental Quality
Draft EIS	Draft Environmental Impact Statement
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
HOV	High Occupancy Vehicle
ISTEA	Intermodal Surface Transportation Efficiency Act
LOS	Level of Service (Traffic Flow)
LRP	Long-Range Transportation Plan
LRT	Light Rail Transit
LUST	Leaking Underground Storage Tank
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NRHP	National Register of Historic Places
PM-10	Particulate Matter 10
ppm	Parts Per Million
RCRA	Resource Conservation and Recovery Act
ROW	Right-of-Way
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan (air quality)
TIP	Transportation Improvement Plan
TRI	Toxic Chemical Release Inventory
TSM	Transportation System Management
UDOT	Utah Department of Transportation
UDWR	Utah Division of Wildlife Resources
UPDES	Utah Pollutant Discharge Elimination System
USFWS	United States Fish and Wildlife Service
USSCS	United State Soil Conservation Service
USU	Utah State University
UTA	Utah Transit Authority
VMT	Vehicle Miles Traveled (daily)
VHT	Vehicle Hours Traveled (daily)
WFRC	Wasatch Front Regional Council
WSU	Weber State University

SUMMARY

PROPOSED ACTION

This study involves a 20.12 km (12.5-mile) section of US-89 in Utah from the I-15 interchange in Farmington, Davis County, to Harrison Boulevard in South Ogden, Weber County. It currently includes four lanes (two each direction) and is classified as an urban arterial. The highway serves as the most direct link between Ogden and Salt Lake as well as serving the local communities along its route. The proposed action is to provide a six lane facility with improved access with either signalized intersections or interchanges. Burke Lane will be extended westerly to connect with Clark Lane. Frontage roads will provide local connections to the main access points along US-89. Following an evaluation of comments received at the public open house and the public hearing, Alternative 2 - Expressway has been identified as the Preferred Alternative for the Final EIS.

OTHER MAJOR ACTIONS

No other major actions are known to be planned within the defined project area along US-89 between I-15 and Harrison Boulevard.

PURPOSE AND NEED

The US-89 corridor is one of two vital links for north-south traffic through the area. This corridor must be preserved for future transportation needs. Residential and commercial development continue immediately next to the existing right-of-way. If delayed much longer, the cost of the project will increase substantially.

Existing highway capacity will not meet the future needs based upon traffic projections for the year 2015. Level of Service (LOS) will deteriorate below LOS "D". Some sections of highway will drop to LOS "E", or "F" without additional traffic lanes. These levels of service are not acceptable for this type of facility.

Based on the accident evaluation there is a definite need to correct safety problems specifically related to the severity of the accidents. Historically there have been about three fatalities per year. Intersections need to be modified to provide opportunities for crossing or entering the traffic flow or else interchanges need to be constructed with grade separation to totally eliminate the conflict with cross traffic.

Vertical alignment, cross sections, clear zones, and roadside barrier deficiencies need to be corrected to provide a safer highway. All deficiencies can be corrected by any of the "build" alternatives. The desirability of mass transit (UTA) will be improved with the better accessibility provided by the "build" alternatives.

ALTERNATIVES

As outlined in Federal Highway Administration (FHWA) Technical Advisory T6640.8a, all reasonable alternatives have been considered. These include No Action, Transportation System Management (TSM), Mass Transit, and three build alternatives.

No Action - Consists of leaving the current four-lane facility as it presently exists. Traffic signals and turning lanes would be added as they are warranted, and existing pavement would be resurfaced as needed.

TSM - This alternative would include traffic signals, lane and shoulder widening, and other minor safety improvements.

Mass Transit - The current form of mass transit is the UTA bus system. Ridership is currently about 2% in the area. This alternative would be directed toward increasing the ridership.

Alternative 1 - Freeway consists of a six lane freeway with a depressed median and interchanges. Frontage roads will connect the existing street systems to the interchanges. No other access will be provided. (See map, Chapter 2 Figure 2.1-2.)

Alternative 2 (Preferred Alternative) - Expressway includes six traffic lanes, a narrow median with a barrier and interchanges. Access will be controlled and local traffic routed via frontage roads to the major roads connecting to the interchanges. Some right-in and right-out intersections will be provided to allow a better distribution of local access points. (See map, Chapter 2 Figure 2.1-3.)

Alternative 3 - Signalized Expressway using six traffic lanes with a barrier protected narrow median and at grade signalized intersections at major street crossings. Also, frontage roads will be used for this alternative and right-in and right-out accesses will be provided where they can be justified. (See map, Chapter 2 Figure 2.1-4.)

All of the build alternatives would have a 100 km/h (60 mph) design speed with 3.6 m (12-foot) wide traffic lanes and 3.0 m (10-foot) wide shoulders. These alternatives would be in conformance with all current design standards. Right-of-way requirements will be of a variable width, but will generally be 91 m (300-feet) wide including the existing highway property for Alternatives 2 and 3.

As shown in Figure 2.1-5, Options A, B, C, and D were considered for the Burke Lane extension. Option A provided the best alignment and, therefore, the most direct connection. Option B would reconnect to the original Burke Lane, but would not meet the needs for the current and future development of the area. Option C would have the least impact to wetlands but, again, does not serve the development plan for the area. Option D is a compromise option that minimizes impacts but still meets the community needs for development of the area.

PREFERRED ALTERNATIVE

Based on early coordination, environmental studies, and comments received at the public hearings, Alternative 2 - Expressway has been identified as the Preferred Alternative for the Final EIS. It provides the best combined solutions for corridor preservation, elimination of deficiencies and safety improvements with a minimal environmental impact. It also has the highest benefit/cost ratio when considering the travel times of each alternative. The U.S. Army Corps of Engineers has determined that this alternative is the least damaging practical alternative. This finding satisfies the requirements of the NEPA/404 merging process.

CHAPTER 1
PURPOSE & NEED FOR ACTION

CHAPTER 1
PURPOSE AND NEED FOR THE ACTION

1.1 INTRODUCTION

The project limits are defined as US-89 from I-15 near Farmington City on the south to Harrison Boulevard in South Ogden City on the north (see Figures 1.1-1 and 1.1-2), establishing a length of 20.12 km (12.5 miles). The project will include the westerly extension of Burke Lane to West Farmington. The corridor has served as a connecting link between Weber, Davis, Morgan, and Salt Lake Counties from the early pioneer days through the 1960s. With the construction of I-15, much of the through traffic was diverted to I-15. However, US-89 has continued to serve as the principal connecting link for commuters in South Weber County and North Davis County to the Salt Lake County area. The study area has experienced rapid growth in population and commercial development, which has brought increased demands on the highway system. This area is expected to continue to grow at a high rate into the next century. The facility was reconstructed to its present alignment and configuration in 1968. This consists of a four 3.6 m (12 foot) lane facility with left turn median and 3.0 m (8 foot) shoulders as shown in Figure 2.1-1a. Since 1968, only minor improvements and pavement maintenance have been made. Existing at grade intersections have operated for many years with stop sign controls. Many of the intersections lack desirable geometrics and sight distances. In 1989 and 1991, traffic signals were installed as a temporary traffic control measure to allow for cross traffic and left turning movements at the intersections with 200 North-Kaysville, Oak Hills Drive, South Weber Drive and Shepard Lane. In 1995, traffic signals were installed at Cherry Lane and Sunset Drive. The temporary signals, which were warranted, were installed with wide public support to improve the safety performance of the highway.

1.2 BASIS OF PURPOSE AND NEED

The purpose and need for this project involves three principal areas of concern:

- Corridor Preservation
- Elimination of System Deficiencies
- Safety Improvements

The following section will establish the basis for these three critical areas. Further detailed discussion, including corrective action, is contained in subsequent chapters.

1.2.1 Corridor Preservation

The US-89 Corridor has served as a transportation corridor for almost 150 years. Due to the recent rapid development in the area, the ability of this facility to serve the transportation needs is diminishing. Demands to develop residential and commercial properties immediately next to the existing right-of-way is prevalent throughout the corridor. In the mid to late 1980s, commercial development, with its increased traffic volumes, occurred around the Farmington City - Shepard Lane area, requiring the first traffic signal on this section of US-89 to be installed at that location. Large commercial developments are also located on two of the intersection's four corners, and smaller commercial facilities now exist on the other two corners. This development is increasing traffic congestion at this point on US-89. Similar developments are likely to occur in other parts of the corridor as land owners desire to take advantage of ever increasing property values and Utah's economic growth potential. As this development occurs, the ability to maintain options for future transportation needs is decreasing.

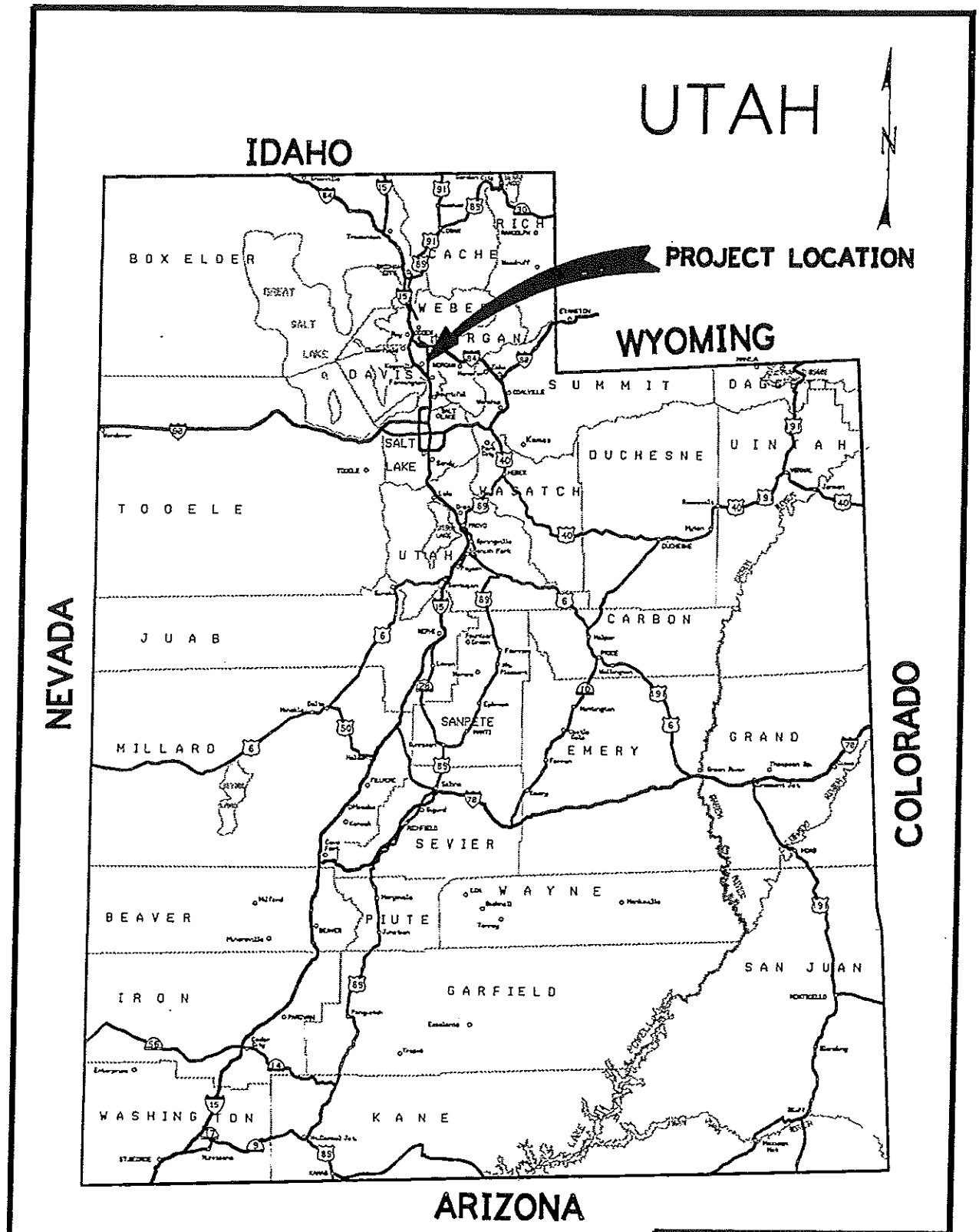


FIGURE 1.1-1
UTAH DEPARTMENT OF TRANSPORTATION
US-89 EIS
Versar, Inc.

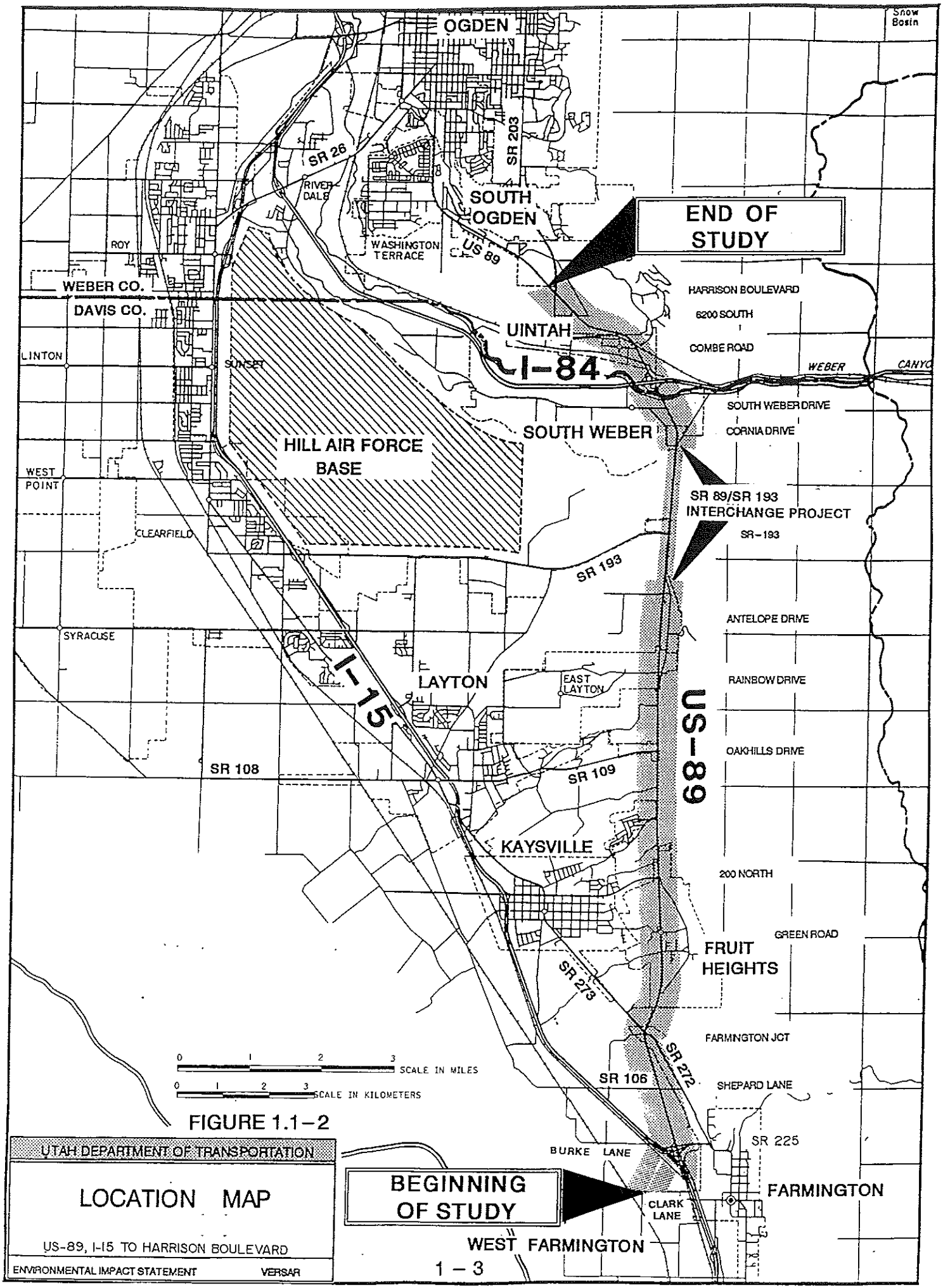


FIGURE 1.1-2

UTAH DEPARTMENT OF TRANSPORTATION

LOCATION MAP

US-89, I-15 TO HARRISON BOULEVARD

ENVIRONMENTAL IMPACT STATEMENT VERSAR

US-89 and I-15 currently function as major parallel transportation routes. Both of these facilities are experiencing capacity problems now. To meet the future transportation needs of eastern Davis and Weber Counties, both I-15 and US-89 need to be maintained as major transportation facilities.

Discussion and planning has also occurred on the Western Transportation Corridor, previously referred to as the "West Davis Highway." Such a facility has been considered for over 25 years. The project would traverse the area between Farmington Bay, the Great Salt Lake and I-15. While the presence of important wetlands in this area has seemed to be a barrier to constructing a highway, these issues are in the process of being resolved. An MIS is currently underway for this project. Even if the Western Transportation Corridor were constructed, it would not reduce the need for US-89 improvements. This potential corridor is located well outside the 89 corridor and is separate and distinct and for that reason, will not be further discussed in this document. For this reason the need to maintain the two existing transportation corridors is paramount to the social and economic viability of Davis, Morgan, and Weber Counties.

It is essential that the US-89 corridor be preserved by identifying and implementing a plan to provide a facility to handle projected traffic increases. The increasing costs of obtaining the necessary right of way as more commercial development occurs will make preservation of the corridor financially infeasible in the near future.

1.2.2 Roadway Deficiencies

1.2.2.1 Operational Deficiencies

The operational conditions of a roadway system are measured qualitatively using the concept of "levels of service." The level of service definition describes the transportation facilities conditions relative to travel speed, delay, freedom to maneuver, traffic interruptions, and comfort. Levels of service range from "A," representing free flow conditions, to "F," representing fully congested conditions.

The Highway Capacity Manual produced by the Transportation Research Board was utilized to determine the levels of service for existing and future operating conditions of the following transportation facilities:

- Signalized Intersections
- Unsignalized Intersections
- Urban Arterial Streets
- Multilane Highways
- Freeways

The levels of service determined for each of the above transportation facilities are computed using different methodologies. Therefore, the resulting service levels for different facilities cannot be directly compared. For example, a freeway segment operating at level of service "C" has a much greater traffic flow capacity than an urban arterial street operating at the same level of service.

Table 1.2-1 shows that roadway segments of the existing study corridor currently operate with service levels, for a multilane highway, ranging from "A" to "C." The better levels of service in the table appear to be for the southbound traffic. This is the result of the selected design hour, which is a PM hour. The AM hours will indicate the opposite, as the peak flow will be southbound. Traffic volumes for the US-89 corridor are expected in the design year to increase (see Figure 1.4-1) to levels that will exceed the current capacity of the corridor resulting in level of service "F" (see Table 1.2-1) in some sections. Universally accepted guidance documents and standards accepted by the Utah Department of Transportation, recommend that roadway improvement projects be planned to achieve a desirable level of service of "C" and a minimum level of service of "D." Therefore, this minimum level of service standard was applied to the improvement alternatives developed for the US-89 corridor as shown by the shading in Table 1.2-1.

TABLE 1.2-1
EXISTING HIGHWAY
LEVEL OF SERVICE

SECTION	DIRECTION	YEAR	
		1993	2015
I-15 TO SHEPARD LANE	NORTHBOUND	C	D
	SOUTHBOUND	B	D
SHEPARD LN TO FARMINGTON JCT	NORTHBOUND	C	E
	SOUTHBOUND	B	D
FARMINGTON JCT TO 200 NORTH	NORTHBOUND	C	F
	SOUTHBOUND	B	E
200 NORTH TO OAKHILLS DR	NORTHBOUND	C	F
	SOUTHBOUND	B	E
OAKHILLS DR TO RAINBOW DR	NORTHBOUND	B	F
	SOUTHBOUND	B	E
RAINBOW DR TO ANTELOPE DR	NORTHBOUND	B	F
	SOUTHBOUND	B	E
ANTELOPE DR TO SR-193	NORTHBOUND	B	F
	SOUTHBOUND	A	F
SR-193 TO CORNIA DR	NORTHBOUND	C	F
	SOUTHBOUND	C	F
CORNIA DR TO I-84	NORTHBOUND	C	F
	SOUTHBOUND	C	F
I-84 TO COMBE ROAD	NORTHBOUND	C	E
	SOUTHBOUND	C	D
COMBE ROAD TO 6200 SOUTH	NORTHBOUND	D	F
	SOUTHBOUND	C	D
6200 SOUTH TO HARRISON BLVD	NORTHBOUND	D	F
	SOUTHBOUND	C	E

Based on 1985 Highway Capacity Software traffic analysis program for Multilane Highways.
Shading indicates LOS less than "C"

1.2.2.2 Highway Accesses

Contributing to both poor operational conditions and safety of the present highway are the existing at-grade intersections and demand for additional at-grade access points serving new development along the corridor. At the present time, the number of accesses from adjacent properties is 120, ranging from private residential driveways to major arterial intersections. The large number of at grade access along the corridor has been shown to be a contributing factor to occurrence of accidents. By reducing the number of accesses in the corridor, the level of service and safety will be improved.

Not only are there concerns involving the number of accesses, but also the lack of direct access. Burke Lane in Farmington was cut off by the construction of I-15 many years ago. Currently, there is no direct access connection from West Farmington to I-15 and US-89. With the continued development, including the Davis County Government Complex and Jail and Davis County Fairgrounds, there is a strong need to provide this access. This issue was identified as part of the public involvement process and was a major issue for Farmington City and Davis County officials.

1.2.2.3 Roadway Design Deficiencies

Deficiencies in roadway geometrics also contribute to the poor function of the highway as the traffic volumes increase. Currently, there are numerous sections along US-89 that do not meet current design standards or are deficient in other ways. The following summarizes the deficiencies associated with the existing facility.

Vertical Alignment

Vertical curves at four locations along US-89 fail to meet the current UDOT standards for stopping sight distance for 100 km/h (60 mph): Near Antelope Drive, there is a 365-m (1200-foot) crest vertical curve that should be 457 m (1500 feet) in length; in the area of Sunset Drive, an existing crest vertical curve is 274 m (900 feet) long and should be 518 m (1700 feet) in length; two sag vertical curves, one at the north end of the 6% downgrade near Deer Run Drive, and the other near Cornia Drive, are 152 m (500 feet) long, which should be 259 m (850 feet) and 198 m (650 feet), respectively, to meet a 100 km/h (60 mph) design.

One other vertical curve is substandard at the top of the hill near the Hillfield Road Intersection. This intersection has been corrected on the US-89/SR-193 Interchange Project.

Complications related to the intersections where sight distance is substandard are as follows. Gaps in the traffic flow are very limited during the peak hours of traffic. Drivers trying to get onto or across the highway make poor decisions due to the restricted sight distance. The speed of approaching vehicles allows minimal time to make the decision to enter the highway. Some of the intersecting roads are approaching at a steep grade and create further sight distance problems.

Cross Section

The current median [varies 1.8 m to 11.0 m (6' to 36' wide, mostly 12' and 16')], based on AASHTO Roadside Design Guide and current traffic volumes, justifies a barrier to separate the directional traffic. Existing shoulder width is only 2.4 m (8 feet) compared with UDOT's current standard of 3.0 m (10 feet). The existing shoulder has been delineated for acceleration and deceleration lanes by a paint stripe at several intersections which eliminates the shoulder altogether for its normal purpose. Another problem with using the shoulders for acceleration and deceleration is that they are not wide enough for this purpose.

The more recently signalized intersections were constructed with adequate width and length for acceleration and deceleration lanes.

Clear Zones and Roadside Barriers

The existing facility does not meet the standards for clear zone requirements [6:1 slope and 9.0 m (30'±) width]. The clear zone is measured from the right edge of the outside traveled lane to the nearest obstruction. Also, existing roadside barriers do not have the currently recommended end treatment.

Pavement

Existing bituminous pavement is performing adequately at this time, but has exceeded its expected twenty-year design life. Additional pavement thickness will be required for the projected traffic levels. No recent field testing has been performed to determine the exact thickness of the existing pavement. The Pavement Condition Report (1992) indicates a good ride condition, significant transverse cracking, the pavement has 10 to 12 years to fatigue, and skid resistance is standard to marginal.

Drainage

In addition to roadway geometrics, the existing drainage facilities do not meet current design standards and would require modification. Some structures designed to carry flows under the roadway from adjacent drainage basins are inadequate to meet minimum designs standards. Surface runoff created by the highway itself contributes to nuisance flooding and erosion of adjacent lands during extreme precipitation events. These problems may or may not contribute to a reduction in capacity or safety.

1.2.3 Safety Improvements

The accident records for US-89 indicate that the study corridor experiences fewer accidents than expected when compared to other similar existing facilities (see Table 1.2-2). However, the accidents on US-89 are of a higher severity ranking, resulting in greater than expected loss of life, severe injury and property damage. Analysis of the existing accident data indicates that most of the accidents occurred at conflict points such as intersections or merge points under heavy traffic conditions (see Figure 1.2-1 and 1.2-2). The travel speed of the traffic along US-89 is another major factor in the higher severity rating. Failure to improve the study corridor as traffic levels increase in the future will likely result in an increase in the number of accidents.

Table 1.2-2
ACCIDENT RATE COMPARISON

YEAR	ACCIDENT RATE	EXPECTED ACCIDENT RATE[1]	SEVERITY RATE	EXPECTED SEVERITY RATE
1988	2.38	5.69	1.43	1.19
1989	2.31	5.08	1.49	1.18
1990	2.02	5.28	1.40	1.21
1991	1.78	5.35	1.39	1.19
1992	2.03	5.00	1.35	1.19
1993	2.34	5.01	1.35	1.18

[1] Weighted based on urban area classification
Source - UDOT Safety Study Report November 1992 - Updated September 1994

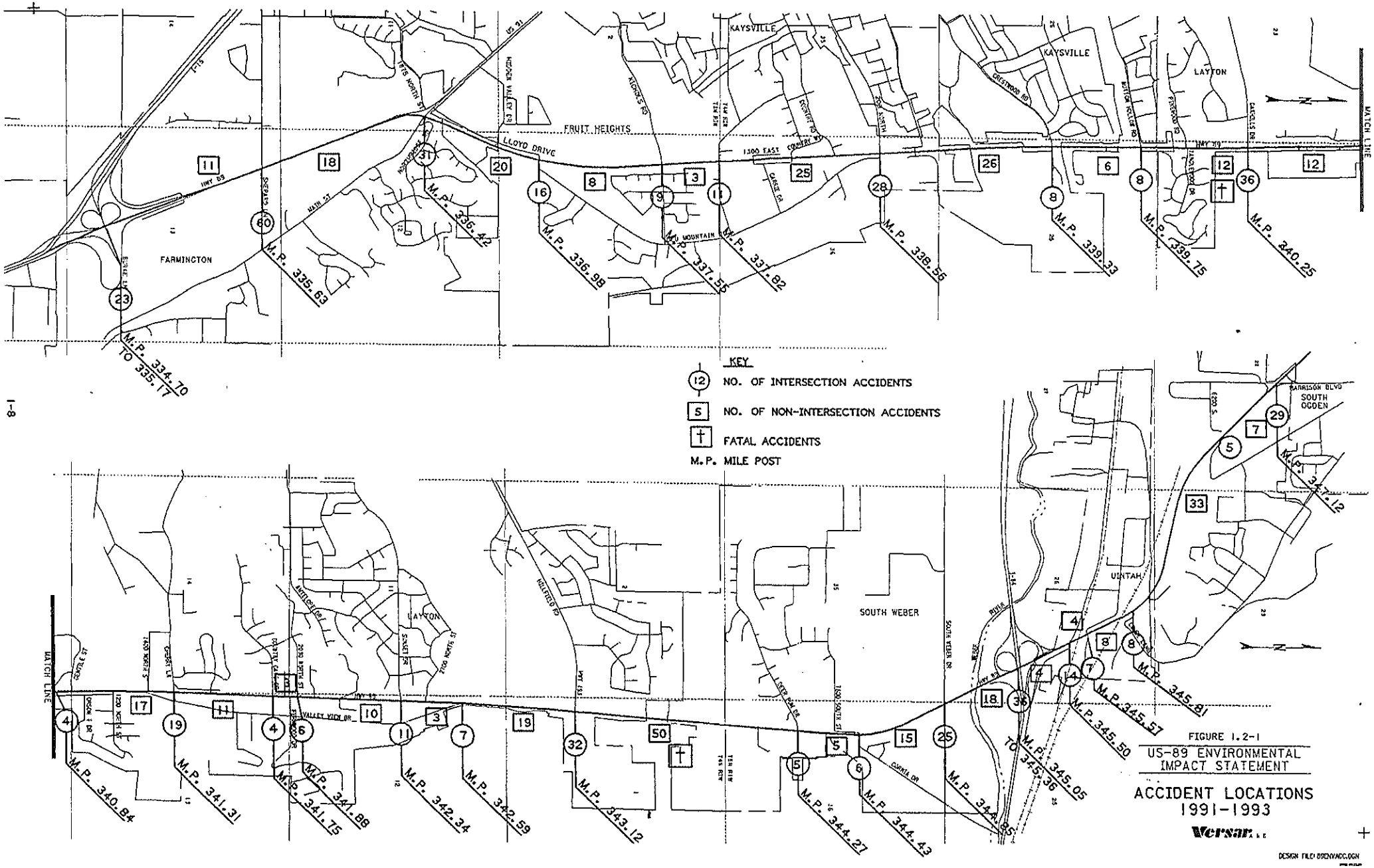


FIGURE 1.2-1

US-89 ENVIRONMENTAL IMPACT STATEMENT

ACCIDENT LOCATIONS 1991-1993

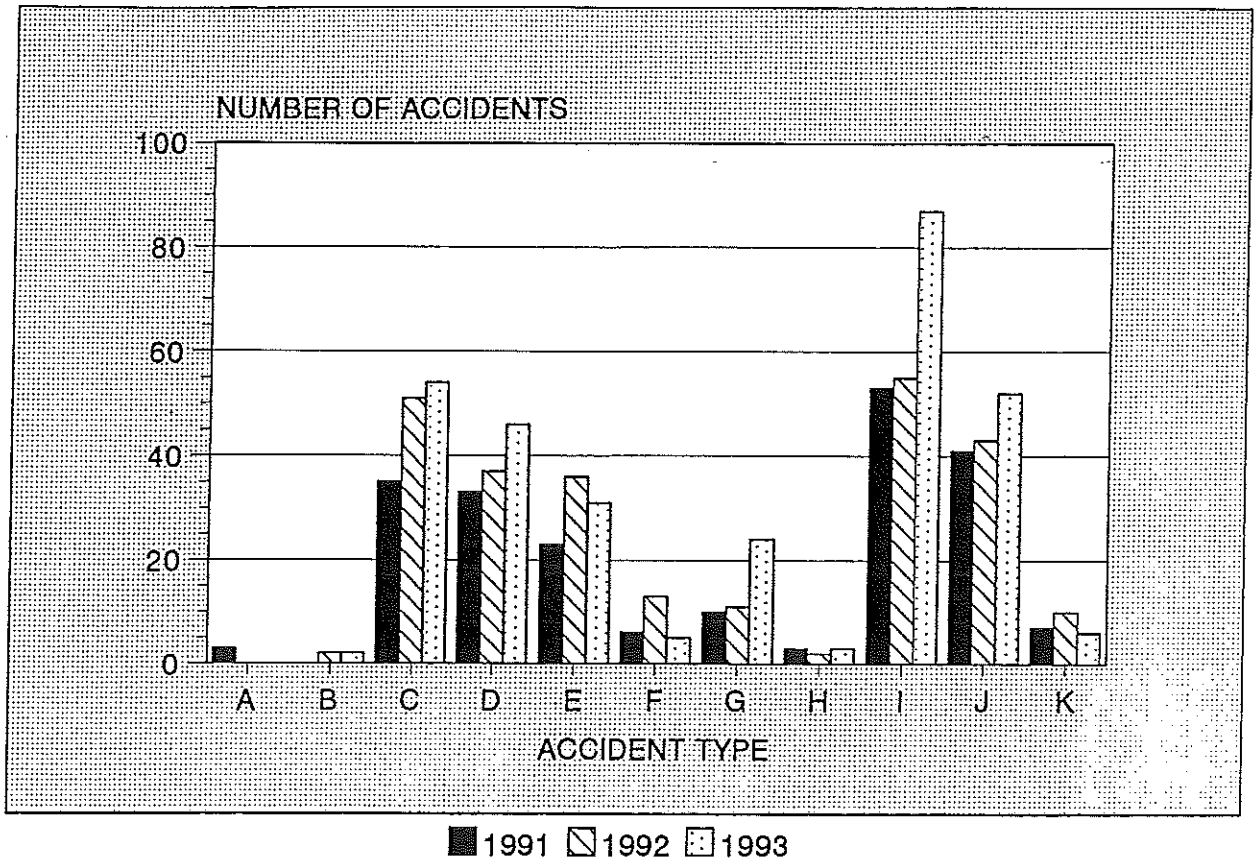
Versar, Inc.

DESIGN FILE: DSENVACC.DGN

FIGURE 1.2-2

ACCIDENT TYPES

1991 THRU 1993



KEY

	TYPE	1991 No.	1991 %	1992 No.	1992 %	1993 No.	1993 %
A	PEDESTRIAN	3	1.4	0	0.0	0	0.0
B	BICYCLE	0	0.0	2	0.8	2	0.6
C	ANIMAL	35	16.4	51	19.6	54	17.4
D	RIGHT ANGLE	33	15.4	37	14.2	46	14.8
E	TURNING VEHICLE	23	10.7	36	13.8	31	10.0
F	LANE CHANGE	6	2.8	13	5.0	5	1.6
G	SIDESWIPE	10	4.7	11	4.2	24	7.7
H	HEAD-ON	3	1.4	2	0.8	3	1.0
I	REAR END	53	24.8	55	21.2	87	28.1
J	OFF ROAD	41	19.2	43	16.5	52	16.8
K	OTHER	7	3.3	10	3.8	6	1.9
	TOTAL	214	100.0	260	100.0	310	100.0

In 1989, after the traffic related deaths of a number of people who had lived in communities adjacent to US-89, citizens who presently live along the corridor reacted with demands on their elected officials to find and fund solutions to the accident problems thereby reducing the number of people killed or severely injured on highway US-89. After petitions of the corridor residents and testimony before the Utah Transportation Commission, the Utah Department of Transportation authorized the installation of "temporary" traffic signals at 200 North in Kaysville, Oakhills Drive in Layton, and South Weber Drive in the corridor. This was in addition to the signal installed at Shepard Lane in 1989. Additional signals were installed by UDOT at Cherry Lane and Sunset Drive in 1995.

Chapter 2 of this document provides a detailed analysis of the safety impacts of the various improvement alternatives and makes recommendation as to which of the alternatives will provide the safest corridor.

School buses currently cross US-89 at several locations as part of their daily routes. Some of the bus stops are located along US-89 which lacks adequate shoulders to allow the bus to pull completely out of the traffic lanes. The Davis County School District has expressed a major concern for the safety of the students. The current operation is contrary to the school district's safety policy. Roadway improvements need to accommodate school bus crossings and pull outs along the local streets and frontage roads.

During peak traffic times (7:00 a.m. to 8:00 a.m. and 5:00 p.m. to 6:00 p.m.), the high volume of through traffic on US-89 provides very few gaps for left turn or cross traffic from the side streets. This, in conjunction with substandard vertical alignment and inadequate sight distance, has contributed to several serious accidents.

1.3 SYSTEM LINKAGE

Since the early pioneer settlements, the corridor occupied by Highway 89 has served as a connecting link between the Ogden area and the Salt Lake area. Even after the construction of I-15 west of US-89, the highway has continued to serve as a major transportation link between Weber, Davis, Morgan and Salt Lake Counties. US-89 also serves as the principal link between I-84 at the mouth of Weber Canyon and I-15 in Farmington City (see Figure 1.1-1). The land use along the study corridor has undergone significant transition from rural agricultural uses to suburban residential use, a trend which is continuing at a rate higher than any other area of Utah. As this growth continues, the associated increase in traffic must be accommodated. Numerous local accesses have been constructed to allow local traffic direct access to US-89. These accesses provide connections to other local arterial and collector roads needed for linkage to key commercial, recreational, social, and educational areas along the corridor.

An issue discussed at the scoping meetings and other individual meetings was the perceived heavy amount of truck traffic on US-89. Many felt that the trucks could be diverted from US-89 to I-15 by improving the interchange at I-84/I-15. Three separate detailed studies were conducted to evaluate the impact of truck traffic in the corridor: (1) truck driver interviews at Echo Port of Entry near Evanston, Wyoming; (2) a count of truck traffic through the project area; and (3) an analysis of constructing a direct connection between I-84 and I-15. These studies drew the following conclusions:

A. Percent of trucks using US-89 is not significantly higher than the state-wide average of 5% (Actual count shows 4.0% to 5.6%).

B. Accidents involving trucks are only 3% of the total (less than the percent of trucks using the road).

C. Truck driver interviews at the Echo Port Of Entry verify that very few of them (3 of 165 or 2% in a 12 hour count) would use an improved interchange at I-84/I-15.

D. Only 2.1% of AADT (373 trucks of 17,639 in a 12 hour count) are through trucks that might be rerouted.

E. The route to divert trucks along I-84 to I-15 is almost double the length, 17.38 km versus 33.47 km (10.8 miles vs. 20.8 miles), for traffic presently using US-89. It is, therefore, not economical or desirable for the trucking industry to reroute truck operations.

Very few trucks could be diverted, producing very little impact on US-89 traffic. With an estimated cost of $9.0 million to improve the I-15/I-84 interchange, this option is not considered a cost-effective measure to reduce commercial truck traffic on US-89.

1.4 TRANSPORTATION DEMAND

Wasatch Front Regional Council (WFRC), which is designated as the local Metropolitan Planning Organization (MPO), has projected traffic growth along the corridor through the year 2015. This corridor is listed on the Ogden Area Long Range Plan of the WFRC as a priority project to improve capacity. The traffic projections are reflected in Figure 1.4-1. A comparison of existing and future (2015) traffic is shown in Table 1.4-1. When comparing the base year traffic to 2015 projected traffic (most segments more than doubled), it is easy to recognize the expected growth in traffic that must be served. This indicates the rapid increase in traffic and the need for adding capacity to the existing facility.

Table 1.4-1
TRAFFIC VOLUME ANALYSIS
US-89, I-15 TO HARRISON BLVD.

US-89 Segment From	To	Base Year Volume 1993	Projected Volume 2015
I-15	Shepard Lane	30375	44000
Shepard Lane	Farmington Jct.	24955	44000
Farmington Jct.	200 North	24475	45000
200 North	Oak Hills Drive	26150	46000
Oak Hills Drive	Rainbow Drive	24620	55000
Rainbow Drive	Antelope Drive	24620	55000
Antelope Drive	SR 193	24620	52000
SR 193	Cornia Drive	37335	62000
Cornia Drive	I-84	37335	62000
I-84	Combe Road	35525	52000
Combe Road	6200 South	35525	52000
6200 South	Harrison Blvd.	35525	52000

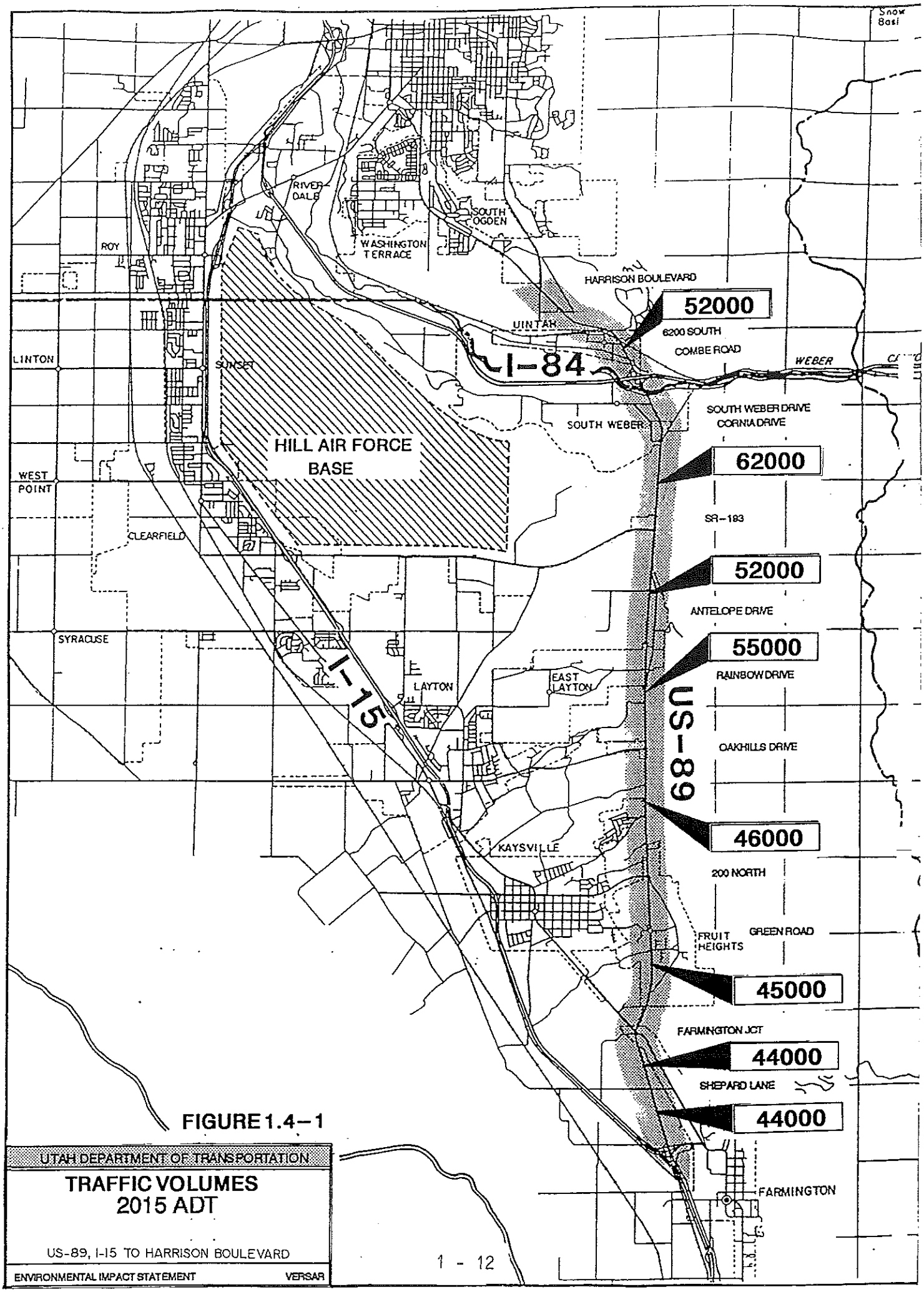


FIGURE 1.4-1

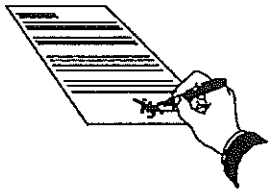
UTAH DEPARTMENT OF TRANSPORTATION

TRAFFIC VOLUMES
2015 ADT

US-89, I-15 TO HARRISON BOULEVARD

ENVIRONMENTAL IMPACT STATEMENT VERSAR

1.5 LEGISLATION



The Utah State Legislature has indicated their support for needed improvements on US-89 through Senate Journal language contained in the 1991 Utah State Senate Journal. Utah's 1st District Congressman has been influential at the national level in identifying available funds for the project. Continued support and commitment at both State and Federal levels is anticipated to provide additional funds in the future. Since 1990, every municipality along the corridor has passed a formal resolution encouraging UDOT and FHWA to preserve the corridor and make necessary operational and safety improvements to the highway, and all have endorsed one of the expressway concepts. The communities have further contributed by developing local Citizen Transportation Advisory Councils for US-89 and assigning technical staff and citizen volunteers to assist the consultant study team in evaluating the corridor.

1.6 SOCIAL DEMANDS AND ECONOMIC DEVELOPMENT

The residential areas east of the highway are separated from services and activities west of the highway. Access to services for residents east of US-89 require them either to cross the highway or enter into the traffic flow at side-street stop controlled intersections. Those living along the highway have indicated that they must have a safer way to cross the present roadway. The lack of an identified corridor plan complicates economic development issues.

1.6.1 Employment

Employment is expected to increase about three percent per year in the area as a whole. The area's major employer, Hill Air Force Base, has been experiencing fluctuation in employment levels as Federal funds for their budget are adjusted. While the future employment levels cannot be predicted, they are expected to be stable.

1.6.2 Schools

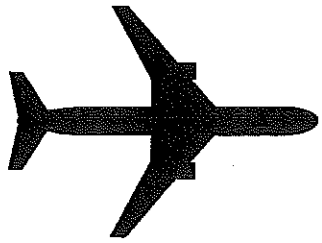
Based upon data received from Davis County Schools, school populations have grown rapidly and are expected to continue to grow at the rate of four percent per year. In order to reduce costs, the Davis County School District has significantly reduced the number of students eligible for busing. Students living on the east side of the highway are bussed under emergency and hazardous designations only. All schools, except Knowlton Elementary on Shepard Lane, are on the west side of US-89. This requires the school buses to transport children along and across the highway. Although current regulations require students to be picked up on the frontage roads, it is not uncommon for students to cross US-89 on foot during peak times to access the bus stop. Current bus routes present serious hazards where buses cross the highway and pick up students. School District officials have expressed strong feelings that this needs to be improved by the proposed project. Weber State University (WSU) has projected enrollment to increase by nineteen percent over the next five years or about four percent per year. Thirty-two percent of the students attending WSU originate in Davis County and many of them use US-89. Forty-one percent come from Weber County and seven percent from Salt Lake.

1.6.3 Land Use

Land use projections indicate that residential development in the corridor will continue at a four percent increase per year. Population predictions indicate an annual increase of about three percent.

Commercial development will continue as the economic situation dictates and in accordance with local zoning regulations. This will occur at the main intersections along US-89 and will continue to place economic restrictions on developing an expanded transportation facility.

1.7 MODAL INTERRELATIONSHIPS



Highway 89 does not provide any direct connections to rail or airport facilities. It does serve as a connecting link for those traveling to Salt Lake International Airport and the Ogden Municipal airport. Additionally, the highway is part of the route used to access the present railway stations in Ogden and Salt Lake City.

Mass transit needs are currently being served by Utah Transit Authority (UTA) with one main bus route (#55) along US-89, one express bus route (#73), and three commuter type routes (#28, #70, #78). UTA has indicated that the current highway facility is not very compatible with their operations. There are no specifically designed turn-off areas near the shoulders of the road to allow buses to stop safely. This project will help resolve this deficiency by providing widened shoulders throughout the project. Also, the intersections or interchanges will allow buses to pull out more safely. Improvements of this type make the bus service more convenient to the public. No other types of mass transit are planned at this time.

As the concept of Light Rail Transit (LRT) is further developed in the Salt Lake area, it may be considered to be extended to Davis and Weber Counties. There are at the present time no plans under consideration for extension of a Light Rail system into Davis County. Any plans for mass transit would certainly extend beyond the present planning time frame of any of the alternatives under consideration.

1.8 CONGESTION MANAGEMENT

Recent federal planning regulations require a Congestion Management System (CMS) to be established. However, the same regulations require that all transportation improvement projects which add single occupant vehicle capacity must result from a congestion management analysis. During this interim period, prior to the required full implementation of the Congestion Management System, but under the requirement for a congestion management analysis, the Wasatch Front Regional Council (WFRC) has developed and approved an interim Congestion Management System. Reasonable demand reduction and operational management techniques in the region, as well as in the study corridor, would not eliminate the need for added highway capacity in this proposed project section. (See Appendix B for summary of WFRC recommendations.)

While primarily a residential corridor, the growth trends experienced in recent years are anticipated to continue, adding additional traffic demand to US-89. Land use policies of the local communities will also encourage some commercial development along the corridor. Although fuel costs may rise, it is anticipated these costs will not alter significantly the use of the automobile as the primary mode of transportation. Transit service policies will have some effect on traffic volumes as park and ride facilities may increase ridership, but it will not eliminate the demand for added capacity of this highway. Because of the location of US-89, which is currently a four-lane facility, alternative routing of traffic to I-15 or other routes (Hill Air Force Base is a barrier to any other mid-valley highway route) is not practical.

According to the WFRC, additional single occupant vehicle capacity is justified throughout the corridor, as current volume to capacity ratios range from 0.6 to 0.9, which warrant additional lanes. Capacity gains obtained from incident management techniques will help maintain existing capacity during nonrecurring congestion, but will not reduce congestion during typical peak hours. The WFRC recommends that various project sponsors in this corridor, as well as other principal arterial street corridors in the region, include implementation of reasonable demand reduction and operational management techniques.

The following paragraphs summarize the WFRC discussion of other demand reduction or operational management strategies which are appropriate for the US-89 corridor, as described in this study.

1.8.1 Signal Coordination

If the arterial nature of the corridor is to be preserved and if Alternative 3 is selected, signal coordination will be needed as traffic volumes increase. Traffic levels on US-89 are expected to reach 50,000 vehicles per day by 2015. The location of the signalized intersections will have a primary impact on the effectiveness of signal coordination along the study corridor. The intersections that are signalized or are projected to be signalized in the future vary between 213 m (700 feet) and 244 m (800 feet) at the I-84 interchange to 3,900 m (12,700 feet) (between Antelope and Cornia). The system of cross-streets between I-15 and I-84 will be laid out in a manner to provide uniform spacing of about 1.45 km (0.9 mile) between signalized intersections. This will allow for optimal progression along the corridor (using signal timing of about 90 and 120 second cycle lengths) and permit the needed cross-street access points (based on conversations with UDOT Traffic Management Engineer). Access between the signalized intersections are to be controlled so as not to disrupt the platoons of vehicles on US-89 and diminish the effectiveness of the signal coordination.

Through the Congestion Mitigation/Air Quality (CMAQ) programming, WFRC may allocate or assist funding signal coordinating through the study corridor. CMAQ funding has been provided for signal coordination projects in Salt Lake County and Ogden. However, according to UDOT, no coordination project is presently planned for US-89. This project will incorporate the additional costs (even though they may be viewed as minor) to provide signal coordination if no other funding sources are provided. UDOT Division of Traffic and Safety operates and maintains the system after construction.

1.8.2 Access Management

US-89 is a principal arterial which requires careful access management along the corridor. Local governments are developing and implementing policies, through development standards, which allow for access, but also preserve the capacity and other design characteristics of the route. These policies will augment policies established by UDOT to control access, as UDOT has the direct responsibility for this state facility. Direct access from private driveways are to be eliminated. Some turning movements at critical minor streets will be allowed, but limited to right turns in/and out only. (See Appendix B for UDOT policies regarding access management.)

1.8.3 High Occupancy Vehicle (HOV) Lanes

HOV lanes are specially designated travel lanes for use by vehicles with two or more occupants. The objective of HOV facilities are to maximize the number of persons per hour traveling on a roadway section by increasing the number of occupants per vehicle and reducing the number of vehicles. The feasibility of implementing HOV lanes for this project was evaluated based on the following general criteria:

- design of geometric cross sections according to national guidelines and standards (including enforcement requirements);
- provide travel time savings of one minute per mile or five minutes per trip;
- operate with a minimum hourly volume of 800 vehicles per hour per lane (vphpl) one year following opening of facility; and
- construct HOV facility as part of regional plan with support facilities such as park and ride lots, transit services, and public awareness programs.

HOV facilities are only applicable to the freeway and grade separated expressway improvement options. The traffic analysis of the study roadway section reported that the facility is projected to operate at LOS "C" or better through the year 2015 as either a freeway or grade-separated expressway. The speeds for the multi-purpose lanes would be the same as the HOV lanes. Therefore, HOV facilities would not provide a travel time savings to users. Also, traffic projections indicate that the 800 vphpl threshold will not be reached until the year 2005 (assuming year 2005 peak direction volume of 2,700 vehicles and 30% two-plus vehicle occupancy rate equates to 810 vphpl).

Constructing an HOV facility as part of the project would not be effective because there would be no travel time savings for HOV users. Enforcement would become a very negative issue because of the facilities' under-utilization. Because the HOV facilities do not meet these practicability tests, they were not incorporated into the project. WFRC will re-evaluate the feasibility of HOV lanes in approximately the year 2005 to consider implementation and when it might be feasible at that time.

1.8.4 Reversible Lanes

Reversible lanes are a possibility on a six-lane facility if there is a 60/40 or greater split in directional traffic. Current peaking characteristics have an approximate 55/45 split. Regional land use projections indicate an increasing commercial growth along the US-89 corridor, which tends to even the directional split of traffic. As commercial and industrial development continues to occur, this split will approach 50/50, further diminishing the feasibility of reversible lanes.

1.8.5 Transit Improvements

The Utah Transit Authority (UTA) services the project corridor with several daily routes. UTA service is anticipated to continue to grow as demand increases along this corridor. The proposed project will provide for a safer and more efficient operation of the transit service. The majority of ridership for UTA comes from outside the corridor area, with most buses going to and from Ogden and Salt Lake City areas through the corridor. This trend is not anticipated to change dramatically. Currently, usage from within the corridor is estimated at only 100 riders per day. This project will work closely with UTA to incorporate park and rides at interchanges or intersections at Shepard Lane, 200 North in Kaysville, Antelope Drive, and South Weber Drive in order to accommodate bus service. Frontage roads will also be available to accommodate local transit routes

1.8.6 Incident Management

Incident management is addressed in the WFRC draft interim CMS as primarily applicable to a freeway or limited access facility. Design of the US-89 corridor will include some provisions for incident management. These will include a 3.0 m (10-foot) shoulder as per UDOT Standards which can accommodate disabled

vehicles, minimizing the impact to traffic flow, and an emergency signal control to accommodate emergency vehicles.

1.8.7 Other Techniques

Growth management shall be addressed by the municipalities along the US-89 corridor. Zoning and development standards of the corridor communities shall encourage limited access to this highway and will focus on traffic patterns to maximize efficiency and smooth traffic flow. Policies such as developing residential neighborhoods which back onto this highway shall be enforced. Traffic design will encourage residential traffic to local collectors which feed to the major interchanges on US-89.

Intelligent Vehicle Highway Systems (IVHS) is a positive technique related to congestion management. As technology is refined and costs decrease for such a system, its feasibility for implementation in this corridor will be evaluated. The design of this project does not preclude future IVHS implementation.

Local bicycle traffic is expected to use frontage roads. The 3.0 m (10 foot) shoulders will provide a safer location for the serious cyclist who uses this route. Pedestrians will be able to cross safely at the crossroad overpass structures and at the pedestrian overpasses in Fruit Heights.

A region-wide ride share program, referred to as the Transportation Brokerage, is operated by UTA.

1.9 MAJOR INVESTMENT STUDY

The interim requirements for major investment studies for this project are being met by this environmental process. This has been concurred with by WFRC, UDOT, UTA, and FHWA. Contact was made with FTA, but no response was received. A follow-up request for comment was made in July 1996 (see Appendix C).

1.10 SUMMARY

- **Corridor Preservation**

It is vital that US-89 be maintained as a major transportation corridor. It is one of only two major routes through the area. Residential and commercial development continue to grow along this route and will further restrict the traffic if this action is not taken.

- **Elimination of System Deficiencies**

Failure to expand the present facility will result in future levels of service in the "E" and "F" ranges, resulting in major traffic delays. With 120 access points currently along the route, there is the potential of a serious accident at each location. Reducing this number of accesses will reduce the number of conflict points. Current highway design standards are not being met by the existing facility. These must be brought up to standard to provide the safest and most efficient facility.

- **Safety Improvements**

The severity of the accidents on US-89 is a key issue. Traffic conflicts occur at each intersection where local traffic attempts to enter or cross the existing highway. Through traffic is traveling at a high rate of speed which increases the severity of any accident. A majority of the accidents are related to intersections and their limited sight distance. These conflict points must be reduced or eliminated to improve safety.

CHAPTER 2
ALTERNATIVES

CHAPTER 2
ALTERNATIVES

2.1 SUMMARY OF ALTERNATIVES

In 1989, as traffic on US-89 continued to increase and the severity of accidents also continued at a higher than expected rate, a corridor study was performed by the WFRC. This study evaluated three build alternatives that would meet the transportation needs for the project corridor.

After a detailed study of the purpose and need for the project, it was determined to evaluate the same three build alternatives for this Environmental Impact Statement. Alternative 1 - Freeway, Alternative 2 - Expressway, and Alternative 3 - Signalized Expressway were each found to meet the purpose and need for the project to varying degrees. Each would provide an action that would preserve the corridor as a major transportation link, eliminate system deficiencies, and provide the needed safety improvements. Based on comments received on the DEIS and the public hearing, Alternative 2 - Expressway has been identified as the Preferred Alternative for the Final EIS.

Other alternatives considered were the No Action, Transportation System Management (TSM), and Mass Transit, as well as other locations.

2.2 BASIS FOR NOT ADVANCING ALTERNATIVES

Alternatives that have been considered but not advanced include the following:

2.2.1 Other Locations

Other route locations within the corridor were briefly considered, but not advanced since any location selected would have required entirely new right-of-way through existing developed areas. This would have major impact on the existing residential development, city master plans, park lands, golf courses, schools, neighborhoods, commercial development and other environmentally sensitive areas.

2.2.2 Transportation System Management (TSM)

The TSM Alternative, consisting of traffic signals, acceleration and deceleration lanes, widened shoulders, etc., would improve the safety and reduce access problems at specific locations. However, it cannot satisfy the long-range needs for added capacity for the entire system. Projected population growth in the study area requires major improvements to meet the needs of resultant growth in traffic volumes. Existing deficiencies would remain if this alternative is followed. UDOT is installing some TSM improvements as a short-term solution to individual intersection problems. Traffic accidents typically increase in number as a consequence of signalizing an intersection. Normally, the severity of accidents would go down because of the signal installation. However, the severity of the accidents on US-89 would be higher than a typical signalized urban street due to long distances between signals and the high speed operation. The TSM Alternative was not advanced because it fails to meet the long-term needs for capacity. It fails to provide all the needed safety improvements and does not correct existing design deficiencies.

2.2.3 Mass Transit

Mass transit needs are currently served by the Utah Transit Authority (UTA) bus system. Currently there is one express route (No.55) which uses US-89 through the project area. Three other commuter routes (Nos. 28, 70, 78) serve the adjacent area for local users and cross over the US-89 corridor in serving major

employers. An average of twelve bus trips per day carry 320 passenger trips per day, handling the user needs presently. Even with the extensive effort made toward convenience and affordability, the system only serves 2.0 percent of commuter traffic in Weber County and 2.2 percent in Davis County based on the 1990 Census. This type of service cannot meet the future needs based on expected growth and development in the area. Although this is not a functionally independent alternative, accessibility will be improved with any of the build alternatives. This will help to encourage use of mass transit.

While efforts will continue to increase riders, this mode of transportation cannot be considered as a replacement alternative and will not be pursued. Even if the total project funding was turned into a new fleet of buses, there is not a compelling reason for the highway users to give up their vehicles for mass transit. This has been discussed with UTA and they concur that there is not enough demand to justify additional buses at this time (see letter in Appendix A). Close coordination with UTA during the design process will be necessary to provide a better interface between the highway users and the transit operation. Mass Transit was not considered a viable alternative to the build options for the highway. It only serves presently a small portion of the traffic (2.0+ percent), and, as with the TSM, fails to meet the needs of the project regarding capacity, safety and removing deficiencies.

2.2.4 Burke Lane West Extension - Option A, B, and C

Option A was the most direct connection from I-15 to 1100 West in Farmington and had the best alignment but because of the impacts on the wetlands other options had to be evaluated. (See Figure 2.1-5 for options.) Option B (connection to old Burke Lane) was studied in detail and impacts were evaluated. However, when considering the area to be served and the current planning and zoning for Farmington City, this option does not directly serve the existing facilities nor the future development. No improvement of access to I-15 would occur for the emergency services coming from the Davis County Criminal Justice Center. A previous study of I-15 and Burke Lane by WFRC (March 1991) did not include this connection as a viable option. Option C was evaluated to determine a location which would have the least possible impact to the wetlands. As the location was established, it was determined that it would not be practicable because it does not meet the needs of Farmington City and is not compatible with an effective transportation system through the area. Consequently, these options are not being advanced.

2.3 ALTERNATIVES UNDER CONSIDERATION

2.3.1 No Action

The No Action alternative consists of leaving the current four-lane facility as it presently exists (See Figure 2.1-1 for typical section). Traffic signals and turning lanes would be added as they are warranted and the existing pavement would be resurfaced as needed. As signals are installed, they will be coordinated to provide the most efficient traffic flows. None of the existing deficiencies would be corrected by this alternative. This option would not accommodate the projected 2015 traffic volumes at an acceptable Level of Service and would contribute to further degradation of the safety of the facility. No Action would fail to conform to the Ogden Area Long Range Transportation Plan. Cost of maintaining the existing roadway and adding traffic signals as warranted has been estimated at $5.5 million for the twenty year projection.

2.3.2 Build Alternatives

This study considers three build alternatives to handle the increased traffic, to improve the safety of US-89 and to correct all design deficiencies in the project area. Each alternative would follow the existing alignment of US-89. Cross sections showing the lane configuration for each of the alternatives are shown as Figure 2.1-1. Location plans for each alternative are included as Figures 2.1-2 through 2.1-4.

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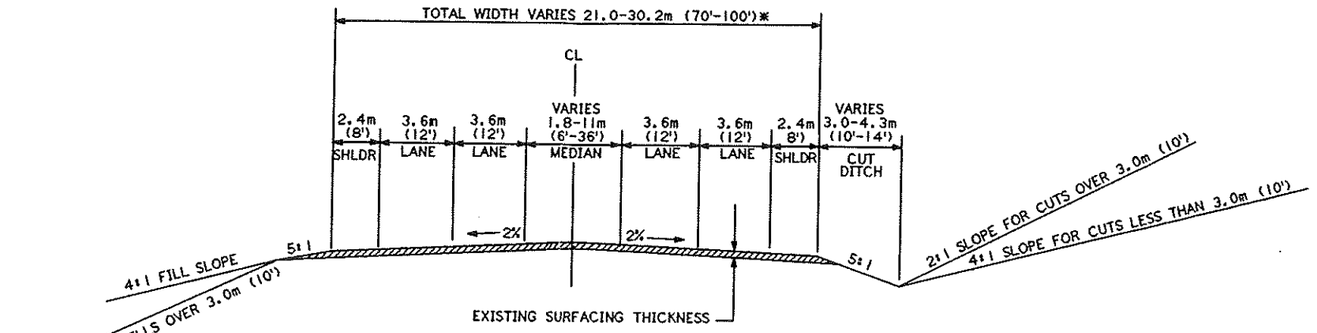
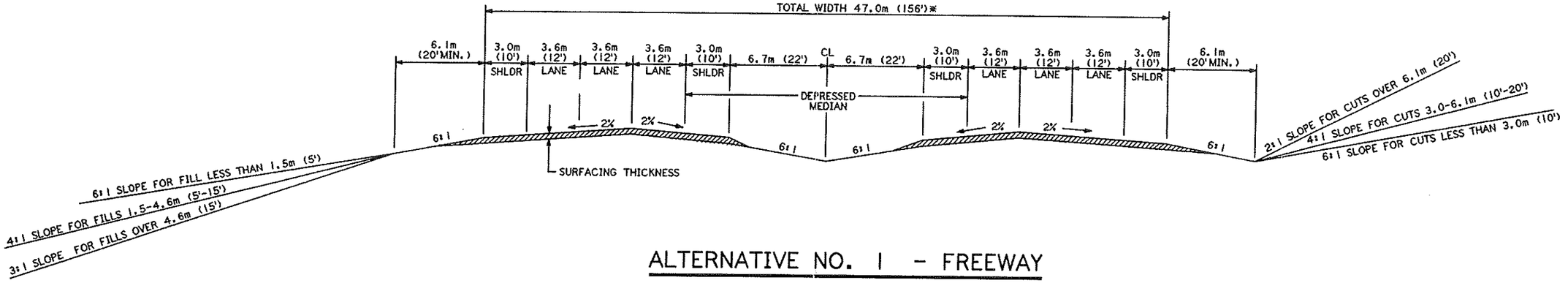


NO ACTION - EXISTING



ALTERNATIVE NO. 1 - FREEWAY

- FULL ACCESS CONTROL
- FULL INTERCHANGES -EIGHT
- FRONTAGE ROADS

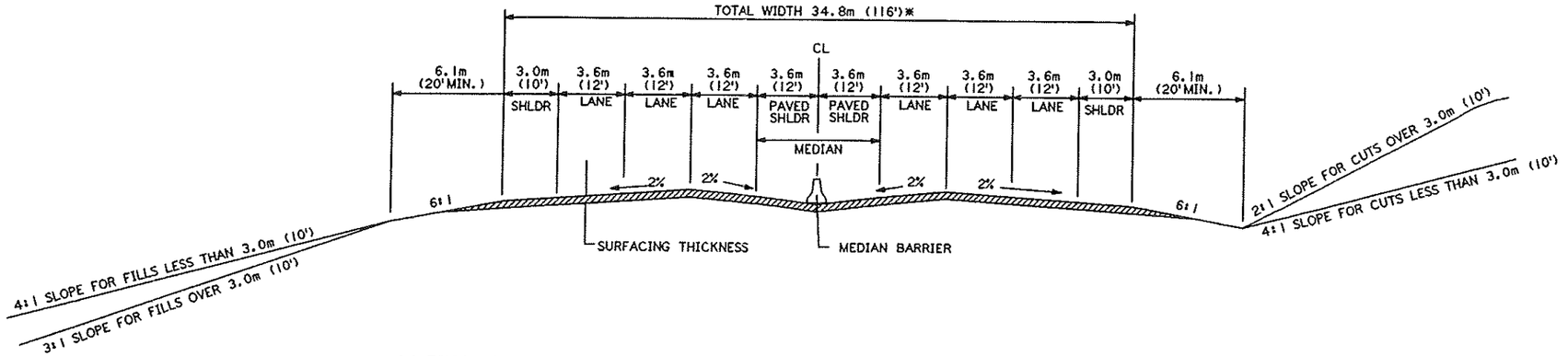
* DUE TO ROUNDING
ENGLISH UNITS ARE APPROXIMATE

FIGURE 2.1-1a

US-89 ENVIRONMENTAL IMPACT STATEMENT

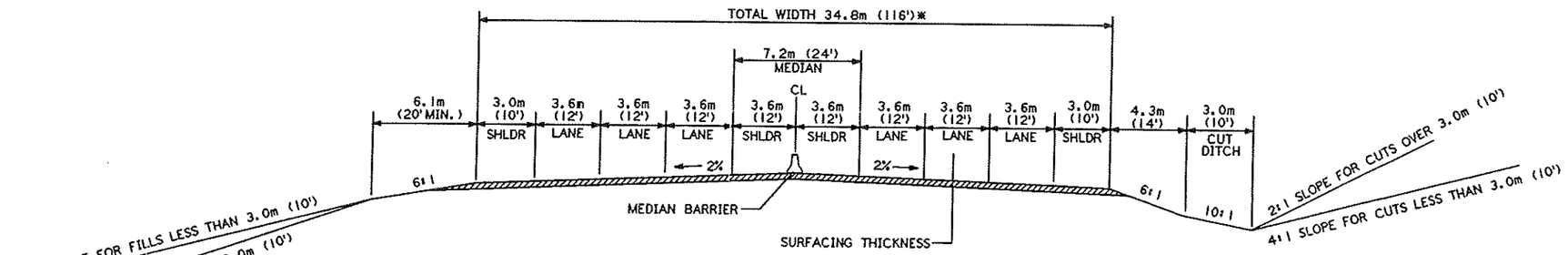
CROSS SECTIONS FOR PROPOSED ALTERNATIVES

Versar A & E



ALTERNATIVE NO. 2 - EXPRESSWAY (PREFERRED ALTERNATIVE)

- INTERCHANGES - EIGHT
- PARTIAL ACCESS CONTROL
- PARTIAL FRONTAGE ROADS
- SOME RIGHT IN RIGHT OUT INTERSECTIONS



ALTERNATIVE NO. 3 -SIGNALIZED EXPRESSWAY

- SIGNALIZED - MAJOR INTERSECTIONS
- PARTIAL FRONTAGE ROADS
- RIGHT IN RIGHT OUT INTERSECTIONS

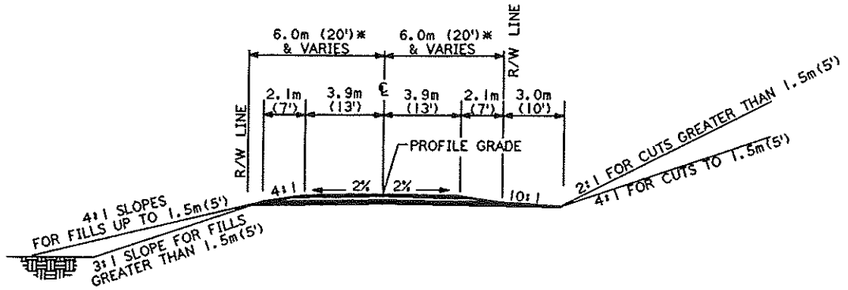
* DUE TO ROUNDING
ENGLISH UNITS ARE APPROXIMATE

FIGURE 2.1-1b

US-89 ENVIRONMENTAL
IMPACT STATEMENT

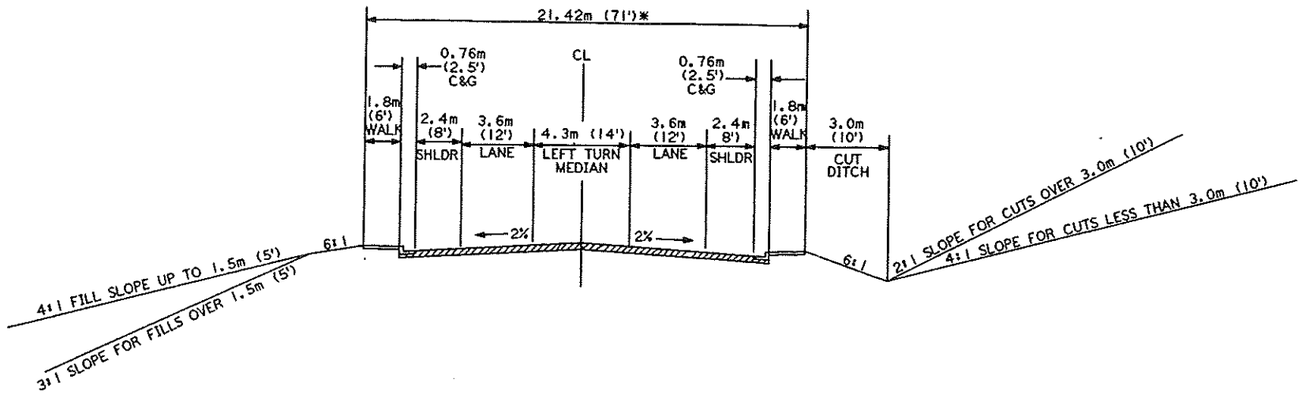
CROSS SECTIONS FOR PROPOSED ALTERNATIVES

Versar A & E



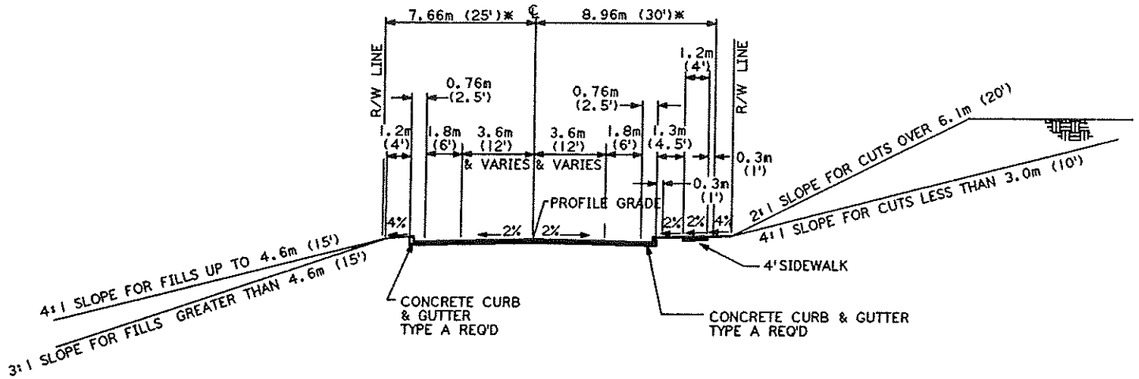
ACCESS ROAD

DESIGN SPEED 20 MPH



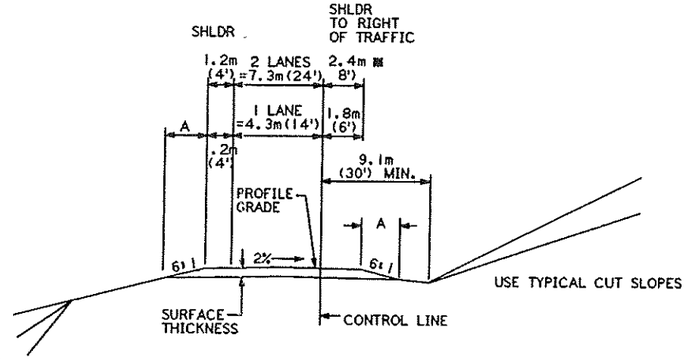
CROSS ROADS

BURKE LANE, SHEPARD, MAIN STREET, 200 NORTH, OAKHILLS, RAINBOW, ANTELOPE, SOUTH WEBER



FRONTAGE ROAD

DESIGN SPEED 30 MPH



USE TYPICAL FILL SLOPES ON LOW VOLUME RAMPS. SLOPES MAY BE MODIFIED ON AN INDIVIDUAL BASIS.

TYPICAL RAMP

* DUE TO ROUNDING ENGLISH UNITS ARE APPROXIMATE

FIGURE 2.1-1c

US-89 ENVIRONMENTAL IMPACT STATEMENT

CROSS SECTIONS FOR PROPOSED ALTERNATIVES

Versar A & E

More detailed plan sheets of the alternatives for this study can be found in the Draft EIS Map Supplement. After a thorough study of public comments received on the DEIS, Alternative 2 - Expressway has been identified as the Preferred Alternative for the Final EIS.

Alternative 1 - Freeway. This concept consists of a six-lane freeway facility with a 19.5 m (64 foot) depressed median (including shoulders), frontage roads and interchanges at each major cross street. The cost estimate for this alternative is $155.2 million. The required right-of-way width would be variable, but would be typically about 104 m (340 feet) or 52 m (170 feet) each side of centerline. Access would be totally controlled and limited to the interchange points. Eight new interchanges are proposed from Farmington to South Ogden. Three existing interchanges would be modified at Burke Lane and I-15, Burke Lane and US-89, and at I-84 and US-89. This option would provide the safest operation and would provide the best level of operation to handle the increased traffic volumes. (See Figure 2.1-2.) As warranted, traffic signals would be installed at the ramp terminal intersections with the cross road.

Alternative 2 - Expressway (Preferred Alternative). The proposed facility will be a six-lane expressway with interchanges at major cross streets. Frontage roads will connect existing minor streets to the interchanges. Seven right-in/right-out intersections will be included to provide more direct access to neighborhoods along the corridor. The existing interchanges on US-89 and I-15 at Burke Lane, as well as the I-84 interchange, will be modified. Also, the expressway will have a median width of 7.2 m (24 feet) with a median barrier. Estimated cost of this option is $133.0 million. Required right-of-way is variable, but typically 91 m (300 feet) or 46 m (150 feet) each side of centerline. An integral part of this plan will be to control the access along the roadway. Seven new interchanges will be constructed and three will be modified. These interchanges will be located at Shepard Lane, Farmington Junction (Cherry Hill), 200 North (Kaysville), Oakhills Drive, Rainbow Drive (Gordon Avenue), Antelope Drive, and Cornia Drive (South Weber). This alternative will provide for the needed future traffic capacity and will provide a major improvement to the safety problems. (See Figure 2.1-3) This alternative will also have the potential of having signals added at the ramp terminal points on the cross roads.

As a result of concerns expressed by the public at the public hearing, the following changes have been made to Alternative 2: improvements to access across the UPRR Westbound No. 2 Main line for 6600 South traffic; and because commercial development has made it impractical, the flyover at Harrison Boulevard has been eliminated. The net result is that Alternative 2 is the same as Alternative 3 at this intersection (see Sheet 23 in Appendix G).

Alternative 3 - Signalized Expressway. This alternative would be very similar to Alternative 2 with six lanes, but would have the major street crossings served by signalized intersections. Signalized intersections would be interconnected for coordination to aid with congestion management. The spacing between intersections will determine the effectiveness of this effort. Separation greater than one half mile starts to lose its effectiveness. Frontage roads would still be used to provide the connection needed between the existing minor streets and the signalized intersections. A median barrier would be provided throughout the length of the highway with openings provided at the signalized intersections. Five right-in/right-out intersections would also be allowed on this facility. The cost estimate for Alternative 3 is $93.3 million. Right-of-way required for this option would be the same typical width as Alternative 2 [91 m (300 feet)]. However, this alternative would not require the additional property for the ramps at the major cross streets. Modification of the interchanges at Burke Lane and I-15, Burke Lane and US-89, and US-89 and I-84 would be included. Access would be controlled as a part of the design of this alternative. Future traffic demands would be met with additional lanes but safety improvements would not be as great as with

FIGURE 2.1-2

US-89 ENVIRONMENTAL IMPACT STATEMENT

ALTERNATIVE I
FREEWAY

Versar, Inc.

SEE MAP SUPPLEMENT
FOR MORE DETAILED PLANS

FIGURE 2.1-3
US-89 ENVIRONMENTAL IMPACT STATEMENT
ALTERNATIVE 2
EXPRESSWAY

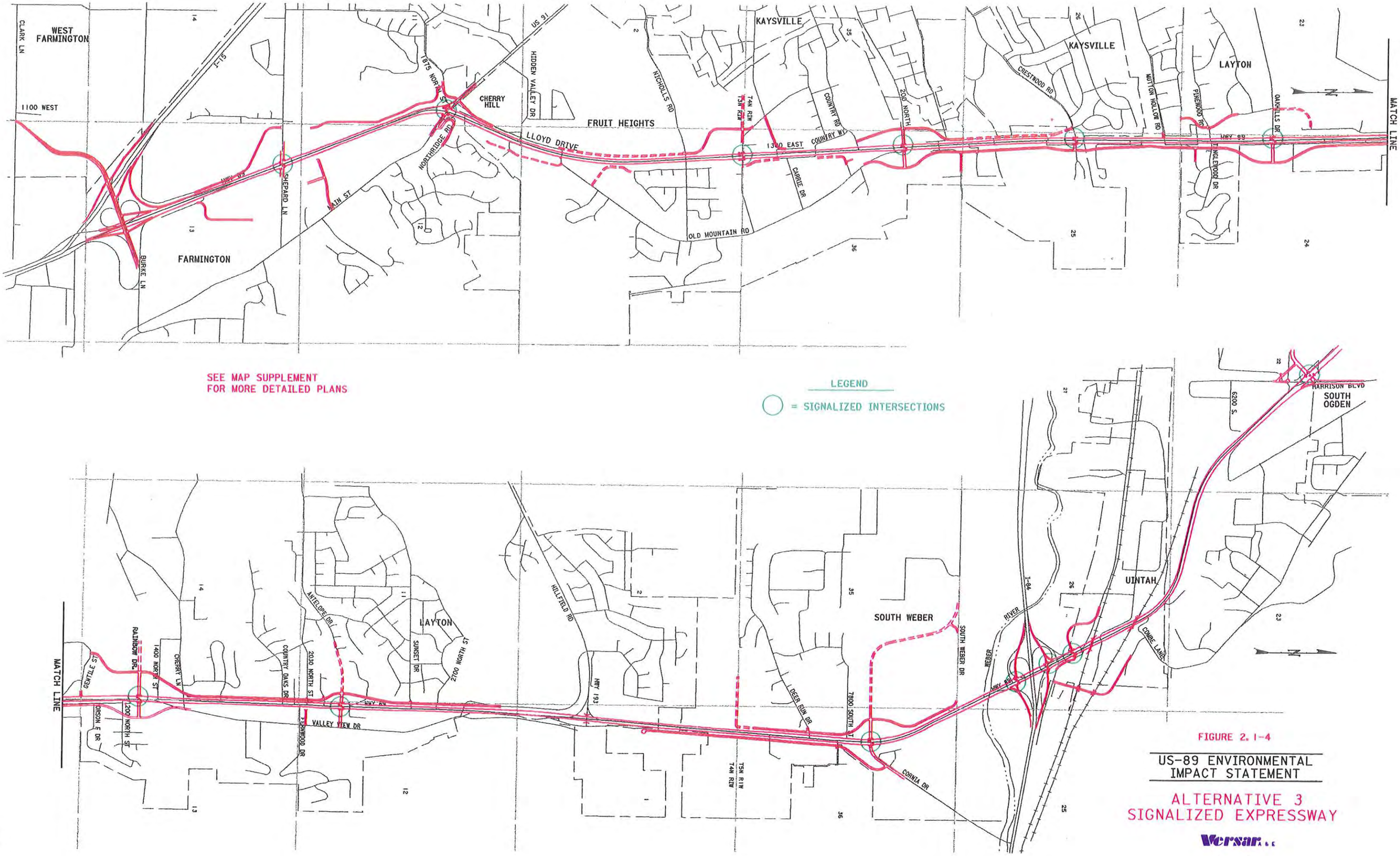


FIGURE 2.1-4

US-89 ENVIRONMENTAL IMPACT STATEMENT

ALTERNATIVE 3
SIGNALIZED EXPRESSWAY

Versar, Inc.

Alternatives 1 and 2 (See Table 2.1-1). Signalized intersections with the projected traffic volumes would have a much higher accident rate than the interchanges (Comparison of similar highways shows 4.62 to 1.01). (See Figure 2.1-4 for Alternative 3.)

Burke Lane West Extension. In order to extend Burke Lane from US-89 across I-15 to West Farmington, Option D (See Figure 2.1-5) is the preferred option. This will require the reconstruction of the present I-15 interchange with Burke Lane. This redesign will include a three ramp diamond interchange and will modify the free flowing ramps from I-15 to a stop condition. This option will meet the needs for future growth of Farmington City and still keep the impacts on the wetlands to a minimum. While Option D does not provide the most direct route to the intersection of Clark Lane and 1100 West, it is generally compatible with Farmington City's planning and zoning for future development within the area. See Section 2.2.4 for discussion of other options considered but not advanced. The proposed width of this roadway would conform to Farmington City Standards since it is planned to be a four-lane major arterial on their master plan. Option D will be evaluated further in this Final EIS.

2.4 COMPARISON OF ALTERNATIVES UNDER CONSIDERATION

In an effort to summarize the impacts of each alternative and provide a means to visually compare how effective each one is at satisfying the purpose and need for the project, several tables were developed. Table 2.1-1 provides a relative comparison of how well each of the alternatives meets the purpose and need for the project. Each of the three main needs are listed and then compared for each alternative by the degree of shading in the circle symbol.

The freeway alternative is obviously the best at meeting all the needs. The expressway alternative also meets the needs, with a slight reduction in the area of safety, which is less than the freeway alternative because it includes a reduced width median with a barrier. The signalized expressway alternative is the least effective in meeting the needs due to the at grade intersections that will be required as well as the same reduced width median as the expressway alternative.

Of the three alternatives being advanced, the greatest impacts are shown for Alternative 1 Freeway. Alternative 3 will have the least impact. Alternative 2 basically fits in between the other two in the amount of impact.

A benefit cost evaluation was performed to compare the economical factors between alternatives. Two separate analyses were performed: one by UDOT Planning Division and the other by the consultant. Table 2.1-2 shows the results of the UDOT evaluation of Alternatives; 1 (Freeway), 2 (Expressway), 3 (Signalized Expressway), and the No Action option. The UDOT analysis consisted of computing the running or operating cost and time or delay cost. Costs due to accidents are incorporated into the computations. The costs were computed for 1993 and 2015 and for an average of 1993 through 2015. The benefit/cost ratio for Alternatives 1 was 3.27, Alternative 2 was 3.82 and Alternative 3 was 2.36. The UDOT analysis shows that Alternative 2 has a greater benefit/cost ratio than Alternative 3 by a difference of 1.46.

Detailed maps of all build alternatives can be found in the Draft EIS Map Supplement.

Table 2.1-1

PURPOSE AND NEED EVALUATION MATRIX

NEEDS	ALTERNATIVES			
	NO ACTION	NO. 1 FREEWAY	NO. 2 EXPRESSWAY (Preferred)	NO. 3 SIGNALIZED EXPRESSWAY
1. Corridor Preservation	○	●	●	◕
2. Elimination of System Deficiencies	◔	●	●	◑
3. Safety Improvements	◔	●	◕	◐

● = Best (Meets The Need) ○ = Worst (Does Not Meet The Need)

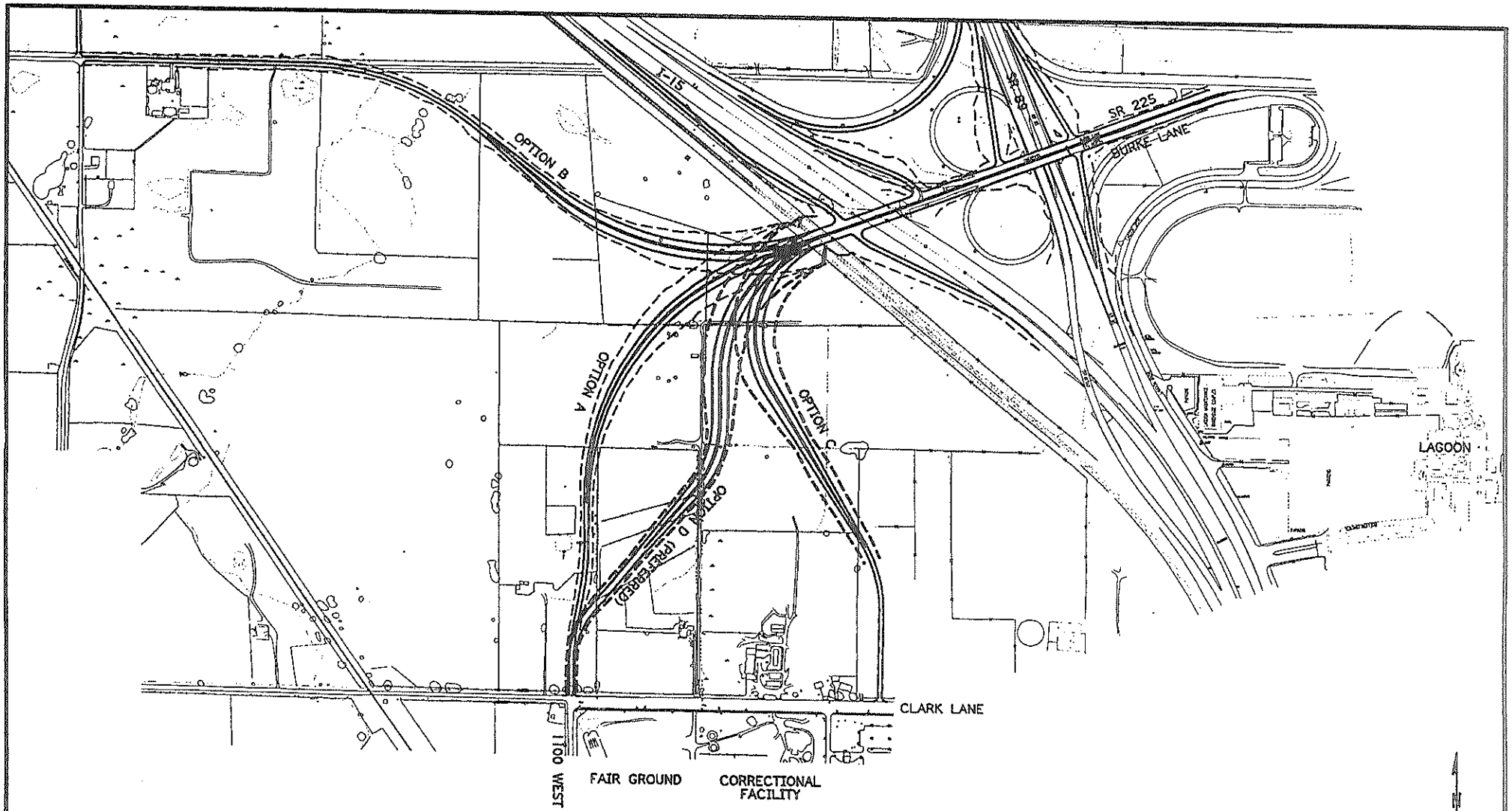


FIGURE 2.1-5

UTAH DEPARTMENT OF TRANSPORATION

US-89, I-15 to I-84
F-030(10) EIS

BURKE LANE OPTIONS

07/31/95

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Table 2.1-2
***USER COST ANALYSIS**

ALTERNATIVE	1993			2015			1993 TO 2015	BENEFIT/ COST (COMPARED TO NO ACTION)
	Running Cost	Time Cost	Total Cost	Running Cost	Time Cost	Total Cost	Total Cost	
No Action	$22.3	$39.5	$61.8	$48.3	$85.3	$133.6	$2,149.0	N/A
Alternative 1	$24.9	$22.3	$47.2	$53.3	$48.7	$102.0	$1,641.2	3.27
Alternative 2	$24.9	$22.3	$47.2	$53.3	$48.7	$102.0	$1,641.2	3.82
Alternative 3	$22.2	$33.0	$55.2	$48.5	$71.7	$120.2	$1,929.4	2.36

Costs Shown In Millions Of Dollars

Sample Calculation for Alternative 1 (2149.0 - 1641.2)/155.18 = 3.27)

***By UDOT Planning Division**

The consultant performed a manual benefit/cost ratio evaluation computing the costs due to travel delay and accident costs. Table 2.1-3 shows a delay only benefit/cost summary. The delay costs are based on projected operating speeds for each alternative and the No Action option. Based on delay only the benefit/cost ratios are as follows:

Scenario	B/C Ratio
Alternative 1 (Freeway)	1.2
Alternative 2 (Expressway)	1.4
Alternative 3 (Signalized Expressway)	1.2

As shown, Alternative 2 (Expressway) has a slightly greater benefit/cost ratio based on delay only.

Table 2.1-4 shows the delay costs plus the costs due to accidents by facility type (i.e., freeway, expressway, arterial). The accident costs were computed utilizing data obtained from UDOT Traffic and Safety Division. A description of the accident projection summary is presented in Appendix D, which shows all of the assumptions and sources for data used. The total costs computed as shown in the fourth column are less than those computed from the UDOT computer program. However, the ranking of benefit/cost ratios between alternatives is consistent with the results of the UDOT evaluation. Alternative 2 (Expressway) has a greater benefit/cost ratio than the other alternatives. Based on the above evaluation results, Alternative 2 (Expressway) is the most cost feasible alternative to construct.

Table 2.1-5 shows the Level of Service for 12 roadway segments within the study corridor. Alternatives 1 (Freeway) and 2 (Expressway) operate at Level of Service "C" or better under 2015 traffic levels. Alternative 3 (Signalized Expressway) operates at Level of Service "D" or better under 2015 traffic levels. The No Action option operates at Level of Service "E" or "F" at eleven of the twelve roadway segments within the study corridor.

2.5 IDENTIFICATION OF PREFERRED ALTERNATIVE

Alternative 2 has been identified as the Preferred Alternative for the Final EIS. It provides the best combined solutions to corridor preservation, elimination of system deficiencies and safety improvements with a minimal environmental impact.

As stated above, the main transportation needs for US-89 are corridor preservation, elimination of system deficiencies and safety. Alternative 1 - Freeway addresses these three factors most effectively. However, when evaluating the environmental impacts, and particularly the number of homes taken and the amount of property required for this alternative, it becomes less desirable.

The Preferred Alternative provides the same high Level of Service (LOS) as the Freeway Alternative, but with slightly reduced safety characteristics due to the narrower median with a barrier. Fewer homes will be affected, as well as a reduction in property needs and less environmental impacts.

Table 2.1-3
Delay Benefit / Cost Summary

Description	Average Peak[1] Hour Delay Per Vehicle (Minutes)	Average[2] Annual Delay (Million Vehicle-Hours)	Average[3] Annual Delay Cost ($ Million)	22-Year Delay Cost ($ Million)	Estimated[4] Construction Cost ($ Million)	Benefit/[5] Cost Ratio
Alt. 1 - Freeway (6-lane)	0	-	-	-	155.18	1.2
Alt. 2 - Expressway (6-lane)	1	0.03	0.38	7.70	133.02	1.4
Alt. 3 - Signalized Expressway (6-lane)	10	0.32	3.85	76.96	93.28	1.2
No Action	25	0.81	9.62	192.40	0	-

1 Assumes an average delay from existing to Year 2015 of 50% of 2015 delay derived from travel times presented in Table 9 between each scenario and the freeway (6-lane) alternative.

2 Assumes average peak hour volume of 3,700 vehicles which is 10% of the average of 50,000 ADT (Year 2015) and 24,000 ADT (Year 1989) multiplied by two (a.m. and p.m. peak hours) multiplied by 260 working days per year. Sample calculation is: (3 min./60 min. per hour) x (3,700 vehicles per hour) x (2 peak hours) x (260 working days per year) = 96,200 vehicle-hours per year or 0.10 Million vehicle-hours per year.

3 Assumes an average delay cost of $12.00 per vehicle-hour, which is an average including trucks.

4 Source: Versar, Inc. (this does not include maintenance costs which are needed for all of the alternatives and the no action option).

5 Benefit cost ratio computed by subtracting the 22-year delay cost for no action from the proposed alternative divided by the alternative's construction cost. Sample Calculation ($192.40 million - $7.70 million) / ($133.02 million) = 1.4.

Table 2.1-4
DELAY PLUS ACCIDENT BENEFIT/COST SUMMARY

DESCRIPTION	22-YEAR DELAY COST ($MILLION)	22-YEAR ACCIDENT COST ($MILLION)	22-YEAR TOTAL COST ($MILLION)	CONSTRUCTION COST ($MILLION)	BENEFIT/ COST RATIO
ALTERNATIVE 1 - FREEWAY	0	225.81	225.81	155.18	5.0
ALTERNATIVE 2 - EXPRESSWAY	7.70	290.27	297.97	133.02	5.3
ALTERNATIVE 3 - SIGNALIZED EXPRESSWAY	76.92	645.01	721.93	93.28	3.0
NO ACTION	192.40	806.26	998.66	0	-

NOTES: Delay costs as shown on Table 2.1-3.
Accident costs computed as shown on calculation sheet presented in the appendix.

Compiled by Fehr & Peers, Subconsultant to Versar, Inc.

Table 2.1-5
ALTERNATIVES LEVEL OF SERVICE

SECTION	DIR.	ALT.1 FREEWAY	ALT.2 EXPRESSWAY (Pref.Alt.)	ALT.3 SIGNALIZED EXPRESSWAY	NO ACTION
		2015 3 LN	2015 3 LN	2015 3 LN	2015 2 LN
I - 15 TO SHEPARD LANE	NB	B	B	C	D
	SB	B	B	B	D
SHEPARD LANE TO FARMINGTON JCT	NB	B	B	C	E
	SB	B	B	B	D
FARMINGTON JCT TO 200 NORTH	NB	C	C	C	F
	SB	B	B	B	E
200 NORTH TO OAKHILLS DRIVE	NB	C	C	C	F
	SB	B	B	B	E
OAKHILLS DR TO RAINBOW DRIVE	NB	C	C	C	F
	SB	B	B	C	E
RAINBOW DRIVE TO ANTELOPE DRIVE	NB	C	C	C	F
	SB	B	B	B	E
ANTELOPE DRIVE TO SR-193	NB	C	C	C	F
	SB	C	C	C	F
SR-193 TO CORNIA DRIVE	NB	C	C	C	F
	SB	C	C	D	F
CORNIA DRIVE TO I-84	NB	C	C	C	F
	SB	C	C	D	F
I-84 TO COMBE ROAD	NB	C	C	C	E
	SB	B	B	C	D
COMBE ROAD TO 6200 SOUTH	NB	C	C	D	F
	SB	B	B	C	D
6200 SOUTH TO HARRISON BLVD	NB	C	C	D	F
	SB	B	B	C	E

Based on 1985 FHWA Highway Capacity Software traffic analysis program using Basic Freeway Segments and Multilane Highway modules.
Signalized intersections not included in Alt. #3.
Shading indicates LOS less than "C"

Alternative 3 - Signalized Expressway occupies a smaller footprint when compared to Alternative 2. This is due primarily to the fact that less property is required for intersections than the interchanges in Alternative 2. Capacity and safety issues, however, are not solved as effectively with this alternative. A closer comparison shows a lower LOS than the expressway. In addition, the criteria for evaluating LOS differ between expressway and signalized systems. A common factor for evaluation is travel time, in which intersection delay becomes more important than operating speeds (see Appendix D). Considerably more traffic delays would be experienced because of the traffic signals.

Safety becomes the major concern for the signalized expressway. Two methods of evaluating the safety operations were used. First, an attempt was made to find existing highways that had similar operational characteristics as the expressway and the signalized expressway. The sections selected for comparison were I-15 in the Layton area and the Van Winkle Expressway in Salt Lake City. (Both used in a previous study by WFRC.) These two highways are similar in traffic volume and geometrics. Comparing their accident rates show the signalized expressway has over four times the number of accidents as the expressway (accident rates 4.62 to 1.01). It is very difficult to find an existing highway with conditions exactly like the alternatives. Therefore, a safety evaluation was performed using five traffic/safety engineers from UDOT and the consultant to evaluate various safety issues. The issues evaluated included intersection hazards, median crossovers, clear zone, median barrier, access reduction, and new intersections. The evaluation showed the freeway as the safest, the expressway next, and the signalized expressway the least safe of the three build alternatives.

The main reason for a better safety rating of the freeway and expressway is the grade separation between the main highway and the local cross roads. This totally eliminates the local traffic conflict with high-speed through traffic of US-89. The potential for these conflicts would still exist with the signalized expressway due to the at-grade intersections. Because the traffic signals are so far apart, the traffic has time to accelerate to at least 90 km/h (55 mph) before it gets to the next signal. This situation has the potential for higher than normal accident rates and more severe accidents.

2.5.1 Advanced Acquisition

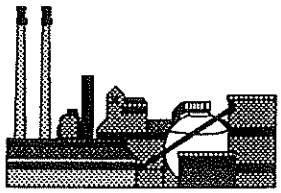
UDOT has acquired several parcels of right-of-way in the areas of proposed interchanges and frontage roads for Alternative 2. This has been done in an effort to preserve the corridor for all of the alternatives. Other advanced acquisition properties will be purchased as the need arises. The acquisition of these parcels will not influence the alternative to be selected.

These acquisitions are being completed on a case by case situation on a hardship basis. Each acquisition must be approved by the local FHWA and UDOT Transportation Commission. Most of the properties acquired have been small (less than 0.84 hectares {2 acres}). The owners have been in a financial situation where they needed to sell and were unable due to the impending project. Protective buying to prevent imminent development will also be considered.

CHAPTER 3
AFFECTED ENVIRONMENT

CHAPTER 3
AFFECTED ENVIRONMENT

3.1 LAND USE PLANNING



Thirty years ago, the US-89 corridor from Burke Lane in Farmington to South Ogden passed through an area that was primarily a rural area with orchards and farmland. Today, the same highway has become a major commuter route between Ogden and the South Davis County/Salt Lake City area.

The US-89 corridor passes through six cities, (See Figure 3.1-1) comprising 92 percent of the corridor. The remaining eight percent is unincorporated land in Davis and Weber Counties. The study area has evolved from an agricultural land use, dominated by fruit orchards, to one of the fastest growing residential areas in Utah. Between 1970 and 1990, the overall average population growth in the six cities, through which US-89 passes, was 9.65 percent annually. This change in land use is attributed primarily to this area's proximity to the employment centers of Salt Lake City and Ogden City. Technical Report No. 6, "Land Use and Socio-Economic Assessment for US-89," contains a complete detailed description of land use and zoning. The study corridor width was 150 meters (500 feet) in each direction from the existing highway center line. The study width for frontage road areas away from the highway was 18 meters (60 feet).

3.1.1 Land Use Planning Issues

Officials anticipate North Davis County and South Weber County to continue to attract primarily residential land use growth through the year 2010. Residential land use will grow proportionately with the population growth. Commercial, institutional, and parks and recreation land use will generally follow this trend. Employment opportunities are forecasted to increase approximately 86 percent by the year 2015. Population growth will increase an additional 71 percent. This suggests a slight increase in the number of jobs available in the study area. However, it also suggests this area will continue as a bedroom community to adjacent commerce centers.

3.1.2 Zoning

Figure 3.1-2 shows current zoning along the US-89 corridor. This figure shows a dominance of residential zoning, with only spots of commercial and agricultural land use zoning. The Davis County Development Policy Plan does not attempt to preserve agricultural land use. It merely protects farmland for agricultural use for as long as a land owner so desires (Davis County Agricultural Committee Report, May, 1986). The intent is to provide an easier transition from rural to urban land uses.

3.1.3 Recreation Resources

Within the US-89 study corridor there are three city parks, Shepard Lane, Nicholls and Pioneer, and one Golf Course, Davis County Golf Course. Outside of the study corridor but accessed from US-89, are two golf courses, Valley View in Layton and Oak Ridge Country Club in Farmington, four city parks, three are located in South Weber City, and one in Uintah Town. There is also one school playing field adjacent to Knowlton Elementary School, one LDS church ball diamond in Farmington, one national forest picnic area, Fernwood, in Layton and one private recreation center, Cherry Hill, in Fruit Heights. Besides the established sites, the Weber River provides excellent fishing year round and many bicycle enthusiasts ride along the highway during the warmer months. Figure 3.1-2 shows the locations of the recreation facilities.

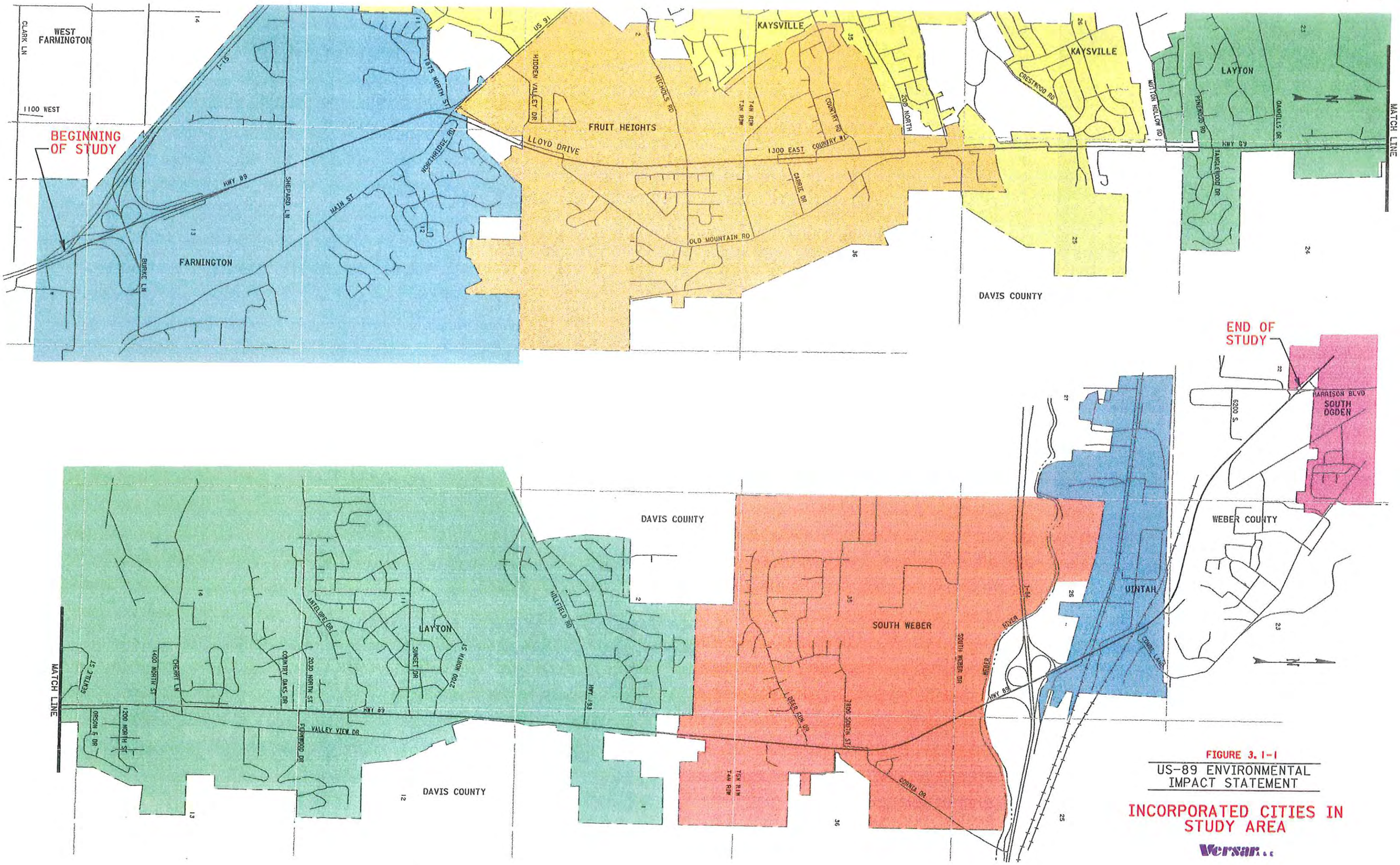


FIGURE 3.1-1

US-89 ENVIRONMENTAL IMPACT STATEMENT

INCORPORATED CITIES IN STUDY AREA

Versar, Inc.

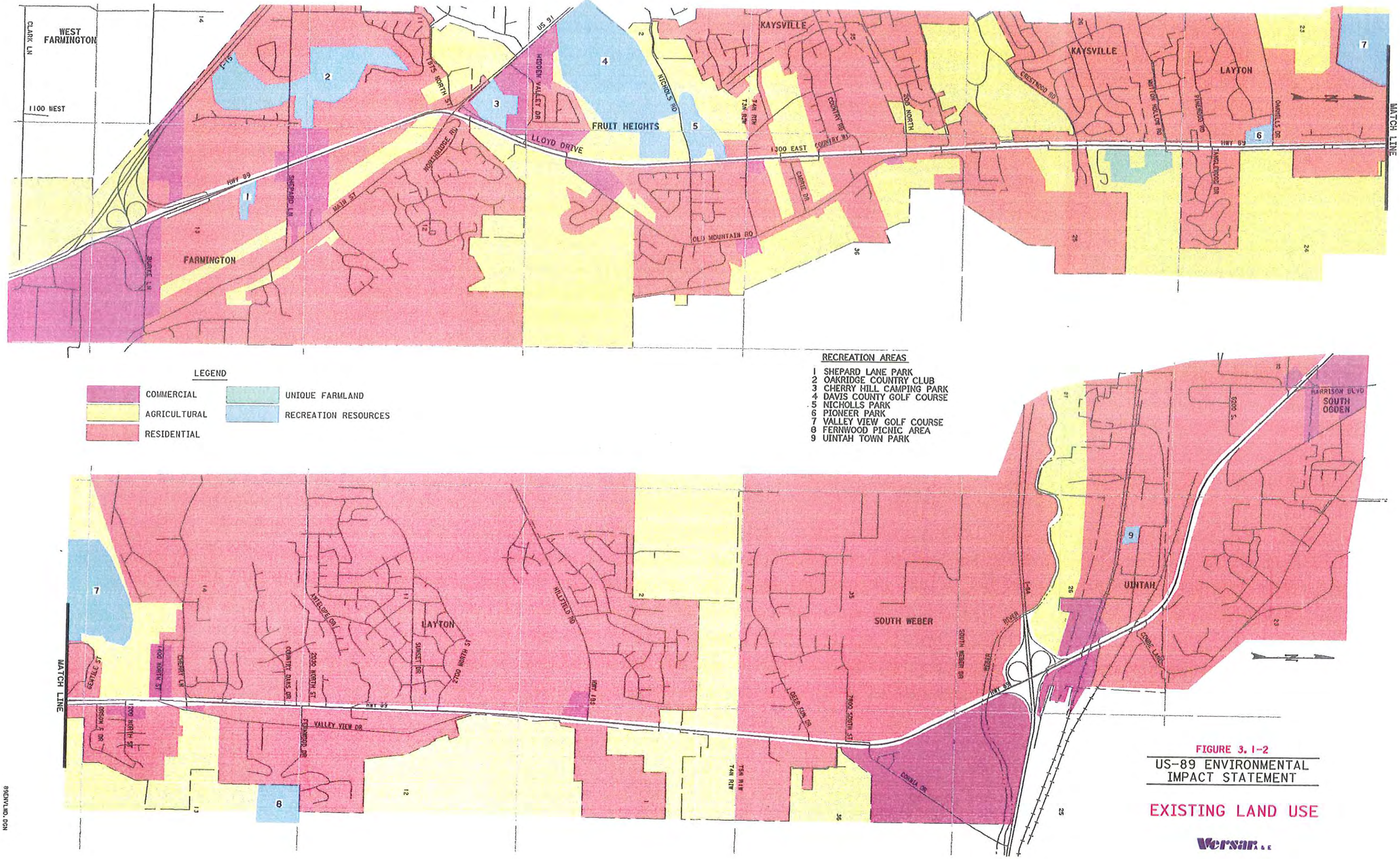


FIGURE 3.1-2

US-89 ENVIRONMENTAL IMPACT STATEMENT

EXISTING LAND USE

Wersan A&E

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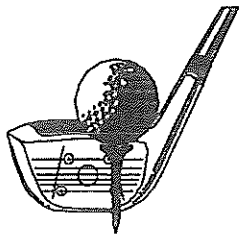
Recreation Property next to the Highway. Shepard Lane Park is a 2.58 hectares (6.38 acre) Farmington City park located on the east side of US-89 in Farmington. The park's west side boundary line runs by the highway. The park is next to Knowlton Elementary School's playing field and an L.D.S. church ball diamond. Access to the park is from Shepard Lane. The park has a developed playing field, one ball diamond, four tennis courts, and a bowery. There is drinking water available and a few picnic tables. Park development began in 1986. Additional phases were developed in 1989 and 1992. The park has been developed, in part, with Land & Water Conservation Fund grants.

Next to the north boundary of Shepard Lane Park is the **Knowlton Elementary School Playing Fields.** The fields cover 2.02 hectares (5 acres) and are used for both school activities and organized city sponsored youth soccer leagues. Davis County School District owns the property.



Located on the west side of the highway, but on the north side of Nicholls Road, is Fruit Heights City's only park, **Nicholls Park**. The park covers 16.86 hectares (41.67 acres) and has three ball diamonds, playing fields, sand volleyball pit, restrooms, two covered picnic boweries, and a small tot lot in the developed section of the park. There is also a natural section with nature trails. During the 1983 floods, high waters destroyed the developed amenities in the natural section and they have not been rebuilt. Nicholls Park's east boundary **is not** directly adjacent to US-89. (See Chapter 5 for detailed location.) The main park body was developed between 1969 and 1974 with a grant from the Land & Water Conservation Fund.

There are four lighted public tennis courts located across Nicholls Road to the south that were constructed between 1976 and 1978 as part of Nicholls Park. Matching Land and Water Conservation Funds funded this project.

Layton City's **Pioneer Park** is located on the southwest corner of the Oakhills Drive/ US-89 intersection. This small 2 hectare (5 acre), natural conditions park has restrooms that are currently in need of repair, a small open space area, and twelve concrete picnic spots. Access to the park is very poor and none of the park's roads are paved. Because of the park's isolated setting, it is frequently vandalized and under utilized. A Land & Water Conservation Fund grant funded the construction of the restrooms and septic tank. (See page 5a-34 for Layton City's comment.)

Davis County Golf Course is an 18 hole golf course owned and operated by Davis County in Fruit Heights. The eastern boundary of the course's driving range is approximately 82 m (270 feet) west of the highway. There is a portion of undeveloped property between the highway and the driving range. While Davis County owns this land, the county does not consider it to be part of the golf course or recreation property (See letter in Appendix A). Nicholls Road provides access to the golf course. No federal funds were used to develop any portion of the golf course.

Other Recreational Sites. Listed below are several additional recreation sites that lie outside the study corridor, but can be accessed from US-89.

Cherry Hill Camping Park, located at the Farmington Junction intersection, is a privately owned and operated destination recreation facility. The park covers 6 hectares (15 acres) and provides 250 camping spaces, miniature golf, waterslides, pools, batting cages, picnic sites, convenience store, and snack shops. Facilities are not only used by the campers, but are also open to the general public. The park operates seasonally from mid-April to October.

Fernwood Park is a small national forest day use picnic area approximately one mile east of US-89 in the Layton area. The park is accessed from Valley View Drive and Fernwood Drive.

South Weber City has three city parks, **Central Park, Central East Park, and Cherry Farms Park**. All three parks are located west and away from US-89.

Uintah Park is located in the town center of Uintah about 150 m (500 feet) west from US-89. Access to the park is provided by 6550 South.

Valley View Golf Course is an 18 hole course owned and operated by Davis County in Layton. The course can currently be accessed off US-89 at Gentile Street. Valley View is approximately 1.6 km (1 mile) west of the highway. The golf course can also be accessed from other directions.

Oakridge Country Club is a private 18 hole golf course located approximately one half mile west of US-89. Access to the clubhouse is provided by Shepard Lane. The country club also has a swimming pool and restaurant. You must be a member or guest of a member to use any of Oakridge's facilities.

3.1.4 Mass Transportation

The study corridor is served by the Utah Transit Authority (UTA). Route 55 runs along US-89, beginning in downtown Salt Lake City and ending in downtown Ogden. Route 55 makes six morning runs, two afternoon runs, and two evening runs. Many students attending Weber State University use this route.

Route 70, a commuter route, and Route 28 are connecting routes which intersect the highway. Route 70 intersects in Farmington. Route 28 intersects in Layton.

There is also a morning and evening bus for workers at Hill Air Force Base. Route 78 runs south along US-89 between Crestwood Road in Kaysville and Green Road in Fruit Heights.

While no formal UTA park and ride lots exist next to US-89, there are two make-shift locations being used as park and ride lots. These locations are in the Foxglove Shopping Center at the northeast corner of Shepard Lane intersection, and the southwest corner of the Farmington Junction of Main Street and US-89.

3.1.5 Other Land Uses

The Utah State University Horticultural & Agricultural Experimental Farm is located at the intersection of Main Street and US-89 (Farmington Junction) in Farmington. This is an educational and research facility of the university. The facility operates year-round and offers both extension classes and regular university credit classes.

The agricultural experiment station was established in 1926 and the gardens were begun in 1954. US-89 divides the farm into two segments. The gardens and buildings cover 2.8 hectares (7 acres) on the east side of the highway. A small grape vineyard and alfalfa field cover 8.1 hectares (20 acres) on the west side of the highway.

Because of urban encroachment, USU has decided to relocate both the agricultural experiment station and the gardens. This relocation is presently underway. The farm's activities are being moved to the university's agricultural station in Kaysville, and the gardens to the Ogden River Parkway in Ogden.

3.2 FARMLANDS

As the corridor cities have grown, the amount of unincorporated county farmland has shrunk. Only unincorporated areas fall under the protection of the Farmland Protection Policy Act. Consultation with the USDA Soil Conservation Service revealed 10.4 hectares (25.8 acres) of unique farmland in the study area. It lies next to the east side of the highway at Mutton Hollow Road and consists of a fruit orchard and alfalfa (See Soil Conservation Service letter and Form AD-1006 in Appendix A). This field is located in unincorporated Davis County (See Figure 3.1-2). Although much of the study corridor is within incorporated city limits, fruit orchards, pastures, and alfalfa fields can still be found next to the highway.

3.3 GEOLOGICAL AND CLIMATIC CONDITIONS AND HAZARDS

The project area is located near the western edge of the Wasatch Range. Bedrock in this area consists of moderately to highly faulted, high grade metamorphic rocks known as the Farmington Canyon Complex. The Wasatch Fault Zone runs approximately north and south along the east of the range front. The fault zone crosses the US-89 alignment in several locations.

Soils within the corridor consist of deltaic deposits, alluvial and fluvial deposits, and engineered fill. In addition, there are many sediments redeposited by mass movements such as landslides and debris flows as well as expansive alluvial fans. The units are all Quaternary in age ranging from middle Pleistocene to uppermost Holocene or recent. Many soils present originated from Lake Bonneville that occupied a large portion of Utah during the Pleistocene.

3.3.1 Potential Geologic Hazards

Between the I-15/Burke Lane Interchange and the Main Street/US-89 intersection (Farmington Junction), the soils are gravel and silty sand. The area is dominated by shallow [less than 1.8 m (6 feet)] groundwater. The presence of shallow groundwater and loose sand deposits has created a high potential for liquefaction.

In Fruit Heights, between Old Mountain Road and Green Road, Baer Creek Canyon has been rated as very high potential for debris flows and flooding. The Baer Creek drainage also has a high potential for liquefaction. The canyon mouth is close to the US-89 alignment.

From Country Way to Mutton Hollow Road the highway enters a potential surface-fault rupture sensitive area. The fault crosses the corridor twice through this section. Holmes Creek drainage poses a moderate potential hazard for debris flow. Above Mutton Hollow Road there is evidence of dipping faults that lie parallel to the highway corridor. Next to Holmes Reservoir there is a high potential for landsliding and liquefaction.

Throughout the US-89 corridor from Kaysville through Layton, fault lines are evident on both sides. They occasionally cross the highway, as shown in Figure 3.3-1.

The highway corridor from Interstate 84 to Harrison Boulevard traverses the Washington Terrace landslide complex where many historically active landslides, slumps, and earth flows have been documented. Mass movement in the area consists of disturbed lake sediments. There are no known faults crossing the alignment in this area. The Wasatch Fault Zone is located approximately 0.6 km (0.4 miles) east of the roadway in the Washington Terrace area.

LACUSTRINE DEPOSITS

- lpd — Deltaic deposits related to regressive phase
- lpg — Lacustrine sand and gravel related to regressive phase
- lps — Lacustrine sands related to regressive phase
- lbd — Deltaic deposits related to transgressive phase
- lbg — Lacustrine sands and gravels related to transgressive phase
- lbs — Lacustrine sands related to transgressive phase
- lbm — Lacustrine silt and clay related to transgressive phase
- lbpg — Lacustrine sand and gravel, undivided
- lbps — Lacustrine sand, undivided
- lbpm — Lacustrine silt and clay, undivided

ALLUVIAL DEPOSITS

- al1 — Stream alluvium 1 (upper Holocene)
- al2 — Stream alluvium 2 (middle Holocene to uppermost Pleistocene)
- alp — Stream alluvium related to regressive phase of the Bonneville lake cycle
- afy — Younger fan alluvium, undivided (Holocene to uppermost Pleistocene)
- afp — Fan alluvium related to regressive phase of the Bonneville lake cycle
- afb — Fan alluvium related to transgressive phase of the Bonneville lake cycle
- af1 — Fan alluvium 1 (upper Holocene)
- af2 — Fan alluvium 2 (middle Holocene to uppermost Pleistocene)
- af3 — Fan alluvium 3, related to either phase of the Bonneville lake cycle
- afo — Older fan alluvium, undivided (upper and middle Pleistocene)

COLLUVIAL DEPOSITS

- cd1 — Debris-flow deposits 1 (upper Holocene)
- cd2 — Debris-flow deposits 2 (middle Holocene to uppermost Pleistocene)
- chs — Hillslope colluvium (Holocene to upper Pleistocene)
- crf — Rock fall and talus deposits (Holocene to upper Pleistocene)
- clsp — Lateral-spread deposits (Holocene to upper Pleistocene)
- cls — Landslide deposits (Holocene to middle Pleistocene)
- ca — Colluvium and alluvium, undivided (Holocene to middle Pleistocene)

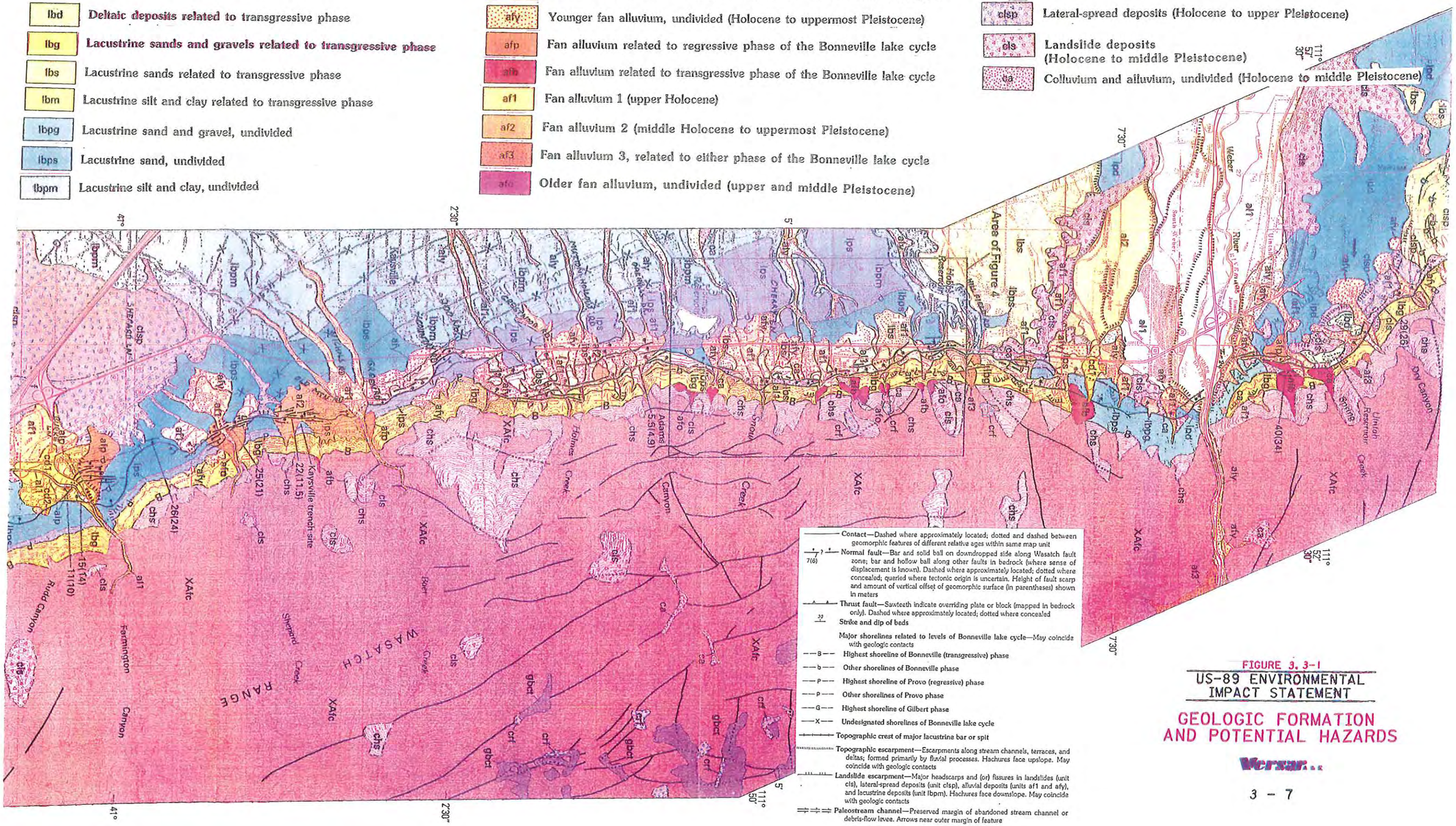


FIGURE 3.3-1
US-89 ENVIRONMENTAL IMPACT STATEMENT

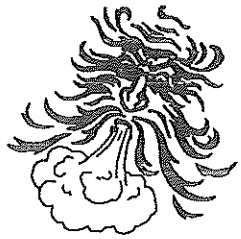
GEOLOGIC FORMATION AND POTENTIAL HAZARDS

Wersar...

3.3.2 Geological Summary

A variety of geologic hazards is present within the project area. Many geologic hazards are interrelated and include surface and groundwater hazards, steep slope hazards, and hazards related to the Wasatch Fault Zone. Surface and groundwater geologic hazards include: shallow groundwater, liquefaction, debris flows and other mass movement. Steep slope hazards include rock falls, landslides, and other hazards that may be caused to move by high groundwater or heavy precipitation. Groundwater conditions, soil types, and seismic activity are considered to be the main controlling elements of mass movement deposits that have and will occur in and near the corridor. Hazards associated with the Wasatch Fault Zone include ground shaking, which may trigger movement of previously existing or new earth masses. Fault hazards also include liquefaction, potential structure damage, and surface rupture.

3.3.3 Climate



The climate in the study area is typical of northern Utah. The semi-arid climate consists of low precipitation, low relative humidity, and temperatures ranging from -18°C to 38°C(0° F to 100° F). The mountain range to the east particularly influences the highway corridor. The abrupt change in elevation influences precipitation amounts. Where the precipitation typically to the west averages 36 to 41 cm (14 to 16 inches) annually, the study area experiences 41 to 51 cm (16 to 20 inches) annually. The higher elevations of the Wasatch Mountains to the east exceed 51 cm (20 inches), contributing to the runoff flow in the streams originating there.

Winds and frontal storms entering the areas from the west coast influence winter weather. Much of the moisture contained in these storms diminishes because of the distance traveled and the mountain ranges crossed by the time they reach the Wasatch Front. Daily winter temperatures generally range from -10°C to 2°C (low teens to the mid-30s in °F). Summer temperatures fluctuate from 10°C to 35°C (low 50s to mid-90s in °F). Extremes are occasionally below -18°C and over 38°C (below zero and over 100 °F). Moisture in the summer months comes less frequently, and usually as thunderstorms. Occasionally cloudbursts do occur, especially along the mountains. These heavy rains have caused some flooding in the past, with a few instances of severe flooding, damage, and loss of life.

Canyon breezes are common, particularly in the summer months. Strong winds are frequent because of the temperature differences between the valley floor and the mountainous canyon areas. Temperature inversions are common along the Wasatch Front during winter months, contributing to some deterioration in air quality.

Weather in this area greatly influences winter driving conditions. Snow and ice are a major concern at times on US-89. Application of road salt is heavy during these times to maintain safer conditions for motorists.

3.4 SOCIO-ECONOMIC CHARACTERISTICS

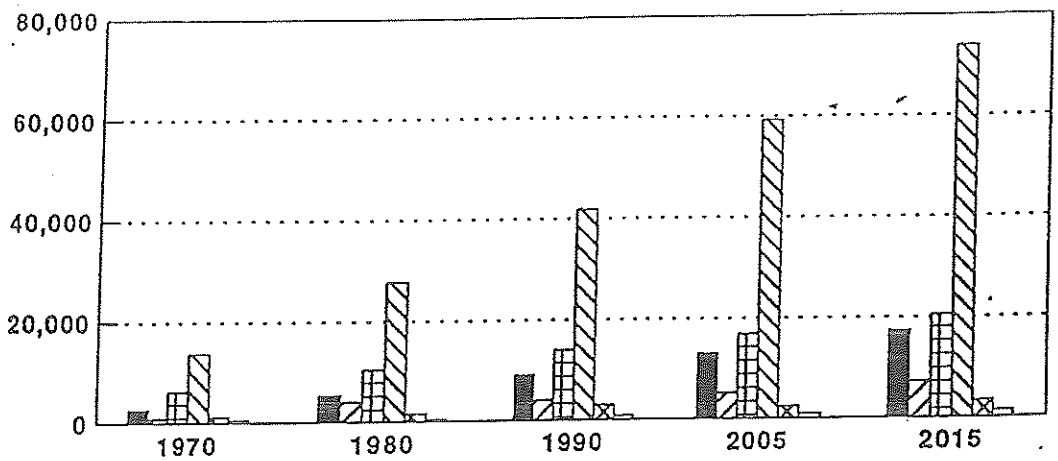
For purposes of reviewing economic impacts, this study gathered and analyzed economic data for north Davis County and south Weber County. The cities of Farmington, Fruits Heights, Kaysville, Layton and South Weber are included from Davis County. The cities of Uintah, South Ogden, and Washington Terrace are included from Weber County. The following information is a summary of Technical Report No. 6, "Land Use and Social-Economic Assessment For U.S. Highway 89."

Rapid population growth and uneven economic growth are typical for the US-89 corridor. This area has experienced an overall population growth of approximately 24 percent over the past five years. During the same period employment has only increased 8.6 percent. New businesses have increased 7.9 percent since 1986. The study area consists primarily of bedroom communities for Ogden and Salt Lake Cities, with only sporadic pockets of commercial development to serve these local communities.

3.4.1 Population Growth

The study area has experienced an overall growth rate of 23.8 percent during the past five years. Davis County has experienced the greatest population growth, 27.6 percent, with south Weber County growing at a lower rate of 14.8 percent. In terms of growth in individual communities, Layton continues to have the strongest growth, showing an increase of 32.50 percent in five years. Figure 3.4-1 shows graphically the growth in these communities.

Figure 3.4-1
US-89 POPULATION GROWTH
CORRIDOR COMMUNITIES, 1970-2015



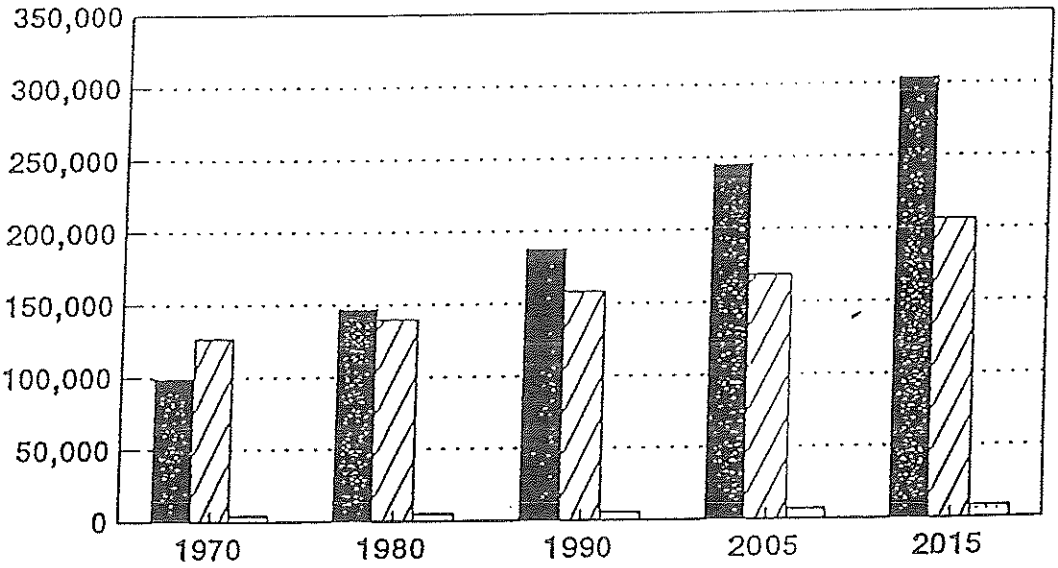
	1970	1980	1990	2005	2015
Farmington	2,526	5,281	9,028	12,987	17,217
Fruit Heights	800	3,948	3,900	5,175	7,215
Kaysville	6,192	10,313	13,961	16,726	20,546
Layton	13,603	27,783	41,784	59,231	73,882
South Weber	1,073	1,489	2,863	2,361	3,366
Uintah	439	334	760	879	1,252

Farmington Fruit Heights Kaysville Layton South Weber Uintah

Source: Wasatch Front Regional Council

Population projections for the counties surrounding the study area predict dramatic growth in Davis County. Overall increase is projected at 108 percent between 1991 and 2011. Weber County, on the other hand, is projected to increase only 18 percent during this period. Davis County has become an attractive "bedroom community" to the higher industrialized and commercialized Salt Lake County. Figure 3.4-2 illustrates this predicted population growth.

FIGURE 3.4-2
US-89 POPULATION GROWTH
3-COUNTY PROJECTIONS



	1970	1980	1990	2005	2015
Davis	99,600	147,509	187,941	245,369	304,206
Weber	126,700	139,890	158,330	168,742	206,261
Morgan	4,050	4,950	5,528	7,020	8,284

Source: Wasatch Front Regional Council

3.4.2 Ethnic Minorities

Within Davis County approximately 9 percent of the population are minorities while in Weber County approximately 14 percent of the population are minorities. Hispanics make up the largest ethnic group. No concentration of minority or low income families exist within the project area. Those who do live in the area are intermingled with other families and have not developed into a neighborhood group.

group.

3.4.3 Housing

Most residential housing in the highway study corridor is single family. Within the study corridor there is one mobile home park in Fruit Heights, one condominium project each in Farmington and Fruit Heights, and one apartment complex each in Fruit Heights and Layton.

3.4.4 Schools

Most students living within the highway study corridor attend schools in the Davis County School District. Students living in Uintah attend schools in the Weber County School District. The majority of the schools are located on the west side of the highway. Except for Knowlton Elementary in Farmington and Uintah Elementary in Uintah, US-89 bisects all of the boundaries. It should be noted that about half the affected elementary and junior high schools are on year round school schedules. Table 3.4-1 lists the schools attended by students living in the corridor, while Figure 3.4-3 shows the school boundaries.

Table 3.4-1
STUDY AREA SCHOOLS

Davis County School District	
Elementary Schools	
Knowlton - year round	801 W. Shepard Lane, Farmington
Burton - traditional	827 East 200 South, Kaysville
Morgan - year round	1089 Thornfield Road, Kaysville
East Layton - year round	2470 E. Cherry lane, Layton
Adams - year round	2200 East 2500 North, Layton
South Weber - traditional	1285 Lester, South Weber
Junior High Schools	
Farmington - traditional	160 South 200 West, Farmington
Kaysville - traditional	100 East 350 South, Kaysville
Central Davis - year round	653 Church, Layton
North Layton - year round	1100 West 2000 South, Layton
Sunset - traditional	1610 North 250 West, Sunset
High Schools	
Davis High	325 S. Main, Kaysville
Layton High	440 Lancer Lane, Layton
Clearfield High	938 South 1000 East, Clearfield
Northridge High	2430 N. Hillfield Road, Layton
Weber County School District	
Uintah Elementary	6115 South 2250 East, Uintah
South Ogden Junior High	4300 Madison Avenue, South Ogden
Bonneville High School	251 Laker Way, Washington Terrace

Total enrollment in schools affected by US-89 reached over 21,200 students for the 1995-96 school year. It should be noted that not all of the students attending these schools live in the highway study corridor.

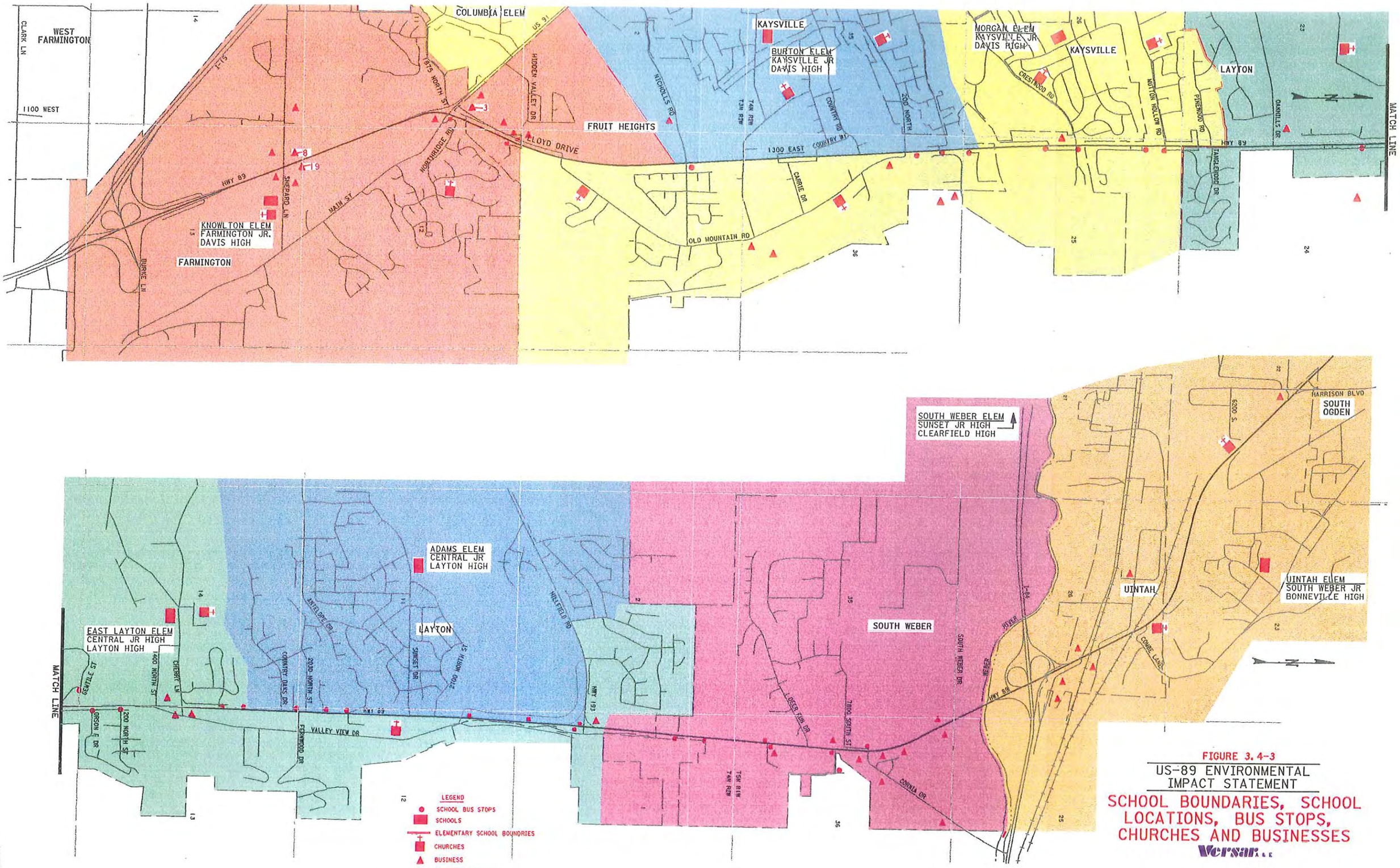


FIGURE 3.4-3

US-89 ENVIRONMENTAL IMPACT STATEMENT

SCHOOL BOUNDARIES, SCHOOL LOCATIONS, BUS STOPS, CHURCHES AND BUSINESSES

Versar, Inc.

89ENVBUS.DGN

Since US-89 bisects all of the school boundaries located within the study corridor, many students face the danger of crossing the highway. In order to minimize this danger, all students who must cross US-89 to attend school are carried by school district bus service. However, many school bus stops are on the highway's shoulder or very near the highway. Davis County School District runs approximately seventeen buses twice a day along the highway and has thirty-one school bus stops either next to or near US-89.

3.4.5 Churches

The corridor communities have all major religious denominations. Directly within the highway's study corridor there are three churches. The location of each of these churches is listed below.

- Washington Heights Baptist Church
  1770 East 6200 South, South Ogden
- Combe Road Foursquare Church
  6487 Combe Road, Uintah
- L.D.S. Chapel
  2455 N. Valley View Drive, Layton

Within 1.6 km (1 mile) of the study corridor there are approximately eight other churches. While access to any one of these churches can be made from US-89, they can also be accessed from other roads and directions.

3.4.6 Utilities and Public Services

All major utilities and public services are provided for in each highway corridor community. The US-89 corridor is a major utility corridor. U.S. West Communications provides telephone service to both Davis and Weber Counties. Utah Power and Light provides electrical power to all of the corridor communities except Kaysville. Kaysville owns its own power company. Mountain Fuel supplies natural gas throughout the corridor.

Weber Basin Water Conservancy District is the largest supplier of culinary water in Davis County. Within the highway study corridor, Weber Basin supplies culinary water to Farmington, Fruit Heights, Kaysville, and Layton. Layton also has some city owned wells. South Weber City and the town of Uintah use city owned wells for all their culinary water. Weber Basin Water also provides secondary (irrigation) water. None of the city owned wells are located within the study corridor area.

Besides Weber Basin Water, there are eight irrigation companies serving the highway corridor.

- Farmington Area Pressurized Irrigation, serves Farmington
- Haight's Creek Irrigation Company, serves Fruit Heights and Kaysville south of Crestwood Road
- Kaysville Pressurized Irrigation Utility, serves Kaysville
- Mutton Hollow Water Improvement District, serves the unincorporated Mutton Hollow area
- Kay's Creek Irrigation, serves Layton
- South Weber Improvement District, serves South Weber City
- Spring Creek Irrigation, serves Uintah
- Davis & Weber Canal Company has a major supply canal crossing US-89 in South Weber City

The three sewer districts operated by Davis County serve all the highway corridor communities except Uintah. The Town of Uintah has no sewer service.

Either private contractors or the cities provide garbage disposal in each community. All of the Davis County communities in the highway corridor have their garbage dumped at the Davis County Burn Plant. Uintah's garbage is hauled to the Weber County Landfill.

The Davis County Sheriff Department provides police and emergency services to South Weber City, Fruit Heights, and all unincorporated areas of the county. Their new Justice Center is located just west of I-15 in Farmington. All of the other communities, including Uintah, have their own police forces. The Utah Highway Patrol is responsible for patrolling and responding to emergencies on US-89.

Layton is the only community in the study corridor with a full time fire department. Volunteer fire departments serve the other communities, and also operate emergency services such as first responder units and ambulance units.

The Davis County Library System offers all communities in the county, except Kaysville, public library services. The county library system has four libraries located throughout the county and also runs many bookmobile routes. None of the libraries are located within the study corridor. Kaysville operates its own city library. The Weber County Library serves the town of Uintah with a bookmobile.

There are two full-service hospitals located in Davis County and two full-service hospitals located in Ogden. None is located within the highway study corridor. There are also several mental, substance abuse, and rehabilitation hospitals/centers located in both Davis and Weber Counties.

- Full-Service Hospital Locations:
  Lakeview Hospital - 630 E. Medical Drive, Bountiful
  Davis Hospital and Medical Center - 1600 W. Antelope Drive, Layton
  Ogden Regional Medical Center - 5475 South 500 East, Ogden
  McKay-Dee Hospital - 3939 Harrison Boulevard, Ogden

There are two companies providing cable television to communities in the study corridor. TCI Cablevision of Utah serves all of the communities except Fruit Heights. Insight Cablevision provides service to Fruit Heights.

3.4.7 Economics

The highway study corridor passes through the Farmington, Kaysville, Layton, Clearfield/South Weber, and South Valley Worksite Districts as defined by the Utah Department of Employment Security (see Technical Report No. 6 for details). Within these worksite districts there were approximately 2,339 firms employing approximately 59,354 individuals in 1990. These figures represent a ten percent increase since 1986. By the year 2000 the number of firms is expected to increase to 2,945 with employment of 73,527. Many of these employees will need to use US-89 to travel to and from work daily.

While there are no major employers located directly in the US-89 study corridor, there are several large employers in the surrounding communities. Hill Air Force Base (HAFB), the state's largest employer, is located a few kilometers (miles) west of US-89 in Layton. HAFB has approximately 14,000 civilian workers and 4,900 military personnel. The base has an annual payroll exceeding $600 million and awards over

$1.4 billion in procurement contracts annually. Approximately $99,669,000 worth of contracts stayed in Utah in 1990. Most HAFB's employees live in Davis and Weber Counties.

The Freeport Center and Freeport West, two very large industrial parks, are located in Clearfield. They are approximately 9.7 km (6 miles) west of the highway study corridor area. There are over thirty manufacturing and distribution companies in the two parks employing several thousand Davis and Weber County residents.

Lagoon Amusement Park & Pioneer Village, located just south of the I-15/Burke Lane Interchange in Farmington, is the largest seasonal employer. The park has approximately 2,500 seasonal employees, of which eighty percent are high school students from Davis and Weber Counties.

Within the US-89 study corridor there are 65 business firms. While the majority are small businesses, one is a large grocery store and one is a large department store. Figure 3.4-3 shows the location of each corridor business.

Gross taxable retail sales in the corridor communities totaled $392,846,000 in 1986 and rose 19.30 percent to $468,659,000 in 1990. The pattern of retail sales indicates a business community focused on servicing the local populace as opposed to an area which attracts business from outside sources. Retail sales will likely grow as the population increases.

Assessed valuation of property in corridor communities is also indicative of area growth patterns. Assessed valuation rose from $1,267,500 in 1980 to $1,511,794 in 1990, an increase of 19.27 percent. Assessed value is more a reflection of new construction than it is of increased property values since assessed value of existing properties is slow to change. Therefore, assess valuation will likely increase as new construction takes place to handle the expected population growth of the corridor communities.

3.5 CONSIDERATIONS RELATING TO PEDESTRIANS AND BICYCLISTS

There are no sidewalks, painted crosswalks or marked bicycle lanes along US-89. This presents a danger to both pedestrians and cyclists using the highway. During the morning hours pedestrians have been observed walking and jogging, at times with their dogs. Bicyclists have been observed throughout the corridor with heaviest use during summer months. Young school age children have been observed walking, cycling, and waiting for school buses next to the highway. Within the west Burke Lane area, 1525 West is designated as part of the Davis County bicycle trail system. The Davis County bicycle trail is the only designated trail system in the area.

3.6 AIR QUALITY

At the present time, Davis County is a non-attainment area for ozone. All other transportation related pollutants, i.e., carbon monoxide (CO), nitrogen dioxide (NO_2), and particulate matter with an aerodynamic diameter less than ten micrometers (PM_{10}), are in attainment for the project area. As a moderate ozone non-attainment area, an Air Quality State Implementation Plan (SIP) is required in the project area to reduce VOC and to demonstrate attainment of the National Ambient Air Quality Standards (NAAQS) by 1996. The state has chosen to apply for redesignation from non-attainment to attainment and has submitted to EPA a maintenance plan to support the redesignation request. This maintenance plan takes

the place of a control strategy SIP for the purpose of transportation conformity. Conformity of the Long Range Transportation Plan, containing the US-89 project, under the transitional period criteria to the emissions budget in the ozone maintenance plan is required. The local MPO, Wasatch Front Regional Council (WFRC) , in their most recent conformity determination of the Long Range Transportation Plan in Davis County (dated October, 1995) show a positive conformity finding to the ozone emissions budget (See WFRC Air Quality Memorandum NO. 7, available from the WFRC office). The FHWA and FTA concurred in the WFRC's conformity determination by memorandum dated October 18, 1995.

3.7 NOISE

A noise study was performed along US-89 to determine the noise levels along the corridor. The noise study followed the UDOT Noise Abatement Policy dated October 16, 1992. Noise levels were monitored in twenty-nine different locations along the length of the highway. The results of the field monitoring were used to calibrate the Noise Prediction Program Stamina 2.0. Noise levels were predicted using the calibrated computer model, and noise contours were created for the design year. Noise contours are shown in Appendix E.

Sensitive Areas. The project passes through many different land uses and activities. According to the UDOT Noise Policy, Noise Abatement Criteria (NAC), the land uses fall into categories B, C, and D. Category B, having a NAC noise level of 67 dBA comprises most of the project area. This category includes residential areas, recreational and picnic areas, schools, churches, hotels and other similar land uses. Developed lands not included in Category B are defined as Category C. Category C has a NAC noise level of 72 dBA. Category D, undeveloped lands, has no NAC noise impact level and is also found along the project.

Located along US-89 are many residential dwellings that vary in density from scattered homes to developed subdivisions. Three parks, three churches, and a few scattered business and business developments are located along US-89. Cherry Hills Recreation Area and the Utah State University Horticultural and Experimental Farm also border US-89. The farm is currently being relocated by the University. See Table 4.10-1 and Figure 4.10-1 for the respective site numbers and location of these areas.

3.8 WATER RESOURCES

Technical Report No. 3, "Water Resources Study Report for U.S. Highway 89," details existing conditions in the study area for both surface and groundwater resources. Water Quality standards for these waters are also summarized in this technical report.

The US-89 study area includes two major drainage areas: Weber River and Farmington Bay drainages. The Weber River originates in the High Uintahs east of the study area, passing through the northern portion of the corridor. A series of reservoirs above Weber Canyon controls its flow. Weber River eventually discharges into the Great Salt Lake.

Most of the study area lies in the Farmington Bay Drainage. There are several small creeks and streams that comprise this drainage. These streams have headwaters that originate in the western slopes of the Wasatch Mountains east of US-89. Each stream crosses the study corridor as it flows to the west (See Figure 3.8-1).

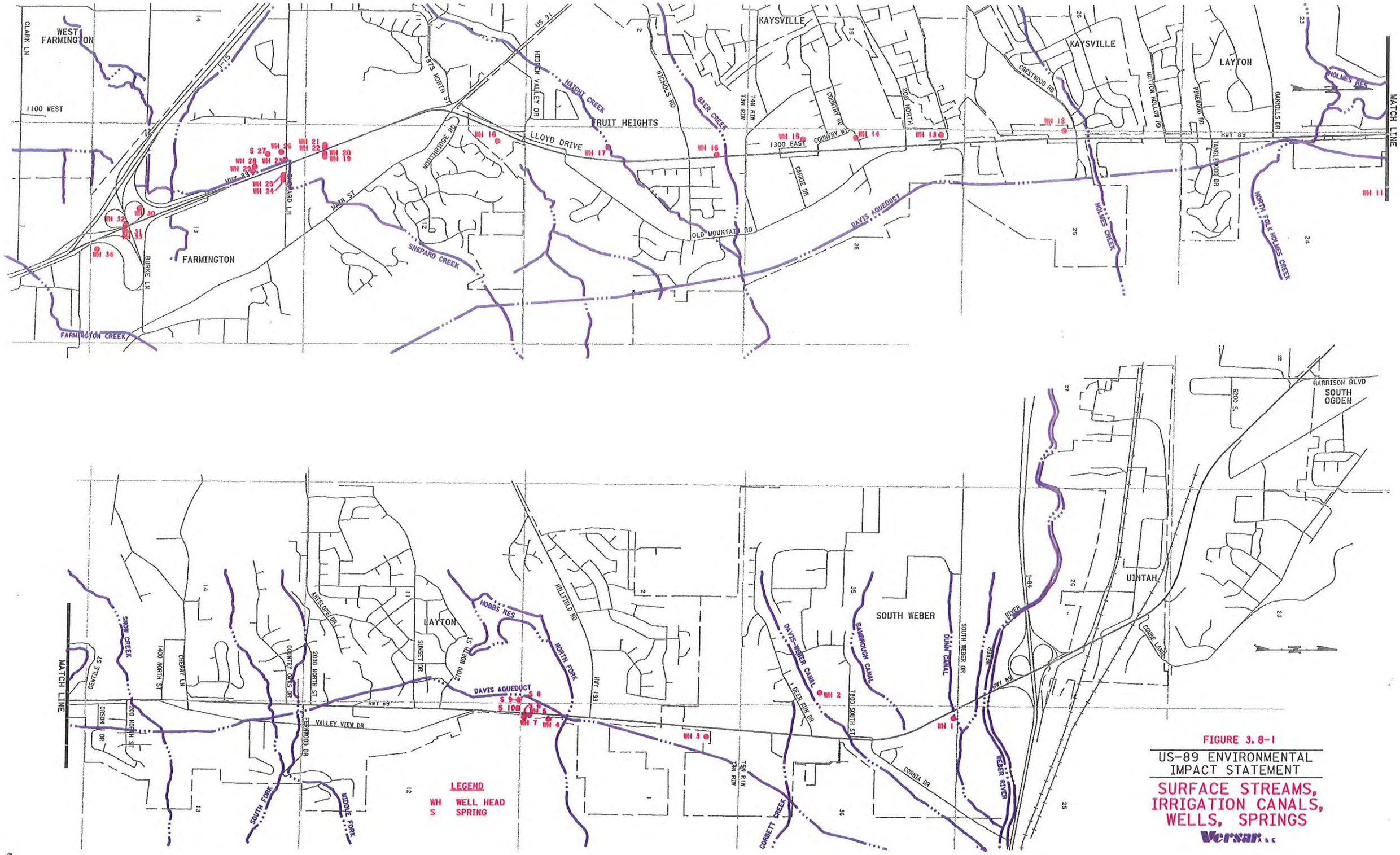


FIGURE 3.8-1

US-89 ENVIRONMENTAL IMPACT STATEMENT

SURFACE STREAMS, IRRIGATION CANALS, WELLS, SPRINGS

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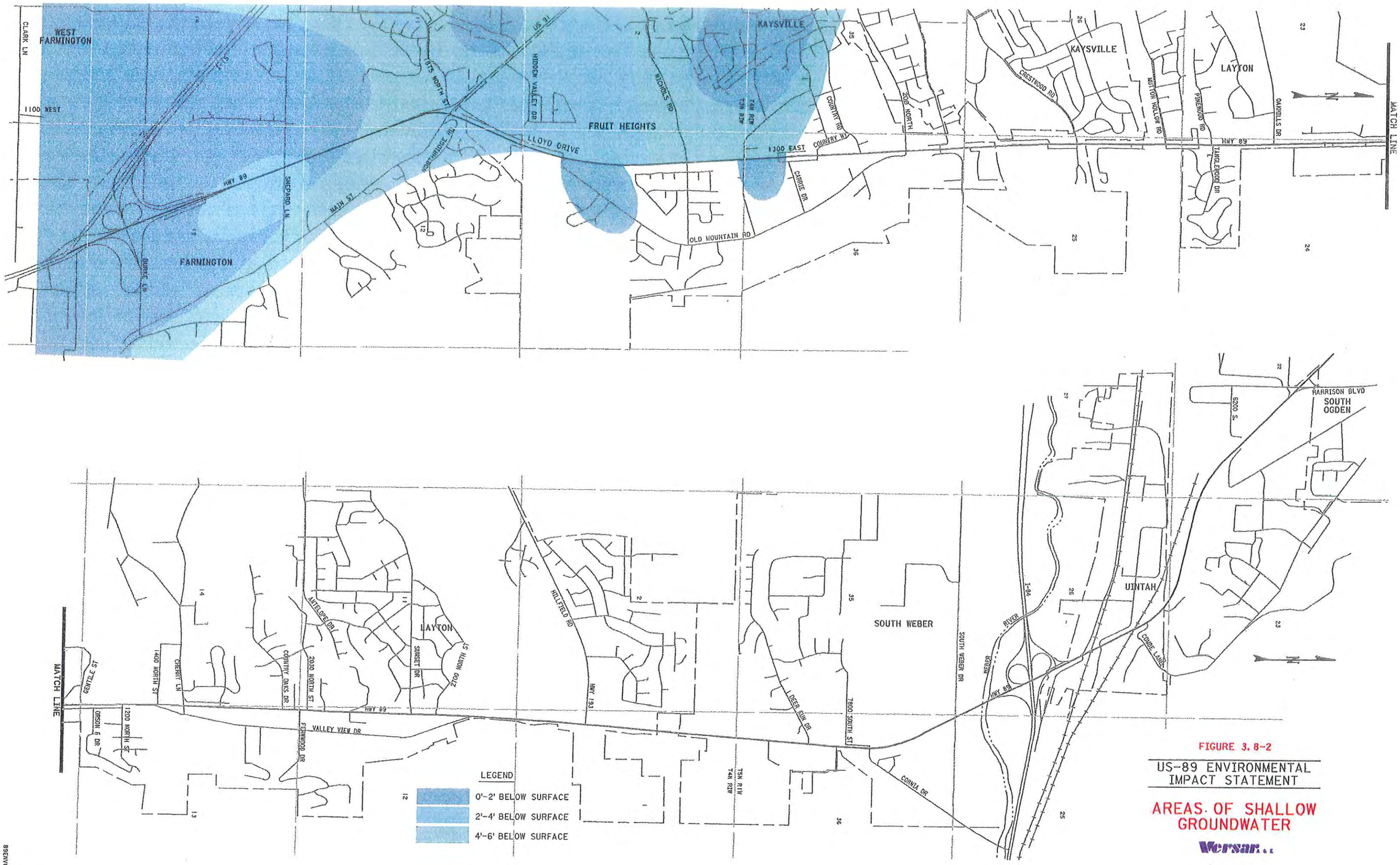

FIGURE 3.8-2

US-89 ENVIRONMENTAL IMPACT STATEMENT

AREAS OF SHALLOW GROUNDWATER

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There are also several irrigation canals which flow through the study area. Various irrigation companies or districts administer water from the Weber River that feed these systems. The Davis Aqueduct also originates from the Weber River and parallels US-89, furnishing irrigation and domestic water to Davis and Salt Lake Counties. This large pipeline crosses the highway in two locations.

3.8.1 Utah State and Local Water Quality Agencies

There are several agencies that have jurisdiction and responsibility for water quality in the study area. They include:

U.S. Bureau of Reclamation
Utah State Department of Environmental Quality, Divisions of Water Quality, Drinking Water, and Environmental Response and Remediation
Weber Basin Water Conservancy District
Davis County Health Department
State Engineer, Division of Water Rights

These agencies have provided much of the data and information contained in this section.

3.8.2 Ground Water Aquifer Identification and Water Quality

Groundwater is a significant source of irrigation and domestic water for the Davis and Weber County areas. Wells or springs provide over sixty percent of Weber County's water and over twenty percent in Davis County.

Due to the generally higher elevations of US-89, shallow groundwater is not present except in the Farmington/ Fruit Heights area (See Figure 3.8-2). In most of this area water is located from 0.6 m to 1.8 m (two to six feet) below the surface.

Aquifer Identification/Protection Areas. Subsurface water within the study corridor is within the East Shore aquifer system. The aquifer system is bounded on the east by the Wasatch Mountain Range and by the Great Salt Lake on the west. The major source of recharge to the aquifer system is from precipitation in the mountainous area east of the valley. Much of this water enters the aquifer as inflow from consolidated rock at the western margin of the Wasatch Mountains.

Existing Wells within Study Area. Figure 3.8-1 identifies locations of 34 existing state-approved wells or springs in the highway corridor area. Most of these wells are approved for irrigation or stock watering uses only, not requiring compliance with more stringent drinking water quality standards. Technical Report No. 3 details these standards.

Ground Water Quality Standards. The Division of Water Quality has established standards for the protection of ground water quality. (See Technical Report No. 3 for a summary of these standards.)

3.8.3 Surface Water Quality Standards/Stream Classifications

Under Authority of the Utah Code Annotated 1953, Section 26-11-1 through 20, as amended, Utah State has established water quality standards for surface waters throughout the state. The Utah Water Pollution Control Board and the Utah State Board of Health adopted these standards in 1965. These standards were more recently revised by action of the Utah Water Pollution Control Committee in 1988. The standards classify the waters of the state into categories to protect against controllable pollution relative to the beneficial uses designated for each class.

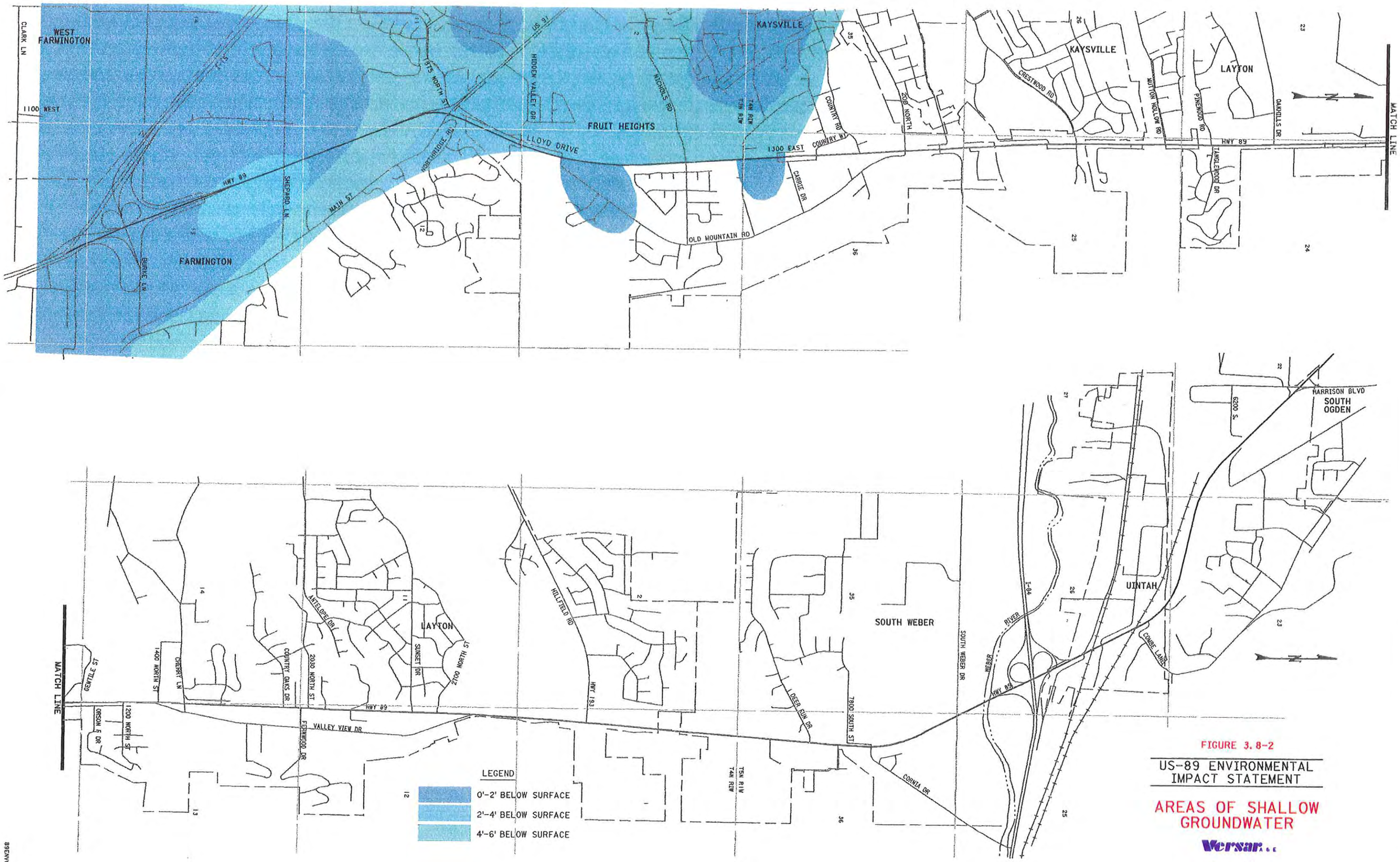

FIGURE 3.8-2

US-89 ENVIRONMENTAL IMPACT STATEMENT

AREAS OF SHALLOW GROUNDWATER

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The designations that apply to identified surface waters in this study area are:

Class 1C -	protected for domestic purposes with prior treatment by treatment processes as required by the Utah Department of Health.
Class 2B -	protected for boating, water skiing, and similar uses, excluding recreational bathing (swimming).
Class 3A -	protected for cold water species of game fish and other cold water aquatic life, including aquatic organisms in their food chain.
Class 3B -	protected for warm water species of game fish and other warm water aquatic life, including aquatic organisms in their food chain.
Class 3C -	protected for nongame fish and other aquatic life, including aquatic organisms in their food chain.
Class 3D -	protected for waterfowl, shore birds and other water-oriented wildlife not included in classes 3A, 3B, and 3C, including aquatic organisms in their food chain.
Class 4 -	protected for agricultural uses including irrigation of crops and stock watering.

Based on these definitions, the State Division of Water Quality has classified the major streams and reservoirs, as outlined in Table 3.8-1. The numeric criteria for these various classifications are presented in Technical Report No. 3.

Existing Water Quality. Only limited water quality data is available for streams in the study area. The Utah State Division of Water Quality conducts a regular sampling program for the Weber River and Baer Creek. There were no standards violations recorded during the sampling period since 1985.

Table 3.8-1
WATER USE CLASSIFICATIONS
WITHIN VICINITY OF US HIGHWAY 89

SOURCE	DOMESTIC SOURCE	RECREATION AND AESTHETICS		AQUATIC WILDLIFE				AGRICULTURE
	1C	2A	2B	3A	3B	3C	3D	4
WEBER BASIN DRAINAGE								
Weber River						X	X	X
FARMINGTON BAY DRAINAGE								
Corbett Creek				X				X
Kays Creek					X			X
Snow Creek						X		X
Holmes Creek					X			X
Baer Creek	X			X	X			X
Shepard Creek				X				X
Holmes Creek Reservoir			X		X			X

3.8.4 Water Use/Water Rights

Water resources in the study area have been developed for domestic use, irrigation, and some limited recreation. The principal surface water sources in the area are the Weber River and the streams originating in the mountains to the east of US-89. Groundwater is also a major source of water for the study area. There are over 1200 wells and over 100 springs recorded with the State Division of Water Rights throughout the Davis County area.

3.8.5 Floodplains

There are two distinct causes of flooding in the study area: rapid snowmelt and convection type cloudburst storms. There are also two sets of conditions which control flooding conditions. Flooding of the Weber River occurs because of rapid snowmelt conditions from April to early July. The large drainage area contributes to this situation. This area has no history of significant rain-related flooding, although heavy rains can augment snowmelt.

Weather conditions have a different effect on the other streams originating in the mountains immediately east of US-89 than on the Weber River. With much smaller drainage areas, isolated cloudbursts generally create flood conditions where large amounts of moisture are released in a short period over a concentrated area.

Farmington, Baer, Holmes, and Kays Creeks have recorded flooding conditions in the last century. In some 100 Year floodplains in these instances, US-89 has been partially or completed flooded or damaged. Within the study corridor US-89 crosses 13 floodplains. Figure 3.8-3 identifies 100-year floodplains in the study area, as determined by the Federal Emergency Management Agency (FEMA). Further coordination with local agencies and FEMA indicates Shepard Creek is not floodplain. (See Appendix F for list of maps for project area.)

3.9 WETLANDS

3.9.1 Jurisdictional Wetlands Inventory

Wetlands which are designated jurisdictional possess the three essential criteria of hydrophytic vegetation, hydric soils, and wetland hydrology. The U.S. Army Corps of Engineers regulates jurisdictional wetlands at the crossing of US-89 through Section 404 of the Clean Water Act. Besides possessing the three essential criteria, jurisdictional wetlands must be naturally occurring and be saturated and/or inundated by surface and/or groundwater for a minimum of seven days during the growing season.

There are 26 sites covering 31.81 hectares (78.61 acres) of adjacent and isolated jurisdictional wetlands located next to or within 150 meters (500 feet) of US-89 between the I-15/Burke Lane Interchange in Farmington and South Ogden. The Burke Lane West study area contains 22.46 hectares (55.51 acres) of the total 31.81 hectares (78.61 acres). Table 3.9-1 identifies each jurisdictional wetland by letter and size, while Figure 3.9-1 shows the location of the jurisdictional wetlands. Each wetland was identified and delineated according to the wetland delineation criteria outlined in the Corps of Engineers Wetlands Delineation Manual (U.S. Army Corps of Engineers, 1987). Technical Report No. 10 "Wetlands Delineation Field Study Report" discusses the wetlands in detail. The UDOT Wetland Assessment form is included in Appendix F.

LEGEND

100-YEAR FLOOD PLAIN

FIGURE 3.8-3

US-89 ENVIRONMENTAL IMPACT STATEMENT

100-YEAR FLOODPLAINS

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FIGURE 3.9-1

US-89 ENVIRONMENTAL IMPACT STATEMENT

WETLANDS

Versar, Inc.

Table 3.9-1
US-89 CORRIDOR
JURISDICTIONAL WETLANDS HECTARES (ACRES)

*WETLAND SITE	TOTAL AREA	*WETLAND SITE	TOTAL AREA	*WETLAND SITE	TOTAL AREA
A	0.19 (0.5)	J	0.49 (1.2)	6A	0.20 (0.5)
B	0.06 (0.2)	K	0.04 (0.1)	7A	0.04 (0.1)
C	0.04 (0.1)	L	0.15 (0.4)	8A	0.08 (0.2)
D	0.25 (0.6)	M	0.15 (0.4)	1B	7.32 (18.1)
E	0.09 (0.2)	1A	0.06 (0.2)	2B	6.43 (15.9)
F	2.53 (6.3)	2A	2.43 (6.0)	3B	1.21 (3.0)
G	0.42 (1.0)	3A	0.24 (0.6)	4B	3.36 (8.3)
H	1.22 (3.0)	4A	0.04 (0.1)	5B	4.13 (10.21)
I	0.53 (1.3)	5A	0.08 (0.2)		

*Key for Figure 3.9-1

Three of the wetland sites are ponds. Site J is a large, seasonal use, irrigation pond. It is filled by spring snow melt water and empties by October. Site K is a small pond located in front of a private residence. It has no special purpose. The third pond, used for watering cattle and horses, is located within Site B. (See Table 4.13-1 for wetland types.)

A variety of hydrophytic vegetation from thick stands of common cattails to saltgrass cover the wetland sites. Other common vegetation include rushes, sedges, common teasel, tall fescue, reed canarygrass, cottonwoods, Russian Olive, and willows.

Many of the wetlands located near the Burke Lane Interchange area were significantly disturbed by the interchange construction during the 1970's. Large quantities of fill dirt were used for construction purposes. Some sites adjacent to the interchange have also had piles of dirt, rocks, and large chunks of concrete dumped throughout them.

It should be noted that several identified wetlands in the Farmington and Burke Lane West areas extend beyond the 152 m (500 foot) wetland study corridor. Also, the surrounding area outside the 152 m (500 foot) wetland study corridor contains other wetlands.

3.9.2 Wetland Values

Many of the wetlands in the Farmington and Burke Lane West area are used as native pasture for cattle and horses. These same wetlands, along with the other wetlands, also provide habitat for water fowl, small birds and mammals. With much of the surrounding corridor study area becoming more urban, these emergent marsh type wetlands help to maintain a source for food, water, and nesting ground.

The three sources of surface water found in the wetland areas are natural springs, irrigation runoff, and stormwater runoff. There are high amounts of pollutants and sediments found in runoff waters. A

Table 3.10-3
RIPARIAN COMMUNITY PLANT SPECIES

Grasses, Sedges, and Rushes			
Common Name	**Botanical Name**	**Common Name**	**Botanical Name**
Sedge spp.	Carex spp.	Scratchgrass	Muhlenbergia asperfolia
Orchardgrass	Dactylis glomerata	Reed canarygrass	Phalaris arundinacea
Saltgrass	Distichlis spicata	Bluegrass	Poa pratensis
Barnyardgrass	Echinochloa crus-galli	Rabbitfoot grass	Polypogon monospeliensis
Rush spp.	Juncus spp.	Johnsongrass	Sorgum halpense
Forbs			
Annual paintbrush	Castilleja exilis	Golden dock	Rumex maritimus
Arrowweed	Sagittaria cuneata		
Trees			
Russian olive	Elaeagnus angustifolia	Barrenground willow	Salix brachycarpa
Narrowleaf cottonwood	Populus angustifolia	Sandbar willow	Salix exguia
Fremont cottonwood	Populus fremontii		

3.11 WILDLIFE

While the highway study corridor may be considered an urban area, wildlife and small birds can still be found throughout the corridor. This is due to the proximity of the Wasatch National Forest boundary, streams and riparian channels, and the remaining areas of undeveloped ground. Deer and other wildlife also enjoy the easy access to home landscapes for food during the winter months.

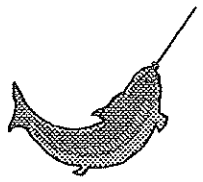
Both the Davis County Animal Control and the Utah State Division of Wildlife Resources expressed concern about the number of deer and smaller wildlife presently killed on the highway by vehicles. The DWR made the following figures available for the project study area:

1992 - 1993 = 214 deer killed (10.64 deer kill/km [17.12 deer kill/mile])
1991 - 1992 = 187 deer killed (9.29 deer kill/km [14.96 deer kill/mile])
1990 - 1991 = 111 deer killed (5.52 deer kill/km [8.88 deer kill/mile])
1989 - 1990 = 280 deer killed (13.92 deer kill/km [22.4 deer kill/mile])
1988 - 1989 = 533 deer killed (26.49 deer kill/km [42.64 deer kill/mile])

This information came from the department's big game highway mortality records.

Besides deer, other wildlife found in the corridor area include raccoon, squirrel, skunk, porcupine, ducks, and other birds, snakes, reptiles, and insects.

3.12 FISHERIES



The Weber River, which US-89 crosses at the north end of the study corridor, is a popular fishing river. None of the other streams found in the study corridor has enough water flow to support fish habitat.

The Weber River is a Class 3 fishery where US-89 crosses. Each year from June through mid-November the river area is stocked with catchable rainbow trout. In August, of each year, the area is stocked with 12,000 brown trout fingerlings. Listed below are other fish found in this section of the river.

Cutthroat trout	Mountain Whitefish
Speckled dace	Longnose dace
Mottled sculpin	Redside shiner
Carp	Green sucker
Mountain sucker	Utah sucker

3.13 THREATENED OR ENDANGERED SPECIES

There are no threatened or endangered animal or plant species within the .4 km (1/2 mile) project corridor study area. However, the bald eagle (Haliaeetus leucocephalus), a threatened species, uses large cottonwoods and other trees along the Weber River as winter roost sites. There are no known bald eagle roost sites within the project corridor study area due to the lack of large trees where US-89 crosses the river.

Concerning threatened or endangered species within the highway study corridor the following agencies were contracted:

U.S. Fish and Wildlife Service
Utah State Division of Wildlife Resources (DWR)

Agency letters are contained in Appendix A.

3.14 HISTORICAL, ARCHAEOLOGICAL, AND PALEONTOLOGICAL RESOURCES

According to Section 106 of the National Historic Preservation Act of 1966, as amended 1992, and its implementing regulation (36 CFR 800), Sagebrush Archaeological Consultants of Ogden, Utah, inventoried the project's entire area of potential effects for cultural resources during 1990, 1991, 1992, and 1996. A total of 49 highly variable in-period sites were found in the area. These consist of historic period buildings, water control structures, a culvert, bridge footings, a former United States Forest Service labor camp, a historic grave site, a historic fish farm and concrete silo, and one prehistoric archaeological site. Of these, the house at site E9, 8386 South Highway 89, was previously identified and determined not eligible for the National Register of Historic Places (NRHP). However, while the house is non-contributory, there is a stone root cellar that was previously identified (1990 Archaeological Report No. 425, Sagebrush Archaeological Consultants, US-89/SR-193 Interchange) and determined eligible for the NRHP. Other previously identified sites determined eligible for the NRHP are E10 - 8102 South Highway 89, E17 - 2778 North Highway 89, and E15 - 42Wb54.

Eligibility Criteria. As part of the cultural resources inventory performed for this project, cultural resources are evaluated to determine eligibility for the National Register of Historic Places (NRHP). These cultural resources are evaluated under four criteria and if they meet one or more of these criteria, they may be eligible for the National Register. These criteria are:

> (A) Association of the cultural resources with events that have made a significant contribution to the broad patterns of the area's history. For example, the ongoing association with an ethnic or social group in an area's history, reflected in the buildings or streetscapes.
>
> (B) Association with the lives of persons significant in the area's past. For example, the Beehive House in Salt Lake City is included on the National Register because of its association with Brigham Young's life, a prominent figure in early Utah history.
>
> (C) (1) A property with distinctive characteristics of a type or method of construction; (2) A property representative of the work of a master or (3) possessing high artistic values (such as the Salt Lake LDS Temple); or (4) Representative of a significant and distinguishable entity whose components may lack individual distinction (such as Ogden's 25th Street Historic District).
>
> (D) History of yielding, or potential to yield, information important in prehistory or history. For example, traditional native America village sites are also archaeological sites, which can provide important information about the history and prehistory of the group that lived there.

Cultural Resources. Consultation with the State Historic Preservation Office (SHPO), on the remaining 45 sites has resulted in the determination that 14 are eligible for the NRHP under Criteria "C" and two are eligible under Criteria "D", one is eligible under Criteria "C and D", one is eligible under Criteria "A, C, and D", one is eligible under Criteria "A, B, and C", and three are eligible under Criteria "A and C" (See SHPO letter in Appendix A). Thus, a total of 22 NRHP eligible sites are located within the area of potential effects. Table 3.14-1 identifies the NRHP eligible sites, while Table 3.14-2 identifies the sites that were determined non-eligible for the NRHP. Figure 3.14-1 shows the approximate locations of each site.

One site, E5 - 1363 Highway 89, Layton, has been previously recorded as 1361 North Highway 89. According to records both addresses have been used to identify the site.

Paleontological Resources. In accordance with Utah Code Annotated 63-73-19, the entire area of potential effects was also inventoried for paleontological resources. A record search was conducted of the State Paleontology files at the Division of State History, as well as a ground survey of the area of potential effect. No paleontological resources were located.

Table 3.14-1
SUMMARY OF NRHP ELIGIBLE HISTORICAL AND ARCHAEOLOGICAL RESOURCES

Map ID No. - Site No./Address	Description	Year Built
E1 - 161 No. Highway 89, Fruit Heights	Victorian Eclectic House	1892
E2 - 530 North 1300 East, Fruit Heights	Victorian Eclectic House	1907
E3 - 1402 No. Highway 89, Kaysville	Basement House	1940
E4 - 42Dv47, Layton	Flood Control Walls	1935
E5 - 1363 No. Highway 89, Layton	Queen Anne Victorian House	1898
E6 - 2550 No. Highway 89, Layton	Vernacular Gable House	1939
E7 - 42Dv48, South Weber	Flood Control Structure	1935
E8 - 2339 East 6550 South, Uintah	Vernacular Four-square House	1909
E9 - 8386 So. Highway 89, South Weber	Root Cellar	1890
E10 - 8102 So. Highway 89, South Weber	Root Cellar	1898
E11 - 2250 East 6550 South, Uintah	Victorian Double Cross-wing House	1899
E12 - 6571 South 2275 East, Uintah	Vernacular Four-square House	1912
E13 - 6574 South 2275 East, Uintah	Vernacular House	1936
E14 - Determined Not Eligible		
E15 - 42W654	Prehistoric Archaeological	
E16 - 1305 North Main Street, Farmington	Victorian Eclectic House	1903
E17 - 2778 North Highway 89, Layton	Vernacular Stone House	1863
E18 - 1787 North Main Street, Farmington	Gothic Revival House	1885
E19 - 1812 North Main Street, Farmington	Victorian Eclectic Farmstead	1897
E20 - 1817 North Main Street, Farmington	World War II Era Cottage	1930
E21 - Union Pacific Railroad, Uintah	Underpass	1915
E22 - 42Wb335, 6500 South Highway 89	Grave Site	1869
E23 - 251 North Highway 89	Vernacular Four-square House	1916

The location of site E15 is not listed in Table 3.14-1 or shown on Figure 3.14.1 to protect it from vandalism.

Table 3.14-2
SUMMARY OF NON-ELIGIBLE HISTORICAL RESOURCES

Map ID No. - Site No./Address	Description	Year Built
N1 - VR-1, Farmington	Stave Silo	ca. 1920's
N2 - 42Dv50, Farmington	U.S. Forest Service Labor Camp	ca. 1930s
N3 - 42Dv46, Fruit Heights	Unfinished Rock Vernacular Structure	1947
N4 - 241 No. Mountain Road, Fruit Heights	Vernacular Brick House	1895
N5 - 497 North 1300 West, Fruit Heights	Vernacular Side Gabled House	
N6 - 936 No. Highway 89, Layton	Brick Bungalow	1922
N7 - 946 No. Highway 89, Layton	Side Gable WWII Cottage	
N8 - 2848 E. Cherry Lane, Layton	Vernacular Novelty Sided House	1915
N9 - 2148 U.S. Highway 89, Layton	Pre-ranch Style House	1945
N10 - 2731 East 7825 South, South Weber	Side Gable Vernacular Brick House	1910
N11 - VR-2, South Weber	Bridge Footings	ca. 1930s
N12 - 6658 No. Highway 89, Uintah	Commercial Block Structure	1943 - 1945
N13 - 6550 So. Highway 89, Uintah	Side Gabled Vernacular House	1904
N14 - VR-3, Uintah	Irrigation Water Control System	1929
N15 - 2328 East 6550 South, Uintah	Vernacular Four-square House	1909
N16 - 8386 So. Highway 89, South Weber	Cross-gable Brick Vernacular House	1890
N17 - 2875 No. Highway 89, Layton	Vernacular House	1940
N18 - 42Wb334, Uintah	Fish Hatchery	1907
N19 - Determined Eligible (See E22)		
N20 - 42Wb336, South Ogden	Foundations	
N21 - 42Wb337, Uintah	Box Type Culvert	ca. 1910
N22 - 2379 East 6600 South, Uintah	Vernacular House	ca. 1945
N23 - 6630 South 2275 East, Uintah	Tudor Style Period Cottage	ca. 1935
N24 - 6568 South 2275 East, Uintah	Hall-parlor Vernacular House	1889
N25 - 6565 South 2247 East, Uintah	Front Gable Vernacular Garage	ca. 1930
N26 - 6655 South 2275 East, Uintah	Front Gable Garage	ca. 1900
N27 - 42Dv54, Farmington	Basement House Foundation	1940
N28 - 2325 East 6550 South, Uintah	Wood Shed	before 1945

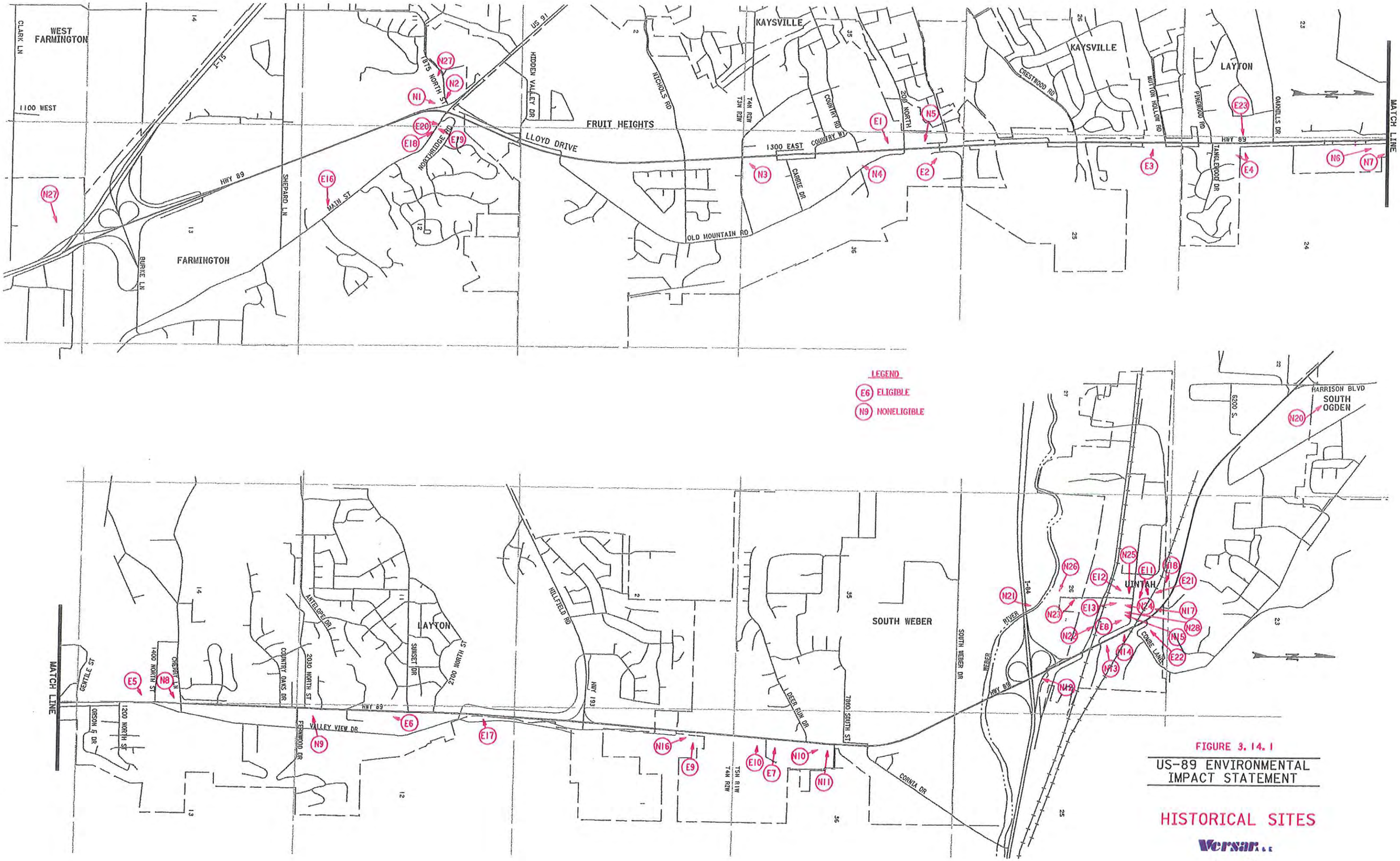


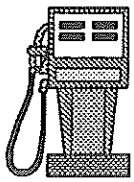
FIGURE 3.14.1

US-89 ENVIRONMENTAL IMPACT STATEMENT

HISTORICAL SITES

Versar Inc.

3.15 POTENTIAL HAZARDOUS WASTE SITES



Environmental professionals conducted a preliminary identification of potential environmental contamination sites along the study corridor. The assessment included reviewing federal and state environmental databases, reviewing other regulatory records, and interviews with knowledgeable regulatory, public health and safety personnel. Versar personnel also interviewed nearby residents, reviewed historical research, and made physical site inspections, where possible. Besides assessing the presence of potential hazardous waste sites, potential leaking petroleum tank sites, not regulated as hazardous waste, were identified.

Potential environmental contamination sites listed in this document were selected based upon the types of business operations historically known to have been present at the sites. The selected facility types typically use, store, or produce materials that may be regulated or considered environmentally hazardous. Environmental media subject to contamination from these potential sources include soil, surface water, groundwater, and ambient air. No direct measuring or sampling was conducted as part of this assessment at any site to evaluate the actual presence of hazardous materials.

Nineteen potential environmental contamination sites were identified and basic Phase I Environmental Studies were conducted on each site. A basic Phase I Study includes a site visit and search of environmental records for known problems. Figure 3.15-1 shows the location of each potential site while Table 3.15-1 lists the name and address of each site. These include six service stations, four automobile repair or transportation related businesses, three agricultural sites, three sand and gravel operations that store or dispense petroleum products, and three city/county/service district work shops or maintenance facilities. Ten of the sites are directly next to US-89, the others are nearby.

Of the nineteen sites, two sites are registered Resource Conservation and Recovery Act (RCRA) facilities. These include the Weber Basin Water Conservancy District Maintenance Facility, and Parson's Sand and Gravel.

No Comprehensive Environmental Response, Compensation and Liability Information System (CERCLA) sites and no Toxic Chemical Release Inventory (TRI) facilities are reported to exist near the study corridor.

Contamination to soil and/or groundwater from Leaking Underground Storage Tank (LUST) sites is the most common environmental problem within the study corridor. Six of the nineteen potential hazardous waste sites listed in Table 3.15-1 have become LUST sites and have had contamination problems. Five sites have followed State regulations for remediation and have been cleaned-up. One site is currently in the clean-up process. At present, all other potential hazardous site owners and DEQ have not reported any petroleum spills or releases. It appears that these sites are in compliance with present State underground storage tank rules. The age of underground storage tanks on sites located in the corridor is unknown and may cause problems in the future.

The most current available sources of environmental information were used to prepare this document. The DEQ was consulted and asked to provide any available information from their records. However, the inherent risk of unsuspected environmental contamination persists. The general site conditions and past site history indicate that the risk of discovering an undetected large environmental contamination problem is comparatively small. The DEQ has reviewed the report and feels no further work or sampling is needed. (See letter in Appendix A.) DEQ was contacted on June 5, 1996, to see if the status of the project area had changed.

FIGURE 3.15-1

US-89 ENVIRONMENTAL IMPACT STATEMENT

POTENTIAL HAZARDOUS WASTE SITE LOCATIONS

Versar Inc.

1/3/92 89ENVMAS.DGN

Table 3.15-1
POTENTIAL HAZARDOUS WASTE SITES

Name and Address	Type of Business	No. of Underground Tanks	Status
# 1 Maverick Country Store 957 W. Shepard Lane Farmington, Utah	Convenience Store/Self-Serve Gas Station	2	
# 2 USU Horticultural Farm & Agricultural Experimental Station Farmington Junction	Educational Gardens and Farm	1	
# 3 Potter Farms Farmington Junction	Agricultural	-	
# 4 Toolson's Chevron 1350 South 106 East Fruit Heights, Utah	Full Service Gas Station	4	
# 5 Davis County Public Works 650 North 1500 East Fruit Heights, Utah	Vehicle/Equipment Maintenance and Repair	4	Cleaned Up 10/92
# 6 Hall & Gailey's Sand & Gravel Layton, Utah	Gravel Pit	-	
# 7 Hardy Enterprises' Texaco 1378 North Highway 89 Layton, Utah	Convenience Store/Self-Serve Gas Station	3	
# 8 Hardy Enterprises' Texaco 1508 North Highway 89 Layton, Utah	Convenience Store/Self-Serve Gas Station	3	Cleaned Up 02/94
# 9 Abandoned Farm Buildings 1500 Block of Valley View Drive Layton, Utah	Agricultural	-	
#10 Weber Basin Water Conservancy District 2837 East Highway 193 Layton, Utah	Water Treatment Plant	2	Cleaned Up 02/94
#11 RB's One Stop 8062 South Highway 89 South Weber, Utah	Convenience Store/Self-Serve Gas Station	0	Remediation in Process
#12 Texaco 7865 South Highway 89 South Weber, Utah	Self-Serve Gas Station	Building, Islands, and 3 Tanks Removed 1993	Cleaned Up
#13 Seward Motor Freight 7636 South Cornia Drive South Weber, Utah	Trucking	2	
#14 Parson's Sand & Gravel 2585 South Weber Drive South Weber, Utah	Gravel Pit	-	

Through the trees to the west, travelers catch glimpses of the Great Salt Lake. Between the highway and the Great Salt Lake there are vast areas of vacant fields that are still being grazed by cattle or are planted in seasonal crops. Clumps of housing developments and the communities of Layton and Clearfield can be seen to the northwest. Looking to the south, travelers can see the whole south end of Davis County.

Kaysville and Layton are experiencing continued growth from the west toward US-89, with residential development crossing the highway to the east. Mature fruit orchards are found next to the highway. Fruit stands are busy during the harvest season, with cherries, apples, and peaches the most popular produce for sale.

North of Oakhills Drive is a mix of residential development and undisturbed vacant land with very little agricultural activity. Vacant land is moderately wooded with natural trees and scrub oak. Streams originating in the mountains to the east have carved out occasional deep ravines crossed by the highway. These ravines are heavily vegetated.

The only commercial sites throughout this area of the highway are gas station/convenient stores. These stations have been constructed as the traffic volumes have increased along the highway.

The intersection of Hillfield Road (U-193) is the highest elevation along US-89. From this point the highway descends rapidly to the mouth of Weber Canyon. At this high point a panoramic view of the Weber Canyon valley floor to the north and west is impressive.

Next to the Weber River and I-84, which travels up Weber Canyon, two large gravel pit excavations on both sides of the highway dominate the roadside. The operators have estimated the gravel extraction will continue approximately ten more years in the pit on the east side. The life of the gravel operation on the west may extend another fifty years.

A beautiful view of Weber Canyon is dominant from US-89 to the east as one travels along the highway through the I-84 Interchange. US-89 continues northwestward, making a steep climb out of the Weber River Basin and onto the South Ogden bench. This area is a mixture of vacant farm fields and commercial and residential development.

The general overall aesthetics of US-89 is best described by its nickname, "Mountain Road." Commercial and residential development is quite evident along the corridor. US-89 lies in proximity of the mountains to the east, with an abundance of mature trees and scrub oak, a gently rolling contour of the road, and a view of the Great Salt Lake and valley to the west. These conditions produce a feeling of a drive through the Wasatch Mountains.

CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

4.1 LAND USE IMPACTS

Review of the highway corridor communities' zoning and master plans show most of the land will continue to be developed for residential use with limited areas of commercial development. While the taking of land for right-of-way and frontage road development will eliminate some developable land (see Table 4.1-1), each alternative will allow for organized residential development to continue.

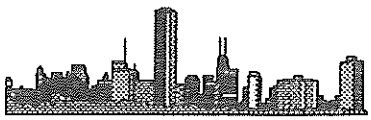


Table 4.1-1
ADDITIONAL RIGHT-OF-WAY TO ACQUIRE - HECTARES (ACRES)

	No Action	Alternative 1 Freeway	Alternative 2 Expressway (Preferred)	Alternative 3 Signalized Expressway
Highway Right-of-way	0	85 (210)	49 (120)	49 (120)
Frontage Roads	0	71 (175)	67 (165)	71 (175)
Interchanges/ Intersections	0	42 (105)	40 (100)	2 (6)
TOTALS	0	198 (490)	156 (385)	122 (301)

Most of the community master plans allow for some new commercial development with frontage next to US-89, along the existing frontage roads and near existing highway intersection areas. These areas will remain accessible under each alternative.

Farmington City is an exception which is encouraging large scale commercial development at the Shepard Lane intersection of US-89. Each alternative allows for continued access to this area with construction of an interchange or intersection at Shepard Lane. Farmington planning and zoning also includes residential and county services development of the area west of I-15. The extension of Burke Lane to the west will be compatible with the city's plan. Recently, Farmington annexed 800-plus acres of ground in this area. The extension will run approximately 1 mile, beginning at the existing Burke Lane and terminating at the intersection of Clark Lane and 1100 West. The existing Burke Lane interchange will be redesigned to accommodate this extension. Currently, any traffic traveling to the west Farmington area must travel through Farmington.

4.1.1 Recreation Resources

No Action. Other than more difficult access related to increased traffic, this alternative would not impact recreation resources along the corridor.

Build Alternatives. Each of the three alternatives would impact various public recreation properties in varying degrees by the taking of land. Davis County Golf Course, Pioneer Park, Nicholls Park, Shepard Lane Park and the Knowlton Elementary School Playing Fields are the public recreation sites within the study corridor. Figure 3.1-2, in Chapter 3, shows the recreation resource site locations while Table 4.1-2 shows impacted acreage for each site by alternative. Chapter 5 - Sections 4(f) and 6(f) Evaluations describe the impacts each alterative has on each public recreation site.

A retaining wall adjacent to the northwest frontage road minimizes the impact to the privately owned and operated Cherry Hill Camping Park. All of the park's facilities will remain intact as is and there will be no change in access.

Recreational Properties Beyond the Project Corridor. There are several additional public recreational sites outside the study corridor. These include Valley View Golf Course, Oakridge Country Club, Fernwood Park, Central Park, Central East Park, Cherry Farms Park and Uintah Park. Access to these properties from US-89 will change slightly (i.e., instead of being accessed from an intersection, they will be accessed from an interchange). Each of the properties, except Fernwood Park, can be accessed from other directions and roads besides US-89.

Table 4.1-2
IMPACTS TO RECREATION RESOURCES - HECTARES (ACRES)

Park Name	Total Size	No Action	Alternative 1 Freeway	Alternative 2 Expressway (Preferred)	Alternative 3 Signalized Expressway
Shepard Lane	2.58 (6.38)	0	0.39 (0.96)	0.32 (0.80)	0.10 (0.25)
Nicholls	16.86 (41.67)	0	2.12 (5.25)	2.12 (5.25)	0.93 (2.30)
Pioneer	2.02 (5.00)	0	2.02 (5.00)	2.02 (5.00)	0.17 (0.42)
Knowlton Play Field	2.02 (5.00)	0	0.27 (0.66)	0.21 (0.53)	0.02 (0.06)
Davis Golf Course		0	0	0	0
TOTALS		0	4.80 (11.87)	4.67 (11.58)	1.22 (3.03)

Recreational Mitigation Measures. Care has been taken in the preliminary design of each alternative to minimize impacts to recreation properties. All mitigation measures will be according to Sections 4(f) and 6(f) requirements. Land taken from Shepard Lane Park will be replaced with useable recreation land. All actions will be coordinated with Farmington City. There will be no effect on the use of the park.

To reduce the amount of land taken from Nicholls Park for each alternative, retaining walls will be constructed. The use of the park will not be changed since none of the playing fields will be impacted (see letter on page 5a-22). Mitigation will be provided through enhancement of existing park property.

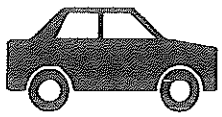
The freeway and expressway alternatives will eliminate access to Pioneer Park on the southwest corner of Oakhills Drive in Layton. Current accesses will be eliminated by construction of an interchange to replace the existing intersection. A new park site will be selected and its development coordinated with Layton City. Layton City has felt for sometime that both location and poor access have left the park under-utilized.

4.1.2 Local Transportation

No Action. A large portion of the traffic on US-89 is local traffic with many left and right turn movements. As traffic volumes increase, safety would continue to be a growing concern.

Build Alternatives. The design of each build alternative considers both local and commuter traffic patterns with each community's transportation master plan. The build alternatives use frontage roads, controlled accesses, and above or below grade crossings to direct traffic.

Both the freeway and expressway alternatives provide above-grade crossings for Kaysville at Crestwood Road and for Uintah at Combe Road. These crossings are no-access overpasses. Each crossing is intended to provide safe access for residents across US-89, and to provide for efficient emergency services responses.



Layton City's transportation master plan calls for the development of interchanges or controlled intersections at Oakhills Drive, Rainbow Drive, Antelope Drive, and Hill Field Road (SR-193). Each alternative meets these needs.

The master plan of Farmington City includes the extension of Burke Lane to the west to provide for the development of that area west of I-15. This extension is included in all three of the build alternatives.

4.1.3 Public Facilities

No Action. As stated above, increased traffic volumes would increase the conflict of access to US-89 by general traffic desiring access to communities along the corridor. Emergency vehicles would face the same conflict in crossing or accessing the highway.

Build Alternatives. While each community has public facilities (parks and recreation, community buildings, emergency facilities, churches, etc.) on both sides of US-89, none of the alternatives will adversely impact access to these facilities. Pioneer Park will be an exception as it will lose its access for both the freeway and expressway alternatives. In these cases property will be acquired to allow development of a new park by Layton City. These alternatives will also provide for cross over traffic at Crestwood Road in Kaysville and Combe Road in Uintah. In addition, the expressway alternative provides pedestrian overpasses for Fruit Heights residents at the south end of Old Mountain Road and next to Nicholls Road.

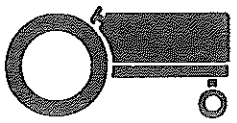
4.1.4 Utilities & Public Services

No Action. Utilities and public services are not impacted by this alternative.

Build Alternatives. Each build alternative will consider the replacement or relocation of utility lines, both above and below ground as required by design. No loss of services will result from this activity. In some cases this will allow for necessary improvements to be made as an added benefit to the communities. All portions of the communities will continue to receive full police, fire, and emergency services. The Burke Lane extension to the west will provide greatly improved access to the new Davis County Justice Center.

There are two existing railroad structures that go over US-89 in Uintah. Both structures will need to be replaced to allow for additional traffic lanes on US-89. Coordination with UPRR has taken place. (See letter in Appendix A.)

4.2 FARMLAND IMPACTS



No Action. There is no impact to farmland under this alternative.

Build Alternatives. Table 4.2-1 summarizes the impacts anticipated from the alternatives for this project to Prime, Unique, Statewide and/or Locally Important Farmland.

TABLE 4.2-1
IMPACTED FARMLAND - HECTARES (ACRES)

Farmland Site	Original Area	No Action	Alternative 1 Freeway	Alternative 2 Expressway (Preferred)	Alternative 3 Signalized Expressway
Prime & State-wide Farmland	None				
Mutton Hollow Road (Unique)	10.4 (25.8)	0	1.50 (3.6)	1.50 (3.6)	1.50(3.6)

The only unique farmland is located on the east side of the highway at Mutton Hollow Road and presently consists of a fruit orchard and alfalfa. The U.S. Soil Conservation Service has not identified any prime or statewide important farmland in the highway corridor. The Soil Conservation Service Form AD-1006 for the unique site is included in Appendix A. (See specific location of this parcel in Figure 3.1-2 in Chapter 3.)

Mitigation Measures. Mitigation of the three build alternatives impacts is not possible, but appropriate monetary compensation will be paid for the acreage taken. The current land development trend in the area is converting all of the farmland to residential developments.

4.3 GEOLOGY

Several geologic hazards are present in the project area, including surface and groundwater hazards, steep slope hazards, and hazards related to the Wasatch Fault Zone. Surface and groundwater geologic hazards are also present with shallow groundwater, liquefaction, debris flows and other mass movement. Steep slope hazards include rock falls, landslides, and other hazards that may be caused to move by high groundwater or heavy precipitation. These conditions must be considered during the design phase of any improvements and, particularly, structures for any of the build alternatives.

No Action. These geologic conditions currently underlie the existing facility which would be affected by any movement of land mass.

Build Alternatives. All of the build alternatives will require a careful evaluation of the geologic hazards during the design phase. Because of the large areas involved with the geologic conditions, each of the alternatives will be affected the same.

4.4 SOCIAL IMPACTS

No Action. The No Action Alternative does not provide for frontage roads or the elimination of the many direct access points. There are over 100 direct access points on and off the highway. This alternative does not improve the growing concern of crossover traffic safety for both local vehicular and pedestrian traffic, which is a major negative social impact.

US-89 has a posted speed of 55 m.p.h. and carries a high volume of traffic. Entrance onto and exit off of the highway for the local traveler has become a major safety factor.

Build Alternatives. Because the highway was already existing when growth and development began, neighborhoods, school boundaries, church areas, and community services have grown around the highway. None of the proposed build alternatives would divide or isolate any existing neighborhoods. Thus, neighborhood cohesion would not be affected. No school boundaries will change because of any of the build alternatives.

Each of the build alternatives will improve US-89 by improving safety and controlling access. The three build alternatives will all limit access onto the highway by using frontage roads to collect and direct traffic to interchanges or signalized intersections. While these alternatives will require the taking of addition right-of-way, the corridor's residential integrity will remain intact.

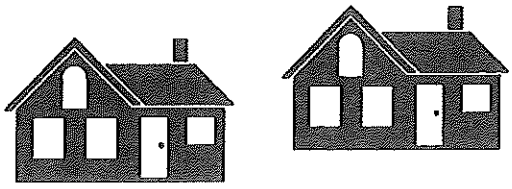
Knowlton Elementary School has expressed a number of concerns about the proposed project. They are concerned about the loss of some playground property. Replacement is not possible since there are no adjacent properties available to expand the playground. Noise was also expressed as a concern. This was evaluated in the noise study with the finding of a 2 dBA increase, but not reaching the 67 dBA level. All three alternatives have similar impacts. The other issue is the safety of the students. Safety is one of the main reasons for this highway improvement. The grade separations provided by Alternative 1 and Alternative 2 provide the safest highway crossing for students. Alternative 3 (signalized) still has the potential for high speed, right angle collisions and provides the least desirable pedestrian crossing situation for school-aged children.

The build alternatives, with controlled highway access, frontage roads, and over/underpasses, each improves safe access to both sides of the highway. The frontage road system also provides safer routes for school buses and waiting areas for students. Safety is also enhanced for emergency vehicles with reduced conflict with highway traffic.

These alternatives will require the taking of existing homes and businesses next to or near the highway for additional right-of-way necessary for the construction of highway improvements. These displaced homes and businesses are further discussed in Section 4.5, Relocation. Consistent with Executive Order 12898 (Environmental Justice), there are no disproportionately high and adverse effects on minority or low-income populations.

Mitigation Measures. Except relocation impacts, which are addressed below, there is no mitigation required for social impacts.

4.5 RELOCATION IMPACTS



Evaluation of the proposed alternatives must include consideration of the impacts to residences and businesses along the highway corridor. To accommodate the right-of-way required for the proposed highway improvements, additional land must be acquired. Depending on the alternative, many residences and businesses are affected adversely, and many will be relocated. A building may also be considered affected adversely when highway improvements do not directly require displacement, but alter access to the property. Table 4.5-1 identifies the number of properties displaced and adversely affected by each alternative.

New homes continue to be built along the corridor. The number of properties impacted has been updated for this Final EIS through an on site review of the area.

Table 4.5-1
US-89 CORRIDOR DISPLACED PROPERTIES

	No Action		Alternative 1 Freeway		Alternative 2 Expressway (Preferred)		Alternative 3 Signalized Expressway	
	Displaced	Ad-verse Effect	Displaced	Adverse Effect	Dis-placed	Adverse Effect	Displaced	Adverse Effect
Residences	0	0	202	24	136	23	109	35
Businesses	0	0	27	1	22	2	15	4
Totals	0	0	229	25	158	25	124	39

No Action. Since no properties would be impacted by this option, no relocations would be anticipated.

Alternative 1 - Freeway. As shown in Table 4.5-1, several homes and businesses would be relocated by this alternative. Those residences involved are generally scattered throughout the project, but with areas of concentration where existing subdivisions have been developed parallel to the existing right-of-way. Also at interchange locations where an increased amount of right-of-way will be required for the ramps, the relocation of additional homes would be required. This would be a controlled access highway, eliminating access for businesses directly onto US-89. This will result in relocation of the businesses. To provide access to the interchanges, frontage roads are required and this would also require acquisition of some additional homes.

The project will be divided into multiple segments for construction, thereby reducing the number of residences affected during a construction period of several years. Adequate housing is expected to be available within the adjacent area. Existing subdivisions are continuing to develop new homes each year throughout the study area. New subdivisions are continuing to develop providing additional lots for new construction.

Alternative 2 - Expressway (Preferred Alternative). This alternative will require the taking of fewer homes than Alternative 1 due to the reduced median width. Major property takings will again involve subdivisions next to the highway and at the interchange locations. Some residences will be avoided by using retaining walls, but will still suffer proximity damages from the highway. Frontage roads will also require additional homes to provide access to the interchange points. Businesses will be impacted due to access control similarly to Alternative 1.

Alternative 3 - Signalized Expressway. Since this alternative would not require the additional right-of-way for interchanges, fewer residences would be taken by the construction. The main highway width of property required would be the same as Alternative 2. Frontage roads to provide access to the major signalized intersections would also require removal of some of the existing homes in the area. Control of access would still eliminate several businesses that have frontage on US-89.

Mitigation Measures. The acquisition and/or relocation of any home or business will be conducted in accordance with the Uniform Relocation Assistance (URA) and Real Property Acquisition (RPA) Policies Act of 1970, as amended. Relocation resources are available to all residential and business relocatees without discrimination.

4.6 ECONOMIC IMPACTS

No Action. This alternative would have the least immediate economic impact on the study area. However, as time passes the increased traffic and related safety issues would be an increasing problem which would create some negative impact on the economic community surrounding the study area.

Build Alternatives. The taking of existing privately owned property will lower collectable tax amounts and influence the value of remaining property in the corridor. There will also be a loss of retail sales tax dollars if displaced businesses choose not to relocate within the corridor. While many of the displaced businesses could chose to relocate within the corridor, the actual number is unknown. Of those businesses to be relocated, most have small work forces which can be absorbed into other available jobs. Most businesses will relocate and still utilize present employees.

None of the alternatives will impact major shopping patterns as currently experienced by commercial areas. The large commercial development at Shepard Lane will be accessible under each alternative along with traffic routes to shopping areas outside of the highway corridor.

Mitigation Measures. No mitigation efforts anticipated.

4.7 JOINT DEVELOPMENT

No Action. There will be no joint development projects under the No Action Alternative.

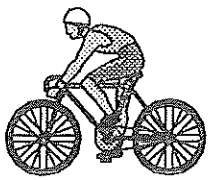
Build Alternative. For each corridor community which has in place a bicycle path master plan which identifies any frontage road to be built by this project as part of their system, the new frontage roads will be striped and signed for the designated use.

As per UDOT guidelines, adjacent communities will have the option of landscaping interchanges for entryway enhancement. Communities will be allowed to select plant materials from the same list of native, drought tolerant plants, grass mixes, and wildflower mixes used to landscape along the new roadway. Designs will be detailed and follow highway safety setbacks. As is required by UDOT, irrigation and maintenance will be the responsibility of each community.

Joint development and funding between UDOT and UTA of park and ride lots at Shepard Lane, 200 North Kaysville, and Antelope Drive, and South Weber Drive needs to be further studied and discussed as UTA updates its Davis County service. The freeway and Preferred Alternative could develop the lots next to an interchange in such a manner as to allow the bus easy-off-easy-on access. With the signalized expressway alternative, a more traditional park and ride lot would be needed, allowing the bus to completely exit the highway to load and unload passengers. UTA has expressed their support for the highway improvements. (See letter in Appendix A.)

Mitigation Measures. No mitigation efforts are proposed.

4.8 CONSIDERATIONS RELATING TO PEDESTRIANS AND BICYCLISTS



No Action. No amenities other than marked crosswalks at signalized intersections would be provided for pedestrians or bicyclists. The existing highway has a 2.4 m (8-foot) paved shoulder which can accommodate bicyclists, although safety continues to be a growing concern because the shoulder is also used for turning lanes, acceleration lanes, and deceleration lanes.

Build Alternatives. These alternatives are controlled access designs which would normally prohibit access by pedestrians and bicyclists. There is a direct conflict between a high volume, high speed highway such as US-89 and pedestrians and bicyclists. This corridor experiences use by bicycle enthusiasts, particularly cross country riders. Safety for these users is a major concern for the highway.

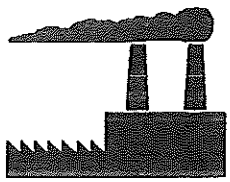
Pedestrians and casual bicyclists will be discouraged from using any of the build alternatives with the use of signs. Overpasses, intersections, and frontage roads will be designed for their use. Sidewalks will be placed adjacent to frontage roads and on overpasses. As stated in 4.7 Joint Development, if a community has a bicycle path master plan which uses frontage roads as part of their system, the build alternative will accommodate bicyclists.

Under each build alternative, paved shoulders will be 3.0 m (10-foot) wide. A 3.0 m (10-foot) shoulder provides a safer location for bike travel by providing room away from the travel lane and loose gravel. Shoulders will be divided from traffic lanes in accordance with AASHTO standards, which currently recommend a 15 cm (6") wide white stripe. Signs warning motorists of the presence of bicyclists, will be placed adjacent to the roadway.

Under the Preferred Alternative, pedestrian overpasses will be built at the south end of Old Mountain Road and Nicholls Road in Fruit Heights.

Mitigation Measures. Frontage roads designated by communities as part of a master planned bicycle path will accommodate bicyclists. Overpasses and frontage roads will have sidewalks. Signalized intersections will have marked crosswalks.

4.9 AIR QUALITY IMPACTS



Future air quality was analyzed to determine conformance with the Clean Air Act and associated Federal and State laws and regulations. Because the study area is within an area determined to be non-attainment for ozone, the project needs to be found to conform to the current State Implementation Plan (SIP). This has been demonstrated by inclusion of the project in a conforming transportation plan and a conforming transportation improvement program (TIP) on October 26, 1995. Additionally, though

the project is not located in a non-attainment area for carbon monoxide (CO), a study of projected CO concentrations, including hotspot analyses, was made to analyze future impacts. A detailed discussion of this analysis and the projected impacts can be found in the "Air Quality Study Report, Technical Report No. 10 (Versar, 1994)."

4.9.1 CO Analysis Methodology

Maximum, or worst case, CO concentrations were predicted for three alternatives using projected 2015 conditions. Two computer programs were used to project the maximum one-hour concentrations. EPA's MOBILE5a program generated CO emission factors for use in EPA's CAL3QHC that modeled the CO concentrations along the study corridor. CAL3QHC combines the CALINE3 dispersion model with

procedures for queue length estimation at signalized intersections from the Highway Capacity Manual. MOBILE5a is a computer program that calculates emission factors for highway motor vehicles.

US-89 was modeled along the entire length of the study corridor. Specific intersections to be modeled were selected based on volume and level of service criteria found in Guideline for Modeling Carbon Monoxide from Roadway Intersections (EPA, 1992). Intersections (Signalized Expressway and No Action) and interchanges (Expressway) modeled in this study are Farmington Junction, Antelope Drive, Oakhills Drive, Cornia/South Weber Drive, and Harrison Boulevard. Signalized intersections associated with interchanges of freeway and expressway alternatives will operate at levels of service better than D and thus are not modeled.

Worst case CO concentrations along the US-89 corridor and at modeled intersections were determined using a 1.0 meter/second wind speed. The wind direction was varied in ten degree increments from 0 to 360 degrees for a one-hour averaging time. Model receptor locations were selected outside the right-of-way near sensitive locations including parks and residences. Other variables used included:

- Average Vehicle Speeds: US-89
  80 km/h (50 mph)(Expressway)
  70 km/h (45 mph)(Signalized Expressway, No Action)
- Inspection and Maintenance (I/M) Program and Anti-Tampering Program (ATP) data as directed by Utah Division of Air Quality
- National Default Averages for vehicle mix, hot and cold start percentage, vehicle registration and vehicle travel fractions as recommended by Utah Division of Air Quality
- Average January High and Low Temperatures: 39° and 18° F
- Roadway Width and Elevation
- Projected 2015 traffic volumes (Design hour volume is 10% of AADT)
- Projected 2015 background CO concentrations:
  Davis County - 1 Hour - 8.9 ppm, 8 Hour - 6.4 ppm
  Weber County - 1 Hour - 6.9 ppm, 8 Hour - 3.5 ppm
- Mixing Height: 1,000 m
- Atmospheric Stability Class: D
- Surface Roughness Factor: 108 cm

The maximum eight-hour CO concentrations were estimated using the EPA recommended method based on one-hour model results.

4.9.2 Air Quality Impacts

This analysis evaluated three conditions: (1) No Action; (2) Signalized Expressway; and, (3) Expressway (Preferred Alternative). The freeway alternative was not analyzed separately because of its similarity to the expressway alternative.

The results of the CO modeling for the year 2015 clearly show increased CO concentrations at intersections of the Signalized Expressway and No Action alternatives when compared with the interchanges of the expressway alternative. Intersections in the signalized expressway alternative are projected to cause greater localized concentrations of CO than those of the No Action Alternative.

No Action

The results of the modeling process show that, like the signalized expressway, the highest concentrations for the No Action Alternative are found near intersections. Projected one-hour CO concentrations were found up to 12.4 ppm, below the National Ambient Air Quality Standards (NAAQS) limits, while eight-hour CO concentrations were found up to 8.8 ppm, only slightly below the 9 ppm NAAQS limit.

Alternative 1 - Freeway

This alternative was not analyzed separately. It differs from the expressway alternative only in that there is a greater separation between northbound and southbound traffic and a larger overall right-of-way width. These factors indicate that CO concentrations for the freeway alternative will be the same or lower than for the expressway alternative. It is therefore concluded that since CO concentrations will likely not exceed NAAQS limits for the expressway alternative, the limits will not be exceeded for the freeway alternative.

Alternative 2 - Expressway (Preferred Alternative)

The CO modeling results indicate that the expressway alternative will not cause CO concentrations to exceed NAAQS of 35 ppm over a one-hour period, or 9 ppm during an eight-hour period. It was found that the maximum projected CO concentrations along the right-of-way or at modeled interchanges were 10.4 ppm (one-hour) and 7.4 ppm (eight-hour).

Alternative 3 - Signalized Expressway

The highest projected CO concentrations are found near the intersections of the signalized expressway alternative. One-hour concentrations of up to 14.4 ppm would not exceed NAAQS, but predicted eight-hour concentrations of up to 10.2 ppm would exceed the 9.0 ppm NAAQS limit.

Secondary Impacts. Secondary impacts on a region are impacts due to the implementation of a project in another region or area. This might be caused by a marked increase or decrease in traffic on one route caused by changes or improvements to another. Induced impacts are those impacts to the immediate area of a project such as increased development resulting from increased access. The secondary and induced impacts of any of the build alternatives will be essentially the same as those of the No Action Alternative with respect to CO and other pollutants. This project will not create violations of NAAQS in surrounding areas of Davis or Weber counties.

Project Consistency with State Implementation Plan (SIP). Conformity with the SIP has been demonstrated by its inclusion in a conforming transportation plan and TIP as of October 26, 1995. Conformity determination procedures of 40 CFR 51 and 93 apply to this project.

4.9.3 Construction Related Impacts

Construction Impacts. The construction of the build alternatives will have a temporary negative effect on air quality. Construction will have the short-term effect of an increase in emissions caused by heavy construction equipment and construction activities.

Dust emissions will vary daily depending on the level of activity, specific operations and prevailing weather conditions. Most emissions result from equipment traffic over dirt roads at the construction site. Dust emissions from a site will be directly affected by the size of the area, vehicle speeds, vehicle mix, silt content of the soil, and the surface moisture of the construction zone.

There will be a temporary decrease in air quality during construction due to congestion and traffic delays. This will not exceed the standards and will only be short-term.

The facilities will be constructed according to all state and local laws and regulations pertaining to the minimizing of the effects of construction on air quality.

Mitigation Measures. UDOT Construction Specifications, Section 204 covers dust control and requires the contractor to limit the amount of dust created. Control of dust is accomplished through the use of water or chemical additives during the actual work on the highway grade. Air quality is also monitored closely by the Utah Bureau of Air Quality for specific types of construction operations. By specification, the contractor must submit an Air Quality Impact Statement to the Bureau of Air Quality (Section 104.13).

4.10 NOISE IMPACTS

Areas along US-89 are impacted by noise where the predicted noise level is within 2 dBA of or exceeds the NAC noise level, or the increase in noise level is greater than 10 dBA. Most dwellings that border US-89 are currently impacted by noise. Currently impacted by noise are 252 homes, two apartment buildings, three churches, three parks, and 14 businesses.

No Action. Noise levels along US-89 would increase slightly with increasing traffic volumes. Traffic studies show the existing level of service during peak hour to be operating generally at a LOS C. With increasing traffic volumes, congestion would occur, imposing restrictions to the free flow speed of US-89. The noise is not expected to dramatically increase as the operational flow deteriorates along the corridor.

Build Alternatives. Geometrically, the difference between the build alternatives is the width of the center median. Alternative 1 - Freeway contains a 19.5 m (64-foot) distance between opposing traffic, while the Preferred Alternative and Alternative 3 - Signalized Expressway contain a 7.32 m (24-foot) median. Functionally, the freeway and expressway alternatives will operate with grade-separated interchanges to allow for a constant speed along the corridor. The signalized expressway would have signalized intersections to control the traffic and allow for the necessary turning movements. Access will be controlled by each alternative as frontage roads will be used for more local traffic. It is assumed that the alternatives will be similar in respect to noise as the speed limit and forecasted traffic are the same. Alternative 3, with signalized intersections, may stop and slow some traffic, while other traffic may pass through at the speed limit. As a conservative approach, the signalized expressway was assumed to operate at the speed limit. The difference in noise level between the freeway and expressway alternatives is generally less than 1 dBA. The exception would be at the right-of-way line where a greater difference occurs, however, at the first row of dwellings the difference is less than 1 dBA. Traffic flow LOS "C" was used in these calculations as a more conservative approach.

Existing noise levels near the first row of dwellings approximately 40 m (130 ft.) from the centerline of US-89 are 68 to 70 dBA. The noise level, at the same location for the 2015 design year, increases by 2 to 4 dBA with the predicted noise level being 70 to 74 dBA. According to the UDOT Noise Abatement Policy, a noise increase between 0 to 9 dBA is a severity factor of 1 whenever the design year noise level approaches or exceeds the NAC.

In the year 2015, noise levels for the build alternatives are predicted to impact 492 homes, six apartment buildings, three churches, three parks and approximately 29 businesses. With the Preferred Alternative, approximately 143 dwelling units, residential and business, impacted by noise will be removed to allow for the necessary right-of-way.

Frontage roads were evaluated for noise impacts, but were found to provide only a minor increase in noise levels. Traffic speeds and volumes are very low on the frontage roads when compared with US-89. The area of influence of the noise levels from US-89 extends beyond the frontage roads to the extent that the effect of frontage roads os negligible.

Table 4.10-1 shows the noise level at some of the more sensitive areas and developed subdivisions (for a more complete list of impacted sites, refer to the Noise Study and Modeling Technical Report). The table gives the distance from the centerline of US-89 to the "area of frequent human use," the existing noise level, and future predicted noise level. Also shown on Table 4.10-1 is the increase in noise level and the number of residential dwellings of Category B residential and other sensitive areas. The site number given to each location is referenced to Figure 4.10-1. The 2015 noise level for the No Action Alternative will increase 1 to 2 dBA above the existing noise level. The increase in noise level for the No Action Alternative is mainly due to the deteriorating level of service that will occur along the corridor with the increasing traffic volumes. Noise contours for the existing and projected traffic volumes are included in Appendix E.

Figure 4.10-1 shows the general areas (in red) where noise abatement is "likely". It is important to note that "likely" does not mean a firm commitment. A final decision of the installation of the abatement measures will be made upon completion of the project design and the public involvement process. The cost of abatement with noise walls and/or berms is in the order of approximately $1.3 Million for each of the build alternatives.

Mitigation Measures. Noise abatement measures were considered along the length of the project. These measures include lowering the speed limit, changing the horizontal and vertical alignment, and installing noise barriers along the right-of-way line. Noise barriers seem to be the most reasonable and feasible method of noise abatement as they will not alter the function of US-89 as lowering the speed limit. The cost of noise walls will not be as excessive as the cost occurred by altering the alignment.

The UDOT Noise Abatement Policy (Copy of current policy included in Appendix E) sets guidelines and criteria for noise abatement measures. The design of noise abatement features will be in compliance with the UDOT Noise Abatement Policy in effect at the time of design.

Table 4.10-1*
NOISE LEVELS IN RESIDENTIAL AND OTHER SENSITIVE AREAS FOR BUILD ALTERNATIVES

SITE	LOCATION	DIST FROM CENTERLINE m (ft.)	EXIST L_{EQ}	FUTURE DESIGN L_{EQ}	INCREASE L_{EQ}	# D.U. IMPACTED
1	Shepard Lane Park/Knowlton Elementary	91 (300)	66	68	2	
2	USU Botanical Gardens	61 (200)	70	72	2	
3	Cherry Hills Recreation Area	61 (200)	67	69	2	
4	Pilly Green Subdivision	43 (140)	69	72	3	35
5	Nicholls Park	85 (280)	64	67	3	
6	Carrie Heights	49 (160)	69	72	3	13
7	Country Way	46 (150)	69	72	3	18
8	King Clarion Hills/Mutton Hollow	40 (130)	71	74	2	27
9	Pioneer Park	46 (150)	69	72	3	
10	Woodridge Estates	32 (105)	73	76	3	42
11	Cherry Lane to Antelope Dr., West	58 (190)	67	70	3	41
12	Cherry Lane to Antelope Dr., East	55 (180)	70	73	3	40
13	Antelope Dr. to Church, Sunset & US-89, East	67 (220)	65	69	4	14
14	Oak Forest Subdivision	55 (180)	66	70	4	23
15	Church, Combe Lane & US-89	61 (200)	68	70	2	1
16	Church, 6200 South & US-89	61 (200)	68	70	2	1
17	Lloyd Drive to Cherry Hills Park	55 (180)	68	71	3	53

* All sites listed above are NAC Category B
D.U. = Dwelling Units

FIGURE 4.10-1

US-89 ENVIRONMENTAL IMPACT STATEMENT

NOISE STUDY SITES AND POTENTIAL NOISE ABATEMENT AREAS

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89ENVNO2.DGN

4.11 WATER QUALITY IMPACTS

No Action. Surface runoff from impervious roadway surface areas of the alternatives may affect water quality to surface streams and groundwater. The No Action Alternative would experience the greatest concentration of pollutants because of the smallest surface area, when considering pollutants contributed by vehicular traffic.

Build Alternatives. The build alternatives each create an increase in impervious surface area with the addition of two traffic lanes (26 to 30 percent increase). This increases surface runoff, thereby diluting the pollutants. Open swales along the road sides will collect runoff, absorbing most of this runoff and the associated pollutants. By vegetating these swales, any pollutants eventually discharged to streams along the highway corridor will be reduced by 60 to 80 percent. Additional de-icing materials will be required for winter maintenance. The added salt will be diluted by the additional runoff waters and will not be detrimental to the water quality.

As part of the storm water management, UDOT is committed to address these potential impacts. These impacts may be short term, if appropriate Best Management Practices (BMP) plans are implemented immediately. UDOT's BMP plans approved by the Utah Division of Water Quality will be used on this project. The BMP plans call for: a) temporary erosion and sediment control features to alleviate erosion and/or sediment during construction; b) appropriate seeding or vegetation plans, and c) timely clean up of accidental spills, etc.

Although the roadway parallels the recharge zone, impacts from the existing highway and reconstruction of it will be positive in nature. Surface water as runoff generated from the area between the highway and the Wasatch Mountain presently collects along the highway in the form of ditch or ponding and will continue to do so with the reconstruction of the highway.

Surface water collected as such will eventually infiltrate through the subsurface and enhance recharging of the groundwater aquifer. Based upon the best available information, no negative impacts on the recharging of the groundwater aquifer and the aquifer are noticeable and are not anticipated due to the reconstruction of the highway.

Mitigation Measures. Runoff for the build alternatives will be received by roadside swales. These areas will be vegetated to intercept and retain much of the road surface pollutants, minimizing pollutants discharged to surface streams. Where there is adequate water, wetland type vegetation will be used.

During construction of the project, UDOT's standard plans for Temporary Erosion and Sediment Control will be implemented to alleviate erosion or siltation. The Utah Pollutant Discharge Elimination System requires that when more than 2.0 hectares (5 acres) of surface area will be disturbed by a project, the UDOT Storm Water Pollution Prevention (SWPP) plan shall be included as part of the final design plans. A Notice of Intent (NOI) shall also be submitted by UDOT to the Utah State Division of Water Quality. If design of storm drains outfall more than 2 cfs, application will be made for a construction permit. As this project will likely be constructed in phases, each phase must comply with this requirement.

4.12 PERMITS

No Action. There are no Section 402, or 404 permits required for the No Action Alternative.

Build Alternatives. None of the build alternatives will create a point source discharge, eliminating the need for Section 401 or 402 permits. If detail design necessitates such facilities, permits will be obtained. Wetlands impacted by the build alternatives will be required to comply with Section 404 permit requirements. These sites are identified in detail in the following section, Wetlands Impacts. Storm runoff from the construction site will require a Utah Pollutant Discharge Elimination System (UPDES) general permit issued by the State Division of Water Quality. Any changes to stream crossings will require a Stream Alteration permit from the Division of Water Rights.

4.13 WETLANDS IMPACTS

No Action. The No Action Alternative does not impact existing wetlands.

Build Alternatives. Each of the three build alternatives impact existing wetlands to some degree. Table 4.13-1 shows the amount of impact each alternative will have on each wetland site.

A wetland field delineation study, completed in cooperation with the U.S. Army Corps of Engineers (See Appendix A - Project Correspondence and Appendix F - Assessment Forms), identified 26 different adjacent and isolated jurisdictional wetlands covering approximately 31.81 hectares (78.61 acres). Section 3.9 describes each of the identified wetlands.

The largest concentration of wetlands are located at the south end of the corridor in Farmington. This high water table area has a long agricultural history. Much of the surface runoff drains into these wetlands. Several streams and springs run through the area also. Other smaller wetland sites are located throughout the corridor (See Figure 3.9-1).

Twenty-two of the impacted wetland sites are an emergent marsh type wetland that function primarily as wildlife habitat for small animals and birds. Water purification and flood control are secondary functions of these wetlands. Cattails are the most dominate vegetative species found. Other dominate vegetation includes rushes, saltgrass, reedcanary grass, teasel, and willows. The emergent marsh sites are A-I, L and M, 1A-8A, and 2B-4B.

Two sites are ponds. The largest pond, Potter's Pond, is located on the northeast corner of Farmington Junction and used for irrigation water storage. Vegetative growth surrounding the pond is very thick and riparian in nature - willows, cottonwoods, and bitter nightshade vines. The pond is filled by snowmelt runoff, nearby stream overflows, and natural springs found in the area. The other pond is a small duck pond located in the front yard of a residence located on Cornia Drive in South Weber. It is filled by drainage runoff, natural springs located in the area, and seepage from the nearby Davis-Weber Canal.

Sites 1B and 5B are mainly irrigated pastures and grass hay fields. If left in a natural state, they may become emergent marsh type wetlands. Pockets of spikerush and wiregrass can be found throughout the fields along with the planted fescue/Timothy grass mix.

The impacted wetlands will have the necessary fill placed in them for widening the highway, developing frontage roads, extending Burke Lane to the west, or construction of interchange ramps. Construction will not impact wetlands outside of the corridor area because there will be no changes to groundwater or drainage patterns. Likewise, wetlands within the corridor not impacted by construction will continue to function undisturbed. Impacts during construction will be kept at a minimum by fencing off areas not to be disturbed. Because of other wetlands located outside of the corridor area, wildlife will not have far to go to find similar habitat. The above referenced COE letter concurs with these findings.

Mitigation measures. Mitigation includes the enhancement and creation of wetlands of similar functional value to create no net loss. An Individual Permit will be necessary before construction and mitigation can take place. Conceptual mitigation sites include creation of wetlands in runoff drainage swales, inside interchange ramps, enhancement of wetlands in the Farmington and South Weber area, the Baer Creek ravine, the northeast corner of Farmington Junction, the Holmes Reservoir drainage area, and a water detention storage area in South Weber. These mitigation sites are identified in Figure 4.13-1. The infield area, detention storage area, and swales will be graded by utilizing the existing terrain to control water flows.

Additional mitigation sites have been reviewed with the Corps. One likely site is located northeast of the Burke Lane interchange. This fourteen acre site of pasture land with a spring area could be enhanced. A concept drawing is shown as Figure 4.13-2. Additional potential mitigation sites have been identified in the area where Farmington Creek drains into the Great Salt Lake. Similarly suitable mitigation sites exist west of the project corridor bordering the Great Salt Lake. UDOT and the COE are evaluating these currently. During the design phase, appropriate sites for wetland mitigation will be addressed more specifically, based on the functional values of wetlands to be impacted.

Coordination will involve local resource agencies and final approval by the COE as required by the conditions of the 404 permit. Besides providing wildlife habitat, the creation of wetlands within drainage swales and the detention storage area would improve water quality by filtering out surface runoff pollutants.

Only Practicable Alternative Finding. In compliance with Executive Order 11990, every effort has been made to avoid impacting wetlands. Since wetlands are located throughout the highway corridor, shifting or realignment of the roadway would still impact wetlands. However, where possible, frontage roads have been moved to avoid impacting wetlands. Chapter 1 - Purpose and Need and Chapter 2 - Description of Alternatives, located at the beginning of this Final EIS, discusses the reasons for this project and all practicable alternatives which were considered for construction.

"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 minimized harm to wetlands which may result from such use."

4.14 WATER BODY MODIFICATION AND WILDLIFE IMPACTS

There are no new water body modifications anticipated. However, the incremental widening of the existing drainage crossings will impact adjacent stream channels and riparian areas. Therefore, opportunities for enhancement of adjacent reaches of these drainages or other reaches where enhancement opportunities exist will be sought in the design phase as outlined in the mitigation measures.

The only notable wildlife impact is that of deer crossing the highway. Utah State Division of Wildlife Resources (DWR) documented deer/vehicle collisions ranging from 111 to 280 over the past four years. Actual kill is probably substantially higher (see DWR letter in Appendix A, April 3, 1995). This has been a high count primarily because the deer are attracted across the highway to the more developed areas west of US-89. Vegetated backyards provide an attractive food source, particularly in winter months. Water sources also exist west of the highway which attract deer.

No Action. Deer killed will continue to increase because of projected increases in traffic volumes.

Table 4.13-1
US-89 CORRIDOR
IMPACTED WETLAND AREA
HECTARES (ACRES)

WETLAND SITE	TOTAL AREA	*WETLAND TYPE	No Action	Alternative 1 Freeway	Alternative 2 Expressway (Preferred)	Alternative 3 Signalized Expressway
A	0.19 (0.5)	EM		0.04 (0.1)	0.004 (0.01)	
B	0.06 (0.2)	EM		0.04 (0.1)	0.004 (0.01)	
C	0.04 (0.1)	EM				
D	0.25 (0.6)	EM		0.25 (0.6)	0.25 (0.6)	0.25 (0.6)
E	0.09 (0.2)	EM				
F	2.53 (6.3)	EM				
G	0.42 (1.0)	EM		0.25 (0.6)	0.25 (0.6)	0.25 (0.6)
H	1.22 (3.0)	EM		0.45 (1.1)	0.45 (1.1)	0.45 (1.1)
I	0.53 (1.3)	EM		0.32 (0.8)	0.28 (0.7)	0.20 (0.5)
J	0.49 (1.2)	P		0.49 (1.2)	0.49 (1.2)	0.49 (0.9)
K	0.04 (0.1)	P				
L	0.15 (0.4)	EM		0.14 (0.4)	0.14 (0.4)	0.06 (0.2)
M	0.17 (0.4)	EM		0.04 (0.1)	0.04 (0.1)	0.04 (0.1)
1A	0.06 (0.2)	EM		0.004 (0.01)		
2A	2.43 (6.0)	EM		2.43 (6.0)	2.35 (5.8)	2.02
3A	0.24 (0.6)	EM		0.2 (0.5)	0.16 (0.4)	0.12 (0.3)
4A	0.04 (0.1)	EM		0.04 (0.1)	0.04 (0.1)	0.04 (0.1)
5A	0.08 (0.2)	EM		0.08 (0.2)	0.08 (0.2)	0.08 (0.2)
6A	0.20 (0.5)	EM		0.20 (0.5)	0.20 (0.5)	0.20 (0.5)
7A	0.04 (0.1)	EM		0.04 (0.1)	0.04 (0.1)	0.04 (0.1)
8A	0.08 (0.2)	EM		0.08 (0.2)	0.08 (0.2)	0.08 (0.2)
1B	7.32 (18.1)	IP		0.20 (0.5)	0.20 (0.5)	0.20 (0.5)
2B	6.43 (15.9)	EM		0.16 (0.4)	0.16 (0.4)	0.16 (0.4)
3B	1.21 (3.0)	EM		0.28 (0.7)	0.28 (0.7)	0.28 (0.7)
4B	3.36 (8.3)	EM				
5B	4.13 (10.21)	IP		0.73 (1.8)	0.73 (1.8)	0.73 (1.8)
TOTAL	**31.81 (78.61)**		**0.0**	**6.48 (16.0)**	**6.23 (15.4)**	**5.58 (13.8)**

*EM = Emergent Marsh
P = Pond
IP = Irrigated Pasture

FIGURE 4.13-1

US-89 ENVIRONMENTAL IMPACT STATEMENT

CONCEPTUAL WETLAND MITIGATION SITES

89ENWT2.DGN

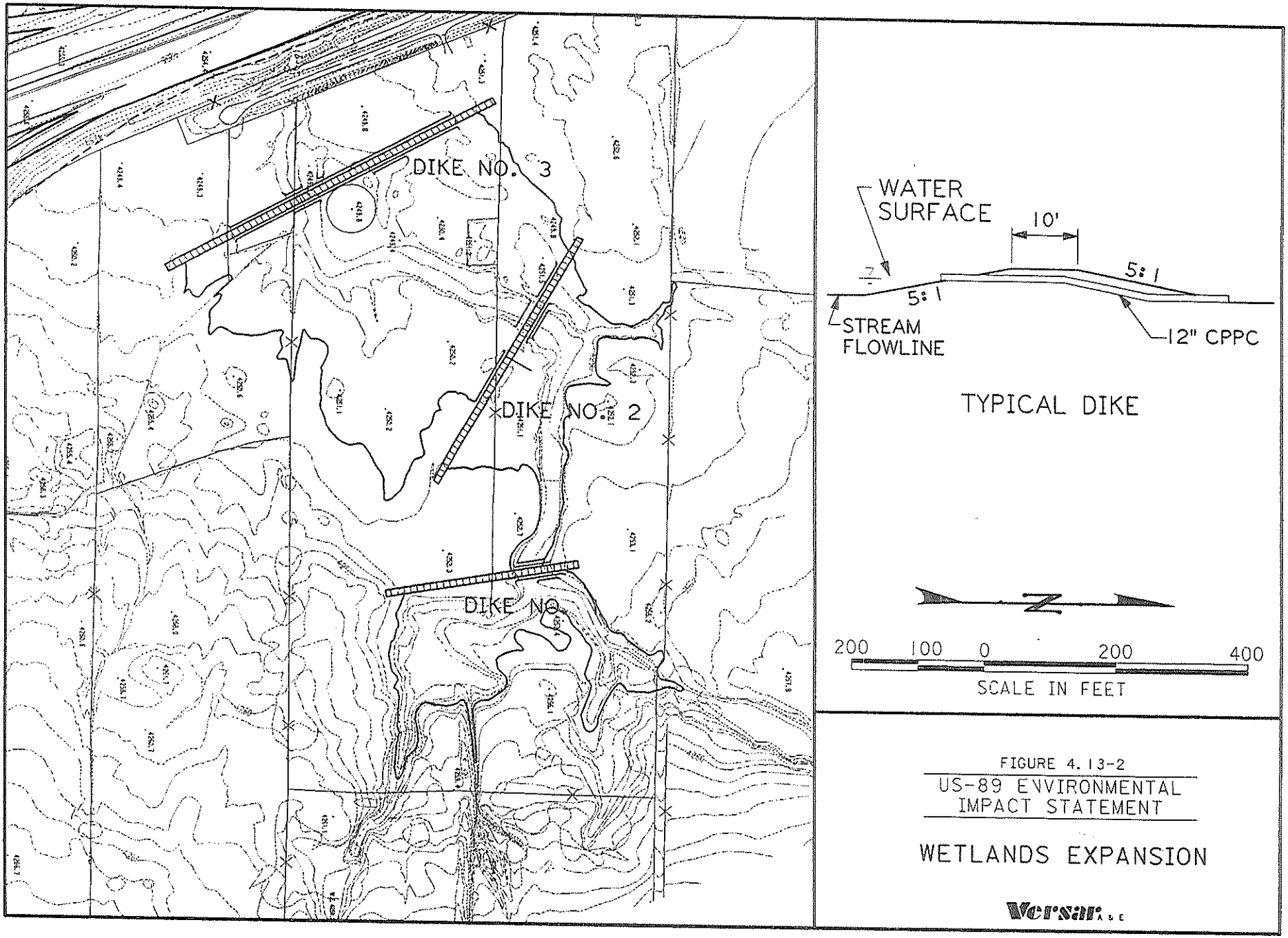

FIGURE 4.13-2

US-89 ENVIRONMENTAL IMPACT STATEMENT

WETLANDS EXPANSION

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Build Alternatives. The number of deer killed will be increased by any of the build alternatives. This will be partially due to the increased traffic due to population growth in the area and also because of thewidened (six lane) section of the new highway. The concrete barrier placed in the median will also cause some additional deer kill.

Extensive discussions between DWR and UDOT have been held regarding the potential use of deer barrier fence to reduce the number of deer/vehicle accidents. The location that would be most effective would be to fence along the foothills away from all development. This would partially solve the accident problem, but would create other problems. The DWR would have problems trying to feed deer retained behind the fence during the winter. Past attempts to feed them in other areas have been very unsuccessful. The cost to construct and maintain the fence is a major issue. Also, the fence would block off existing accesses to the public lands that local citizens presently enjoy. Other complications include the fact that there is currently a small deer herd that stays west of US-89, so there would still be a problem with deer on the highway coming from the west. At this time it was determined that a fence is not practical. If the number of accidents show a major increase, this issue can be reevaluated at that time. (See letter in Appendix A, May 5, 1995.)

Mitigation Measures. Deer crossing signs will be used to warn motorists of possible wildlife on the highway at specific locations.

Because the widening of the existing stream crossings will eliminate incremental riparian areas, opportunities for enhancement of these streams will be sought in the design phase. Enhancement will include removal of debris and the planting of trees. Coordination with the State Engineer's Office will continue and a Stream Alteration permit will be obtained.

4.15 FLOODPLAINS

No Action. US-89 traverses 100-year floodplains in 13 different locations. The No Action Alternative has no impact to these floodplains as there are no major improvements proposed that would encroach on these areas.

Build Alternatives. Although the build alternative will encroach on some floodplains identified in the study corridor, proposed structures for stream crossings that are covered by designated FEMA floodplain studies will meet FEMA requirements. Therefore, any transverse encroachments on floodplains of these streams will be insignificant. New structures will be at least equivalent or greater in size than existing structures for these streams and will therefore not cause any expansion of the floodplain areas. There is no longitudinal encroachment of roadway embankment on floodplains.

Storm drain systems will be designed to handle highway runoff and will be discharged to appropriate outfalls. Storm drain design will consider runoff from rainfall and snowmelt events and their impacts on receiving streams quantitatively and qualitatively.

Appropriate design measures such as detention basins to alleviate peaks and thereby avoid downstream surcharge on streams will be implemented. Also, under the requirements of the construction permit for a new storm drain from the Division of Water Quality, sediment or silt basins along with oil and grease skimming devices will be provided for every outfall discharging more than 5 cfs into the receiving stream in order to trap silt, salt, and floatable debris.

The floodplain impacts are reviewed in detail in Appendix F. A UDOT floodplain assessment has been completed for these sites. Based on the review and floodplain assessments in Appendix F, the Preferred Alternative will have insignificant impact on the FEMA floodplains. No floodplain finding is required. All municipalities within the study area are subject to the FEMA program for floodplain management.

Mitigation Measures. Any structures that are to be replaced will be of the same size or larger than the existing structures and will meet FEMA requirements. Any erosion protection needed due to an increase in outlet velocity from a drainage structure will be accomplished with riprap. Any disturbance of existing riparian vegetation will be addressed through a revegetation plan. Overall impact to streams will be of an insignificant nature. Stream Alteration permit for this work will be acquired from the Utah Division of Water Rights (WR). Throughout the design period, coordination with WR will be continued.

4.16 WILD AND SCENIC RIVERS

There are no wild and scenic rivers within the US-89 study corridor area.

4.17 COASTAL BARRIERS

There are no coastal barriers involved in this project.

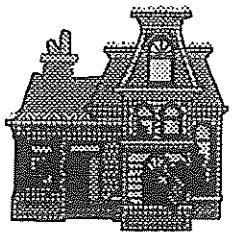
4.18 THREATENED AND ENDANGERED SPECIES

There are no threatened and/or endangered species of plants or animals impacted within the US-89 study corridor. The U.S. Fish and Wildlife have identified the bald eagle in the Weber Canyon area as being present in roosting areas during the winter months. They have indicated cottonwood trees are common roosting sites for this bird. There are no cottonwood trees within 0.8 km (0.5 mile) of the study corridor. (See U.S. Fish and Wildlife letter in Appendix A.)

Mitigation Measures. No mitigation efforts proposed.

4.19 HISTORIC, ARCHAEOLOGICAL AND PALEONTOLOGICAL RESOURCES

A total of 20 structures, one prehistoric archaeological site, and one grave site have been determined eligible for the National Register of Historic Places (NRHP) for purposes of Section 106. Figure 3.14-1 identifies the location of all historic properties inventoried and identified as eligible. Site E15, a prehistoric archaeological site is not identified in order to preserve it from vandals.



No Action. The No Action Alternative does not impact existing cultural resources.

Build Alternatives. Each of the three build alternatives will impact cultural resources. Alternative 1 - Freeway will have an adverse effect on eight historic structures and will affect one prehistoric archaeological site and one grave site. The Preferred Alternative will have an adverse effect on eight historic properties, one of which is a grave site. There would be no effect on the prehistoric archaeological site. Alternative 3 - Signalized Expressway will have an adverse effect on four historic structures and no adverse effect on one prehistoric archaeological site.

While some different historic structures are impacted by different build alternatives, three historic properties (E4, E5, and E7) are impacted by each build alternative. Table 4.19-1 presents the finding of effect each proposed alternative will have on the cultural resource properties, made in consultation with the SHPO (see Chapter 5 Appendix for SHPO letter dated March 10, 1994).

Table 4.19-1
US-89 CORRIDOR
IMPACTED HISTORICAL AND ARCHAEOLOGICAL SITES

Eligible Site	No Action	Alternative 1 Freeway	Alternative 2 Expressway (Preferred)	Alternative 3 Signalized Expressway
E1- Victorian House	No Effect	Adverse Effect	Adverse Effect	No Effect
E2- Victorian House	No Effect	No Effect	No Effect	No Effect
E3- Basement Home	No Effect	No Effect	No Effect	No Effect
E4- Flood Control Structure	No Effect	Adverse Effect	Adverse Effect	Adverse Effect
E5- Queen Anne Victorian	No Effect	Adverse Effect	Adverse Effect	Adverse Effect
E6- Gable House	No Effect	No Effect	No Effect	No Effect
E7- Flood Control Structure	No Effect	Adverse Effect	Adverse Effect	Adverse Effect
E8- Four Square House	No Effect	No Effect	Adverse Effect	No Effect
E9- Root Cellar	No Effect	No Effect	No Effect	No Effect
E10- Root Cellar	No Effect	No Effect	No Effect	No Effect
E11- Double Cross-wing House	No Effect	Adverse Effect	No Effect	No Effect
E12- Four Square House	No Effect	No Effect	No Effect	No Effect
E13- Vernacular House	No Effect	No Effect	No Effect	No Effect
E14- Garage - Not Determined Eligible				
E15- Pre-historic Site	No Effect	No Adverse Effect	No Effect	No Adverse Effect
E16- Victorian House	No Effect	No Effect	No Effect	No Effect
E17- Stone House	No Effect	No Effect	No Effect	No Effect
E18- Gothic Revival House	No Effect	Adverse Effect	Adverse Effect	No Effect
E19- Victorian Farmstead	No Effect	No Effect	No Effect	No Effect
E20- World War II Era Cottage	No Effect	No Effect	No Effect	No Effect
E21- Railroad Underpass	No Effect	No Effect	No Effect	
E22- Grave Site	No Effect	Adverse Effect	Adverse Effect	No Effect
E23- Vernacular Four-square House	No Effect	Adverse Effect	Adverse Effect	Adverse Effect
SITES IMPACTED	0	8	8	4

Mitigation Measures. Under all three build alternatives, E9, E10, E12, E13, E16, and E21 will not be impacted by the project because of large distances between the properties and the construction zone. Various methods are used to avoid other historic properties under each of the build alternatives. Utilization of a contoured slope easement will be used to avoid impacting E2 and E5. Concrete retaining walls, along with the preservation of on site mature vegetation will be used to avoid affecting E6 and E17.Under Alternatives 1 and 2, retaining walls will be constructed to avoid impacts to E19 and E20.

Under Alternative 2, a retaining wall will be constructed to minimize harm to E8.

For the prehistoric archaeological site, E15, data recovery would be conducted under Alternatives 1 and 3 prior to construction. This would result in a finding of No Adverse Effect.

- In all cases, and under each alternative, historical properties impacted by the build alternatives will be documented and recorded in compliance with Section 106 requirements. Structural historic properties affected by the project will be documented according to State Intensive Level Survey as per the MOA. Archeological historic properties will be subject to full data recovery in the area of effect in accordance with the Secretary of the Interior's Standards for Archeology and Historic Preservation [FR Vol. 51 No. 169], as well as the Advisory Council on Historic Preservation's Treatment of Archaeological Properties; A Handbook (1980). All documentation will be completed in advance of construction. This procedure will be completed during the design phase for these improvements. Should cultural or paleontological resources be discovered during construction, procedures outlined in UDOT Standard Specification 104.15 will be followed to mitigate such finding. Consultation with SHPO, ACHP, and FHWA has been completed and an approved MOA is found in the Appendix of Chapter 5.

Section 4(f) properties that will be addressed further include three city parks, the school playing field, and eight historic properties. Details and discussion regarding these properties can be found in Chapter 5 of this document.

4.20 HAZARDOUS WASTE IMPACTS

Table 4.20-1 shows potential hazardous waste sites. Nineteen potential environmental contamination sites were identified by environmental professionals using standards of care appropriate for Phase I environmental auditing. See Section 3.11 for more details regarding the environmental audit.

No Action. This alternative would have no affect on the potential hazardous waste sites as no need for additional right-of-way is anticipated. The potential for migration of contaminants beneath the roadway from nearby service stations and other sources exists regardless of the selected alternative.

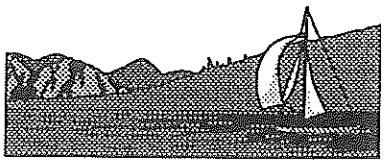
Build Alternatives. The build alternatives will take property from several potentially contaminated sites. Figure 3.15-1 shows the location of each potential site.

Mitigation Measures. Based upon the lack of empirical evidence, UDOT will incorporate environmental impairment language in property purchase agreements for potentially contaminated sites. If, during construction, any hazardous waste sites or spills are identified, DEQ and appropriate local officials will be contacted. Construction will be stopped in that area until it is determined that further work will not pose an environmental threat.

Table 4.20-1
TAKES OF POTENTIAL HAZARDOUS WASTE SITES

#	SITE NAME & LOCATION	# OF TANKS	No Action	Freeway	Expressway (Preferred)	Signalized Expressway
1	Maverick Country Store	2	no take	part take	part take	part take
2	USU Horticultural Farm	1	no take	part take	part take	part take
3	Potter Farm	0	no take	full take	full take	full take
4	Toolson's Chevron	4	no take	full take	full take	full take
5	Davis County Public Works	5	no take	no take	no take	no take
6	Hall & Gailey Sand & Gravel	0	no take	no take	no take	no take
7	Hardy Texaco	3	no take	full take	full take	part take
8	Hardy Texaco	4	no take	full take	full take	part take
9	Abandoned Farm Buildings, Valley View Dr	0	no take	no take	no take	no take
10	Weber Basin Water	8	no take	no take	no take	no take
11	RB's 1 Stop	4	no take	full take	full take	full take
12	Flying "C"	3	no take	full take	full take	full take
13	Seward Motor Freight	2	no take	part take	part take	no take
14	Parson's Sand & Gravel	0	no take	part take	part take	part take
15	Geneva Rock	0	no take	part take	part take	part take
16	Roberts Transmission	0	no take	full take	full take	part take
17	Uintah Towing	0	no take	full take	full take	no take
18	J & J Auto Parts	0	no take	full take	full take	no take
19	Fruit Heights City Shops	0	no take	full take	full take	full take
	TOTAL TAKES:	0	0	15	15	12

4.21 VISUAL IMPACTS



The visual environment of the US-89 corridor is an important factor in attempting to retain the "Old Mountain Road" atmosphere of this highway. While some of the existing natural roadside vegetation will be destroyed during construction, none of the more distant views of the Great Salt Lake, valleys, or mountains will be affected.

No Action. This alternative would not alter the visual environment of the highway corridor.

Build Alternatives. The greatest visual impacts will take place during the actual construction as clearing and grading takes place. Every effort will be made to minimize the unnecessary removal of native vegetation by tagging and/or fencing off sensitive areas. All disturbed cut and fill slopes will be revegetated with native plants.

Noise walls, while very effective in reducing noise impacts, limit the local views for those who are located close to the walls. The more distant views of the lake and mountains will not be affected by the walls.

The Utah State University Horticultural Farm, located on the southeast corner of the Farmington Junction, will be impacted by the build alternatives. However, the university is currently relocating this facility. This move is independent of the action of this project as the site is inadequate for the farm's future operational plans.

Mitigation Measures. The elevated interchange structures proposed in the freeway and expressway alternatives will increase the view of surrounding features. The freeway alternative is the only alternative with a divided median. Because of federal safety rules and highway drainage functions, this median cannot be heavily planted. However, the median can be planted with native wildflowers, ground covers, and low growing shrubs.

Clear zones, cut and fill slopes, and drainage swales adjacent to the highway in each alternative will be planted with native wildflowers, ground covers, and low growing shrubs. Again, federal safety rules and drainage functions will dictate the size of plant materials which can be used.

Noise walls will be earth tones and have textured surfaces.

4.22 ENERGY

Calculations based on the construction materials utilized and efforts expended for placing materials for this section of highway indicate a considerable amount of energy to be expended. Based on the freeway alternative 4.265×10^{15} J (4.042×10^{12} BTU) would be required. The Preferred Alternative would be slightly less and the signalized expressway alternative will be slightly less than that because of the differences in the amount of construction required. Energy requirements of all of the freeway and expressway alternatives are generally much greater than the No Action Alternative. However, there will be a considerable energy savings during the post-construction period for the build alternatives due to more efficient operation of the vehicles using the facility.

Mitigation Measures. No mitigation is proposed.

4.23 CONSTRUCTION IMPACTS

No Action. There will be no construction impacts if this alternative is selected.

Build Alternatives. Impacts due to construction of any build alternative include general traffic flow interruptions, noise and vibrations from construction equipment, poorer air quality, and access disruptions to businesses and residences. All impacts will be temporary and limited to the actual construction period.

Construction activities will determine traffic flow patterns. Traffic may be stopped for construction equipment to pass, be detoured, or limited to one lane. Short detours will be required to access businesses and homes during some stages of construction. Short detours may also be required to route traffic around and through construction zones.

Dust, noise, and vibration from construction equipment and activities will take place only during working hours.

Mitigation Measures. An interdisciplinary team for construction traffic control during the design will be used to coordinate traffic control. Traffic control will be incorporated into the construction plans. Each specific section of US-89 will need to be evaluated as the construction segments are determined to identify any unique circumstances or situations. Emergency access to adjoining property owners will be continuously allowed. Traffic flows will be maintained on US-89 at all times. Likewise, when possible, direct access to businesses and homes will be maintained. Otherwise, short, signed detours will be provided. Access to adjacent properties will be maintained as per Section 104.6, Maintenance of Traffic.

UDOT Specification No. 104.16 (1992 Standard Specifications For Road and Bridge Construction) to control noise and vibration will be in effect during construction.

UDOT Construction Specifications, Section 204 covers dust control and requires the contractor to limit the amount of dust created. Control of dust is accomplished through the use of water or chemical additives during the actual work on the highway grade. Air quality is also monitored closely by the Utah Bureau of Air Quality for specific types of construction operations. By specification, the contractor must submit an Air Quality Impact Statement to the Bureau of Air Quality (Section 104.13).

Standard erosion control measures will be implemented as defined in the UDOT Specifications, Section 240. Construction clean-up is controlled by the UDOT Specifications, Section 260. UDOT Standard Drawings 1010-1014 provide details of erosion control. A Storm Water Pollution Prevention Plan will be included in the construction plans.

With the specifications within the contract documents and the on site supervision by UDOT, inconvenience due to construction activities will be minimized.

4.24 SHORT-TERM USES VS LONG-TERM PRODUCTIVITY

The proposed build alternatives will provide transportation improvements consistent with long-range plans of both the Ogden Area and the Salt Lake Area Transportation Plans. They also consider the present and future needs for traffic and safety according to the current and future land use plans for the region. These plans consider the growth anticipated throughout the study area.

Although the present condition of US-89 generally meets the transportation needs for this area, safety and adequate operational function will continue to deteriorate as volumes increase. The build alternatives will

provide for improved traffic flows and provide a facility that is more accessible to the developments along US-89. Short term impacts and use of resources is consistent with long term productivity for the local region.

4.25 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS

Implementation of the proposed action involves a commitment of a range of natural, physical, human, and fiscal resources. Land used in the construction of the proposed facility is considered an irreversible commitment during the time period that the land is used for a highway facility. However, if a greater need arises for use of the land or if the highway facility is no longer needed, the land can be converted to another use. At present, there is no reason to believe such a conversion will ever be necessary or desirable.

Considerable amounts of fossil fuels, labor, and highway construction materials such as cement, aggregate, and bituminous material would be expended. Additionally, large amounts of labor and natural resources are used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply and their use will not have an adverse effect upon continued availability of these resources. Any construction will also require a substantial one-time expenditure of both State and Federal funds which are not retrievable.

The commitment of these resources is based on the concept that residents in the immediate area, state, and region will benefit by the improved quality of the transportation system. These benefits will consist of improved accessibility, capacity and safety, which are anticipated to outweigh the commitment of these resources.

4.26 SUMMARY OF IMPACTS

This section of the document provides a summary of all impacts related to the proposed alternatives. Although all impacts are listed, many of them will be mitigated, as described in Section 4.27. See Table 4.26-1 for impact comparison of the alternatives.

Land Use. While the direct impact of property acquisition for highway right-of-way will eliminate some developable land, the overall impact on development will be very minor. The city master plans have been developed assuming US-89 will serve as the major transportation corridor through the communities. Improved access to the highway will make the residential and commercial development more desirable.

Recreation resources are impacted to varying degrees based on the alternative. Heaviest impacts are on Alternatives 1 - Freeway and the Preferred Alternative because of greater property requirements. Pioneer Park will be eliminated by Alternatives 1 and 2. Layton City agrees with relocation of the park, as its present location is not very desirable and access is poor and unsafe. Nicholls Park and Shepard Lane Park are also impacted to a lesser degree. Chapter 5 contains more detail of impacts as they relate to Sections 4(f) and 6(f) resources.

Local master plans for streets are compatible with an improved highway facility for US-89. Major intersections/interchanges are planned at locations to match major streets planned by the communities. Access across US-89 has been planned to serve the local communities also.

Local utility services will need to be adjusted for any of the build alternatives. However, no loss of service to any portions of the city will occur as a result.

Table 4.26-1

ALTERNATIVES ENVIRONMENTAL EVALUATION

PARAMETER	ALTERNATIVES							
	NO ACTION		NO. 1 FREEWAY		NO. 2 EXPRESSWAY (Preferred)		NO. 3 SIGNALIZED EXPRESSWAY	
	Value	Rating	Value	Rating	Value	Rating	Value	Rating
1. Construction and R/W Cost	$5.54M	●	$155.2M	◔	$133.0M	◐	$93.3M	◕
2. R/W Acquisition - Hectares (Acres)	0	●	198 (490)	◔	156 (385)	◐	122 (301)	◕
3. Environmental Impacts								
A. Socio-Economic (See 4.4 & 4.6)		○		◕		◕		◑
B. Relocation (Buildings) (See 4.5)	0	●	229	◔	158	◐	124	◕
C. Air Quality (See 4.9) (ppm co)	12.4	◔	9	●	10.4	◕	14.4	◔
D. Noise (See 4.10)		◔		◔		◔		◐
E. Wetlands - Hectares (Acres) (See 4.13)	0	●	6.48 (16.0)	◕	6.23 (15.4)	◕	5.58 (13.8)	◕
F. Farmland - Hectares (Acres) (See 4.2)	0	●	1.5 (3.6)	◕	1.5 (3.6)	◕	1.5 (3.6)	◕
G. Historic/Archaeol. (See 4.19)	0	●	8	◐	8	◐	4	◕
H. Floodplains - Hectares (Acres) (See 4.15)	0	●	7.9 (19.5)	◕	7.3 (18.0)	◕	4.5 (11.0)	◕
I. Visual (See 4.21)		◔		◐		◐		◑
J. Section 4(f)-Parks / Historic - Hectares (Acres) (See 4.1.1)		●	4.80(11.87)	◐	4.67(11.58)	◐	1.22(3.03)	◕
K. Potential Haz. Waste Site (See 4.20)	0	●	15	◕	15	◕	12	◕
Note: Symbol used to rate parameters					● = Least Impact		○ = Greatest Impact	

Farmland. Since residential development has continued at a rapid rate over the recent past, farmland has decreased to a small portion of the area. There is only one parcel identified as "unique" that is impacted by the build alternatives. There are no parcels identified as "prime" or statewide important.

Geology. Geologic hazards must be considered during design phases for improvements made to US-89. The evaluation of landslide hazards, fault zones, groundwater, steep slopes and debris flows during the design process will identify site specific impacts.

Social. Because most communities have grown around the highway, the proposed expansions do not divide or isolate any neighborhoods. The build alternatives provide safer crossing routes and safer access to US-89 for local residents.

Relocation. The major impact of the proposed project improvements is on those whose homes and businesses will be relocated because of the highway expansion. The freeway alternative will displace 202 homes and 27 businesses. There are 136 home and 22 businesses displaced by the Preferred Alternative, and 109 homes and 15 businesses impacted by the signalized expressway.

Replacement housing is available in the adjacent areas along the highway. Since the owners will be relocated away from the existing highway, it will be a more desirable location for most of them.

Economics. There will be an immediate economic impact on the area as homes and businesses are removed. Property and sales taxes will be temporarily reduced until new housing is constructed to replace the tax base. However, funding provided by the purchase of the homes will be readily available for new homes.

Loss of retail sales tax will occur when businesses are relocated. This will also be temporary if businesses choose to relocate within the city. Commercial areas will be encouraged along the major access roads as directed by the local communities. This will be more desirable for most businesses and their customers.

Joint Development. Some very positive impacts will occur as part of the build alternatives in the area of joint development. Landscaped areas are to be developed jointly with communities at interchange/intersection locations. Park and ride lots will be evaluated in association with Utah Transit Authority (UTA) to make mass transit more desirable in this area. Corridor communities will be encouraged to develop their bicycle master plans.

Pedestrians and Bicyclists. Any of the build alternatives will provide a safer facility for bicycle users of the highway. The number of conflict points will be reduced and the shoulder will be wider and better utilized. Pedestrians, while not considered as users of US-89, will have improved ability to cross the highway with some protection on a signalized alternative. The freeway and Preferred Alternative provide even better protection with the grade separated crossing. Pedestrian overpasses will also be constructed at Nicholls Park and Old Mountain Road. Frontage roads which are part of a bicycle master plan will be able to accommodate bicycles.

Air Quality. Projected carbon monoxide (CO) concentrations for the freeway and expressway alternatives are within NAAQS and are below CO concentrations of the No Action Alternative. The CO concentrations for the signalized expressway are greater than for the No Action Alternative and exceed NAAQS.

Noise. There is not an appreciable difference in noise impacts for the build alternatives. The impact severity factor is 1 using the UDOT Noise Policy Noise Abatement Criteria. A severity factor of 1 means

the increase in noise for projected traffic is not greater than 10 dBA. Noise levels will increase 2 to 4 dBA with the build alternatives. Any of the build alternatives will consider cost-effectiveness of noise abatement with noise walls in final design. Public involvement with this issue will continue through final design of the project.

Water Quality. No significant impacts to water quality are expected.

Permits. UPDES permits are required for construction activity and point source discharges as necessary for any alternatives. Section 404 permits will be required for wetlands impacts. During the design process, an UPDES permit will be obtained relative to storm runoff erosion for the project. A Stream Alteration permit will be obtained and complied with during construction.

Wetlands. The No Action Alternative will not impact existing wetlands. There is some impact from each build alternative. Impacts from the freeway alternative involve 6.48 hectares (16.0 acres), the Preferred Alternative would use 6.23 hectares (15.4 acres), and the signalized expressway shows 5.58 hectares (13.8 acres) of impact. Of the 26 sites, two are ponds, one has a pond within the site, and the rest are emergent marsh.

Water Body Modification and Wildlife. Widening of the existing stream crossings will affect stream bank vegetation. Wildlife live in the surrounding area and cannot be totally controlled from crossing the highway. There will be continued loss of deer and small animals.

Floodplains. Minor impacts will occur to stream bank vegetation where culverts are placed to convey streams under the highway.

Wild and Scenic Rivers. There are none in the project area.

Coastal Barriers and Coastal Zone Impacts. There are no Coastal Barriers in the study area.

Threatened and Endangered Species. No threatened or endangered species have been identified within the corridor study area.

Historic, Archaeological and Paleontological. Twenty historic structures, one prehistoric archaeological site, and one grave site have been identified as eligible for NRHP within the US-89 corridor. None of them will be impacted by the No Action Alternative. Impacts by the build alternatives range from eight sites on the freeway and the Preferred Alternative to five for the signalized expressway alternatives.

Hazardous Waste. Several potential hazardous waste sites are identified within the project area. The freeway alternative and Preferred Alternative will both involve 14 sites, while the signalized alternative would involve 11 sites. There are no known hazardous wastes at these locations.

Visual. The freeway alternative and Preferred Alternative would provide an elevated roadway at several locations and thereby offer a new view of the surrounding area. Greatest negative visual impacts will be during the construction period. Removal of existing vegetation will be limited and controlled by tagging and/or fencing. Revegetation of new cut and fill slopes will be planned into the project utilizing native plants and grasses. Noise walls will change the roadside view, but will not block the distant views.

Energy. Substantial energy will be required for any of the build alternatives, but will be recovered during the post construction period by improved energy efficient operations.

Construction. Noise and dust are the main impacts that will occur on all of the build alternatives. These will be controlled by local ordinance and by UDOT specifications for the construction contract. Local access to businesses and residences will be disrupted. Some traffic will be detoured or rerouted. Erosion problems may occur, but will be minimized by pollution controls within the project design.

4.27 SUMMARY OF COMMITMENTS AND MITIGATION MEASURES

Land Use. Care has been taken in the preliminary design of each alternative to minimize impacts to recreation properties. All mitigation measures will meet the Sections 4(f) and 6(f) requirements.

Land taken from Shepard Lane Park will be replaced with useable recreation land.

Land taken from Nicholls Park will be minimized through the construction of retaining walls. Mitigation will be provided by funding additional improvements to the existing park properties through the property acquisition.

The freeway and expressway alternatives will eliminate access to Pioneer Park on the southwest corner of Oakhills Drive in Layton. A new park site has been identified by Layton City. Its development will be coordinated with the city (see letter and map in the Appendix to Chapter 5).

Farmland. No mitigation is proposed.

Social Impacts. Except relocation impacts, which are addressed below, there is no mitigation required for social impacts.

Relocation. Home or business owners displaced by this project will be relocated or compensated according to federal and state regulations, and in accordance with the URA and RPA Act of 1970 as amended. These regulations address the allowance of adequate time and assistance to find replacement housing or to relocate a business.

Economic. No mitigation efforts proposed.

Joint Development. Bicycle paths will be accommodated in the design of frontage roads which are part of a local bicycle master plan. As per UDOT guidelines, adjacent communities will have the option of landscaping interchanges for entryway enhancement. Joint development and funding between UDOT and UTA of park and ride lots needs to be further studied and discussed as UTA updates its Davis County service.

Considerations Relating to Pedestrians and Bicyclists. Bicyclists will be allowed on the 10-foot wide shoulder of the Preferred Alternative. Pedestrians and casual bicyclists will be discouraged from use of the corridor by working with the communities to create bicycle paths on frontage and local adjacent roads. Frontage roads which are part of a bicycle master plan will accommodate bicycle use. A sidewalk will be placed adjacent to frontage roads as shown on Figure 2.1-1c Pedestrian overpasses will be provided at Nicholls Park and Old Mountain Road.

Air Quality. Dust emissions from the proposed construction will be mitigated with watering of the haul roads, as outlined in UDOT Specifications, Subsection 104.6 and 104.13 and Section 204. Watering is the most economical control method, but it only provides temporary relief. If water does not control the dust emissions sufficiently, the speeds on the haul roads will be decreased. Reducing operating speeds

is an effective method to reduce dust emissions. If these two methods are not satisfactory, the use of stabilization chemicals will be permitted only if the chemicals will have no adverse affect on nearby plant and animal life.

Noise. Noise barriers are being considered along the highway in eight different locations. Noise barriers were considered at Shepard Lane Park and Knowlton Elementary, Cherry Hills Camping Area, along Lloyd Drive, at Pilly Green Subdivision near Nicholls Road, near Country Way, between Crestwood Drive and Mutton Hollow. They were also evaluated at Woodridge Estates below Gentile Drive, and at the northern end of Valley View Drive near the intersection of Sunset Drive on both the east and west sides of the highway. Noise barriers are found to be likely in several locations. The location of the likely noise walls are shown in Figure 4.10-1. Final determination of noise wall location, height, length and other details will be in accordance with the current UDOT Noise Policy during final design.

Water Quality. Runoff for the build alternatives will be received by roadside swales. These areas will be vegetated to intercept and retain much of the road surface pollutants, minimizing pollutants discharged to surface streams. Quantities of pollutants are considered insignificant, compared to other water-born pollutants carried by surface runoff. UPDES permit requirements will be implemented during construction.

Wetlands. The jurisdictional wetlands eliminated by the Preferred Alternative will be replaced with created or improved wetlands developed at sites acceptable to the COE. The wetlands replacement will be on an equal functional basis and will follow the conditions outlined in the U.S. Army Corps of Engineers Section 404 permit. Conditions of the 404 permit will be applied during and after construction.

Wildlife. The only major wildlife impact is the conflict with deer crossing US-89. After discussions with DWR, it was decided to not install deer barrier fence at this time. Deer crossing signs will be used to warn motorists of this hazard. Enhancement of adjacent reaches of streams will be accomplished as a part of the stream alteration permit.

Floodplains. The extensive floodplain area surrounding the Weber River crossing provides ample area for flooding, with no anticipated increase in headwaters due to the Preferred Alternative. Stream Alteration permits will be processed through the State Engineer's Office. New structures needed to bridge the Weber River will be clear span to minimize any erosion or fishery habitat impacts and all structures will meet FEMA requirements. Vegetation along streams will be restored during construction.

Historical, Archaeological, and Paleontological Resources. Historic properties E9, E10, E12, E13, E16, and E21 will not be impacted by the Preferred Alternative. Utilization of a contoured slope easement will be used to avoid impacting E2 and E5. Concrete retaining walls, along with the preservation of on site mature vegetation, will be used to avoid affecting E6 and E17. Under the Preferred Alternative, retaining walls will be constructed to avoid impacts to E19 and E20. Also, a retaining wall will be constructed to minimize harm to E8. Structural historic properties, E1, E4, E5, E7, E11, E18 and E23, affected by the project will be documented according to State Intensive Level Survey as per the MOA. One grave site, E22, with two historic burials will have archaeological investigation prior to construction. All documentation will follow the MOA and will be completed in advance of construction. Any historical, archeological, or paleontological resources discovered during construction will be protected, evaluated, and treated in accordance with UDOT Standard Specification 104.15.

Hazardous Waste. UDOT will incorporate environmental impairment language in property purchase agreements for potentially contaminated sites. If, during construction, any hazardous waste sites or spills are identified, the appropriate DEQ and local officials will be contacted. Construction will be stopped in that area until it is determined that further work will not pose an environmental threat.

Visual Impacts. The presence of the existing four-lane highway has already established a visual impact. The build alternatives will enhance the road's appearance with clear zone and drainage swale vegetation, planting native wildflowers, ground covers, and low growing shrubs.

Energy Consumption. No mitigation is proposed.

Construction Impacts. Construction noise and dust will be controlled with conventional means according to UDOT specifications, subsections 104.6 and 104.16, and section 204. Special efforts will be made to provide the most effective traffic control and make access available during construction. Noise and vibration controls will be included in the specifications. Erosion and pollution control measures will be included in the plans for the project.

CHAPTER 5
SECTIONS 4(f) & 6(f) EVALUATIONS

CHAPTER 5
SECTIONS 4(f) AND 6(f) EVALUATIONS

5.1 PROPOSED ACTION

The action proposed is the reconstruction of a 20.12 km (12.5 mile) segment of US-89, Farmington to South Ogden, through the northern portion of Davis County and southern portion of Weber County. The once agricultural rural corridor has become a rapidly growing residential area. The improvements will preserve a critical transportation corridor, eliminate system deficiencies, and provide safety improvements. A complete discussion on the proposed project's purpose and need is found in Chapter 1 of the preceding Final EIS.

A No Action Alternative and three build alternatives have been developed. The No Action Alternative consists of leaving the four lane facility as it presently exists, adding traffic signals and turning lanes as they are warranted in the future, and resurfacing the existing pavement as needed. Each of the three build alternatives would follow the existing alignment of US-89. Alternative 1 - Freeway is a totally controlled access, six-lane freeway with a typical 107 m (350-foot) right-of-way. The Preferred Alternative is a controlled access, six-lane expressway with a typical 91 m (300-foot) right-of-way. Alternative 3 - Signalized Expressway is a signalized, six-lane expressway with a typical 91 m (300-foot) right-of-way. Each of the above alternatives, as well as other alternatives considered but not advanced, are described and assessed in detail in Chapter 2 of the preceding Final EIS.

5.2 SECTIONS 4(f) AND 6(f) PROPERTIES

Title 23 CFR 771.135(a) states that "The Administration may not approve the use of land from a significant publicly owned park, recreation area, or wildlife and waterfowl refuge or any significant historic site unless a determination is made that:

(i) There is no feasible and prudent alternative to the use of land from the property: and,
(ii) The action includes all possible planning to minimize harm to the property resulting from such use."

Section 6(f) of the 1965 Land and Water Conservation Fund Act provides funding for acquiring property and developing public recreational facilities and also protects the loss of that property to other uses. Section 6(f) of the Act states that "no property acquired or developed with assistance under this section shall, without the approval of the Secretary, be converted to other than public outdoor recreation uses." The Act requires any Section 6(f) property affected by this proposed project to be replaced by recreation property of equal value and usefulness.

Davis County Golf Course, Pioneer Park, Nicholls Park, Shepard Lane Park and the Knowlton Elementary School Playing Field are the public recreation sites within the US-89 study corridor. Several additional public recreation sites lie outside the study corridor but can be accessed from local roads which connect with US-89, these include: Valley View Golf Course, Fernwood Park, Central Park, Central East Park, Cherry Farms Park and Uintah Park. Twenty historic structures eligible for the National Register of Historic Places (NRHP), one grave site, and one prehistoric archaeological site were also identified. Section 3.14 of the preceding Final EIS describes these sites in detail. Table 5.2-1 shows all recreational and historic properties, and the prehistoric archaeological site which are in the study corridor.

Table 5.2-1
SUMMARY OF RECREATIONAL AND ELIGIBLE HISTORIC PROPERTIES

PARKS			
Name, Location	Total Hectares(Acre)	Section 6(f)	4(f) Applies
Shepard Lane, Farmington - STA 134+00	2.58 (6.38)	yes	yes
Knowlton School, 801 West Shepard Lane, Farmington (play field used by city)	2.02 (5.00)	no	yes
Nicholls, Fruit Heights - STA 248+00	16.86 (41.67)	no	yes
Pioneer, Layton - STA 383+00	2.02 (5.00)	yes	yes
Davis Co. Golf Course STA 235+00 to 245+00		no	no
ELIGIBLE HISTORIC PROPERTIES			
Map ID No. - Site No./Address	Description	Year Built	4(f) Applies
E1 - 161 No. Highway 89, Fruit Heights	Victorian Eclectic House	1892	yes
E2 - 530 North 1300 East, Fruit Heights	Victorian Eclectic House	1907	no
E3 - 1402 No. Highway 89, Kaysville	Basement House	1940	no
E4 - 42Dv47, Layton	Flood Control Walls	1935	yes
E5 - 1363 No. Highway 89, Layton	Queen Anne Victorian House	1898	yes
E6 - 2550 No. Highway 89, Layton	Vernacular Gable House	1939	no
E7 - 42Dv48, South Weber	Flood Control Structure	1935	yes
E8 - 2339 East 6550 South, Uintah	Vernacular Four-square House	1909	yes
E9 - 8386 So. Highway 89, Layton	Root Cellar	1890	no
E10 - 8102 So. Highway 89, Layton	Root Cellar	1898	no
E11 - 2250 East 6550 South, Uintah	Victorian Double Cross-wing House	1899	yes
E12 - 6571 South 2275 East, Uintah	Vernacular Four-square House	1912	no
E13 - 6574 South 2275 East, Uintah	Vernacular House	1936	no
E14 - 6655 South 2275 East, Uintah	PROPERTY NON-ELIGIBLE FOR NRHP		no
E15 - 42Wb54	Prehistoric Archaeological Site		no
E16 - 1305 North Main Street, Farmington	Victorian Eclectic House	1902	no
E17 - 2778 No. Highway 89, Layton	Vernacular Stone House	1863	no
E18 - 1787 North Main, Farmington	Gothic Revival House	1885	yes
E19 - 1812 North Main, Farmington	Victorian Eclectic House	c.1850	no
E20 - 1817 North Main, Farmington	WWII Cottage House	1930	no
E21 - Union Pacific Railroad, Uintah	Concrete Underpass	1915	no
E22 - 42Wb335 6500 South Highway 89	Grave Site	1869	no
E23 - 251 North Highway 89	Vernacular Four-square House	1916	yes

Please note that E14 has been determined non-eligible for the NRHP and will not be discussed further.

Of the above properties, Section 4(f) applies to Pioneer Park, Nicholls Park, Shepard Lane Park, Knowlton Elementary School Playing Field and eight historic properties as shown in Table 5.2-1. Of the remaining thirteen historic properties, seven (E9, E10 E12, E13, E16, E17 and E21) will be outside the area of potential effect by any of the alternatives, five (E2, E3, E6, E19 and E20) will avoid impact through the use of contour sloping or retaining walls, and the prehistoric archaeological property is not of a nature that requires preservation "in-place", therefore, these properties do not fall under Section 4(f) guidelines. Section 6(f) also applies to the two city parks.

Impacts to Section 4(f) property can be either direct or constructive use, while impacts to Section 6(f) properties are only direct. Direct impacts alter or eliminate the original use of Sections 4(f) and 6(f) property by taking the property for another use such as highway right-of-way or the construction of an interchange ramp. Constructive use impacts are indirect impacts so severe as to substantially diminish or limit use of the primary design, features, or function of a site or resource. Constructive use impacts, as described in 23 CFR 771.135, occur when:

> The projected noise level increase attributable to the project substantially interferes with the use and enjoyment of a noise-sensitive facility of a resource protected by Section 4(f), such as hearing the performances at an outdoor amphitheater, sleeping in the sleeping area of a campground, enjoyment of a historic site where a quiet setting is a generally recognized feature or attribute of the site's significance, or enjoyment of an urban park where serenity and quiet are attributes.
>
> The proximity of the proposed project substantially impairs esthetic features or attributes of a resource protected by Section 4(f) where such features or attributes are considered important contributing elements to the value of the resource. Examples of substantial impairment to visual or aesthetic qualities would be the location of a proposed transportation facility in such proximity that it obstructs or eliminates the primary views of an architecturally significant historical building, or substantially detracts from the setting of a park or historic site which derives its value in substantial part due to its setting.
>
> The project results in a restriction on access which substantially diminishes the utility of a publicly owned park, recreation area, or historic site.
>
> The vibration impact from operation of the project substantially impairs the use of a Section 4(f) resource, such as projected vibration levels from a rail transit project that are great enough to affect the structural integrity of a historic building or substantially diminish the utility of the building.
>
> The ecological intrusion of the project substantially diminishes the value of wildlife habitat in a wildlife or waterfowl refuge adjacent to the project or substantially interferes with the access to a wildlife or waterfowl refuge, when such access is necessary for established wildlife migration or critical life cycle processes.

Noise studies conducted to evaluate each alternative indicate noise levels will increase approximately 2 dBA. This is a slight increase from existing noise levels, and will not interfere with the use and enjoyment of recreational, noise sensitive facilities, or other potential Section 4(f) properties. There will be no substantial impairment as defined under 23 CFR 771.135 caused by any alternative to any of the esthetic features of Section 4(f) properties which would detract or obstruct the property. None of the alternatives would cause existing vibration or sources of vibration to change. No waterfowl or wildlife refuge exists

in the project corridor or is in the surrounding area. Therefore, other than the elimination of access to Pioneer Park under Alternative 1 & 2, no other constructive use impacts are expected as a result of any of the alternatives to either properties within the corridor or near the corridor.

The following evaluation addresses only the recreational and historic properties where Sections 4(f) and 6(f) apply. Figure 5.2-1 shows the location of each of these properties. Detail illustrations showing each of these impacted properties can be found in Section 5.3 -Impacts to 4(f) and 6(f) Properties. For each property there is a No Action Alternative illustration showing existing conditions and illustrations showing impacts caused by each of the three build alternatives.

Within the preceding Final EIS, Section 3.1.3 discusses all the recreational property, both in the corridor and adjacent to the corridor, while Section 3.14 - Historical, Archaeological, and Paleontological Resources lists all the historical and pre-historic archaeological properties, both NRHP-eligible and non-eligible, found in the highway study corridor.

5.2.1 Description of Sections 4(f) and 6(f) Recreational Properties

Shepard Lane Park, Farmington

Shepard Lane Park is a 2.58 hectare (6.38 acre) Farmington City Park located on the east side of US-89 in Farmington. The park's west side boundary line runs adjacent to the highway. The park is bordered on the north by Knowlton Elementary School's playing field and an L.D.S. Church ball diamond. Farm fields border the south and east sides of the park. Access to the park is from Shepard Lane. The park has a developed playing field, one ball diamond, used for city-sponsored league play, four tennis courts, a covered bowery, and a paved parking lot. The park was developed between 1986 and 1992, in part with a Section 6(f) Land & Water Conservation Fund Grant.

Knowlton Elementary School Playing Fields, 801 West Shepard Lane, Farmington

The two hectares (five acres) of playing fields at Knowlton Elementary are adjacent to the north side of Shepard Lane Park. Farmington City uses the playing fields for city-sponsored, organized youth soccer leagues. Davis County School District owns the property and Farmington City does not pay a fee for using the fields. There are two small backstops used for school play and eight goal posts located in the fields.

Nicholls Park, Fruit Heights

Located on the west side of the highway, but on the north side of Nicholls Road, is Fruit Heights City's only park, Nicholls Park. The park covers 16.86 hectare (41.67 acres) and has three ball diamonds, playing fields, sand volleyball pit, restrooms, two covered picnic boweries, and a small tot lot in the developed section of the park. Four lighted tennis courts are located on the south side of Nicholls Road. There is also a natural section with nature trails along the Baer Creek ravine. During the 1983 floods, the developed amenities in the natural section were destroyed. The southeast corner of the park is adjacent to the highway, however, the majority of the east boundary lies between 13.4 m (44 feet) and 118.3 m (388 feet) west of US-89.

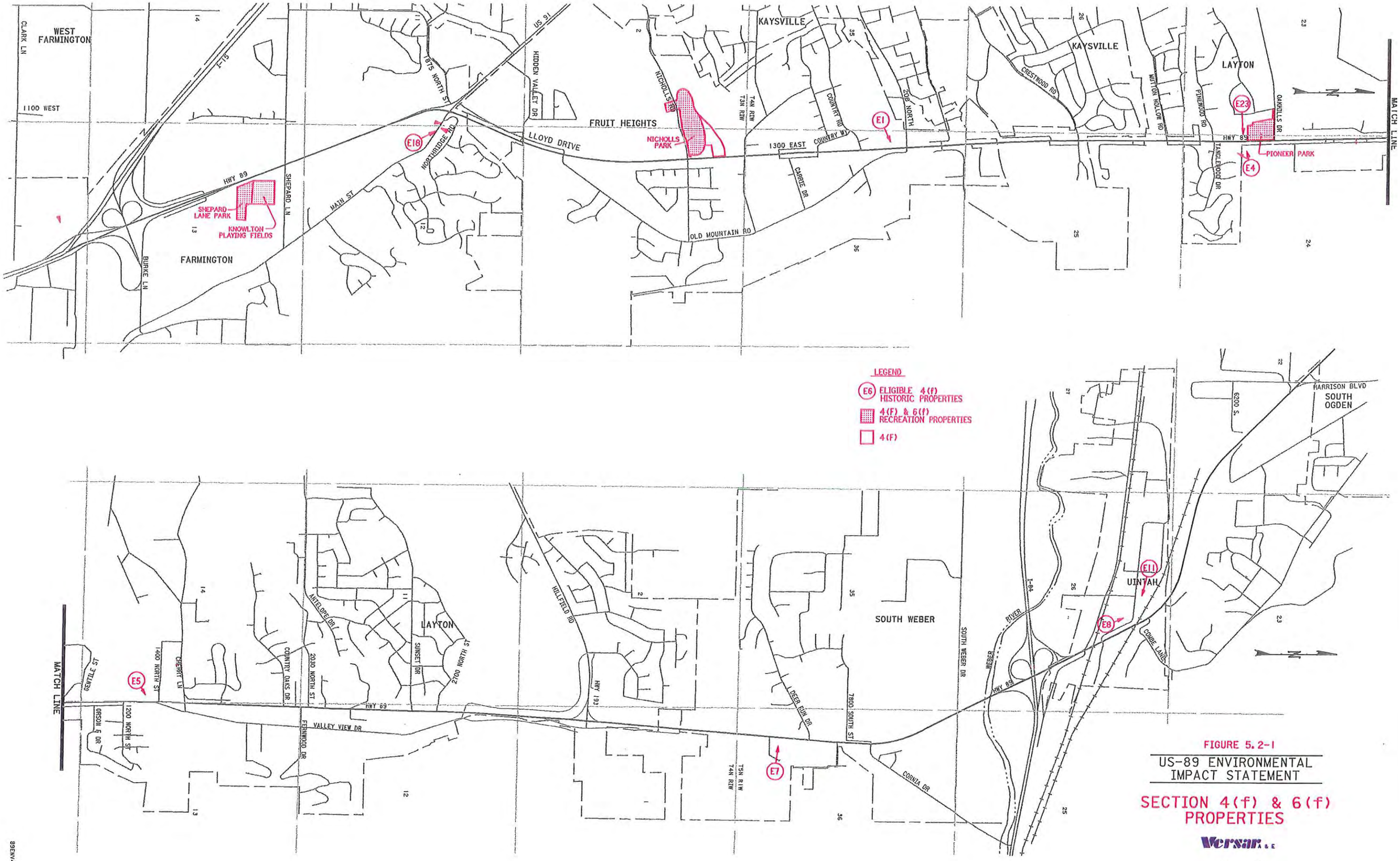


FIGURE 5.2-1

US-89 ENVIRONMENTAL IMPACT STATEMENT

SECTION 4(f) & 6(f) PROPERTIES

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The northeast corner of the park, Baer Creek ravine area, is below the highway. The southern portion of Nicholls Park was developed by Davis County between 1969 and 1974 with a grant from Section 6(f) of the Land & Water Conservation Fund (LWCF). In a letter from State Parks, an area was defined where LWCF funds were used as "the developed park property that extends along the upper edge of the Baer Creek Ravine. It does not include property down in the ravine." The property required for highway and frontage road does not involve the developed park property. (See letter from State Parks in the Appendix to this chapter.) In 1987, Davis County deeded the park to Fruit Heights.

Pioneer Park, Layton

Layton City's Pioneer Park is located on the southwest corner of the Oakhills Drive/US-89 intersection. This small, 2.0 hectare (5 acre), natural conditions park has non-functioning restrooms, a small open space area, and twelve concrete pad picnic spots. Access to the park is very poor, through a piece of UDOT right-of-way property, and none of the park's roadway is paved. The park is only open for warm season use. Because of the park's isolated setting, it is frequently vandalized and under utilized. A Land & Water Conservation Fund Grant was used to build the restrooms and septic tank, which are currently in need of repairs to become functional. Vandalism and low water pressure are the reasons the restrooms are not functional.

US-89 and Oakhills Drive are approximately 6 m (20 feet) higher than the floor of Pioneer Park. This gives the park a feeling of seclusion and hides the park from the view of passing motorists. All visual views are limited to areas within the park or the mountain peaks to the east.

5.2.2 Description of Section 4(f) Historic Properties

E1 - 161 North Highway 89, Fruit Heights

"Criddle Place", an 1892 cross-gable, Victorian eclectic house is adjacent to the highway on the west side and accessed directly from US-89. The house is approximately 23 m (75 feet) from the existing highway right-of-way fence. The house is privately owned and occupied. It is eligible for the NRHP under Criterion C.

E4 - Site 42Dv47, Layton

This site, located on the hillside 38 m (125 feet) east of US-89, represents a 1935 Civilian Conservation Corps (CCC) stone water control structure. The site consists of two parallel native stone walls aligned along a moderately steep slope of the lower foothills of the Wasatch Mountains. The property, adjacent to the highway right-of-way fence, is owned by the State of Utah. It is eligible for the NRHP under Criteria A and C.

E5 - 1363 Highway 89, Layton

Constructed in 1898 by Robert William Wilson Wall, a local fruit farmer, this ornate building is a cross-gable, one and one-half story, Queen Anne Victorian house. The property is adjacent to the highway and access is directly from US-89. The house is located approximately 5 m (15 feet) from the existing highway

right-of-way fence. The house is privately owned, but is currently not occupied. It is eligible for the NRHP under Criteria A and C.

E7 - Site 42Dv48, South Weber

Site 42Dv48 represents another CCC stone water control structure built in 1935 to help stem disastrous floods from the mountain slopes to the east. The structure appears to have been built to control flood waters emanating from the mouth of Corbett Creek which cuts quite a deep canyon eastward into the Wasatch Mountains. The feature consists of two parallel stone walls laid in an east-west direction, which, on the east end (where the walls flare) acts as a catchment to divert stream water into a wide stone spillway feature. The property is adjacent to the existing highway's east side right-of-way fence and is owned by the State of Utah. It is eligible for the NRHP under Criteria A and C.

E8 - 2339 East 6550 South, Uintah

This vernacular, four-square house, constructed in 1909, is made of red brick salvaged from an earlier house which once stood across the street. The house is privately owned and occupied. The house is located approximately one block west of the highway. It is eligible for the NRHP under Criterion C.

E11 - 2250 East 6550 South, Uintah

This is a one-story, gable-roofed double cross-wing Victorian eclectic house built in 1899. The house is located approximately two blocks west of US-89. Only the house is eligible for the NRHP. The house is privately owned and occupied. The home is eligible for the NRHP under Criterion C.

E18 - 1787 North Main Street, Farmington

This cross-wing Gothic revival home was built in at least two stages. The original one-and-one half story gable roof structure was built in 1885. In 1909 a single story gable roofed wing was constructed. A single corbeled regular fixed brick chimney projects above the roof of each wing. The house is constructed of plaster over adobe and rests on a stone foundation. The many huge mature trees located throughout the yard date back to the turn of the century and contribute to the setting and feeling of the property. The house is eligible for the NRHP under Criterion C.

E23 - 251 North US-89, Layton

This house was built in 1916. It represents vernacular style four-square cottage. It has a steep-hipped roof covered with asphalt shingles. Sides of the house are covered with aluminum siding resembling historic clapboard. The house is privately owned and occupied. It is eligible for the NRHP under Criterion C.

5.3 IMPACTS TO 4(f) AND 6(f) PROPERTIES

Impacts to each of the 4(f) and 6(f) properties by the various alternatives are described below. Table 5.3-1 summarizes acreage impacts to 4(f) and 6(f) recreational property while Table 5.3-2 summarizes which 4(f) historic properties are impacted by one or more alternatives. Figures illustrating the impacts accompany the descriptions.

5.3.1 Description of Impacts to Recreational Properties

Table 5.3-1
IMPACTS TO RECREATION RESOURCES - HECTARES (ACRES)

PARK	TOTAL AREA	NO ACTION	ALT. 1 FREEWAY	ALT. 2 EXPRESSWAY (Preferred)	ALT. 3 SIGNALIZED EXPRESSWAY
Shepard Lane	2.58 (6.38)	0	0.41 (1.01)	0.35 (0.86)	0.12 (0.29)
Knowlton Elementary Playing Field	2.00 (5.00)	0	0.27 (0.66)	0.21 (0.53)	0.02 (0.06)
Nicholls	16.86 (41.67)	0	1.52 (3.75)	1.43 (3.52)	1.43 (3.52)
Pioneer	2.00 (5.00)	0	2.00 (5.00)	2.00 (5.00)	0.31 (0.77)
TOTALS	23.44 (58.05)	0	4.20 (10.42)	3.99 (9.91)	1.88 (4.64)

Shepard Lane Park, Farmington

Figures 5.3-1 and 5.3-2 illustrate conditions and impacts to Shepard Lane Park.

No Action. There would be no impacts to Shepard Lane Park under this alternative.

Alternative 1 - Freeway. Construction of the northbound off-ramp for the Shepard Lane interchange would impact 0.42 hectares (1.01 acres) of the park adjacent to the west boundary fence. Currently, the park is hidden from view of the highway by a vegetative screen in the existing right-of-way. This screening would be removed by construction. However, the majority of the 2.58 hectare (6.38 acre) park, including the baseball diamond, would still be usable.

Alternative 2 - Expressway (Preferred Alternative). This alternative will impact the park similar to Alternative 1, with 0.35 hectares (0.86 acre) of impact.

Alternative 3 - Signalized Expressway. Widening of the highway under this alternative would remove the vegetative screen from the existing right-of-way and impact 0.12 hectare (0.29 acre) of the park.

Knowlton Elementary School Playing Fields, 801 West Shepard Lane, Farmington

Figures 5.3-1 and 5.3-2 illustrate conditions and impacts to the Knowlton Elementary School playing fields.

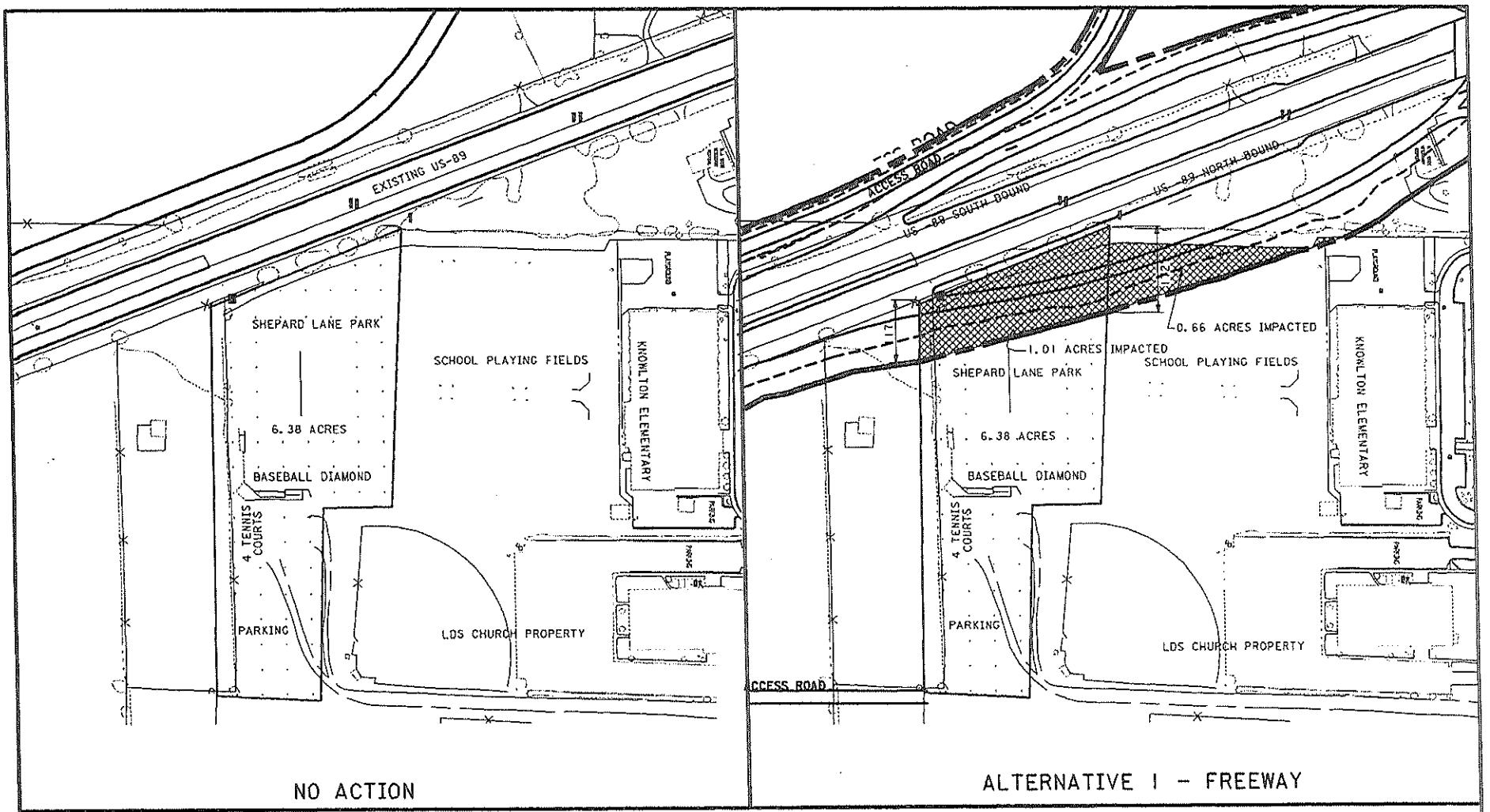

FIGURE 5.3-1

US-89 ENVIRONMENTAL IMPACT STATEMENT

SHEPARD LANE PARK & KNOWLTON ELEMENTARY PLAYING FIELDS

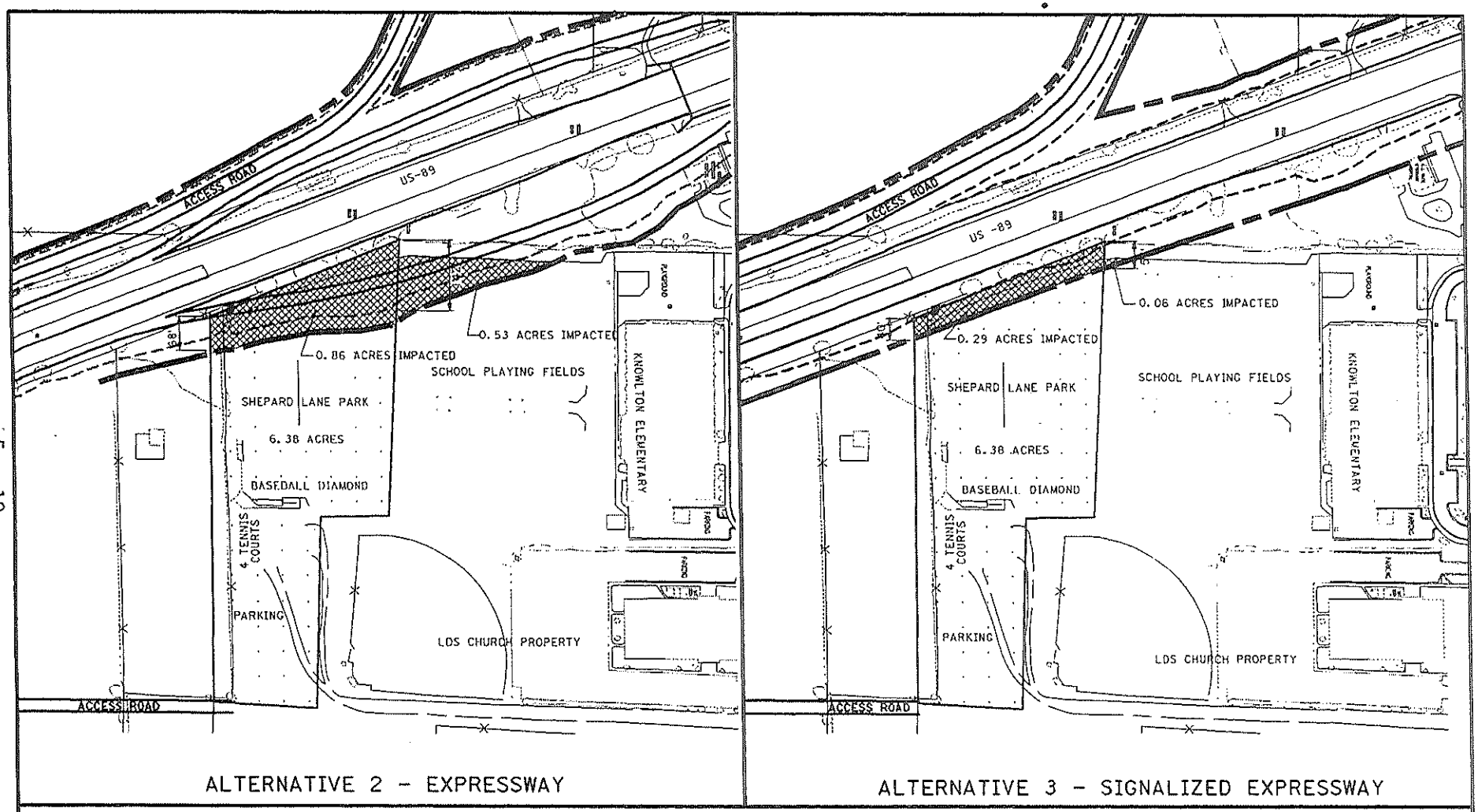

FIGURE 5.3-2

US-89 ENVIRONMENTAL IMPACT STATEMENT

SHEPARD LANE PARK & KNOWLTON ELEMENTARY PLAYING FIELDS

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No Action. There would be no impacts to the school playing fields under this alternative.

Alternative 1 - Freeway. Construction of the northbound off-ramp for the Shepard Lane interchange would impact the school's playing fields. Approximately 0.27 hectares (0.66 acre) would be needed from the west side of the playing fields. The impacted ground is triangular in shape. This would eliminate one of the four soccer fields as they are currently laid out, however, changing the direction of the fields would keep all four usable.

Alternative 2 - Expressway (Preferred Alternative). This alternative will impact the playing fields similar to Alternative 1, with 0.21 hectare (0.53 acre) of impact.

Alternative 3 - Signalized Expressway. Widening of the highway under this alternative would impact 0.02 hectare (0.06) acre of the southwest playing field corner. All four soccer fields would remain usable.

Nicholls Park, Fruit Heights

Figures 5.3-3 and 5.3-4 illustrate conditions and impacts to Nicholls Park.

No Action. There would be no impacts to the park under this alternative.

Alternative 1 - Freeway. Under this alternative the park would lose 1.52 hectares (3.75 acres) for the construction of a west side frontage/access road. The frontage/access road is needed to access the park, homes along Nicholls Road, and the Davis County Golf Course. A small strip of land would be taken from the east boundary, but the majority of land would come from the natural area of the park in Baer Creek's ravine. This area is only accessible by foot from the south. That access will remain. All of the developed amenities in the Baer Creek area were destroyed by the 1983 floods and have not been replaced. Only the area south of the Baer Creek ravine has been developed with 6(f) funds. A retaining wall will be constructed adjacent to the west side of the frontage road to minimize impacts to the park. The majority of the 41.67-acre park and remaining developed amenities would not be affected by construction and would still be usable after construction is completed.

Alternative 2 - Expressway (Preferred Alternative). This alternative will impact the park similar to Alternative 1, with 1.43 hectares (3.52 acres) of impact.

Alternative 3 - Signalized Expressway. The impacts under this alternative would be the same as under Alternative 2 - Expressway.

Pioneer Park, Layton

Figures 5.3-5 and 5.3-6 illustrate conditions and impacts to Pioneer Park.

No Action. There would be no impacts to the park under this alternative.

Alternative 1 - Freeway. While only 1.31 hectares (3.23 acres) of the park would be needed for construction of the Oakhills Drive interchange, all of the 2.02 hectares (5 acre) park, including amenities, would be taken because access into the park would be eliminated. The restrooms, which have never worked properly, were built with 6(f) funds.

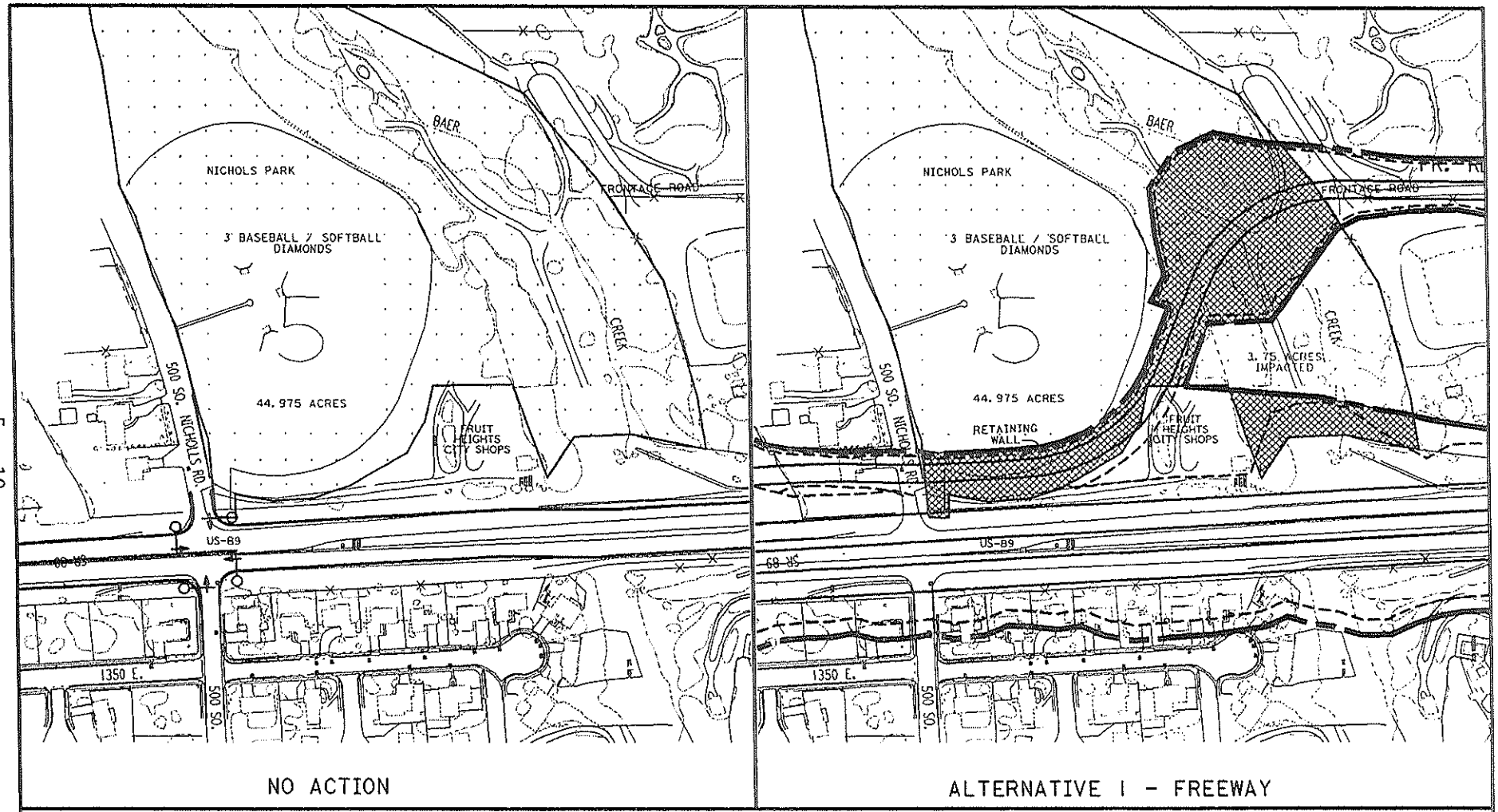

FIGURE 5.3-3

US-89 ENVIRONMENTAL IMPACT STATEMENT

NICHOLS PARK

Versar

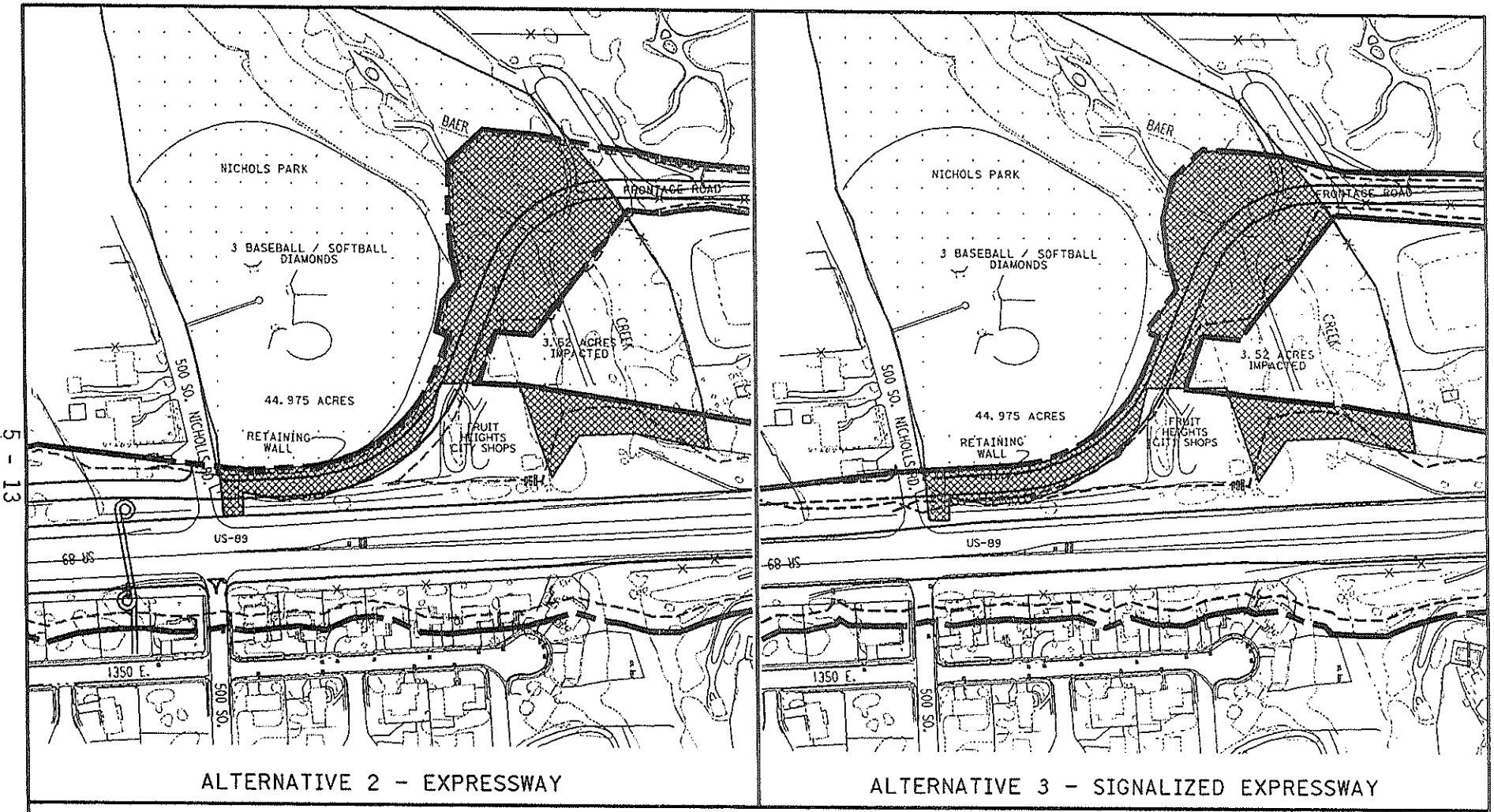

FIGURE 5.3-4

US-89 ENVIRONMENTAL IMPACT STATEMENT

NICHOLS PARK

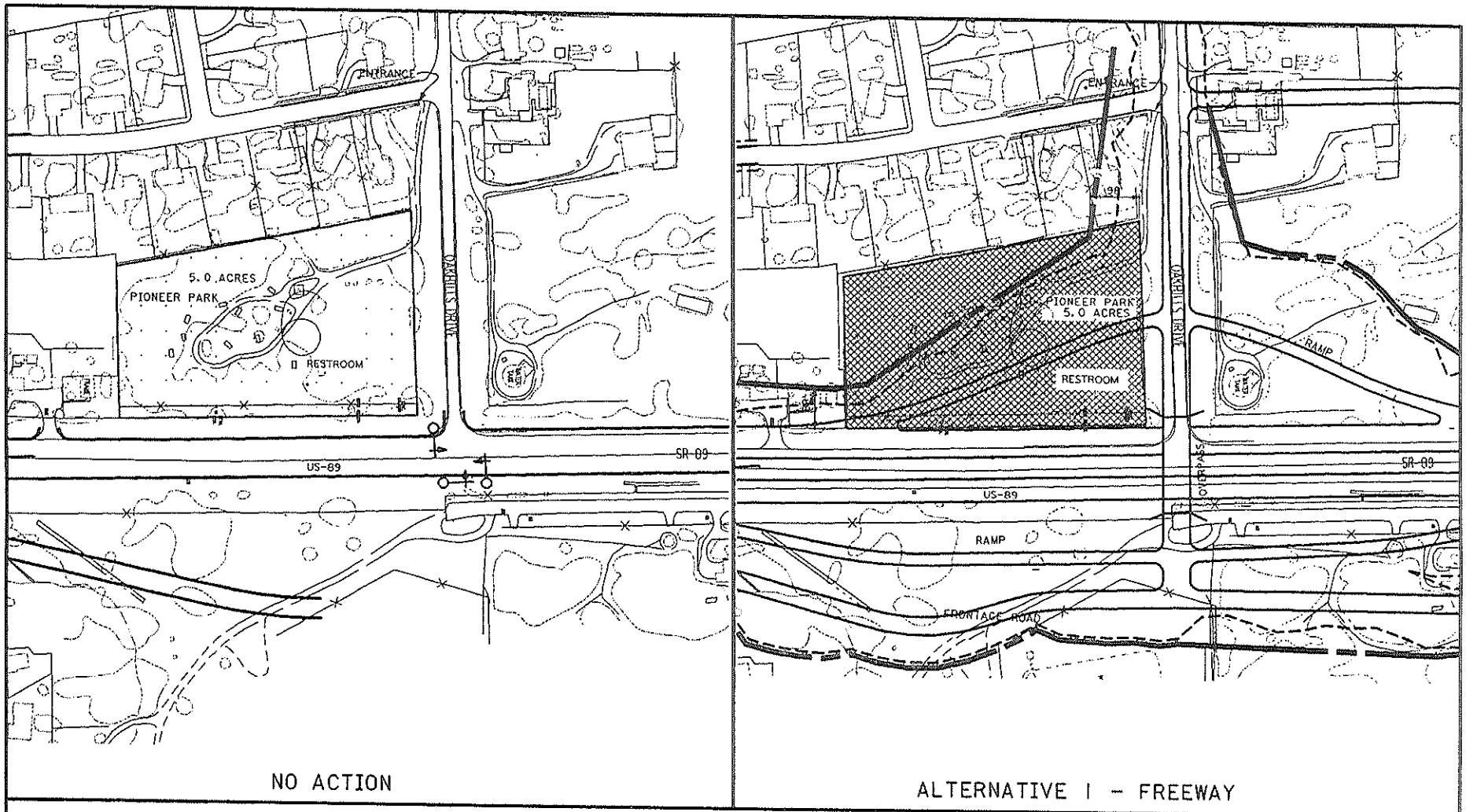

FIGURE 5.3-5

US-89 ENVIRONMENTAL IMPACT STATEMENT

PIONEER PARK

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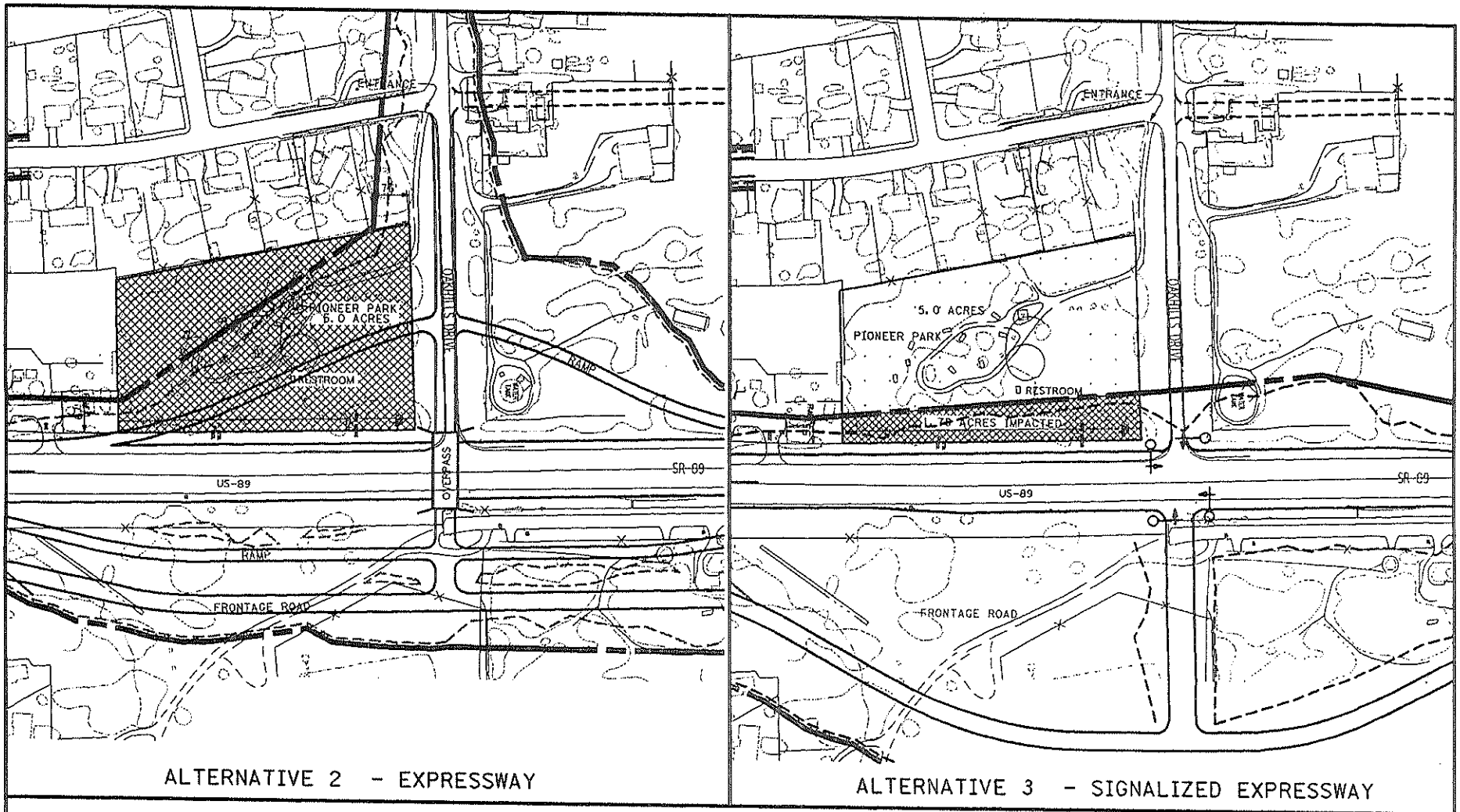


FIGURE 5.3-6

US-89 ENVIRONMENTAL IMPACT STATEMENT

PIONEER PARK

Alternative 2 - Expressway (Preferred Alternative). Impacts to the park under this alternative are the same as under Alternative 1 with 1.26 hectares (3.12 acres) needed for interchange construction. However, the whole park would be taken because access into the park would be eliminated.

Alternative 3 - Signalized Expressway. Under this alternative only 0.31 hectares (0.77 acres) would be taken from the park for the widening of US-89. Access to the park, and the amenities, would still be available and the majority of the park will still be usable.

5.3.2 Description of Impacts to Historic Properties

Table 5.3-2
SUMMARY OF IMPACTED HISTORIC PROPERTIES

SITE	NO ACTION	ALT. 1 FREEWAY	ALT. 2 EXPRESSWAY (Preferred)	ALT. 3 SIGNALIZED EXPRESSWAY
E1 - 161 No. Highway 89, Fruit Heights	No Impact	Impacted	Impacted	No Impact
E4 - Site 42Dv47, Layton	No Impact	Impacted	Impacted	Impacted
E5 - 1365 Highway 89, Layton	No Impact	Impacted	Impacted	Impacted
E7 - Site 42Dv48, Layton	No Impact	Impacted	Impacted	Impacted
E8 - 2339 East 6550 South, Uintah	No Impact	No Impact	Impacted	No Impact
E11 - 2250 East 6550 South, Uintah	No Impact	Impacted	No Impact	No Impact
E18 - 1787 North Main Street, Farmington	No Impact	Impacted	Impacted	No Impact
E23 - 251 North Highway 89	No Impact	Impacted	Impacted	Impacted
TOTALS	0	7	7	4

E1 - 161 North Highway 89, Fruit Heights

Figures 5.3-7 and 5.3-8 illustrate impacts to this property.

No Action. There would be no impacts to this property under this alternative.

Alternative 1 - Freeway. Due to the construction of a southbound interchange on-ramp, the historic property would be removed to allow for fill material for the ramp to be placed.

Alternative 2 - Expressway (Preferred Alternative). Impacts under this alternative will be the same as under Alternative 1.

Alternative 3 - Signalized Expressway. Under this alternative, there would be no impacts to this historic property.

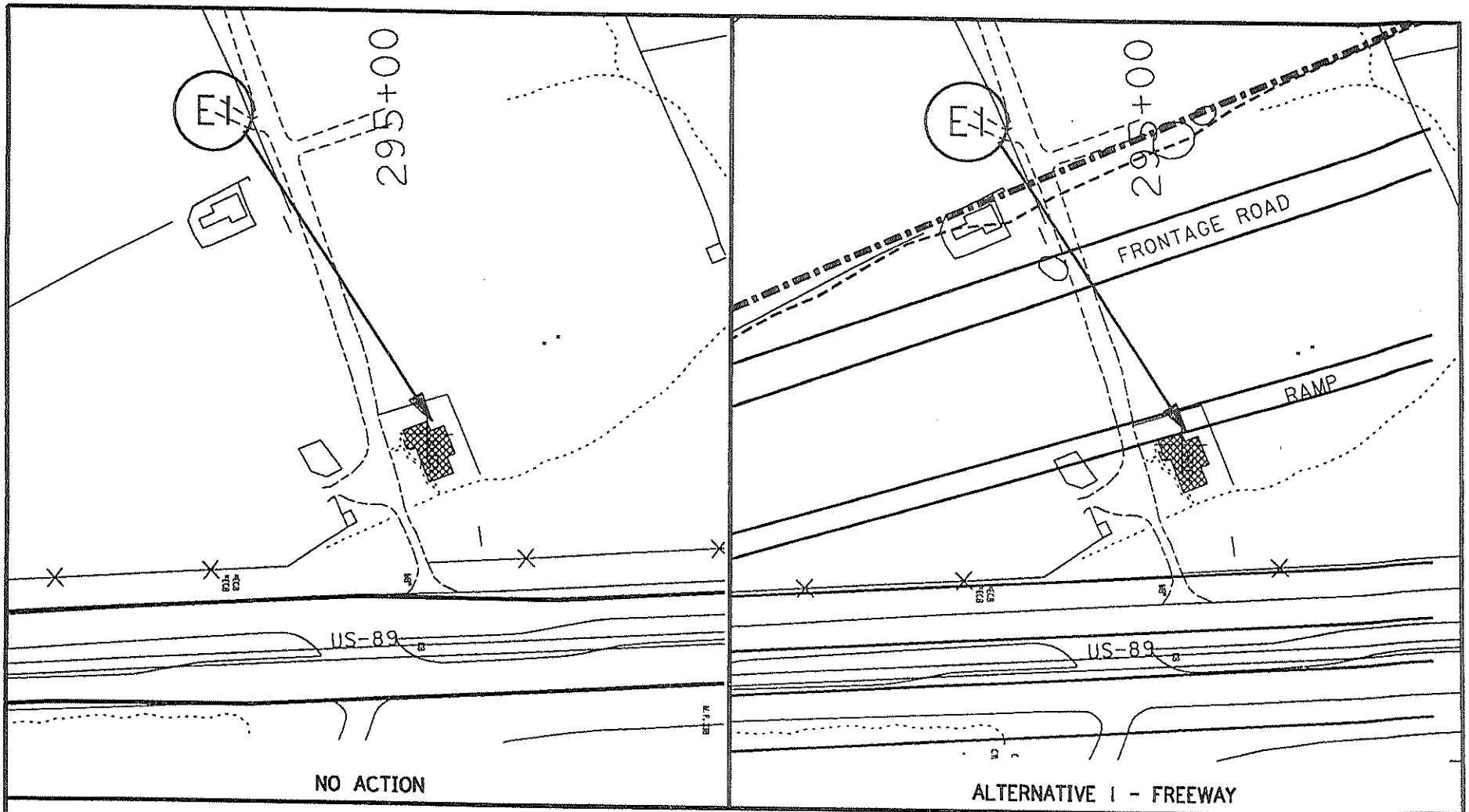


FIGURE 5.3-7

US-89 ENVIRONMENTAL IMPACT STATEMENT

SECTION 4(F) HISTORIC PROPERTY
161 NORTH HIGHWAY 89
FRUIT HEIGHTS

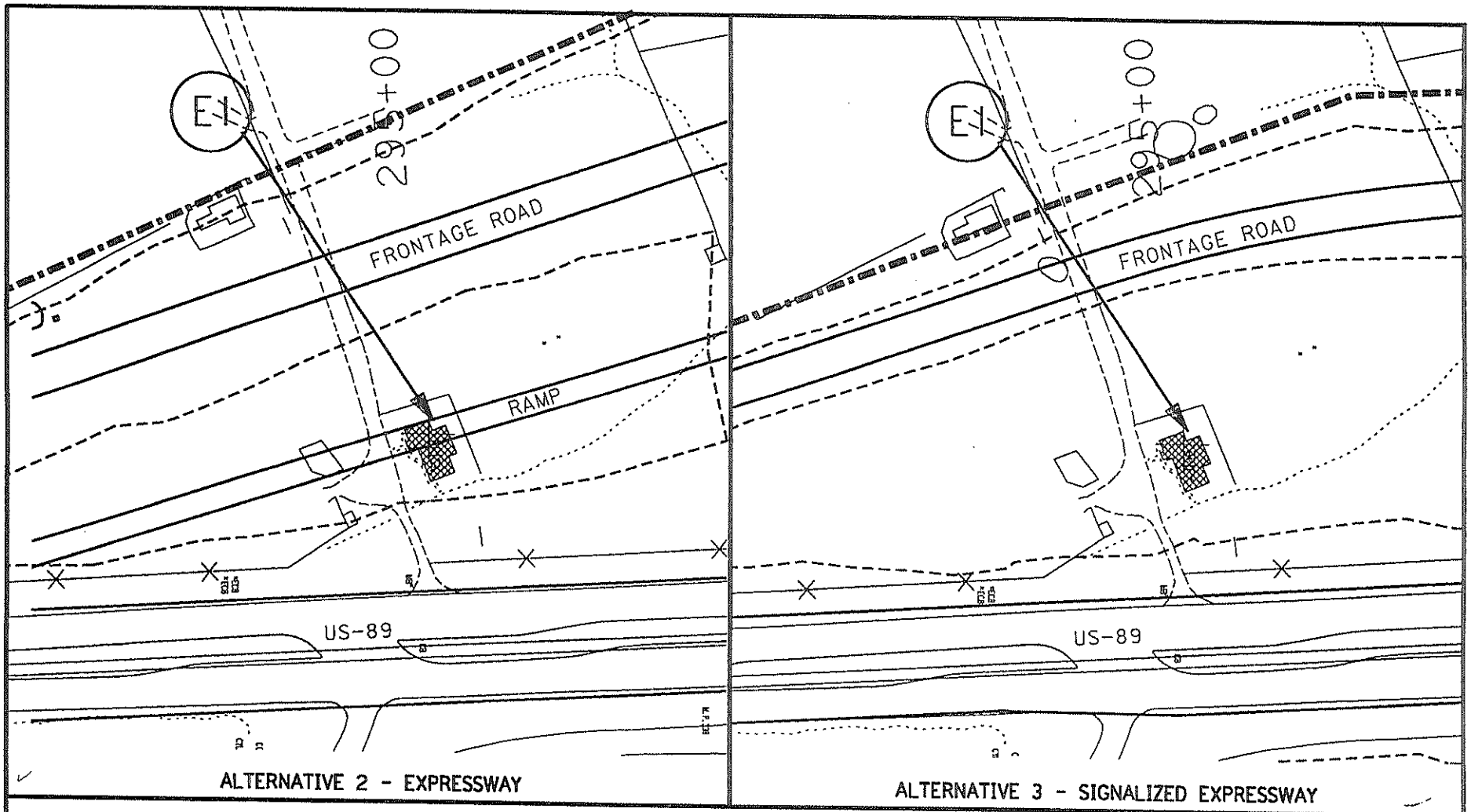


FIGURE 5.3-8

US-89 ENVIRONMENTAL IMPACT STATEMENT

SECTION 4(F) HISTORIC PROPERTY
161 NORTH HIGHWAY 89
FRUIT HEIGHTS

Versar, Inc.

E4 - Site 42Dv47, Layton

Figures 5.3-9 and 5.3-10 illustrate impacts to this property.

No Action. Under this alternative, there would be no impacts to this property.

Alternative 1 - Freeway. Under this alternative, the project would have an adverse impact as the historic property would be taken for construction of an interchange northbound off-ramp and a frontage road.

Alternative 2 - Expressway (Preferred Alternative). Impacts to the property under this alternative will be the same as under Alternative 1.

Alternative 3 - Signalized Expressway. Under this alternative, the project would have an adverse impact as the historic property would be taken for construction of a frontage road.

E5 - 1363 Highway 89, Layton

Figures 5.3-11 and 5.3-12 illustrate impacts to this property.

No Action. Under this alternative, there would be no impacts to the property.

Alternative 1 - Freeway. Under this alternative, the project would have an adverse impact as the house would be taken for construction of an interchange southbound off-ramp.

Alternative 2 - Expressway (Preferred Alternative). Impacts under this alternative will be the same as under Alternative 1.

Alternative 3 - Signalized Expressway. Under this alternative, the project would have an adverse impact as the house would be taken for construction of an intersection.

E7 - Site 42Dv48, South Weber

Figures 5.3-13 and 5.3-14 illustrate impacts to this property.

No Action. There would be no impacts to the property under this alternative.

Alternative 1 - Freeway. Under this alternative, highway widening and construction of a frontage road would cause the historic property to be taken.

Alternative 2 - Expressway (Preferred Alternative). Impacts under this alternative will be the same as under Alternative 1.

Alternative 3 - Signalized Expressway. Impacts under this alternative would be the same as under Alternative 1.

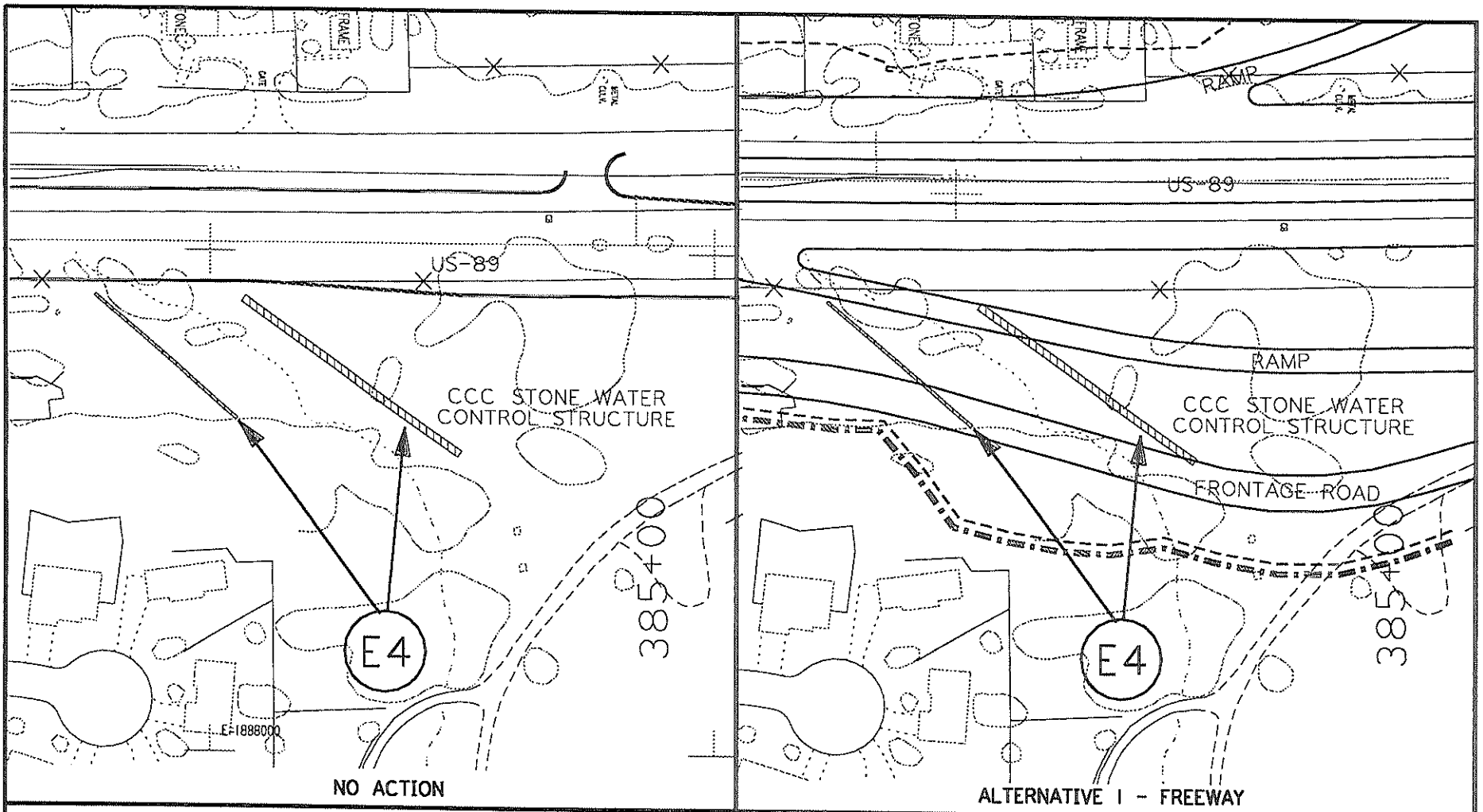


FIGURE 5.3-9

US-89 ENVIRONMENTAL IMPACT STATEMENT

SECTION 4(F) HISTORIC PROPERTY
SITE 42Dv47
LAYTON

Versar A & E

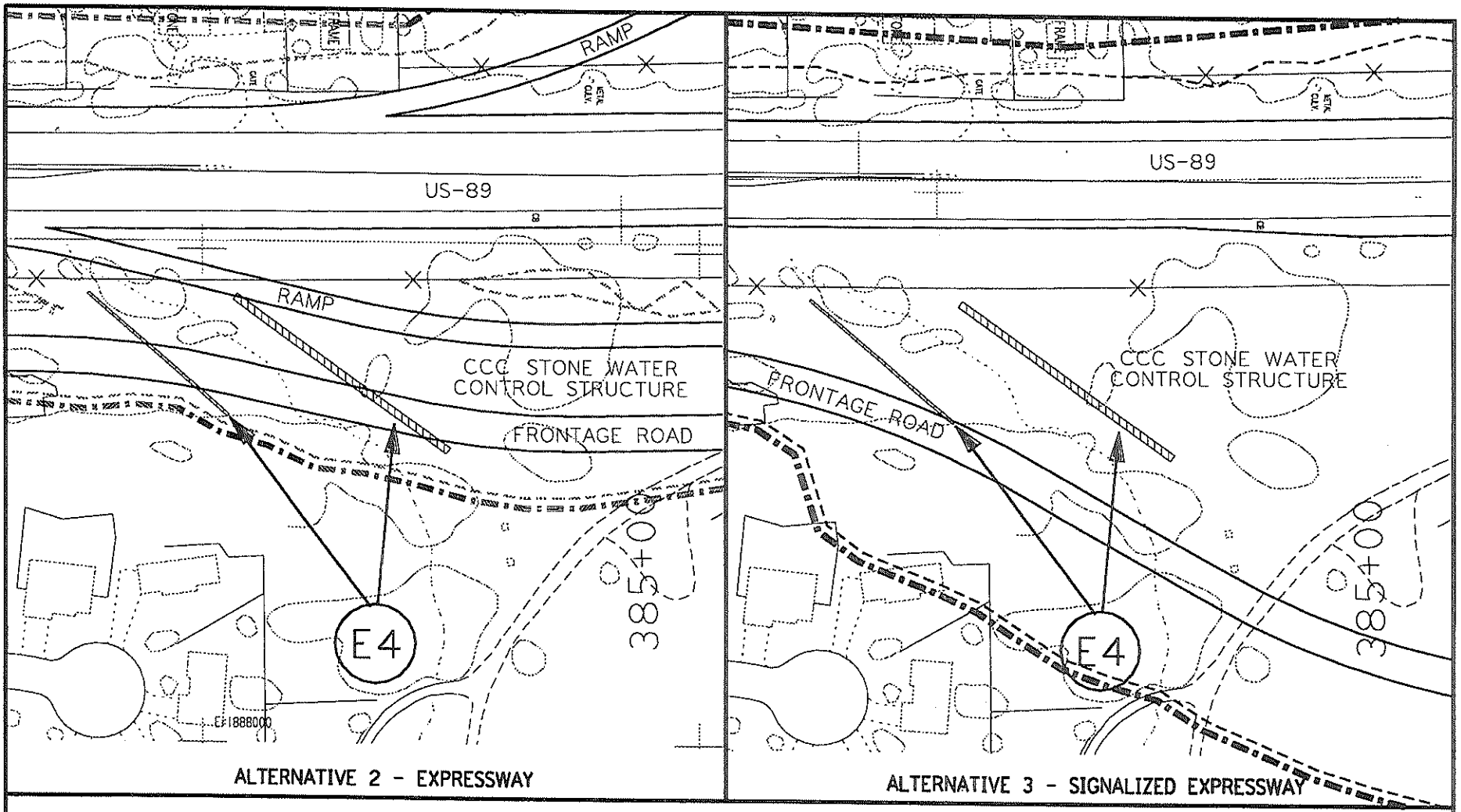
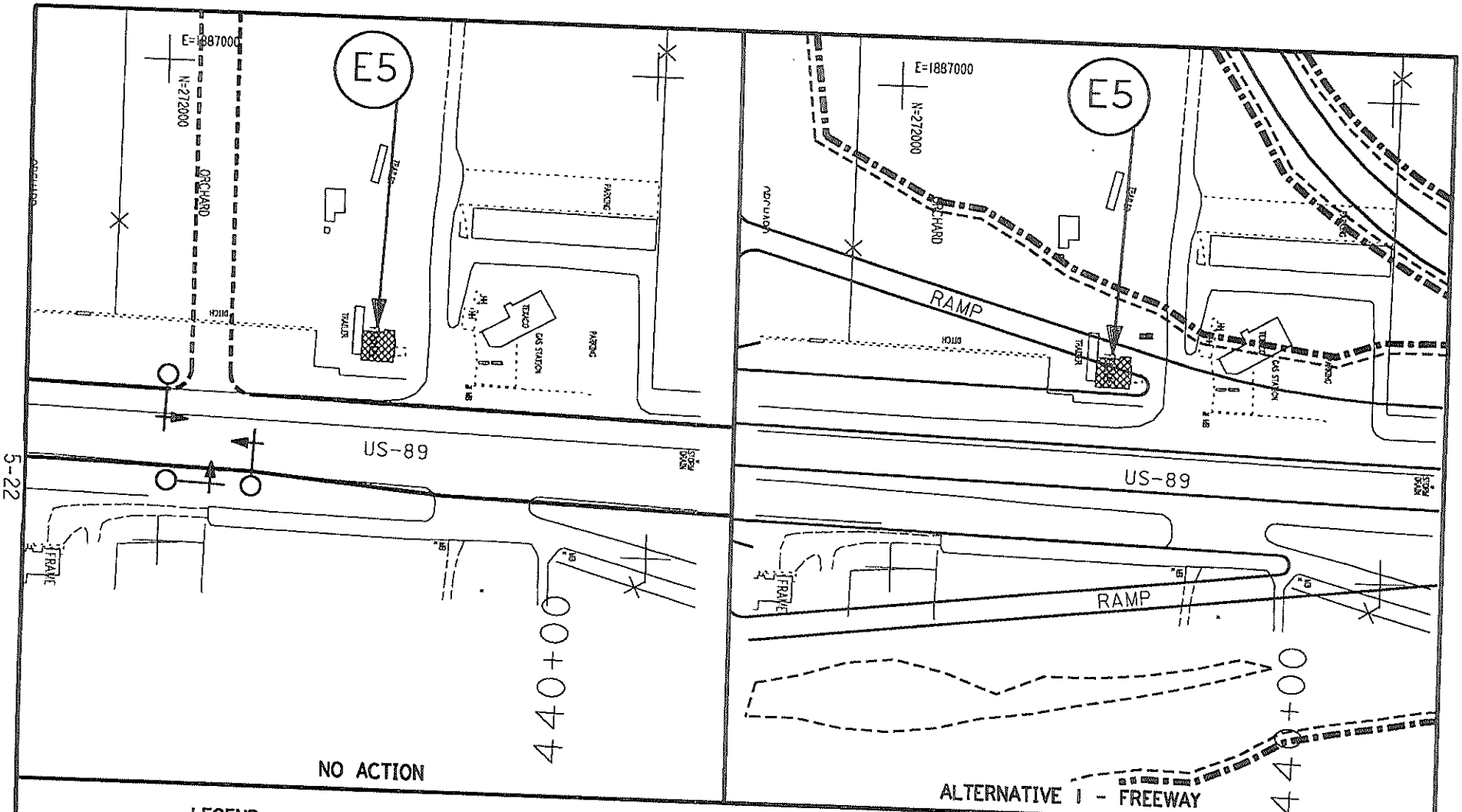


FIGURE 5.3-10

US-89 ENVIRONMENTAL IMPACT STATEMENT

SECTION 4(F) HISTORIC PROPERTY
SITE 42Dv47
LAYTON



LEGEND

RIGHT-OF-WAY LINE
CUT/FILL LINE
RETAINING WALL

150 75 0 150 300 450
SCALE IN FEET

FIGURE 5.3-11
US-89 ENVIRONMENTAL IMPACT STATEMENT

SECTION 4(F) HISTORIC PROPERTY
1363 HIGHWAY 89
LAYTON

Versar A & E DESIGN FILE: 89HIS15.HPD

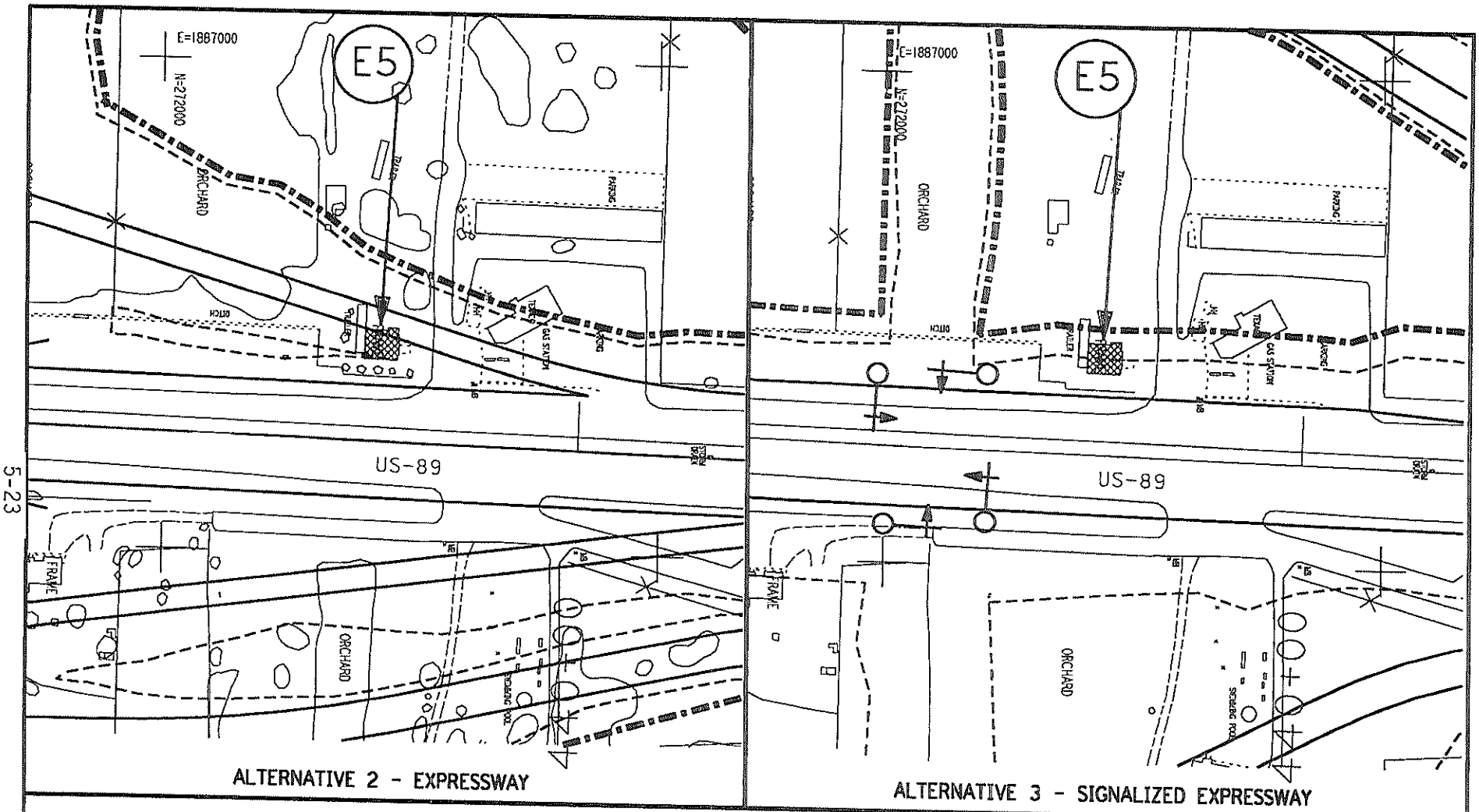


FIGURE 5.3-12

US-89 ENVIRONMENTAL IMPACT STATEMENT

SECTION 4(F) HISTORIC PROPERTY

1363 HIGHWAY 89

LAYTON

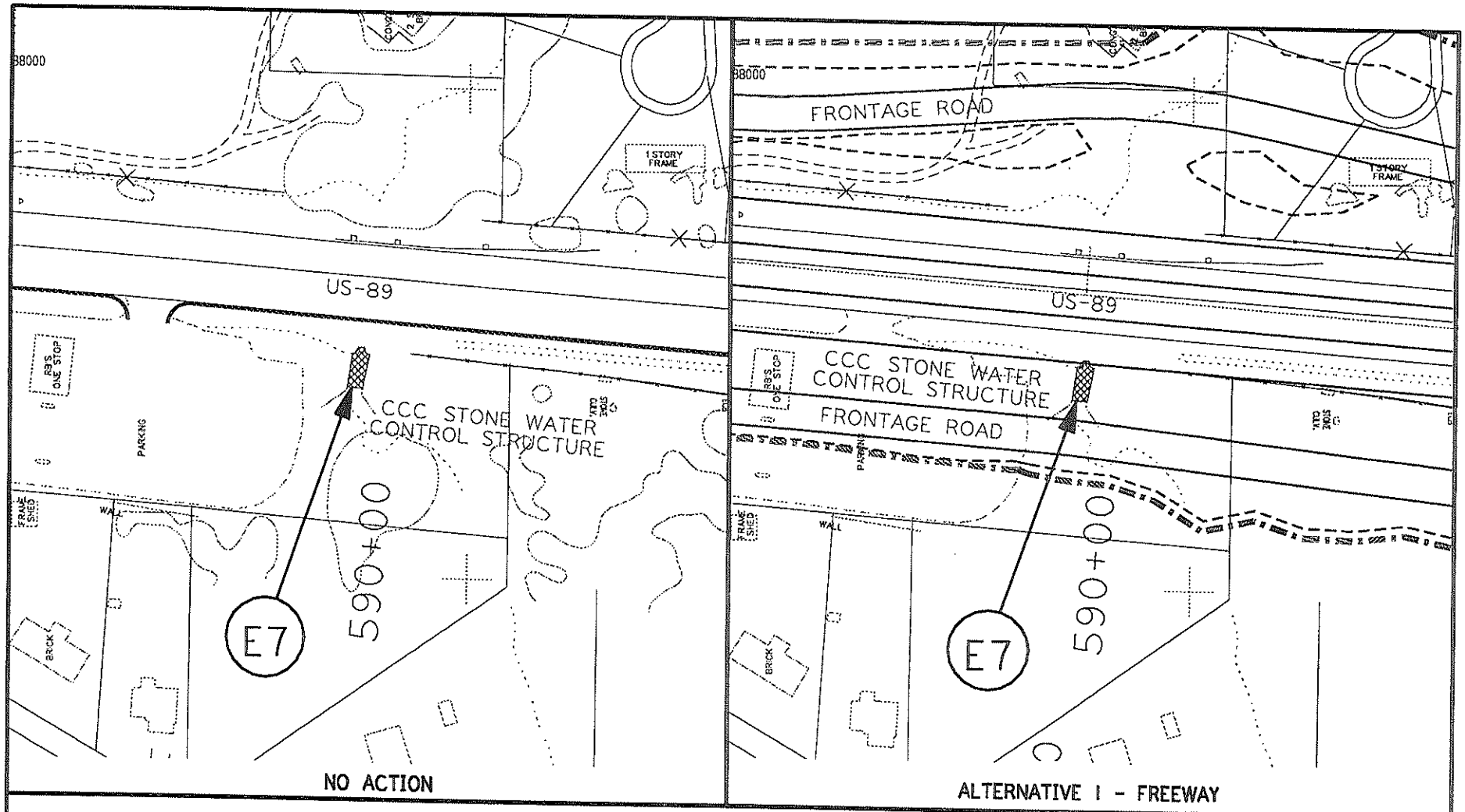


FIGURE 5.3-13

US-89 ENVIRONMENTAL IMPACT STATEMENT

SECTION 4(F) HISTORIC PROPERTY
SITE 42Dv48
SOUTH WEBER

Versar A & E DESIGN FILE: 89HIS19.JPD

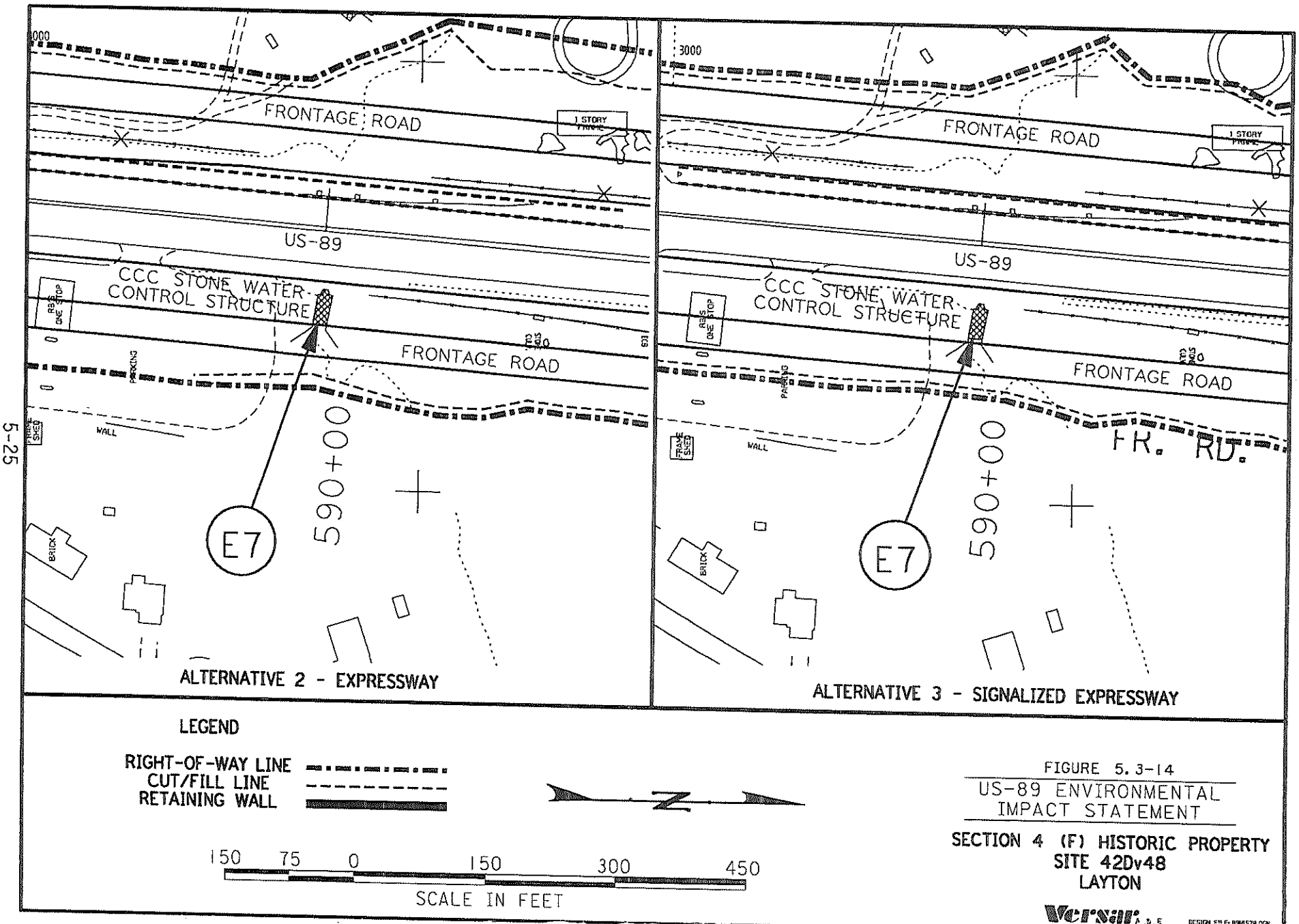


FIGURE 5.3-14

US-89 ENVIRONMENTAL IMPACT STATEMENT

SECTION 4 (F) HISTORIC PROPERTY
SITE 42Dv48
LAYTON

E8 - 2339 East 6550 South, Uintah

Figures 5.3-15 and 5.3-16 illustrate impacts to this property.

No Action. There would be no impacts to the property under this alternative.

Alternative 1 - Freeway. There would be no impacts to the property under this alternative.

Alternative 2 - Expressway (Preferred Alternative). The historic property would be adversely impacted under this alternative by the construction of an overpass and road to connect both sides of Uintah. The historic residence will remain, but the atmospherics (setting, feeling, and association) of the site will be negatively impacted. Construction of a retaining wall at this location will serve to minimize harm to this property.

Alternative 3 - Signalized Expressway. There would be no impacts to the property under this alternative.

E11 - 2250 East 6550 South, Uintah

Figures 5.3-17 and 5.3-18 illustrate impacts to this property.

No Action. Under this alternative, there would be no impacts to this property.

Alternative 1 - Freeway. The historic property would be adversely impacted under this alternative by the construction of an overpass and road to connect both sides of Uintah. One street, 2275 East, would be extended to the north to connect with the overpass.

Alternative 2 - Expressway (Preferred Alternative). Under this alternative, there will be no impacts to this property.

Alternative 3 - Signalized Expressway. There are no impacts to the property under this alternative.

E18 - 1787 North Main Street, Farmington

Figures 5.3-19 and 5.3-20 illustrate impacts to this property.

No Action. Under this alternative, there would be no impacts to this property.

Alternative 1 - Freeway. Under this alternative, the historic property would be adversely impacted by improvements to Farmington's Main Street (SR-272). Main Street will be widened as it approaches the Farmington Junction overpass. The slopes from this widening will impact the existing contributing landscape by changing the setting and feeling of the property.

Alternative 2 - Expressway (Preferred Alternative). Impacts under this alternative will be the same as under Alternative 1.

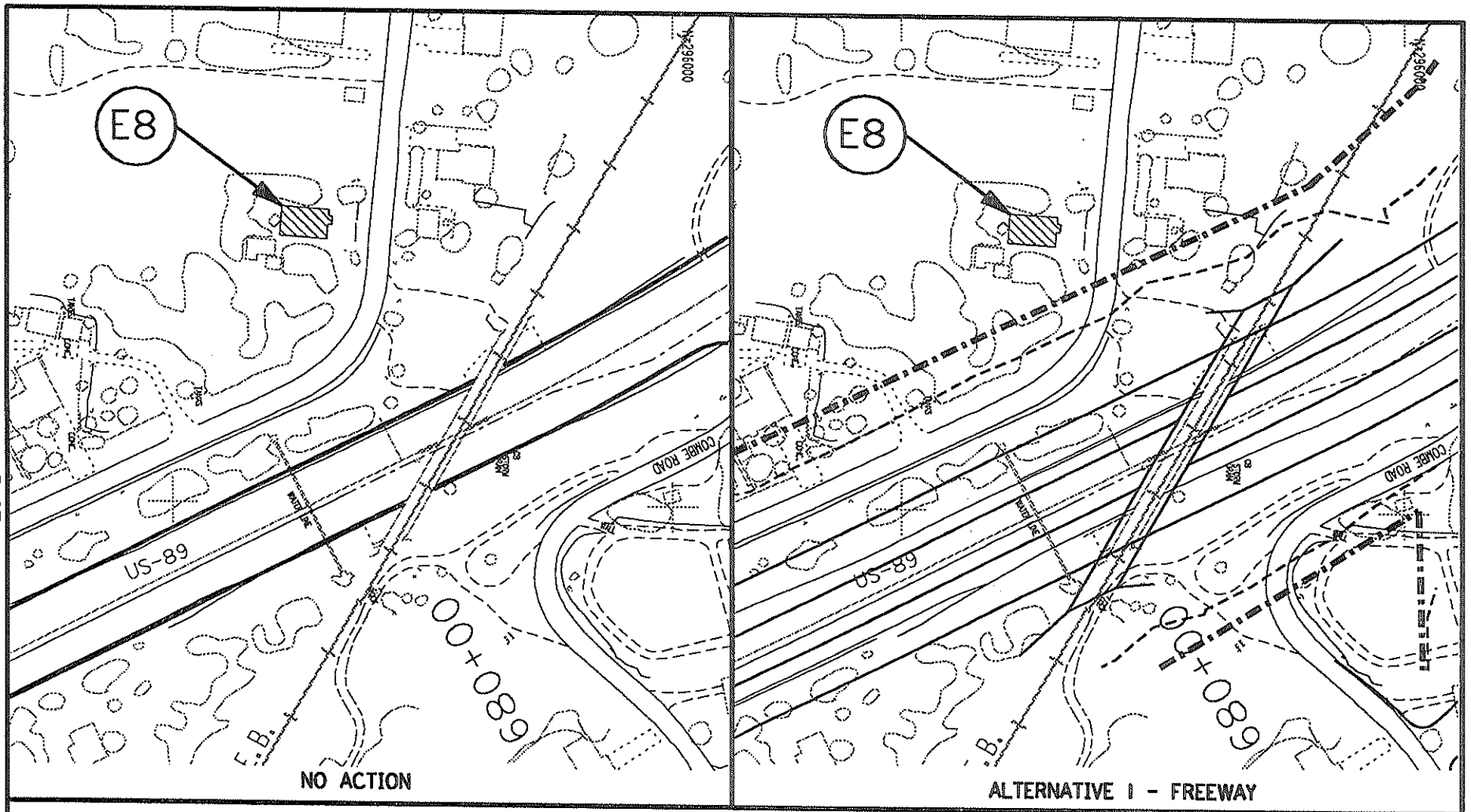
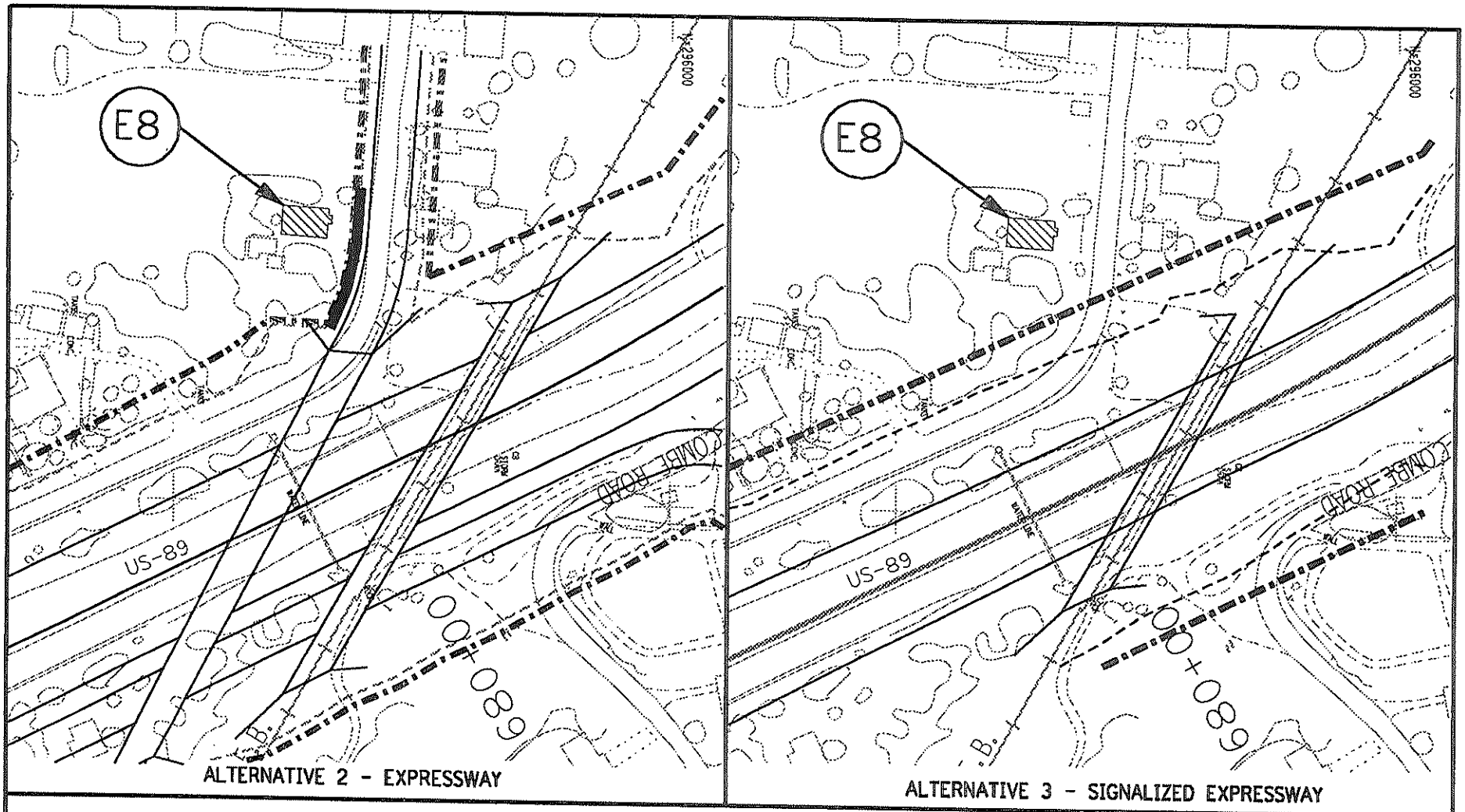


FIGURE 5.3-15

US-89 ENVIRONMENTAL IMPACT STATEMENT

SECTION 4(F) HISTORIC PROPERTY
2339 EAST 6550 SOUTH
UINTAH

Versar A & E DESIGN FILE: 89HS2LHPO



ALTERNATIVE 2 - EXPRESSWAY

ALTERNATIVE 3 - SIGNALIZED EXPRESSWAY

LEGEND

RIGHT-OF-WAY LINE
CUT/FILL LINE
RETAINING WALL

150 75 0 150 300 450

SCALE IN FEET

FIGURE 5.3-16

US-89 ENVIRONMENTAL IMPACT STATEMENT

SECTION 4(F) HISTORIC PROPERTY
2339 EAST 6550 SOUTH
UINTAH

Versar A & E

DESIGN FILE: 0948522.HPD

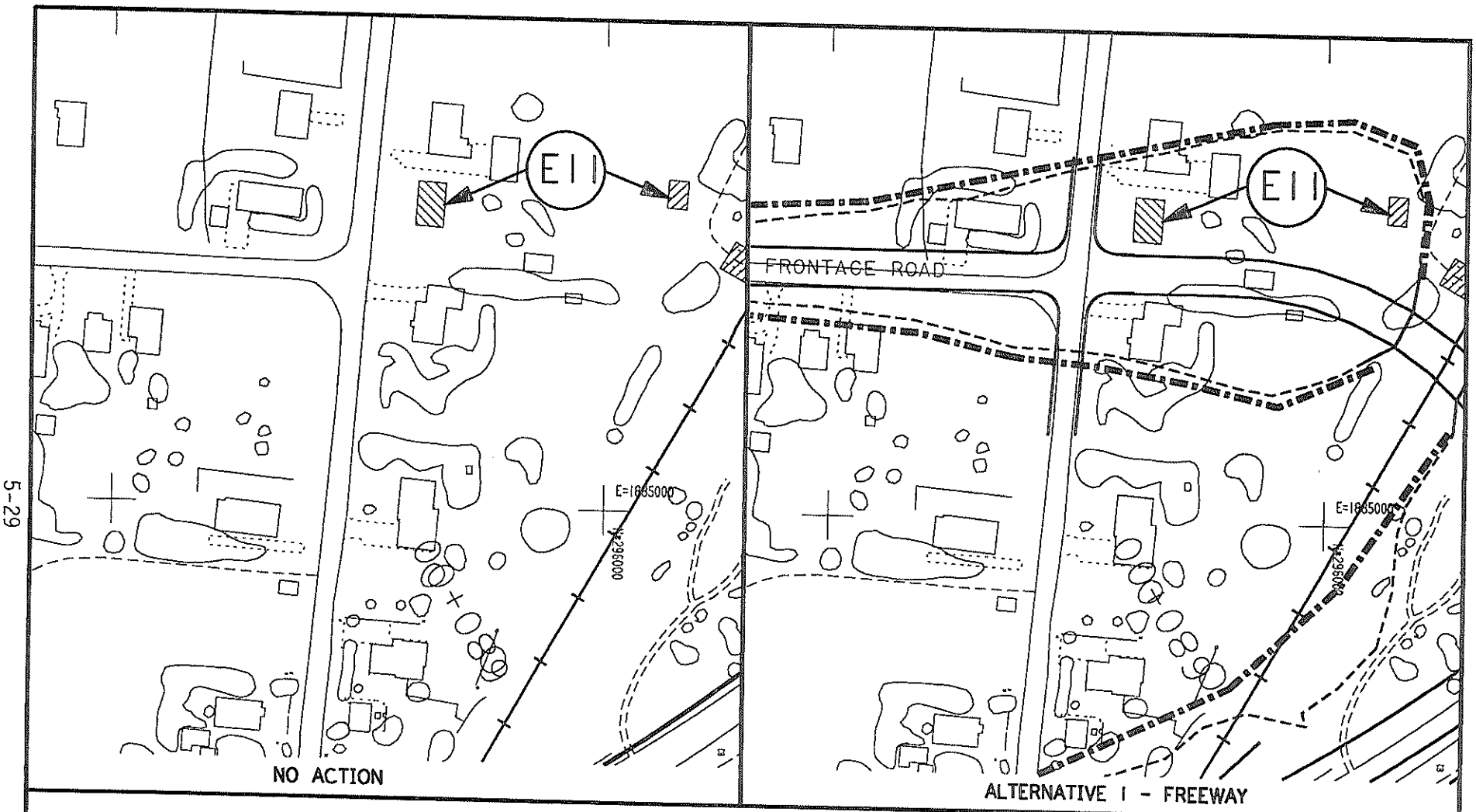


FIGURE 5.3-17

US-89 ENVIRONMENTAL IMPACT STATEMENT

SECTION 4(F) HISTORIC PROPERTY
2250 EAST 6550 SOUTH
UINTAH

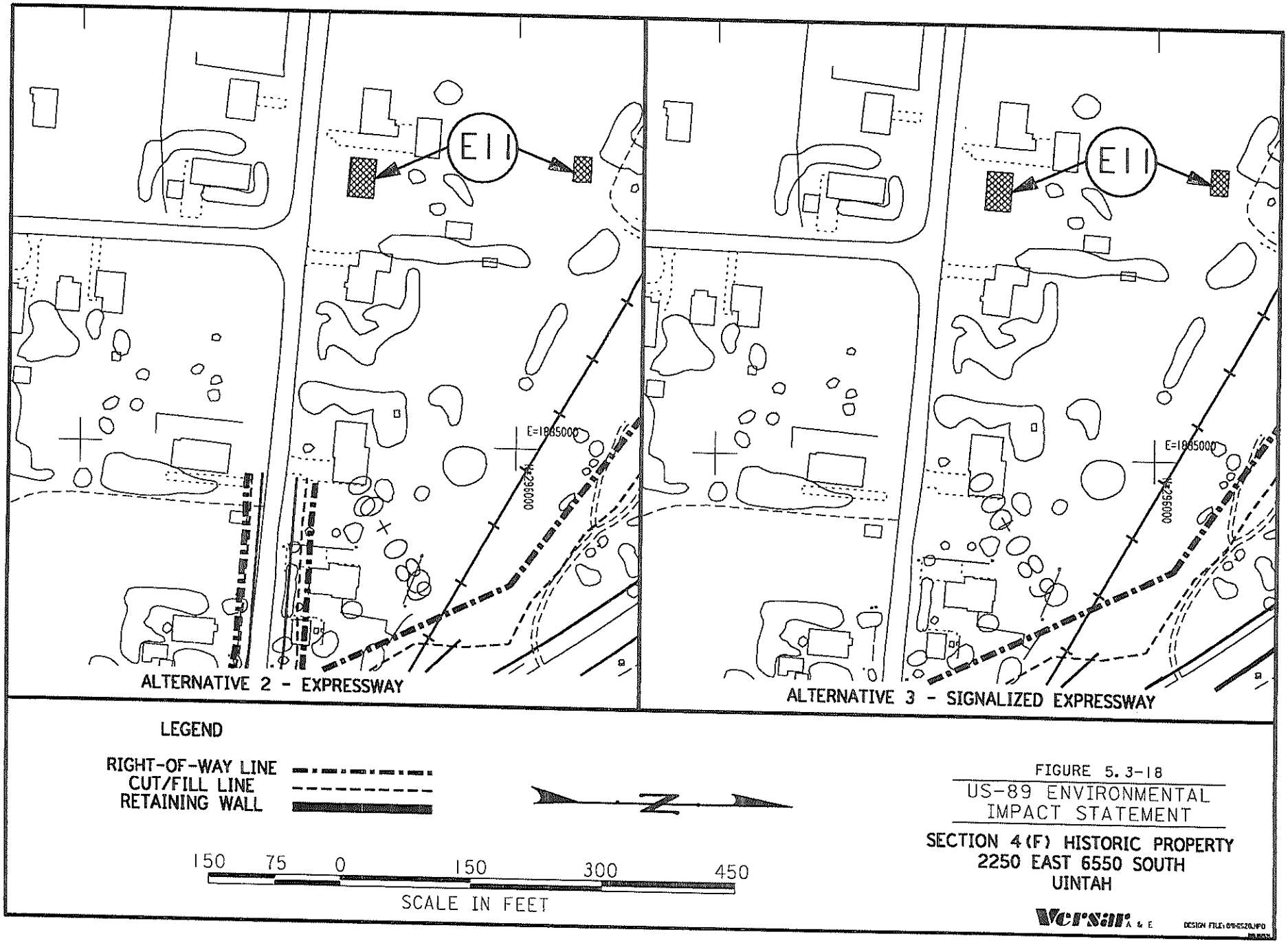


FIGURE 5.3-18
US-89 ENVIRONMENTAL IMPACT STATEMENT
SECTION 4(F) HISTORIC PROPERTY
2250 EAST 6550 SOUTH
UINTAH

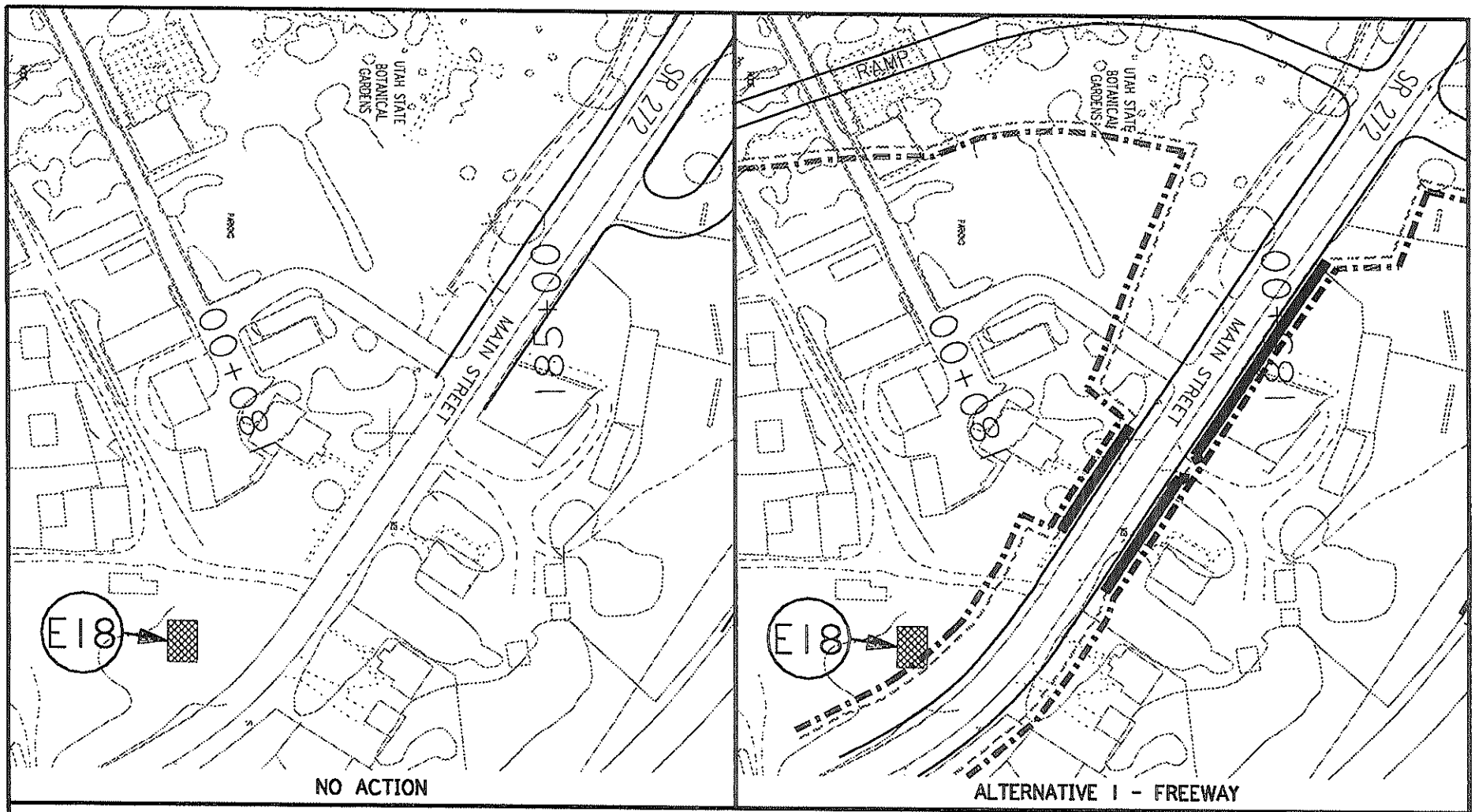


FIGURE 5.3-19

US-89 ENVIRONMENTAL IMPACT STATEMENT

SECTION 4(F) HISTORIC PROPERTY
1787 NORTH MAIN

Versar A & E DESIGN FILE: 89HIS39.DGN

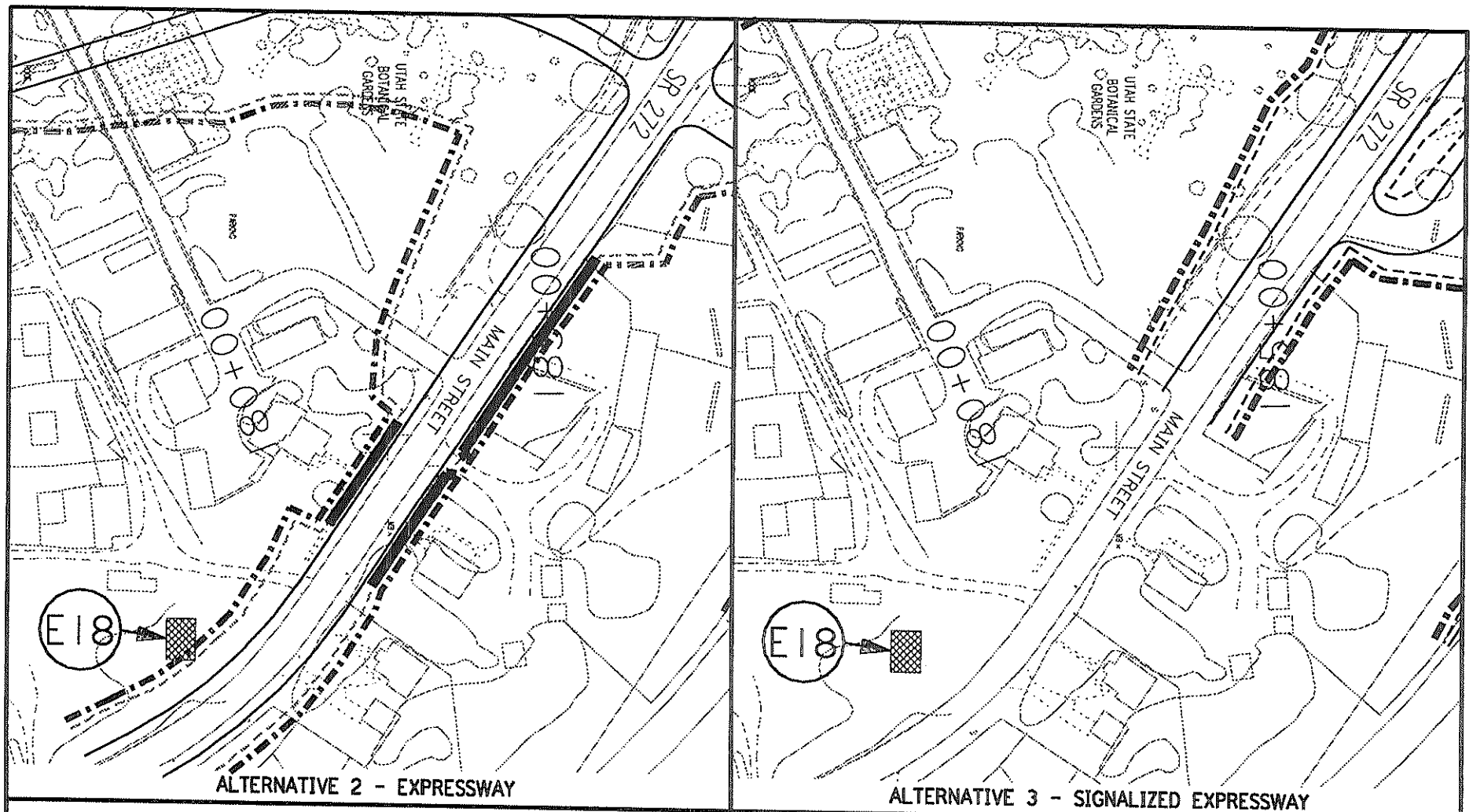


FIGURE 5. 3-20

US-89 ENVIRONMENTAL IMPACT STATEMENT

SECTION 4(F) HISTORIC PROPERTY
1787 NORTH MAIN

Versar A & E DESIGN FILE: 89HS40.DGN

Alternative 3 - Signalized Expressway. There would be no impacts to the property under this alternative.

E23 - 251 North Highway 89, Layton

Figures 5.3-21 and 5.3-22 illustrate impacts to this property.

No Action. Under this alternative, there would be no impacts to this property.

Alternative 1 - Freeway. This alternative will adversely impact the historic structure, requiring its removal to construct fill slopes.

Alternative 2 - Expressway (Preferred Alternative). Impacts under this alternative will be the same as under Alternative 1.

Alternative 3 - Signalized Expressway. Impacts under this alternative will be the same as under Alternative 1.

5.4 AVOIDANCE ALTERNATIVES

As stated in 23 CFR 771.135(i), alternatives which will avoid Sections 4(f) and 6(f) properties must be identified and evaluated. Measures to minimize harm must also be identified and evaluated.

Besides the No Action Alternative and the three build alternatives studied in the preceding Final EIS, two other alternatives, Transportation System Management (TSM) and Mass Transit, were evaluated but not advanced. These alternatives did not meet AASHTO safety requirements or would not be able to handle future traffic volumes resulting from projected growth in the area. Each alternative, both advanced and not advanced, are discussed in Chapter 2 of the preceding Final EIS.

The No Action Alternative consists of leaving the four lane facility as it presently exists, adding traffic signals and turning lanes as they are warranted in the future, and resurfacing the existing pavement as needed. Each of the three build alternatives would follow the existing alignment of US-89. Alternative 1 -Freeway is a totally controlled access, six-lane freeway with a typical 107 m (350-foot) right-of-way. The Preferred Alternative is a controlled access, six-lane expressway with a typical 91 m (300-foot) right-of-way. Alternative 3 - Signalized Expressway is a signalized, six-lane expressway with a typical 91 m (300-foot) right-of-way.

The construction of alternative routes was also reviewed as part of the NEPA process in Chapter 2 - Alternatives of the preceding Final EIS, but were not advanced because of geotechnical problems, engineering problems, and economic feasibility. US-89 has the largest existing right-of-way within the North Davis/South Weber area. Widening any other existing roadway would require large purchases of new right-of-way. Also, Hill Air Force Base blocks the connection of these routes between north Davis County and south Weber County. These routes also did not meet the needs of the proposed project's purpose and need of corridor preservation, elimination of system deficiencies, and safety improvements.

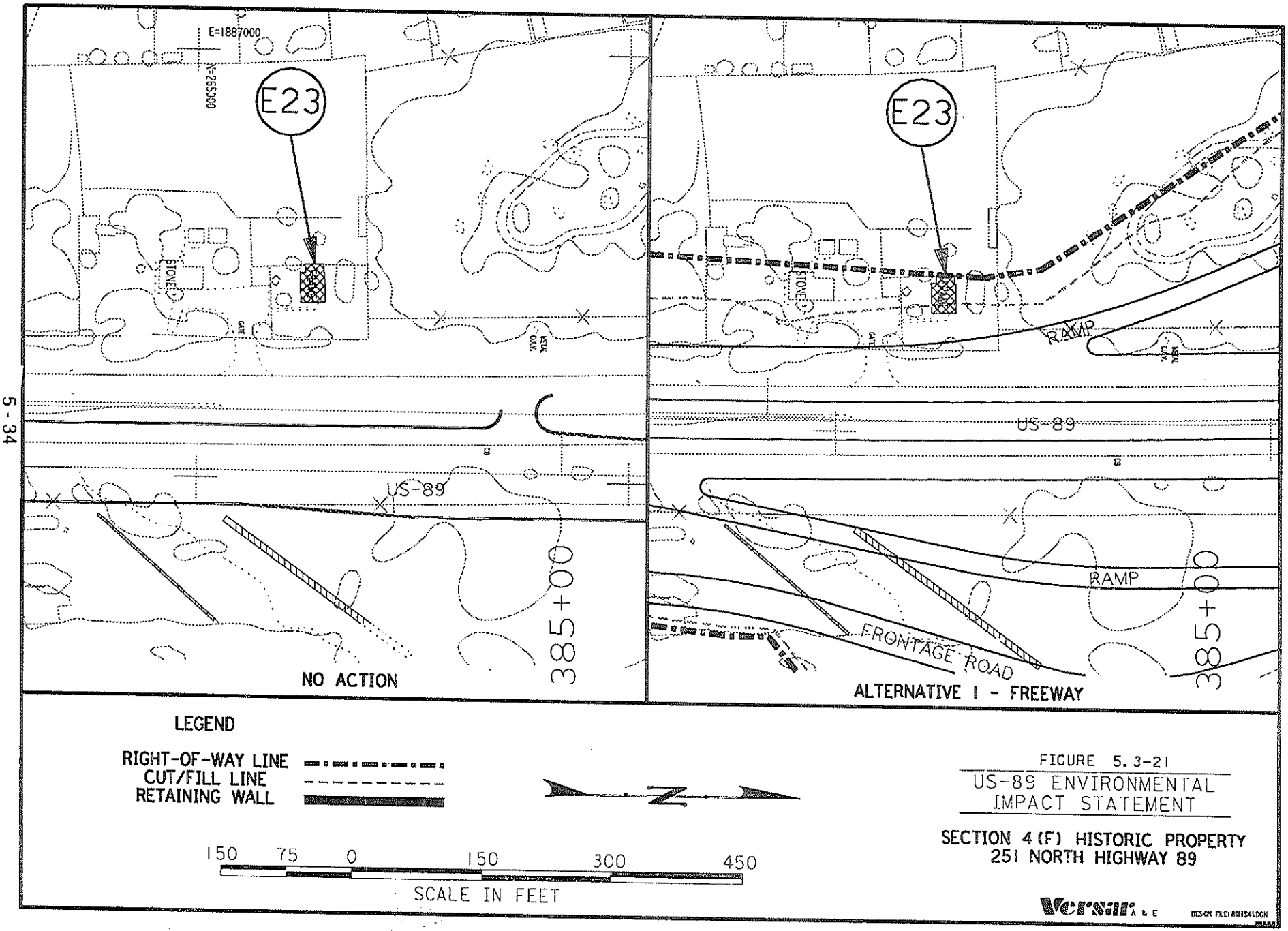
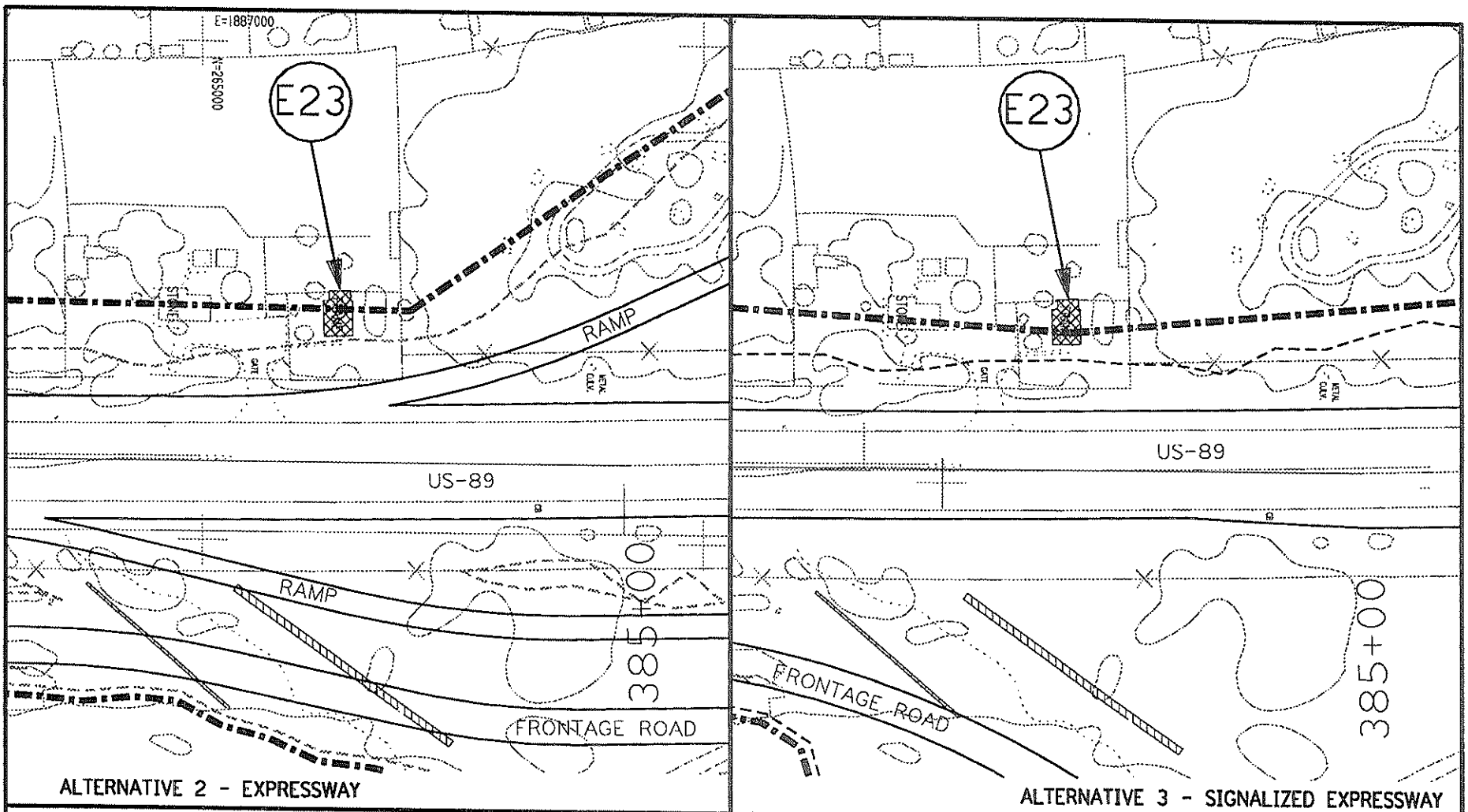


FIGURE 5.3-21

US-89 ENVIRONMENTAL IMPACT STATEMENT

SECTION 4(F) HISTORIC PROPERTY
251 NORTH HIGHWAY 89

Versar A & E DESIGN FILE: 89185A1.DGN



LEGEND

RIGHT-OF-WAY LINE
CUT/FILL LINE
RETAINING WALL

150 75 0 150 300 450

SCALE IN FEET

FIGURE 5.3-22

US-89 ENVIRONMENTAL IMPACT STATEMENT

SECTION 4(F) HISTORIC PROPERTY
251 NORTH HIGHWAY 89

Versar, Inc. DESIGN FILE: 09-542.DGN

During the project's development stage, much attention was given to cooperating and coordinating with the six communities through which the US-89 corridor passes in order to meet their access and transportation needs. Community master plans and transportation plans were studied and many review meetings were held with citizen input groups. Information gathered from this effort was used in selecting the frontage road pattern and interchange/intersection sites for alternative development.

Working within an existing highway corridor, which has seen rapid growth along its edges, minimizes the opportunity to make alignment shifts. While the actual shift may be made in only one small area, it's effects are felt over a long area. However, for each site, alignment shifts to avoid the site are addressed. Economics, i.e., additional costs, to avoid certain properties must also be considered. Where possible, design changes in the immediate area of the 4(f) and 6(f) properties have been incorporated into the build alternatives to reduce the impacts to the site.

Alternative 2 - Expressway has been identified as the Preferred Alternative. It provides the best combined solutions to the traffic capacity, safety and existing design deficiencies with a minimal environmental impact. Final selection was made based on comments on the Draft EIS and from the public hearing.

The two main reasons for not identifying one of the other alternatives as the "Preferred Alternative" were safety and cost. While the No Action Alternative has the fewest environmental impacts, it would not increase traffic carrying capacity to meet projected traffic volumes, correct safety hazards, or control access. The overall cost to acquire right-of-way and construct Alternative 1 - Freeway was not feasible and Alternative 3 - Signalized Expressway does not provide an adequate level of service or improve safety features for future traffic demands. The following discussions address considerations studied for avoidance of each of the identified 4(f) and 6(f) properties.

5.4.1 Avoidances Considered for Sections 4(f) and 6(f) Recreation Properties

Shepard Lane Park, Farmington

No Action. This alternative would avoid this park. However, the No Action Alternative was not selected because, overall, it would not increase traffic carrying capacity to meet the projected traffic volume, correct safety hazards, or control access.

Alternative 1 - Freeway. This alternative would impact this property.

> **Alignment Shift.** An alignment change to avoid the property would be considered a major change, not a minor shift. The highway would have to be moved more than 800 feet to the east to avoid an elementary school, church, and commercial shopping center. The cost to purchase property for new right-of-way further east would be substantial because much of the area is considered prime development land. Farmington City has zoned much of the surrounding land for commercial and light industry, with a small area for residential development. A shift to the west would impact a commercial shopping center also.
>
> There are existing wetlands on both sides of the highway corridor in this area which cannot be avoided. An alignment shift either east or west would impact these wetlands.

This area is located in the lowest elevation area of the project corridor. Any alignment change would require a great deal of additional grade change design to meet current AASHTO design standards. These changes would not only increase the cost of construction, but increase the amount of energy expended to construct the project.

Retaining Wall. A retaining wall could be utilized, but would reduce the width of the clear zone and compromise safety for the traffic on the off ramp.

Alternative 2 - Expressway (Preferred Alternative). This alternative will impact this park in a similar manner as Alternative 1. Likewise, any avoidance alternatives will be the same as Alternative 1.

Alternative 3 - Signalized Expressway. This alternative would impact this park. Likewise, any avoidance alternatives would be the same as Alternatives 1 and 2. This alternative was not selected as the preferred alternative because it does not provide an adequate level of service or improve safety features for future traffic demands.

Knowlton Elementary School Playing Fields, 801 West Shepard Lane, Farmington

No Action. This alternative would avoid this property. However, the No Action Alternative was not selected because, overall, it would not increase traffic carrying capacity to meet the projected traffic volume and would not correct safety hazards such as controlling access and correcting poor sight distances.

Alternative 1 - Freeway. This alternative would impact this property.

Alignment Shift. An alignment change to avoid the site would be considered a major change, not a minor shift. The highway would have to be moved more than 800 feet to the east to avoid an elementary school, church, and commercial shopping center. The cost to purchase property for new right-of-way further east would be substantial because much of the area is considered prime development land. Farmington City has zoned much of the surrounding land for commercial and light industry, with a small area for residential development.

There are existing wetlands on both sides of the highway corridor in this area which cannot be avoided. An alignment shift either east or west would impact these wetlands.

This area is located in the lowest elevation area of the project corridor. Any alignment change would require a great deal of additional grade change design to meet current AASHTO design standards. These changes would not only increase the cost of construction, but increase the amount of energy expended to construct the project.

Retaining Wall. A retaining wall could be utilized, but would compromise safety for the off ramp.

Alternative 2 - Expressway (Preferred Alternative). This alternative will impact the school's playing field in a similar manner as Alternative 1. Likewise, any avoidance alternatives will be the same as Alternative 1.

Alternative 3 - Signalized Expressway. This alternative would impact the school's playing field. Likewise, any avoidance alternatives would be the same as Alternatives 1 and 2. This alternative was not selected as the preferred alternative because it does not provide an adequate level of service or improve safety features for future traffic demands.

Nicholls Park, Fruit Heights

No Action. This alternative would avoid this park. However, the No Action Alternative was not selected because, overall, it would not increase traffic carrying capacity to meet the projected traffic volume and it would not correct safety hazards such as controlling access and correcting poor sight distances.

Alternative 1 - Freeway. This alternative would impact this park.

> **Alignment Shift.** Moving the frontage road closer to the highway would eliminate four existing homes.
>
> **Frontage Road Elimination.** Elimination of the west side frontage road would eliminate access to Nicholls Park, the Davis County Golf Course and homes along Nicholls Road.

Alternative 2 - Expressway (Preferred Alternative). This alternative will impact this park. Any avoidance alternatives will be the same as Alternative 1.

Alternative 3 - Signalized Expressway. This alternative would impact this park. Likewise, any avoidance alternatives would be the same as Alternative 1. This alternative was not selected as the preferred alternative because it does not provide an adequate level of service or improve safety features for future traffic demands.

Pioneer Park, Layton

No Action. This alternative would avoid this park. However, the No Action Alternative was not selected because, overall, it would not increase traffic carrying capacity to meet the projected traffic volume and it would not correct safety hazards such as controlling access, or correcting poor sight distances.

Alternative 1 - Freeway. This alternative would impact this park.

> **Alignment Shift.** An alignment shift to the east in this area would eliminate approximately 20 homes, require a large grade cut and eliminate a water storage pond.
>
> **Retaining Wall.** Due to the height and length required, a retaining wall would not be prudent or feasible to construct.

Alternative 2 - Expressway (Preferred Alternative). This alternative will impact this park. Any avoidance alternatives will be the same as Alternative 1.

Alternative 3 - Signalized Expressway. This alternative would impact this park. Any avoidance alternatives would be the same as Alternative 1. This alternative was not selected as the preferred alternative because it does not provide an adequate level of service or improve safety features for future traffic demands.

5.4.2 Avoidances Considered for Section 4(f) Historic Properties

E1 - 161 North Highway 89, Fruit Heights

No Action. This alternative would avoid this property. However, the No Action Alternative was not selected because, overall, it would not increase traffic carrying capacity to meet the projected traffic volume, correct safety hazards such as poor sight distances, or control access.

Alternative 1 - Freeway. This alternative would impact this property.

> **Alignment Shift.** An alignment change to avoid the property would be considered a major change, not a minor shift. Alignment movement in any direction will impact an additional twelve homes. An alignment shift to the east will adversely impact another 4(f) property and greatly increase the grade cut as the shift will be into the hillside.

Alternative 2 - Expressway (Preferred Alternative). This alternative will impact this property. Likewise, any avoidance alternatives will be the same as under Alternative 1.

Alternative 3 - Signalized Expressway. This alternative would avoid this property, however this alternative was not selected as the preferred alternative because it does not provide an adequate level of service or improve safety features for future traffic demands.

E4 - Site 42Dv47, Layton

No Action. This alternative would avoid this property. However, the No Action Alternative was not selected because, overall, it would not increase traffic carrying capacity to meet the projected traffic volume and it would not correct safety hazards such as controlling access and correcting poor sight distances.

Alternative 1 - Freeway. This alternative will impact this property.

> **Alignment Shift.** Moving the frontage road to the east would greatly impact a water storage pond and eliminate two homes. To move the frontage road to the west would require major realignment not only to the frontage road, but also to US-89 and to the Oakhills interchange. This would also impact a water storage tank, eliminate 20 homes, and impact the natural drainage channel of a water storage reservoir.

Alternative 2 - Expressway (Preferred Alternative). This alternative will impact this property. Likewise, any avoidance alternatives will be the same as under Alternative 1.

Alternative 3 - Signalized Expressway. This alternative would impact this property. Likewise, any avoidance alternatives would be the same as under Alternative 1. This alternative was not selected as the preferred alternative because it does not provide an adequate level of service or improve safety features for future traffic demands.

E5 - 1363 Highway 89, Layton

No Action. This alternative would avoid this property. However, the No Action Alternative was not selected because, overall, it would not increase traffic carrying capacity to meet the projected traffic volume and it would not correct safety hazards such as controlling access and correcting poor sight distances.

Alternative 1 - Freeway. This alternative would impact this property with roadway widening because the structure is located too close to the existing highway to be avoided.

> **Alignment Shift.** Shifting the alignment east or west would be a major realignment of US-89, removing the highway from its' original corridor. Shifting the alignment to the east would eliminate seven homes. Shifting the alignment to the west would eliminate ten homes.

Alternative 2 - Expressway (Preferred Alternative). This alternative will impact this property in a similar manner as Alternative 1. Likewise, any avoidance alternatives will be the same as under Alternative 1.

Alternative 3 - Signalized Expressway. This alternative would impact this property in a similar manner as Alternative 1. Likewise, any avoidance alternatives would be the same as under Alternative 1. This alternative was not selected as the preferred alternative because it does not provide an adequate level of service or improve safety features for future traffic demands.

E7 - Site 42Dv48, South Weber

No Action. This alternative would avoid this property. However, the No Action Alternative was not selected because, overall, it would not increase traffic carrying capacity to meet the projected traffic volume and it would not correct safety hazards such as controlling access and correcting poor sight distances.

Alternative 1 - Freeway. This alternative would impact this property with fill material. The corridor alignment is not only limited by existing homes in this area, but also by two large gravel pit operations north of this property. There is a gravel pit on each side of US-89 between Cornia Drive and South Weber Drive.

> **Alignment Shift.** An alignment shift either west or east would eliminate twelve additional homes.

Alternative 2 - Expressway (Preferred Alternative). This alternative will impact this property in a similar manner as Alternative 1. Likewise, any avoidance alternatives will be the same as under Alternative 1.

Alternative 3 - Signalized Expressway. This alternative would impact this property in a similar manner as Alternative 1. Likewise, any avoidance alternatives would be the same as under Alternative 1. This alternative was not selected as the preferred alternative because it does not provide an adequate level of service or improve safety features for future traffic demands.

E8 - 2339 East 6550 South, Uintah

No Action. This alternative would avoid this property. However, the No Action Alternative was not selected because, overall, it would not increase traffic carrying capacity to meet the projected traffic volume and it would not correct safety hazards such as controlling access and correcting poor sight distances.

Alternative 1 - Freeway. This alternative would avoid this property. However, due to the overall cost to construct this alternative, it has not been selected as the preferred alternative.

Alternative 2 - Expressway (Preferred Alternative). This alternative will impact this property with fill material.

> **Alignment Shift.** An alignment shift to the south will conflict with an existing railroad track and reduce frontage road curve lengths to an unsafe level, while an alignment shift to the north is not possible because of another existing railroad track.

Alternative 3 - Signalized Expressway. This alternative would avoid this property. However, this alternative was not selected because it does not provide an adequate level of service or improve safety features for future traffic demands.

E11 - 2250 East 6550 South, Uintah

No Action. This alternative would avoid this property. However, the No Action Alternative was not selected because, overall, it would not increase traffic carrying capacity to meet the projected traffic volume and it would not correct safety hazards such as controlling access and correcting poor sight distances.

Alternative 1 - Freeway. This alternative would impact this property.

> **Alignment Shift.** An alignment shift either east or west would eliminate six additional homes.

Alternative 2 - Expressway (Preferred Alternative). This alternative will not impact this property.

Alternative 3 - Signalized Expressway. This alternative would not impact this property. However, this alternative was not selected because it does not provide an adequate level of service or improve safety features for future traffic demands.

E18 - 1787 North Main Street, Farmington

No Action. This alternative would avoid this property. However, the No Action Alternative was not selected because, overall, it would not increase traffic carrying capacity to meet the projected traffic volumes, correct safety hazards such as poor sight distance, or control access.

Alternative 1 - Freeway. This alternative would impact this property with the placing of fill material to reconstruct Main Street.

> **Alignment Shift.** An alignment shift to the north to avoid the property would impact another historic property and two additional residences.
>
> **Retaining Wall.** While construction of a retaining wall would preserve the house, approximately half of the historically contributing landscape would still be destroyed. Even with the wall, it will not be possible to provide access to the house. The access grades would be extremely steep and the access would be on a curve with insufficient sight distance.

Alternative 2 - Expressway (Preferred Alternative). This alternative will impact this property. Any avoidance alternatives will be the same as under Alternative 1.

Alternative 3 - Signalized Expressway. This alternative would avoid the property. However, this alternative has not been selected as the preferred alternative because it does not provide an adequate level of service or improve safety features for future traffic demands.

E23 - 251 North US-89, Layton

No Action. This alternative would avoid this property. However, the No Action Alternative was not selected because, overall, it would not increase traffic carrying capacity to meet the projected traffic volumes, correct safety hazards such as poor sight distance, or control access.

Alternative 1 - Freeway. This alternative would impact this property because of the placing of fill material to build the ramp. Also, it would take away the direct access from US-89.

> **Alignment Shift.** An alignment shift to the east would avoid the property, but would impact a major water tank, a reservoir, and three additional homes.
>
> **Retaining Wall.** Even though a retaining wall could preserve the house, most of the front yard landscaping would be taken. Also, the current access form US-89 would be removed.

Alternative 2 - Expressway (Preferred Alternative). This alternative will have similar impacts to this property as Alternative 1. Any avoidance alternative will be the same as under Alternative 1.

Alternative 3 - Signalized Expressway. This alternative would preserve the house by using retaining walls, but the access to the house would be eliminated. This alternative does not meet the needs for capacity and safety.

5.5 MEASURES TO MINIMIZE HARM

A great deal of work has gone into the preliminary design of each alternative to minimize impacts to Section 4(f) and 6(f) property where possible. All measures have been taken to minimize harm in accordance with Sections 4(f) and 6(f) requirements.

5.5.1 Measures to Minimize Harm to Recreation Properties

Shepard Lane Park, Farmington

No Action. This alternative does not impact this site.

All Build Alternatives. Land taken from the park will be replaced with usable recreation land adjoining the south side of the park. An existing ball field will remain a viable facility. Adjustment of fences will be required. Plan development and schedule of construction will be coordinated with Farmington City. (See letter from Farmington City in Appendix to this chapter.)

Knowlton Elementary School Playing Fields, 801 West Shepard Lane, Farmington

Since there is no other land adjacent to the school's property which can be acquired for a playing field, the School District will be compensated monetarily for their loss. All actions will be coordinated with Davis County School District to minimize disruption of schedules and protect school children during construction activities.

Farmington City also uses the school's playing field for city-sponsored youth soccer. All four soccer fields can be kept usable by laying the fields out in a north-south direction instead of the current east-west direction. The direction change will be funded as part of the highway project.

Nicholls Park, Fruit Heights

No Action. This alternative does not impact this site.

All Build Alternatives. In order to reduce the amount of land taken from Nicholls Park's ball diamonds for each of the build alternatives, a retaining wall will be constructed along the ball diamond's west boundary (see Figures 5.3-1 & 2). Without retaining walls, a greater right-of-way would be necessary for fill slope material. Future design development will be coordinated with Fruit Heights City.

Pioneer Park, Layton

No Action. This alternative does not impact this site.

Alternative 1 - Freeway. A new park site will be acquired for development by Layton City. All actions will be coordinated with Layton City. A preferred relocation site for Pioneer Park has been selected by Layton City. This site is located just east of US-89 near the mouth of Adams Canyon. (See letter from Layton City in Appendix to this chapter.)

Alternative 2 - Expressway (Preferred Alternative). A new park site will be acquired for development by Layton City. All actions will be coordinated with Layton City. A preferred relocation site for Pioneer Park has been selected by Layton City. This site is located just east of US-89 near the mouth of Adams Canyon. (See letter from Layton City in Appendix to this chapter.)

Alternative 3 - Signalized Expressway. Land taken from the park's east boundary would be replaced with usable recreation land adjoining the park's south boundary.

5.5.2 Measures to Minimize Harm to Historic Properties.

Several measures to minimize harm to historic properties will be followed:

Design a roadway using steeper cut and fill slopes, where feasible.

Use guardrail or retaining walls to minimize length of necessary cut and fill slopes,

Align the roadway further away from the property,

Use contour slope easements,

Market and relocate the impacted Section 4(f) resources intact to other suitable sites,

Dismantle the structures for curation or storage,

Retrieve selected components for educational purposes,

A Memorandum of Agreement with the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation requires documentation of the properties involved prior to their removal. This documentation will take the form of a State Intensive Level Survey report. Documentation will be prepared in advance of demolition, and thereby substantially preserve many of the structures' historic characteristics and mitigate the impact of the project on the properties.

Improved safety design is one of the items listed in the Chapter 1 - Purpose and Need of the preceding Final EIS. Due to the projected future traffic demands, UDOT has determined the use of design standards below the AASHTO minimum standard would not improve the safety of US-89, and therefore, would not be prudent. Likewise, the use of guardrails creates new safety hazards, and therefore, would not improve safety or be prudent. The size and length of retaining walls needed to be constructed to preserve several of the Section 4(f) historic properties on this project has proven to be cost prohibitive, and therefore, would not be prudent or feasible. Cost comparisons were made based on the cost of retaining walls versus the historical value of the resource. Six historic properties will avoid impacts from the construction by using contour sloping or retaining walls. Seven historic properties will be outside the area of potential effect from the construction. However, several Section 4(f) historic properties already sit too close to the existing roadway to be prudently or feasibly avoided. Likewise, their distance is too close to effectively use contour slope easements as an avoidance measure.

The Preferred Alternative includes measures to minimize harm to the following Section 4(f) historic properties. UDOT will have a professional consultant determine possibility and feasibility of relocating each adversely impacted property. If properties can be moved, they will be offered for sale. The following

discussion on measures to minimize harm to Section 4(f) historic properties provides for documentation in advance of demolition as stipulated in the MOA between FHWA, SHPO, and the Advisory Council.

E1 - 161 North Highway 89, Fruit Heights

No Action. This alternative does not impact this property.

Alternative 1 - Freeway. The house would have State Intensive Level documentation performed before being moved or destroyed.

Alternative 2 - Expressway (Preferred Alternative). The house will have State Intensive Level documentation performed before being moved or destroyed.

Alternative 3 - Signalized Expressway. This alternative does not impact this property.

E4 - Site 42Dv47, Layton

No Action. This alternative does not impact this property.

Alternative 1 - Freeway. It is not feasible to move these structures, therefore, the structures would have State Intensive Level documentation performed before being destroyed.

Alternative 2 - Expressway (Preferred Alternative). It is not feasible to move these structures, therefore, the structures will State Intensive Level documentation performed before being destroyed.

Alternative 3 - Signalized Expressway. It is not feasible to move the structures, therefore, the structures would have State Intensive Level documentation performed before being destroyed.

E5 - 1363 Highway 89, Layton

No Action. This alternative does not impact this property.

Alternative 1 - Freeway. If determined to be infeasible to move, the house would have State Intensive Level documentation performed before being destroyed.

Alternative 2 - Expressway (Preferred Alternative). If determined to be infeasible to move, the house will have State Intensive Level documentation performed before being destroyed.

Alternative 3 - Signalized Expressway. If determined to be infeasible to move, the house would have State Intensive Level documentation performed before being destroyed.

E7 - Site 42Dv48, South Weber

No Action. This alternative does not impact this property.

Alternative 1 - Freeway. It is infeasible to move this structure, therefore, the structure would have State Intensive Level documentation performed before being destroyed.

Alternative 2 - Expressway (Preferred Alternative). It is infeasible to move this structure, therefore, the structure will have State Intensive Level documentation performed before being destroyed.

Alternative 3 - Signalized Expressway. It is infeasible to move this structure, therefore, the structure would have State Intensive Level documentation performed before being destroyed.

E8 - 2339 East 6550 South, Uintah

No Action. This alternative does not impact this site.

Alternative 1 - Freeway. This alternative does not impact this site.

Alternative 2 - Expressway (Preferred Alternative). Construction of a retaining wall will preserve the historic home. However, the house will still have State Intensive Level documentation performed.

Alternative 3 - Signalized Expressway. - This alternative does not impact this site.

E11 - 2250 East 6550 South, Uintah

No Action. This alternative does not impact this site.

Alternative 1 - Freeway. The house would have State Intensive Level documentation performed before being moved or destroyed.

Alternative 2 - Expressway (Preferred Alternative). This alternative does not impact this site.

Alternative 3 - Signalized Expressway. This alternative does not impact this site.

E18 - 1787 North Main Street, Farmington

No Action. This alternative does not impact this site.

Alternative 1 - Freeway. The house and surrounding landscaping would have State Intensive Level documentation performed before being moved or destroyed.

Alternative 2 - Expressway (Preferred Alternative). The house and surrounding landscaping will have State Intensive Level documentation performed before being moved or destroyed.

Alternative 3 - Signalized Expressway. This alternative does not impact this site.

E23 - 251 North US-89, Layton

No Action. This alternative does not impact this site.

Alternative 1 - Freeway. The house would have State Intensive Level documentation performed before being moved or destroyed.

Alternative 2 - Expressway (Preferred Alternative). The house will have State Intensive Level documentation performed before being moved or destroyed.

Alternative 3 - Signalized Expressway. The house will have State Intensive Level documentation performed before being moved or destroyed.

5.6 COORDINATION

Input, coordination, and involvement on Section 4(f) and 6(f) park properties have been received from the following:

Craig A. Hinckley, AICP, Farmington City Planning - Shepard Lane Park and Knowlton Elementary Playing Fields
Bleva M. Provost, Fruit Heights City Administrator - Nicholls Park
Blaine Nelson, Fruit Heights Mayor - Nicholls Park
Dean Allen, Layton Parks and Recreation Director - Pioneer Park
Lyle T. Bennett, Grants Coordinator, State of Utah Department of Natural Resources, Division of Parks and Recreation
Roger C. Gimes, Business Administrator, Davis County Schools - Knowlton Elementary Playing Fields
Elva M. Barnes, Director of Policy Development, Davis County Schools - Knowlton Elementary Playing Fields
Knowlton Elementary Staff and PTA

Input, coordination, and involvement on Section 4(f) historic properties have been received from the following:

Barbara L. Murphy, USHPO Preservation Planner
Department of the Interior
Advisory Council on Historic Preservation

Historical site coordination will continue with SHPO, the Advisory Council on Historic Preservation, and FHWA. A Memoranda of Agreement addressing mitigation details and assuring minimization of harm has been completed.

The above coordination letters, as well as the MOA, are included in the Appendix to this chapter.

5.7 CONCLUSION

Based on the considerations presented in the above discussion, there is no feasible and prudent alternative to the use of Sections 4(f) and 6(f) lands as identified in Table 5.7-1 below. The residential and commercial development along the US-89 corridor make any alignment shift very disruptive to the communities involved. Social, environmental, and economic impacts would be far greater than just widening the existing roadway. Many more homes would be taken. Community disruption would reach extraordinary magnitudes.

The proposed action includes all possible planning to minimize harm to the listed properties resulting from such use. Coordination has involved the cities along the corridor which own and operate park facilities. Any 6(f) lands that are taken will be replaced with property of equal value and location. Impacts have been minimized through the use of retaining walls, slop adjustments, and frontage road alignment shifts. The Preferred Alternative will have the least harm on the Section 4(f) and 6(f) resources.

Table 5.7-1
SUMMARY OF SECTIONS 4(f) AND 6(f) PROPERTIES USED
FOR EACH ALTERNATIVE

MAP ID NO., PROPERTY NAME & LOCATION	NO ACTION	ALT 1 - FREEWAY	ALT 2 - EXPRESSWAY (PREF. ALT.)	ALT 3 - SIGNALIZED EXPRESSWAY
Shepard Lane Park, Farmington - STA 134+00	no	yes	yes	yes
Knowlton Elementary Playing Field 801 West Shepard Lane, Farmington	no	yes	yes	yes
Nicholls Park, Fruit Heights STA 248+00	no	yes	yes	yes
Pioneer Park, Layton STA 383+00	no	yes	yes	yes
E1 - 161 No. Highway 89, Fruit Heights	no	yes	yes	no
E4 - Site 42Dv47, Layton	no	yes	yes	yes
E5 - 1363 Highway 89, Layton	no	yes	yes	yes
E7 - Site 42Dv48, Layton	no	yes	yes	yes
E8 - 2339 East 6550 South, Uintah	no	no	yes	no
E11 - 2250 East 6550 South, Uintah	no	yes	no	no
E18 - 1787 North Main Street, Farmington	no	yes	yes	no
E23 - 251 North Highway 89	no	yes	yes	no
TOTALS	0	11	11	8

CHAPTER 5

APPENDIX

Sections 4(f) and 6(f) Properties

CHAPTER 5 APPENDIX

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State of Utah
DEPARTMENT OF TRANSPORTATION
Environmental Division

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Salt Lake City, Utah 84119-5998
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Governor
Thomas R. Warne
Executive Director
Clinton D. Topham
Deputy Director

Transportation Commission
Glen E. Brown
Chairman
Todd G. Weston
Vice Chairman
James G. Larkin
Ted D. Lewis
Hal M. Clyde

January 31, 1996

Ms. Barbara L. Murphy
Preservation Planner
State Historic Preservation Office
300 Rio Grande
Salt Lake City, UT 84101-1182

RE: *HDP-9124(002) [Formerly F-030(10)]; US-89, I-15/Farmington Jct to Harrison Blvd/South Ogden, Weber and Davis Counties. Section 106 compliance, SHPO Case No. 92-1636. Adverse Effect.

Dear Ms. Murphy:

Please find enclosed the Determination of Eligibility and Finding of Effect document prepared for the subject federal-aid project. This document has been produced pursuant to 36 CFR 800.8 and Section 4(f) of the National Transportation Act of 1966, as amended. All copies of the reports associated with this project have been forwarded to your office by Sagebrush Archaeological Consultants of Ogden.

The proposed US-89 project is a complex job, which has developed over several years. This project is being processed as an Environmental Impact Statement under the National Environmental Policy Act of 1969, and involves substantial numbers of historic period cultural resources. The results of the Section 106 compliance consultation we are now initiating will be reported in the project's Draft Environmental Impact Statement available early next year. Therefore, please review the enclosed documentation and concur with our determinations and findings.

Given the complexity of evaluating the historic properties and the effects of three build alternatives on these historic resources, we would like to offer you and/or your staff the opportunity to have a field review. Please review the enclosed DOE/FOE and sign if you approve.

On December 13, 1993, your office reviewed and approved the original DOE/FOE document. However, since that date new information has become available. The original DOE/FOE contained two errors. The evaluation of a historic property at 251 North US-89 was omitted and two historic burials (42Wb335), which had been determined ineligible for the NRHP were misplotted. Both faults have been corrected. However, the two burials have been re-evaluated under the guidelines presented in NPS Bulletin 41 and determined eligible for the NRHP under criterion D.

While the residence, 251 N US-89, and the six historic properties identified the original DOE/FOE are Section 4(f) properties, the two burials are not covered under Section 4(f). Since these burials do not need to be preserved *in situ* and will be relocated to a cemetery, they do not meet Section 4(f) guidelines.

Thank you for your efforts on our behalf. Should you have any questions or concerns, please contact me at 965-4218.

Sincerely,

Don Southworth

Don Southworth, M.A.
Historian/Archaeologist
Environmental Division

Attachment

cc: (w/o attachments)
FHWA (HBR-UT)
Boyd Wilson, Versar
Mike Polk, Sagebrush Archaeological Consultants

I concur with the finding that the project will be have an Adverse Effect on the historic properties within the area of potential effects for this federal-aid project number *HDP-9124(002) [Formerly F-030(10)]; US-89, I-15/Farmington Jct to Harrison Blvd/South Ogden, Weber and Davis Counties. Further, the UDOT has taken into account the effects of the proposed project on historical, archaeological and paleontological resources, as required by U.C.A. 9-8-404 and U.C.A. 63-73-19.

Barbara Murphy

Barbara L. Murphy, Preservation Planner

Jan 31, 1996

Date

Advisory
Council On
Historic
Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

Reply to: 730 Simms Street, #401
Golden, Colorado 80401

February 29,1996

Thomas S. Allen
Project Development Engineer
Federal Highway Administration
Utah Division
2520 West 4700 South, Suite 9A
Salt Lake City, UT 84118

REF: *Memorandum of Agreement for US-89, I-15/Farmington Jct. to Harrison Blvd/South Ogden, Weber and Davis Counties, Utah*

Dear Mr. Allen:

The enclosed Memorandum of Agreement regarding the above referenced subject has been accepted by the Council. This action constitutes the comments of the Council required by Section 106 of the National Historic Preservation Act and the Council's regulations. Please send copies of the signed Agreement to the Utah State Historic Preservation Officer and your Federal Preservation Officer.

The Council appreciates your cooperation in reaching a satisfactory resolution of this matter.

Sincerely,

Claudia Nissley
Director, Western Office
of Review

Enclosure

MEMORANDUM OF AGREEMENT
SUBMITTED TO
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
PURSUANT TO 36 CFR 800.6(a)

WHEREAS, the Federal Highway Administration, Utah Division (FHWA) **has determined that** *HDP-9124(002) [Formerly F-030(10)]; US-89, I-15/Farmington Jct to Harrison Blvd/South Ogden, **will have an** adverse effect **upon** eight historic properties (161 North US-89, 1363 N US-89, 2339 E 6550 S, 1787 N Main, 251 N US-89, 42Dv47, 42Dv48, 42Wb335) in Davis and Weber Counties, Utah, which are eligible for inclusion in **the National Register of Historic Places, and has consulted with the** Utah State Historic **Preservation Officer (SHPO) pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) and Section 4(f) of the Department of Transportation Act of 1966 (23 CFR 771.135); and**

WHEREAS, the Utah Department of Transportation (UDOT) is the agency coordinating this project, and has **participated in the consultation, and** been invited to concur in this Memorandum of Agreement (MOA);

NOW, THEREFORE, the FHWA **and the** Utah **SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.**

STIPULATIONS

The FHWA **shall ensure that the following measures are carried out:**

1. INTENSIVE LEVEL SURVEY FORM (ILS): An ILS form must be completed to basic survey standards (see Utah SHPO instructions). Basic standards require only limited historic research.

2. PHOTOGRAPHS: Photographs are required of all buildings or structures on the property. An adequate number of professional quality black/white 35 millimeter photographs (3x5 prints with accompanying negatives) to show all exterior elevations (where possible to obtain all elevations), street scape photograph, detailed photographs of all areas to be impacted by the adverse effect, photographs of exterior architectural trim/decorations shall be submitted. Photographs shall be numbered and labeled with address (street and city) and date photograph was taken and keyed to a site plan and floor plan. All prints and negatives shall be submitted in archivally stable protective storage pages.

3. DRAWINGS: Sketch floor plans of all eligible buildings shall be submitted. The plans must be based on an accurate footprint (e.g., Sanborn maps, tax card drawings, or measurements taken on site) and show all existing construction. Rooms shall be labeled by use. These non-measured drawings are to be on 8.5" x 11" or 11" x 17" sheets. A site sketch plan showing subject buildings and all out buildings is also required.

4. RESEARCH MATERIALS: A legible photocopy of the entire historic tax card of the property and a 5x7 inch black and white, 35mm print and negative of the historic tax photo shall be submitted. Label and submit print and negative as described above.

5. ADDITIONAL RESEARCH: Whereas, two of the historic properties are CCC Flood Control Structures (42Dv47 and 42Dv48) of which little is known, additional research of files at the *Kaysville WeekleyReflex* (local newspaper) and the Bernstein Photographic Collection at Weber State College (Ogden) will be conducted. Further, advertisements will be placed in local papers requesting information on the Flood Control Structures and CCC activities within the area. Responses to these adds will be used to conduct oral interviews.

6. DATA RECOVERY: **The** FHWA **shall ensure that** a data recovery plan **is developed in consultation with SHPO for the recovery of archaeological data from** the two historic burials (42Wb335). **The** plan **shall be consistent with the** *Secretary of the Interior's Standards and Guidelines for Archaeological Documentation* **(48 FR 44734-37) and take into account the Council's publication,** *Treatment of Archaeological Properties* **(Advisory Council on Historic Preservation, 1980). It shall specify, at the minimum:**

- **the methods to be used to locate and notify the next of kin prior to exhumation;**
- **the research questions to be addressed through the data recovery, with an explanation of their relevance and importance;**
- **the methods to be used, with an explanation of their relevance to the research questions;**
- **the methods to be used in analysis, data management, and dissemination of data, including a schedule;**
- **the proposed disposition of recovered materials and records;**

- proposed methods for involving the interested public in the data recovery;

- proposed methods for disseminating results of the work to the interested public;

- the research questions to be addressed through the data recovery, with an explanation of their relevance and importance;

- proposed methods by which the relatives will be kept informed of the work and afforded the opportunity to participate; and

- a proposed schedule for the submission of progress reports to the FHWA, SHPO, and Council.

The plan shall be submitted by the FHWA to the SHPO and the Council for 30 days review. Unless the SHPO or the Council objects within 30 days after receipt of the plan, the FHWA shall ensure that it is implemented.

7. REPOSITORY: All materials shall be submitted to the Division of State History, Historic Preservation Office to be placed on file.

8. MARKETING: In consultation with SHPO, the FHWA shall prepare a marketing plan for five of the historic properties (161 North US-89, 1363 N US-89, 2339 E 6550 S, 1787 N Main, 251 N US-89) in Salt Lake County, Utah, which shall include the following elements:

A. An information package about the property, including but not limited to:

- photographs of the property;

- a parcel map;

- information on the property's historic significance;

- information on the property's cost; information on FHWA assistance for the cost of relocation;

- information on Federal and Utah State tax benefits for rehabilitation of historic structures;

- notification that the purchaser will be required to rehabilitate and/or maintain **the property in accordance with the recommended approaches in the** *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* **(U.S. Department of the Interior, National Park Service. 1983; and**

- **notification of any requirement for inclusion of a restrictive covenant in the transfer document.**

B. A distribution list of potential purchasers or transferees.

C. An advertising plan and schedule.

D. A schedule for receiving and reviewing offers.

Upon the SHPO's agreement with the marketing plan, the FHWA **shall implement the plan.**

TheFHWA **shall review all offers in consultation with SHPO prior to acceptance. The** FHWA **shall ensure that transfer of the property incorporates the covenant attached hereto as Appendix A.**

If there is no acceptable offer that will conform to the requirements of rehabilitation and maintenance, the FHWA, **with the approval of the SHPO, may transfer the** five historic properties (161 North US-89, 1363 N US-89, 2339 E 6550 S, 1787 N Main, 251 N US-89) in Salt Lake County, Utah, **without preservation covenants. In the event, the property** (or properties) **shall be recorded prior to transfer in accordance with stipulation** 1.

9. DISCOVERY: In accordance with 36 CFR 800.11(a) and (b) (1), the UDOT and the FHWA are providing for the protection, evaluation, and treatment of any historic property discovered prior to or during construction. UDOT Standard Specification 104.15 applies to this project, and stipulates instructions to the contractor for the protection of any archaeological, historical, and paleontological resources discovered in the course of construction. Specifically, upon discovery, construction operations shall be immediately stopped in the vicinity and the Engineer shall be verbally notified of the nature and exact locations of the findings. The Contractor shall not damage the discovered objects and shall provide written confirmation of the discovery to the Engineer within two (2) calendar days. The Engineer will inform the Contractor when the restriction is terminated, with written confirmation following within two (2) calendar days. If a changed condition is approved, it will be controlled in accordance with Subsection 104.2: Differing Site Conditions.

Should a discovery occur, the FHWA will consult with the SHPO, and the Council in accordance with 36 CFR 800.11(b)(2)(ii) toward developing and implementing as appropriate treatment plan prior to resuming construction.

10. REPORTING: The FHWA shall ensure that any/all reports on activities carried out pursuant to this agreement are provided to the SHPO, the Council, and upon request, to any other interested parties.

11. PERSONNEL QUALIFICATIONS: The FHWA shall ensure that all historic work carried out pursuant to this agreement is completed by or under the direct supervision of a person or persons meeting or exceeding the *Secretary of Interior's Standards for History (48 CFR 44738-9)*.

12. DISPUTE RESOLUTION: Should the SHPO object within 20 days to any plans, findings, or data provided for review pursuant to this agreement, the FHWA shall consult with the SHPO to resolve the objection. If the FHWA determines that the objection cannot be resolved, the FHWA shall forward all documentation relevant to the dispute to the Council. Within 30 days after receipt of all pertinent documentation, the Council will either:

(1) provide the FHWA with recommendations, which the FHWA will take into account in reaching a final decision regarding the dispute; or

(2) notify the FHWA that it will comment pursuant to 36 CFR 800.6(b), and proceed to comment. Any Council comment provided in response to such a request will be taken into account by FHWA in accordance with 36 CFR 800.6(c)(2) with reference to the subject of the dispute.

Further, at any time during implementation of the measures stipulated in this agreement, should an objection to any such measure be raised by a member of the public, the FHWA shall take the objections into account and consult as needed with the objecting party, the SHPO, or the Council to resolve the objection.

13. REVIEW OF IMPLEMENTATION: If any of the stipulations above have not been implemented by January 1, 2002, the parties to the this agreement shall review this agreement to determine whether revisions are needed. If revisions are needed, the parties to this agreement will consult in accordance with 36 CFR 800 to make such revisions.

Execution of this Memorandum of Agreement by the FHWA **and the** Utah **SHPO, its subsequent acceptance by the Advisory Council on Historic Preservation, and implementation of its terms, evidences that** the FHWA the **has afforded the Council an**

opportunity to comment on the *HDP-9124(002) [Formerly F-030(10)]; US-89, I-15/Farmington Jct to Harrison Blvd/South Ogden **and its effect on historic properties, and that the** FHA **has taken into account the effects of the undertaking on historic properties.**

FEDERAL HIGHWAY ADMINISTRATION

BY: _____ Date: 2/9/96
Michael G. Richie, Federal Highway Administration

UTAH DEPARTMENT OF TRANSPORTATION

BY: _____ Date: 1/30/96
Lynn R. Zollinger, Chief Environmental Engineer

UTAH STATE HISTORIC PRESERVATION OFFICER

BY: _____ Date: 2/1/96
Max J. Evans, State Historic Preservation Officer

ACCEPTED for the Advisory Council on Historic Preservation

BY: _____ Date: 2/23/96

State of Utah
UTAH DEPARTMENT OF TRANSPORTATION

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Governor
W. Craig Zwick
Executive Director

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Samuel J. Taylor
Chairman
Wayne S. Winters
Vice Chairman
Todd G. Weston
James G. Larkin
Ted D. Lewis
Shirley J. Iverson
Secretary

March 15, 1994

Lindi Gregory
Versar, Inc.
1117 Country Hills Dr.
Ogden, Ut 84403

RE: F-030(10): US-89, I-15 Farmington Jct to Harrison Blvd., Weber and Davis Counties. Section 106 compliance, U.C.A. 9-8-404. Determination of Eligibility and Finding of Effect Documentation and Review.

Dear Ms. Gregory:

This letter is to advise you that the Determination of Eligibility and Finding of Effect (DOE/FOE) document for the subject project surveyed by Sagebrush Archaeological Consultants, Inc. has been reviewed by the Utah State Historic Preservation Office (USHPO) for purposes of Section 106 (federal) and U.C.A. 9-8-404 (state). They have concurred with the UDOT's Determination of Eligibility and Finding of Effect within the subject project's area of potential effects, as outlined in the DOE/FOE (see attached).

I very much appreciate all your assistance and hard work on this project. Should you need additional information or assistance, please feel free to contact either myself at 965-4327 or Don Southworth of my staff at 965-4218.

Sincerely,

David W. Berg, P.E.
Chief, Environmental Division

DWB/dds

(Attachment)

cc: (w/o attachment)
FHWA (HBR-UT)

an equal opportunity employer

State of Utah
Department of Community & Economic Development
Division of State History
Utah State Historical Society

Michael O. Leavitt
Governor
Max J. Evans
Director

300 Rio Grande
Salt Lake City, Utah 84101-1182
(801) 533-3500
FAX: (801) 533-3503

March 10, 1994

MAR 1994

David W. Berg, P.E.
Chief for Environmental Division
Utah Department of Transportation
4501 South 2700 West
Salt Lake City, Utah 84119-5998

RE: F-030(10); US-89, I-15 Farmington Jct to Harrison Blvd., Weber and Davis Counties.

In Reply Please Refer to Case Number: 92-1636

Dear Mr. Berg:

We concur with the determinations of eligibility and effect as outlined on "Table 1: Impacts to Eligible Sites" and "Table 2: List of Non-eligible sites" which were included in document "Determination of Eligibility and Finding of Effect for Project No. F-030(10); US-89, I-15/Farmington Jct. to Harrison Blvd/So. Ogden" prepared by the FHA, Utah Division and UDOT.

We further concur with the finding of No Historic Properties for the area identified as "Versar's Burke Lane Second Extension Modification Project."

We would be happy to discuss mitigation options for the adversely effect properties when an alternative has been selected. As we mentioned in our meeting, we believe there may be alternatives to HABS/HAER documentation which would be more useful and cost effective.

This information is provided to assist the UDOT with its Section 106 responsibilities as specified in 36 CFR 800. If you have any questions, please contact Roger Roper at 533-3561 or myself at 533-3563.

Sincerely,

Barbara L. Murphy
Preservation Planner

BLM:92-1636 UDOT/DOEx21/NPx26/AEx17/NAEx42

cc: Don Southworth, UDOT

Board of State History: Marilyn C. Barker • Dale L. Berge • Boyd A. Blackner • Peter L. Goss

Davis County Schools

RECEIVED

APR 15 1993

March 30, 1993

Lindi Gregory, R.L.A.
Landscape Architect
Versar Architects and Engineers, Inc
734 East Utah Valley Drive, Suite 100
American Fork, Utah 84003

Dear Ms. Gregory:

This is in response to your letter of January 25, 1993 concerning the Knowlton Elementary playing fields as they would be affected by modifications to Highway 89.

Enclosed is a letter from Knowlton Elementary School which is also the position of the Davis School District.

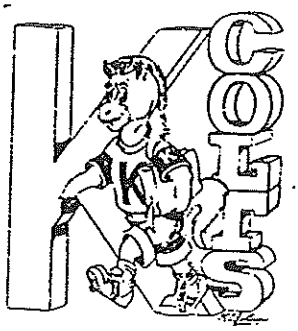
We appreciate your letter requesting our input and would also request that you keep us updated concerning the plans relative to this project.

Sincerely,

Roger C. Glines
Business Administrator

Enclosure

Board of Education: Louenda Downs, President / Dan R. Eastman, Vice President / Dixie H. Hill / Barbara A. Smith
Robert L. Thurgood / Dr. Richard E. Kendell, Superintendent



Knowlton Elementary
VELDA S. MORROW
Principal

Dear Ms Gregory:

Knowlton Elementary would like to respond to your letter of January 25, 1993 concerning the impact the three build alternatives would have on Knowlton Elementary School.

The primary purpose of a school is to provide a safe environment in which learning can take place. Alternative 1 and Alternative 2 negatively impact our safe environment and our learning facility. We do appreciate your concern for Farmington City's use of our playing field for after school soccer--we are a community school--but we are appalled that the educational impact on Knowlton was not even mentioned let alone treated as a concern.

Knowlton Elementary has 992 students. We are a year round school with students in session continuously every month of the year. This fact increases the impact on our school tremendously. There is no down time when students are not here.

Our play area where students congregate during lunch time and recess break is to the west and southwest of the school building--the area you propose to take away from our students. In this area are the basketball courts and big toy/sand areas which accommodate the free play of our students. The proposed highways would cut across these areas with a fence. Besides decreasing our now limited playing area by cutting or eliminating the two playground areas, it would also create a danger with playground balls going over the fence and students running into the fence as they play.

During good weather, all of our teachers have physical education classes outdoors--some on a daily basis. The proposals would eliminate one-half of our soccer fields or one-fourth of our grassy area. We have many classes trying to play outdoors at the same time now. Your proposals would limit even more our students' physical education opportunities.

Knowlton has a nature study area with trees and plants along the canal bank for science classes. Both alternatives would eliminate this area. We really don't know where these trees could be replanted.

We are also very concerned about the noise level. With increased traffic, the noise along our playground would negatively impact the outdoor teaching environment. Noisy cars and trucks would interfere with instruction.

Lastly, but most importantly, the safety of our students from undesirable elements which intensify along freeways is a great concern. Would you want a freeway built through the playground of your neighborhood school?

We are very much aware of the dangers on Highway 89. Two of our teachers were injured in a car accident there several months ago. Of all the proposals, Alternative 3 has the least impact on the safety and education of our students. We would appreciate your considering the negative impact Alternative 1 and Alternative 2 would have on Knowlton Elementary School.

Sincerely,

Velda S. Morrow, Principal

Sandy Ralsson, PTA President

Knowlton Elementary Staff

Davis County Schools

November 23, 1992 NOV 24 1992

Lindi Gregory, RLA
Landscape Architect
Versar Architects & Engineers, Inc.
734 E. Utah Valley Drive, Suite 100
American Fork, Utah 84003

SUBJECT: DISTRICT POLICY ON USE OF PLAYING FIELDS

Dear Ms Gregory:

Care of school playing fields is paid for through a one mill tax levy. This levy establishes a shared responsibility with the cities for the care of the playing fields. The cities provide the water and the School District provides the care and upkeep of the fields. Thus the use of these fields is determined by interlocal agreements. Establishment of these agreements is found under the Building Rental policy 6F-102 Section 3.13.4.

The many organizations using these fields arrange for their use through the School principal.

Your interest according to our phone conversation today is that you may find it necessary to purchase some portion of the field located at the Knowlton Elementary. Roger Glines, Davis Business Administrator is the person to contact relative to any plans to purchase land. He may be reached at 451-1256.

Sincerely yours,

Elva M. Barnes,
Director of Policy Development

Attatchment: Policy 6F-102

cc: Roger Glines

Board of Education: Lynn Summerhays, President / Louenda Downs, Vice President / Dr. Raymond G. Briscoe / Dan R. Eastman
Robert Thurgood / Dr. Richard E. Kendell, Superintendent
45 East State Street / Farmington, Utah 84025 / (801) 451-1261

DAVIS SCHOOL DISTRICT
POLICY AND PROCEDURES

No.	Rev.
6F-102	X
Revised: June 30, 1992	
Page 1 of 4	

Subject: Building Rental
Index: Finance

1. PURPOSE

To provide opportunities for citizens to participate in educational and recreational activities through the establishment of a building and facilities rental fee schedule and procedures.

2. REFERENCES

53A-3-413 & 414. Utah Code Annotated 1953 as amended 1988. (Use of public school buildings and grounds as civic centers.)

3. POLICY

All district buildings are by law civic centers and may be used by district residents for supervised recreational activities and meetings.

3.1. Use of district property for civic center purposes shall not interfere with any school function or purpose.

3.2. Principals or building managers shall charge for the use of the facilities as outlined in the Rental Fee Schedule (6F-101, section 4.10) .

3.3. A principal or building manager may refuse the use of a district facilities.

3.4 Commercial rates apply to an organization or individual whose motive is to make a profit. These include:

3.4.1 Teachers providing private instruction for a fee such as music, physical education and art teachers which are not run through the community school program.

3.4.2. Events for which admission is charged, items sold, or paid instruction for students such as music, art, dance, aerobics, basketball, weight training.

3.5. Community Organizations

Non-Commercial rates apply to community organizations such as service clubs, Boy Scouts, Girl Scouts, United Way, cities and counties.

3.5.1 Generally a non-commercial organization will have a tax exempt IRS number.

3.5.2 Exceptions

(1) Principals or building managers may grant limited free use to public service organizations who perform strictly public services, such as civic groups, Boy Scouts and Girl Scouts, when custodial and other services are not required beyond the regularly scheduled duty and when:

[a] no additional school funds are used to subsidize these meetings, and

[b] requests are for occasional use only.

(2) PTA shall be granted use of facilities for school related activities without cost.

3.6. Collection for rental is the responsibility of the principal or building manager and shall be made in advance.

3.7. **Conduct**

The lessee is subject to adherence to the standards of behavior of the school and Utah State Law.

3.7.1 Violation of any of these standards are grounds for termination of the rental agreement and the immediate removal of those individuals associated with the rental.

3.7.2 Violation may result in the forfeiting of all deposits and additional charges may be assessed.

3.8. **Rental Time**

All rental time shall be computed from the time of requested opening to closing of the doors.

3.13.2 In addition to the building supervision provided by the school, all rental groups must provide supervision to maintain order and prevent damage or loss of school property.

3.13.3. The cost of school foods personnel, stage hands, light crews, sound technicians, police, ushers, supervisors, etc. shall be in addition to the basic fee.

3.13.4. Inter-local agreements shall be negotiated by the Superintendent and supersede this policy.

3.14. Building Rental Fee Schedule

The Rental Fee Schedule shall be established by the Board of Education in the District School Fees, Fee Waivers and Provision in Lieu of Fee Waivers Policy (6F-101). The rental fee schedule is subject to annual review.

3.15. Community School Exceptions

Classes conducted in the schools for the benefit of students, such as private music lessons and private tutoring, shall be operated through the community school program. All classes not operated through the community school program shall be charged rental.

DAVIS COUNTY SCHOOL DISTRICT

FACILITY RENTAL AGREEMENT

Organization: _____ *Rented by:* _____

Address: _____ *Address:* _____

_____ _____

Phone: _____ *Tax Exempt No.* _____ *Phone:* _____ *Rental Date* _____

Requested: Opening Time _____ *Requested: Closing Time* _____

Actual: Opening Time _____ *Actual: Closing Time* _____

FACILITIES REQUESTED RATE/HOUR	*RENTAL PERIOD*	*TOTAL RENTAL AMOUNT*
AUDITORIUM *Non Commercial* $62.00/Hr. *Commercial* $200.00/Hr. *Includes custodian, building supervisor, auditorium technician.*		
GYMNASIUM		
High School (large) *Non Commercial* $46.00/Hr. *Commercial* $200.00/Hr.		
High School (Small) *Non Commercial* $37.00/Hr. *Commercial* $180.00/Hr.		
Jr. High School *Non Commercial* $34.00/Hr. *Commercial* $150.00/Hr. *All gym rentals include custodian and building supervisor*		
MULTI-PURPOSE ROOM, LITTLE THEATER, CAFETERIA *Non Commercial* $30.00/Hr. *Commercial* $100.00/Hr. *Includes custodian and building supervisor*		
KITCHEN *Non Commercial* $25.00/Hr. *Commercial* $120.00/Hr. *Includes custodian and kitchen supervisor.* *Additional kitchen personnel - $10.00/Hr.*		
CLASSROOM *Non Commercial* $15.00/Hr. *Commercial* $40.00/Hr. *Includes custodian and building supervisor.*		
ADDITIONAL PERSONNEL *Includes sound technicians, stage hands, light crews, ushers, police, etc. Charge minimum wage for actual rental hours.*		
TOTAL RENTAL COST (to be paid in advance) $		

As users of Davis County Schools facilities, we assume all responsibility for the activity and will not violate any city, county or state law. We understand and agree to comply with all rental policies of the Davis County School District; and any loss or damage to buildings, equipment or grounds as a result of this activity will be fully reimbursed including court costs or damages as a result of any suit which might be instituted by any person as a result of use of these facilities. We hereby acknowledge having received, read and agree to abide by the Davis County School District rental policies.

Signed: _____

Principal or Building Manager *Rental Party Agent*

_____

School *Date*

(See reverse side for school instructions.)

Revised 6/30/92

SCHOOL INSTRUCTIONS

1. *Refer to inter-local agreements for charges to cities and county.*

2. *Computer labs, home economics rooms, science labs, shops etc. are not for rental. Only classrooms without specialized equipment are available for rent.*

3. *Classified employees shall be paid through district payroll procedures. Professional employees and additional personnel shall be paid by check from the school financial accounts. After personnel wage expenses are calculated, the remaining rental proceeds shall be divided equally between the district and the school. District portions of rental proceeds shall be remitted at the end of each month.*

4.. *Deposit all funds daily. Remit fifty percent (50%) of the rental fee to the District with monthly reports.*

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Jerry A Miller
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF PARKS AND RECREATION

1636 West North Temple, Suite 116
Salt Lake City, Utah 84116-3156
801-538-7220

NOV 24 1992

November 23, 1992

Ms. Lindi Gregory, RLA
Landscape Architect
Versar Architects & Engineers, Inc.
734 E. Utah Valley Dr. Suite 100
American Fork, UT 84003

Re: Section 6(f) Recreation Properties within US-890 Draft EIS Study Corridor

Dear Lindi:

I appreciate receiving the draft EIS study information for the US-89 corridor from Farmington to South Ogden as it relates to Section 6(f) recreation properties.

We have no preference or concerns about any of the various alternatives if the 6(f) requirements are met, i.e., properties converted to non-outdoor recreation use be replaced with property of equal fair market value and reasonable equivalent location and utility. Because the three Land and Water Conservation Fund sites (Shepard Lane Park, Nicholls Park and Pioneer Park) were development projects, the replacement may be property already in public ownership as long as it has not been previously designated or managed for public outdoor recreation purposes.

Because it is necessary that Section 6(f) conversions first be approved by the Division of Parks and Recreation and then by the National Park Service, please keep us informed as to the progress of this project.

If you have questions, please feel free to call me at 538-7354.

Sincerely,

Lyle T. Bennett
Grants Coordinator

an equal opportunity employer

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF PARKS AND RECREATION

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
Courtland Nelson
Division Director

1636 West North Temple, Suite 116
Salt Lake City, Utah 84116-3156
801-538-7220
801-538-7055 (Fax)
801-538-7239 (TDD)

RECEIVED
APR 23 1996
American Fork, Utah

April 19, 1996

Mr. Joel S. Hall, P.E.
Project Manager
Versar, Inc.
768 East Utah Valley Dr.
American Fork, UT 84003

Re: Final EIS on US-89, Farmington to South Ogden

Dear Joel:

I am writing regarding Fruit Height's Nicholls Park as it relates to Section 6(f) of the Land and Water Conservation Fund Act (L&WCF) and the above referenced project.

The boundary map which we have in our project file shows that the areas protected as 6(f) property is the developed park property that extends along the upper edge of the Baer Creek ravine. It does not include property down in the ravine. Consequently, while we encourage proper mitigation of lost or disturbed open space, the area down in the Baer Creek ravine does not come under the purview of Section 6(f) of L&WCF.

If you have any questions, please call me at (801) 538-7354.

Sincerely,

Lyle T. Bennett
Grants Coordinator

DAVIS COUNTY

DAVIS COUNTY COURTHOUSE • P.O. BOX 618 • FARMINGTON, UTAH 84025 • PHONE (801) 451-3243 TDD (801) 451-3228

COMMISSIONERS
Gayle A. Stevenson, Chairman
J. Dell Holbrook
Gerald A. Purdy

COUNTY CLERK/AUDITOR
Margene Isom

November 2, 1992

RECEIVED
NOV 9 1992
OGDEN, UTAH

Lindi Gregory, RLA
Versar Architects and Engineers, Inc.
1117 Country Hills Drive, Suite 8
Ogden, Utah 84403

RE: Impact of Highway 89 Improvements on Davis County-Owned Property

Dear Lindi,

You have acknowledged receipt of my letter to you, dated October 26, 1992. However, you would prefer to have a more definitive answer from Davis County regarding the intended use of the property needed for the improvement of Highway 89.

After discussing the matter, the Davis County Commissioners have agreed to declare the property to be non-recreational in use, with the future anticipated use to be for commercial purposes.

We hope this statement clarifies the matter for you. If you have further questions, please phone me at 451-3255.

Sincerely,

Ralph L. Wilcox

Ralph L. Wilcox
Property Manager

RLW:nk

cc: Davis County Commission

DAVIS COUNTY

DAVIS COUNTY COURTHOUSE • P.O. BOX 618 • FARMINGTON, UTAH 84025 • PHONE (801) 451-3243 TDD (801) 451-3228

COMMISSIONERS
Gayle A. Stevenson, Chairman
J. Dell Holbrook
Gerald A. Purdy

COUNTY CLERK/AUDITOR
Margene Isom

RECEIVED
OCT 2 8 1992
OGDEN, UTAH

October 26, 1992

Lindi Gregory, RLA
Versar Architects and Engineers, Inc.
1117 Country Hills Drive, Suite 8
Ogden, Utah 84403

RE: Impact of Highway 89 Improvements on Davis County-Owned Property

Dear Lindi,

You have presented to Davis County drawings which show the possible relocation of right-of-way lines, immediately above the Davis Park Golf Course in Fruit Heights City should UDOT improve Highway 89. You have asked what impact this may have on County-owned property and what concerns the County may have regarding the same.

I have consulted with the Davis County Commissioners on this matter. The Commissioners have always felt that the property should be put to its highest and best use. They have figured that the highest possible use for this particular property would be for commercial development. The second highest use would be residential, and the third highest would be for expansion, extension or growth of the Davis Park Golf Course facility.

The Davis County Surveyor's Office has done some rough staking of the area which would be taken, and it appears to us that a freeway development under Alternative 1 would most certainly preclude the use of any of the ground, because of the close proximity the road would have to the driving range.

If Alternative 2 or 3 is considered, there still may be enough property between the right-of-way and the driving range for some kind of commercial or residential development. These questions would have to be researched more closely in the future.

We are not attempting to make a statement supporting or opposing any of the Alternative plans presently being researched by the Utah Department of Transportation. Davis County stands ready to cooperate with UDOT and cities adjacent to Highway 89 in their efforts, as long as we are compensated for any impact or damage to County-owned property.

If you have further questions, please write to me or phone me at 451-3255.

Sincerely,

Ralph L. Wilcox

Ralph L. Wilcox
Property Manager

RLW:nk

cc: Davis County Commission

Mayor: Blaine L. Nelson

City Administrator: Belva M. Provost

Council: David L. Garrett
Richard D. Muhlestein
Dean V. Wiberg
Richard L. Harvey
Anna LePendu

FRUIT HEIGHTS CITY

281 South Mountain Road • FRUIT HEIGHTS, UTAH 84037 • Phone 546-0861

April 1, 1992

RECEIVED
APR 9 1992

Lindi Gregory, R.L.A.
Landscape Architect
VERSAR Architects & Engineers, Inc.
380 West 920 North
Orem, UT 84057

RE: NICHOLLS PARK

Dear Lindi:

Please find enclosed, a copy of the proposed improvements for the above named park.

I felt that a copy showing what we were planning, was perhaps better, than trying to outline in written form.

The Flood of 1983 brought an enormous amount of gravel and debris down the Bair Canyon, it all ended up in the hollow of the Nicholls Park. The County (Davis) owned the park at that time, and had contracted with a private individual to haul much of it out of the hollow, which he did. However, the hollow has been damaged and the Bair Creek meanders, at will, without a defined stream bed. The restrooms, picnic tables, etc. that were originally a part of the Park, were all lost.

The City Council has appointed Bob & Lynn Templeton to co-chair the renovation of that area of the park. I am certain it will take an enormous amount of effort, to do so. Bob & Lynn remember how the "lower Nicholls Park" was, before the "flood of '83" - and therefore, are very dedicated and willing to do their best.

As to Park use records, we have reservation of the boweries, all summer use of the ball diamonds, tennis courts. People from all over the County and other areas of the State have enjoyed using the Park. Fruit Heights City is responsible for the maintenance of the Park. We do not charge anyone out of the City a greater fee to use the Park.

I am enclosing several documents, that may be important to the completion of your study:

1. Real Estate Sales Agreement: Fruit Heights City purchased the 1.828 Acres of property east of Nicholls Park and adjacent to Hwy. 89 We have a well and our Maintenance Shops located on this property.

2. Agreement of conveyance of Davis County Memorial Park aka NICHOLLS PARK from Davis County to Fruit Heights City.

3. Baer's (Bair's) Canyon-Haights Creek Davis Memorial Park Channel Requirements - From Sid Smith to County Commissioners

4. Quit Claim Deed - Conveyance of Park

5. Correspondence - RE: Project Nos. 49-00061 and 49-000238
Agreement to show Fruit Heights City as owner of projects by Utah Division of Parks & Recreation and amend agreement with National Park Service

These projects, under the sponsorship of Davis County were developed in part with Federal Land and Water Conservation Fund assistance and are therefore subject to provisions of the Land and Water Conservation Fund Act.

Documents included: Appendix A, Appendix B and Appendix C

6. Remaining copies are of correspondence between State of Utah Division of Parks & Recreation (Lyle T. Bennett, Director) and Fruit Heights City - RE: Efforts to use a portion of the Park for a City Building site (City was unsuccessful - we abandoned further endeavors to use this site).

We are desirous of assisting you, in any way we can, and are hopeful these records will prove helpful to you.

Sincerely,

FRUIT HEIGHTS CITY

Belva M. Provost

Belva M. Provost
City Administrator

Enclosures

Mayor (801) 546-8500
James J. Layton

Councilmembers
Ethel H. Adams
Brent A. Allen
Lyndia B. Graham
Debra B. Ledkins
Jerry Stevenson

City Manager 546-8500
C. Bruce Barton

LAYTON UTAH
A QUALITY COMMUNITY

Municipal Offices • 437 N. Wasatch Dr. • Layton, Utah 84041

RECEIVED
JUL 16 1992

Fax Number 546-8577
Steven M. Ashby 546-8510
Director of Finance
J. Scott Carter 546-8520
Director of Community Development
Mark Arnold 546-8530
City Attorney
Terry Coburn 546-8540
Director of Public Works
F. Dean Allen 546-8580
Director of Parks and Recreation
Allan H. Peek 544-5633
Fire Chief
Doyle Talbot 546-8560
Police Chief

July 15, 1992

Lindi Gregory
Versar Architects & Engineers, Inc.
380 West 920 North
Orem, UT 84057

Dear Lindi:

I am responding to your request regarding the status of Pioneer Park, bordering highway 89, in Layton. I apologize for the delay.

The park is used as a natural picnic and group day-use area. Low water pressure prevents its development as a landscaped neighborhood park. It does, however, serve a useful purpose for those who enjoy a more natural environment. Families, small groups and scouting organizations use the park fairly heavily during the spring and early summer. Apparently, park use records have not been kept for this site.

Future use would not change significantly under normal conditions. We have delayed repair of the sewer line from the rest rooms pending notification of the highway improvement project plans. The sewer line will be repaired if the highway project is determined to have no effect on this property. Federal parks funds were used to construct the rest rooms.

Use of this property for a highway interchange and/or right-of-way would not be opposed by this department if appropriate compensation was made to the city for park replacement.

Respectfully,

Dean Allen

Dean Allen
Parks & Recreation Director

September 1, 1992

SEP 16 1992

Mr. Joel S. Hall P.E.
VERSAR Architects and Engineers, Inc.
380 West 920 North
Orem, Utah 84057

RE: SR 89 Environmental Impact Statement

Dear Mr. Hall:

Fruit Heights City Corporation is in receipt of your latest edition of the proposed alternatives for the SR-89 Environmental Impact Statement dated August 1, 1992. As requested, we have reviewed these documents with regard to the potential impact to the existing Nicholls Park. Under alternatives #1, #2 and #3, a frontage road system is proposed running north from Nicholls Road across existing Fruit Heights City Park property.

Fruit Heights City does not object to frontage roads running through the park area provided that the following conditions are met:

1. The construction of the frontage road system will be confined to the area between the existing developed baseball fields and the west right-of-way line of SR-89. Under no circumstance will the City agree to any portion of the existing developed park area being impacted by the roadway alignment. The use of reinforced concrete retaining walls or other facilities may be needed through a portion of the area so the new frontage road can be contained east of the existing fields. We recognize that the frontage road alignment runs through the area currently used as the Fruit Heights City shops and an existing water well. These facilities can be relocated to other areas; however, the City will expect funding assistance to make these relocations. In addition, you should be aware that the City plans to expand the size of the baseball fields (to the north) and request that the final UDOT roadway designs be coordinated with our expansion plans.

2. The northerly portion of the frontage road runs through an undeveloped park area in the vicinity of Baer Creek. The new frontage road construction will required a large quantity of fill materials and will cover a significant area currently being planned for park expansion. We do not object to the roadway running through this area provided that adequate provisions are made to accommodate the drainage flow in Baer Canyon and that Fruit Heights City would be financially assisted in the purchase and development of an equal portion of park property at another location in the City.

We appreciate all of the many hours of work you have invested in the study of SR-89 and your cooperation with the City. At such time as a draft copy of the EIS is available, we will review your findings and will indicate our support of the alternative which best meets the future needs of Fruit Heights City.

Sincerely,

FRUIT HEIGHTS CITY CORPORATION

By: _____
Blaine Nelson, Mayor

cc: Lynn Zollinger--UDOT District One

Historic beginnings

Farmington City Corp.
1892

130 North Main
P. O. Box F
Farmington, Utah 84025
Telephone (801) 451-2383

ROBERT W. ARBUCKLE
Mayor

MAX FORBUSH
City Manager

DONA SCHARP
Recorder/Finance Officer

LYNETTE BINGHAM
Treasurer

PATRICIA N. ACHTER
GREGORY S BELL
GARY E. ELLIOTT
JAMES C. PARSELL
L. HANK SEMADENI
Council Members

RECEIVED
JUL 20 1992
OG[illegible]

July 16, 1992

Lindi Gregory
Versar, Inc.
1117 Country Hills Dr. #8
Ogden, Utah 84403

RE: Shepard Lane Park Baseball Field

Dear Ms. Gregory:

This letter is in response to your inquiry concerning the current use and future plans for Shepard Lane Park and the potential impact which may be created by widening of U.S. Highway 89. It is my understanding from your letter of July 14, 1992, that design alternatives for the Highway may require between 100 and 170 of additional right-of-way. This right-of-way would be taken from what is presently the outfield of the baseball field at Farmington City's Shepard Lane Park. I have discussed this matter with Joe Grimmett, the City's Recreation Director, who provided me with the information which follows.

Farmington City supervises a youth soccer program which runs from late August to October in the Fall and from March through May in the Spring. Due to conflicts with the baseball season in the Spring, the field at Shepard Park is not used for this program. However, the athletic fields directly to the north at Knowlton Elementary School are used for this program. During the soccer season these fields are used nearly every evening, either for practice or games. Widening of Highway 89 would probably eliminate at least two of the soccer fields currently in use which would necessitate establishment of new fields elsewhere or curtailing the soccer program.

The baseball field at Shepard Park is the largest in the City and the only one which meets the requirements for Pony League (ages 13-14) and adult league play. It was first constructed in 1989 and was upgraded in 1991. The 1992 season is its first full season of use. Up until this year Farmington City supervised the baseball program but this responsibility has now been taken over by the newly formed Farmington Area Baseball League, a nonprofit organization. The season runs from April through July with the field at Shepard Park being used nearly every day for either practice or games.

If U.S. Highway 89 is widened by 100 feet the outfield would be reduced to the extent that the field could no longer be used for league play and a new field for this purpose would have to be constructed. It could possibly still be used for girls softball.

If the highway is widened by 170 feet the field could not be used for any type of baseball or softball and a new field would have to be constructed.

The City has discussed the possibility of expanding the Park south but at the present time there is no money available, and there are no negotiations underway with neighboring property owners, to do so. However, if it became necessary to replace the existing baseball field at Shepard Park, property adjacent to the park on the south is the preferred location. The City would expect full compensation for acquiring and developing a "Pony League" sized diamond complete with similar amenities existing when and if the property is taken. The City expects to continue providing these type of facilities for Farmington youth, regardless of who operates the recreation programs.

I hope this information will be helpful to you in completing the EIS for U.S. Highway 89. If I can be of any further assistance please let me know.

Sincerely,

Craig A. Hinckley

Craig A. Hinckley, AICP
City Planner / Zoning Administrator

cc: Max Forbush, City Manager
Joe Grimmett, Recreation Director
Dave Connors, Farmington Area Baseball League
Elizabeth Vincent, Parsons Brinkerhoff
file

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

TAKE PRIDE IN AMERICA

ER-95/772

DEC 1 1995

Mr. Donald P. Steinke
Division Administrator
Federal Highway Administration
2520 West 4700 South, Suite 9A
Salt Lake City, Utah 84118

Dear Steinke:

This is in response to the request for the Department of the Interior's comments on the Draft Environmental/Section 4(f) Evaluation for US-89 (I-15/Farmington to Harrison Boulevard/South Ogden), Davis and Weber Counties, Utah.

SECTION 4(f) EVALUATION COMMENTS

We concur that there is no prudent and feasible alternative to the proposed project. We also concur with the proposed measures to minimize harm to Section 4(f) resources.

Park and Recreation Resources

We recommend that the mitigation measures to the four parks and recreation sites, which may be affected by the proposed project, be coordinated with and approved by the appropriate administering agencies. Evidence to that effect should be documented in the Final Section 4(f) Evaluation.

As correctly indicated in the Section 4(f) Evaluation and the November 23, 1992, letter of the Division of Parks and Recreation, Utah Department of Natural Resources, any conversion of land from Shephard Lane Park, Nichols Park, and Pioneer Park is subject to the requirements of Section 6(f) of the Land and Water Conservation Fund Act, as amended. Please note that a land conversion request under Section 6(f) may be made to the National Park Service through the Utah Department of Natural Resources. However, the National Park Service can consider a land conversion request only after Section 4(f) approval of this project by the Department of Transportation.

Historic and Archeological Resources

We recommend continued cooperation and coordination with the State Historic Preservation Officer in order to complete a Memorandum of Agreement (MOA) which should include measures to avoid or minimize harm to the seven historic properties and the one prehistoric archeological property, in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. We note that the distribution list (page 7-1) for the draft statement does not include the Advisory Council on Historic Preservation. A copy of this draft should be sent to the Advisory Council on Historic Preservation for their review and comment. A signed copy of the MOA should be included in the Final Section 4(f) Evaluation.

ENVIRONMENTAL STATEMENT COMMENTS

The environmental statement does an adequate job of addressing project impacts to Federal trust resources.

SUMMARY COMMENTS

The Department of the Interior has no objection to Section 4(f) approval of this project by the Department of Transportation, providing that the mitigation measures discussed above are adequately documented in the Final Section 4(f) Evaluation.

We appreciate the opportunity to provide these comments.

Sincerely,

Willie R. Taylor
Director, Office of Environmental
Policy and Compliance

cc: Ms. Lynn Zollinger, P.E.
Chief Environmental Engineer
Utah Department of Transportation
4501 South 2700 West
Salt Lake City, Utah 84119

Mayor • Jerry Stevenson
City Manager • Alex R. Jensen
Asst. City Manager • James S. Mason

• Community Development Department •
J. Scott Carter • Director
Telephone: (801) 546-8520
FAX: (801) 546-8549

RECEIVED
MAY 15 1996
American Fork, Utah

May 13, 1996

Versar Engineering
768 East Utah Valley Drive
American Fork, Utah 84003

Attention: Craig Peterson:

Dear Craig:

Enclosed is a map which outlines the possible sites for relocation of Pioneer Park. Because of the nature of the park and the means by which the City came to own it, the preferred re-location site is near the mouth of Adams Canyon on the east side of Highway 89. Preservation of an access to Adams Canyon with a trailhead is a priority of Davis County and Layton City. This seems to be the most logical as Pioneer Park was donated by the Adams family for whom the canyon was named.

The other sites indicated on the map fall of within the general area of where the Adams family first settled.

If you have any further questions, or if I can provide additional maps and information, please feel free to contact me.

Sincerely,

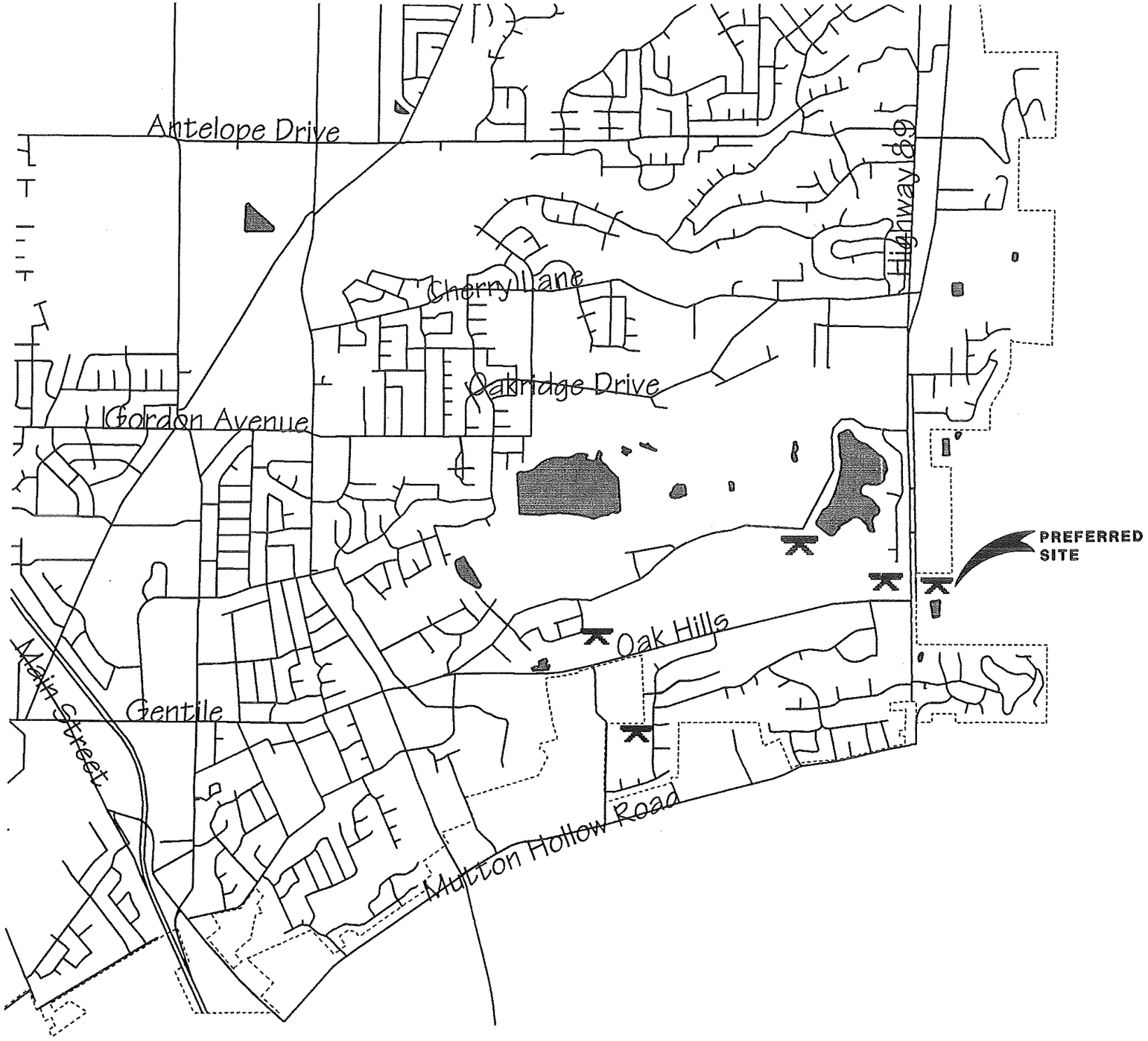
J. Scott Carter

J. Scott Carter, Director
Community Development

Municipal Offices • 437 N. Wasatch Dr. • Layton, Utah 84041 • (801) 546-8500 • FAX: (801) 546-8577

Alternative Sites for Pioneer Park

Scale 1:12,000
or
1 inch = 1,000 ft



N

Layton City Boundary

Alternative Park Site

RECEIVED
MAY 17 1996
American Fork, Utah

Historic beginnings

GREGORY S BELL
Mayor

MAX FORBUSH
City Manager

DONA SCHARP
Finance Director/Recorder

LYNETTE BINGHAM
Treasurer

Farmington City
1847

130 North Main
P. O. Box 160
Farmington, Utah 84025-0160
Telephone (801) 451-2383

PATRICIA N. ACHTER
TAMMY BOYCE
DAVID M. CONNORS
GARY E. ELLIOTT
LARRY W. HAUGEN
Council Members

May 14, 1996

Joel Hall
Versar, Inc.
764 East Utah Valley Drive
American Fork, UT 84003

Re: U.S. Highway 89 E.I.S. Statement - Mitigation of Damages Shepard Lane Park, a 6f Property.

Dear Joel:

Farmington City is willing to accept property purchased by the State as compensation for the loss of utility of the Pony League Baseball Diamond at Shepard Park. Shepard Park is classified as a 6f property.

Farmington City prefers replacement property to be located adjacent and south of the existing field. The City would expect a similar sized facility with like improvements installed at the new facility. However, the City reserves its right to further negotiate in more clearly defining an acceptable definition of what is like improvements. If additional information is required, please advise. Thanks for your help!

Sincerely,

Gregory S Bell
Mayor

GSB/MF/ml

Thanks much!

CHAPTER 6
LIST OF PREPARERS

CHAPTER 6
LIST OF PREPARERS

This document was prepared by Versar, Inc., under the direction of the Utah Department of Transportation, Region 1. Sagebrush Archaeological Consultants, Bateman, Jackson and Oveson Consultants, Environmental Consulting, and Chen-Northern, Inc., assisted Versar in the preparation of the document. The principal participants are listed below.

Versar, Inc.		
Name/Title	**Responsibility**	**Education**
Joel S. Hall, P.E., L.S. Project Manager	Purpose & Need, Alternatives Development, Transportation & Safety, Relocation	Attended Brigham Young University
Boyd A. Wilson, P.E. Environmental Manager	Water Resources, Water Quality, Floodplains, Editor	B.S., Civil Engineering, Brigham Young University M.B.A., Business, Brigham Young University
Lindi Gregory, R.L.A. Environmental Specialist	Land Use, Farmland, Wetlands, Wildlife, Visual Resources, Bicyclists & Pedestrians, Sections 4(f) & 6(f)	B.S., Agricultural Economics, Brigham Young University B.L.A., Landscape Architecture, Utah State University
Craig Peterson	Public Involvement	B.S., Manufacturing Engineering Technology, Weber State College
Victor Hansen, P.E., L.S. Design Engineer	Noise Analysis, Alternatives Development	B.S., Civil Engineering, Brigham Young University
Kent Bradford, C.H.G. Hydrogeologist	Geology, Hazardous Waste	B.S., Geology, Brigham Young University
Jay Hamilton	Air Quality	B.S., Chemistry, Brigham Young University
SAGEBRUSH ARCHAEOLOGICAL CONSULTANTS		
Michael Polk, Principal Investigator	Historic, Archaeological Studies	B.A., Anthropology, CSU San Diego M.A., Anthropology, Michigan State University
Heather M. Weymouth, Archaeologist	Historic, Archaeological Studies	B.A., Anthropology, Weber State University

BATEMAN, JACKSON AND OVESON CONSULTANTS		
Name/Title	**Responsibility**	**Education**
Dick Oveson	Social-Economic Analysis	B.A., Economics, Brigham Young University M.P.A., Brigham Young University Ph.D., Economics, Harvard Univ.
ENVIRONMENTAL CONSULTING		
Ronald J. Kass, Ph.D.	Threatened and Endangered Vegetation	B.S., Zoology, Brigham Young University M.S., Plant Taxonomy, Brigham Young University Ph.D., Plant Ecology, New Mexico State University
FEHR & PEERS ASSOCIATES, INC.		
Ron Mortimer, P.E. Office Manager	Traffic Analysis	B.S. and M.S., Civil Engineering, Brigham Young University
CHEN-NORTHERN, INC.		
Bill Turner, P.E.	Geotechnical Analysis	B.S., Civil Engineering, Brigham Young University M.S., Geotech. Engineering, Brigham Young University
UTAH DEPARTMENT OF TRANSPORTATION		
Dyke LeFevre, P.E.	UDOT Region Review	B.S., Civil Engineering, University of Utah
Rodney A. Terry, P.E.	Project Coordinator, Preconstruction	B.S., Civil Engineering, Utah State University
Denis Stuhff, P.E.	Environmental/Hydraulic Engineer, UDOT Region One	B.S., Civil Engineering, University of Utah
FEDERAL HIGHWAY ADMINISTRATION		
Thomas Allen, P.E. T^2/Systems/Research Engineer	Project Coordinator	B.S., Civil Engineering, University of Idaho
William R. Gedris, P.E. Environmental Engineer	Environmental Coordinator	B.S., Civil Engineering, Virginia Military Institute M.S., Civil Engineering, Clemson University

CHAPTER 7
FEIS DISTRIBUTION LIST

CHAPTER 7
DISTRIBUTION LIST

The following agencies received copies of the Final Environmental Impact Statement.

Federal Agencies
- Federal Highway Administration
- Environmental Protection Agency
- USDA Soil Conservation Service
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- U.S. Geologic Survey
- Department of the Interior
- Advisory Council on Historic Preservation

State of Utah Agencies
- Utah Department of Agriculture
- Department of Community and Economic Development
- Utah Department of Environmental Quality
  - Division of Air Quality
  - Division of Environmental Response and Remediation
- Utah Department of Natural Resources
  - Division of Water Rights - State Engineer
  - Division of Water Resources
  - Division of Wildlife Resources
  - Division of Parks and Recreation
- State Historic Preservation Office
- State Planning Coordinator
- Utah Transit Authority

Local Agencies
- Wasatch Front Regional Council
- Davis County
- Weber County
- Morgan County
- Farmington City
- Fruit Heights City
- Kaysville City
- Layton City
- South Weber City
- South Ogden City
- Ogden City
- Washington Terrace
- Morgan City
- Davis County School District
- Weber Basin Water Conservancy District

The following agencies submitted comments on the Draft Environmental Impact Statement.

Federal Agencies
Federal Highway Administration
U.S. Fish and Wildlife
U.S. Department of the Interior
Advisory Council on Historic Preservation

State Agencies
State Planning Coordinator

Individuals Submitting Written Comments:
Lance D. Samuelson
Kelly J. Flint

CHAPTER 8
COMMENTS & COORDINATION

CHAPTER 8
COMMENTS AND COORDINATION

8.1 AGENCY AND COMMUNITY COORDINATION AND INVOLVEMENT

8.1.1 Public Interest in the Project

Public interest in any highway improvement project associated with US-89 between South Ogden and Farmington City has remained high for many years. The primary motivation for most of the interested parties has been issues of perceived safety, the potential for reduced transportation access to the corridor, and the anticipated impacts to surrounding businesses and residents. The study team followed the guideline found in the Council on Environmental Quality Public Involvement recommendations. A citizens advisory committee was formed, with both public and private representation, to focus this interest in a positive direction. Throughout the study, the citizens advisory group provided both a formal and informal forum for communications with the various advocacy groups and communities.

8.1.2 Scoping Meetings

At the very inception of the study, the consultant team developed a strategy to actively seek the public's involvement and participation. Included in this program was the use of a formal public scoping meeting held at key community locations along the corridor. One agency and four public meetings were held between May 7 and May 16, 1991, with a total of 197 attending. Transcripts of the meetings were taken to establish a baseline of information for the consultant and develop a formal record and history of the public involvement. During the scoping meetings, oral comments were received from approximately 81 individuals. Additionally, thirty-one written comments were also received.

8.1.2.1 Issues and Concerns

Most comments were from local citizens and other users of the corridor and were related to issues of safety and corridor preservation. Various suggestions were offered to solve the problems on a short term basis. Some comments dealt with recommendations to the Department of Transportation to reduce speed limits and install temporary traffic signals. These at best are interim measures until more permanent remedies can be developed and constructed. Through review of the attendance roles, many attending the scoping hearings were residents whose homes had direct access on US-89 or those whose properties abut the highway. The citizens who live along US-89 were mostly concerned about their ability to enter or cross the highway safely. Local commuters who regularly travel the route were also concerned about safety. However, this concern was more from the aspect of reducing the conflicting traffic movements along that section of highway. Many individuals expressed concern about the effect of truck traffic that they believed could be rerouted or banned from the highway due to safety concerns.

In summary, the public comments could be grouped into five categories - Safety, Access, Land Use, Environmental and Funding. The number of comments concerning each area was: Safety - 90, Access - 51, Land Use - 26, Environmental - 19, Funding - 9.

8.1.2.2 Individual Community Meetings

Beyond the public scoping meeting, individual meetings were conducted in association with community planning and city councils in each community along the corridor during 1991 to 1995 to appraise them of

options and conditions involved in the corridor. Additional meetings were held with community service groups including the Ogden Weber Area Chamber of Commerce. The communities along the route were very concerned about the impact of the future highway improvements on their development plans, expansions of their city services and maintenance of their tax base. The communities wanted study consideration of these various development plans. They also asked that the study consider the large number of utilities serving their communities which share the highway corridor. Utility services needed to be protected or relocated to maintain good service to the community. Local governments wanted their facilities protected as much as possible and still have the necessary access for their citizens to travel safely in the area. Access to commercial development was a major concern to some, while others were sensitive to the impacts on parks and future recreation development. Emergency services were also mentioned as an area that needed evaluation relative to access to the communities.

8.1.3 Study Advisory Committee (SAC)

After the scoping meetings, the consultant team proposed a forum that would provide a continuing and active representation of all the communities, special interest groups and previously established committees. Subsequently, a Study Advisory Committee (SAC) with 28 initial members was organized. Additional members were added as the project developed and other interested groups were established. Each special interest group was asked to appoint a representative who would be committed to attend a series of concept design meetings. They were to relate information back and forth to the study team to assist with the study process and identify areas of potential concern.

A total of six meetings were held with the SAC and a good working relationship was developed between all those involved. The SAC held good discussions and most of the meetings were in excess of three hours in length. Much time was spent reviewing the alternatives and making adjustments to them to better serve the future plans of the communities. The environmental impacts of each alternative were also reviewed. Individual meetings were also generated as a result of the SAC members specific concerns.

This study has incorporated changes suggested by the committee. The consultant team offered explanations and developed sufficient technical understanding among the committee members when suggested changes were not feasible.

8.1.3.1 Other Meetings Held

Besides the scheduled SAC meeting, committee members arranged for additional meetings with their interest group or community group to address specific issues and problems. Many meetings were held, both formal and informal, with individual communities, their city councils, planning commissions, and their interested citizens. These were both informative and productive in refining the final proposed alternatives. The study gathered a significant amount of data and information because of these meetings, which was appropriately incorporated into the study. Adjustments were often made to more closely conform to the various community master plans and zoning maps.

8.1.4 Burke Lane Connection

Midway through the study, and at the request of the City of Farmington and Utah Transportation Commission, the study corridor was expanded to include the area south of Shepard Lane, known as the Burke Lane Extension. This required a substantial amount of individual attention and environmental evaluation to provide a reconnection of Burke Lane to west Farmington. Not only did this require extensive discussion with Farmington City, but also, since it involved a large amount of wetlands, the

Corps of Engineers became very involved in evaluation of alternatives and design options to reduce and mitigate wetland impacts. Several meetings were held to discuss alternatives and issues. Farmington presented a strong case for restoring access to an area of the city that was beginning to expand rapidly. After an extended period of time, the discussions resolved the environmental issues as well as addressed the needs of the city. Compromises provided a feasible solution to the problem. Congressional representatives, as well as local legislative leaders, were involved in several of the meetings.

8.1.5 Evaluation of Public Involvement

Although there are still a few areas of concern that the consultant team felt could not be resolved to the satisfaction of some individuals and groups, general support and understanding has been achieved on the essence of the technical issues. The public involvement process not only influenced the proposed alternatives, but provided direction in the development of the options investigated by the consultant team. Comments were encouraged and received up through the public hearing process. A complete record of scoping meeting transcripts, written comments, agency meetings, SAC meetings, and public involvement is included in the study files.

8.1.6 News Media Involvement

The project has received frequent and considerable attention from the press and television media. Front page articles discussing the scope of the project have appeared in newspapers of both regional and general circulation. Television news stories, including one full program, were dedicated to the discussion. The media reported on the many SAC meetings and all of the public scoping meetings. Members of the study team have been interviewed by the media and reports have been regularly published.

8.2 SUMMARY OF PUBLIC COMMENTS ON DEIS

8.2.3 General Comments

Comments received on the alternatives showed a clear majority in favor of the expressway - Alternative 2. Most felt that to make only superficial improvements without addressing growth and capacity would be inadequate. Alternative 2 was generally recognized as a good compromise between the other options. A few comments suggested we should "bite the bullet" and build Alternative 1 (freeway) now. Others felt we should go with Alternative 3 (signalized expressway) to slow the traffic and solve the accident problems. A few preferred the No Action alternative because they felt the other alternatives would cost far too much money and questioned whether that much money would ever be made available. Some believed there were other roads with higher priorities, or the money should be spent on mass transit rather than continuing to provide for the automobile. Based on the DEIS analysis and public comment, Alternative 2 has been identified as the Preferred Alternative for the Final EIS. Alternative 2 will result in far less impacts than Alternative 1, while meeting the capacity and safety needs. These needs would not be met with Alternative 3.

Some who attended the public hearing had a concern about the timing of construction. Most felt that the project ought to be built as soon as possible. Once the decision is made on the alternative, the properties need to be purchased so that people can relocate and thereby reduce the impact and uncertainties of their lives. Some are currently trying to sell their property with little success due to the perceived impact of the impending highway project. The consultant recommends that where possible, advance right-of-way purchase should be considered for hardship cases. The timing for construction of this project is principally

dependent on funding and will be determined as state, local and federal funding sources are further defined.

8.2.1 Public Open House

During the period of (December 4th through 8th, 1995) from morning into the late evening, all of the proposed alternatives and associated documents were made available to the public for review. The presentation included the DEIS, a professionally prepared video outlining the history of the corridor and identifying the proposed options, and associated impacts were displayed at the Fruit Heights City Hall. Consultant staff members and UDOT representatives were available to respond to questions and explain the public comment process. Open house hours were from 9:00 a.m. to 6:00 p.m.. Due to citizen demand, the hours were extended until no additional people were there. Approximately 200 actively participated during the five days.

8.2.2 Public Hearings

An open forum public hearing was held on a Saturday, December 9, 1995, from 10:00 a.m. until 3:00 p.m. which allowed for additional formal and informal input to be received. A formal public hearing was held that same evening from 4:00 p.m. until 6:00 p.m. Both hearings included presentations of the alternative and the video was presented at multiple locations during the open forum portion and again at the formal public hearing. All of these proceedings were formally announced and published to meet legal notification requirements. Additional mailings were sent to residents who lived within the corridor area and others who had expressed interest in the project. All proceedings were held at the Northridge High School in Layton. Attendance as recorded on the sign in sheet was 208 at these two sessions. The public hearing transcript is on file at the UDOT Region One office.

8.2.4 Comments and Responses on Design Issues

The following is a summary by category of comments received:

Comment: Individual property owners expressed concerns such as: "Exactly how close to my house will the construction limits be? Can't you build a retaining wall to keep the slopes out of my property? Will a noise wall be built to protect my home?"

Response: *Each of these concerns involves aspects to be developed during the design phase of the project. Such questions will be answered when the detailed design plans are completed and the cost of retaining walls and noise walls can be further evaluated.*

Comment: Some requested modifications to Alternative 2, the expressway. These requests included an evaluation of a single point urban interchange at 200 North in Kaysville rather than the diamond. They felt that it would lessen the impact on homes and properties. Fruit Heights City representatives questioned whether the US-89 alignment could be shifted to the southeast near Cherry Hill, thereby saving the two businesses at that location and preserving the community's tax base. Some minor frontage road revisions were suggested to match the topography, property lines, and recent development.

Response: *As the design proceeds, additional information will be considered during that phase and where feasible, impacts could be further reduced while maintaining the integrity of the purpose and need of the project.*

Comment: Concerns were expressed regarding the disruption of commercial activities during construction and whether or not there would be compensation for disruption of normal business activities.

Response: *There is no doubt that the construction will make it less convenient for retail businesses. This will be minimized, however, by maintaining access whenever feasible throughout the construction period. There may be some short times when access will be interrupted due to movement of equipment or placement of pavement or required safety concerns.*

Comment: Farmington City had concerns including the following; pedestrian needs along Main Street and on Shepard Lane, prioritization of the construction of the Burke Lane interchange, maintaining the economic viability of Smith's Foods and adjacent businesses at Shepard Lane due to construction impacts, accessibility and loss of parking.

Response: *UDOT will coordinate closely with Farmington City during the preparation of the final design to insure that the issues presented will be evaluated. Coordination with Smith's has taken place and will also continue during the design phase to insure that all impacts will be the minimum possible. The setting of construction priorities of the various sections of US-89 is the statutory role of the Utah Transportation Commission in conjunction with local governments, with input from the regional MPO's, and is not included as an appropriate part of this study.*

Comment: South Weber desired an underpass structure just south of Deer Run to provide another route for the city to use in crossing US-89 other than Cornia Drive, and an extension of the east side frontage road to the Hill Field Road Interchange frontage road to provide a connection to Layton other than US-89.

Response: *Additional meetings have been held with the mayor and representatives of UDOT and the consultant to discuss these requests. It was clearly established during this review that the feasibility of their request could not be fully ascertained, but could be considered as the design proceeds on this section of US-89. UDOT will work closely with the city to see if joint funding arrangements can be provided for the structure based on participation by the land developers. The east side frontage road extension will be studied during the design preparation and will be reviewed with the city.*

Comment: Uintah Town reviewed the proposed alternatives several times and expressed concerns about access impacts. The town wants to have better access to US-89 without being required to cross a railroad crossing (at 2275 East on Track #2) which is felt to be a serious hazard. The main complication for access is the location of the two railroad lines which cut through the town. The town is also concerned that it will lose some of its business district to the improvements for the I-84 Interchange.

Response: *Some optional concepts have been developed through a cooperative effort between the town and UDOT and are now included as a part of Alternative 2 and are shown on the included drawings. Details involved in that process will be evaluated during the design phase to determine their feasibility. The impacts on the businesses near I-84 are not avoidable.*

Comment: Questions were raised about the connection of US-89 to I-15 on the southern extreme of the corridor. The major point was the question of how the three lanes proposed for US-89 could tie into the two southbound on-ramps which currently have a perceived poor level of service, especially in the AM peak period.

Response: *The backing problem that is currently being experienced by the southbound traffic is due to a lack of capacity on I-15. This is a separate issue and is being evaluated by UDOT in another study.*

US-89 will terminate one lane and merge to the existing ramps as it does at the present time. The proposed improvement of US-89 is not expected to attract traffic from other highways, but rather is designed to handle the expected increase in traffic that will normally occur due to growth within the region.

Comment: Several comments were made regarding the truck traffic on US-89. Some felt that the truck traffic was causing the problems and must be diverted to I-15. Others felt an improved US-89 would bring more truck traffic.

Response: *Section 1.3 of the EIS includes an evaluation of truck traffic based on field observations and truck driver interviews. At the time of this study, 98% of the truck traffic coming out of Weber Canyon on I-84 with a southbound destination was currently using US-89 and indicated no interest in staying on I-84 to get to I-15. The distance required to access I-15 from I-84 at the mouth of Weber Canyon is twice as long when compared to the distance to connect to I-15 southbound via US-89. Truck traffic (about 5% of AADT) will not increase because the vast majority of truck traffic uses the route at the present time.*

Comment: South Weber expressed continued concern about the use of South Weber Drive as a connector road through the Parson's Gravel Pit to the Cornia Drive Interchange.

Response: *Based on comments received, South Weber Drive will now follow the south side of the gravel pit rather than through the east side of the pit. This will eliminate the impacts to the Jack B. Parsons gravel business operation.*

8.2.5 Comments and Responses on Issues Addressed in FEIS

Comment: Farmington City had concerns about the impacts to Shepard Lane Park. The city felt the impacts were greater than described in the DEIS and that it would lose the use of the ball field.

Response: *This has been further evaluated in the FEIS and we find that even though the present fence lines will be impacted, the field size will still meet the requirements for Pony League and Babe Ruth League baseball. During the design process, the exact construction limits will be defined and an effort will be made to preserve as much of the field as possible. Any loss of park property will be replaced with adjacent property as identified in the response letter from Farmington City Dated May 14, 1996.*

Comment: South Ogden residents expressed a desire to eliminate the flyover at Harrison Boulevard and to go with a signalized intersection at that location. There have been several commercial buildings built in that area to complicate the cost issues.

Response: *This flyover has been removed from the drawings for Alternative 2 in the FEIS. A signalized intersection will be provided similar to Alternative 3.*

Should any specific design issues negatively affect the environmental impacts, a reevaluation of the document will be conducted. If it is determined that the impact is of a sufficient nature, a supplemental document will be prepared to address those concerns.

8.2.6 Agency and Public Comments

Letters submitted from state and federal agencies regarding the EIS and respective public responses are as follows:

U.S. Department of Transportation
Office of the Secretary of Transportation

Memorandum

Subject: DEIS: U.S. Route 89
Farmington to Ogden, Utah
FHWA-UT-EIS-95-01-D

Date: JAN 2 1996

From: Donald R. Trilling
Director, Office of Environment, Energy, and Safety

Reply to Attn of:

To: Eugene W. Cleckley
Chief, Environmental Operations Division

We have reviewed the draft environmental impact statement (DEIS) for upgrading U.S. Route 89 from I-15 in Farmington to Harrison Blvd. in South Ogden, Utah. We have the following comments:

Historic Sites

1 We note that there has been coordination with the Utah State Historic Preservation Officer. However, the DEIS does not reflect coordination with (or distribution of the DEIS to) the Advisory Council on Historic Preservation (ACHP). Consultation with the ACHP will be necessary to complete the Section 106 process for the sites that would be adversely affected by the alternatives under consideration. Study of potential avoidance and mitigation measures should be sufficiently completed prior to selection of the final alternative so that this information may be considered as a factor in the final alternative selection.

Public Parks

2 Rejection of measures to avoid or mitigate adverse effects to Section 4(f) park lands require more thorough documentation. Reference to increased costs of such measures is not, by itself, sufficient justification. The final EIS must clearly demonstrate that no feasible and prudent alternative exists to use of these lands and that the selected alternative incorporates all possible planning to minimize harm from each use.

We appreciate the opportunity to review the Draft EIS.

8 - 7

Response:

1. The DEIS was distributed to ACHP on December 15, 1995. MOA with FHWA, SHPO, UDOT, and ACHP is included in this document. Subsection 5.4.2 includes a detailed commentary on the effects of any alternative that would avoid the sites. Subsection 5.5.2 details the efforts to minimize harm.

2. Subsection 5.4.1 discusses the impacts of various avoidance scenarios. Planning to minimize harm is shown in Subsection 5.5.1. MOA includes "all possible planning to minimize harm."

United States Department of the Interior
FISH AND WILDLIFE SERVICE
UTAH FIELD OFFICE
LINCOLN PLAZA
145 EAST 1300 SOUTH, SUITE 404
SALT LAKE CITY, UTAH 84115

In Reply refer To
(ES)

November 6, 1995

Lynn Zollinger, P.E.
Environmental Division
Utah Department of Transportation
4501 South 2700 West
Salt Lake City, Utah 84119

RE: Draft Environmental Impact Statement (DEIS) for US-89 Corridor in Davis and Weber Counties, Utah

Dear Mr. Zollinger:

We have reviewed the referenced statement as requested in your letter of October 24, 1995. We believe the issues of concern to the U.S. Fish and Wildlife Service have been addressed and therefore, have no comments to offer.

Sincerely,

for Reed Harris
Utah Field Supervisor

8 - 8

Response:

1. Your review of the document is appreciated.

Michael O. Leavitt
Governor
Brad T. Barber
State Planning Coordinator
Catherine Quinn
Committee Chairman
John A. Harja
Executive Director

State of Utah

GOVERNOR'S OFFICE OF PLANNING AND BUDGET
Resource Development Coordinating Committee

116 State Capitol Building
Salt Lake City, Utah 84114
(801) 538-1027
Fax: (801) 538-1547

December 15, 1995

Lynn Zollinger
Environmental Division
Utah Department of Transportation
4501 South 2700 West
Salt Lake City, Utah 84119

SUBJECT: US 89 - I-15 Farmington to Harrison Boulevard/South Ogden DEIS
State Identification Number: UT951024-040

Dear Mr. Zollinger:

The Resource Development Coordinating Committee (RDCC), representing the State of Utah, has reviewed this proposal. The Division of Drinking Water comments:

> The study does not address impacts upon local water systems. Potential conflicts may include existing water lines, valve boxes, source protection, and other related factors within the project area. In some areas, routine maintenance of water lines and appurtenances buried by this project will become impractical after the project is completed. The Division of Drinking Water does not presently have the resources to identify the location of well houses, storage tanks, valve boxes or distribution lines within the project area, and must therefore refer project management to individual water systems whose boundaries may adjoin the project. A list of potentially affected water systems is enclosed.
>
> If you have any questions, please contact Garth Haslem at (801) 536-4206.

The Committee appreciates the opportunity to review this proposal. Please direct any other written questions regarding this correspondence to the Utah State Clearinghouse at the above address or call Carolyn Wright at (801) 538-1535, Nancy Keate at (801) 538-1548, or John Harja at (801) 538-1559.

Sincerely,

Brad T. Barber
State Planning Coordinator

BTB/ar

Enclosure

8 - 9

Response:

1. The concerns of the Division of Drinking Water are valid. Impacts to local water systems have been reviewed with each municipality and with Weber Basin Water Conservancy District. Avoidance of major facilities has been the guide to this point in the study. Section 3.4.6 discusses utilities and public services that have been identified. Subsection 4.1.4 discusses the impacts on the utilities and public services.

2. As the design proceeds and specific limits of construction are defined, coordination with the system owners will take place, and adjustment to maintain their facilities will become part of the construction project. We appreciate your list of potentially affected water systems.

United States Department of Agriculture

Rural Economic and Community Development.

Wallace F. Bennett Federal Building
Room 5438, 125 South State Street
Salt Lake City, Utah 84138

TDD (801) 524-3251
FAX (801) 524-4406

December 6, 1995

Utah Department of Transportation
Environmental Division
4501 South 2700 West
Salt Lake City, Utah 84119

Attn: Lynn Zollinger, P.E.

Ref.: US-89 I-15/Farmington to Harrison Boulevard/South Ogden Davis and Weber Counties, Utah Project No. *F-030(10) -- Draft EIS
--

Dear Ms. Zollinger:

This office has reviewed the referenced Draft EIS. The proposed action will not impact any RECD (formerly Farmers Home Administration) current, proposed or foreseeable project.

Thank you for the opportunity to review the draft EIS.

If you have any questions or comments, please call me at (801) 524-3251.

Sincerely,

Jim Bulkeley
State Environmental Coordinator
USDA RECD

Attachment
cc: Dave Brown, Rural Development Manager, Odgen, Utah

Rural Economic and Community Development is an Equal Opportunity Lender.
Complaints of discrimination should be sent to:
Secretary of Agriculture, Washington, D.C. 20250

Response:

1. Your review and clearance of RECD impacts is appreciated.

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

TAKE PRIDE IN AMERICA

ER-95/772

DEC 1 1995

Mr. Donald P. Steinke
Division Administrator
Federal Highway Administration
2520 West 4700 South, Suite 9A
Salt Lake City, Utah 84118

Dear Steinke:

This is in response to the request for the Department of the Interior's comments on the Draft Environmental/Section 4(f) Evaluation for US-89 (I-15/Farmington to Harrison Boulevard/South Ogden), Davis and Weber Counties, Utah.

SECTION 4(f) EVALUATION COMMENTS

1 We concur that there is no prudent and feasible alternative to the proposed project. We also concur with the proposed measures to minimize harm to Section 4(f) resources.

Park and Recreation Resources

2 We recommend that the mitigation measures to the four parks and recreation sites, which may be affected by the proposed project, be coordinated with and approved by the appropriate administering agencies. Evidence to that effect should be documented in the Final Section 4(f) Evaluation.

3 As correctly indicated in the Section 4(f) Evaluation and the November 23, 1992, letter of the Division of Parks and Recreation, Utah Department of Natural Resources, any conversion of land from Shephard Lane Park, Nichols Park, and Pioneer Park is subject to the requirements of Section 6(f) of the Land and Water Conservation Fund Act, as amended. Please note that a land conversion request under Section 6(f) may be made to the National Park Service through the Utah Department of Natural Resources. However, the National Park Service can consider a land conversion request only after Section 4(f) approval of this project by the Department of Transportation.

Historic and Archeological Resources

4 We recommend continued cooperation and coordination with the State Historic Preservation Officer in order to complete a Memorandum of Agreement (MOA) which should include measures to avoid or minimize harm to the seven historic properties and the one prehistoric archeological property, in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. We note that the distribution list (page 7-1) for the draft statement does not include the Advisory Council on Historic Preservation. A copy of this draft should be sent to the Advisory Council on Historic Preservation for their review and comment. A signed copy of the MOA should be included in the Final Section 4(f) Evaluation.

8 - 11

Response:

Section 4(f)

1. Your review of the document was appreciated and we acknowledge your concurrence with "no prudent and feasible" and "measures to minimize harm."

Parks and Recreation Resources

2. Coordination has been carried on with the administering agencies (letters included in the appendix to Chapter 5) and will continue to occur during the design process. Any designs changes affecting the parks will be reviewed with the local agencies.

3. Land conversion requests will be coordinated through the Utah Department of Natural Resources after 4(f) approval is received. Further coordination with Division of State Parks has changed the status of Nicholls Park from 6(f) to 4(f) (see letter in Appendix to Chapter 5).

Historic and Archaeologic

4. A signed copy of the MOA is included in this document. A copy of the Draft EIS was sent to ACHP on December 15, 1995.

ENVIRONMENTAL STATEMENT COMMENTS

5 The environmental statement does an adequate job of addressing project impacts to Federal trust resources.

SUMMARY COMMENTS

The Department of the Interior has no objection to Section 4(f) approval of this project by the Department of Transportation, providing that the mitigation measures discussed above are adequately documented in the Final Section 4(f) Evaluation.

We appreciate the opportunity to provide these comments.

Sincerely,

Willie R. Taylor
Director, Office of Environmental
Policy and Compliance

cc: Ms. Lynn Zollinger, P.E.
Chief Environmental Engineer
Utah Department of Transportation
4501 South 2700 West
Salt Lake City, Utah 84119

Response:

Environmental Statement Comments

5. Your statement of adequacy is appreciated.

United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, D.C. 20240

ER 95/772

MAR 2 1 1996

Mr. Donald P. Steinke
Division Administrator
Federal Highway Administration
2520 West 4700 South, Suite 9A
Salt Lake City, Utah 84118

Re: Additional Comments on US-89
Draft EIS/Sect. 4(f) Evaluation

Dear Mr. Steinke:

This is a follow up to the Department of the Interior's letter, dated December 1, 1995, on the Draft Environmental Impact Statement/Section 4(f) Evaluation for US-89 (I-15/Farmington to Harrison Boulevard/South Ogden), Davis and Weber Counties, Utah.

Our U.S. Geological Survey (USGS) has reviewed the subject environmental impact statement (EIS) and offers the following additional comments. We recognize these comments are being submitted late, but trust you will consider them in your final analysis.

Hydrologic Comments:

Technical Report No. 3

1 On page 6 of the technical report, the recharge areas for this aquifer are discussed, but never delineated on a figure. The statement is made that "Because the roadway parallels this recharge zone (and in fact runs through the center of the zone) it is likely to be impacted more than other recharge areas." However, these impacts are never discussed in the draft EIS. The East Shore aquifer system is described and modeled in the Utah Department of Natural Resources Technical Publication 93, Groundwater Resources and Simulated Effects of Withdrawals in the East Shore Area of Great Salt Lake, Utah, by D.W. Clark, C.L. Appel, P.M. Lambert, and R.L. Puryear, 1990.

Section 4.11

2 It is quite possible that increased impervious area, in this recharge zone may affect groundwater recharge to the deep aquifer. Also, the water quality effects on the deeper aquifer from the use of salt and other deicing chemicals, the possibility of transportation spills, and other pollutants associated with highway runoff are never discussed in the EIS except on page 4-15. The EIS states that an increase in impervious surface area will increase surface runoff, thereby diluting the pollutants,

8 - 13

Response:

1. Technical report No. 3 revisions were made to Section 4.11 to include more discussion on the recharge zone.

2. Section 4.11, as mentioned above, has been revised to give more detail on pollution of groundwater.

and that much of the runoff from the road surface will seep into adjacent soil formations to shallow groundwater, but the quantities of pollutants that would enter groundwater are considered small compared to pollutants contributed by normal runoff. We find no evidence supporting any of these claims given in the EIS.

Section 4.15

3 On page 4-20, the statement is made that "any transverse encroachments on floodplains of these streams will be very insignificant. New structures will be at least equivalent or greater in size than existing structures for these streams and will therefore not cause any expansion of the floodplain areas." However, in section 4.27 on page 4-31, the EIS states that the floodplains at the Haight/Baer Creeks and Holmes Creek crossings "will be expanded during construction to maintain current headwater elevations for the 100-year flood event." This apparent contradiction should be corrected.

4 The EIS should also discuss the effects of increased highway runoff on storm runoff peaks and volumes downstream. Such a discussion should include both the runoff during snowmelt events and runoff during severe summer storm events. It seems the assumption is made that all runoff from increased impervious areas will be absorbed into the groundwater system. This is a faulty assumption particularly during high-intensity rainfall and during a snowmelt event when the ground is likely to be saturated or frozen. Downstream flood peaks need to be estimated or at least studied to see if they may be increased by the project.

Section 4.23

5 On page 4-25, the EIS states that standard erosion control measures "will be implemented as defined in Utah Department of Transportation Specifications, Section 240." These standard procedures should be better defined. If erosion control measures are used as intended, any increased sediment load into the streams crossing the project corridor should be minimal.

Geologic Comments:

Section 3.3

6 Although the text does mention geologic hazards related to the Wasatch fault zone, data are omitted that express the degree of risk. No regional explanation of the Wasatch fault zone is given in the text. Modern literature indicates the Wasatch fault zone to be the longest continuous, active normal fault zone in the Western United States. This project overlies strands of the fault zone in the Weber fault segment, one of the most active

Response:

3. Apparent contradiction in Section 4.27 has been corrected.

4. Increased highway runoff from additional (26% increase ±) pavement is a very small quantity when compared with the total drainage areas. Storm drainage will be calculated during the design process and appropriate features will be incorporated, including retention basins, if needed.

5. Added a comment on erosion control.

6. Geologically, the site is located on the eastern edge of the Basin and Range Province near its border with the Rocky Mountain Province. These two provinces are separated by the Wasatch fault zone, a zone that extends from north of Malad, Idaho, to south of Levan, Utah. Youngs and others have modeled the Wasatch fault zone using two models, the first assuming the Wasatch fault is not segmented but is comprised of one long fault, and the second assuming the Wasatch fault is comprised of 7 to 10 separate segments that rupture independently. Based on Youngs and others, the latter assumption is considered the most probable of the two possibilities. Also, it appears the Weber segment of the Wasatch fault zone is capable of producing an earthquake up to

segments of the fault zone with Holocene slip rates of 1-2 mm per year. Fault scarps on the Wasatch fault zone are among the largest in the U.S. Data collected along this fault zones segment indicate that movement has recurred 4 times in the last 1,000 years. Although the Wasatch fault zone has not ruptured the surface since the area was settled about 150-years ago, "a comparison with other historic earthquakes in the region suggests that earthquakes having moment magnitudes of 7.1-7.5" (Machette and others, 1991, p. 137) have occurred in the past and will occur in the future (Machette and others, 1991, The Wasatch Fault Zone, Utah-Segmentation and History of Holocene Earthquakes: Journal of Structural Geology, v. 13, no. 2, p. 137-149); (Machette, and others, 1992, The Wasatch Fault Zone, U.S.A.: Annales Tectonicae, Special Issue, Supplement to v. VI, p. 5-39).

7 There is an inconsistency in the number of fault crossings described in Section 3.3.1 of the text and those depicted on figure 3.3.1. The EIS should address all eight crossings along the length of the project, rather than just the two crossings between Country Way and Mutton Hollow Road. These crossings of the fault are shown on the map as short disconnected fault lines. These fault segments depicted on figure 3.3.1 should be connected to more accurately depict the Wasatch fault zone. The latest geologic map of the fault zone (Nelson and Personius, 1990, Preliminary surficial geologic map of the Weber segment, Wasatch fault zone, Weber and Davis Counties, Utah: U.S. Geological Survey Map MF-2132) shows that this highway project will cross strands of the fault zone at least ten times. Several discrepancies appear between the depictions given in figure 3.3.1 and the latter USGS referenced map, including the location of the fault strands, and therefore, the probable locations of highway crossings. The locations of the fault strands given in figure 3.3.1 should be revised to reflect the locations given in the USGS referenced map. Additionally, a scale and latitude/longitude tics should be added to figure 3.3.1.

8 An extensive area of landslides (west of the corridor and south of the I-84 junction and an area of landslide scarps and deposits east and west of the project corridor) shown on the Nelson and Personius map should be included in figure 3.3.1. We also suggest that a topography overlay be added to figure 3.3.1 to permit evaluation of possible landslides (especially near the fault zone 7km to east) and the potential effects of liquefaction of Bonneville Lake deposits.

9 In the second paragraph of Section 3.3.1, locations refer to Green Road and Baer Creek Canyon but these are not shown on figure 3.3-1. Areas of likely landslides and debris flows are shown only as short segments close to the highway project and therefore could mislead the map reader by omission of the presence of landslides and debris flows. Without topography, the

Response:

magnitude 7.5. A magnitude 7.5 earthquake would likely cause road damage due to fault rupture.

7. According to the most recent map by Nelson and Personius for the Weber segment of the Wasatch fault zone, six fault strands cross the highway (two strands cross the highway twice, for a total of eight crossings) between Country Road and Hill Field Road. The locations of these fault strands are depicted on the revised Figure 3.3-1 in the EIS document. Latitude and longitude tics have also been included on that figure.

8. The landslides and topographic overlay are now depicted on the revised Figure 3.3-1.

9. The locations of Green Road and Baer Creek Canyon are indicated on the revised Figure 3.3-1. The revised Figure 3.3-1 also includes topography, a wider area of geologic mapping, and identifies the canyons which may carry debris flows and floods.

reasons for landslide hazards are not clear. In fact, there is very little relief in the areas of most landslides; apparently the incompetent nature of the Bonneville Lake beds related to liquefaction during earthquakes allows landslides on shallow relief. The map of figure 3.3-1 should describe the geologic units and identify the locations of canyons that may carry debris flows and floods.

Section 4.26

10 The EIS should address the probability that the construction of the highway will change slope stability with the likelihood of causing landslides, which might affect the highway project.

Thank you for the opportunity to provide these additional comments.

Sincerely,

Willie R. Taylor
Director, Office of Environmental Policy and Compliance

cc: Ms. Lynn Zollinger
Chief Environmental Engineer
Utah Department of Transportation
4501 South 2700 West
Salt Lake City, Utah 84119

Response:

10. Where possible, construction should avoid undercutting existing landslides. From Hill Field Road northward to 7800 South Street, where US-89 traverses landslide deposits, construction may change any existing stability which could cause movement of one or more landslides in that particular area.

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

REPLY TO ATTENTION OF

December 19, 1995

Regulatory Branch (199350258)

Mr. Lynn Zollinger, P.E.
Environmental Division
Utah Department of Transportation
4501 South 2700 West
Salt Lake City, Utah 84119

Dear Mr. Zollinger:

The Corps of Engineers' Utah Regulatory Office has completed its review of the Draft Environmental Impact Statement (DEIS) for the U.S. 89/Farmington to South Ogden project, and submits the following comments:

1 pp. 3-16 and 3-17. Surface Streams. Although stream crossings are identified in Figure 3.8-1, there is no corresponding discussion under "Environmental Consequences" regarding impacts to, and mitigation measures for, stream and riparian impacts. A Stream Alteration permit from the Utah Division of Water Rights would also be required for the stream crossings.

2 p. 4-18. Conceptual Wetland Mitigation Sites. During the design phase, appropriate sites for wetland mitigation should be addressed more specifically, based on the functions of wetlands to be impacted.

3 Appendix F. Wetlands/Floodplain. Parts II. B. and C. Based on the information provided, the stream crossings may require an individual permit from the Corps. Our final determination on whether an individual or general permit will be required for the crossings will be based on whether the designs meet the terms and conditions of our regional general permits, including appropriate mitigation for impacts to the aquatic environment.

4 Part III. All stream crossings will also require application through the Utah Division of Water Rights for a Stream Alteration Permit. In addition, there is no supporting documentation in the DEIS for the statement that the stream alterations are insignificant. This statement should be revised to reflect that further information is needed before a determination can be made on the significance of stream and riparian impacts.

8-17

Response:

1. Pages 3-16 and 3-17
Mitigation measures are listed in Section 4.15 of the FEIS. A Stream Alteration permit will be obtained from the Utah Division of Water Rights prior to construction.

2. Page 4-18
Based on the proposed wetland mitigation sites shown on Figure 4.13-1, these sites, along with mitigation plans, will be addressed in more detail and coordinated with the Corps for their approval during the design phase.

3. Appendix F Wetlands/Floodplains
As detailed design plans are developed for stream crossings and wetland mitigation, coordination with the Corps will continue to address the mitigation requirements, as well as the type of permit required.

4. As stated in #1 above, permits will be obtained. Additionally, incremental stream and riparian impacts will be mitigated by pole plantings or debris removal of a similar aerial extent in adjacent stream reaches. These enhancements will be coordinated through the Utah Division of Water Rights through the design phase as the permits are applied for.

Based on the information contained in the DEIS, it appears that UDOT's preferred alternative is the least damaging, practicable alternative. However, we will be required to conduct a public interest evaluation when application for a Department of the Army permit is made. We would, therefore, recommend close coordination with our office during the project design phase to further minimize impacts to wetlands and streams where possible.

If you have any questions, please contact Ms. Lesley McWhirter at the Utah Regulatory Office, 1403 South 600 West, Suite A, Bountiful, Utah 84010, telephone (801) 295-8380.

Sincerely,

Michael A. Schwinn

Michael A. Schwinn
Chief, Utah Regulatory Office

Response:

Lance D. Samuelson
1943 N. Kingston Road
Farmington, Utah 84025
(801) 451-9782

November 22, 1995

Mr. Lynn Zollinger, P.E.
Environmental Division
Utah Department of Transportation
4501 South 2700 West
Salt Lake City, Utah 84119

Dear Sir,

As a resident of the City of Farmington, and a member of the Farmington City Planning Commission, I wish to express my opposition to the expansion building (improvement) of US 89 offered to the joint Planning Commission and City Council Meeting of November 15, 1995.

There are numerous reasons for these objections, I will attempt to express but a few of the concerns of many Farmington residents.

1. The proposed (6) lane expressway appears to be the only selection that is acceptable UDOT. Anything short of this massive project appears to simply not be an alternative. A (6) lane expressway and a (6) lane freeway being same thing from a local resident and environmental standpoint. A (6) lane anything will tend to encourage increase traffic, including heavy truck traffic through this residential area to completely destroy a neighborhood quality that even now is threatened by the (4) lane highway currently in existence.
We would offer that a TSM would be a very viable alternative to the "expressway" option.

   Heavy truck traffic should not be encourage to use highway 89. US 89 passes through some of the most pastoral areas in northern Utah, increased noise, pollution, congestion would destroy this area. The heavy truck traffic now, causes noise pollution, heavy trucks using there "engine brakes" in the late hours now is quite enough. Widening and streamlining US 89 would only increase the traffic and exacerbate an already poor situation.

   Farmington as a city would be nothing more than a divided town, on either side of a freeway. Much the same way southern California has become, which is precisely what Farmington is trying to avoid.

2. The proposed intersection to be located at the "Cherry Hill" interchange. This proposal also appears to be the only alternative acceptable to UDOT. It would appear UDOT has in fact chosen the most aggressive, & environmentally destructive of all the plans under consideration (Alternative #1) Not only is this the largest most destructive, and most expensive, it eliminates wetlands in the area, causing mitigation elsewhere causing problems in other places.

8 - 19

Response:

1. The TSM alternative was considered, but as stated in the EIS, it does not meet the purpose and need of the project. It does not provide adequate capacity for future traffic, nor does it resolve the safety issues.

A truck study was accomplished as a part of the EIS. For trucks utilizing I-84 up Weber Canyon, US-89 is the most direct and cost effective. There is not another option for them. If they used the I-15/I-84 connection they would travel twice as far as at present.

Many communities throughout the Wasatch Front have a main highway running through their city limits. With proper access across they will not be divided.

2. Alternative 2 is the Preferred Alternative and not alternative 1 which has greater environmental impacts. The safety of this intersection will be greatly improved with the proposed interchange. Mitigation of wetlands is costly, however, where a number of smaller wetlands can be combined on one site for mitigation, it provides a much more functional facility, especially for wildlife habitat. The purpose of the frontage road is to provide a lower speed local road to gain access to the interchange. It also allows local traffic to reach neighborhood destinations without

The proposal creates a frontage road that will be a speedway for traffic, traveling southbound to connect to U272 or US 89. Ignoring the noise & pollution impact to the homes in the immediate area. The value of the homes located in this area will be reduced due to the increase of noise, and proximity to a "expressway," and a major interchange. A sound barrier in this vicinity will be totally ineffective, not to mention unsightly.

There simply are other alternatives that will be much more environmentally friendly IF this construction has to take place. Alternative Number 4 would be much more acceptable, and much less environmentally acceptable, and much less expensive.

3. The Shepard Lane proposal, an overpass 26 ft. in height. In the vicinity of one of the two business districts in the entire city of Farmington is the most outrageous of all, it will destroy the city of Farmington,creating an economic and ecological disaster, cutting the City into two separate pieces. It will create East and West Farmington, it will destroy one of the two business locations in Farmington. Smith's Food Stores, as well as K Mart have indicated that if proposal becomes reality they would be forced to leave Farmington creating the necessity for Farmington Residents to either travel to Centerville, Kaysville or Layton for shopping and other basic daily needs.

   Farmington does not have a large tax base currently, being predominately residential areas, and governmental agencies, and jails all of which generate minimal tax revenues. The tax base would be drastically reduced, requiring increased residential property tax.
   The consequence of this overpass, and related accesses at this key intersection now or at any time in the future would "place a spike in the heart" of Farmington & the rural nature and identity Farmington is striving to maintain.

4. I would like to complement UDOT on the proposal for the Glover's Lane proposal. Of everything that has been presented, this one, with a few changes to avoid or mitigate wetlands appears to make economic and environmental sense.

One of the the main questions being asked me by my constituents is why? The master plan calls for the West Davis Expressway to be constructed in the west of Farmington and other areas that are not developed, why not initiate plans to begin construction on this project, that would be much more cost effective. The proposed expenditure of $150 million on an expansion of a section of highway that no one except UDOT, and a few Olympics enthusiasts wanting to get traffic to Snow basin is simply not good business or good government. We would encourage UDOT to consider a less aggressive proposal.

Sincerely yours,

Lance D. Samuelson

cc: James Hansen, U.S. Congress
Orrin Hatch, Utah Senate

Response:

encountering the higher speed traffic on US-89. Impacts due to noise and air pollution have been evaluated in the EIS and mitigation is planned.

3. The grade separation evaluation for Shepard Lane included much local involvement. Maintaining Shepard Lane under US-89 provides the least impact to the existing commercial developments. As development in Farmington continues, traffic volumes will increase placing more demands on the highway. The Preferred Alternative will provide a safer and more efficient crossing of US-89. Commercial developments continue to locate at any major highway interchange. These developments will not be eliminated by the highway improvements.

4. Glovers Lane is not part of the proposed project. Burke Lane expansion to the west is probably the one you mean.

Kelly J. Flint
32 North 3175 East
Layton, Utah 84040
Telephone (801) 544-2143
Facsimile (801) 593-9234

December 19, 1995

Delivered Via Fax and U.S. Mail

Mr. Lynn Zollinger
Chief Environmental Engineer
Utah Department of Transportation
4501 South 2700 West
Salt Lake City, Utah 84119

Re: Environmental Impact Statement
Proposed Expansion of U.S. 89

Dear Mr. Zollinger:

I hereby submit the following comments with respect to the environmental impact statement ("*EIS*") currently being prepared by or under the direction of the Utah Department of Transportation ("*UDOT*") with respect to the proposed reconstruction and expansion of U.S. 89 through Davis County:

1. Intersection of U.S. 89 and I-15. I am concerned with the effect that increased capacity and traffic on U.S. 89 will have on the intersection of U.S. 89 and I-15 in Farmington. Currently, the two south-bound lanes of U.S. 89 merge into the three south-bound lanes of I-15. During the morning commute, traffic slows significantly as it attempts to make this merge. Often, traffic backs up on U.S. 89 over the current overpass and can stall as far as the traffic light. The proposed expansion of U.S. 89 into a six-lane expressway (three lanes in each direction) will significantly increase the capacity of U.S. 89, and will only worsen this merge, with what will be three south-bound lanes of U.S 89 attempting to merge with the three south-bound lanes of I-15.

My concern is increased by published reports that UDOT currently plans no construction of additional I-15 lanes in Davis County. These reports include an article that appeared as recently as the Friday, December 15, 1995 edition of the *Deseret News*. I believe that the proposed expansion of U.S. 89 will result in an ever more serious bottleneck as six lanes of traffic are expected to merge into three.

I ask that the EIS specifically address the problems involved with this intersection. I ask in particular that the EIS address the increased congestion, traffic delays and potential for

8 - 21

Response:

1. Your concern is valid regarding the merging of traffic from US-89 and I-15. It is presently a problem and will not be totally resolved until I-15 is upgraded. UDOT is currently in the process of completing an MIS study on this section, which is the first step towards making the needed changes. The present situation will not change because of the improvements to US-89. There will continue to be two lanes (US-89) merging into three lanes (I-15). It is beyond the scope of this project to solve the I-15 capacity problems.

accidents that will result from the additional capacity on U.S. 89 and the required merger of six lanes into three. I further ask that the EIS specifically address the noise pollution that will likely result at and around this intersection as vehicles, and in particular large trucks, attempt this merge.

2. *Air Quality Standards.* I understand that the I-15 corridor through Davis County is currently designated by the U.S. Environmental Protection Agency as being a non-attainment area under federal air quality standards, and that this limits or precludes the expansion of the I-15 corridor through Davis County. I assume that the EIS addresses the effect on air quality that will result from the proposed expansion of U.S. 89. I ask that the EIS specifically address the effect on air quality that the reconstruction and expansion will have as U.S. 89 approaches I-15 in Farmington and the three south-bound lanes of U.S. 89 are merged into the three south-bound lanes of I-15.

3. *Design of and Signage for the Current Traffic Control Lights along U.S. 89.* I have for ten years lived on the East side of U.S. 89 in Layton. I commute daily to Salt Lake City. I firmly believe that the limited improvements constructed over the past few years, including the traffic lights in Farmington, Kaysville, Layton and South Weber, have greatly improved traffic safety and ease of use of the highway. However, I am concerned by the widely differing designs that have been used and the varying signage that has been installed. For example:

(a) Some traffic lights allow north-bound traffic to make a left (west) turn against on-coming (south-bound) traffic, while others do not.

(b) The approach to some lights is marked by flashing yellow lights, while the approach to others is not.

(c) Several of the lights affect only south-bound traffic. The indicators presented to north-bound traffic are inconsistent. Some semaphore poles bear no indicators for north-bound traffic, while one is marked with lighted green arrows.

(d) Right turn lanes at some intersections are too tight to allow for large trucks. (I note that the south-bound right turn lane at Oakhills Drive in Layton was recently widened, following numerous problems and repeated damage to trucks, trailers and the guardrail.)

I have discussed interim and long-term improvements with UDOT personnel a number of times over the past several years, and they have made quite clear UDOT's animosity to interim improvements. I have also worked with the Utah Legislature and the State Road Commission to obtain a commitment and funding for such improvements. I am concerned

Response:

2. Air quality issues are evaluated in the EIS (see Section 4.9). As mentioned previously, the I-15 problems will be evaluated in a separate study. Non-attainment designation is only for ozone. CO and PM_{10} are within the allowed parameters.

3. The design and construction of the current signals on US-89 were accomplished by UDOT using the latest traffic engineering technology and lane configurations. They also were on a limited budget and attempted to provide the best service to the public that was possible. Each location was evaluated based on its unique characteristics and constraints. This was not a part of this study.

that UDOT may intentionally be confusing the signage and traffic lights along U.S. 89 in order to reduce their effectiveness, disprove UDOT"s critics, and maintain pressure and momentum for the proposed reconstruction and expansion.

I ask that the EIS specifically address the design of and signage associated with the current traffic lights on U.S. 89, and whether safety could be improved in the near term by making the signage and design of the existing traffic lights consistent.

4. Additional Interim Safety Measures. I understand that the recently-completed study of U.S. 89 concludes that the proposed expansion and reconstruction into a limited-access expressway is the most effective way to accommodate safely anticipated traffic loads. I am concerned by what I expect will be the long lead time required to complete engineering and design studies, design the expansion, obtain the necessary funding, obtain the needed property and rights of way, and construct the improvements. My concern is heightened by the reductions in federal funding and the competition for funds that will undoubtedly come from the well-publicized need to reconstruct the I-15 corridor through Salt Lake County, the long-range need to construct a highway on the west side of Davis County, and the light-rail system proposed for Salt Lake County, among other projects.

I believe that the corridor could be further improved and made more safe in the short run by (a) installing additional traffic lights, (b) removing the raised median strip where it still exists, and (c) widening and lengthening acceleration and deceleration lanes at major intersections (such as at the larger subdivisions along U.S. 89). I believe that these improvements could be constructed quickly and for a relatively modest cost.

I request that the EIS specifically address the impact on the interim safety of U.S. 89 through Davis County of the expected construction time schedule for the proposed expansion, as well as the potential for, and the advisability, cost and impact of, additional interim safety improvements.

5. Impact on Property Values and Tax Revenues. I am convinced that the proposed reconstruction and expansion of U.S. 89 will seriously impact the value of residential property located along the corridor. I believe the impact will be particularly severe for property on the east side of the highway. This reduction in property values will affect not only the property owners, but also the amount of property tax collected by Davis County and the municipalities in which the properties are located. I ask that the EIS specifically address the impact the reconstruction will have on property values and amount of property taxes that will be collected by the County and the various cities, as well as the effect reduced tax rolls will have on the provision of municipal services.

Response:

4. Your concerns about timing of construction are valid and shared by many including UDOT. Efforts to obtain funding are an ongoing activity by state and local officials. Until funds are available, a schedule cannot be established. This study cannot evaluate construction timing.

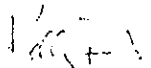
As far as interim improvements, UDOT will continue to evaluate immediate needs and take action as they have already done with the six traffic signals.

5. There is no question regarding the heavy impacts on existing residences. Section 4.5 of the EIS discusses the relocation impacts. Section 4.6 covers economic impacts. Property tax reduction will only be temporary and nominal relative to the overall property tax base. Displaced families will need new homes so the tax base will be reestablished.

*6. **Light Rail and Other Mass Transit.*** I am very concerned by reports that the proposed light rail system, even if constructed, will not extend into Davis County any time soon. I understand, in fact, that no studies are being conducted with respect to a line running north of downtown Salt Lake City. Given the air quality and other problems presented by ever-increasing traffic, I believe that alternative modes of transportation must be developed. I ask that the EIS specifically address such alternatives, and how the proposed expansion might at least be coordinated with mass transit programs.

*7. **Conclusion.*** I appreciate the opportunity to present these comments, and request that each be considered and addressed in the EIS. If you have any questions or comments regarding this letter or the issues I have raised, please contact me.

Respectfully,



Kelly J. Flint

KJF/

Response:

6. The mass transit alternative is evaluated in Subsection 2.2.3. UTA is the only mass transit option that is viable at this time. With only 2% of the commuter traffic currently being served, it is not a feasible alternative to improving the highway. Future studies regarding transportation will include evaluation of other modes of mass transit as conditions change relative to air quality and the automobile.

APPENDIX A
PROJECT CORRESPONDENCE

APPENDIX A

Table of Contents

Letter/Agency	Date
US Fish and Wildlife	Mar 5, 1996
UDOT (US Fish and Wildlife Service)	Feb 6, 1995
Division of Wildlife Resources	Apr 3, 1995
UDOT (DWR)	May 5, 1995
Division of Wildlife Resources	Aug 23, 1994
US Fish and Wildlife	Aug 6, 1993
Versar (DWR)	Jul 16, 1993
US Fish and Wildlife	Dec 14, 1992
US Fish and Wildlife	Aug 28, 1992
US Fish and Wildlife	Mar 11, 1992
Division of Wildlife Resources	Mar 9, 1992
Division of Wildlife Resources	Nov 23, 1992
Division of Wildlife Resources	May 23, 1991
US Army Corps of Engineers	Feb 25, 1994
Versar (US COE)	Aug 27, 1993
Versar (US COE)	Nov 12, 1992
Versar (DEQ)	Nov 13, 1992
USDA Soil Conservation Service	Aug 17, 1993
USDA Soil Conservation Service	Oct 21, 1992
Farmington City	Nov 29, 1993
Fruit Heights City	Jun 21, 1993
Office of Planning and Budget	Mar 11, 1992
Weber Co. Council of Governments	Oct 19, 1992
UDOT (Cultural)	Mar 15, 1994
Division of State History	Mar 10, 1994
Division of Parks and Recreation	Nov 23, 1992
Davis County Schools	Mar 30, 1993
Davis County Schools	Nov 23, 1992
Davis County	Nov 2, 1992
Davis County	Oct 26, 1992
Fruit Heights City	Apr 1, 1992
Layton City	Jul 15, 1992
Farmington City	Jul 16, 1992
Utah Transit Authority	Jul 26, 1995
Union Pacific Railroad	May 15, 1996

United States Department of the Interior
FISH AND WILDLIFE SERVICE
UTAH FIELD OFFICE
LINCOLN PLAZA
145 EAST 1300 SOUTH, SUITE 404
SALT LAKE CITY, UTAH 84115

In Reply Refer To
(ES)

March 5, 1996

Laura A. Romin, Wildlife Program Coordinator
Utah Department of Transportation
4501 South 2700 West
Salt Lake City, Utah 84119-5998

RE: *HDP-9124(002) [formerly F-030(10)]; I-15 Farmington to Harrison Boulevard/South Ogden

Dear Ms. Romin:

In response to your letter of February 27, 1996, the U.S. Fish and Wildlife Service concurs with your "no effect" determination for threatened and endangered species and critical habitat. This concurrence is valid for 12 months unless a change in the project occurs at which time you should reevaluate your actions for possible impacts to listed species.

We appreciate your interest in conserving endangered species.

Sincerely,

Robert D. Williams
Assistant Field Supervisor

UDOT
GOING THE EXTRA MILE

Michael O. Leavitt
Governor

W. Craig Zwick
Executive Director

Clint Topham
Deputy Director

State of Utah
DEPARTMENT OF TRANSPORTATION

4501 South 2700 West
Salt Lake City, Utah 84119-5998
(801) 965-4000
Fax: (801) 965-4338

Commission
Glen E. Brown
Chairman
Todd G. Weston
James G. Larkin
Ted D. Lewis
Hal M. Clyde

February 6, 1995

Robert D. Williams
Assistant Field Supervisor
U.S. Fish and Wildlife Service
145 East 1300 South, Suite 404
Salt Lake City, UT 84115

Re: F-030(10); I-15 Farmington to Harrison Boulevard/ South Ogden

Dear Bob:

Correspondence with your office concerning the subject project has been ongoing since March 1992. This letter serves as an update for threatened and endangered species impacts. Similar to the findings of previous letters (the most recent from your office dated August 6, 1993), project activities are not likely to adversely impact any listed or proposed threatened or endangered species. We recently contacted UDWR to confirm specific wildlife issues (see attached letter dated August 23, 1994). We will proceed with this project unless you have additional concerns.

Sincerely,

Laura A. Romin
Wildlife Biologist

cc: David Berg, UDOT
Lorraine Richards, UDOT
Bill Gedris, FHWA
Lindi Gregory, Versar

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE RESOURCES

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
Robert G. Valentine
Division Director

Northern Region
515 East 5300 South
Ogden, Utah 84405-4599
801-479-5143
801-479-4010 (Fax)

APR - 7 1995

April 3, 1995

Joel Hall
Versar Inc.
734 East Utah Valley Dr.
No. 100
American Fork, Utah 84003

Subject: Deer killed within US-89 corridor

Dear Joel:

The following is the best data available on numbers of deer killed on the US-89 corridor between S. Ogden and Farmington. This data represents only the number of deer picked up by Division of Wildlife personnel between July 1 and June 30 of each year.

YEAR	No. DEER
92-93	214
91-92	187
90-91	111
89-90	280
88-89	533
87-88	248
86-87	92
85-86	123
84-85	94

If we can be of additional assistance or if you have questions please contact me at this office.

Sincerely,

Rory Reynolds

Rory Reynolds
Habitat Manager

Memorandum UTAH DEPARTMENT OF TRANSPORTATION

DATE: May 5, 1995

TO: Rory Reynolds
Habitat Manager, UDWR

FROM: Laura Romin
Wildlife Biologist

SUBJECT: F-030(10); SR89, I-15 to Harrison Blvd.

Attached is a letter dated April 20, 1995 to Versar, Inc. stating UDOT's current position concerning deer fencing along the subject project. After evaluating our discussion with your office (March 29, 1995) and reviewing accident statistics along SR89, it does not appear that deer fencing is desirable at this time. We can reevaluate our decision should there be a substantial increase in deer-vehicle collisions following project construction. If you have any further comments or suggestions, don't hesitate to contact me at any time. We appreciate your time and effort to discuss this project with us.

cc: Lorraine Richards, UDOT
Rodney Terry, UDOT
John Burton, UDOT
Dyke LeFevre, UDOT
Denis Stuhff, UDOT
Joel Hall, Versar

State of Utah
UTAH DEPARTMENT OF TRANSPORTATION

Michael O. Leavitt
Governor
W. Craig Zwick
Executive Director
Dyke M. LeFevre, P.E.
Region One Director

REGION ONE
169 North Wall Avenue
P.O. Box 12580
Ogden, Utah 84412-2580
(801) 399-5921
Fax: (801) 399-5926

Transportation Commission
Glen E. Brown
Chairman
Todd G. Weston
Vice Chairman
James G. Larkin
Ted D. Lewis
Hal M. Clyde
Shirley J. Iverson
Secretary

April 20, 1995

Mr. Joel S. Hall
Versar, Inc.
734 East Utah Valley Drive, Suite No. 100
American Fork, Utah 84003

RE: Project F-030(10); SR-89, I-15 to Harrison Blvd.

Dear Joel:

Following our meeting at the State Division of Wildlife Resources, Northern Region Headquarters, discussions were held at the Region One office concerning deer/vehicle accident mitigation strategies involving deer fence. We examined the alternatives discussed during the meeting, and it is our opinion that deer fence would not serve as an effective barrier to the intrusion of deer into the US-89 highway corridor.

The option of installing deer fence along the highway right-of-way line in the typical manner would not be effective on this project. The access openings provided for US-89 vehicle ingress/egress movements would allow for the unrestrained movement of deer at these locations.

The option of installing a deer fence along the mountainside above the residential development has potential for controlling a portion of the deer herd. But, this option would create other significant problems; access to the mountainside for recreational users would be restricted to specific access locations, deer would congregate and starve in large numbers along the easterly side of the fence during hard Winters and maintenance of the fence would be a significant addition to UDOT's Maintenance budget. This fence would not control the deer herd that is resident within the area already partially developed with new houses. These deer would be confined between a fence along the mountainside and the highway, and they would present increased risks for a vehicle accidents.

We are concerned with the deer/vehicle accidents, and are actively seeking solutions to effectively reduce this type of accident. However, at this time we do not think that the installation of deer fence on this project is an effective solution for this type of accident.

Sincerely,

Rodney A.Terry, P.E.
Preconstruction Engineer

RT/JEBurton

CC: Dyke LeFevre
Denis Stuhff
Laura Romin

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE RESOURCES

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
Robert G. Valentine
Division Director

Northern Region
515 East 5300 South
Ogden, Utah 84405-4599
801-479-5143
801-479-4010 (Fax)

August 23, 1994

Lindi Gregory
Versar Inc.
4155 Harrison Blvd.
Suite 307
Ogden, Utah 84404

Dear Lindi:

This is in response to your letter on August 11 concerning wildlife within the US-89 corridor.

There are no known winter roost sites for bald eagle within one-half mile of the US-89 corridor.

Deer kill numbers for 1992-3 are not available at this time. However, based on preliminary review the number of deer killed on the highway during this time period would be around the 100 mark.

Deer fencing is an option. For fencing to be effective two options exist. First, a frontage road would need to be in place with limited access and all accesses would have to have cattle guards sufficiently wide to prevent deer from jumping across. Second, construct the deer fence higher on the bench along the Davis Aqueduct. This would be the preferred option and probably the least expensive.

The Weber River is the only fishable stream along the corridor.

If you need additional information or clarification please call me at this office.

Sincerely,

Rory Reynolds
Habitat Manager

United States Department of the Interior
FISH AND WILDLIFE SERVICE

UTAH STATE OFFICE
2060 ADMINISTRATION BUILDING
1745 WEST 1700 SOUTH
SALT LAKE CITY, UTAH 84104-5110

TAKE PRIDE IN AMERICA

In Reply Refer To

August 6, 1993

AUG 10 1993

Lindi Gregory, RLA
Landscape Architect
Versar Architects & Engineers, Inc.
734 E. Utah Valley Drive, Suite 100
American Fork, Utah 84003

RE: US-89 EIS Corridor Study

Dear Ms. Gregory:

In response to your July 16, 1993 letter requesting an update of information associated with the referenced project, there is little additional information to add other than what has been previously provided. The addition of the Burke Lane Study Area in Section 24, T.3 N., R.1 W. will impact additional wetlands if developed for light industry and commercial enterprises. For this reason, I suggest that you contact the U.S. Army Corps of Engineers in regards to permit requirements. Their address is:

U.S. Army Corps of Engineers
1403 South 600 West
Suite A
Bountiful, Utah 84010

Thank you for informing this office of the proposed project and providing the opportunity to comment.

Sincerely,

Robert D. Williams
State Supervisor

Versar ARCHITECTS & ENGINEERS, INC.

July 16, 1993

Mr. Rory Reynolds, Regional Habitat Manager
State of Utah, Department of Natural Resources
Division of Wildlife Resources
515 East 5300 South
Ogden, Utah 84405-4599

SUBJECT: US-89 EIS CORRIDOR STUDY UPDATE

On behalf of the Utah Department of Transportation (UDOT) and the Federal Highway Administration (FHWA), Versar is nearing the completion of the US-89 Highway Corridor Study from Farmington to South Ogden, Utah. While the original study area was the US-89 corridor from the Burke Lane interchange to the I-84 interchange, there have been two extensions which have enlarged the study area. In late 1991, the highway corridor was extended north from the I-84 interchange to Harrison Avenue and in late spring of 1993, the area west of Farmington between Burke Lane and Clark Lane, was added. The two enclosed location maps outline the complete corridor study area.

The UDOT added the Burke Lane Study Area because of Farmington City's desire to have the existing Burke Lane interchange modified to allow for access to the area west of I-15. Farmington City's Master Plan calls for future light industry and commercial development in this area.

Our field visits throughout the highway corridor and in the Burke Lane area have found no threatened or endangered species, but have identified wetlands and streams located within the project area. We have also identified a wide variety of wildlife and vegetation.

During the course of the project, Versar has been in contact with you and your agency several times concerning wildlife in general, deer in particular, fishing in the Weber River, and other concerns. Copies of your letters are enclosed for your review. At this time we would like you to update any information you feel is necessary and concur on the finding of no threatened or endangered species within the Burke Lane Study Area. Also, please feel free to express any comments or concerns your agency may have with the project.

Thank you for your very prompt attention to this matter. Please feel free to call me at our Ogden office (479-8246) if you have any questions.

Sincerely,

Lindi Gregory

Lindi Gregory, R.L.A.
Landscape Architect

Enclosures

cc: Ed Norat, UDOT
Lorraine Richards, UDOT
Boyd Wilson, Versar

United States Department of the Interior

FISH AND WILDLIFE SERVICE
FISH AND WILDLIFE ENHANCEMENT
UTAH STATE OFFICE
2078 ADMINISTRATION BUILDING
1745 WEST 1700 SOUTH
SALT LAKE CITY, UTAH 84104-5110

TAKE PRIDE IN AMERICA

In Reply Refer To

(FWE)

December 14, 1992

DEC 1 : 1992

Lindi Gregory, RLA
Landscape Architect
Versar Architects & Engineers, Inc.
734 E. Utah Valley Drive, Suite 100
American Fork, Utah 84003

Dear Ms. Gregory:

In response to your November 11, 1992 letter requesting clarification on the presence of endangered species and specifically the endangered bald eagle in the project are, our concern was regarding project activities during the winter months. As noted in our August 28, 1992 letter, bald eagles use large cottonwood and other trees along the Weber River during the winter months as roost sites. To avoid disturbance to winter roosting birds we recommend that no or low impact work activities be conducted from November to March or within .5 mile of a roost site.

Your letter indicated that no trees were located within a 250-foot study corridor of the proposed road construction. If you extend the study corridor out to a .5 mile along the Weber River and no trees are located that would be suitable roost sites for the bald eagle then no restriction in work activities is recommended.

We hope this information clarifies our position relative to the presence of threatened or endangered species affected by the proposed action.

Sincerely,

Robert D. Williams
State Supervisor

United States Department of the Interior

FISH AND WILDLIFE SERVICE
FISH AND WILDLIFE ENHANCEMENT
UTAH STATE OFFICE
2078 ADMINISTRATION BUILDING
1745 WEST 1700 SOUTH
SALT LAKE CITY, UTAH 84104-5110

TAKE PRIDE IN AMERICA

In Reply Refer To

(FWE)

August 28, 1992

SEP - 8 1992

Lindi Gregory, R.L.A.
Landscape Architect
Versar Architects & Engineers, Inc.
380 West 920 North
Orem, Utah 84057

RE: U.S. Highway 89 Environmental Impact Statement

Dear Ms./Mr. Gregory:

We have reviewed the reference request concerning the proposed project and potential alternatives. Though much of the area is being developed for housing and various other functions associated with semi-rural environment, there are still some remanent wooded, orchard and wetland areas remaining that are undeveloped along the project route.

The Fish and Wildlife Services (Service) basic concerns are the potential impacts to several wetlands near the southern portion of the project, indicated as project beginning on your attached location map, and several intermittent drainages that are crossed at various locations by the existing highway.

The wetlands are considered to be palustrine emergent seasonal wetlands and provide habitat for a number of migratory bird species and small mammals. The small drainages all originate in the higher areas of foothills and mountains immediately to the east of the existing highway alignment. For the most part these drainages are vegetated with trees and shrubs. These intermittent drainages also provide habitat to many species of migratory birds and small mammals.

The only major drainage along the project route is the Weber River near the north terminus of the project. The Weber River does support a cold water fishery. The Service is not aware of any fisheries in the other drainages the highway crosses. However, this subject should be discussed with the Utah Division of Wildlife Resources for confirmation.

Bald eagles (*Haliaeetus leucocephalus*) use the large cottonwood and other trees along the Weber River as winter roost sites. Our records indicate that there are no other threatened or endangered species or any critical habitat along the project route.

In summary, the Services major concern is the removal of vegetation associated with the several drainages and potential encroachment of fill materials into wetlands. Relocation of the drainages due to the necessary crossings should be avoided.

Thank you for informing this office of the proposed project and providing us the opportunity for early input.

Sincerely,

Robert D. Williams
State Supervisor

cc: DWR-SLC
COE-Bountiful

United States Department of the Interior

FISH AND WILDLIFE SERVICE
FISH AND WILDLIFE ENHANCEMENT
UTAH STATE OFFICE
2078 ADMINISTRATION BUILDING
1745 WEST 1700 SOUTH
SALT LAKE CITY, UTAH 84104-5110

TAKE PRIDE IN AMERICA

In Reply Refer To

(FWE)

March 11, 1992

Lindi Gregory, L.A.
Versar Architects and Engineers
380 West 920 North
Orem, Utah 84057

Dear Ms. Gregory:

In response to your letter of March 3, 1992, concerning the U.S. Highway 89 Environmental Impact Statement, the U.S. Fish and Wildlife Service advises that no federally listed threatened or endangered species are known to occur on the project site.

Also, we have determined that there will be no significant impacts to wetlands, floodplains, or other wildlife resources.

We appreciate your interest in conserving endangered species.

Sincerely,

Clark D. Johnson
Assistant Field Supervisor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE RESOURCES

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Timothy H. Provan
Division Director

Northern Region
515 East 5300 South
Ogden, Utah 84405-4599
801-479-5143
801-479-6292 Fax

March 9, 1992

Lindi Gregory
Versar
1117 N. Country Hills Dr. #8
Ogden, Utah 84403

Dear Lindi:

This is the information you requested concerning the fishery values on the Weber River near Highway 89.

The section of the Weber river from the diversion at the mouth of Weber Canyon downstream to Weber Canal Diversion is a Class 3 fishery. Utah Division of Wildlife Resources stocks catchable rainbow trout (mean size 10 inches) in this area from June through mid-November each year. The area is also stocked with 12,000 brown trout fingerlings (mean size 3 inches) each August. Wild mountain whitefish and cutthroat are also found there. The Division last sampled the fisheries in this area in 1987. The estimated population of game fish was 783 fish per mile. The predicted biomass of trout was 101 pounds per acre.

Listed are the fish species found in this area.

Brown trout
Cutthroat trout
Rainbow trout
Mountain Whitefish
Speckled and Longnose dace
Mottled sculpin
Redside shiner
Carp
Green sucker
Mountain sucker
Utah sucker

This section of the Weber River is a very popular fishery with the public. Rainbow trout dominate angler harvest.

Sincerely,

Rory Reynolds
Regional Habitat Manager

an equal opportunity employer

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Timothy H. Provan
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE RESOURCES

Northern Region
515 East 5300 South
Ogden, Utah 84405-4599
801-479-5143
801-479-6292 Fax

RECEIVED
NOV 30 1992
OGDEN, UTAH

November 23, 1992

Lindi Gregory
Versar A&E, Inc.
4155 Harrison Blvd.
Ogden, Utah 84403

RE: Update of information for US-89 Draft EIS

Dear Lindi:

The deer kill count from 7/1/90 to 6/30/91 is 139 deer killed. To date there are no known threatened or endangered species that occur within the project boundary.

Sincerely,

Rory Reynolds

Rory Reynolds
Habitat Manager

an equal opportunity employer

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Timothy H. Provan
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE RESOURCES

Northern Region
515 East 5300 South
Ogden, Utah 84405-4599
801-479-5143
801-479-6292 Fax

RECEIVED
MAY 24 1991
OGDEN, UTAH

May 23, 1991

Lindi Gregory
Versar A&E, Inc.
4155 Harrison Blvd.
Suite 307
Ogden, Utah 84403

RE: Proposed upgrade of SR-89, I-15 to I-84.

Dear Ms. Gregory:

After reviewing information on the highway upgrade and meeting with your personnel, as well as interested Division personnel, we offer the following general comments regarding the Division of Wildlife Resources' position on the proposed project.

1. A major safety concern is the increased risk of deer/auto collisions. Based on DWR big game highway mortality records, approximately 189 deer were killed from 1989 to 1990, 333 deer killed from 1988 to 1989, 155 deer killed from 1987 to 1988.

2. To date there are no threatened or endangered species that occur in the project boundary.

3. Damage which occurs to riparian areas should be mitigated on-site on an acre-for-acre basis. Impacts to stream channels and associated fish habitat should be mitigated on a habitat unit for habitat unit basis.

4. Efforts should be taken to maintain water quality. Erosion and sedimentation should be minimized. Springs in the area should be protected.

Thank you for your cooperation in this planning effort. Please contact Rory Reynolds (479-5143) if you have additional questions or requests.

Sincerely,

Jack A. Rensel

Jack A. Rensel
Regional Supervisor

JAR/RR

an equal opportunity employer

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

REPLY TO
ATTENTION OF

RECEIVED
MAR - 2 1994
American Fork, Utah

February 25, 1994

Utah Regulatory Office (IP)(199350258)

Lindi Gregory
Versar Inc.
734 East Utah Valley Drive, No. 100
American Fork, Utah 84003

Dear Ms. Gregory:

Reference is made to your letter requesting our concurrence with the practicability of Alternative "D" for the Burke Lane Interchange in Farmington. This is included in a proposal by the Utah Department of Transportation (UDOT) to reconstruct Highway 89 from Farmington to South Ogden. Ms. Jeanette Gallihugh of this office has been working closely with you to coordinate this project for wetland delineations and Section 404(b)(1) compliance.

Based upon our last meeting with Congressman James Hansen, Farmington City, and your office, along with the additional information supplied to us, it appears that Alternative "D" is the least-damaging practicable alternative for permitting purposes, with sufficient compensatory mitigation to be forthcoming. However, UDOT has not applied for a permit for any part of the project and the proposal has not been put out on public notice, accordingly, we have not conducted a public interest review. Indeed, even the draft EIS has not yet been completed for our review. Past experience with similar projects would indicate the preferred alternative (the expressway design and Alternative "D" for the Burke Lane Interchange) may be permittable. However, this statement will not prejudice our decision whether to issue or deny a permit application upon completion of our evaluation.

If you have any questions, please contact Ms. Gallihugh at the Utah Regulatory Office, 1403 South 600 West, Suite A, Bountiful, Utah 84010, or telephone (801) 295-8380.

Sincerely,

B Carter

Brooks Carter
Chief, Utah Regulatory Office

Versar INC.

August 27, 1993

RECEIVED
AUG 30 1993
Ans'd.....

Miss Jeanette Gallihugh
U.S. Army Corps of Engineers
1403 South 600 West, Suite A
Bountiful, Utah 84010

SUBJECT: US-89 DRAFT EIS WETLANDS COORDINATION

Dear Jeanette,

Please concur with the following by signing the signature block at the end of this letter.

You have received and reviewed copies of the following wetland delineation field study reports for US-89 -

- Final Wetlands Delineation Field Study Report For U.S. Highway 89 Farmington to South Ogden, Utah. This report covers wetlands within the US-89 study corridor from the Burke Lane interchange in Farmington to the I-84 interchange in Uintah. The date on this report is January, 1992.

  Addendum to Final Wetlands Delineation Field Study Report for U.S. Highway 89 Farmington to South Ogden, Utah. This report covers wetlands within the study corridor extension area between the I-84 interchange and the intersection of Harrison Boulevard and US-89, as well as frontage road realignments which were made after the first study was completed. The date on this report is July, 1992.

  Addendum #2 to Final Wetlands Delineation Field Study Report for U.S. Highway 89 Farmington to South Ogden, Utah. This report covers wetlands within the Burke Lane extension. The date on this report is July, 1993.

For your convenience all three reports have been compiled into one binder and attached to this letter.

Also attached to this letter, for your review, are copies of the wetland sections from the Draft EIS for the corridor. You have previously received copies of the four corridor alternatives and two possible Burke Lane area access alternatives.

734 EAST UTAH VALLEY DRIVE, NO. 100 AMERICAN FORK, UTAH 84003 TELEPHONE: 801-756-6666 FAX: 801-756-8881

The Utah Transportation Department of Transportation (UDOT) has selected Alternative 2 - Expressway as the Preferred Alternative. The decision was based on an overall weighing of all environmental impacts, traffic capacity and safety needs, and cost. Alternative 2 provides the best combined solutions to meeting these needs.

Alternative A was selected for the Burke Lane area because it best meets the needs of Farmington now, and in the future, with a minimum impact to the environment. Recent expansion of Farmington City west and south of the Burke Lane interchange has re-emphasized the need to restore access to this area. Two Davis County complexes have already been constructed along Clark Lane and plans for additional residential developmentss are underway. Alternative B took access away from this developing area. All the alternatives considered and studied involved impacts to wetlands, therefore there was no practicable alternative to avoiding wetlands. However, the proposed action includes all practicable measures to minimize harm to wetlands.

Alternative 2 - Freeway, including the Burke Lane area, will impact 18.8 acres of wetlands. All the identified wetlands have been defined as isolated wetlands. Construction impacts to wetlands will be caused by fill material placement for the widening of roadway, development of frontage roads, and construction of interchange ramps. Potential mitigation sites include runoff drainage swales, inside interchange ramps, and enlargement of existing wetland areas in Farmington, South Weber City, Baer Creek ravine, and Holmes Reservoir drainage area. An Individual Permit will be necessary before construction and mitigation can take place.

Because of the many communities, agencies, and individuals involved, the US-89 Corridor Study has been a long and ever changing project. I wish to thank you and your agency for your patience, cooperation, input, and help. If you have any questions concerning this information or wish to express any comments, please feel free to call me at 479-8246. You may also add written comments below the signature block at the end of this letter.

RECEIVED
OCT 20 1993
American Fork, Utah

Following your review and signing of this letter please return it in the enclosed addressed envelope. Thank you for your prompt attention to this matter.

Sincerely,

Lindi Gregory

Lindi Gregory, R.L.A.
Wetland Consultant

Enclosure

cc: Boyd Wilson, Versar
Lorraine Richards, UDOT

As a representative of the U.S. Army Corps of Engineers, I have reviewed the above letter and attached information and concur with the findings discussed.

See Notes Below.

Jeanette Gallihugh 10-19-93

U.S. Army Corps of Engineers Date

Jeanette Gallihugh

Alternative 2 appears to be a practicable alternative for permitting with sufficient mitigation to be proposed. However, Alternative A, for the Burke Lane Interchange, should not be included in Alternative 2 since it increases the wetland impacts by over 7 acres. This should be analyzed as another alternative, or at least acknowledged as only a part of the preferred alternative, that may not be the least damaging option.

There is some discrepancy in the wetland mapping along Highway 89 by Shepards Lane. There should be a continous line of wetlands, on the west side 89, from the Frontage Road north to Shepards Lane. This has been discussed with Lindi Gregory and the location noted.

Also the wetlands in this same area and some identified for the Burke Lane Interchange are considered adjacent to Shepards Creek and a spring fed drainage (they converge together) originating on the east side of 89. It appears that the average flow here surpases 5 cfs and would be considered below the headwaters. Therefore, these wetlands are considered adjacent to this drainage, not isolated.

Versar ARCHITECTS & ENGINEERS, INC.

November 12, 1992

RECEIVED
NOV 13 1992
Ans'd.....

Miss Jeanette Gailihugh
U.S. Army Corps of Engineers
1403 South 600 West, Suite A
Bountiful, Utah 84010

SUBJECT: US-89 DRAFT EIS WETLANDS COORDINATION

Dear Jeanette,

As part of the official project agency documentation for the US-89 Draft EIS would you please review the following summary of coordination and cooperation and verify your concurrence by signing the signature block at the end of the letter.

The U.S. Army Corps of Engineers (COE) was invited to the Project Agency Scoping Meeting held May 16, 1991 at the Weber Basin Water Conservancy District. The COE was represented by Anthony Vigil. The purpose of the meeting was to explain the project, present a range of possible alternatives, and receive agency input on the study corridor. Mr. Vigil stated Karl Hugo would be the COE's Project Manager for this project.

On June 27, 1991, Lindi Gregory and Boyd Wilson, of Versar A&E, met with Mr. Hugo to discuss the study corridor and determine how the field study would be conducted. A set of recently flown aerials of the study corridor were used to help orient Mr. Hugo with the study corridor area. It was determined a corridor 500' from the existing highway centerline would be the wetland field study corridor. The field study was begun in July and completed by mid-August.

On September 5, 1991, Miss Gregory met with Mr. Hugo to discuss the findings of the field study and outline a report format. Mr. Hugo asked for a format with a section each for jurisdictional wetlands and non-jurisdictional wetlands. He directed Versar A&E to list upland drainage ditches in the report as non-jurisdictional wetlands. A short time after this meeting Mr. Hugo left the COE and Mr. Vigil became the Project Manager.

On October 7, 1991, Miss Gregory met with Mr. Vigil to familiarize him with the project. At this meeting the draft field study report prepared under Mr. Hugo's direction was discussed. Mr. Vigil explained the COE had recently received some new guidance from their Sacramento office on drainage ditches and felt the report should be revised to reflex the new guidance.

A revised draft report of the field study was given to Mr. Vigil on October 16, 1991, for his review. On November 20, 1991, Miss Gregory met with Mr. Vigil to discuss his comments concerning the field study report. Mr. Vigil's comments included:

- do not include non-jurisdictional wetlands in the final report,

- most drainage ditches were upland and not wetlands, the exception being the ditches in Farmington,

- asked Versar A&E to reassess two possible wetland sites, one each in Farmington and Fruit Heights.

A revised final report was completed and forwarded to the COE on January 27, 1992.

During the first week of June, 1992, field reassessments were done on the two sites Mr. Vigil requested in November, 1991. The Farmington site was found to be a wetland, while the Fruit Heights site was not. Also, since the project boundaries had been extended and some revisions were made to the alternatives, a second field study was completed for the new project areas. An addendum field study report was forwarded to the COE in July, 1992.

On October 5, 1992, Miss Gregory met with Miss Jeanette Gallihugh, the COE's new Project Manager for this project, to review the project and look at possible wetland mitigation sites. It was felt the best mitigation practice would be to first enlarge and enhance existing wetlands in the corridor before creating new wetlands. Final wetland mitiagtion sites will be selected following the selection of a preferred alternative for the highway project.

As always, Versar A&E has enjoyed working with the COE. Thank you for your time and cooperation.

Sincerely,

Lindi Gregory

Lindi Gregory, RLA
Landscape Architect

As a representative of the U.S. Army Corps of Engineers, I have reviewed the above letter and concur with the items discussed.

Jeanette Gallihugh 11-18-92

U.S. Army Corps of Engineers Date

cc: B. Wilson
UDOT
file

Versar ARCHITECTS & ENGINEERS, INC.

DEC - 7 1992

November 13, 1992

Ms. Shelly Quick,
Envrionmental Scientist
Utah Departmetn of Environmental Quality
Division of Environmental Response and Remediation
1950 West North Temple
Salt Lake City, Utah 84116

SUBJECT: US-89 DRAFT EIS HAZARDOUS WASTE COORDINATION

Dear Shelly,

As part of the official project agency documentation for the US-89 Draft EIS would you please review the following summary of coordination and cooperation and verify your concurrence by signing the signature block at the end of the letter.

During the fall of 1991, a field study was undertaken to determine potential hazardous waste sites within the US-89 study corridor. Based on the field study, 19 potential hazardous waste sites were identified for further study. Further study included reviews of the Utah Department of Environmental Quality Leaking Underground Storage Tank (LUSTS) list, EPA Superfund Program (CERCLIS) site list, registered underground storage tank lists, a study of aerial photos dating back to 1958, and phone contacts with Shelly Quick at the DEQ concerning the status of any cleanup projects. Based on all information gathered, Technical Report No. 9 - Preliminary Identification of Potential Hazardous Waste Sites Along U.S. Highway 89 Farmington to South Ogden, Utah was written.

In September, 1992 a copy of Technical Report No. 9 was forwarded to the DEQ for review. On September 22, 1992, a meeting was held to determine what, if any, additional site work or soil sampling would be necessary on the sites in the report. The meeting was attended by representatives from DEQ, UDOT, FHWA, and Versar A&E. It was determined no additional site work or soil sampling was needed.

In November, 1992, Ms. Quick reviewed a copy of sections 3.11 POTENTIAL HAZARDOUS WASTE SITES and 4.17 HAZARDOUS WASTE IMPACTS from the Draft EIS, US-89 Farmington to South Ogden.

734 E. UTAH VALLEY DRIVE, SUITE 100 • AMERICAN FORK, UTAH 84003 • TELEPHONE (801) 756-8888

As always, Versar A&E has enjoyed working with the DEQ. Thank you for your time and cooperation.

Sincerely,

Lindi Gregory

Lindi Gregory, RLA
Landscape Architect

As a representative of the Utah Department of Environmental Quality, Division of Environmental Response and Remediation, I have reviewed the above letter and concur with the items discussed.

Shelly Quick 11-30-92

DEQ, Division of Environmental Responses and Remediation, Date

United States
Department of
Agriculture

Soil
Conservation
Service

P.O. Box 11350
Salt Lake City, Utah 84147

August 17, 1993

AUG 18 1993

Lindi Gregory RLA
Landscape Architect
Versar Architects and Engineers Inc.
734 E Utah Valley Drive Suite 100
American Fork, Utah 84003

Dear Ms. Gregory:

We have completed our review of the Burke Lane Area Addition to US-89 EIS Study as requested in your letter of July 13, 1993.

Because of high water table, none of the soils in this project area qualify for any class of Important Farmlands (unique, prime or state wide important). Enclosed is the completed AD-1006.

If we can be of further assistance, please call on us.

Sincerely,

Ferris Allgood

FERRIS P. ALLGOOD
State Soil Scientist

Enclosure

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request
Name Of Project: Burke Lane Interchange	Federal Agency Involved
Proposed Land Use: US-89 Improvement Project	County And State: Davis Co. Utah
PART II *(To be completed by SCS)*	Date Request Received By SCS

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

Major Crop(s)	Farmable Land In Govt. Jurisdiction	Amount Of Farmland As Defined in FPPA
	Acres: %	Acres: %
Name Of Land Evaluation System Used	Name Of Local Site Assessment System	Date Land Evaluation Returned By SCS

	Alternative Site Rating			
	Site A	Site B	Site C	Site D
PART III *(To be completed by Federal Agency)*				
A. Total Acres To Be Converted Directly				
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site				
PART IV *(To be completed by SCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*				
PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points			
1. Area In Nonurban Use				
2. Perimeter In Nonurban Use				
3. Percent Of Site Being Farmed				
4. Protection Provided By State And Local Government				
5. Distance From Urban Builtup Area				
6. Distance To Urban Support Services				
7. Size Of Present Farm Unit Compared To Average				
8. Creation Of Nonfarmable Farmland				
9. Availability Of Farm Support Services				
10. On-Farm Investments				
11. Effects Of Conversion On Farm Support Services				
12. Compatibility With Existing Agricultural Use				
TOTAL SITE ASSESSMENT POINTS	160			
PART VII *(To be completed by Federal Agency)*				
Relative Value Of Farmland *(From Part V)*	100			
Total Site Assessment *(From Part VI above or a local site assessment)*	160			
TOTAL POINTS *(Total of above 2 lines)*	260			

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

Reason For Selection:

United States
Department of
Agriculture

Soil
Conservation
Service

P.O. Box 11350
Salt Lake City, Utah 84147

October 21, 1992

OCT 28 1992

Ms. Lindi Gregory, R.L.A.
Landscape Architect
Versar Architects & Engineers, Inc.
734 E. Utah Valley Drive, Suite 100
American Fork, Utah 84003

Dear Ms. Gregory:

This in in response to your request concerning Important Farmland determinations for Versar Architects and Engineers, Inc., SR-89, Farmington to South Ogden, Project No. F-030(10).

Parcel #1 (Site A - See Form AD-1006) is not being farmed. It lacks a developed irrigation water supply and does not quality as Important Farmland.

Parcel #2 (Site B) is being used as a fruit orchard and irrigated alfalfa. The soil map unit is KgD Kilburn gravelly sandy loam, 6 to 10 percent slopes which qualifies as Unique Farmland.

Parcel #3 (Site C) is a nonirrigated native pasture. It lacks a developed irrigation water supply and does not qualify as Important Farmland.

A Farmland Conversion Impact Rating Form AD-1006 is enclosed. If we can be of further assistance, please call on us.

Sincerely,

FERRIS P. ALLGOOD
State Soil Scientist

Enclosure

• U.S. GOVERNMENT PRINTING OFFICE 1984-451-159/1004

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)* Federal Highway Adm.	Date Of Land Evaluation Request Sept. 1992
Name Of Project SR-89 Farmington to Ogden (F-030(10)	Federal Agency Involved
Proposed Land Use	County And State
PART II *(To be completed by SCS)*	Date Request Received By SCS 10/2/92

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply -- do not complete additional parts of this form).*	Yes ☒	No ☐	Acres Irrigated	Average Farm Size
Major Crop*(s)* Alfalfa - Orchard	Farmable Land In Govt. Jurisdiction Acres: %		Amount Of Farmland As Defined in FPPA Acres: %	
Name Of Land Evaluation System Used Soil Survey	Name Of Local Site Assessment System Soil Survey		Date Land Evaluation Returned By SCS	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly				
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site				
PART IV *(To be completed by SCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	None	3.6	None	
B. Total Acres Statewide And Local Important Farmland Unique				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*		50		

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points			
1. Area In Nonurban Use	15		5	
2. Perimeter In Nonurban Use	10		1	
3. Percent Of Site Being Farmed	20		10	
4. Protection Provided By State And Local Government	20			
5. Distance From Urban Builtup Area	0			
6. Distance To Urban Support Services	0			
7. Size Of Present Farm Unit Compared To Average	10			
8. Creation Of Nonfarmable Farmland	25			
9. Availability Of Farm Support Services	5		5	
10. On-Farm Investments	20			
11. Effects Of Conversion On Farm Support Services	25			
12. Compatibility With Existing Agricultural Use	10			
TOTAL SITE ASSESSMENT POINTS	160		21	
PART VII *(To be completed by Federal Agency)*				
Relative Value Of Farmland *(From Part V)*	100		50	
Total Site Assessment *(From Part VI above or a local site assessment)*	160		21	
TOTAL POINTS *(Total of above 2 lines)*	260		71	

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

Reason For Selection:

A. Lacks irrigation development
B. Qualifies (Soil KgD Kilburn gravelly sand loam 6-10% slopes)
C. Lacks irrigation development

Historic beginnings

Farmington City Corp.
1892

130 North Main
P. O. Box F
Farmington, Utah 84025
Telephone (801) 451-2383

ROBERT W. ARBUCKLE
Mayor

MAX FORBUSH
City Manager

DONA SCHARP
Recorder/Finance Officer

LYNETTE BINGHAM
Treasurer

PATRICIA N. ACHTER
GREGORY S BELL
GARY E. ELLIOTT
JAMES C. PARSELL
L. HANK SEMADENI
Council Members

November 29, 1993

Lindi Gregory
Versar, Inc.
1117 Country Hills Dr. #8
Ogden, Utah 84403

RECEIVED
DEC 1 1993
OGDEN, UTAH

RE: West Access From Burke Lane Interchange

Dear Ms. Gregory:

On November 2, 1993, representatives of Farmington City, Versar, and the Army Corps of Engineers met to discuss issues relating to the future reconfiguration of the Burke Lane Interchange. Of particular interest to the City was the review of alternatives for a western leg to the interchange which was not part of its original construction. The City's preferred alignment for this west access would run southwesterly from the interchange and tie into 1100 West Street at Clark Lane (100 North). The Corps of Engineers has expressed some concern about his alignment since it would, apparently, impact existing wetlands.

The purpose of this letter is to outline Farmington City's projections for future development in this area, as set forth in the City's Comprehensive General Plan, and to provide additional information in support of the 1100 West connection to the Burke Lane Interchange.

The Farmington City Comprehensive General Plan contains goals, policies, and recommendations intended to guide future development of the City. One of the Plan's stated purposes is "to make the City more functional, beautiful, decent, healthful, interesting, and efficient. This purpose is in accord with the broad objective of local government to promote the health, safety, order, convenience, prosperity, and general welfare of the community. The comprehensive nature of the Plan contributes to this purpose by evaluating the relationships between the many elements which affect the physical development of the entire community."

Perhaps the greatest physical elements affecting development and circulation in the City, and the ability of the City to provide adequate services to protect the general welfare of its citizens, are U.S. Highways I-15 and 89. These problems are identified in the General Plan through such statements as:

> "(a) critical problem is created by the fact that the two major highways running through the City, Interstate 15 and Highway 89, severely limit east/west circulation;"

"Circulation within the City is severely limited by the location of the major arterials passing through the City from north to south. This situation will become more and more critical if additional access is not developed to provide for more efficient emergency services and for the convenience of the City's growing population"

After identifying this critical problem, the General Plan goes on to establish the City's policy on this issue and make recommendations for mitigation of the problem. These recommendations include:

"Encourage UDOT to construct and maintain east/west collectors over I-15 and Highway 89;"

"Any plans to upgrade and improve Highway 89 should include elements to preserve and increase safe and convenient access between the east and west sides of Farmington;"

"The City of Farmington is negatively impacted by improved development of U.S. 89 if the project development does not include improvements through the connection to I-15. The intersections of the improved U.S. 89 and existing I-15 occurs at Burke Lane. The improved U.S. 89 will exacerbate the existing problems at this intersection. Reestablishment of Burke Lane with improvements to the intersection of the two major highways is necessary to mitigate the impact of this project and should be included in the proposed project scope instead of delaying this portion of the U.S. 89 improvements. Separation of community areas created by limited access highway construction could also be mitigated with this approach."

"There is no doubt that provision needs to be made for diverging highways in the vicinity of the Cherry Hill/North Farmington junction. However, the design solution should provide for adequate access between east and west Farmington by providing a connection between Main Street and 1875 North and should be sensitive to the unique character of the area.

"Long range recommendations of the "I-15 Corridor Study" (March 1991), prepared by the Wasatch Front Regional Council for the Utah Department of Transportation, include redesign of the Burke Lane interchange. This redesign should include an overpass or underpass to provide access into West Farmington, reestablishing the traditional alignment of Burke Lane. The City should encourage UDOT to include the reconstruction of the Burke Lane Interchange to occur concurrently with the improvements to Highway 89;"

"The development of I-15 and the Burke Lane Interchange eliminated or impaired access to many existing parcels of property. In order to help mitigate this impact a system of frontage roads is needed to provide the necessary access to east/west minor arterials, the Interstate system, and/or crossing points between east and West Farmington. The frontage road system should be designed, funded, and installed by UDOT;"

"The I-15 Corridor Study also recommends that a new interchange be constructed in the vicinity of Glover Lane. This could be either a redesign of the existing South Farmington interchange or a new interchange located far enough north of Glover Lane to minimize potential impacts on existing residential

development in that area. Any new interchange, or redesigned interchange, should provide for access to West Farmington;"

The goal of the City, again as defined in the General Plan, is "to insure that all property is capable of being provided with safe and convenient access". It is our position that additional and improved access to the western portion of the City is necessary now and will become more and more critical in the future, **regardless of the type or extent of future development that may occur in West Farmington.** Future development will not create a new problem. It will only exacerbate an existing one.

There is, we believe, an obvious need to provide additional access for West Farmington. The question is, why must the access from Burke Lane tie into 1100 West? We believe this alignment is desirable for at least two good reasons. First, it will route traffic where traffic needs to go. There are existing uses west of I-15 that are significant traffic generators and will likely encourage similar future development. These uses include the City's only industrial areas, the Davis County Criminal Justice Complex, and the Davis County Fairpark. The balance of the property in West Farmington is currently in what is referred to as "rural/residential" (half acre agricultural lots) and commercial agricultural use. Assuming that 100% of traffic to the Criminal Justice Complex and 80% to 90% of additional traffic uses the State Street / Clark Lane route, our estimate of current traffic volumes in this area is as follows:

USE	AVERAGE DAILY TRIPS
Criminal Justice Complex	1,568
Fairpark Special Events	1,152
Residential/Agricultural	416
Industrial	180
TOTAL	**3,316**

The General Plan establishes the policies that any future industrial uses should consist of "clean light industrial development in an aesthetically pleasing environment at limited locations, removed from residential development, and in close proximity to the freeway system" with "appropriate buffering between all residential and non-residential uses to help mitigate undesirable impacts". In developing the Plan it was reasoned that the current location of industrial zoning could be expanded somewhat because I-15 and the Criminal Justice Complex provide natural limits to the north, east, and south while additional buffering, and a transition in use to the west, could be provided by a zone of office/business park development. The extension of 1100 West Street to Burke Lane would serve as the physical western boundary of non-residential expansion. The Plan makes the following recommendation:

> "Future industrial development should be confined to the ... area ... bounded by I-15, Clark Lane (100 North), and the future extension of 1100 West Street. In order to create a transition from industrial uses to residential uses which are anticipated west of this area, a buffer zone designated for office/business park development should be established between industrial zoning and the road which will connect 1100 West to the Burke Lane interchange."

We conservatively estimate that future development in the area could include as much as 100 additional acres of office, business park, and/or light industrial uses. There has even

been some discussion about a possible Davis County Community College in this vicinity. In addition, the Wasatch Front Regional Council has projected that all available residential land in Davis County may be developed as soon as the year 2010. Assuming a normal increase in traffic generated by the expansion of existing uses, along with traffic generated by projected future development, our estimate of future traffic volumes in this area is as follows:

USE	AVERAGE DAILY TRIPS
Criminal Justice Complex	3,000
Fairpark Special Events	1,500
Residential/Agricultural	11,600
Office Park/Industrial	10,000
TOTAL	**26,100**

This brings us to the second reason for the desirability of the Burke Lane/1100 West connection.

One of the City's primary goals in both current and future transportation planning is to "minimize increased traffic on local streets in residential areas". The present routes from I-15 to the Criminal Justice Complex, Fairgrounds, and industrial area take over 3,300 vehicles per day through residential streets, directly past a junior high school, and within a block of an elementary school. This represents a very real life/safety hazard which is difficult to deal with now and would become unmanageable, and we believe unacceptable, if alternative and more convenient routes are not provided for the projected 26,000 vehicles per day which may result from future development.

The City, through it's General Plan, recognizes the intrinsic value, both aesthetically and functionally, of high quality wetlands. However, we believe that when it comes to a choice of reducing or eliminating life/safety concerns or impacting a wetland, the benefits to life, health and the general welfare must surely outweigh the displacement such wetlands.

I hope this information will be helpful to you in dealing with the Army Corps of Engineers and completing the EIS for U.S. Highway 89. If I can be of any further assistance please let me know.

Sincerely,

Craig A. Hinckley, AICP
City Planner

cc: Mayor and City Council
Planning Commission
Max Forbush, City Manager
file

Greg Bell, Mayor
Members of the City Council
Farmington, Utah

Feb. 15,1994

Dear Council Members,

This letter is for the purpose of encouraging your continued support for the Burke Lane Freeway Exit system, for gaining access to the County Criminal Justice Complex via 1100 West. It is our opinion that this approach would be the most efficient, least invasive adaptation of existing road systems.

Those of us living on this end of town, and we are speaking for the people across the freeway from our end of State Street as well, have already been affected by the Criminal Justice Complex. We are seeing the land which the Master Plan intended to remain open for agricultural use and horse property eroded by the construction of the Complex. It is our opinion that the other Burke Lane proposals would aggravate the erosion of that Master Plan intent.

We heartily endorse the development of the Davis County Fairgrounds, and we would like to see their needs considered as part of this equation. As much as we love the activities which go on there, and would like to see them continue and prosper, the traffic which is generated from the facilities can be quite heavy at times. It would seem much more sensible to bring the road in from the west, from 1100 West, which would direct the Fair Ground traffic more efficiently.

In addition, considering the Master Plan again, it is our understanding that the City intends in the future, to extend the Farmington Creek Recreational Trail out towards the Great Salt Lake. We cheer that concept, and towards that end, are planning to work with the City and the State to clean up that small area along the frontage road for public use. Anything which will reduce the traffic in this part of town has our hearty endorsement. Bringing County Complex traffic in from 1100 West would minimize the traffic congestion around the pedestrian overpass, and the future recreational trail route.

Thank you for being so considerate of our neighborhood in your planning. We appreciate the hard work that you do, and we are glad you are approaching this thoughtfully.

Sincerely,

Clark Lane Historic
Preservation Association

RECEIVED
FEB 2 2 1994
OGDEN, UTAH

Mayor Blair [illegible]

City Administrator Belva M. Provost

FRUIT HEIGHTS CITY

281 South Mountain Road • FRUIT HEIGHTS, UTAH 84037 • Phone 546-0861

Council: David M. Barton
David L. Garrett
Richard D. Muhlestein
Bruce F. Shepherd
Dean V. Wiberg

June 21, 1993

JUN 2[illegible] 1993

Mr. Lynn Zollinger
UTAH DEPARTMENT OF TRANSPORTATION
District One--Preconstruction Engineer
P.O. Box 12580
Ogden, Utah 84412

RE: U.S. HIGHWAY 89
Improvements through Fruit Heights City

Dear Mr. Zollinger:

During the past several months, the Fruit Heights City Council has conducted a series of public input meetings regarding the future improvements to U.S. Highway 89 as outlined in the draft EIS prepared by VERSAR Engineers. These input meetings were held at the request of the many property owners of our City who will be directly affected by the proposed highway improvements. These meetings have been very helpful in clarifying the needs of the City and evaluating the impacts created by the proposed improvements to the Highway.

Fruit Heights City has very little commercial development. Our commercial development is important to us as our tax base is small and the commercial properties are of great assistance in generating tax base and providing needed services to the residents of our community. In reviewing the various U.S. 89 alternatives, alternatives 1 and 2 have a severe negative impact on ALL of our commercial properties. Under these alternatives, all but two of our commercial businesses would be eliminated and the remaining two would be damaged by the highway improvements. This is of grave concern to our City. While we understand the need to improvement the Highway corridor, we feel that alternative design concepts need to be reviewed so that the negative impacts on our commercial and residential properties will be minimized or eliminated.

Based on the citizen input we have received and the additional concerns of the City Council, Fruit Heights City hereby requests the Utah Department of Transportation direct VERSAR Engineers to reevaluate the following issues which are of vital concern to Fruit Heights City:

1. **200 NORTH INTERCHANGE:**
   The proposed design of this interchange "consumes" a very large area and will require the acquisition of several homes and the elimination of the current Pine Ridge Nursery. We request that this design be reevaluated and study the following items:
   a. Review alternative interchange designs such as the construction of a "Modified Urban Interchange" which consume less property.

b. Review a modified design using retaining walls etc. which would "compact" the structure and save acquisition of the adjacent properties.

c. Fruit Heights City would like to obtain a copy of the traffic projections for this interchange. Many of the residents question the need for extended stacking distances across the overpass structure given the current traffic patterns.

d. Every effort needs to be made to "save" the Pine Ridge Nursery and adjacent residential homes. We feel that there are design alternatives which could be used to accomplish this objective and we would like an opportunity to share these items with you.

2. NICHOLLS ROAD PEDESTRIAN OVERPASS

In previous correspondence with UDOT, Fruit Heights City has requested two pedestrian overpass structures as a part of alternatives 1 and 2; one at the south end of Mountain Road and one at Nicholls Road. UDOT has responded by providing an overpass structure at the south end of Mountain Road; however, the Nicholls Road overpass does not exist on any of the alternatives considered. While two pedestrian overpasses many seem unnecessary to UDOT, we desire to emphasize the need for both structures as they provide two very distinct functions.

The South Mountain Road overpass will primarily serve as a pedestrian link across U.S. 89 to the popular Cherry Hill Campground recreation area. In addition, there is a vital need for pedestrian access to the Nicholls Park area west of the highway. This park is heavily used by the residents living directly east of the park and the overpass is critical for safe access for these, and all other residents of the Community. Further, the Davis County School District has recently shifted school boundaries, and the school children living east of Highway 89 in the vicinity of Nicholls Road will be going to Burton Elementary, west of the Highway. The pedestrian overpass at Nicholls Road and the completion of the west side frontage road system (complete with sidewalk) will provide safe access across U.S. 89 for school children to the school.

3. FARMINGTON JUNCTION INTERCHANGE (Cherry Hill Area)

Given the current design of alternatives 1, 2 and 3, at the Farmington Junction, serious impacts will be placed on the adjacent commercial area. Three businesses will be lost to the City and the parking area for Cherry Hill Campground will be greatly impacted. Now that Farmington City is considering alternative interchange designs to the south, it would be highly advisable to reconsider the interchange design at the Farmington Junction. In general, we would like to see the following items considered:

a. Review alternative intersection designs such as the "modified urban interchange." The objective here would be to make the structure more compact and thus minimizing the impact on the adjacent properties.

b. Review the concept of moving the interchange to the south to eliminate the purchase and closure of the existing commercial businesses.

It is our understanding that due to the extension of the EIS requested by Farmington City, that the Public Hearing on the EIS is being postponed until sometime in February of 1994. This being the case, it appears that there is amply time to reconsider the above items prior to the hearing. We support and understand the need for the proposed highway work; however, the very best planning and design must be utilized to make this transportation system a harmonious part of our community.

We request the opportunity to meet with you and VERSAR Engineers to present our concerns and alternative concepts. Our City Administrator will be calling you to schedule this meeting. Thank you for you consideration.

Respectfully,

FRUIT HEIGHTS CITY CORPORATION

By: _____
Mayor Blaine L. Nelson

cc: City Council Members
City Administrator
City Engineer
VERSAR Engineers

OFFICE OF PLANNING AND BUDGET
Resource Development Coordinating Committee

Charles E. Johnson, CPA
Office Director
Brad T. Barber
Office Deputy Director
Rod D. Millar
Committee Chairman
John A. Harja
Executive Director

116 State Capitol
Salt Lake City, Utah 84114
(801) 538-1027

MAR 1 2 1992
RJN/LR 317*
Utah Department of Transportation

March 11, 1992

Jim Naegle
Department of Transportation
4501 South 2700 West
Salt Lake City, UT 84119

SUBJECT: Department of Transportation/ Davis & Weber Counties: Environmental Impact Statement; Revised Notice of Intent

Dear Mr. Naegle:

The Resource Development Coordinating Committee, representing the State of Utah, has reviewed this Revised Notice of Intent. The Utah Geological Survey comments:

> There are numerous landslides mapped adjacent to Highway 89, and the transportation corridor is close to the surface trace of the Wasatch fault zone. The UGS recommends that the Environmental Impact Statement to be prepared for this project include an assessment of geologic conditions present along the corridor. The EIS should include, in addition to a discussion of general geology and other potential geologic hazards, an inventory and hazard assessment of landslides potentially affected by slope modification, and an assessment of earthquake hazards.

The Committee appreciates the opportunity to review this proposal. Please direct any other written questions regarding this correspondence to the Utah State Clearinghouse at the above address, or call Carolyn Wright at (801) 538-1535 or John Harja at (801) 538-1559.

Sincerely,

Brad T. Barber
State Planning Coordinator

BTB/rpj

WEBER COUNTY

Weber Area Council of Governments
(W.A.C.O.G.)

MEMBERS
Farr West
Harrisville
Huntsville
North Ogden
Ogden
Plain City
Pleasant View
Riverdale
Roy
South Ogden
Uintah
Washington Terrace
West Haven
Weber County
Weber Co. School District
Weber State University
Ogden City School District

OCT 21 1992

October 19, 1992

Versar Engineering
734 E. Utah Valley Drive, Suite 100
American Fork, UT 84003

SUBJECT: U.S. 89 Alternative Design

Dear Representatives:

The Weber Area Council of Governments has reviewed the four alternative designs developed for U.S. 89 in North Davis and Southern Weber County and the supporting material of impacts, benefits and costs.

Upon a motion of WACOG at its October 5, 1992 meeting, which was seconded and passed unanimously, that Weber Area Council of Governments supports the Alternative #2, a full expressway design for this historic highway and wages U.D.O.T. and the State Transportation Commission to so adopt this alternative and proceed as rapidly as possible to obtain funding for the construction of this important link between Ogden and Salt Lake City.

Sincerely,

Mayor Brent Frost

Brent Frost, Chairman By SS
Weber Area Council of Governments

2510 Washington Boulevard, 1st Floor Radisson Plaza • Ogden, Utah 84401 • Telephone: (801) 399-8710

State of Utah
UTAH DEPARTMENT OF TRANSPORTATION

Michael O. Leavitt
Governor
W. Craig Zwick
Executive Director

4501 South 2700 West
Salt Lake City, Utah 84119-5998
(801) 965-4000
FAX: (801) 965-4338

RECEIVED
MAR 18 1994

Transportation Commission
Samuel J. Taylor
Chairman
Wayne S. Winters
Vice Chairman
Todd G. Weston
James G. Larkin
Ted D. Lewis
Shirley J. Iverson
Secretary

March 15, 1994

Lindi Gregory
Versar, Inc.
1117 Country Hills Dr.
Ogden, Ut 84403

RE: F-030(10): US-89, I-15 Farmington Jct to Harrison Blvd., Weber and Davis Counties. Section 106 compliance, U.C.A. 9-8-404. Determination of Eligibility and Finding of Effect Documentation and Review.

Dear Ms. Gregory:

This letter is to advise you that the Determination of Eligibility and Finding of Effect (DOE/FOE) document for the subject project surveyed by Sagebrush Archaeological Consultants, Inc. has been reviewed by the Utah State Historic Preservation Office (USHPO) for purposes of Section 106 (federal) and U.C.A. 9-8-404 (state). They have concurred with the UDOT's Determination of Eligibility and Finding of Effect within the subject project's area of potential effects, as outlined in the DOE/FOE (see attached).

I very much appreciate all your assistance and hard work on this project. Should you need additional information or assistance, please feel free to contact either myself at 965-4327 or Don Southworth of my staff at 965-4218.

Sincerely,

David W. Berg, P.E.
Chief, Environmental Division

DWB/dds

(Attachment)

cc: (w/o attachment)
FHWA (HBR-UT)

an equal opportunity employer

Department of Community & Economic Development
Division of State History
Utah State Historical Society

Michael O. Leavitt
Governor
Max J. Evans
Director

300 Rio Grande
Salt Lake City, Utah 84101-1182
(801) 533-3500
FAX: (801) 533-3503

March 10, 1994

MAR 1994

David W. Berg, P.E.
Chief for Environmental Division
Utah Department of Transportation
4501 South 2700 West
Salt Lake City, Utah 84119-5998

RE: F-030(10); US-89, I-15 Farmington Jct to Harrison Blvd., Weber and Davis Counties.

In Reply Please Refer to Case Number: 92-1636

Dear Mr. Berg:

We concur with the determinations of eligibility and effect as outlined on "Table 1: Impacts to Eligible Sites" and "Table 2: List of Non-eligible sites" which were included in document "Determination of Eligibility and Finding of Effect for Project No. F-030(10); US-89, I-15/Farmington Jct. to Harrison Blvd/So. Ogden" prepared by the FHA, Utah Division and UDOT.

We further concur with the finding of No Historic Properties for the area identified as "Versar's Burke Lane Second Extension Modification Project."

We would be happy to discuss mitigation options for the adversely effect properties when an alternative has been selected. As we mentioned in our meeting, we believe there may be alternatives to HABS/HAER documentation which would be more useful and cost effective.

This information is provided to assist the UDOT with its Section 106 responsibilities as specified in 36 CFR 800. If you have any questions, please contact Roger Roper at 533-3561 or myself at 533-3563.

Sincerely,

Barbara L. Murphy
Preservation Planner

BLM:92-1636 UDOT/DOEx21/NPx26/AEx17/NAEx42

cc: Don Southworth, UDOT

Board of State History: Marilyn C. Barker • Dale L. Berge • Boyd A. Blackner • Peter L. Goss
David D. Hansen • Carol C. Madsen • Dean L. May • Christie Needham • Thomas E. Sawyer • Penny Sampinos • Jerry Wylie

Norman H. Bangerter
Governor
Dee C. Hansen
Executive Director
Jerry A Miller
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF PARKS AND RECREATION

1636 West North Temple, Suite 116
Salt Lake City, Utah 84116-3156
801-538-7220

NOV 24 1992

November 23, 1992

Ms. Lindi Gregory, RLA
Landscape Architect
Versar Architects & Engineers, Inc.
734 E. Utah Valley Dr. Suite 100
American Fork, UT 84003

Re: Section 6(f) Recreation Properties within US-890 Draft EIS Study Corridor

Dear Lindi:

I appreciate receiving the draft EIS study information for the US-89 corridor from Farmington to South Ogden as it relates to Section 6(f) recreation properties.

We have no preference or concerns about any of the various alternatives if the 6(f) requirements are met, i.e., properties converted to non-outdoor recreation use be replaced with property of equal fair market value and reasonable equivalent location and utility. Because the three Land and Water Conservation Fund sites (Shepard Lane Park, Nicholls Park and Pioneer Park) were development projects, the replacement may be property already in public ownership as long as it has not been previously designated or managed for public outdoor recreation purposes.

Because it is necessary that Section 6(f) conversions first be approved by the Division of Parks and Recreation and then by the National Park Service, please keep us informed as to the progress of this project.

If you have questions, please feel free to call me at 538-7354.

Sincerely,

Lyle T. Bennett
Grants Coordinator

an equal opportunity employer

Davis County Schools

APR 15 1993

March 30, 1993

Lindi Gregory, R.L.A.
Landscape Architect
Versar Architects and Engineers, Inc
734 East Utah Valley Drive, Suite 100
American Fork, Utah 84003

Dear Ms. Gregory:

This is in response to your letter of January 25, 1993 concerning the Knowlton Elementary playing fields as they would be affected by modifications to Highway 89.

Enclosed is a letter from Knowlton Elementary School which is also the position of the Davis School District.

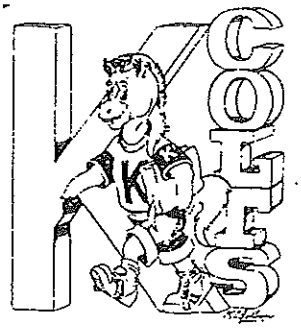
We appreciate your letter requesting our input and would also request that you keep us updated concerning the plans relative to this project.

Sincerely,

Roger C. Glines
Business Administrator

Enclosure

Board of Education: Louenda Downs, President / Dan R. Eastman, Vice President / Dixie H. Hill / Barbara A. Smith
Robert L. Thurgood / Dr. Richard E. Kendell, Superintendent
45 East State Street / Farmington, Utah 84025 / (801) 451-1261 / (801) 451-1251



Knowlton Elementary

VELDA S. MORROW
Principal

Dear Ms Gregory:

Knowlton Elementary would like to respond to your letter of January 25, 1993 concerning the impact the three build alternatives would have on Knowlton Elementary School.

The primary purpose of a school is to provide a safe environment in which learning can take place. Alternative 1 and Alternative 2 negatively impact our safe environment and our learning facility. We do appreciate your concern for Farmington City's use of our playing field for after school soccer--we are a community school--but we are appalled that the educational impact on Knowlton was not even mentioned let alone treated as a concern.

Knowlton Elementary has 992 students. We are a year round school with students in session continuously every month of the year. This fact increases the impact on our school tremendously. There is no down time when students are not here.

Our play area where students congregate during lunch time and recess break is to the west and southwest of the school building--the area you propose to take away from our students. In this area are the basketball courts and big toy/sand areas which accommodate the free play of our students. The proposed highways would cut across these areas with a fence. Besides decreasing our now limited playing area by cutting or eliminating the two playground areas, it would also create a danger with playground balls going over the fence and students running into the fence as they play.

During good weather, all of our teachers have physical education classes outdoors--some on a daily basis. The proposals would eliminate one-half of our soccer fields or one-fourth of our grassy area. We have many classes trying to play outdoors at the same time now. Your proposals would limit even more our students' physical education opportunities.

Knowlton has a nature study area with trees and plants along the canal bank for science classes. Both alternatives would eliminate this area. We really don't know where these trees could be replanted.

801 West Shepherd Lane • Farmington Utah 84025 • (801) 451-1045

We are also very concerned about the noise level. With increased traffic, the noise along our playground would negatively impact the outdoor teaching environment. Noisy cars and trucks would interfere with instruction.

Lastly, but most importantly, the safety of our students from undesirable elements which intensify along freeways is a great concern. Would you want a freeway built through the playground of your neighborhood school?

We are very much aware of the dangers on Highway 89. Two of our teachers were injured in a car accident there several months ago. Of all the proposals, Alternative 3 has the least impact on the safety and education of our students. We would appreciate your considering the negative impact Alternative 1 and Alternative 2 would have on Knowlton Elementary School.

Sincerely,

Velda S. Morrow, Principal

Sandy Ralsson, PTA President

Knowlton Elementary Staff

Davis County Schools

November 23, 1992

NOV 24 1992

Lindi Gregory, RLA
Landscape Architect
Versar Architects & Engineers, Inc.
734 E. Utah Valley Drive, Suite 100
American Fork, Utah 84003

SUBJECT: DISTRICT POLICY ON USE OF PLAYING FIELDS

Dear Ms Gregory:

Care of school playing fields is paid for through a one mill tax levy. This levy establishes a shared responsibility with the cities for the care of the playing fields. The cities provide the water and the School District provides the care and upkeep of the fields. Thus the use of these fields is determined by interlocal agreements. Establishment of these agreements is found under the Building Rental policy 6F-102 Section 3.13.4.

The many organizations using these fields arrange for their use through the School principal.

Your interest according to our phone conversation today is that you may find it necessary to purchase some portion of the field located at the Knowlton Elementary. Roger Glines, Davis Business Administrator is the person to contact relative to any plans to purchase land. He may be reached at 451-1256.

Sincerely yours,

Elva M. Barnes

Elva M. Barnes,
Director of Policy Development

Attatchment: Policy 6F-102

cc: Roger Glines

Board of Education: Lynn Summerhays, President / Louenda Downs, Vice President / Dr. Raymond G. Briscoe / Dan R. Eastman
Robert Thurgood / Dr. Richard E. Kendell, Superintendent
45 East State Street / Farmington, Utah 84025 / (801) 451-1261

DAVIS SCHOOL DISTRICT
POLICY AND PROCEDURES

No.	Rev.
6F-102	X
Revised: June 30, 1992	
Page 1 of 4	

Subject: Building Rental
Index: Finance

1. PURPOSE

To provide opportunities for citizens to participate in educational and recreational activities through the establishment of a building and facilities rental fee schedule and procedures.

2. REFERENCES

53A-3-413 & 414. Utah Code Annotated 1953 as amended 1988. (Use of public school buildings and grounds as civic centers.)

3. POLICY

All district buildings are by law civic centers and may be used by district residents for supervised recreational activities and meetings.

3.1. Use of district property for civic center purposes shall not interfere with any school function or purpose.

3.2. Principals or building managers shall charge for the use of the facilities as outlined in the Rental Fee Schedule (6F-101, section 4.10) .

3.3. A principal or building manager may refuse the use of a district facilities.

3.4 Commercial rates apply to an organization or individual whose motive is to make a profit. These include:

3.4.1 Teachers providing private instruction for a fee such as music, physical education and art teachers which are not run through the community school program.

3.4.2. Events for which admission is charged, items sold, or paid instruction for students such as music, art, dance, aerobics, basketball, weight training.

3.5. **Community Organizations**

Non-Commercial rates apply to community organizations such as service clubs, Boy Scouts, Girl Scouts, United Way, cities and counties.

3.5.1 Generally a non-commercial organization will have a tax exempt IRS number.

3.5.2 **Exceptions**

(1) Principals or building managers may grant limited free use to public service organizations who perform strictly public services, such as civic groups, Boy Scouts and Girl Scouts, when custodial and other services are not required beyond the regularly scheduled duty and when:
[a] no additional school funds are used to subsidize these meetings, and
[b] requests are for occasional use only.

(2) PTA shall be granted use of facilities for school related activities without cost.

3.6. Collection for rental is the responsibility of the principal or building manager and shall be made in advance.

3.7. **Conduct**

The lessee is subject to adherence to the standards of behavior of the school and Utah State Law.

3.7.1 Violation of any of these standards are grounds for termination of the rental agreement and the immediate removal of those individuals associated with the rental.
3.7.2 Violation may result in the forfeiting of all deposits and additional charges may be assessed.

3.8. **Rental Time**

All rental time shall be computed from the time of requested opening to closing of the doors.

3.13.2 In addition to the building supervision provided by the school, all rental groups must provide supervision to maintain order and prevent damage or loss of school property.

3.13.3. The cost of school foods personnel, stage hands, light crews, sound technicians, police, ushers, supervisors, etc. shall be in addition to the basic fee.

3.13.4. Inter-local agreements shall be negotiated by the Superintendent and supersede this policy.

3.14. Building Rental Fee Schedule

The Rental Fee Schedule shall be established by the Board of Education in the District School Fees, Fee Waivers and Provision in Lieu of Fee Waivers Policy (6F-101). The rental fee schedule is subject to annual review.

3.15. Community School Exceptions

Classes conducted in the schools for the benefit of students, such as private music lessons and private tutoring, shall be operated through the community school program. All classes not operated through the community school program shall be charged rental.

DAVIS COUNTY SCHOOL DISTRICT

FACILITY RENTAL AGREEMENT

Organization: _____ *Rented by:* _____

Address: _____ *Address:* _____

_____ _____

Phone: _____ *Tax Exempt No.* _____ *Phone:* _____ *Rental Date* _____

Requested: Opening Time _____ *Requested: Closing Time* _____

Actual: Opening Time _____ *Actual: Closing Time* _____

FACILITIES REQUESTED RATE/HOUR	*RENTAL PERIOD*	*TOTAL RENTAL AMOUNT*
AUDITORIUM *Non Commercial* $62.00/Hr. *Commercial* $200.00/Hr. *Includes custodian, building supervisor, auditorium technician.*		
GYMNASIUM		
High School (large) *Non Commercial* $46.00/Hr. *Commercial* $200.00/Hr.		
High School (Small) *Non Commercial* $37.00/Hr. *Commercial* $180.00/Hr.		
Jr. High School *Non Commercial* $34.00/Hr. *Commercial* $150.00/Hr. *All gym rentals include custodian and building supervisor*		
MULTI-PURPOSE ROOM, LITTLE THEATER, CAFETERIA *Non Commercial* $30.00/Hr. *Commercial* $100.00/Hr. *Includes custodian and building supervisor*		
KITCHEN *Non Commercial* $25.00/Hr. *Commercial* $120.00/Hr. *Includes custodian and kitchen supervisor.* *Additional kitchen personnel - $10.00/Hr.*		
CLASSROOM *Non Commercial* $15.00/Hr. *Commercial* $40.00/Hr. *Includes custodian and building supervisor.*		
ADDITIONAL PERSONNEL *Includes sound technicians, stage hands, light crews, ushers, police, etc. Charge minimum wage for actual rental hours.*		
TOTAL RENTAL COST (to be paid in advance) $		

As users of Davis County Schools facilities, we assume all responsibility for the activity and will not violate any city, county or state law. We understand and agree to comply with all rental policies of the Davis County School District; and any loss or damage to buildings, equipment or grounds as a result of this activity will be fully reimbursed including court costs or damages as a result of any suit which might be instituted by any person as a result of use of these facilities. We hereby acknowledge having received, read and agree to abide by the Davis County School District rental policies.

Signed: _____

Principal or Building Manager *Rental Party Agent*

_____

School *Date*

(See reverse side for school instructions.)

Revised 6/30/92

SCHOOL INSTRUCTIONS

1. *Refer to inter-local agreements for charges to cities and county.*

2. *Computer labs, home economics rooms, science labs, shops etc. are not for rental. Only classrooms without specialized equipment are available for rent.*

3. *Classified employees shall be paid through district payroll procedures. Professional employees and additional personnel shall be paid by check from the school financial accounts. After personnel wage expenses are calculated, the remaining rental proceeds shall be divided equally between the district and the school. District portions of rental proceeds shall be remitted at the end of each month.*

4.. *Deposit all funds daily. Remit fifty percent (50%) of the rental fee to the District with monthly reports.*

DAVIS COUNTY

DAVIS COUNTY COURTHOUSE • P.O. BOX 618 • FARMINGTON, UTAH 84025 • PHONE (801) 451-3243 TDD (801) 451-3228

COMMISSIONERS
Gayle A. Stevenson, Chairman
J. Dell Holbrook
Gerald A. Purdy

COUNTY CLERK/AUDITOR
Margene Isom

November 2, 1992

RECEIVED
NOV 9 1992
OGDEN, UTAH

Lindi Gregory, RLA
Versar Architects and Engineers, Inc.
1117 Country Hills Drive, Suite 8
Ogden, Utah 84403

RE: Impact of Highway 89 Improvements on Davis County-Owned Property

Dear Lindi,

You have acknowledged receipt of my letter to you, dated October 26, 1992. However, you would prefer to have a more definitive answer from Davis County regarding the intended use of the property needed for the improvement of Highway 89.

After discussing the matter, the Davis County Commissioners have agreed to declare the property to be non-recreational in use, with the future anticipated use to be for commercial purposes.

We hope this statement clarifies the matter for you. If you have further questions, please phone me at 451-3255.

Sincerely,

Ralph L. Wilcox

Ralph L. Wilcox
Property Manager

RLW:nk

cc: Davis County Commission

DAVIS COUNTY

DAVIS COUNTY COURTHOUSE • P.O. BOX 618 • FARMINGTON, UTAH 84025 • PHONE (801) 451-3243 TDD (801) 451-3228

COMMISSIONERS
Gayle A. Stevenson, Chairman
J. Dell Holbrook
Gerald A. Purdy

COUNTY CLERK/AUDITOR
Margene Isom

RECEIVED
OCT 2 8 1992
OGDEN, UTAH

October 26, 1992

Lindi Gregory, RLA
Versar Architects and Engineers, Inc.
1117 Country Hills Drive, Suite 8
Ogden, Utah 84403

RE: Impact of Highway 89 Improvements on Davis County-Owned Property

Dear Lindi,

You have presented to Davis County drawings which show the possible relocation of right-of-way lines, immediately above the Davis Park Golf Course in Fruit Heights City should UDOT improve Highway 89. You have asked what impact this may have on County-owned property and what concerns the County may have regarding the same.

I have consulted with the Davis County Commissioners on this matter. The Commissioners have always felt that the property should be put to its highest and best use. They have figured that the highest possible use for this particular property would be for commercial development. The second highest use would be residential, and the third highest would be for expansion, extension or growth of the Davis Park Golf Course facility.

The Davis County Surveyor's Office has done some rough staking of the area which would be taken, and it appears to us that a freeway development under Alternative 1 would most certainly preclude the use of any of the ground, because of the close proximity the road would have to the driving range.

If Alternative 2 or 3 is considered, there still may be enough property between the right-of-way and the driving range for some kind of commercial or residential development. These questions would have to be researched more closely in the future.

We are not attempting to make a statement supporting or opposing any of the Alternative plans presently being researched by the Utah Department of Transportation. Davis County stands ready to cooperate with UDOT and cities adjacent to Highway 89 in their efforts, as long as we are compensated for any impact or damage to County-owned property.

Lindi Gregory, October 26, 1992

If you have further questions, please write to me or phone me at 451-3255.

Sincerely,

Ralph L. Wilcox

Ralph L. Wilcox
Property Manager

RLW:nk

cc: Davis County Commission

Mayor: Blaine L. Nelson

City Administrator: Belva M. Provost

Council: David L. Garrett
Richard D. Muhlestein
Dean V. Wiberg
Richard L. Harvey
Anna LePendu

FRUIT HEIGHTS CITY

281 South Mountain Road • FRUIT HEIGHTS, UTAH 84037 • Phone 546-0861

April 1, 1992

RECEIVED

Lindi Gregory, R.L.A.
Landscape Architect
VERSAR Architects & Engineers, Inc.
380 West 920 North
Orem, UT 84057

RE: NICHOLLS PARK

Dear Lindi:

Please find enclosed, a copy of the proposed improvements for the above named park.

I felt that a copy showing what we were planning, was perhaps better, than trying to outline in written form.

The Flood of 1983 brought an enormous amount of gravel and debris down the Bair Canyon, it all ended up in the hollow of the Nicholls Park. The County (Davis) owned the park at that time, and had contracted with a private individual to haul much of it out of the hollow, which he did. However, the hollow has been damaged and the Bair Creek meanders, at will, without a defined stream bed. The restrooms, picnic tables, etc. that were originally a part of the Park, were all lost.

The City Council has appointed Bob & Lynn Templeton to co-chair the renovation of that area of the park. I am certain it will take an enormous amount of effort, to do so. Bob & Lynn remember how the "lower Nicholls Park" was, before the "flood of '83" - and therefore, are very dedicated and willing to do their best.

As to Park use records, we have reservation of the boweries, all summer use of the ball diamonds, tennis courts. People from all over the County and other areas of the State have enjoyed using the Park. Fruit Heights City is responsible for the maintenance of the Park. We do not charge anyone out of the City a greater fee to use the Park.

I am enclosing several documents, that may be important to the completion of your study:

1. Real Estate Sales Agreement: Fruit Heights City purchased the 1.828 Acres of property east of Nicholls Park and adjacent to Hwy. 89 We have a well and our Maintenance Shops located on this property.

2. Agreement of conveyance of Davis County Memorial Park aka NICHOLLS PARK from Davis County to Fruit Heights City.

3. Baer's (Bair's) Canyon-Haights Creek Davis Memorial Park Channel Requirements - From Sid Smith to County Commissioners

4. Quit Claim Deed - Conveyance of Park

5. Correspondence - RE: Project Nos. 49-00061 and 49-000238
Agreement to show Fruit Heights City as owner of projects by Utah Division of Parks & Recreation and amend agreement with National Park Service

These projects, under the sponsorship of Davis County were developed in part with Federal Land and Water Conservation Fund assistance and are therefore subject to provisions of the Land and Water Conservation Fund Act.

Documents included: Appendix A, Appendix B and Appendix C

6. Remaining copies are of correspondence between State of Utah Division of Parks & Recreation (Lyle T. Bennett, Director) and Fruit Heights City - RE: Efforts to use a portion of the Park for a City Building site (City was unsuccessful - we abandoned further endeavors to use this site).

We are desirous of assisting you, in any way we can, and are hopeful these records will prove helpful to you.

Sincerely,

FRUIT HEIGHTS CITY

Belva M. Provost

Belva M. Provost
City Administrator

Enclosures

Mayor (801) 546-8500
James J. Layton

Councilmembers
Ethel H. Adams
Brent A. Allen
Lyndia B. Graham
Debra B. Ledkins
Jerry Stevenson

City Manager 546-8500
C. Bruce Barton

LAYTON UTAH
A QUALITY COMMUNITY

Municipal Offices • 437 N. Wasatch Dr. • Layton, Utah 84041

RECEIVED
JUL 16 1992

Fax Number 546-8577
Steven M. Ashby 546-8510
Director of Finance
J. Scott Carter 546-8520
Director of Community Development
Mark Arnold 546-8530
City Attorney
Terry Coburn 546-8540
Director of Public Works
F. Dean Allen 546-8580
Director of Parks and Recreation
Allan H. Peek 544-5633
Fire Chief
Doyle Talbot 546-8560
Police Chief

July 15, 1992

Lindi Gregory
Versar Architects & Engineers, Inc.
380 West 920 North
Orem, UT 84057

Dear Lindi:

I am responding to your request regarding the status of Pioneer Park, bordering highway 89, in Layton. I apologize for the delay.

The park is used as a natural picnic and group day-use area. Low water pressure prevents its development as a landscaped neighborhood park. It does, however, serve a useful purpose for those who enjoy a more natural environment. Families, small groups and scouting organizations use the park fairly heavily during the spring and early summer. Apparently, park use records have not been kept for this site.

Future use would not change significantly under normal conditions. We have delayed repair of the sewer line from the rest rooms pending notification of the highway improvement project plans. The sewer line will be repaired if the highway project is determined to have no effect on this property. Federal parks funds were used to construct the rest rooms.

Use of this property for a highway interchange and/or right-of-way would not be opposed by this department if appropriate compensation was made to the city for park replacement.

Respectfully,

Dean Allen

Dean Allen
Parks & Recreation Director

September 1, 1992

SEP 16 1992

Mr. Joel S. Hall P.E.
VERSAR Architects and Engineers, Inc.
380 West 920 North
Orem, Utah 84057

RE: SR 89 Environmental Impact Statement

Dear Mr. Hall:

Fruit Heights City Corporation is in receipt of your latest edition of the proposed alternatives for the SR-89 Environmental Impact Statement dated August 1, 1992. As requested, we have reviewed these documents with regard to the potential impact to the existing Nicholls Park. Under alternatives #1, #2 and #3, a frontage road system is proposed running north from Nicholls Road across existing Fruit Heights City Park property.

Fruit Heights City does not object to frontage roads running through the park area provided that the following conditions are met:

1. The construction of the frontage road system will be confined to the area between the existing developed baseball fields and the west right-of-way line of SR-89. Under no circumstance will the City agree to any portion of the existing developed park area being impacted by the roadway alignment. The use of reinforced concrete retaining walls or other facilities may be needed through a portion of the area so the new frontage road can be contained east of the existing fields. We recognize that the frontage road alignment runs through the area currently used as the Fruit Heights City shops and an existing water well. These facilities can be relocated to other areas; however, the City will expect funding assistance to make these relocations. In addition, you should be aware that the City plans to expand the size of the baseball fields (to the north) and request that the final UDOT roadway designs be coordinated with our expansion plans.

2. The northerly portion of the frontage road runs through an undeveloped park area in the vicinity of Baer Creek. The new frontage road construction will required a large quantity of fill materials and will cover a significant area currently being planned for park expansion. We do not object to the roadway running through this area provided that adequate provisions are made to accommodate the drainage flow in Baer Canyon and that Fruit Heights City would be financially assisted in the purchase and development of an equal portion of park property at another location in the City.

We appreciate all of the many hours of work you have invested in the study of SR-89 and your cooperation with the City. At such time as a draft copy of the EIS is available, we will review your findings and will indicate our support of the alternative which best meets the future needs of Fruit Heights City.

Sincerely,

FRUIT HEIGHTS CITY CORPORATION

By: _____
Blaine Nelson, Mayor

cc: Lynn Zollinger--UDOT District One

ROBERT W. ARBUCKLE
Mayor

MAX FORBUSH
City Manager

DONA SCHARP
Recorder/Finance Officer

LYNETTE BINGHAM
Treasurer

Historic beginnings

Farmington City Corp.
1892

130 North Main
P. O. Box F
Farmington, Utah 84025
Telephone (801) 451-2383

PATRICIA N. ACHTER
GREGORY S BELL
GARY E. ELLIOTT
JAMES C. PARSELL
L. HANK SEMADENI
Council Members

RECEIVED
JUL 20 1992
OG[illegible]

July 16, 1992

Lindi Gregory
Versar, Inc.
1117 Country Hills Dr. #8
Ogden, Utah 84403

RE: Shepard Lane Park Baseball Field

Dear Ms. Gregory:

This letter is in response to your inquiry concerning the current use and future plans for Shepard Lane Park and the potential impact which may be created by widening of U.S. Highway 89. It is my understanding from your letter of July 14, 1992, that design alternatives for the Highway may require between 100 and 170 of additional right-of-way. This right-of-way would be taken from what is presently the outfield of the baseball field at Farmington City's Shepard Lane Park. I have discussed this matter with Joe Grimmett, the City's Recreation Director, who provided me with the information which follows.

Farmington City supervises a youth soccer program which runs from late August to October in the Fall and from March through May in the Spring. Due to conflicts with the baseball season in the Spring, the field at Shepard Park is not used for this program. However, the athletic fields directly to the north at Knowlton Elementary School are used for this program. During the soccer season these fields are used nearly every evening, either for practice or games. Widening of Highway 89 would probably eliminate at least two of the soccer fields currently in use which would necessitate establishment of new fields elsewhere or curtailing the soccer program.

The baseball field at Shepard Park is the largest in the City and the only one which meets the requirements for Pony League (ages 13-14) and adult league play. It was first constructed in 1989 and was upgraded in 1991. The 1992 season is its first full season of use. Up until this year Farmington City supervised the baseball program but this responsibility has now been taken over by the newly formed Farmington Area Baseball League, a nonprofit organization. The season runs from April through July with the field at Shepard Park being used nearly every day for either practice or games.

If U.S. Highway 89 is widened by 100 feet the outfield would be reduced to the extent that the field could no longer be used for league play and a new field for this purpose would have to be constructed. It could possibly still be used for girls softball.

If the highway is widened by 170 feet the field could not be used for any type of baseball or softball and a new field would have to be constructed.

The City has discussed the possibility of expanding the Park south but at the present time there is no money available, and there are no negotiations underway with neighboring property owners, to do so. However, if it became necessary to replace the existing baseball field at Shepard Park, property adjacent to the park on the south is the preferred location. The City would expect full compensation for acquiring and developing a "Pony League" sized diamond complete with similar amenities existing when and if the property is taken. The City expects to continue providing these type of facilities for Farmington youth, regardless of who operates the recreation programs.

I hope this information will be helpful to you in completing the EIS for U.S. Highway 89. If I can be of any further assistance please let me know.

Sincerely,

Craig A. Hinckley, AICP
City Planner / Zoning Administrator

cc: Max Forbush, City Manager
Joe Grimmett, Recreation Director
Dave Connors, Farmington Area Baseball League
Elizabeth Vincent, Parsons Brinkerhoff
file

UTAH TRANSIT AUTHORITY
3600 South 700 West
P. O. Box 30810
Salt Lake City, Utah 84130-0810
Telephone (801) 262-5626
Fax (801) 287-4614

July 26, 1995

Joel S. Hall, Project Manager
Versar, Inc.
734 E. Utah Valley Drive
American Fork, UT 84003

Dear Mr. Hall,

As final consideration is given to the reconstruction of US Highway 89 through Davis County it is important to consider what could be accomplished if comparable investment were made in public transit. Several points should be made:

1st. Buses, in every case, operate on the public road system. Roads that are dangerous and/or congested for automobiles are dangerous and congested for buses as well. It is in the best interest of public transit, as well as automobiles and commerce, to have an efficient, well designed road system.

2nd. Buses through Davis County operate at or near capacity in peak hours, and some additional buses are needed for this service. The challenge, however, is that even if a significant portion of the proposed highway investment were made in new buses and public transit facilities, the current ongoing revenues of the Utah Transit Authority are insufficient to operate that dramatic level of new service.

3rd. The Wasatch Front Regional Council and the Utah Transit Authority performed an analysis of the future highway and transit needs in the Davis County Corridor in March of 1991. The analysis indicated that this corridor would be best served by highways and buses in the near future. It also indicated that a light rail type of fixed guideway development would be somewhat premature at that time. The 1995 Utah State Legislature appropriated $600,000 for a major investment study of a West Davis transportation corridor. This study will not only consider the need and potential alignment for a West Davis highway, it will also consider relocation of the existing freight railroads into this proposed new corridor, thereby freeing up the existing Union Pacific Rail right-of-way for potential light rail/fixed guideway development in the future as needed.

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In summary, the proposed investment in US Highway 89 will benefit public transit in this corridor. Though we believe that significant transit capital investments will be needed in the future in Davis County, it would be premature at this time.

Sincerely,

Bill Barnes,
Community Relations

UNION PACIFIC RAILROAD COMPANY

ENGINEERING
SERVICES

RECEIVED
406 WEST 1ST SOUTH
SALT LAKE CITY, UTAH 84101
MAY 17 1996
American Fork, Utah

May 15, 1996

Mr. Joel Hall
Versar, Inc.
768 E. Utah Valley Drive
American Fork, Ut 84003

Subject: Public Crossing: Grade Separations
Utah - Uintah Town - Weber County
Salt Lake Subdivision
Cheyenne Service Unit No. 6

Mile Post 984.19 Track No. 1 Eastbound Track
DOT # 810 551U

Mile Post 984.05 Track No. 2 Westbound Track
DOT # 810 529G

Dear Mr. Hall:

Please refer to your letter of March 22, 1996, regarding the railroad structures over US-89 in Uintah Town in Weber County and the proposed widening of State Route 89 from a 4 to a 6 lane highway including access roads beneath the structure. It is my understanding that this project is approximately 8 to 10 years away and you are now finalizing the EIS and require a letter from the Railroad regarding our concerns for this construction.

The Union Pacific Railroad's operation in this area handles all of the southwest traffic in and out of the San Francisco Bay Area and Los Angeles. The train traffic through the area is approximately 60 trains in a 24 hour period. If at any time, there would be a derailment on the Granger/Pocatello line, the northwest traffic would be diverted through this corridor adding an additional 40 trains a day for a total of 100 trains in a twenty four hour period.

Due to the heavy volume of traffic in this corridor, both rail lines will need to remain in service. I have contacted our Operations Department and at the present time the Railroad is willing to combine both eastbound and westbound train operations onto one line for a short period of time not to exceed eight (8) hours. It is my understanding that a new bridge structure will be constructed adjacent to the existing structure and the main line track will be shifted onto the new structure as a final location. This procedure will take place for each location along with the demolition of the existing structure.

It is critical that this project be coordinated with our Operations Department in order to ensure that light train volumes are occurring at the time the cut over takes place.

This letter will serve as a conceptual approval only. The engineering plans for the construction of a new bridge structure, removal of the existing structure, soils reports for both locations and track geometry are required to be reviewed by the Union Pacific Railroad subject to final approval.

Additional locomotive units may be required for train operations that are destined eastbound on the westbound track. The costs for the additional units will be attributed to this project and the number of locomotive units that will be required for this operation is too premature to estimate at this time, since the factors involved require the number of trains that are destined eastbound along with the tonnage of that particular train. As this project comes closer to construction time, the train counts will be revised.

If you have any further questions, you may reach me at 801-595-3560.

Sincerely,

Richard H. Rauschmeier

Richard H. Rauschmeier
Manager Industry and Public Projects

APPENDIX B
CONGESTION MANAGEMENT

WASATCH FRONT REGIONAL COUNCIL

SUITE 200, 420 WEST 1500 SOUTH, BOUNTIFUL, UTAH 84010
PHONE OGDEN 773-5559 • PHONE SALT LAKE 292-4469 • FAX 299-5724

MAX R. HOGAN, Chairman WILBUR R. JEFFERIES, Executive Director

Max R. Hogan
Chairman
Mayor, West Jordan

Brad Dee
Vice-Chairman
Mayor
Washington Terrace

Bruce Anderson
Commissioner
Weber County

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Mayor, Salt Lake City

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Teryl W. Hunsaker
Commissioner
Tooele County

Theron B. Hutchings
Mayor, South Jordan

Ben A. Jones
Mayor, Riverdale

A. DeMar Mitchell
Mayor, Clinton

Glade Nielsen
Mayor, Roy

Carol Page
Commissioner
Davis County

Lynn F. Pett
Mayor, Murray

Dale Wilson
Commissioner
Morgan County

Gearld L. Wright
Mayor, West Valley City

MEMORANDUM

TO: Lorraine Richards

FROM: Wayne Bennion

DATE: June 5, 1996

SUBJECT: FEDERAL REGULATIONS AND GUIDANCE REGARDING CONGESTION MANAGEMENT SYSTEMS

As you requested this morning, my present understanding of this subject follows. The requirements in Federal planning regulations 23 U.S.C. 134(i)(3) and 134(l) have not been changed. These are that the planning process in all TMAs include a congestion management system, and that Federal funds may not be programmed in a carbon monoxide and/or ozone nonattainment TMA for any highway project that will result in a significant increase in single-occupant-vehicle (SOV) capacity unless the project is based on an approved congestion management system, respectively.

Based on FHWA guidance dated July 20, 1995, the deadline for a fully operational CMS in nonattainment TMAs has been moved to October 1, 1997. That guidance also states that until that time, the two requirements listed above may be met by following the phase-in provisions in 23 CFR 450.336(b) of the October 28, 1993 Federal Register, part of which is quoted below.

"Prior to the full implementation of a CMS, an adequate interim CMS in a TMA designated as nonattainment for carbon monoxide and/or ozone shall, as a minimum, include a process that results in an appropriate analysis of all reasonably available (including multimodal) travel demand reduction and operational management strategies for the corridor in which a project that will result in a significant increase in SOV capacity is proposed. This analysis must demonstrate how far such stratregies can go in eliminating the need for additional SOV capacity in the corridor. If the analysis demonstrates that additional SOV capacity is warranted, then all reasonable strategies to manage the facility effectively (or to facilitate its management in the future) shall be incorporated into the proposed facility."

Access Control for Interstate Highways and Expressways

UDOT 08A3-11

Effective: April 18, 1969 Revised: April 10, 1996

Purpose

To administer control that will be obtained for all segments of the designated Interstate System.

Policy

Access control will be obtained on the interchange crossroad a minimum distance of 100 meters from ramp terminals in rural areas and 50 meters in urban areas. Intersection of frontage roads with such crossroad shall provide the same minimum clearance from the ramp terminals.

The portion of the functionally classified Principal Arterial System designated as the State Expressway System will consist of highways meeting the AASHTO definition of "expressway." Therefore, projects on such highways will have access control as determined by traffic volumes, safety, continuity, abutting development and availability of funds. The level of access control will be determined for the entire route or a major route segment, and is subject to approval by the UDOT Executive Director.

Projects on expressways will be designed and rights-of-way purchased or otherwise protected for the ultimate level of access control determined for the facility. The level of initial construction shall be determined by the existing traffic demand. Where less than the ultimate level of control is not incompatible with or detrimental to future expansion, and where such lesser control of access is acceptable for current traffic operations, deferring construction of interchanges, separations, and frontage roads to a later date is allowed and encouraged.

In areas where it has been determined that final location of the expressway will be on a new location, improvements on the existing road may involve high levels of control at or near interconnecting points with the new facility where it is anticipated that the existing road will retain an arterial function after construction of the expressway.

This policy will be applied where it is desirable that the road be protected from encroachment of commercial, industrial, or residential development.

Utah Department of Transportation

Policy

ACCESS CONTROL FOR HIGHWAYS OTHER THAN INTERSTATE HIGHWAYS AND EXPRESSWAYS

Partial access control for functionally classified Principal Arterial Highways other than the Interstate System and Expressways shall be obtained in all rural areas and in urban areas if the highway is in sparsely developed areas where control is desirable and economically feasible. Control in urban areas on existing alignment is generally not recommended.

In addition to the partial access control of Principal Arterial Highways, a limited distance of high volume (over 700 DHV) Minor Arterial Highways may justify limited access control, especially if on new alignment and if adjacent to a freeway interchange. Except for a Minor Arterial Highway adjacent to a freeway interchange, control is not recommended if the road is less than 2 kilometers in length. Access, if desirable and economically feasible on such roads, shall be determined on an individual basis and is subject to approval of the Executive Director.

Under partial access control, the following limitations shall apply:

(1) The maximum feasible and economic access control shall always be obtained.

(2) On bypasses of cities and towns, all property access shall be prohibited except where the bypass is of a low population town with little or no business and inadequate public crossroads for property access.

(3) On other than bypass roads, a maximum of five accesses (including public road access) per 2 kilometers on each side may be granted. It is very desirable that the accesses to property on each side be opposite of each other; however, access to the opposite side should not be granted unless justified under this policy.

Revised October 6, 1994

NUMBER 08-46
PAGE 1 of 2
EFFECTIVE DATE Apr 18 1969

(4) Where any one property has access to another public road or roads, no access shall be given closer than 1 kilometer from the public road nor shall any two granted accesses be closer than 1 kilometer with the following exception:

The proposed project involves reconstruction on, or near to, an existing highway where a home, business or other property development is located and lack of direct access to them would involve excessive property damage and added construction costs, in which case access openings can be provided within the other stated limitations.

(5) Preferably, property access should not be closer than 250 meters, but access shall be a minimum of 160 meters from other property or public road access.

(6) In order to eliminate public road access, a study shall be made in conjunction with local authorities as to feasibility of dead ending or rerouting of intersecting roads.

(7) Private access openings recommended are 5 meters for residences, 10 meters for farms or other areas where large equipment is used, and 15 meters for commercial and industrial areas.

(8) Type of access opening such as private, farm, commercial, or industrial shall be depicted on documents.

Exceptions to the above limitations shall only be made if a careful appraisal reveals extensive damage or if needed frontage roads would involve excessive right of way costs or, in canyons, excessive construction costs. Detailed reports of costs and justification for variance shall be submitted by the Design Engineer. Variations shall require the approval of the Deputy Director.

PRINCIPAL ARTERIALS

Project: **US-89, I-15 - Harrison Boulevard**
4 --> 6 lanes, Principal Arterial

DRAFT

Sponsor: UDOT

Corridor: US-89 (I-15 - Harrison Boulevard)

Need for Additional Capacity:

The primary purpose of this project is to improve safety in the corridor. However, since it is cost effective to add needed capacity at the same time that safety improvements are made, the following justification is presented for additional capacity.

As shown in Figure __, the current volume to capacity ratio along the corridor ranges from 0.6 to 0.9. If a sufficient number of signals were installed to warrant it, signal coordination would only increase capacity to 40,800. Access control in the form of left turn restrictions and acceleration/deceleration lanes would further increase capacity to 43,600. These capacities can be compared to present volumes ranging from 23,000 to 35,000. IVHS technology currently available would not significantly increase capacity beyond the 40,800 obtained with the signal coordination capabilities proposed for the Ogden Area by UDOT's traffic signal coordination committee. Variable message signs at each end of the corridor would help mitigate nonrecurring congestion caused by incidents, but would not reduce recurring congestion. Although capacity gains could be obtained from other incident management techniques as well, these also could not be relied upon for reducing daily congestion not caused by incidents.

On the demand management side, the projected 1998 volumes in the figure reflect the less than 1000 trips removed by transit improvements and rideshare. Staggered and flexible work hours do not remove trips, but rather spread out the peak hours. The combined implementation of telecommuting, growth management, and walk/bicycle strategies could not be expected to remove more than 200 trips. The reductions gained from trip reduction ordinances have already been reflected in the other demand management strategies discussed. Assuming these demand management strategies are put in place regionwide and that the access control and signal coordination discussed above are implemented in the corridor, the 1998 V/C ratio would range from 0.7 to 1.0. Since this combination of strategies does not drop the V/C ratios much below 1.0 for most of the corridor, additional capacity is needed.

The access control for the three build alternatives, even without adding one lane in each direction, would require additional road construction. The access control measures would produce the following capacity increases: 10 percent for the signalized expressway, 20 percent for the expressway, and 67 percent for the freeway. The 1998 V/C ratios along the corridor would range from 0.6 to 0.9 with the access control planned for the expressway options. They would range from 0.4 to 0.6 for the access control associated with the freeway option. However, it is likely that one of the expressway options will be selected

over the freeway option. A V/C ratio of 0.9 is not acceptable, so lanes need to be added in that section. Furthermore, it is cost effective to add lanes that will be needed throughout the corridor by the design year (V/C = 1.0 - 1.4) at the same time that interchanges and/or frontage roads are added. Therefore, a lane should be added in each direction along the entire corridor as part of this project.

Demand Reduction and Operational Enhancement Strategies Appropriate for Corridor

Expressway Alternative

Access management:

A management plan that balances socioeconomic impacts of access control with the primary mobility function of this principal arterial must be developed for the corridor. Direct access for private driveways shall not be permitted. Where access is given via intersections rather than interchanges, it shall be limited to right-in/right-out only. Acceleration lanes for these intersections shall be at least 1,150 feet for level grades. Deceleration lanes shall be at least 270 feet. Lengths need to be modified according to standards in "A Policy on Geometric Design of Highways and Streets" for down and upgrades.

The following access control standards are required on the new sections of frontage roads and new access on existing frontage roads.

1.) Commercial driveways must be separated by a minimum of 150 feet (inside edge to inside edge) and consolidated if necessary to achieve this.

2.) Corner clearance between commercial driveways and intersections must be at least 175 feet upstream of the intersection and at least 150 feet downstream. Access on the lower of two intersecting functional classes shall be encouraged.

3.) Design of two-directional commercial driveways:

	Maximum	Minimum
Lane Width	24 feet	14 feet
Approach Angle	90 degree (recommended)	60 degree (30 degree with one-way entrance)
Driveway Radius	30 feet	10 feet (less with greater offset)

4.) Sight distance for driveways
(for each 10 mph of highway speed)

	2 Lane	4 Lane
Passenger Car	100 feet	120 feet
Single Unit Truck	130 feet	150 feet
Multi-Unit Truck	170 feet	200 feet

In addition, the following standard applies to both new and existing access points:

1.) Installation of a signal for a commercial driveway shall only be considered if channelization and full left turn restrictions do not take care of access and/or safety problems.

Signalized Expressway Alternative

Signal system improvements/ coordination:

1.) Install conduit along entire corridor and work with the signal coordination committee for installation of system.

2.) Check and optimize timing plans at time of construction and develop ongoing maintenance of timing plans for every individual and coordinated arterial signal.

Access management:

A management plan that balances socioeconomic impacts of access control with the primary mobility function of this principal arterial must be developed for the corridor. Direct access for private driveways shall not be permitted. A median barrier shall be installed along the entire corridor with

openings for signalized intersections. Where access is given via unsignalized intersections, it shall be limited to right-in/right-out only. Acceleration lanes for these intersections shall be at least 1,150 feet for level grades. Deceleration lanes shall be at least 270 feet. Lengths need to be modified according to standards in "A Policy on Geometric Design of Highways and Streets" for down and upgrades.

Refer to "Expressway Alternative" section above for guidance on access control along frontage roads.

IVHS: Coordinate with the appropriate UDOT staff to ensure that provisions are made for staged incorporation of cost-effective IVHS technologies into signal coordination systems.

Both Expressway Alternatives

IVHS: Install variable message signs at each end of the corridor for the purpose of incident management, etc.

Incident Management: Develop an incident management program that provides a specially equipped vehicle and staff to help mitigate the effects of incidents in the corridor. Provide adequate shoulder width for removing vehicles from through lanes.

Reversible Lanes: Since adequate right-of-way has been planned to accommodate additional vehicle capacity in this corridor for many years, and regional land use forecasts project increasing employment and related decreasing peaking characteristics in the future, reversible lanes have not been planned for this corridor.

Telecommuting: No plans currently exist for the development of telecommuting in this corridor.

Growth Management: Coordinate with local governments to ensure that the access management standards discussed above become part of the land use development process.

HOV Lanes: Use of the inside lane in each direction as an HOV lane shall be studied before construction of the additional lanes. If the analysis shows the following results, then the inside lane shall be designated for HOV use:

a.) a travel time savings of 6 minutes or more would occur for carpools, buses, and vanpools, .

	b.) The V/C in the general purpose lanes would not be greater than or equal to one (1).
Walk/Bicycle:	Coordinate with local governments to ensure that existing bicycle routes/facilities are preserved and that necessary right of way is preserved for planned routes/facilities.
Transit Improvements:	Coordinate with UTA for construction of park-and-ride lots in the corridor, shelter and bench improvements to serve routes 55, 28, 70, and 78, especially 55 and 70 which have planned frequency increases in the short term. If the signalized expressway alternative is selected, investigate transit priority treatment. Shoulders shall be additionally widened at bus stop locations, sufficient to accommodate acceleration/deceleration needs at bus stops.

APPENDIX C
MAJOR INVESTMENT ANALYSIS

UTAH TRANSIT AUTHORITY
3600 South 700 West
P. O. Box 30810
Salt Lake City, Utah 84130-0810
Telephone (801) 262-5626
Fax (801) 287-4614

July 26, 1995

Joel S. Hall, Project Manager
Versar, Inc.
734 E. Utah Valley Drive
American Fork, UT 84003

Dear Mr. Hall,

As final consideration is given to the reconstruction of US Highway 89 through Davis County it is important to consider what could be accomplished if comparable investment were made in public transit. Several points should be made:

1st. Buses, in every case, operate on the public road system. Roads that are dangerous and/or congested for automobiles are dangerous and congested for buses as well. It is in the best interest of public transit, as well as automobiles and commerce, to have an efficient, well designed road system.

2nd. Buses through Davis County operate at or near capacity in peak hours, and some additional buses are needed for this service. The challenge, however, is that even if a significant portion of the proposed highway investment were made in new buses and public transit facilities, the current ongoing revenues of the Utah Transit Authority are insufficient to operate that dramatic level of new service.

3rd. The Wasatch Front Regional Council and the Utah Transit Authority performed an analysis of the future highway and transit needs in the Davis County Corridor in March of 1991. The analysis indicated that this corridor would be best served by highways and buses in the near future. It also indicated that a light rail type of fixed guideway development would be somewhat premature at that time. The 1995 Utah State Legislature appropriated $600,000 for a major investment study of a West Davis transportation corridor. This study will not only consider the need and potential alignment for a West Davis highway, it will also consider relocation of the existing freight railroads into this proposed new corridor, thereby freeing up the existing Union Pacific Rail right-of-way for potential light rail/fixed guideway development in the future as needed.

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In summary, the proposed investment in US Highway 89 will benefit public transit in this corridor. Though we believe that significant transit capital investments will be needed in the future in Davis County, it would be premature at this time.

Sincerely,

Bill Barnes,
Community Relations

WASATCH FRONT REGIONAL COUNCIL

SUITE 200, 420 WEST 1500 SOUTH, BOUNTIFUL, UTAH 84010
PHONE OGDEN 773-5559 • PHONE SALT LAKE 292-4469 • FAX 299-5724

LYNN F. PETT, Chairman WILBUR R. JEFFERIES, Executive Director

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Chairman
Mayor, Murray

Randall J. Williford
Vice-Chairman
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Weber Area
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Carol Page
Commissioner
Davis County

Joan M. Patterson
Commissioner
Morgan County

Gearld L. Wright
Mayor, West Valley City

May 9, 1994

Richard Manser
Urban Planning Engineer
Utah Department of Transportation
4501 South 2700 West
Salt Lake City, UT 84119

Dear Richard:

The 1993 revisions to the USDOT Metropolitan Planning Regulations added a requirement for Major Investment Studies as part of the planning process. The requirement is for a study of alternatives prior to the construction of significant new capacity on principal arterials or new major transit investments. The general definition of significant new capacity is the addition of one lane or more to partially limited access principal arterials.

We have reviewed the Transportation Plan for the Salt Lake and Ogden Urbanized Areas and have identified the facilities which would be affected by this requirement. The improvements are:

In the Ogden UA

U.S 89 (Mountain Road) from I-15 to Harrison Blvd.

In the Salt Lake UA

I-15 from 600 North to 10600 South
5600 West from I-80 to 9400 South
Bangerter Highway from 12600 South to I-15
2000 East from 9400 South to I-15
Rail Transit on the Union Pacific Railroad Right of Way

The roadway improvements identified are all on principal arterials and the long range improvements anticipated involve additional traffic lanes. The sections where improvements are shown are anticipated to have access limited to public streets.

All of the facilities listed except for the Rail Transit and 2000 East are state highways and the environmental process is underway for each of the projects. The planning regulations indicate that the major investment requirements can be met as part of the environmental documentation. The regulations also state that there is some flexibility in meeting requirements for projects which were in the environmental process when the regulations were promulgated. It would seem that completing the major investment requirements within the EIS is the best approach for each project.

It may be well at this time to summarize the function of each improvement and the alternatives we would anticipate being considered.

For US89 in Davis and Weber Counties the plan assumes an expressway with grade separated interchanges and very little direct access. The surrounding land use is primarily dispersed residential. As such, the facility does not have much potential for near term use as a major transit corridor. The alternatives should examine design options that would allow use by local transit but major transit use is not anticipated.

I-15 in Salt Lake County has been the subject of an alternatives analysis as a part of a joint highway/ transit DEIS. The alternatives examined included new general purpose lanes, HOV lanes, express bus, and rail transit. We have participated extensively in these studies and feel that the analysis done has more than met the requirements.

The 5600 West EIS is underway and should address a fairly wide range of options. The facility is located on the fringe of the urban area and the surrounding land use is primarily low density residential and commercial. Major transit investment in the corridor will be hard to justify from a ridership standpoint, but the corridor is anticipated to have express bus service as development progresses. Special treatment for transit vehicles and other high occupancy vehicles should be explored.

The function of Bangerter Highway from 12600 South to I-15 will be dictated in large measure by what has been and is being developed for the sections of the highway to the north. The alternatives considered should be consistent.

While 2000 East is not currently a state highway, it is anticipated that as it develops, it will become part of the state system. It's role as a principal arterial is consistent with this assumption. It will be a principal arterial serving a primarily single family residential area. It is anticipated that express bus service will exist in the corridor. Environmental analysis is not currently underway in this corridor, but some preliminary work has been conducted by UDOT (corridor study).

Some work is being done on 9000 South, but we do not think this work is subject to major investment regulations. Because the facility runs through existing development, it is not now a limited access facility and we do not see how it could become one in the future.

We are committed to assisting the Department in meeting the planning requirements and are ready to assist anywhere we can. Please let us know what we can do to help.

Sincerely,

Mick Crandall
Program Director

MC/sg
cc: Jim Biddescombe

State of Utah
UTAH DEPARTMENT OF TRANSPORTATION

Michael O. Leavitt
Governor
W. Craig Zwick
Executive Director

4501 South 2700 West
Salt Lake City, Utah 84119-5998
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Transportation Commission
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Shirley J. Iverson
Secretary

May 20, 1994

Mr. Donald P. Steinke, P.E.
Division Administrator
Federal Highway Administration
2520 West 4700 South, Suite 9A
Salt Lake City, UT 84118

Dear Mr. Steinke:

The 1993 revisions to the federal metropolitan planning regulations added the requirement of Major Investment Studies to the planning process. As you know, this regulation requires a study of alternatives prior to constructing significant new capacity on principal arterials or new major transit investments. The Wasatch Front Regional Council (WFRC) has reviewed the transportation plan for the Salt Lake and Ogden urbanized areas to determine facilities affected by the new requirement. Enclosed is a copy of WFRC's letter describing these facilities.

Projects already in the environmental process are required to meet the Major Investment Study requirements to receive federal approval. Alternatives for most of these projects have been studied extensively prior to the beginning of the environmental process through corridor studies and the updates to the transportation plan. It is UDOT's position that this requirement has been met on the project identified by WFRC. If your office concurs, please send a letter for documentation so the environmental process for these projects can be finalized.

Sincerely,

David K. Miles

David K. Miles, P.E.
Program Development Engineer

DKM/jbl

Enclosure

cc: Clint Topham, Deputy Director
Doug Anderson, Engineer for Transportation Planning
Richard Manser, Urban Planning Engineer
Dave Berg, Environmental Engineer
Mick Crandall, Wasatch Front Regional Council

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**Federal Highway
Administration**

Region Eight

Utah Division
2520 West 4700 South, Suite 9A
Salt Lake City, UT 84118

June 13, 1994

In Reply Refer To:
HPP-UT

Mr. W. Craig Zwick, Executive Director
Utah Department of Transportation (07-PP)
4501 South 2700 West
Salt Lake City, Utah 84119

Dear Mr. Zwick:

Subject: Major Investment Studies

Reference is made to your May 20, 1994, letter related to Federal requirements for major investment studies (MIS). Of particular concern were projects for which the environmental process is presently underway.

Enclosed are responses to the various issues raised in your letter and the Wasatch Front Regional Council's May 9, 1994, letter to you.

It should be pointed out that the enclosed comments represent only the views of the FHWA Division Office. As required by 23 CFR 450.318, the Federal Transit Administration also needs to be consulted on these matters.

Sincerely,

J. F. Biddiscombs

for Donald P. Steinke, P.E.
Division Administrator

Enclosure

cc: UDOT 01-AD
UDOT 07-TP w/enclosure
UDOT 07-UP w/enclosure
WFRC w/enclosure

WFRC Major Investment Studies
FHWA Utah Division Office Comments
June 13, 1994

1. We concur in the WFRC's listing of improvements that are affected by the Federal requirement with the following exceptions:

   a. 9000 South - This facility should not be eliminated simply because it presently has some existing private accesses. There needs to be a jointly arrived-at decision by all the agencies involved as to whether access control is needed and whether the acquisition of current private accesses is warranted in order to accomplish implementation of an efficient/effective transportation network. This is a "plan" or "network" decision and should be made and documented as part of the long-range planning process. If the decision is made that controlled access is not needed or warranted, we would concur in the decision that 9000 South does not meet the major investment studies (MIS) criteria.

   b. 2000 East North of 9400 South - The WFRC's letter is silent on projects north of 9400 South on 2000 East. The reason is probably due to either the fact that the environmental processes for the projects under way are essentially complete or that a decision has been made that this segment of highway does not meet the criteria for an MIS. As stated above, certain decisions need to be made at the "plan" or "system" level as to how certain facilities should function. If the decision is made that 2000 East should be a high-type principal arterial facility (i.e. subject to the MIS requirements), the limits should be defined (e.g. I-215 on the north end). Again, whether there are currently private accesses should not be the sole deciding factor. Once the decisions have been made, any environmental analyses on future projects within those limits are subject to the requirements of 23 CFR 450.318(i). The ongoing projects should also be reviewed to ensure consistency with the decisions made.

      The concerns raised above are closely related to the issues we have raised concerning the single-occupancy-vehicle capacity-increasing requirements that need to be addressed in environmental documents for such projects.

2. We concur in the decision that the environmental processes presently underway for the following projects are adequately addressing the requirements for major investment studies:

   a. U.S. 89 from I-15 to Harrison Blvd.

   b. I-15 from 600 North to 10600 South

   c. Light Rail Transit on the Union Pacific ROW

3. 2000 East from 9400 South to I-15 - It is our understanding that there are no environmental analyses underway within these limits. None should be undertaken until the requirements of 23 CFR 450.318 and 450.322(b)(8) have been met.

4. 5600 West - It is our position that at least some preliminary work to meet the MIS requirements needs to be independently undertaken by the WFRC concerning this corridor. Limits need to be established (e.g. I-80 to I-15). Of particular concern are the requirements of 23 CFR 450.318(b) with regard to a cooperative decision-making process and an agreement as to the range of alternatives that should be studied. Once these preliminary steps have been taken, the environmental analysis currently underway and the subsequent documentation need to be consistent with the decisions made.

5. Bangerter Highway from 12600 South to I-15 - We concur that the environmental process currently underway will adequately address the MIS requirements for the segment from 12600 South to approximately 13800 South. However, for the section paralleling 13800 South from 3600 ± West to I-15, we have the same concerns as expressed in comment 4 above. Essentially this segment becomes part of the proposed 5600 West/13800 South/20000 East "belt route". The "MIS" decisions for this segment may be different than those for Bangerter Highway north of 13800 South. It is our opinion that more work needs to be done on this segment and that the environmental analysis/documentation for any project on this segment needs to be consistent with the decisions made.

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UTAH DEPARTMENT OF TRANSPORTATION

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Shirley J. Iverson
Secretary

June 16, 1994

Mr. Don Cover
Regional Planner, FTA
216 16th St., Suite 650
Denver, CO 80202

Dear Mr. Cover:

The 1993 revisions to the federal metropolitan planning regulations added the requirement of Major Investment Studies to the planning process. As you know, this regulation requires a study of alternatives prior to constructing significant new capacity on principal arterials or new major transit investments. The Wasatch Front Regional Council (WFRC) has reviewed the transportation plan for the Salt Lake and Ogden urbanized areas to determine facilities affected by the new requirement. Enclosed is a copy of WFRC's letter describing these facilities.

Projects already in the environmental process are required to meet the Major Investment Study requirements to receive federal approval. Alternatives for most of these projects have been studied extensively prior to the beginning of the environmental process through corridor studies and the updates to the transportation plan. It is UDOT's position that this requirement has been met on the projects identified by WFRC.

It is my understanding that Mr. Jim Biddiscombe, FHWA, has sent you a copy of FHWA's position on these projects. I have enclosed a copy of our correspondence. If your office concurs with the FHWA position, please send a letter for documentation so the environmental process for these projects can be finalized. UDOT and WFRC are also interested in any other comments you may have about satisfying the Major Investment Study requirements for these projects. Thanks.

Sincerely

David K. Miles, P.E.
Program Development Director

Enclosure

cc: Doug Anderson
Richard Manser
Lowell Elmer
Dave Berg
Mick Crandall, WFRC

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APPENDIX D
TIME & COST ANALYSIS

I. EXECUTIVE SUMMARY

This technical summary presents the results of an analysis comparing the delay, safety and user costs for the proposed US 89 improvement alternatives. The purpose of this analysis is provide supplemental information so that the proposed improvement alternatives can be compared. The project is located along US 89 in Ogden, Utah and encompasses about 13-miles from I-15 to south of Harrison Boulevard.

An extensive level of service analysis was completed by Versar, Inc. for the proposed project alternatives. Using the results of the level of service computations, a delay summary was calculated for each alternative. Table 1 presents a summary of the corridor travel times for each alternative, no project (or no action), and a freeway under ideal conditions. The time to travel the study corridor from the north end to the south end under ideal freeway operating conditions is 14 minutes per direction (or 28 minutes two-directional). Alternative 1 - Freeway (6-lane) results in 30 minutes two-directional travel time. This is two-minutes longer than under ideal freeway conditions. The Expressway alternative results in 32 minutes (for 6-lane) while the signalized expressway results in 56 minutes. The signalized expressway alternative is significantly higher than the other alternatives due to the introduction of delay from at-grade intersections disrupting the through travel. The No Action alternative results in 86 minutes of travel time, which is three times greater than the freeway under ideal conditions.

Based on the travel delays associated with the proposed alternatives, a cost/benefit analysis was computed. The cost/benefit ratios for the alternatives and the No Action plan are shown on Table 2. The cost/benefit (C/B) ratios are based on the cost of delay due to congestion along the north/south mainline corridor and the estimated construction costs compared to the "No Action" plan. As shown on Table 2, all of the alternatives have a C/B ratio grater than 1.0. The Expressway (6-lane) alternative has the greatest B/C ratio, which is 1.4.

In addition to travel delays, the Utah Department of Transportation has requested that a supplemental analysis be performed and include safety costs. The safety costs represents the cost between the expected accidents for each facility type. Table 3 compares the alternatives which include the costs due to accidents. As shown on Table 3, the freeway (Alternative 1) has a B/C ratio of 5.0, the expressway (Alternative 2) 5.3, and the signalized expressway (Alternative 3) 3.0.

Based on the delay and safety summaries the proposed Expressway (6-lane) has the greatest C/B ratio (1.4 without safety costs and 5.3 with safety costs) indicating the most economically feasible alternative.

II. INTRODUCTION

This technical summary presents the results of an analysis comparing the delay and user costs for the proposed US 89 improvement alternatives. The purpose of this analysis is provide supplemental information so that the proposed improvement alternatives can be compared. The project is located along US 89 in Ogden, Utah and encompasses about 13-miles from I-15 to south of Harrison Boulevard.

III. TRAVEL DELAY SUMMARIES

The travel time for the US 89 study corridor was computed for the following scenarios:

- Freeway (Ideal Conditions);
- Alternative 1 - Freeway (6-lane);
- Alternative 2 - Expressway (6-lane);
- Alternative 3 - Signalized Expressway (6-lane); and
- No Action (or No Project).

The travel times were computed for the north/south through movement for the mainline of the entire corridor. Table 4 presents the travel distances and times for an assumed freeway facility with no congestion delays. The distances and travel speeds are shown in both US and metric units while the travel times are shown in minutes. The freeflow freeway is not one of the study alternatives; however, the computation was performed for comparison purposes. As shown on Table 4, the travel time required for one vehicle to travel from the northern to the southern project boundaries is about 14 minutes. The facility is assumed to be operating under ideal conditions (free flow of 55 miles per hour or 89 kilometers per hour), the travel time from the southern to northern project boundaries is also 14 minutes for a total travel time of 28 minutes.

Tables 5 presents the travel times for Alternative 1 - Freeway with 6-lanes. The total two-way travel time for the 6-lane freeway is approximately 30 minutes.

Tables 6 presents the travel times for Alternative 2 - Expressway with 6-lanes. The 6-lane expressway has a total two-way travel time of 32 minutes.

Tables 7 presents the travel times for Alternative 3 - Signalized Expressway with 6-lanes. The 6-lane signalized expressway has a total two-way travel time of 56 minutes. The travel times for the signalized expressway includes the delay from the signalized intersections estimated at half of the total delay for the through movement based on the intersection level of service computations. An extensive level of service analysis was performed for each study scenario by Versar, Inc.

The No Action travel times are presented in Table 8. The total two-way travel time for the No Action plan is 86 minutes.

Table 1 presents a summary of the travel times for the study scenarios. As previously discussed, the 6-lane freeway has the lowest travel time while the No Action plan has the greatest travel time.

IV. BENEFIT / COST ANALYSIS

A benefit/cost (B/C) ratio analysis was prepared using the travel times for the study alternatives. The B/C ratios were computed for each alternative using the No Action plan as the base and delay costs based on the computed travel times. Table 2 summarizes the delay costs and the B/C ratios. The 6-lane freeway was assumed to be the ultimate facility and delays were computed based on the difference between the travel time of the 6-lane freeway and the other alternatives.

The second column in Table 2 shows the average peak hour delay per vehicle in minutes. The 6-lane signalized expressway has 10 minutes more delay than the 6-lane freeway. The average peak hour delays were converted to average annual delay in million vehicle-hours as shown in the third column.

The fourth and fifth columns show the average annual delay and 26-year delay costs . The assumptions used to derive these costs are shown in the footnotes of Table 2. The No Action plan has the greatest 26-year delay cost of $192 million.

The 26-year delay cost was used in conjunction with the construction cost for each alternative to compute the B/C ratio. The B/C ratio is computed by subtracting the 26-year cost from the No Action plan for each alternative (to obtain a benefit amount), and then dividing by the construction cost.

The last column shows the B/C ratios for the alternatives. All of the B/C ratios are greater than 1.0. The B/C ratios greater than 1.0 vary between 1.2 and 1.4. The 6-lane Expressway (Alternative 2) has the greatest B/C ratio of 1.4 indicating that this alternative is the most feasible. However, it is generally accepted that any project with a B/C ratio that exceeds 1.0 is economically feasible.

In addition to the delay cost analysis, UDOT requested that the benefit/cost analysis include a safety element. Using traffic safety data provided by UDOT, a new B/C analysis was computed. Table 3 shows the results of the analysis, which include delay and accident costs. The break down of the accident costs are shown in the appendix. As shown on Table 3, Alternative 2 continues to have the highest B/C ratio of 5.3 as compared to Alternative 1 (B/C=5.0) or Alternative 3 (B/C=3.0).

V. CONCLUSION

The analysis shows that all of the study alternatives have a B/C ratio greater than 1.0 indicating that all are economically feasible. The 6-lane expressway has the greatest B/C ratio indicating that it is the most economically feasible project.

Table 1
Alternatives Travel Time Summary

Scenario	Travel Time (Minutes)		
	NB	SB	Total
Freeway (Ideal Conditions)	14	14	28
Alt. 1 - Freeway (6-Lane)	15	15	30
Alt. 2 - Expressway (6-Lane)	16	16	32
Alt. 3 - Signalized Expressway (6-Lane)	28	28	56
No Action	43	43	86

Table 2
Delay Benefit / Cost Summary

Description	Average Peak[1] Hour Delay Per Vehicle (Minutes)	Average[2] Annual Delay (Million Vehicle-Hours)	Average[3] Annual Delay Cost ($ Million)	22-Year Delay Cost ($ Million)	Estimated[4] Construction Cost ($ Million)	Benefit/[5] Cost Ratio
Alt. 1 - Freeway (6-lane)	0	-	-	-	155.18	1.2
Alt. 2 - Expressway (6-lane)	1	0.03	0.38	7.70	133.02	1.4
Alt. 3 - Signalized Expressway (6-lane)	10	0.32	3.85	76.96	93.28	1.2
No Action	25	0.81	9.62	192.40	0	-

1 Assumes an average delay from existing to Year 2015 of 50% of 2015 delay derived from travel times presented in Table 9 between each scenario and the freeway (6-lane) alternative.

2 Assumes average peak hour volume of 3,700 vehicles which is 10% of the average of 50,000 ADT (Year 2015) and 24,000 ADT (Year 1989) multiplied by two (a.m. and p.m. peak hours) multiplied by 260 working days per year. Sample calculation is: (3 min./60 min. pere hour) x (3,700 vehicles per hour) x (2 peak hours) x (260 working days per year) = 96,200 vehicle-hours per year or 0.10 Million vehicle-hours per year.

3 Assumes an average delay cost of $12.00 per vehicle-hour, which is an average including trucks.

4 Source: Versar, Inc. (this does not include maintenance costs which are needed for all of the alternatives and the no action option).

5 Benefit cost ratio computed by subtracting the 22-year delay cost for no action from the proposed alternative divided by the alternative's construction cost. Sample Calculation ($192.40 million - $7.70 million) / ($133.02 million) = 1.4.

Table 3
DELAY PLUS ACCIDENT BENEFIT/COST SUMMARY

DESCRIPTION	22-YEAR DELAY COST ($MILLION)	22-YEAR ACCIDENT COST ($MILLION)	22-YEAR TOTAL COST ($MILLION)	CONST-RUCTION COST ($MILLION)	BENEFIT /COST RATIO
ALTERNATIVE 1 - FREEWAY	0	225.81	225.81	155.18	5.0
ALTERNATIVE 2 - EXPRESSWAY	7.70	290.27	297.97	133.02	5.3
ALTERNATIVE 3 - SIGNALIZED EXPRESSWAY	76.92	645.01	721.93	93.28	3.0
NO ACTION	192.40	806.26	998.66	0	-

Notes: Delay costs as shown on Table 2
Accident costs computed as shown on calculation sheet presented in the appendix.

Table 4
Freeway Ideal Conditions

Segment	Distance (Meters/Feet)	Travel Speed (KPH/MPH)		Travel Time (Minutes)		
		NB	SB	NB	SB	Total
I-15 - Shepard Lane	1,006/3,300	89/55	89/55	0.682	0.682	1.364
Shepard - Farmington	1,280/4,200	89/55	89/55	0.868	0.868	1.736
Farmington - Green	2,225/7,300	89/55	89/55	1.508	1.508	3.016
Green - 200N	1,189/3,900	89/55	89/55	0.806	0.806	1.612
200N - Crestwood	1,280/4,200	89/55	89/55	0.868	0.868	1.736
Crestwood - Oakhills	1,433/4,700	89/55	89/55	0.971	0.971	1.942
Oakhills - Rainbow	1.433/4,700	89/55	89/55	0.971	0.971	1.942
Rainbow - Antelope	1,433/4,700	89/55	89/55	0.971	0.971	1.942
Antelope - Cornia	3,871/12,700	89/55	89/55	2.620	2.620	5.240
Cornia - I-84 EB	1,189/3,900	89/55	89/55	0.806	0.806	1.612
I-84 EB - I-84 WB	244/800	89/55	89/55	0.165	0.165	0.330
I-84 WB - Uintah	213/700	89/55	89/55	0.145	0.145	0.290
Uintah - Harrison Blvd.	2,804/9,200	89/55	89/55	1.901	1.901	3.802
Harrison Blvd. - Project Line	1,006/3,300	89/55	89/55	0.680	0.680	1.360
Total	20,604/67,600	89/55	89/55	13.962	13.962	27.924

Table 5
Freeway Congested Conditions
Alternative 1 - Six Lane Facility (Year 2015)

Segment	Distance (Meters/Feet)	Travel Speed (KPH/MPH)		Travel Time (Minutes)		
		NB	SB	NB	SB	Total
I-15 - Shepard Lane	1,006/3,300	80/50	80/50	0.75	0.75	1.50
Shepard - Farmington	1,280/4,200	80/50	80/50	0.95	0.95	1.90
Farmington - Green	2,225/7,300	80/50	80/50	1.65	1.65	3.30
Green - 200N	1,189/3,900	80/50	80/50	0.88	0.88	1.76
200N - Crestwood	1,280/4,200	80/50	80/50	0.95	0.95	1.90
Crestwood - Oakhills	1,433/4,700	80/50	80/50	1.06	1.06	2.12
Oakhills - Rainbow	1,433/4,700	80/50	80/50	1.06	1.06	2.12
Rainbow - Antelope	1,433/4,700	80/50	80/50	1.06	1.06	2.12
Antelope - Cornia	3,871/12,700	80/50	80/50	2.88	2.88	5.76
Cornia - I-84 EB	1,189/3,900	80/50	80/50	0.88	0.88	1.76
I-84 EB - I-84 WB	244/800	80/50	80/50	0.18	0.18	0.36
I-84 WB - Uintah	213/700	80/50	80/50	0.16	0.16	0.32
Uintah - Harrison Blvd.	2,804/9,200	80/50	80/50	2.09	2.09	4.18
Harrison Blvd. - Project Line	1,006/3,300	80/50	80/50	0.75	0.75	1.50
Total	20,604/67,600	80/50	80/50	15.30	15.30	30.60

Assumed 60 mph design speed on freeway.

Table 6
Expressway Congested Conditions
Alternative 2 - Six Lane Facility (Year 2015)

Segment	Distance (Meters/Feet)	Travel Speed (KPH/MPH)		Travel Time (Minutes)		
		NB	SB	NB	SB	Total
I-15 - Shepard Lane	1,006/3,300	77/48	77/48	0.78	0.78	1.56
Shepard - Farmington	1,280/4,200	77/48	77/48	0.99	0.99	1.98
Farmington - Green	2,225/7,300	77/48	77/48	1.72	1.72	3.44
Green - 200N	1,189/3,900	77/48	77/48	0.92	0.92	1.84
200N - Crestwood	1,280/4,200	77/48	77/48	0.99	0.99	1.98
Crestwood - Oakhills	1,433/4,700	77/48	77/48	1.11	1.11	2.22
Oakhills - Rainbow	1,433/4,700	77/48	77/48	1.11	1.11	2.22
Rainbow - Antelope	1,433/4,700	77/48	77/48	1.11	1.11	2.22
Antelope - Cornia	3,871/12,700	77/48	77/48	3.00	3.00	6.00
Cornia - I-84 EB	1,189/3,900	77/48	477/8	0.92	0.92	1.84
I-84 EB - I-84 WB	244/800	77/48	77/48	0.18	0.18	0.36
I-84 WB - Uintah	213/700	77/48	77/48	0.16	0.16	0.32
Uintah - Harrison Blvd.	2,804/9,200	77/48	77/48	2.17	2.17	4.34
Harrison Blvd. - Project Line	1,006/3,300	77/48	77/48	0.78	0.78	1.56
Total	20,60467,600	77/48	77/48	15.94	15.94	31.88

Table 7
Signalized Expressway Congested Conditions
Alternative 3 - Six Lane Facility (Year 2015)

Segment	Distance (Meters/Feet)	Travel Speed (KPH/MPH)		Travel Time[1] (Minutes)		
		NB	SB	NB	SB	Total
I-15 - Shepard Lane	1,006/3,300	48/30	48/30	1.376	1.35	2.103
Shepard - Farmington	1,280/4,200	48/30	48/30	1.797	1.82	2.832
Farmington - Green	2,225/7,300	48/30	48/30	3.350	4.01	5.994
Green - 200N	1,189/3,900	48/30	48/30	1.568	1.55	2.399
200N - Crestwood	1,280/4,200	48/30	48/30	1.568	1.63	2.478
Crestwood - Oakhills	1,433/4,700	48/30	48/30	1.880	1.85	2.852
Oakhills - Rainbow	1,433/4,700	48/30	48/30	1.970	1.88	2.973
Rainbow - Antelope	1,433/4,700	48/30	48/30	1.952	1.90	2.961
Antelope - Cornia	3,871/12,700	48/30	48/30	5.030	5.12	10.150
Cornia - I-84 EB	1,189/3,900	48/30	48/30	1.886	1.51	2.681
I-84 EB - I-84 WB	244/800	48/30	48/30	0.383	0.35	0.592
I-84 WB - Uintah	213/700	48/30	48/30	0.280	0.30	0.459
Uintah - Harrison Blvd.	2,804/9,200	48/30	48/30	3.628	3.73	5.627
Harrison Blvd. - Project Line	1,006/3,300	48/30	48/30	1.250	1.25	2.500
Total	20,604/67,600	48/30	48/30	27.910	28.02	55.750

[1] Total Travel time = corridor travel time + 1/2 intersection delays for through delays

Table 8
Arterial Congested Conditions
No Action - Four Lane Facility (Year 2015)

Segment	Distance (Meters/Feet)	Travel Speed (KPH/MPH)		Travel Time (Minutes)		
		NB	SB	NB	SB	Total
I-15 - Shepard Lane	1,006/3,300	32/20	32/20	1.875	1.875	3.750
Shepard - Farmington	1,280/4,200	32/20	32/20	2.386	2.386	4.772
Farmington - Green	2,225/7,300	32/20	32/20	4.147	4.147	8.294
Green - 200N	1,189/3,900	32/20	32/20	2.215	2.215	4.430
200N - Crestwood	1,280/4,200	32/20	32/20	2.386	2.386	4.772
Crestwood - Oakhills	1,4334,700	32/20	32/20	2.670	2.670	5.340
Oakhills - Rainbow	1,4334,700	32/20	32/20	2.670	2.670	5.340
Rainbow - Antelope	1,433/4,700	32/20	32/20	2.670	2.670	5.340
Antelope - Cornia	3,871/12,700	32/20	32/20	7.215	7.215	14.430
Cornia - I-84 EB	1,189/3,900	32/20	32/20	2.215	2.215	4.430
I-84 EB - I-84 WB	244/800	32/20	32/20	0.450	0.450	0.900
I-84 WB - Uintah	213/700	32/20	32/20	0.397	0.397	0.794
Uintah - Harrison Blvd.	2,804/9,200	32/20	32/20	5.227	5.227	10.454
Harrison Blvd. - Project Line	1,006/3,300	32/20	32/20	1.875	1.875	3.750
Total	20,604/67,600	32/20	32/20	43.00[1]	43.00[1]	86.00

[1] Travel time plus six minutes of total delay at the corridor intersections which operate at LOS E or F.

22-Year Accident Projection Summary
US-89 (I-15/Farmington to Harrison Blvd/Odgen, Davis, & Weber Counties)

Assumed Accident Rates (Accidents per million vehicle-miles):[1]

Alternative 1 - Freeway = 0.7

Alternative 2 - Expressway = 0.9

Alternative 3 - Signalized Expressway = 2.0

No Action - Signalized Arterial = 2.5

Average 22-year ADT = (1993 ADT + 2015 ADT)/2 = (23,400+50,000)/2 = 36,700 vehicles

Study Corridor 22-year travel = (36,700 veh/day)(365 day/year)(12.8 mile section)(22 years)
= 3,772.17 Million Vehicle-Miles

Accidents per Alternative:

Alt. 1 = (3,772.17 M veh-miles)(0.7 Accidents/million vehicle-miles) = 2,641 Accidents

Alt. 2 = (3,772.17 M veh-miles)(0.9 Accidents/million vehicle-miles) = 3,395 Accidents

Alt. 3 = (3,772.17 M veh-miles)(2.0 Accidents/million vehicle-miles) = 7,544 Accidents

No Act. = (3,772.17 M veh-miles)(2.5 Accidents/million vehicle-miles) = 9,430 Accidents

Accident types:[2]

1989 through 1993 average = 51,564 total accidents of which 0.5% result in fatalities.

Accident Cost/Crash:[3]

Fatal = $2.772 Million

Non-Fatal = $0.072 Million

Accident Cost Summary

Alt. 1 = (.5%)(2,641)($2.772M)+(1-0.5%)(2,641)($0.072M) = $225.81 Million

Alt. 2 = (.5%)(3,395)($2.772M)+(1-0.5%)(3,395)($0.072M) = $290.27 Million

Alt. 3 = (.5%)(7,544)($2.772M)+(1-0.5%)(7,544)($0.072M) = $645.01 Million

No Act. = (.5%)(9,430)($2.772M)+(1-0.5%)(9,430)($0.072M) = $806.26 Million

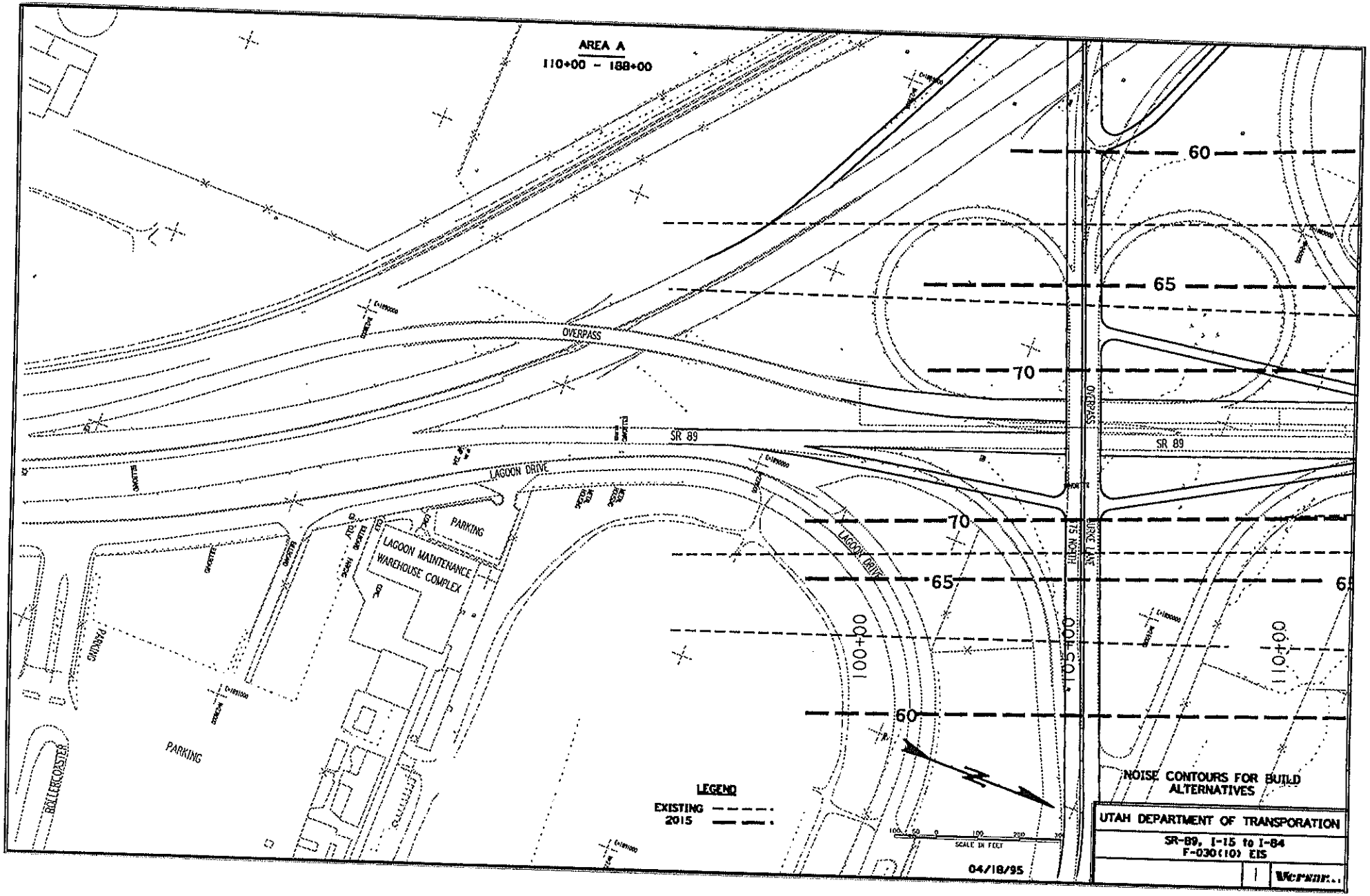
---

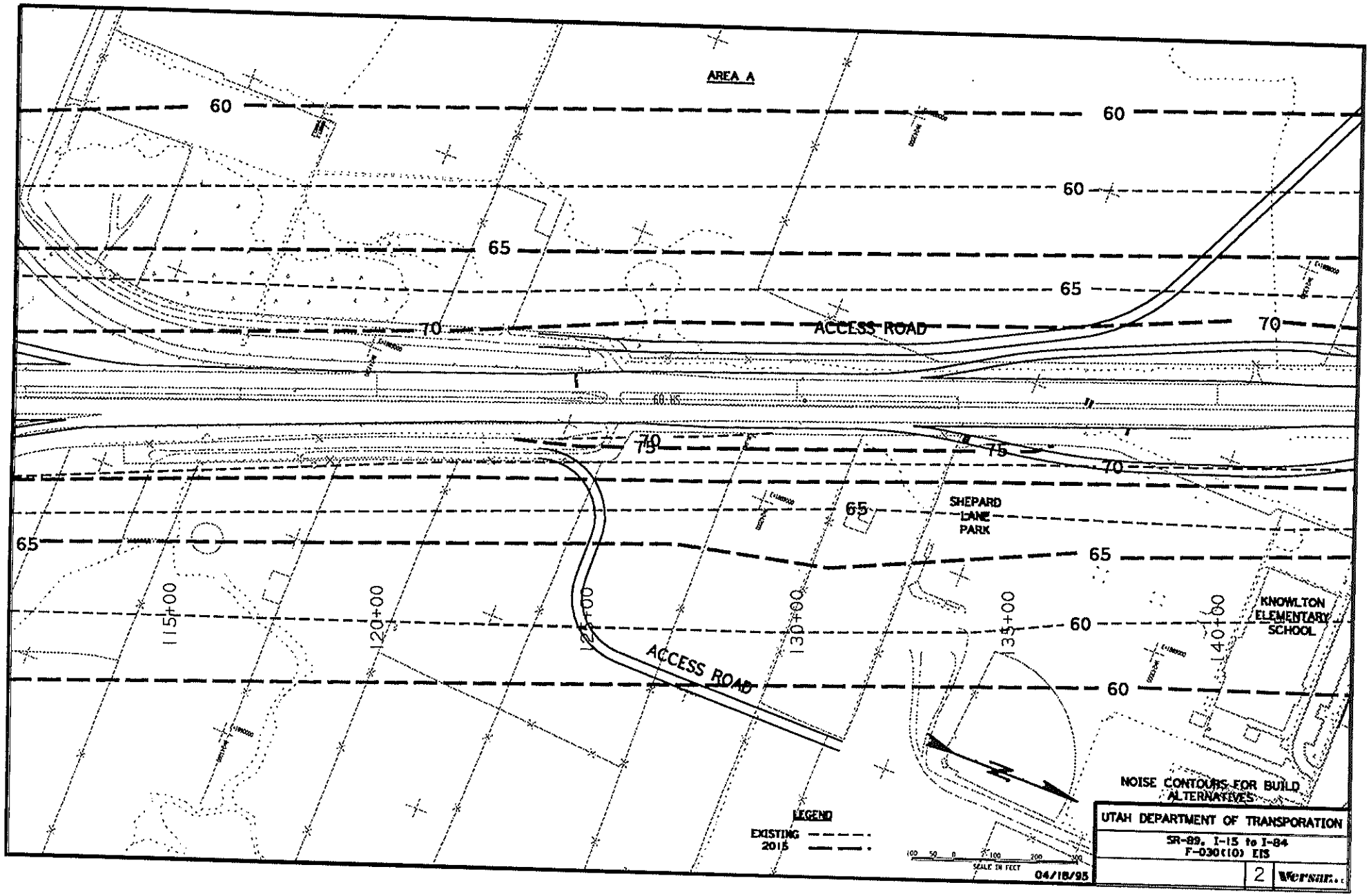
[1] Estimated based on accident data obtained from Eric Cheng, Utah Department of Transportation, Traffic and Safety Division.

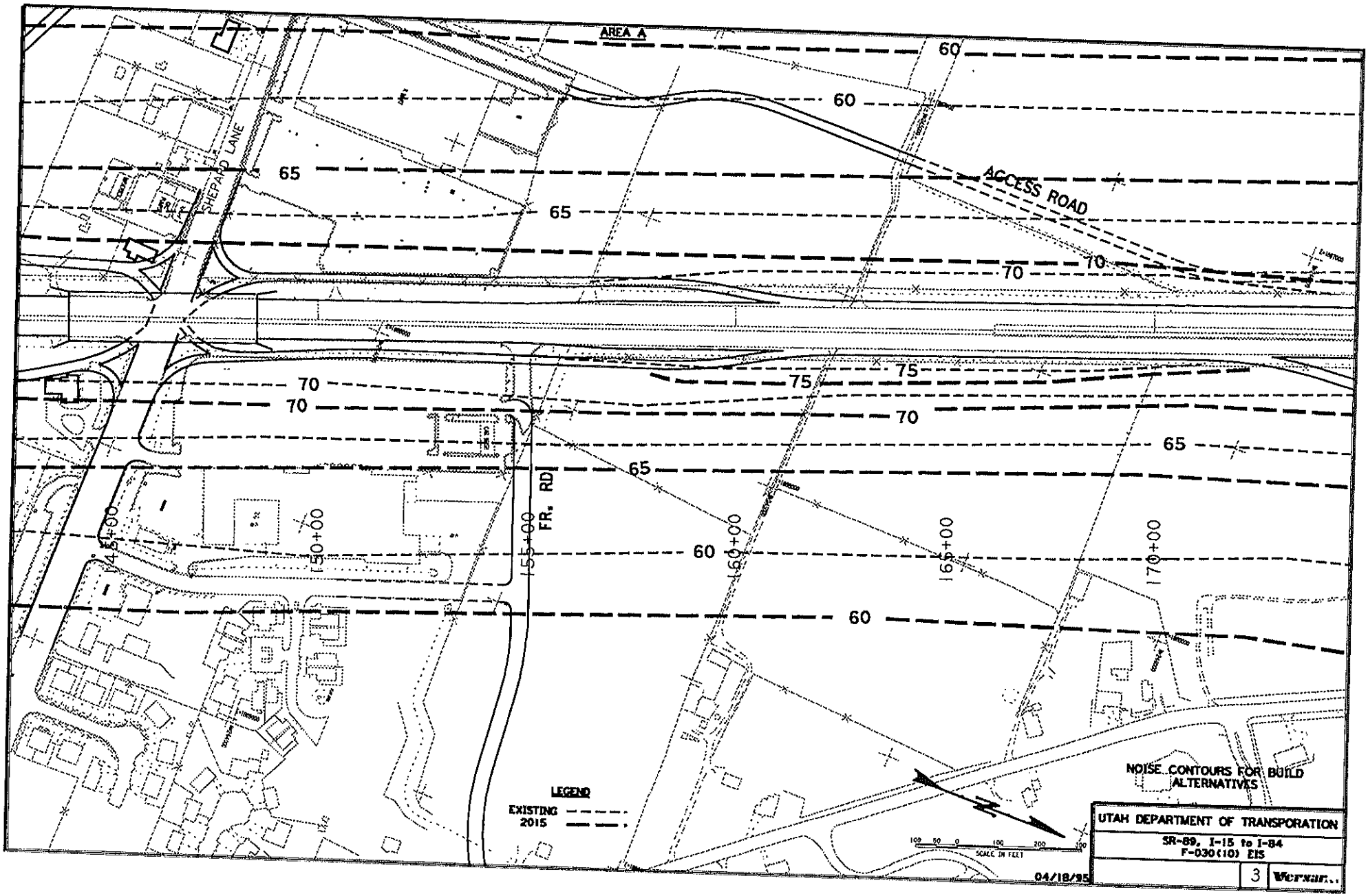
[2] Based on statewide accidents from 1989 through 1993 obtained from Eric Cheng, Utah Department of Transportation, Traffic and Safety Division.

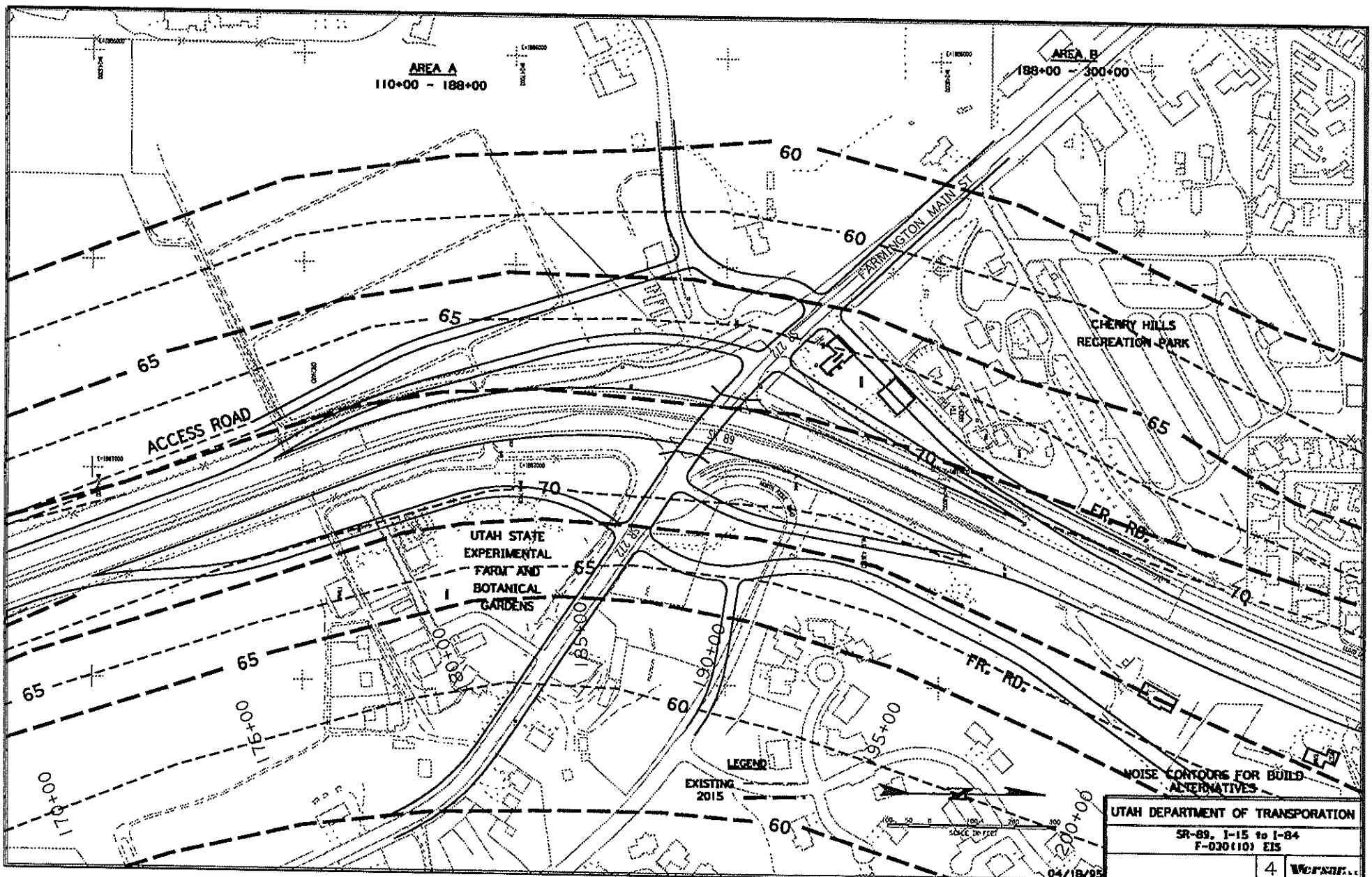
[3] Source: Technical Summary, The Costs of Highway Crashes, Publication No. FHWA-RD-91-055, June 1991, Federal Highway Administration.

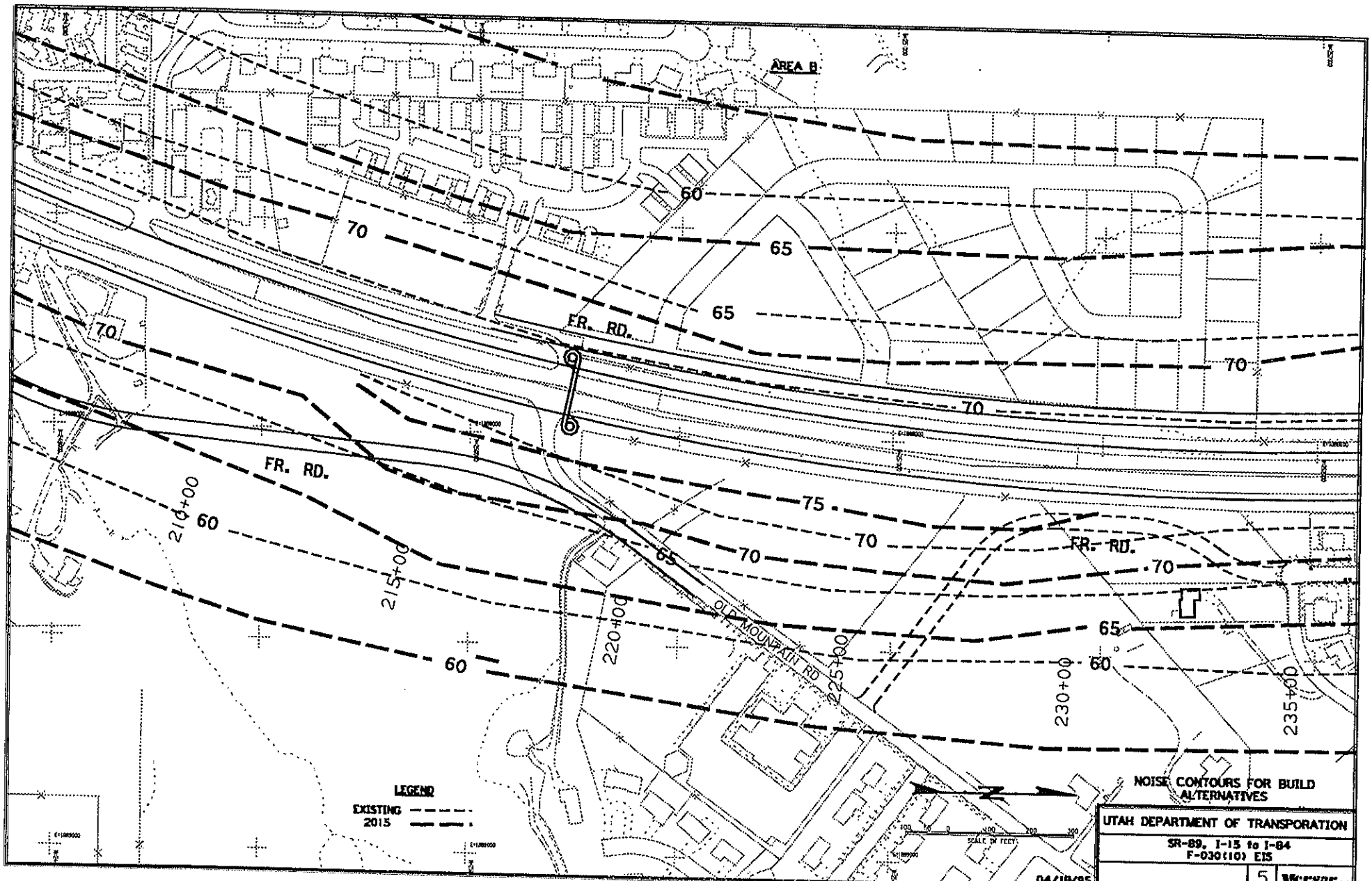
APPENDIX E
NOISE CONTOUR MAPS

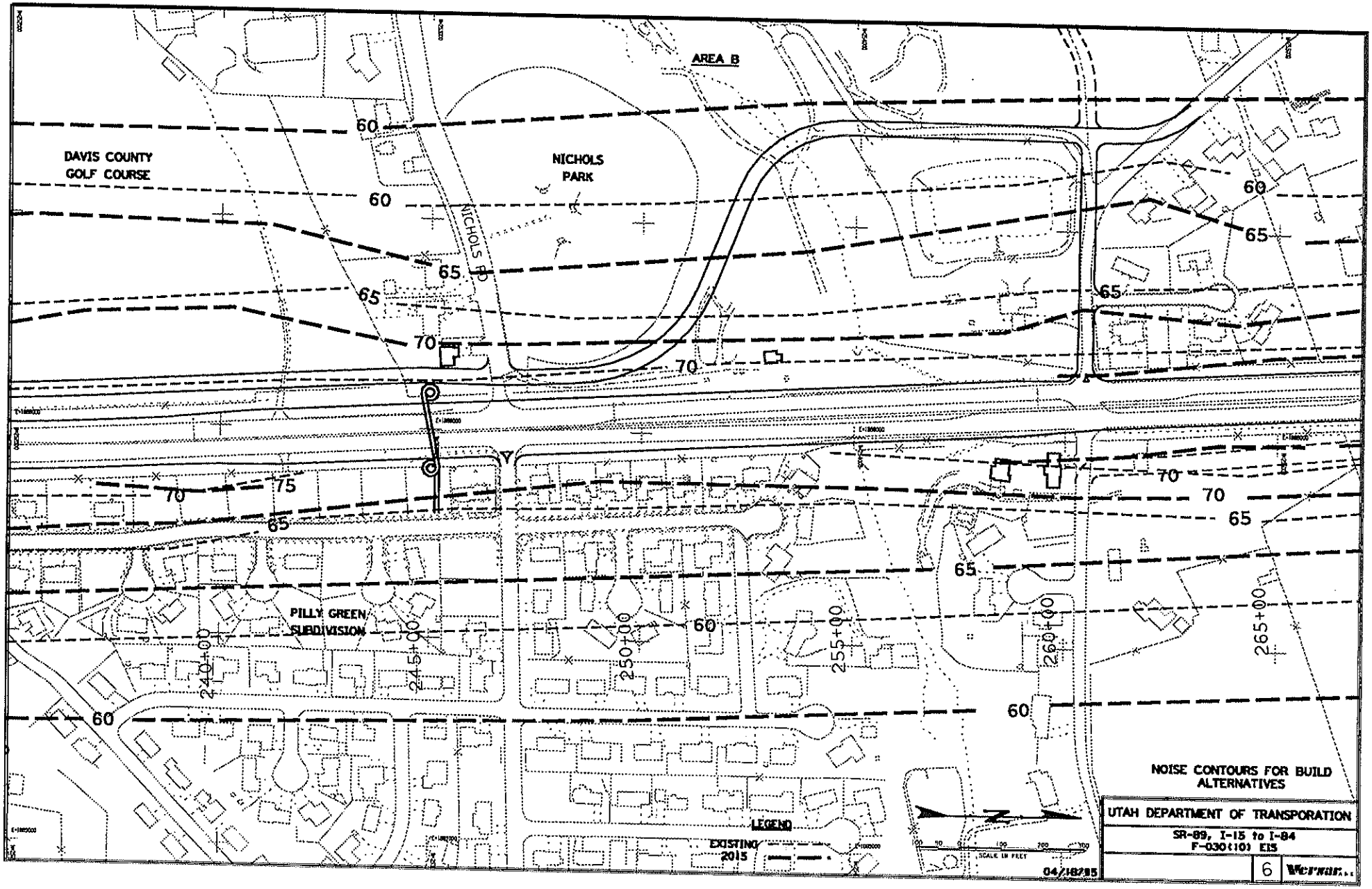

AREA A
110+00 - 188+00
60
65
70
OVERPASS
SR 89
LAGOON DRIVE
PARKING
LAGOON MAINTENANCE WAREHOUSE COMPLEX
ROLLERCOASTER
100+00
105+00
110+00
LEGEND
EXISTING
2015
SCALE IN FEET
04/18/95
NOISE CONTOURS FOR BUILD ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
1
Wernar...


AREA A
60
60
60
65
65
70
ACCESS ROAD
70
60-65
70
75
75
70
65
SHEPARD LANE PARK
65
65
115+00
120+00
125+00
130+00
135+00
140+00
60
KNOWLTON ELEMENTARY SCHOOL
ACCESS ROAD
60
LEGEND
EXISTING
2015
100 50 0 100 200 300
SCALE IN FEET
04/18/95
NOISE CONTOURS FOR BUILD ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
2
Wersan


AREA A
SHEPARD LANE
ACCESS ROAD
FR. RD
60
65
70
75
145+00
150+00
155+00
160+00
165+00
170+00
LEGEND
EXISTING
2015
NOISE CONTOURS FOR BUILD ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
SCALE IN FEET
04/18/95
3
Wernar


AREA A
110+00 - 188+00
AREA B
188+00 - 300+00
60
65
70
ACCESS ROAD
FARMINGTON MAIN ST
CHERRY HILLS
RECREATION PARK
UTAH STATE
EXPERIMENTAL
FARM AND
BOTANICAL
GARDENS
FR. RD.
SR 89
SR 272
170+00
175+00
180+00
185+00
190+00
195+00
200+00
LEGEND
EXISTING
2015
NOISE CONTOURS FOR BUILD
ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
4
Versar
04/18/95


AREA B
FR. RD.
FR. RD.
FR. RD.
OLD MOUNTAIN RD
60
65
70
75
210+00
215+00
220+00
225+00
230+00
235+00
LEGEND
EXISTING
2015
SCALE IN FEET
04/18/95
NOISE CONTOURS FOR BUILD ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
5
Versar



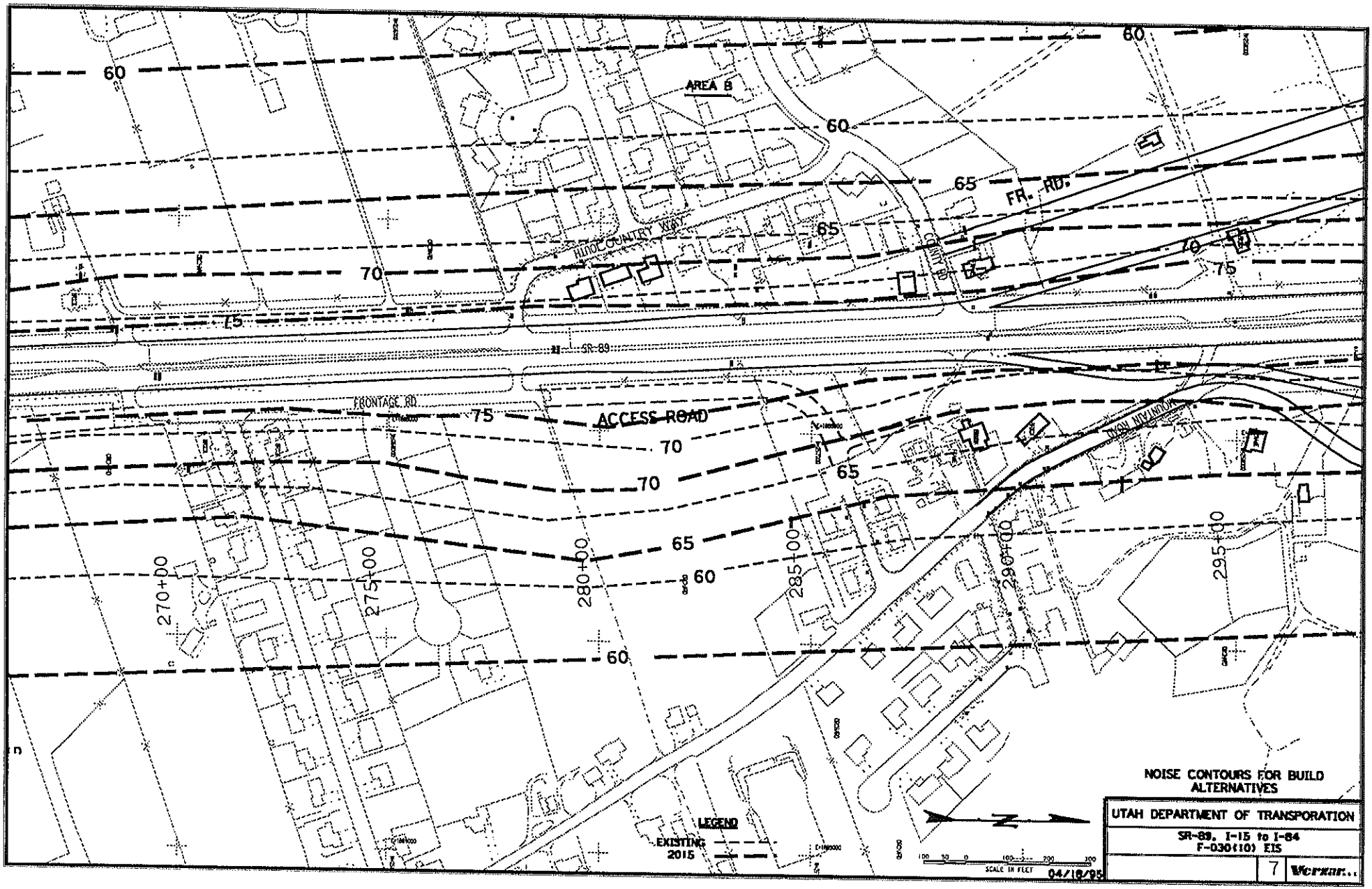
NOISE CONTOURS FOR BUILD ALTERNATIVES

UTAH DEPARTMENT OF TRANSPORATION

SR-89, I-15 to I-84
F-030(10) EIS

6

Wernan...



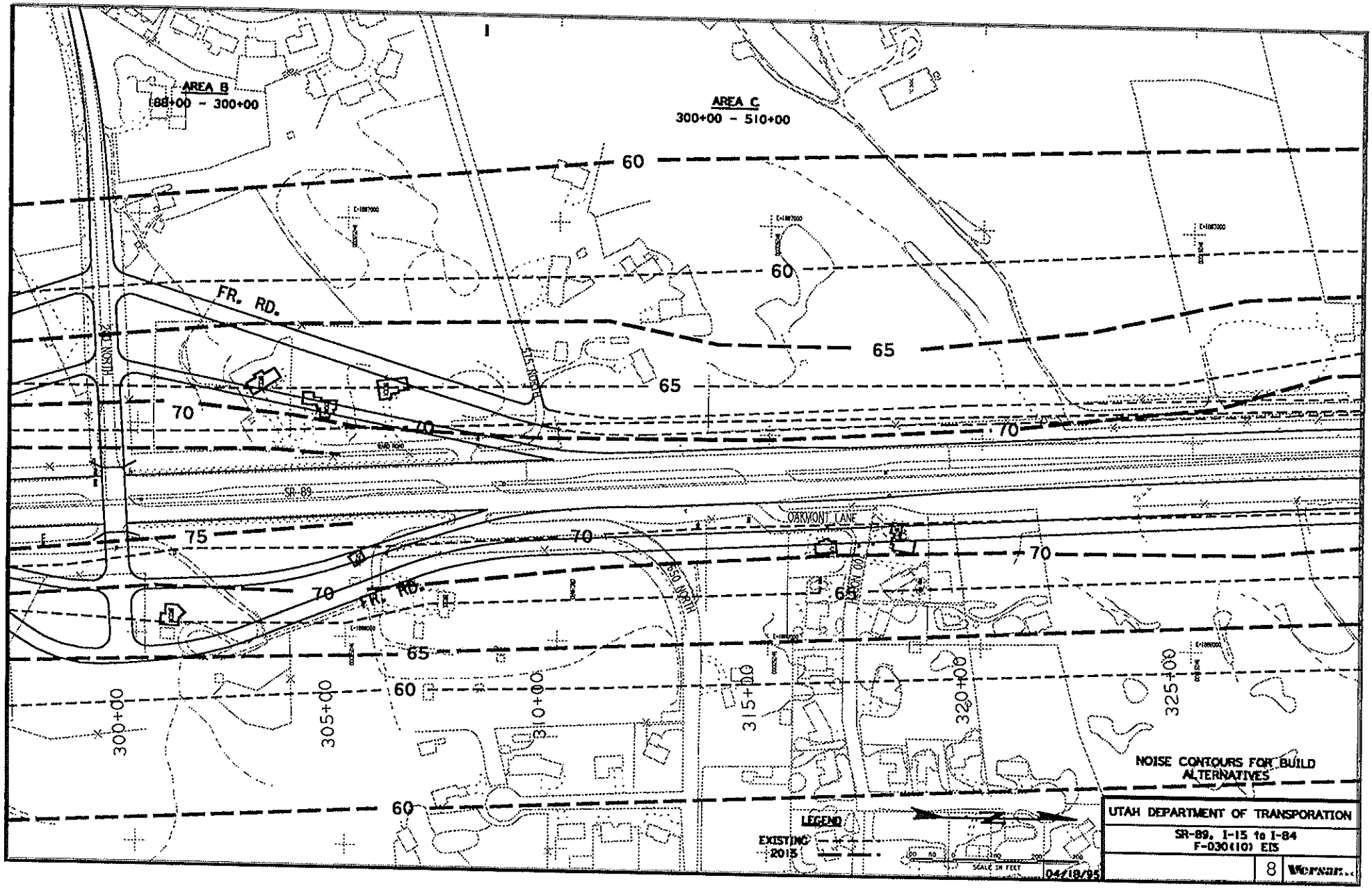
NOISE CONTOURS FOR BUILD ALTERNATIVES

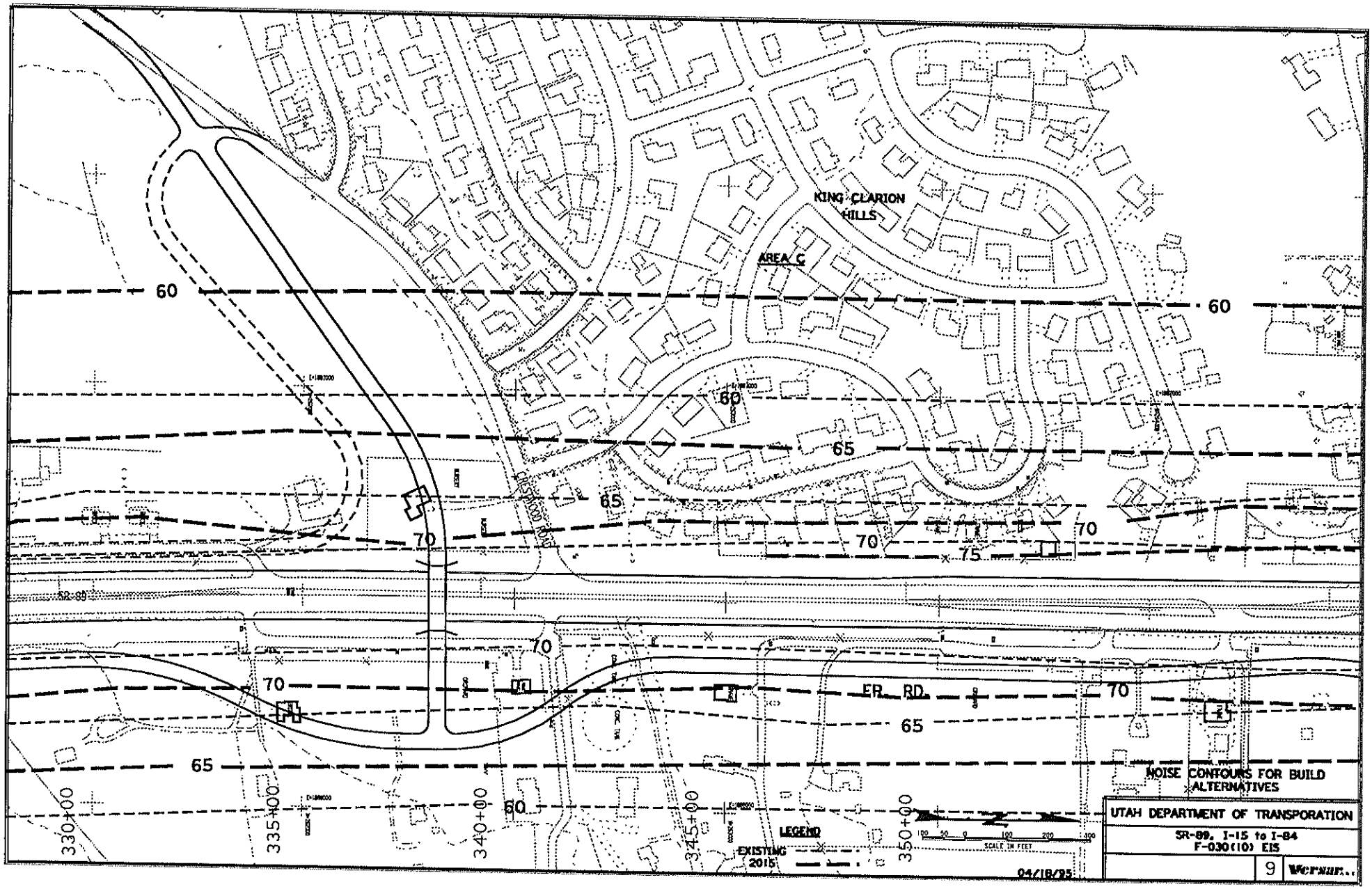
UTAH DEPARTMENT OF TRANSPORATION

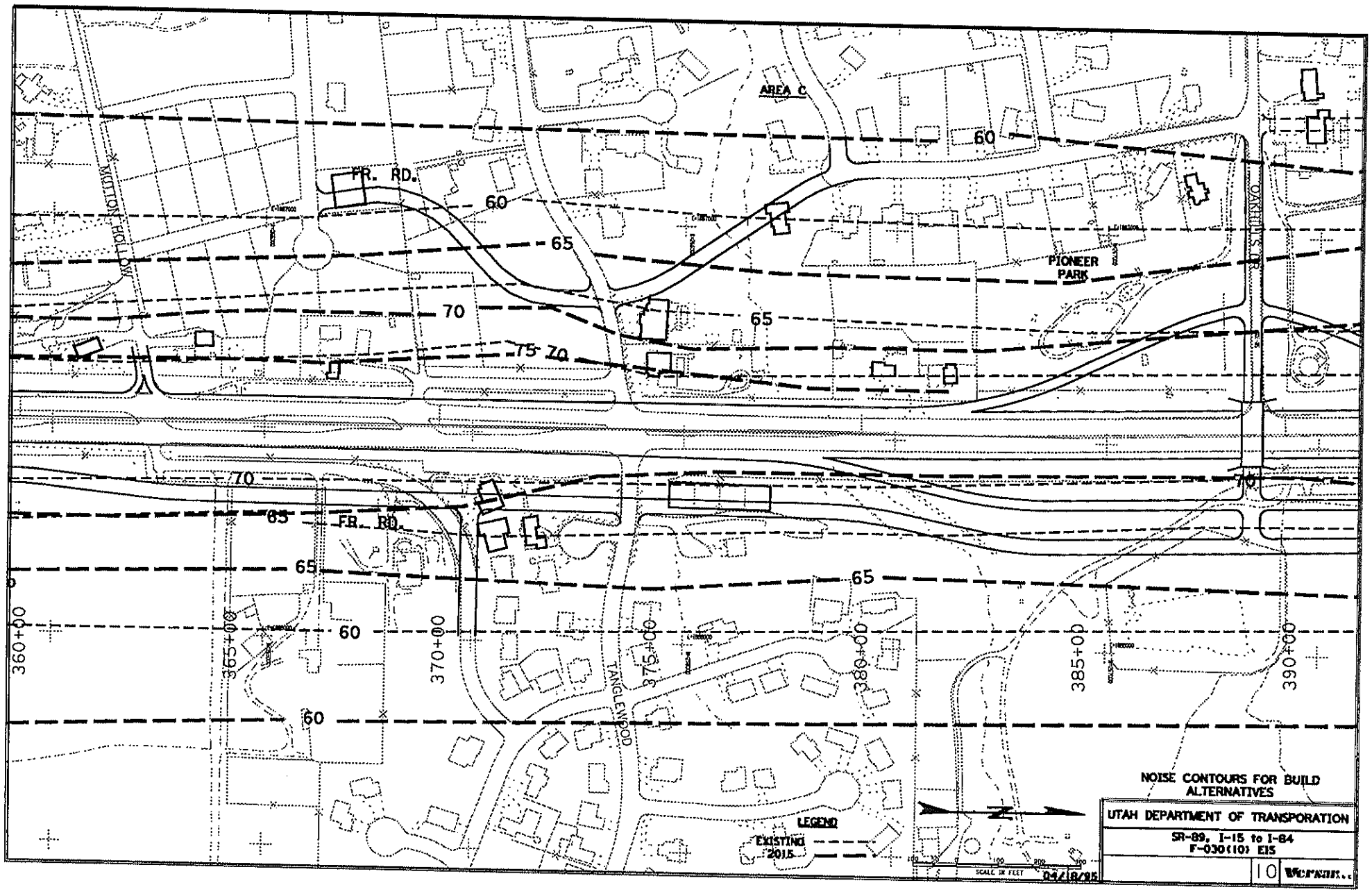
SR-89, I-15 to I-84
F-030(10) EIS

7

Vernan...


AREA B
188+00 - 300+00
AREA C
300+00 - 510+00
60
65
70
75
FR. RD.
SR-89
OAKMONT LANE
300+00
305+00
310+00
315+00
320+00
325+00
NOISE CONTOURS FOR BUILD ALTERNATIVES
LEGEND
EXISTING
2015
SCALE IN FEET
04/18/95
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
8
Versar


KING CLARION HILLS
AREA C
60
65
70
75
SR-89
ER RD.
330+00
335+00
340+00
345+00
350+00
LEGEND
EXISTING
2015
SCALE IN FEET
04/18/95
NOISE CONTOURS FOR BUILD ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
9

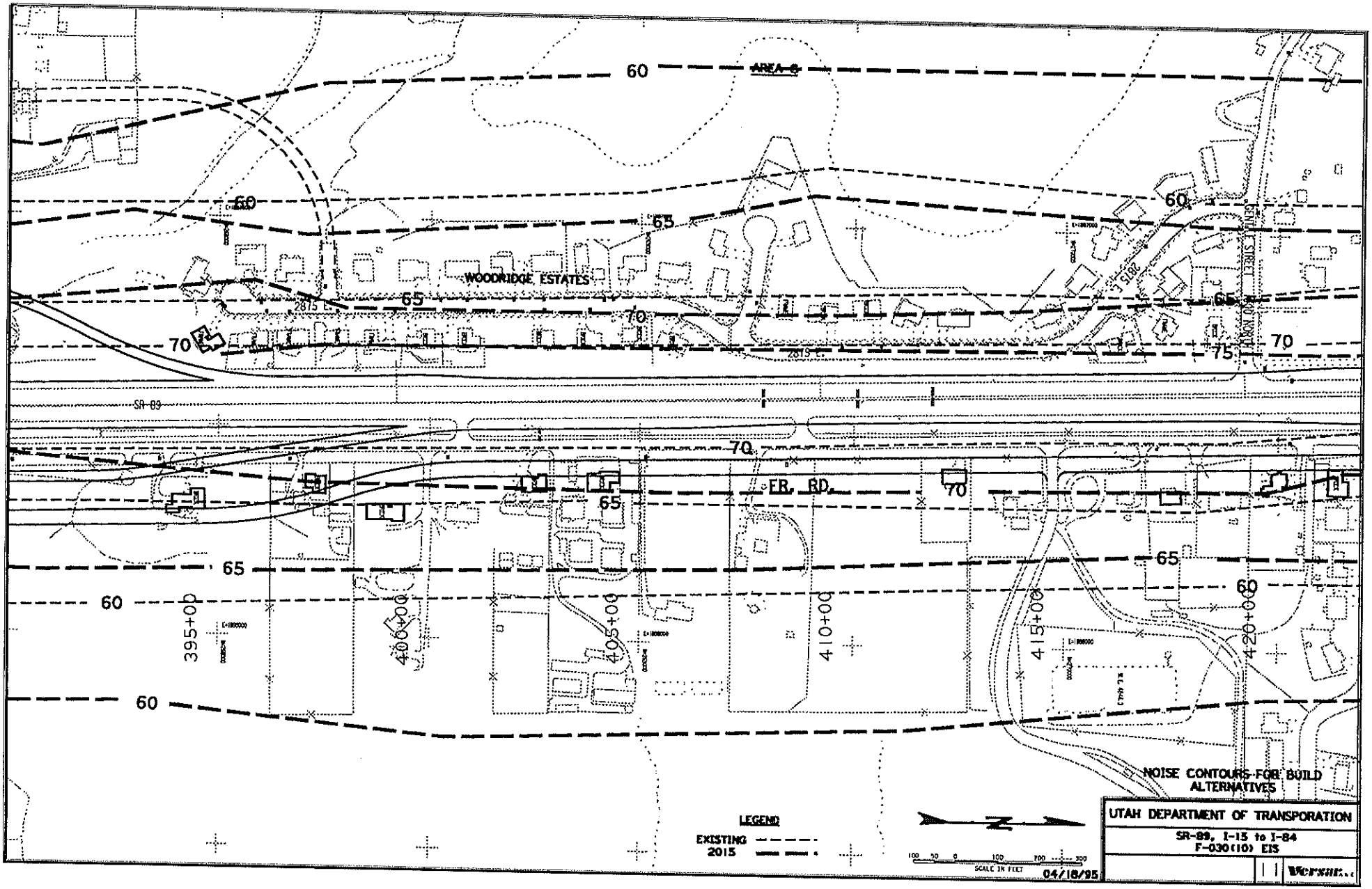


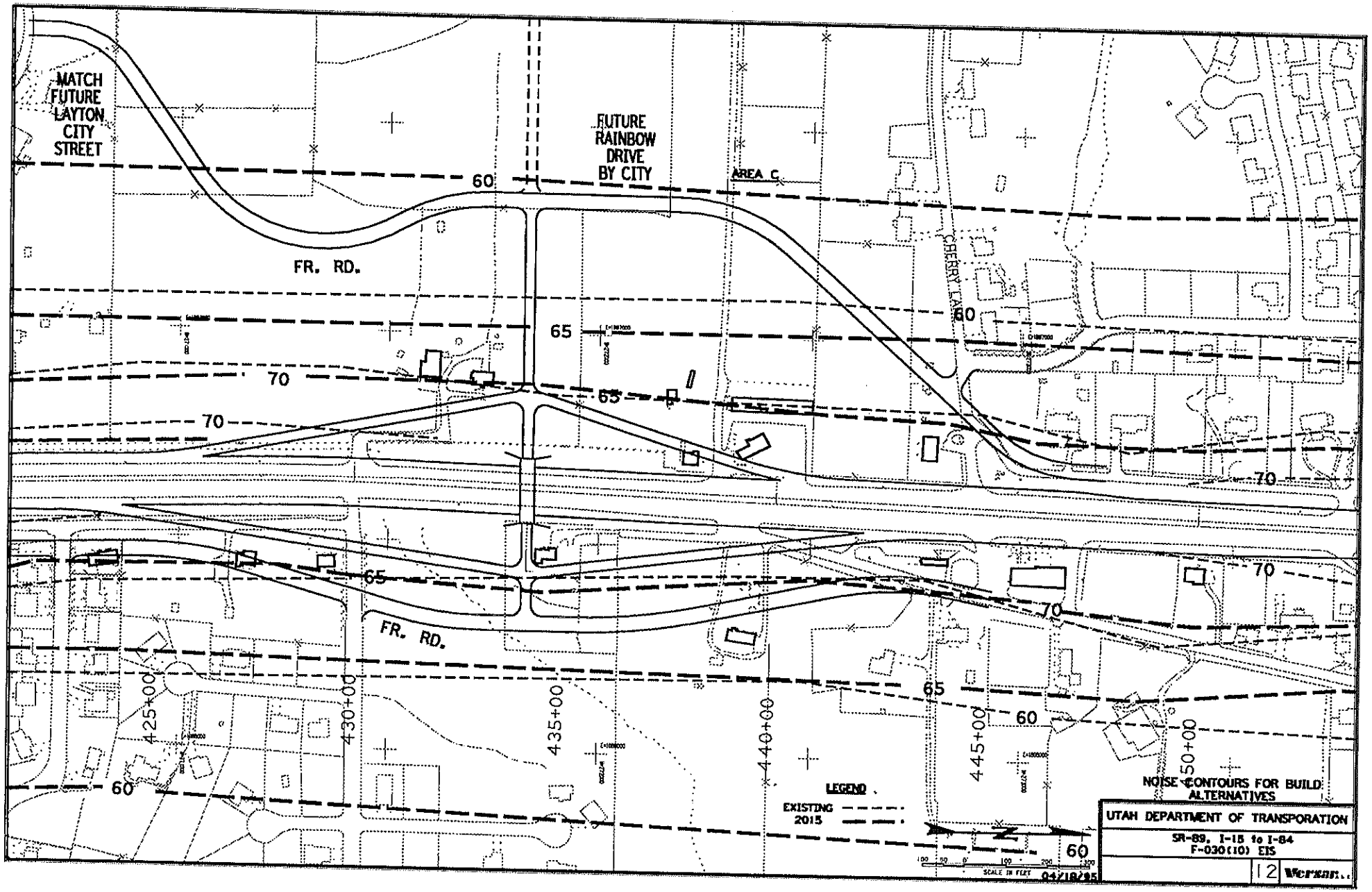
NOISE CONTOURS FOR BUILD ALTERNATIVES

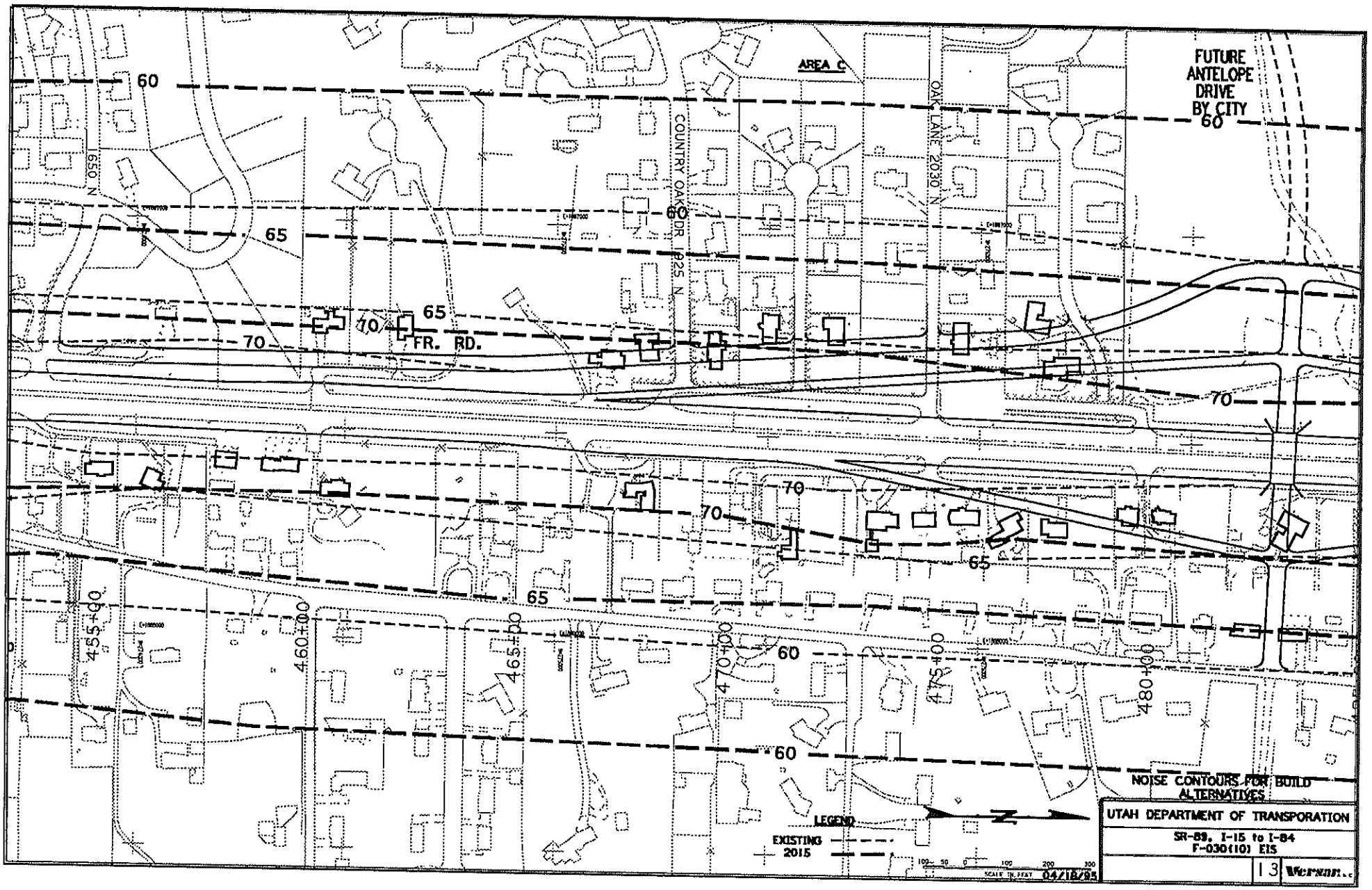
UTAH DEPARTMENT OF TRANSPORATION

SR-89, I-15 to I-84
F-030(10) EIS

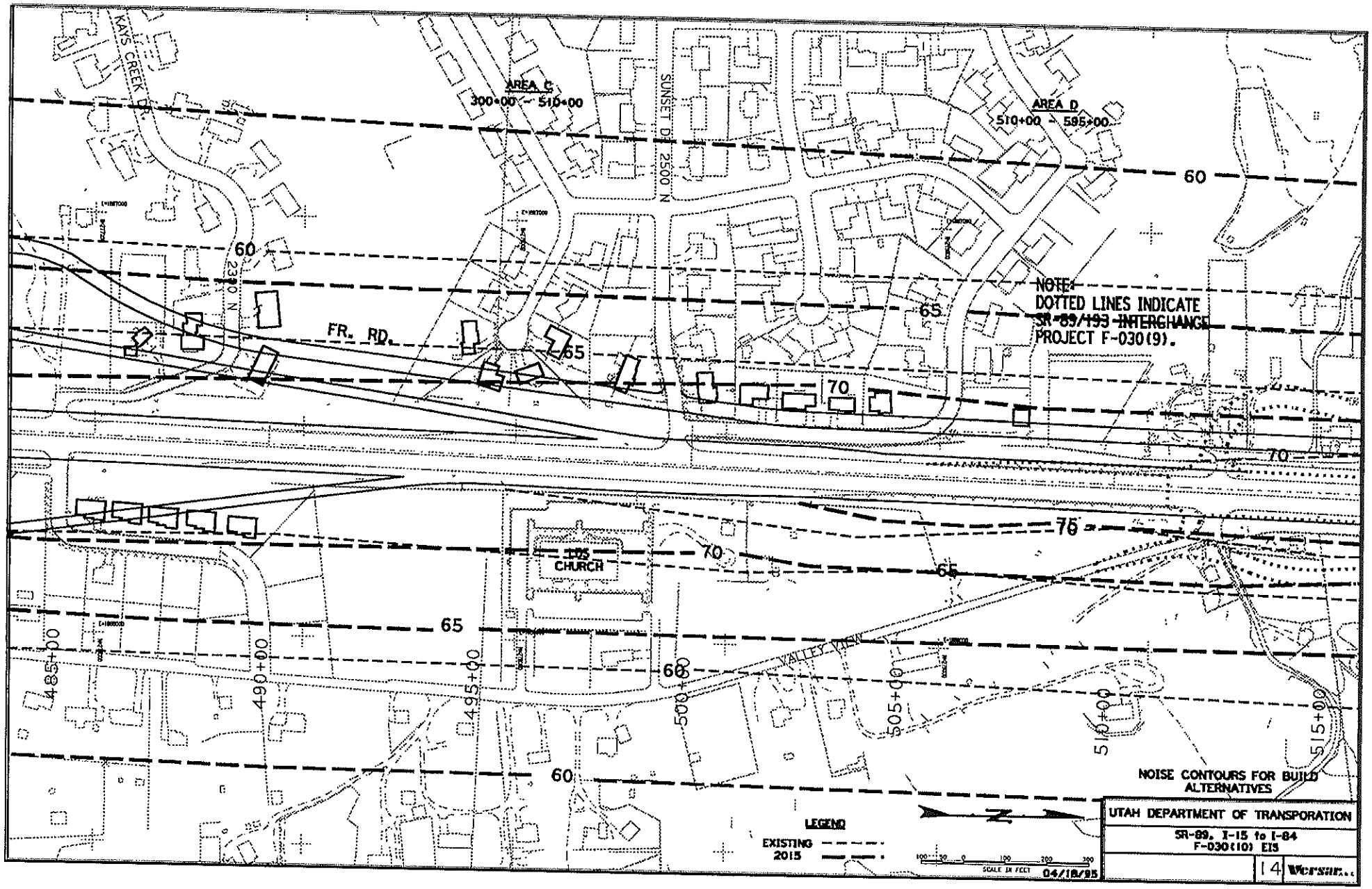
10

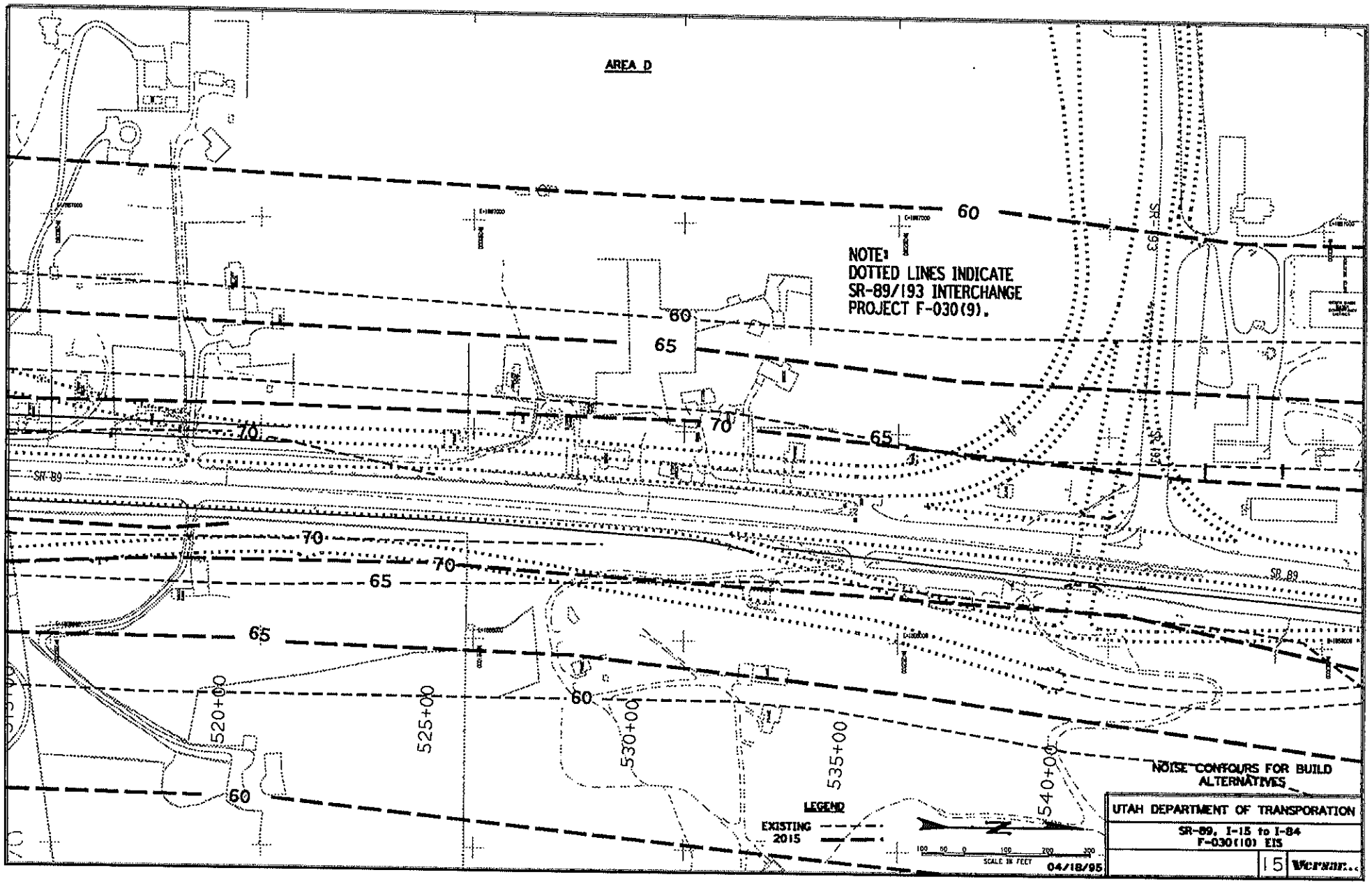

AREA-C
WOODRIDGE ESTATES
SR-89
FR. RD.
60
65
70
75
395+00
400+00
405+00
410+00
415+00
420+00
LEGEND
EXISTING
2015
SCALE IN FEET
04/18/95
NOISE CONTOURS FOR BUILD ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS

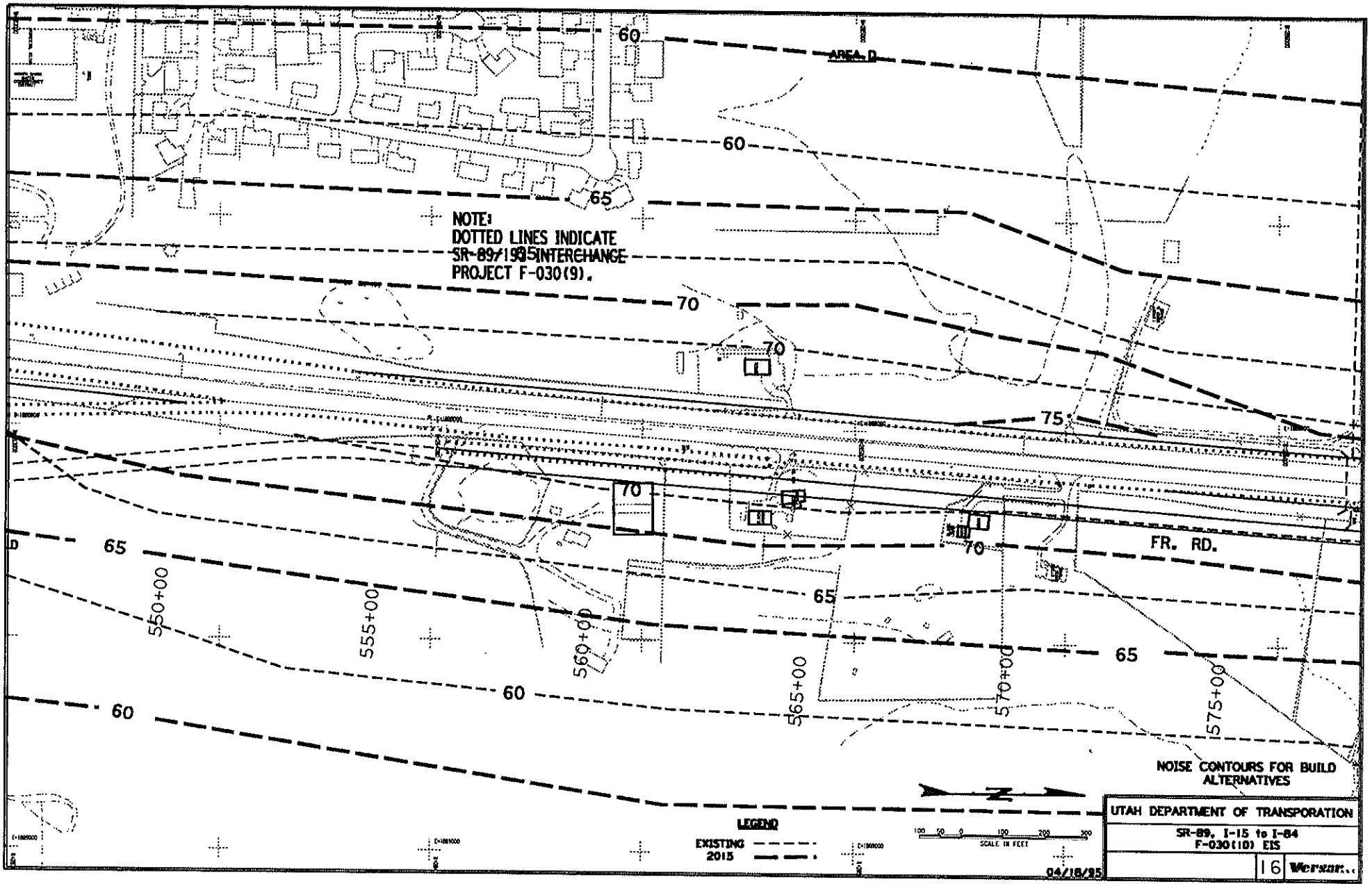

MATCH FUTURE LAYTON CITY STREET
FUTURE RAINBOW DRIVE BY CITY
AREA C
CHERRY LANE
FR. RD.
FR. RD.
60
65
70
70
65
60
70
70
70
65
60
60
425+00
430+00
435+00
440+00
445+00
50+00
LEGEND
EXISTING
2015
NOISE CONTOURS FOR BUILD ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
12
SCALE IN FEET
04/18/95

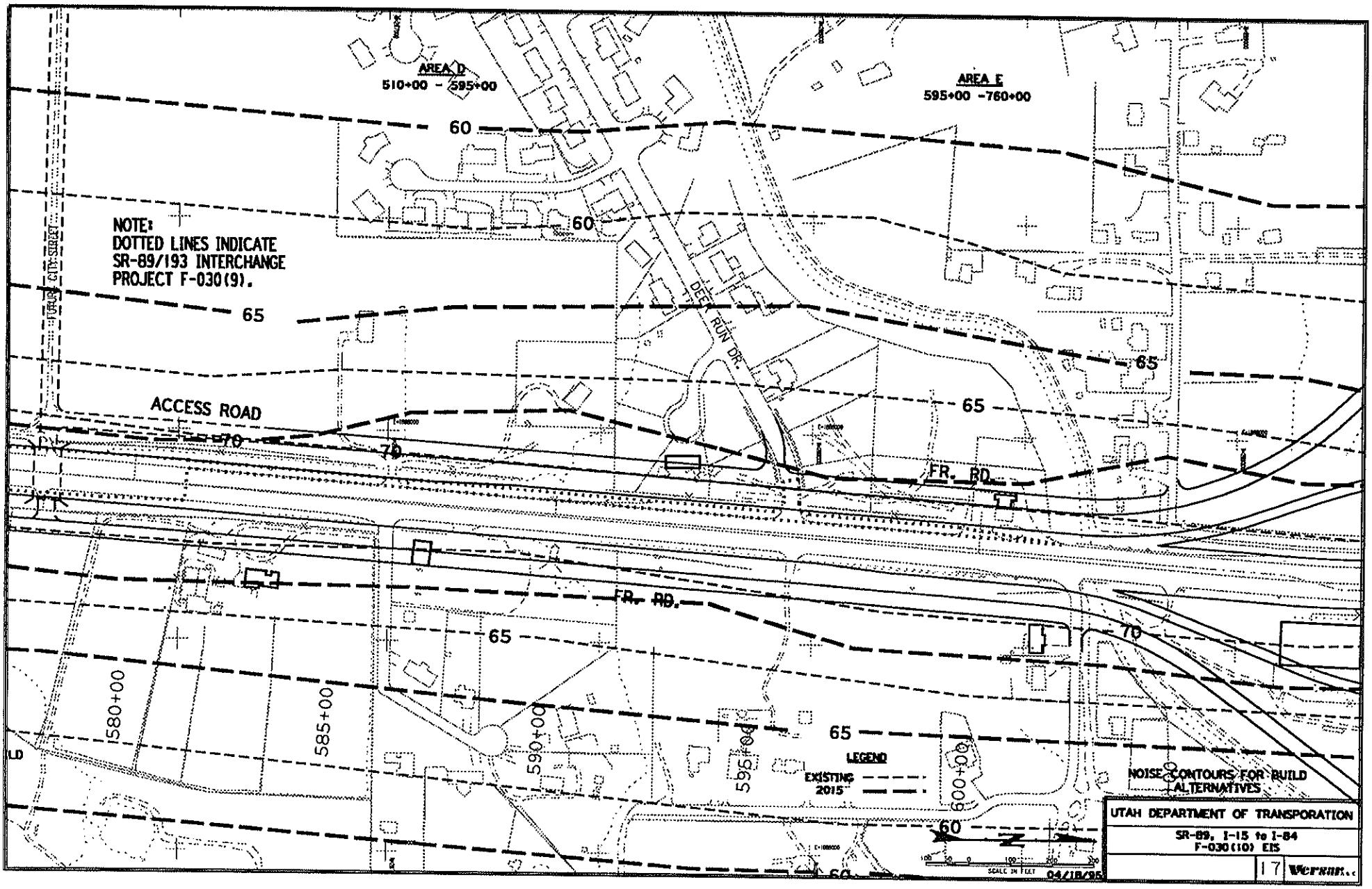


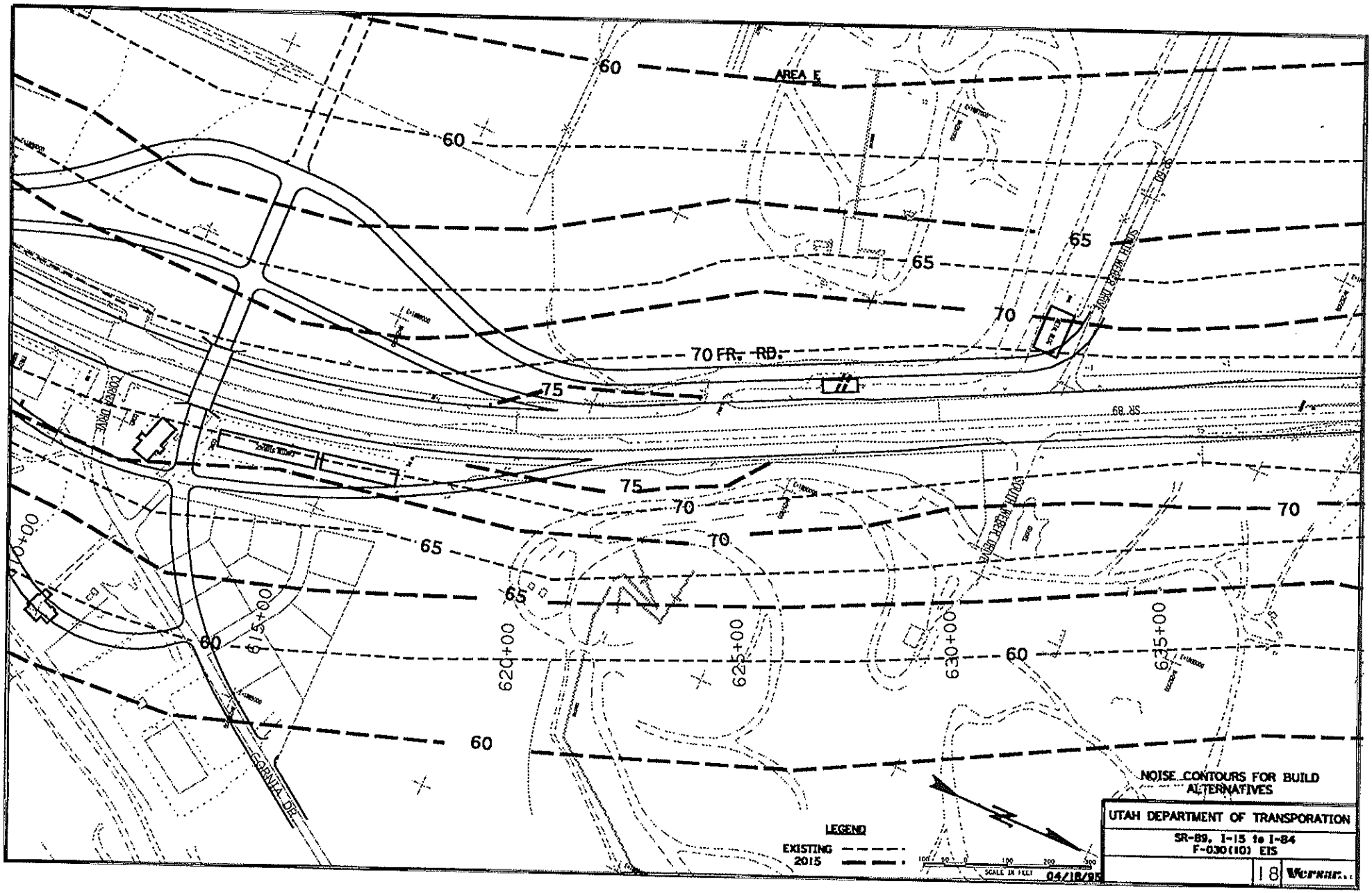
AREA C
FUTURE ANTELOPE DRIVE BY CITY
60
65
70
FR. RD.
COUNTRY OAK DR 1925 N
OAK LANE 2030 N
1650 N
455+00
460+00
465+00
470+00
475+00
480+00
LEGEND
EXISTING
2015
SCALE IN FEET
04/18/95
NOISE CONTOURS FOR BUILD ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
13


KAYS CREEK DR.
AREA C
300+00 - 510+00
SUNSET DR.
2500 N
AREA D
510+00 - 595+00
60
60
65
NOTE:
DOTTED LINES INDICATE
SR-89/193 INTERCHANGE
PROJECT F-030(9).
2300 N
FR. RD.
65
70
70
75
70
65
LDS
CHURCH
65
60
60
485+00
490+00
495+00
500+00
505+00
510+00
515+00
VALLEY VIEW
LEGEND
EXISTING
2015
SCALE IN FEET
04/18/95
NOISE CONTOURS FOR BUILD
ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
14


AREA D
NOTE:
DOTTED LINES INDICATE
SR-89/193 INTERCHANGE
PROJECT F-030(9).
60
65
70
SR-89
SR-193
520+00
525+00
530+00
535+00
540+00
LEGEND
EXISTING
2015
SCALE IN FEET
04/18/95
NOISE CONTOURS FOR BUILD ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
15
Vernon


60
AREA D
60
65
NOTE:
DOTTED LINES INDICATE
SR-89/1935 INTERCHANGE
PROJECT F-030(9).
70
70
75
70
70
FR. RD.
65
65
65
60
60
550+00
555+00
560+00
565+00
570+00
575+00
LEGEND
EXISTING
2015
SCALE IN FEET
04/18/95
NOISE CONTOURS FOR BUILD ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
16


AREA D
510+00 - 595+00
AREA E
595+00 -760+00
NOTE:
DOTTED LINES INDICATE
SR-89/193 INTERCHANGE
PROJECT F-030(9).
60
65
70
ACCESS ROAD
FR. RD.
DEER RUN DR.
580+00
585+00
590+00
595+00
600+00
LEGEND
EXISTING
2015
NOISE CONTOURS FOR BUILD ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
17
04/18/95



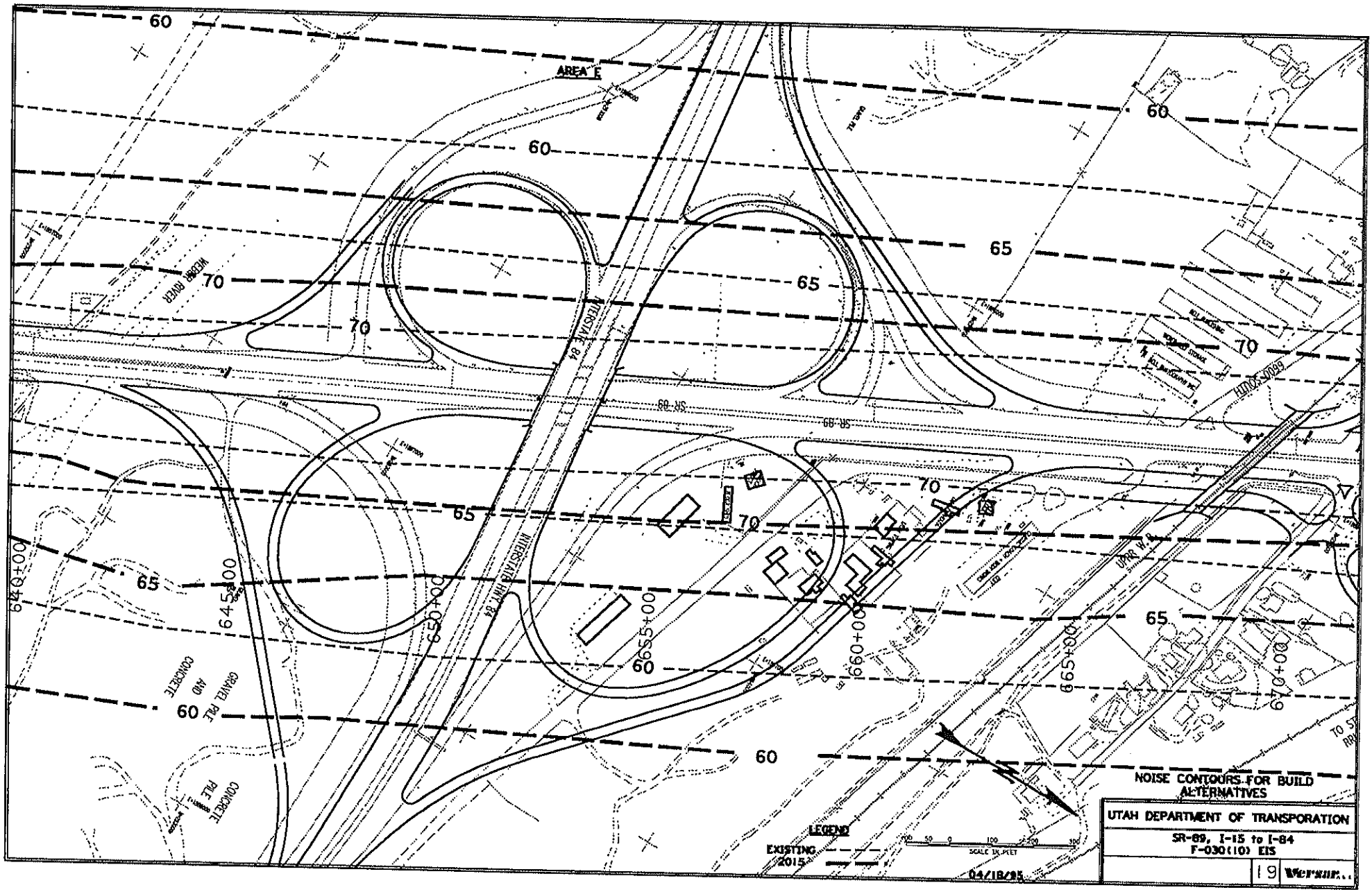
NOISE CONTOURS FOR BUILD ALTERNATIVES

UTAH DEPARTMENT OF TRANSPORATION

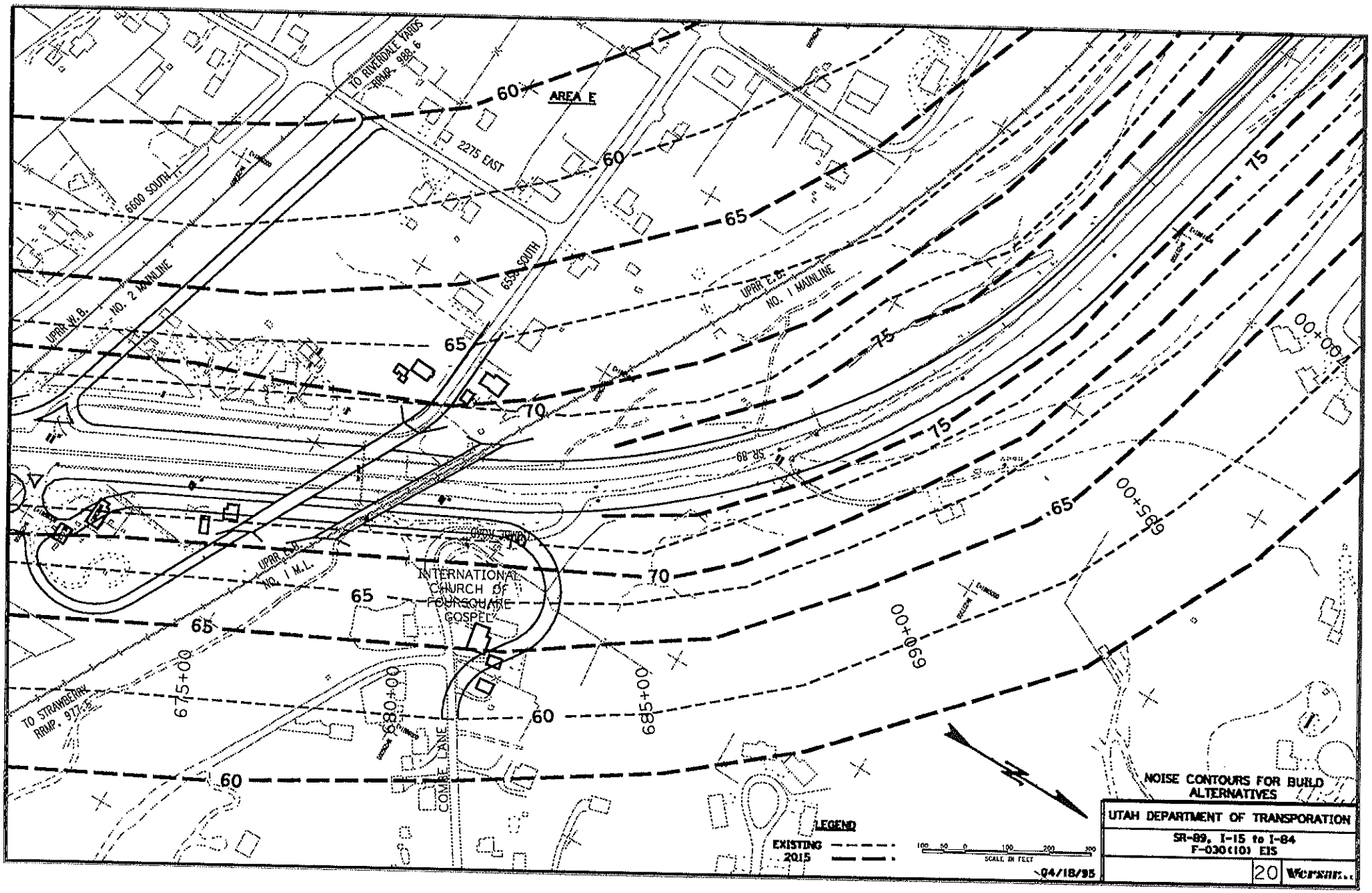
SR-89, I-15 to I-84
F-030(10) EIS

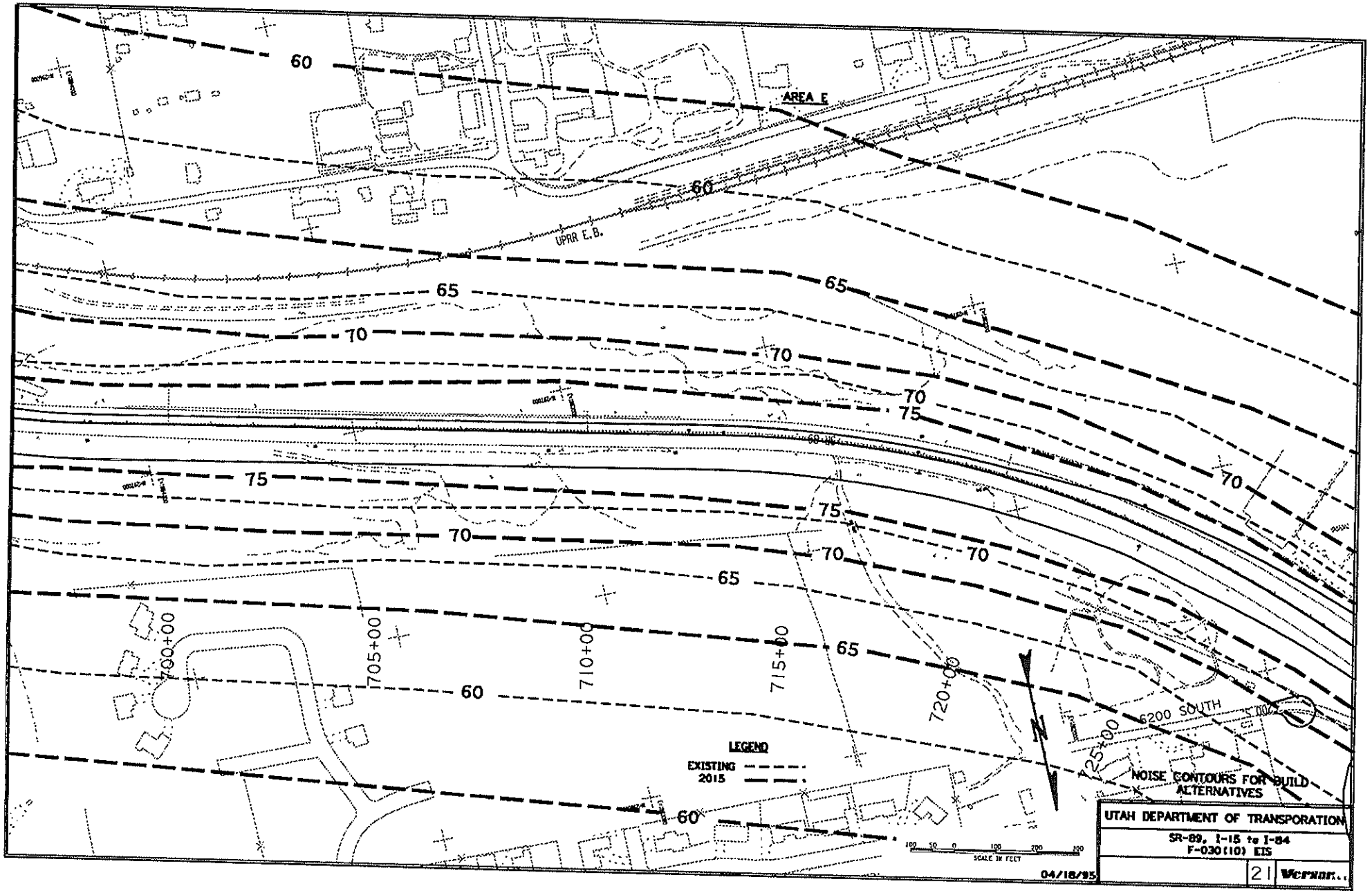
18

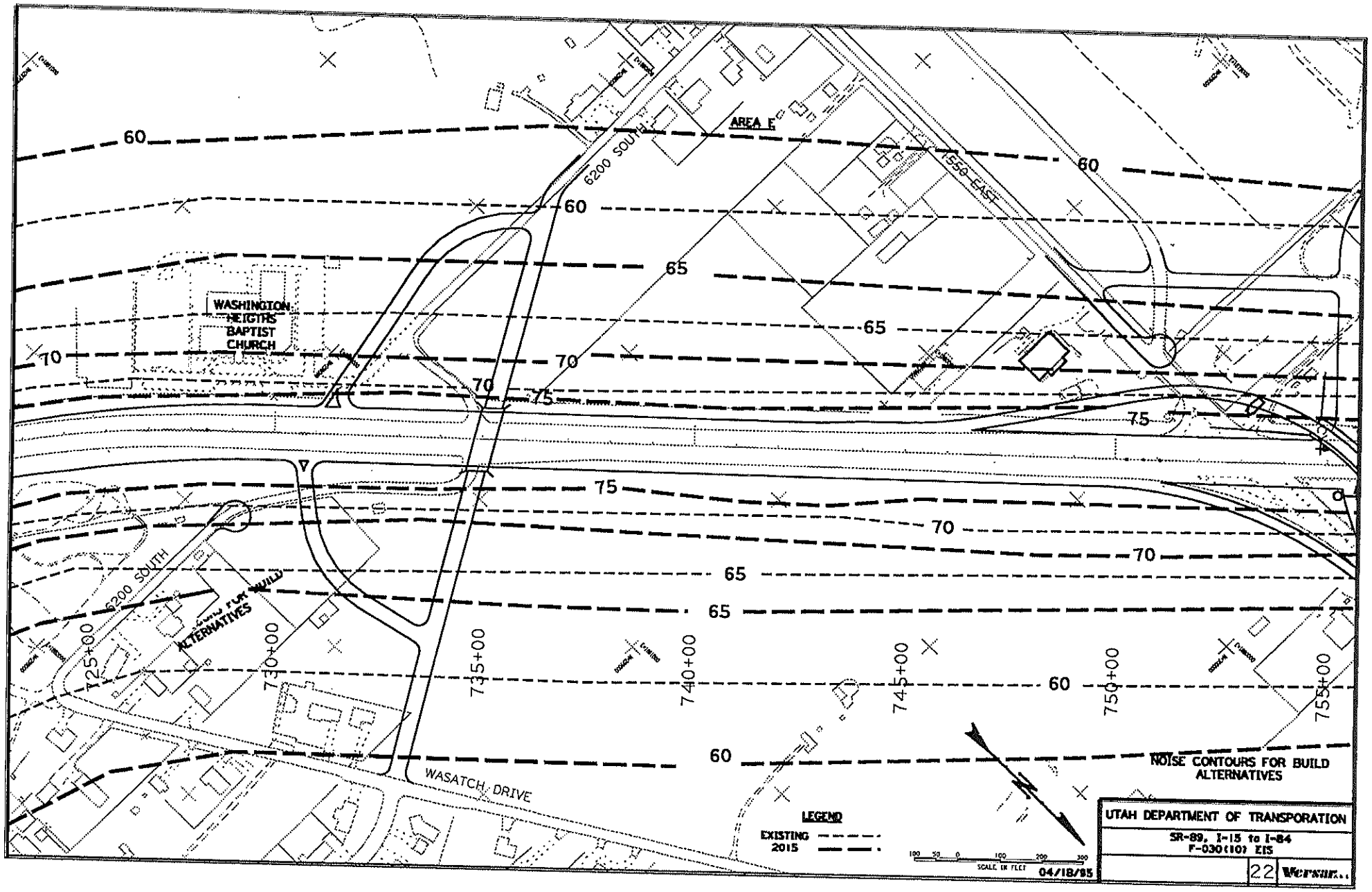
Wernar...

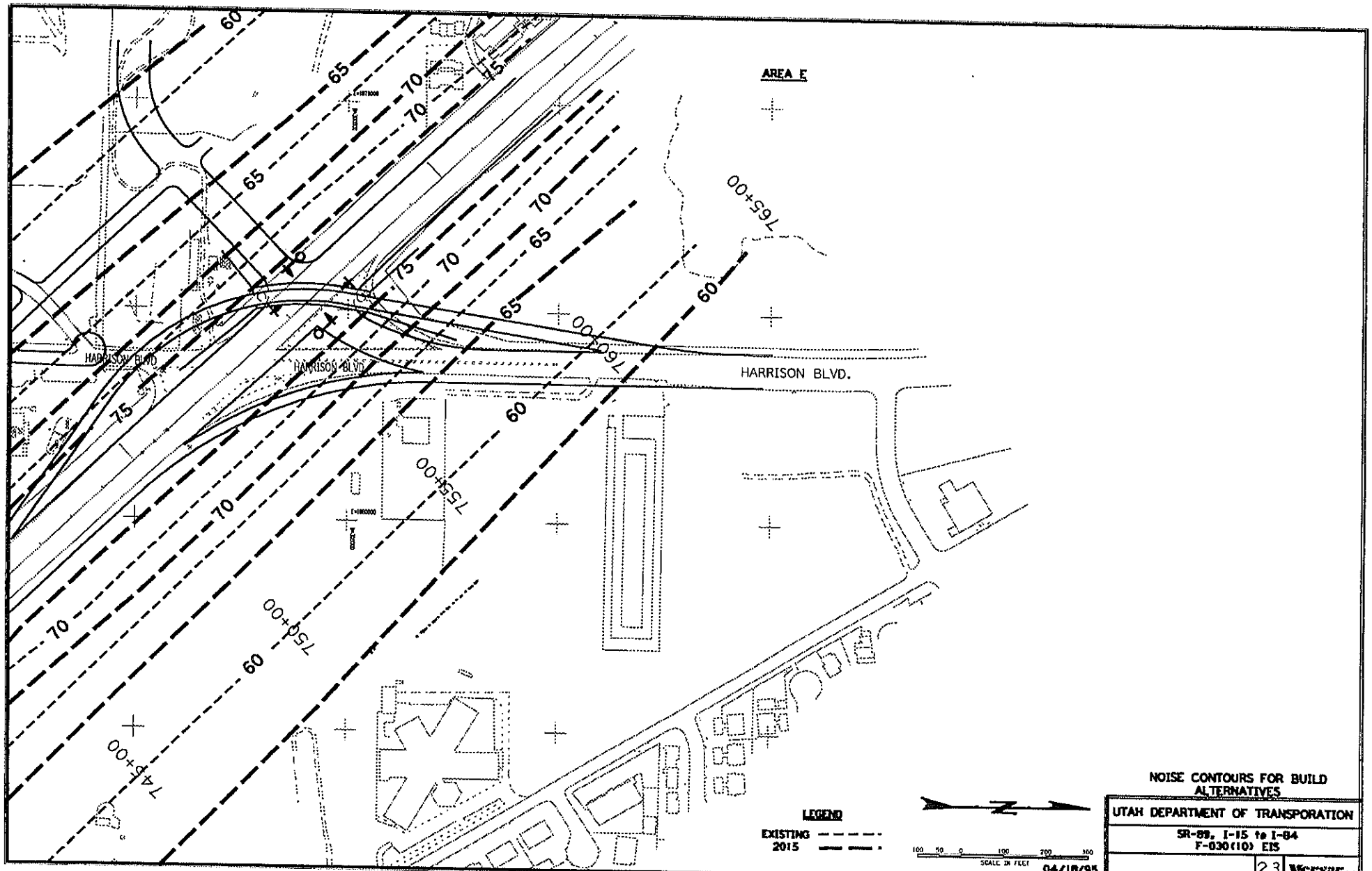


AREA E
60
65
70
WEBER RIVER
INTERSTATE 84
SR-89
640+00
645+00
650+00
655+00
660+00
665+00
670+00
GRAVEL PILE AND CONCRETE
CONCRETE PILE
UPRR W.R.
LEGEND
EXISTING
2015
SCALE IN FEET
04/18/95
NOISE CONTOURS FOR BUILD ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
19


AREA E
TO RIVERDALE YARDS RRMP. 988.6
2275 EAST
6600 SOUTH
6550 SOUTH
UPRR W.B. NO. 2 MAINLINE
UPRR E.B. NO. 1 MAINLINE
UPRR NO. 1 M.L.
SR-89
INTERNATIONAL CHURCH OF FOURSQUARE GOSPEL
COMBE LANE
TO STRAWBERRY RRMP. 977.5
60
65
70
75
675+00
680+00
685+00
690+00
695+00
700+00
LEGEND
EXISTING
2015
SCALE IN FEET
04/18/95
NOISE CONTOURS FOR BUILD ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
20
Wasatch


AREA E
UPRR E.B.
60
65
70
75
700+00
705+00
710+00
715+00
720+00
725+00
6200 SOUTH
LEGEND
EXISTING
2015
SCALE IN FEET
04/18/95
NOISE CONTOURS FOR BUILD ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
21
Wernan...


AREA E
6200 SOUTH
1550 EAST
WASHINGTON HEIGHTS BAPTIST CHURCH
60
65
70
75
6200 SOUTH
ALTERNATIVES
725+00
730+00
735+00
740+00
745+00
750+00
755+00
WASATCH DRIVE
LEGEND
EXISTING
2015
100 50 0 100 200 300
SCALE IN FEET
04/18/95
NOISE CONTOURS FOR BUILD ALTERNATIVES
UTAH DEPARTMENT OF TRANSPORATION
SR-89, I-15 to I-84
F-030(10) EIS
22



NOISE CONTOURS FOR BUILD ALTERNATIVES

UTAH DEPARTMENT OF TRANSPORATION

SR-88, I-15 to I-84
F-030(10) EIS

23

Versar...

Utah Department of Transportation

Policy

NOISE ABATEMENT

The following policy is consistent with *23 CFR 772* (FHWA Noise Standards). It is provided to address highway noise impacts and to determine the conditions under which noise abatement may be approved.

A. DEFINITIONS.

1. Existing Noise Level - the noise level (Leq) usually present in a particular area during worst traffic noise conditions.

2. Design Noise Level - Or "Design Year Noise Level". The noise level (Leq) calculated for the worst traffic noise conditions likely to occur on a regular basis during the future design year, without noise abatement.

3. Leq - equivalent (average) noise level, in units of dBA (A-weighted decibels).

4. Sensitive land uses - dwelling units or other fixed, developed sites of frequent human use within 300 m of the Department right-of-way line. (See last page, Table 1.)

5. Type I Project - Construction of a highway on new location, or physical alteration of an existing highway which significantly changes the alignment or increases the number of through-traffic lanes.

6. Type II (Retrofit) Project - a proposed highway project strictly for noise abatement on an existing highway.

B. APPLICABILITY.

1. Type-I Projects. Noise abatement will be considered for Type-I projects where noise impacts are identified. (See Section C.)
A new or proposed subdivision or other development must have obtained approval for final plans prior to either of the following dates, whichever comes first:

   a. The earliest environmental approval date of the highway improvement.

   b. The date that the local agency's master plan has designated the highway for major improvements.

2. Type-II (Retrofit) Projects. Noise abatement will be considered for Type-II projects where current noise impacts are identified and under the following conditions:

   a. As requests are received by the Department from local government agencies, noise studies will be conducted and qualifying projects will be prioritized.

   b. Local authorities must have taken measures to exercise land use control over the remaining undeveloped lands adjacent to State highways in the local jurisdiction to prevent further development of incompatible activities.

   c. Type-II projects apply only to freeways (high speed highways with full access control) and expressways (high speed highways with limited access control).

   d. Developments that come into existence after the earliest date of public knowledge of the highway's approved alignment will not be considered for Type-II projects.

   e. Residences are the primary focus of Type-II noise abatement.

   f. Type-II projects will be prioritized for funding purposes, according to the formula below. A "Priority Index" (PI), used to prioritize these projects, is based upon noise level and waiting time on the prioritized list. The project with the highest PI has the highest priority. In case of a tie, the project with the earliest local agency request date is higher on the list.

      $$PI = L + 2Y$$

      L = Design noise level for typical dwellings nearest the highway.

      Y = Number of times that annual legislative funding opportunities have passed by the project while on the prioritized list. The value of Y is determined on July 1st of each calendar year. (For the formula, Y may not exceed 4, even though the project may remain on the list much longer.)

   g. Projects from the prioritized list will be designed and built as funding becomes available for Type-II projects. Projects that are not high enough on the list to be funded will be carried over to the next year's list and reprioritized along with new projects.

C. NOISE IMPACT DETERMINATION. A traffic noise impact occurs, for purposes of this policy, when either of the following conditions occurs at a sensitive land use (as defined in Section A4):

1. The design noise level approaches (is within 2 dBA of) or exceeds the Noise Abatement Criterion (NAC) in Table 1. (Applies to both Type-I and Type-II projects)

2. The design noise level substantially exceeds (10 or more dBA) the existing noise level. (Applies to Type-I projects only)

D. ABATEMENT OBJECTIVE. When noise abatement measures are being considered, every reasonable effort will be made to obtain substantial noise reductions, consistent with current Department procedures.

E. ABATEMENT CONDITIONS. In order to be considered for abatement, all of the following conditions must be met (if applicable):

1. At least 5 dBA of noise reduction must be achieved at typical impacted receivers nearest the highway.

2. Residential dwellings: The cost per dwelling in the formula shown below should not exceed either of the following limits. These limits are tied to an index which will be published annually by the Department. The index relates to a 3-year average bid price of noise walls:

   a. Abatement Limit - a limit for fabrication and installation of noise abatement measures without appurtenances (other direct costs).

   b. Direct Cost Limit - a limit for noise abatement measures with appurtenances. Appurtenances are direct costs associated with the noise abatement and depend on the particular site. They may include protective safety barriers, landscaping and associated irrigation, aesthetic or sound absorbing treatment on walls, new right-of-way, and easements for construction and/or maintenance.

   $$\text{Cost per dwelling} = \frac{C}{SD}$$

   C = total cost of abatement.

   D = total number of impacted dwellings that will likely receive some noticeable benefit (3 dBA or more) within 300 m of the Department right-of-way.

   S = Severity factor - an average weight applied to the number of affected dwellings, related to the amount of noise impact. For Type-II projects, S = 1.

TABLE OF SEVERITY FACTORS, S
(applicable only to Type-I projects)

Does the Design Noise Level approach or exceed the NAC?	Increase in Noise Level (Predicted - Existing)			
	0-9	10-19	20-29	30+
Yes	1	2	3	4
No	*	1	2	3

(* Impact severity = 0, so abatement is not considered)

3. Noise barriers will not be planned for dwellings with access directly onto the highway. (The reasons are poor barrier performance and poor sight-distance.)

4. Noise abatement will not be planned for Land Use Categories C and D (shown in Table 1):

5. Other Land Use types will be analyzed on a case by case basis.

F. OTHER CONSIDERATIONS. Noise reduction benefits shall be consistent with overall social, economic, and environmental conditions on both sides of the highway. Aesthetics shall be considered where appropriate (including graffiti deterrence and surrounding landscape). Other factors may be considered.

G. DECLARATION OF INTENT. Environmental documents will indicate those areas where mitigation is "likely." In stating intentions, it is important to indicate to the public that "likely" does not mean a firm commitment. A final decision of the installation of the abatement measures will be made upon completion of the project design and the public involvement process.

H. PUBLIC INVOLVEMENT. Department representatives will meet with the local government agency, affected residents (on both sides of the highway), and land owners. This shall be done prior to completion of design. The concerns of the impacted land owners, residents, and local government agency will be a major consideration in reaching a decision on the abatement measures to be provided.

Noise abatement will not be planned after local government agency and affected land owner involvement if it is obvious that the majority of the affected people are in opposition or indifferent to noise mitigation. However, the Department will try to accomodate concerns of individual land owners.

I. COORDINATION WITH LOCAL OFFICIALS. Effective control of highway traffic noise requires land uses near highways to be controlled. However, land use planning and control are responsibilities of local government jurisdictions. Therefore, the Department will assist local government agencies by giving information that will help them to be aware of incompatible land uses near state highways.

The Department will coordinate in the local government review process with regard to aesthetics, height, and other design features of the proposed noise abatement measure.

J. PRIVATE PARTICIPATION. In instances where abatement costs would exceed a limit in Section E2, property owners and/or the local government agency may be offered the option to share in the cost of abatement. In order for the Department to participate in shared abatement costs, the following conditions must be met:

1. The Department's share of the cost will not exceed the limits in Section E2. The participating property owners and local government agency shall pay the Department an amount equal to the estimated cost of the abatement measure and appurtenances proposed that exceeds the limits in Section E2. The settlement agreement will be signed before design begins. Payment shall be made to the Department before construction begins.

2. The participating property owners' or local government agency's final share shall be based on actual construction costs.

K. CONSTRUCTION OFF RIGHT-OF-WAY. Normally, noise barriers (walls or berms) built pursuant to this policy will be constructed within Department right-of-way and owned and maintained by the Department. There are cases in which Department right-of-way is not the most prudent location for noise barriers, yet noise abatement can be very feasible and reasonable if built on adjacent property (or adjacent public right-of-way). In these cases:

1. The Department's cost is limited to normal cost for abatement on Department right-of-way.

2. In no case will the Department construct a noise barrier unless the adjacent property owners allow access and easements as necessary in order to construct and maintain the barrier.

3. Maintenance of noise walls and associated landscaping on the side facing the highway shall normally be the Department's responsibility. The opposite side shall be maintained by the property owner.

4. When landscaping is included off the Department right-of-way, the Department and landowner will sign an irrigation agreement. The Department will not pay for irrigation off the right-of-way.

TABLE 1 - NOISE ABATEMENT CRITERIA

Hourly A-Weighted Sound Level - decibels (dBA)

Activity Category	Leq	Description of Activity Category
A	57 (Exterior)	Lands on 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.
B	67 (Exterior)	Picnic areas, fixed recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Cemeteries, commercial areas, industrial areas, office buildings, and other developed lands, properties or activities not included in Categories A or B above.
D	No limit	Undeveloped lands, including roadside facilities and dispersed recreation. (A new or proposed subdivision meeting the requirements of Section B1 is Category B, not D.)
E	52 (Interior)	Motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums. (The interior criterion only applies when there are no exterior activities to be affected by traffic noise.)

APPENDIX F
WETLANDS/FLOODPLAIN ASSESSMENT

UTAH DEPARTMENT OF TRANSPORTATION - ENVIRONMENTAL DIVISION

ASSESSMENT FOR STREAMS AND THEIR ADJACENT WETLANDS WHICH ARE BELOW HEADWATERS OR ISOLATED WETLANDS GREATER THAN ONE ACRE PURSUANT TO EXECUTIVE ORDER 11990, SECTION 404 OF THE CLEAN WATER ACT AND FHWA TECHNICAL ADVISORY T6640.8A
Documented by a wetland scientist or biologist approved by the U.S. Army Corps of Engineers

Project Number _____ Project Name US-89, Farmington to South Ogden

Name of Stream (if any) See Figure 3.8-1 in DEIS County Davis & Weber

Prepared By Versar, Inc. Date October, 1994 District 1

IDENTIFY THE TYPE, NATURE, AND SCOPE OF PROJECT (PROPOSED CONSTRUCTION) CHECK ONE:

New Construction (alignment) _____ Reconstruction XX
Bridge Replacement _____ Widening _____
Other _____

AVOIDANCE:

CHECK THE FOLLOWING AS THEY APPLY:

I. NO IMPACT ON WETLANDS BY THE PROJECT - _____
No further wetland assessment required on this form.

II. AVOIDANCE OF WETLANDS WAS CONSIDERED, HOWEVER THERE WERE NO PRACTICABLE ALTERNATIVES. XX

III. EVALUATE THE ALTERNATIVES THAT AVOID THE WETLANDS:

For each of the alternatives provide the appropiate information under items : **V. IDENTIFICATION** and **VI. IMPACT ON WETLANDS.**

MINIMIZATION

IV. FOR THE PROPOSED CONSTRUCTION, IDENTIFY THE PRACTICABLE MEASURES TO MINIMIZE IMPACT ON THE WETLANDS.

A. Describe measures used to minimize the impact to the wetlands site.

Studied the possibilities of relocating frontage roads and interchanges/intersections. Also assessed the possibilities of development of completely new roadway corridor.

FINDINGS:

V. IDENTIFICATION

Size of wetland area impacted:_____ acres. See attached Table 4.13-1.

A. Check the type and quality of wetland listed below:
- _____ a. Open water wetlands with little vegetation
- _____ b. Submerged vegetation
- _____ c. Vegetation with intermittent ponding
- XX d. Vegetation with saturated soil
- XX e. Intermitent wetland vegetation
- _____ f. Dominated by shrubs and forest growth
- _____ g. Dependent on adjacent waterways
- Yes h. Is the plant growth alive ~~or dead~~?
- No i. Is there fish or animal usage?

B. Function of the wetlands impacted. Do they provide:
- XX a. Flood control or storage
- _____ b. Erosion control
- _____ c. Sediment control
- _____ d. A trap for pesticides, herbicides, or heavy metals
- XX e. Ground water recharge
- XX f. ~~Fish and~~ wildlife habitat
- _____ g. Recreational or easthetics value
- _____ h. A dominant link in the food chain
- _____ g. Other: _____

EVALUATION:

VI. IMPACT ON WETLANDS DUE TO THE PROJECT

A. Importance of Wetlands.

1. Identify the primary Functions of the wetlands:
   - _____ a. Provides flood control or storage
   - XX b. Enhances wildlife habitat
   - _____ c. Perpetuates groundwater recharge
   - _____ d. Provides unique wetlands
   - _____ e. water quality
   - _____ f. Other _____

2. Identify the importance of the wetland function relative to the total wetland resource of the area.

   Wildlife habitat _____

   _____

B. Severity of the Impact.

1. Describe the effect of the project on the stability and quality of the wetland.

   The filling of impacted wetlands will not reduce or impact the stability and quality of remaining wetlands.

2. Describe the short and long term effects on the wetlands. Indicate the importance of any losses such as the following:

a. Flood control capacity No short or long term effects expected.

b. Shoreline anchorage potential N/A

c. Water pollution abatement capacity No short or long term effects expected.

d. Fish and wildlife habitat value Will cause wildlife to move to other nearby habitat in the area. Creation of mitigated wetlands will provide new habitat areas.

e. Other

MITIGATION:

VII. APPROPRIATE MITIGATION FOR THE PROPOSED CONSTRUCTION

A. Will the mitigation include replacement, the enhancement of existing wetlands, or some other form of compensation? Explain. Primary mitigation is functional value replacement with some enlargement and enhancement of existing wetlands.

B. Identify the location, type, functional value and size of the mitigation site. (Include appropriate maps showing the affected areas and mitigation sites).

Attached Figure 4.13-1 shows locations of conceptual wetland mitigation sites.

CONCLUSION:

VIII. CONCLUSIONS AND CONDITIONS

CHECK ONE :

_____Nationwide General Permit applies
__XX__Individual Permit applies

"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 measures to minimize harm to wetlands which may result from such use."

Conditions and the Best Management Practices of the 404 Nationwide General Permit and Individual Permit, requiring and outlining practicable measures to minimize harm to wetlands, shall be complied with.

Check the appropriate agencies that have been contacted. (Document results of any communication with them).

__XX__ U.S. Army Corps of Engineers
_____ Utah Division of Water Rights
__XX__ U.S. Fish and Wildlife Service
__XX__ Utah Division of Wildlife

Form prepared by :

Lindi Gregory Date Oct. 10, 1994

Versar, Inc.
designer

UDOT recommendation for approval by:

Jay Devashrayee, Date 7-31-95
Jay Devashrayee

TABLE C-1
LIST OF FEMA FLOODPLAIN MAPS
FOR US-89 STUDY AREA

COMMUNITY	STREAM(S)	FEMA MAP #	MAP DATE	TYPE OF MAP*
1. Uintah Town	Weber River	490192	1981	FIS, FIRM
2. Davis County, Unincorp. Areas	Farmington, Baer, Haight, Holmes, Kays, Snow Creeks	490038	1982	FIS, FHBM, FIRM
3. Fruit Heights City	Baer, Haight, Shepard Creeks	490045	1981	FIS, FHBM
4. South Weber City	Weber River	490049	1981	FIRM, FHBM
5. Weber County, Unincorp. Areas	Weber River	490187	1982	FIS, FIRM
6. Layton City	Kays, Snow, Holmes Creeks	490047	1982	FHBM, FIRM
7. Kaysville City	Holmes, North Fork Holmes, Baer Crks.	490046	1981	FIS, FHBM, FIRM
8. Farmington City	Shepard, Haight, Farmington Creeks	490044	1981	FIS, FHBM, FIRM

* FIS - FLOOD INSURANCE STUDY
FHBM - FLOOD HAZARD BOUNDARY MAP
FIRM - FLOOD INSURANCE RATE MAP

UTAH DEPARTMENT OF TRANSPORTATION

FLOODPLAIN, WATER QUALITY, WETLAND, WATER BODY MODIFICATION AND WILDLIFE IMPACTS AND PERMIT EVALUATION

Name of Stream Unknown
Station 210+00 Right (Frontage Rd.)
Reference Point Milepost 336.83
Approved by [signature]
Date Approved 7-31-95

Date 13 Jan. 1993
County Davis
Proj. Name US-89 EIS
Region 1
Prepared by B. Wilson

I. Coordination with the Federal Emergency Management Agency (F.E.M.A.) in Regards to Highway Encroachments on Floodplains.

A. Indicate which of the following F.E.M.A. programs local community has adopted.

1. _____ Emergency Program
2. X Regular Program
3. _____ Non Applicable; Explain_____

B. Types of F.E.M.A. maps available, if any.

1. X Flood Hazard Boundary Map (FHBM)
2. X Flood Insurance Rate Map (FIRM)
3. X Flood Boundary and Floodway Map (FBFM)

C. Do F.E.M.A. guidelines apply to the project?

Yes X ; No_____; Nonapplicable_____; Explain_____

II. 404 Permit Requirements with U.S. Army Corps of Engineers

A. Nationwide General Permit Requirements

1. Stream Crossing or Encroachment.

a. Does project involve a stream crossing or encroachment?

Yes X ; No_____

If answer is Yes, go to next question.
If answer is No, go to IIA2.

b. Is stream flow less than 0.14 cms (5 cfs) at least 6 months of the year?

Yes X ; No___, Specify Quantity_____cms (cfs)

If answer is Yes, location is above headwaters, go to next question.
If answer is No, go to II Ald.

c. Is surface area of disturbed stream less than 0.405 hectares (1 acre)?

Yes_____; No__X_____; Specify Quantity 0.44 (1.09) hectares (acre)

If answer is Yes, Nationwide General Permit applies.

If answer is No, and the disturbed surface area of the stream is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General Permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

d. Is quantity of fill material below ordinary high water less than 153 cubic meter (m^3) (200 yd^3)?

Yes_____; No__X_____; Specify Quantity_m^3 (yd^3)

If answer is Yes, Nationwide General Permit applies.

If answer is No, go to IIB.

2. Wetlands

Will the project affect wetlands?

Yes_____; No_____

If answer is No, go to III.

If answer is Yes, check one of the following:

a. Project involves wetlands with no stream encroachment_____
b. Project involves wetlands with stream encroachment_____

If a. is checked, go to (aa).

If b. is checked, go to (bb).

(aa) Is surface area of disturbed wetlands less than 0.405 hectares (1 acre)?

Yes_____; No_____; Specify
Quantity_____hectares (acre)

If answer is Yes, Nationwide General Permit applies.

If answer is No and the disturbed surface area of wetlands is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General

permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

(bb) Will materials discharge into wetlands adjacent to the waterbody extend beyond 30.5 meter (100 ft) on either side of the ordinary high water of the waterbody?

Yes_____; No_____

If answer is No, Nationwide General Permit applies.
If answer is Yes, go to (cc).

(cc) Is quantity of fill material into wetlands greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____; No_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to (dd).

(dd) Is quantity of fill material into wetlands greater than 382.2 m^3 (500 yd^3)?

Yes_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

B. Statewide General Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____ No__X__; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to II C.

C. Individual Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 382.2 m^3 (500 yd^3)?

Yes_____; Specify Quantity_____m^3 (yd^3) - Alt. 1, _____m^3 (yd^3) - Alt. 2, ___ m^3 yd^3 - Alt. 3

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

III. Coordination with the Utah Division of Water Rights in Regard to Stream Alteration or Modification.

Check one of the following:

A. ___ Project involves no stream alteration or modification at all. No further action is required.

B. ___ Project involves minor stream alteration or modification of insignificant nature. During design stage of a project, coordination with the Division of Water Rights through the Hydraulics Section should be made.

C. _X_ Project involves major stream alteration or modification of significant nature. During design stage of a project, application for alteration or modification of stream must be filed with the Division of Water Rights through the Hydraulics Sections.

IV. Water Quality Considerations

Check the following items that apply:

A. Live Stream_____; Intermittent Stream__X____

B. Impact due to erosion or siltation on water quality from construction.

Significant_____; Insignificant____X__

If impact is significant

1. ___ Elaborate study, evaluation and monitoring of water quality of stream required.

2. ___ Mitigation measures as required.

3. ___ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

If impact is insignificant

1. _X_ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

2. ___ Other Methods?_____; Specify_____

_____

V. Coordination with the Utah Division of Wildlife Resources and U.S. Fish and Wildlife Service

A. Is stream live? Yes_____; No__X_____

B. Does stream carry any fish habitat? Yes_____; No__X_____

C. If stream does not carry any fish habitat now, does it have potential for it in the future? Yes__; No___X_____

If answer to all of the above questions is No, no further action is required.

If answer is Yes to any of the above questions during the design stage of a project, coordination with both agencies must be made.

VI. Coordination with the Utah State Division of Water Quality

Check the following items as applicable.

A. Does project involve design and construction of storm drain?

Yes_____; No__X_____

If answer is No, no further action is required.

If answer is Yes, is storm drain outfall discharge greater than 0.057 cms (2 cfs)_____? Less than 0.057 cms (2 cfs)_____?

If storm drain outfall discharge is less than 0.057 cms (2 cfs), no further action is required.

If storm drain outfall discharge is greater than 0.057 cms (2 cfs), construction permit from the Utah State Division of Health must be obtained upon completion of the design of storm drain.

B. Does project disturb more than 2.02 hectares (5 acres) of surface area during construction?

Yes _X___; No _____

If answer is No, no further action is required.

If answer is Yes, UPDES General Storm Water Discharge Permit issued to UDOT applies.

As part of the requirements of the UPDES General Storm Water Discharge Permit:

a) Development and Implementation of Storm Water Pollution Prevention Plan required _X___.

b) Submittal of Notice of Intent (NOI) through the Environmental Division to the Utah Division of Water Quality required _X_.

VII. Evaluation of Encroachments on Floodplains and its Effect, if Any

A. Type and Size of Existing Structure

Check one

___ 1. Pipe Culvert
___ 2. Box Culvert
___ 3. Bridge
___ 4. Roadway Fill

Type of Proposed Structure

___ 1. Pipe Culvert
___ 2. Box Culvert
___ 3. Bridge
_X_ 4. Roadway Fill

B. Identify Existing Conditions and Features Near Existing or Proposed Structure.

Project is located in:

Check one

___ 1. An urban area
_X_ 2. A semi-urban area
___ 3. A rural area

C. Nearby Buildings

_X_ 1. Residences
___ 2. Farm Buildings
___ 3. Commercial Buildings
___ 4. Shopping Center
___ 5. Other_____Specify_____

_____

D. Adjacent Property

Check One

_X_ 1. Private
___ 2. Cropland
___ 3. Commercial
___ 4. Public
___ 5. Other_____Specify_____

_____

E. Determination of Floodplain

1. Is stream confined to a well-defined and deep-narrow channel for most flows?

   Yes_____; No__X____

   If answer is Yes, then floodplain encroachment is insignificant or none.

2. If answer is No, is there a floodplain to convey ordinary high water flows?

   Yes___X_____; No_____

   If answer is Yes, does the floodplain area include sensitive features such as buildings, roads and other man-made facilities?

   Yes___X_____; No_____

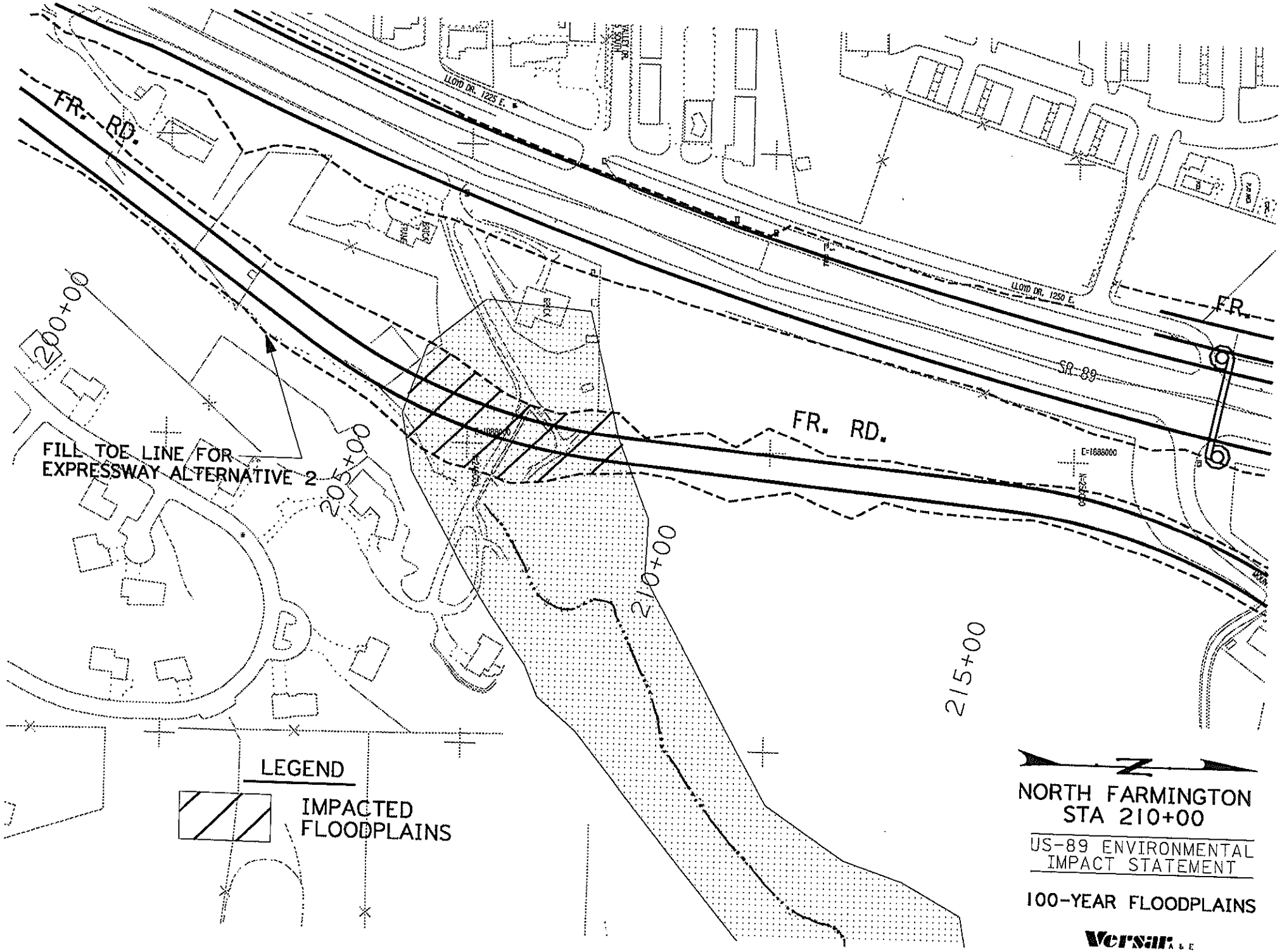
   If answer is Yes, will the overbank flow affect sensitive properties as described above?

   Yes___X_____; No_____

   If answer is No to the last two questions, no further action is required.

   If answer is Yes to either of the last two questions, an affirmative action for "economic assessment" must be completed for project at the design stage.

F. Determine whether encroachment on floodplain is significant or insignificant using economic assessment procedure developed by the UDOT.


FR. RD.
LLOYD DR. 1225 E.
LLOYD DR. 1250 E.
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SR-89
FR. RD.
E=1688000
200+00
205+00
210+00
215+00
FILL TOE LINE FOR
EXPRESSWAY ALTERNATIVE 2
LEGEND
IMPACTED
FLOODPLAINS
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NORTH FARMINGTON
STA 210+00
US-89 ENVIRONMENTAL
IMPACT STATEMENT
100-YEAR FLOODPLAINS
Versar

UTAH DEPARTMENT OF TRANSPORTATION

FLOODPLAIN, WATER QUALITY, WETLAND, WATER BODY MODIFICATION AND WILDLIFE IMPACTS AND PERMIT EVALUATION

Alternatives 1, 2, & 3

Name of Stream Haight Creek
Station 235+00 E/W
Reference Point Milepost 337.21
Approved by [signature]
Date Approved 7-31-95

Date 27 Jan. 1993
County Davis
Proj. Name US-89 EIS
Region
Prepared by B. Wilson

I. Coordination with the Federal Emergency Management Agency (F.E.M.A.) in Regards to Highway Encroachments on Floodplains.

A. Indicate which of the following F.E.M.A. programs local community has adopted.

1. ____ Emergency Program
2. X Regular Program
3. ____ Non Applicable; Explain____

B. Types of F.E.M.A. maps available, if any.

1. X Flood Hazard Boundary Map (FHBM)
2. X Flood Insurance Rate Map (FIRM)
3. X Flood Boundary and Floodway Map (FBFM)

C. Do F.E.M.A. guidelines apply to the project?

Yes X ; No____; Nonapplicable____; Explain____

II. 404 Permit Requirements with U.S. Army Corps of Engineers

A. Nationwide General Permit Requirements

1. Stream Crossing or Encroachment.

a. Does project involve a stream crossing or encroachment?

Yes X ; No____

If answer is Yes, go to next question.
If answer is No, go to IIA2.

b. Is stream flow less than 0.14 cms (5 cfs) at least 6 months of the year?

Yes X ; No___, Specify Quantity____cms (cfs)

If answer is Yes, location is above headwaters, go to next question.
If answer is No, go to II Ald.

c. Is surface area of disturbed stream less than 0.405 hectares (1 acre)?

Yes_____; No__X___; Specify Quantity 0.6197 (1.53) hectares (acre)

If answer is Yes, Nationwide General Permit applies.

If answer is No, and the disturbed surface area of the stream is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General Permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

d. Is quantity of fill material below ordinary high water less than 153 cubic meter (m^3) (200 yd^3)?

Yes_____; No__X_____; Specify Quantity_m^3 (yd^3)

If answer is Yes, Nationwide General Permit applies.

If answer is No, go to IIB.

2. Wetlands

Will the project affect wetlands?

Yes_____; No__X_____

If answer is No, go to III.

If answer is Yes, check one of the following:

a. Project involves wetlands with no stream encroachment_____
b. Project involves wetlands with stream encroachment_____

If a. is checked, go to (aa).

If b. is checked, go to (bb).

(aa) Is surface area of disturbed wetlands less than 0.405 hectares (1 acre)?

Yes_____; No_____; Specify
Quantity_____hectares (acre)

If answer is Yes, Nationwide General Permit applies.

If answer is No and the disturbed surface area of wetlands is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General

permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

(bb) Will materials discharge into wetlands adjacent to the waterbody extend beyond 30.5 meter (100 ft) on either side of the ordinary high water of the waterbody?

Yes_____; No_____

If answer is No, Nationwide General Permit applies.

If answer is Yes, go to (cc).

(cc) Is quantity of fill material into wetlands greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____; No_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to (dd).

(dd) Is quantity of fill material into wetlands greater than 382.2 m^3 (500 yd^3)?

Yes_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

B. Statewide General Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____ No__X__; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.
If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to II C.

C. Individual Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 382.2 m^3 (500 yd^3)?

Yes X ; Specify Quantity 2,718 (3,556)m^3 (yd^3) - Alt. 1, 2,255 (2,950)m^3 (yd^3) - Alt. 2, 0 m^3 yd^3 - Alt. 3

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

III. Coordination with the Utah Division of Water Rights in Regard to Stream Alteration or Modification.

Check one of the following:

A. ___ Project involves no stream alteration or modification at all. No further action is required.

B. _X_ Project involves minor stream alteration or modification of insignificant nature. During design stage of a project, coordination with the Division of Water Rights through the Hydraulics Section should be made.

C. ___ Project involves major stream alteration or modification of significant nature. During design stage of a project, application for alteration or modification of stream must be filed with the Division of Water Rights through the Hydraulics Sections.

IV. Water Quality Considerations

Check the following items that apply:

A. Live Stream_____; Intermittent Stream_____X__

B. Impact due to erosion or siltation on water quality from construction.

Significant_____; Insignificant____X__

If impact is significant

1. ___ Elaborate study, evaluation and monitoring of water quality of stream required.

2. ___ Mitigation measures as required.

3. ___ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

If impact is insignificant

1. _X_ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

2. ___ Other Methods?_____; Specify_____

_____

V. Coordination with the Utah Division of Wildlife Resources and U.S. Fish and Wildlife Service

A. Is stream live? Yes_____; No__X_____

B. Does stream carry any fish habitat? Yes_____; No__X_____

C. If stream does not carry any fish habitat now, does it have potential for it in the future? Yes__; No___X_____

If answer to all of the above questions is No, no further action is required.

If answer is Yes to any of the above questions during the design stage of a project, coordination with both agencies must be made.

VI. Coordination with the Utah State Division of Water Quality

Check the following items as applicable.

A. Does project involve design and construction of storm drain?

Yes_____; No__X_____

If answer is No, no further action is required.

If answer is Yes, is storm drain outfall discharge greater than 0.057 cms (2 cfs)_____? Less than 0.057 cms (2 cfs)_____?

If storm drain outfall discharge is less than 0.057 cms (2 cfs), no further action is required.

If storm drain outfall discharge is greater than 0.057 cms (2 cfs), construction permit from the Utah State Division of Health must be obtained upon completion of the design of storm drain.

B. Does project disturb more than 2.02 hectares (5 acres) of surface area during construction?

Yes _X___; No _____

If answer is No, no further action is required.

If answer is Yes, UPDES General Storm Water Discharge Permit issued to UDOT applies.

As part of the requirements of the UPDES General Storm Water Discharge Permit:

a) Development and Implementation of Storm Water Pollution Prevention Plan required _X___.

b) Submittal of Notice of Intent (NOI) through the Environmental Division to the Utah Division of Water Quality required _X__.

VII. Evaluation of Encroachments on Floodplains and its Effect, if Any

A. Type and Size of Existing Structure

Check one

_X_ 1. Pipe Culvert - 60" RCP
___ 2. Box Culvert
___ 3. Bridge
___ 4. Roadway Fill

Type of Proposed Structure

_X_ 1. Pipe Culvert - 60" RCP
___ 2. Box Culvert
___ 3. Bridge
___ 4. Roadway Fill

B. Identify Existing Conditions and Features Near Existing or Proposed Structure.

Project is located in:

Check one

___ 1. An urban area
_X_ 2. A semi-urban area
___ 3. A rural area

C. Nearby Buildings

_X_ 1. Residences
___ 2. Farm Buildings
___ 3. Commercial Buildings
___ 4. Shopping Center
___ 5. Other_____Specify_____

D. Adjacent Property

Check One

_X_ 1. Private
___ 2. Cropland
___ 3. Commercial
___ 4. Public
___ 5. Other_____Specify_____

E. Determination of Floodplain

1. Is stream confined to a well-defined and deep-narrow channel for most flows?

   Yes___X_____; No_____

   If answer is Yes, then floodplain encroachment is insignificant or none.

2. If answer is No, is there a floodplain to convey ordinary high water flows?

   Yes_____; No_____

   If answer is Yes, does the floodplain area include sensitive features such as buildings, roads and other man-made facilities?

   Yes_____; No_____

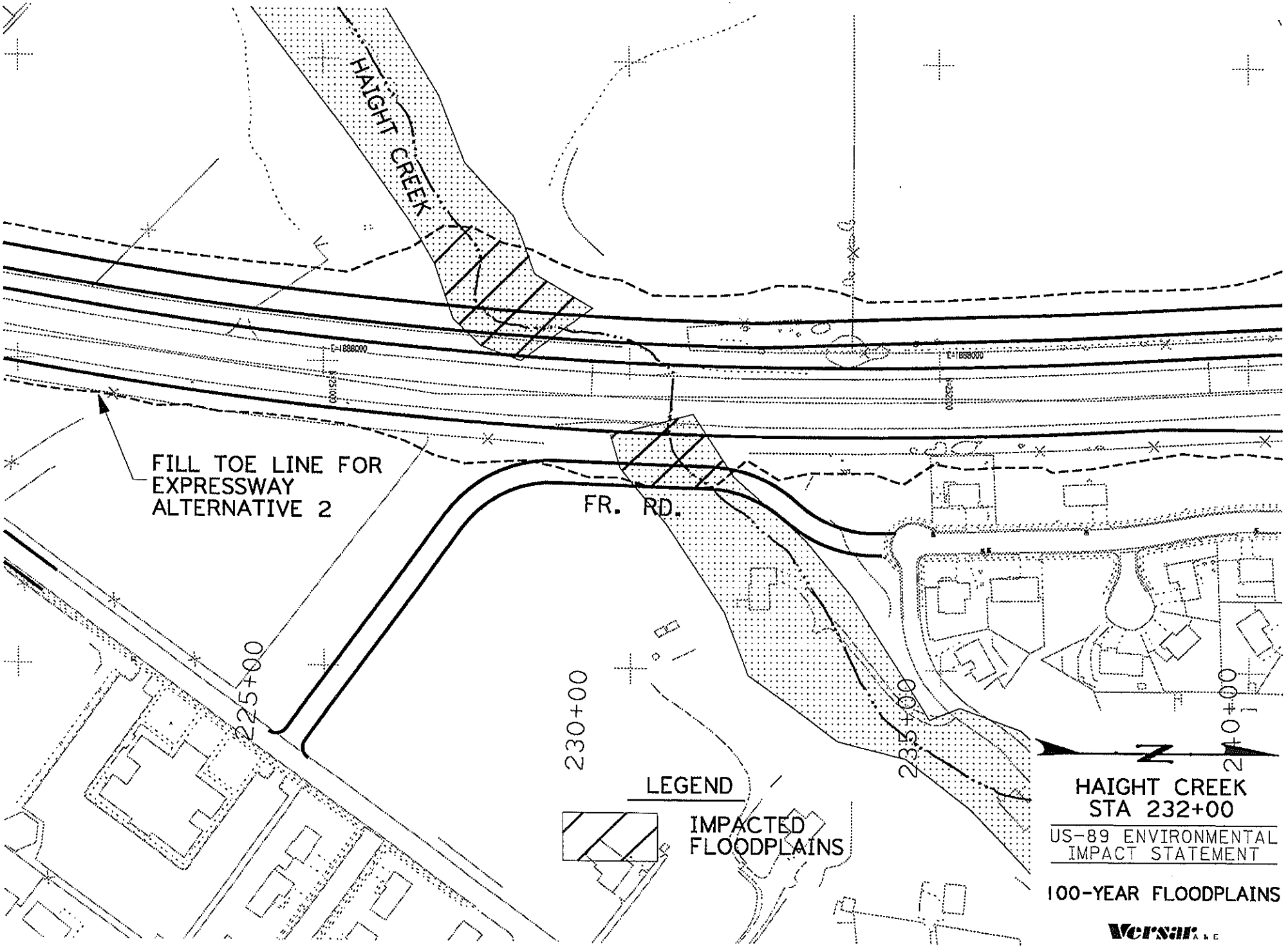
   If answer is Yes, will the overbank flow affect sensitive properties as described above?

   Yes_____; No_____

   If answer is No to the last two questions, no further action is required.

   If answer is Yes to either of the last two questions, an affirmative action for "economic assessment" must be completed for project at the design stage.

F. Determine whether encroachment on floodplain is significant or insignificant using economic assessment procedure developed by the UDOT.


HAIGHT CREEK
FILL TOE LINE FOR EXPRESSWAY ALTERNATIVE 2
FR. RD.
225+00
230+00
235+00
240+00
LEGEND
IMPACTED FLOODPLAINS
N
HAIGHT CREEK
STA 232+00
US-89 ENVIRONMENTAL IMPACT STATEMENT
100-YEAR FLOODPLAINS
Versar

UTAH DEPARTMENT OF TRANSPORTATION

FLOODPLAIN, WATER QUALITY, WETLAND, WATER BODY MODIFICATION AND WILDLIFE IMPACTS AND PERMIT EVALUATION

Name of Stream Haight/Baer Creek
Station 245+00
Reference Point Milepost 337.50
Approved by [signature]
Date Approved 7-31-95

Date 27 Jan. 1993
County Davis
Proj. Name US-89 EIS
Region 1
Prepared by B. Wilson

I. Coordination with the Federal Emergency Management Agency (F.E.M.A.) in Regards to Highway Encroachments on Floodplains.

A. Indicate which of the following F.E.M.A. programs local community has adopted.

1. _____ Emergency Program
2. X Regular Program
3. _____ Non Applicable; Explain_____

B. Types of F.E.M.A. maps available, if any.

1. X Flood Hazard Boundary Map (FHBM)
2. X Flood Insurance Rate Map (FIRM)
3. X Flood Boundary and Floodway Map (FBFM)

C. Do F.E.M.A. guidelines apply to the project?

Yes X ; No_____; Nonapplicable_____; Explain_____

II. 404 Permit Requirements with U.S. Army Corps of Engineers

A. Nationwide General Permit Requirements

1. Stream Crossing or Encroachment.

a. Does project involve a stream crossing or encroachment?

Yes_____; No X

If answer is Yes, go to next question.
If answer is No, go to IIA2.

b. Is stream flow less than 0.14 cms (5 cfs) at least 6 months of the year?

Yes___; No___, Specify Quantity_____cms (cfs)

If answer is Yes, location is above headwaters, go to next question.
If answer is No, go to II Ald.

c. Is surface area of disturbed stream less than 0.405 hectares (1 acre)?

Yes_____; No_____; Specify Quantity_____hectares (acre)

If answer is Yes, Nationwide General Permit applies.

If answer is No, and the disturbed surface area of the stream is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General Permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

d. Is quantity of fill material below ordinary high water less than 153 cubic meter (m^3) (200 yd^3)?

Yes_____; No_____; Specify Quantity__m^3 (yd^3)

If answer is Yes, Nationwide General Permit applies.

If answer is No, go to IIB.

2. Wetlands

Will the project affect wetlands?

Yes_____; No__X_____

If answer is No, go to III.

If answer is Yes, check one of the following:

a. Project involves wetlands with no stream encroachment_____
b. Project involves wetlands with stream encroachment_____

If a. is checked, go to (aa).

If b. is checked, go to (bb).

(aa) Is surface area of disturbed wetlands less than 0.405 hectares (1 acre)?

Yes_____; No_____; Specify
Quantity_____hectares (acre)

If answer is Yes, Nationwide General Permit applies.

If answer is No and the disturbed surface area of wetlands is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General

permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

(bb) Will materials discharge into wetlands adjacent to the waterbody extend beyond 30.5 meter (100 ft) on either side of the ordinary high water of the waterbody?

Yes_____; No_____

If answer is No, Nationwide General Permit applies.

If answer is Yes, go to (cc).

(cc) Is quantity of fill material into wetlands greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____; No_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to (dd).

(dd) Is quantity of fill material into wetlands greater than 382.2 m^3 (500 yd^3)?

Yes_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

B. Statewide General Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____ No_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to II C.

C. Individual Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 382.2 m^3 (500 yd^3)?

Yes_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

III. Coordination with the Utah Division of Water Rights in Regard to Stream Alteration or Modification.

Check one of the following:

A. _X_ Project involves no stream alteration or modification at all. No further action is required.

B. ___ Project involves minor stream alteration or modification of insignificant nature. During design stage of a project, coordination with the Division of Water Rights through the Hydraulics Section should be made.

C. ___ Project involves major stream alteration or modification of significant nature. During design stage of a project, application for alteration or modification of stream must be filed with the Division of Water Rights through the Hydraulics Sections.

IV. Water Quality Considerations

Check the following items that apply:

A. Live Stream_____; Intermittent Stream__X____

B. Impact due to erosion or siltation on water quality from construction.

Significant_____; Insignificant___X__

If impact is significant

1. ___ Elaborate study, evaluation and monitoring of water quality of stream required.

2. ___ Mitigation measures as required.

3. ___ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

If impact is insignificant

1. _X_ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

2. ___ Other Methods?_____; Specify_____

V. Coordination with the Utah Division of Wildlife Resources and U.S. Fish and Wildlife Service

A. Is stream live? Yes_____; No__X_____

B. Does stream carry any fish habitat? Yes_____; No__X_____

C. If stream does not carry any fish habitat now, does it have potential for it in the future? Yes__; No___X_____

If answer to all of the above questions is No, no further action is required.

If answer is Yes to any of the above questions during the design stage of a project, coordination with both agencies must be made.

VI. Coordination with the Utah State Division of Water Quality

Check the following items as applicable.

A. Does project involve design and construction of storm drain?

Yes_____; No__X_____

If answer is No, no further action is required.

If answer is Yes, is storm drain outfall discharge greater than 0.057 cms (2 cfs)_____? Less than 0.057 cms (2 cfs)_____?

If storm drain outfall discharge is less than 0.057 cms (2 cfs), no further action is required.

If storm drain outfall discharge is greater than 0.057 cms (2 cfs), construction permit from the Utah State Division of Health must be obtained upon completion of the design of storm drain.

B. Does project disturb more than 2.02 hectares (5 acres) of surface area during construction?

Yes _X___; No _____

If answer is No, no further action is required.

If answer is Yes, UPDES General Storm Water Discharge Permit issued to UDOT applies.

As part of the requirements of the UPDES General Storm Water Discharge Permit:

a) Development and Implementation of Storm Water Pollution Prevention Plan required _X___.

b) Submittal of Notice of Intent (NOI) through the Environmental Division to the Utah Division of Water Quality required _X_.

VII. Evaluation of Encroachments on Floodplains and its Effect, if Any

A. Type and Size of Existing Structure

Check one

N/A 1. Pipe Culvert
___ 2. Box Culvert
___ 3. Bridge
___ 4. Roadway Fill

Type of Proposed Structure

N/A 1. Pipe Culvert
___ 2. Box Culvert
___ 3. Bridge
___ 4. Roadway Fill

B. Identify Existing Conditions and Features Near Existing or Proposed Structure.

Project is located in:

Check one

___ 1. An urban area
X 2. A semi-urban area
___ 3. A rural area

C. Nearby Buildings

X 1. Residences
___ 2. Farm Buildings
___ 3. Commercial Buildings
___ 4. Shopping Center
___ 5. Other_____Specify_____

D. Adjacent Property

Check One

X 1. Private
___ 2. Cropland
___ 3. Commercial
___ 4. Public
___ 5. Other_____Specify_____

E. Determination of Floodplain

1. Is stream confined to a well-defined and deep-narrow channel for most flows?

   Yes_____; No__X____

   If answer is Yes, then floodplain encroachment is insignificant or none.

2. If answer is No, is there a floodplain to convey ordinary high water flows?

   Yes_____; No__X____

   If answer is Yes, does the floodplain area include sensitive features such as buildings, roads and other man-made facilities?

   Yes__X____; No_____

   If answer is Yes, will the overbank flow affect sensitive properties as described above?

   Yes__X____; No_____

   If answer is No to the last two questions, no further action is required.

   If answer is Yes to either of the last two questions, an affirmative action for "economic assessment" must be completed for project at the design stage.

F. Determine whether encroachment on floodplain is significant or insignificant using economic assessment procedure developed by the UDOT.

UTAH DEPARTMENT OF TRANSPORTATION

FLOODPLAIN, WATER QUALITY, WETLAND, WATER BODY MODIFICATION AND WILDLIFE IMPACTS AND PERMIT EVALUATION

Name of Stream Baer Creek
Station 257+00 E/W
Reference Point Milepost 337.71
Approved by [signature]
Date Approved 7-31-95

Date 27 Jan. 1993
County Davis
Proj. Name US-89 EIS
Region 1
Prepared by B. Wilson

I. Coordination with the Federal Emergency Management Agency (F.E.M.A.) in Regards to Highway Encroachments on Floodplains.

A. Indicate which of the following F.E.M.A. programs local community has adopted.

1. _____ Emergency Program
2. X Regular Program
3. _____ Non Applicable; Explain_____

B. Types of F.E.M.A. maps available, if any.

1. X Flood Hazard Boundary Map (FHBM)
2. X Flood Insurance Rate Map (FIRM)
3. X Flood Boundary and Floodway Map (FBFM)

C. Do F.E.M.A. guidelines apply to the project?

Yes X ; No____; Nonapplicable_____; Explain_____

II. 404 Permit Requirements with U.S. Army Corps of Engineers

A. Nationwide General Permit Requirements

1. Stream Crossing or Encroachment.

a. Does project involve a stream crossing or encroachment?

Yes X ; No_____

If answer is Yes, go to next question.
If answer is No, go to IIA2.

b. Is stream flow less than 0.14 cms (5 cfs) at least 6 months of the year?

Yes X ; No___, Specify Quantity 0.123 (4.4) cms (cfs)

If answer is Yes, location is above headwaters, go to next question.
If answer is No, go to II Ald.

c. Is surface area of disturbed stream less than 0.405 hectares (1 acre)?

Yes_____; No__X__; Specify Quantity 0.757 (1.87) hectares (acre) - Alt. 1, 0,721 (1.78)hectares (acre) - Alt. 2, 0.721 (1.78) hectares (acre) - Alt. 3.

If answer is Yes, Nationwide General Permit applies.

If answer is No, and the disturbed surface area of the stream is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General Permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

d. Is quantity of fill material below ordinary high water less than 153 cubic meter (m^3) (200 yd^3)?

Yes_____; No__x__; Specify Quantity__m^3 (yd^3)

If answer is Yes, Nationwide General Permit applies.
If answer is No, go to IIB.

2. Wetlands

Will the project affect wetlands?

Yes_____; No__x_____

If answer is No, go to III.

If answer is Yes, check one of the following:

a. Project involves wetlands with no stream encroachment_____
b. Project involves wetlands with stream encroachment_____

If a. is checked, go to (aa).

If b. is checked, go to (bb).

(aa) Is surface area of disturbed wetlands less than 0.405 hectares (1 acre)?

Yes_____; No_____; Specify
Quantity_____hectares (acre)

If answer is Yes, Nationwide General Permit applies.

If answer is No and the disturbed surface area of wetlands is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General

permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

(bb) Will materials discharge into wetlands adjacent to the waterbody extend beyond 30.5 meter (100 ft) on either side of the ordinary high water of the waterbody?

Yes_____; No_____

If answer is No, Nationwide General Permit applies.
If answer is Yes, go to (cc).

(cc) Is quantity of fill material into wetlands greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____; No_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to (dd).

(dd) Is quantity of fill material into wetlands greater than 382.2 m^3 (500 yd^3)?

Yes_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

B. Statewide General Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____ No__X__; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to II C.

C. Individual Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 382.2 m^3 (500 yd^3)?

Yes_____; Specify Quantity_____m^3 (yd^3) - Alt. 1, _____m^3 (yd^3) - Alt. 2, _____ _____m^3 (yd^3) - Alt. 3.

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

III. Coordination with the Utah Division of Water Rights in Regard to Stream Alteration or Modification.

Check one of the following:

A. ___ Project involves no stream alteration or modification at all. No further action is required.

B. _X_ Project involves minor stream alteration or modification of insignificant nature. During design stage of a project, coordination with the Division of Water Rights through the Hydraulics Section should be made.

C. ___ Project involves major stream alteration or modification of significant nature. During design stage of a project, application for alteration or modification of stream must be filed with the Division of Water Rights through the Hydraulics Sections.

IV. Water Quality Considerations

Check the following items that apply:

A. Live Stream_____; Intermittent Stream__x_____

B. Impact due to erosion or siltation on water quality from construction.

Significant_____; Insignificant____x___

If impact is significant

1. ___ Elaborate study, evaluation and monitoring of water quality of stream required.

2. ___ Mitigation measures as required.

3. ___ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

If impact is insignificant

1. _X_ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

2. ___ Other Methods?_____; Specify_____

_____

V. Coordination with the Utah Division of Wildlife Resources and U.S. Fish and Wildlife Service

A. Is stream live? Yes__X__; No_____

B. Does stream carry any fish habitat? Yes__X__; No_____

C. If stream does not carry any fish habitat now, does it have potential for it in the future? Yes__; No__X__

If answer to all of the above questions is No, no further action is required.

If answer is Yes to any of the above questions during the design stage of a project, coordination with both agencies must be made.

VI. Coordination with the Utah State Division of Water Quality

Check the following items as applicable.

A. Does project involve design and construction of storm drain?

Yes_____; No__X__

If answer is No, no further action is required.

If answer is Yes, is storm drain outfall discharge greater than 0.057 cms (2 cfs)_____?
Less than 0.057 cms (2 cfs)_____?

If storm drain outfall discharge is less than 0.057 cms (2 cfs), no further action is required.

If storm drain outfall discharge is greater than 0.057 cms (2 cfs), construction permit from the Utah State Division of Health must be obtained upon completion of the design of storm drain.

B. Does project disturb more than 2.02 hectares (5 acres) of surface area during construction?

Yes _X_; No _____

If answer is No, no further action is required.

If answer is Yes, UPDES General Storm Water Discharge Permit issued to UDOT applies.

As part of the requirements of the UPDES General Storm Water Discharge Permit:

a) Development and Implementation of Storm Water Pollution Prevention Plan required _X_.

b) Submittal of Notice of Intent (NOI) through the Environmental Division to the Utah Division of Water Quality required _X_.

VII. Evaluation of Encroachments on Floodplains and its Effect, if Any

A. Type and Size of Existing Structure

Check one

___ 1. Pipe Culvert
_X_ 2. Box Culvert 6' X 8'
___ 3. Bridge
___ 4. Roadway Fill

Type of Proposed Structure

___ 1. Pipe Culvert
_X_ 2. Box Culvert 6' X 8'
___ 3. Bridge
___ 4. Roadway Fill

B. Identify Existing Conditions and Features Near Existing or Proposed Structure.

Project is located in:

Check one

___ 1. An urban area
_X_ 2. A semi-urban area
___ 3. A rural area

C. Nearby Buildings

_X_ 1. Residences
___ 2. Farm Buildings
___ 3. Commercial Buildings
___ 4. Shopping Center
___ 5. Other_____Specify_____

D. Adjacent Property

Check One

_X_ 1. Private
___ 2. Cropland
___ 3. Commercial
___ 4. Public
___ 5. Other_____Specify_____

E. Determination of Floodplain

1. Is stream confined to a well-defined and deep-narrow channel for most flows?

   Yes_____; No__X____

   If answer is Yes, then floodplain encroachment is insignificant or none.

2. If answer is No, is there a floodplain to convey ordinary high water flows?

   Yes__X_____; No_____

   If answer is Yes, does the floodplain area include sensitive features such as buildings, roads and other man-made facilities?

   Yes_____; No__X____

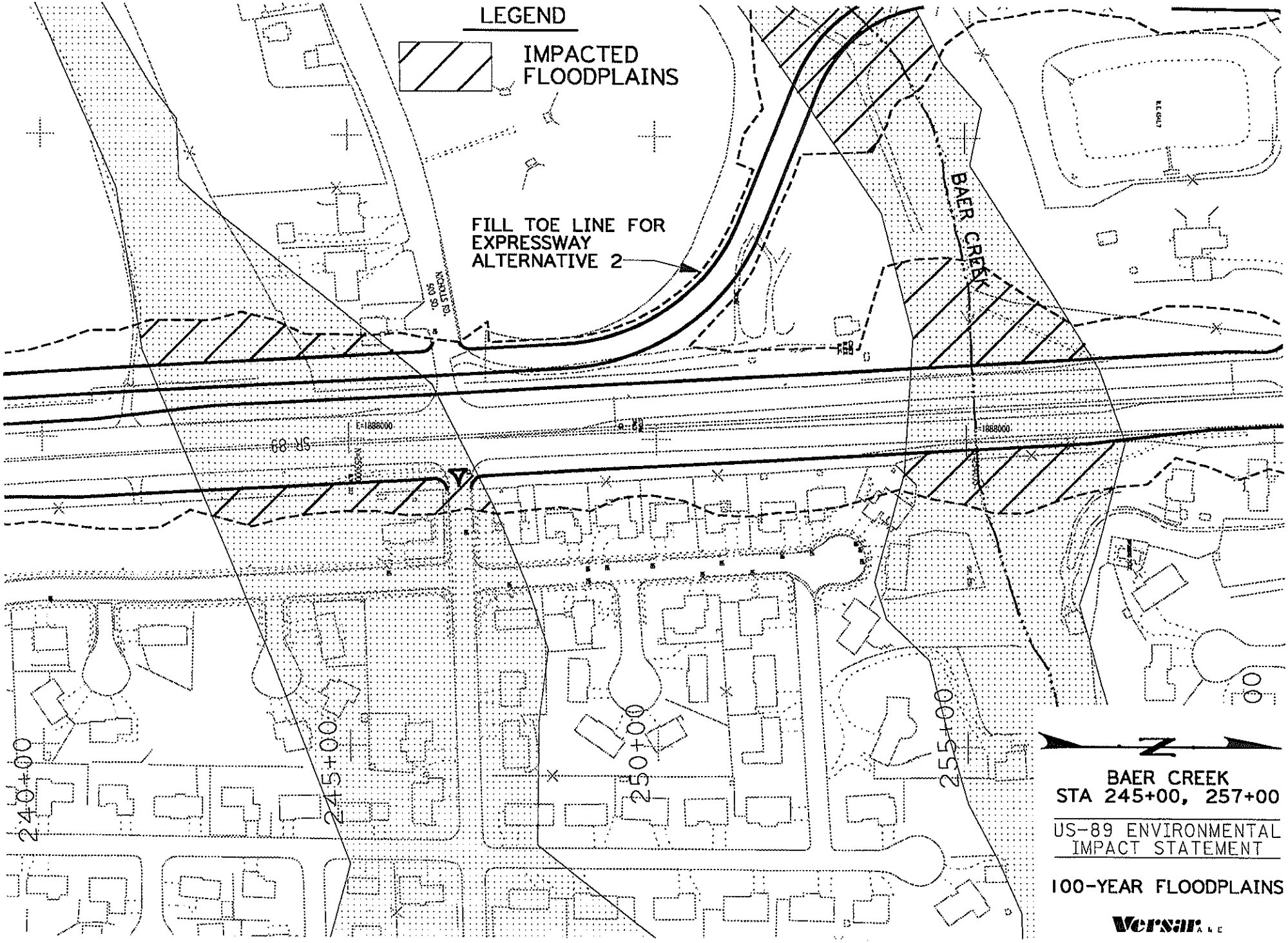
   If answer is Yes, will the overbank flow affect sensitive properties as described above?

   Yes_____; No_____

   If answer is No to the last two questions, no further action is required.

   If answer is Yes to either of the last two questions, an affirmative action for "economic assessment" must be completed for project at the design stage.

F. Determine whether encroachment on floodplain is significant or insignificant using economic assessment procedure developed by the UDOT.


LEGEND
IMPACTED FLOODPLAINS
FILL TOE LINE FOR EXPRESSWAY ALTERNATIVE 2
BAER CREEK
68 US
240+00
245+00
250+00
255+00
BAER CREEK
STA 245+00, 257+00
US-89 ENVIRONMENTAL IMPACT STATEMENT
100-YEAR FLOODPLAINS
Versar

UTAH DEPARTMENT OF TRANSPORTATION

FLOODPLAIN, WATER QUALITY, WETLAND, WATER BODY MODIFICATION AND WILDLIFE IMPACTS AND PERMIT EVALUATION

Name of Stream Baer Creek
Station 286+00
Reference Point Milepost 338+26
Approved by [signature]
Date Approved 7-31-95

Date 27 Jan. 1993
County Davis
Proj. Name US-89 EIS
Region 1
Prepared by B. Wilson

I. Coordination with the Federal Emergency Management Agency (F.E.M.A.) in Regards to Highway Encroachments on Floodplains.

A. Indicate which of the following F.E.M.A. programs local community has adopted.

1. _____ Emergency Program
2. X Regular Program
3. _____ Non Applicable; Explain_____

B. Types of F.E.M.A. maps available, if any.

1. X Flood Hazard Boundary Map (FHBM)
2. X Flood Insurance Rate Map (FIRM)
3. X Flood Boundary and Floodway Map (FBFM)

C. Do F.E.M.A. guidelines apply to the project?

Yes X ; No_____; Nonapplicable_____; Explain_____

II. 404 Permit Requirements with U.S. Army Corps of Engineers

A. Nationwide General Permit Requirements

1. Stream Crossing or Encroachment.

a. Does project involve a stream crossing or encroachment?

Yes_____; No X

If answer is Yes, go to next question.
If answer is No, go to IIA2.

b. Is stream flow less than 0.14 cms (5 cfs) at least 6 months of the year?

Yes___; No___, Specify Quantity_____cms (cfs)

If answer is Yes, location is above headwaters, go to next question.
If answer is No, go to II Ald.

c. Is surface area of disturbed stream less than 0.405 hectares (1 acre)?

Yes_____; No_____; Specify Quantity_____hectares (acre)

If answer is Yes, Nationwide General Permit applies.

If answer is No, and the disturbed surface area of the stream is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General Permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

d. Is quantity of fill material below ordinary high water less than 153 cubic meter (m^3) (200 yd^3)?

Yes_____; No_____; Specify Quantity__m^3 (yd^3)

If answer is Yes, Nationwide General Permit applies.

If answer is No, go to IIB.

2. Wetlands

Will the project affect wetlands?

Yes_____; No__X_____

If answer is No, go to III.

If answer is Yes, check one of the following:

a. Project involves wetlands with no stream encroachment_____
b. Project involves wetlands with stream encroachment_____

If a. is checked, go to (aa).

If b. is checked, go to (bb).

(aa) Is surface area of disturbed wetlands less than 0.405 hectares (1 acre)?

Yes_____; No_____; Specify
Quantity_____hectares (acre)

If answer is Yes, Nationwide General Permit applies.

If answer is No and the disturbed surface area of wetlands is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General

permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

(bb) Will materials discharge into wetlands adjacent to the waterbody extend beyond 30.5 meter (100 ft) on either side of the ordinary high water of the waterbody?

Yes_____; No_____

If answer is No, Nationwide General Permit applies.
If answer is Yes, go to (cc).

(cc) Is quantity of fill material into wetlands greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____; No_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to (dd).

(dd) Is quantity of fill material into wetlands greater than 382.2 m^3 (500 yd^3)?

Yes_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

B. Statewide General Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____ No__X__; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to II C.

C. Individual Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 382.2 m^3 (500 yd^3)?

Yes_____; Specify Quantity_____m^3 (yd^3) - Alt. 1, _____m^3 (yd^3) - Alt. 2, _____ _____m^3 (yd^3) - Alt. 3

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

III. Coordination with the Utah Division of Water Rights in Regard to Stream Alteration or Modification.

Check one of the following:

A. _X_ Project involves no stream alteration or modification at all. No further action is required.

B. ___ Project involves minor stream alteration or modification of insignificant nature. During design stage of a project, coordination with the Division of Water Rights through the Hydraulics Section should be made.

C. ___ Project involves major stream alteration or modification of significant nature. During design stage of a project, application for alteration or modification of stream must be filed with the Division of Water Rights through the Hydraulics Sections.

IV. Water Quality Considerations

Check the following items that apply:

A. Live Stream_____; Intermittent Stream__X____

B. Impact due to erosion or siltation on water quality from construction.

Significant_____; Insignificant____X__

If impact is significant

1. ___ Elaborate study, evaluation and monitoring of water quality of stream required.

2. ___ Mitigation measures as required.

3. ___ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

If impact is insignificant

1. _X_ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

2. ___ Other Methods?_____; Specify_____

V. Coordination with the Utah Division of Wildlife Resources and U.S. Fish and Wildlife Service

A. Is stream live? Yes_____; No__X_____

B. Does stream carry any fish habitat? Yes_____; No__X_____

C. If stream does not carry any fish habitat now, does it have potential for it in the future? Yes__; No__X_____

If answer to all of the above questions is No, no further action is required.

If answer is Yes to any of the above questions during the design stage of a project, coordination with both agencies must be made.

VI. Coordination with the Utah State Division of Water Quality

Check the following items as applicable.

A. Does project involve design and construction of storm drain?

Yes_____; No__X_____

If answer is No, no further action is required.

If answer is Yes, is storm drain outfall discharge greater than 0.057 cms (2 cfs)_____?
Less than 0.057 cms (2 cfs)_____?

If storm drain outfall discharge is less than 0.057 cms (2 cfs), no further action is required.

If storm drain outfall discharge is greater than 0.057 cms (2 cfs), construction permit from the Utah State Division of Health must be obtained upon completion of the design of storm drain.

B. Does project disturb more than 2.02 hectares (5 acres) of surface area during construction?

Yes _X_; No _____

If answer is No, no further action is required.

If answer is Yes, UPDES General Storm Water Discharge Permit issued to UDOT applies.

As part of the requirements of the UPDES General Storm Water Discharge Permit:

a) Development and Implementation of Storm Water Pollution Prevention Plan required _X_.

b) Submittal of Notice of Intent (NOI) through the Environmental Division to the Utah Division of Water Quality required _X_.

VII. Evaluation of Encroachments on Floodplains and its Effect, if Any

A. Type and Size of Existing Structure

Check one

N/A 1. Pipe Culvert
___ 2. Box Culvert
___ 3. Bridge
___ 4. Roadway Fill

Type of Proposed Structure

N/A 1. Pipe Culvert
___ 2. Box Culvert
___ 3. Bridge
___ 4. Roadway Fill

B. Identify Existing Conditions and Features Near Existing or Proposed Structure.

Project is located in:

Check one

___ 1. An urban area
X 2. A semi-urban area
___ 3. A rural area

C. Nearby Buildings

X 1. Residences
___ 2. Farm Buildings
___ 3. Commercial Buildings
___ 4. Shopping Center
___ 5. Other_____Specify_____

_____

D. Adjacent Property

Check One

X 1. Private
___ 2. Cropland
___ 3. Commercial
___ 4. Public
___ 5. Other_____Specify_____

_____

E. Determination of Floodplain

1. Is stream confined to a well-defined and deep-narrow channel for most flows?

   Yes_____; No__X____

   If answer is Yes, then floodplain encroachment is insignificant or none.

2. If answer is No, is there a floodplain to convey ordinary high water flows?

   Yes_____; No__X____

   If answer is Yes, does the floodplain area include sensitive features such as buildings, roads and other man-made facilities?

   Yes_____; No_____

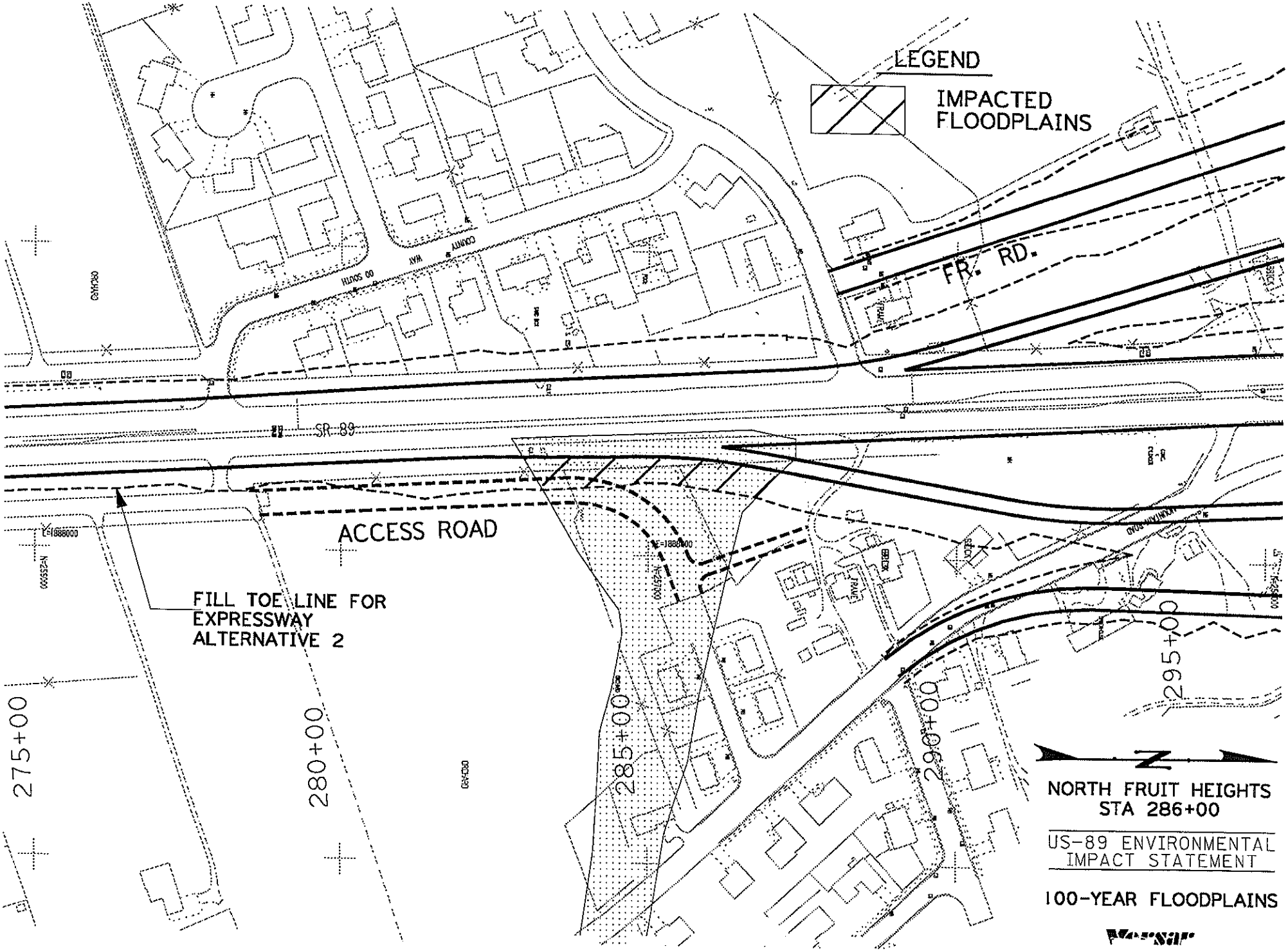
   If answer is Yes, will the overbank flow affect sensitive properties as described above?

   Yes_____; No_____

   If answer is No to the last two questions, no further action is required.

   If answer is Yes to either of the last two questions, an affirmative action for "economic assessment" must be completed for project at the design stage.

F. Determine whether encroachment on floodplain is significant or insignificant using economic assessment procedure developed by the UDOT.


LEGEND
IMPACTED FLOODPLAINS
FR. RD.
SR 89
ACCESS ROAD
FILL TOE LINE FOR EXPRESSWAY ALTERNATIVE 2
275+00
280+00
285+00
290+00
295+00
N
NORTH FRUIT HEIGHTS
STA 286+00
US-89 ENVIRONMENTAL IMPACT STATEMENT
100-YEAR FLOODPLAINS

UTAH DEPARTMENT OF TRANSPORTATION

FLOODPLAIN, WATER QUALITY, WETLAND, WATER BODY MODIFICATION AND WILDLIFE IMPACTS AND PERMIT EVALUATION

Name of Stream Holmes Creek
Station 343+00 E/W
Reference Point Milepost 339.30
Approved by [signature]
Date Approved 7-31-95

Date 27 Jan. 1993
County Davis
Proj. Name US-89 EIS
Region 1
Prepared by B. Wilson

I. Coordination with the Federal Emergency Management Agency (F.E.M.A.) in Regards to Highway Encroachments on Floodplains.

A. Indicate which of the following F.E.M.A. programs local community has adopted.

1. _____ Emergency Program
2. X Regular Program
3. _____ Non Applicable; Explain_____

B. Types of F.E.M.A. maps available, if any.

1. X Flood Hazard Boundary Map (FHBM)
2. X Flood Insurance Rate Map (FIRM)
3. X Flood Boundary and Floodway Map (FBFM)

C. Do F.E.M.A. guidelines apply to the project?

Yes X ; No____; Nonapplicable_____; Explain_____

II. 404 Permit Requirements with U.S. Army Corps of Engineers

A. Nationwide General Permit Requirements

1. Stream Crossing or Encroachment.

a. Does project involve a stream crossing or encroachment?

Yes X ; No_____

If answer is Yes, go to next question.
If answer is No, go to IIA2.

b. Is stream flow less than 0.14 cms (5 cfs) at least 6 months of the year?

Yes X ; No___, Specify Quantity 0.104 (3.7) cms (cfs)

If answer is Yes, location is above headwaters, go to next question.
If answer is No, go to II Ald.

c. Is surface area of disturbed stream less than 0.405 hectares (1 acre)?

Yes_____; No___X_; Specify Quantity 1.486 (3.67) hectares (acre) - Alt. 1, 1.345 (3.32) hectares (acre) - Alt. 2, 1.345 (3.32) hectares (acre) - Alt. 3.

If answer is Yes, Nationwide General Permit applies.

If answer is No, and the disturbed surface area of the stream is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General Permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

d. Is quantity of fill material below ordinary high water less than 153 cubic meter (m^3) (200 yd^3)?

Yes_____; No___X_; Specify Quantity__m^3 (yd^3)

If answer is Yes, Nationwide General Permit applies.
If answer is No, go to IIB.

2. Wetlands

Will the project affect wetlands?

Yes_____; No_____X_____

If answer is No, go to III.

If answer is Yes, check one of the following:

a. Project involves wetlands with no stream encroachment_____
b. Project involves wetlands with stream encroachment_____

If a. is checked, go to (aa).

If b. is checked, go to (bb).

(aa) Is surface area of disturbed wetlands less than 0.405 hectares (1 acre)?

Yes_____; No_____; Specify
Quantity_____hectares (acre)

If answer is Yes, Nationwide General Permit applies.

If answer is No and the disturbed surface area of wetlands is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General

permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

(bb) Will materials discharge into wetlands adjacent to the waterbody extend beyond 30.5 meter (100 ft) on either side of the ordinary high water of the waterbody?

Yes_____; No_____

If answer is No, Nationwide General Permit applies.
If answer is Yes, go to (cc).

(cc) Is quantity of fill material into wetlands greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____; No_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to (dd).

(dd) Is quantity of fill material into wetlands greater than 382.2 m^3 (500 yd^3)?

Yes_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

B. Statewide General Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____ No_X_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to II C.

C. Individual Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 382.2 m^3 (500 yd^3)?

Yes__X__; Specify Quantity_473 (618)_m^3 (yd^3) - Alt. 1, _577 (755)_m^3 (yd^3) - Alt. 2, ___ _577 (755)_m^3 (yd^3) - Alt. 3.

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

III. Coordination with the Utah Division of Water Rights in Regard to Stream Alteration or Modification.

Check one of the following:

A. ___ Project involves no stream alteration or modification at all. No further action is required.

B. _X_ Project involves minor stream alteration or modification of insignificant nature. During design stage of a project, coordination with the Division of Water Rights through the Hydraulics Section should be made.

C. ___ Project involves major stream alteration or modification of significant nature. During design stage of a project, application for alteration or modification of stream must be filed with the Division of Water Rights through the Hydraulics Sections.

IV. Water Quality Considerations

Check the following items that apply:

A. Live Stream__X__; Intermittent Stream_____

B. Impact due to erosion or siltation on water quality from construction.

Significant_____; Insignificant__X__

If impact is significant

1. ___ Elaborate study, evaluation and monitoring of water quality of stream required.

2. ___ Mitigation measures as required.

3. ___ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

If impact is insignificant

1. _X_ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

2. ___ Other Methods?_____; Specify_____

_____

V. Coordination with the Utah Division of Wildlife Resources and U.S. Fish and Wildlife Service

A. Is stream live? Yes__X__; No_____

B. Does stream carry any fish habitat? Yes_____; No__X__

C. If stream does not carry any fish habitat now, does it have potential for it in the future? Yes__; No__X__

If answer to all of the above questions is No, no further action is required.

If answer is Yes to any of the above questions during the design stage of a project, coordination with both agencies must be made.

VI. Coordination with the Utah State Division of Water Quality

Check the following items as applicable.

A. Does project involve design and construction of storm drain?

Yes_____; No__X__

If answer is No, no further action is required.

If answer is Yes, is storm drain outfall discharge greater than 0.057 cms (2 cfs)_____? Less than 0.057 cms (2 cfs)_____?

If storm drain outfall discharge is less than 0.057 cms (2 cfs), no further action is required.

If storm drain outfall discharge is greater than 0.057 cms (2 cfs), construction permit from the Utah State Division of Health must be obtained upon completion of the design of storm drain.

B. Does project disturb more than 2.02 hectares (5 acres) of surface area during construction?

Yes _X_; No _____

If answer is No, no further action is required.

If answer is Yes, UPDES General Storm Water Discharge Permit issued to UDOT applies.

As part of the requirements of the UPDES General Storm Water Discharge Permit:

a) Development and Implementation of Storm Water Pollution Prevention Plan required _X_.

b) Submittal of Notice of Intent (NOI) through the Environmental Division to the Utah Division of Water Quality required _X_.

VII. Evaluation of Encroachments on Floodplains and its Effect, if Any

A. Type and Size of Existing Structure

Check one

_X_ 1. Pipe Culvert 48" RCP
___ 2. Box Culvert
___ 3. Bridge
___ 4. Roadway Fill

Type of Proposed Structure

_X_ 1. Pipe Culvert 48" RCP
___ 2. Box Culvert
___ 3. Bridge
___ 4. Roadway Fill

B. Identify Existing Conditions and Features Near Existing or Proposed Structure.

Project is located in:

Check one

___ 1. An urban area
_X_ 2. A semi-urban area
___ 3. A rural area

C. Nearby Buildings

_X_ 1. Residences
___ 2. Farm Buildings
___ 3. Commercial Buildings
___ 4. Shopping Center
___ 5. Other_____Specify_____

D. Adjacent Property

Check One

_X_ 1. Private
___ 2. Cropland
___ 3. Commercial
___ 4. Public
___ 5. Other_____Specify_____

E. Determination of Floodplain

1. Is stream confined to a well-defined and deep-narrow channel for most flows?

   Yes___X_____; No_____

   If answer is Yes, then floodplain encroachment is insignificant or none.

2. If answer is No, is there a floodplain to convey ordinary high water flows?

   Yes_____; No_____

   If answer is Yes, does the floodplain area include sensitive features such as buildings, roads and other man-made facilities?

   Yes_____; No_____

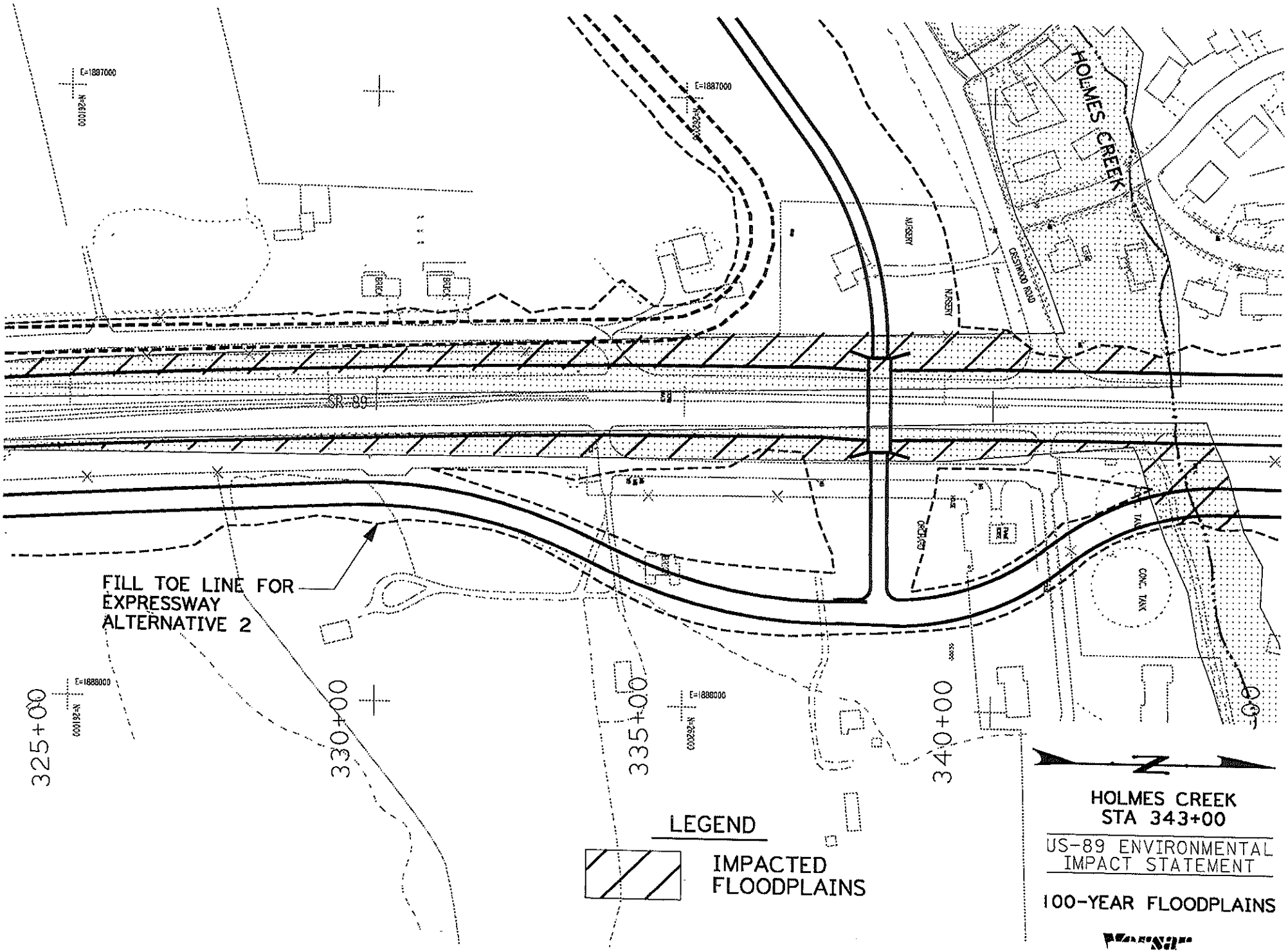
   If answer is Yes, will the overbank flow affect sensitive properties as described above?

   Yes_____; No_____

   If answer is No to the last two questions, no further action is required.

   If answer is Yes to either of the last two questions, an affirmative action for "economic assessment" must be completed for project at the design stage.

F. Determine whether encroachment on floodplain is significant or insignificant using economic assessment procedure developed by the UDOT.


HOLMES CREEK
SR 89
FILL TOE LINE FOR
EXPRESSWAY
ALTERNATIVE 2
325+00
330+00
335+00
340+00
E=1887000
E=1888000
LEGEND
IMPACTED
FLOODPLAINS
HOLMES CREEK
STA 343+00
US-89 ENVIRONMENTAL
IMPACT STATEMENT
100-YEAR FLOODPLAINS

UTAH DEPARTMENT OF TRANSPORTATION

FLOODPLAIN, WATER QUALITY, WETLAND, WATER BODY MODIFICATION AND WILDLIFE IMPACTS AND PERMIT EVALUATION

Name of Stream Snow Creek
Station 430+00
Reference Point Milepost 341.00
Approved by [signature]
Date Approved 7-31-95

Date 27 Jan. 1993
County Davis
Proj. Name US-89 EIS
Region 1
Prepared by B. Wilson

I. Coordination with the Federal Emergency Management Agency (F.E.M.A.) in Regards to Highway Encroachments on Floodplains.

A. Indicate which of the following F.E.M.A. programs local community has adopted.

1. _____ Emergency Program
2. X Regular Program
3. _____ Non Applicable; Explain_____

B. Types of F.E.M.A. maps available, if any.

1. X Flood Hazard Boundary Map (FHBM)
2. X Flood Insurance Rate Map (FIRM)
3. X Flood Boundary and Floodway Map (FBFM)

C. Do F.E.M.A. guidelines apply to the project?

Yes X ; No_____; Nonapplicable_____; Explain_____

II. 404 Permit Requirements with U.S. Army Corps of Engineers

A. Nationwide General Permit Requirements

1. Stream Crossing or Encroachment.

a. Does project involve a stream crossing or encroachment?

Yes X ; No_____

If answer is Yes, go to next question.
If answer is No, go to IIA2.

b. Is stream flow less than 0.14 cms (5 cfs) at least 6 months of the year?

Yes X ; No___, Specify Quantity 0.017 (0.6) cms (cfs)

If answer is Yes, location is above headwaters, go to next question.
If answer is No, go to II Ald.

c. Is surface area of disturbed stream less than 0.405 hectares (1 acre)?

Yes__X__; No_____; Specify Quantity 0.267 (0.66) hectares (acre) - Alt. 1, 0.267 (0.66) hectares (acre) - Alt. 2, 0.049 (0.12) hectares (acre) - Alt. 3.

If answer is Yes, Nationwide General Permit applies.

If answer is No, and the disturbed surface area of the stream is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General Permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

d. Is quantity of fill material below ordinary high water less than 153 cubic meter (m^3) (200 yd^3)?

Yes_____; No__X__; Specify Quantity__m^3 (yd^3)

If answer is Yes, Nationwide General Permit applies.
If answer is No, go to IIB.

2. Wetlands

Will the project affect wetlands?

Yes_____; No__X_____

If answer is No, go to III.

If answer is Yes, check one of the following:

a. Project involves wetlands with no stream encroachment_____
b. Project involves wetlands with stream encroachment_____

If a. is checked, go to (aa).

If b. is checked, go to (bb).

(aa) Is surface area of disturbed wetlands less than 0.405 hectares (1 acre)?

Yes_____; No_____; Specify
Quantity_____hectares (acre)

If answer is Yes, Nationwide General Permit applies.

If answer is No and the disturbed surface area of wetlands is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General

permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

(bb) Will materials discharge into wetlands adjacent to the waterbody extend beyond 30.5 meter (100 ft) on either side of the ordinary high water of the waterbody?

Yes_____; No_____

If answer is No, Nationwide General Permit applies.
If answer is Yes, go to (cc).

(cc) Is quantity of fill material into wetlands greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____; No_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to (dd).

(dd) Is quantity of fill material into wetlands greater than 382.2 m^3 (500 yd^3)?

Yes_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

B. Statewide General Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____ No__X__; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to II C.

C. Individual Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 382.2 m^3 (500 yd^3)?

Yes__X__; Specify Quantity 1,043 (1,364) m^3 (yd^3) - Alt. 1, 1,043 (1,364) m^3 (yd^3) - Alt. 2, 348 (455) m^3 (yd^3) - Alt. 3.

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

III. Coordination with the Utah Division of Water Rights in Regard to Stream Alteration or Modification.

Check one of the following:

A. ___ Project involves no stream alteration or modification at all. No further action is required.

B. _X_ Project involves minor stream alteration or modification of insignificant nature. During design stage of a project, coordination with the Division of Water Rights through the Hydraulics Section should be made.

C. ___ Project involves major stream alteration or modification of significant nature. During design stage of a project, application for alteration or modification of stream must be filed with the Division of Water Rights through the Hydraulics Sections.

IV. Water Quality Considerations

Check the following items that apply:

A. Live Stream___X_____; Intermittent Stream_____

B. Impact due to erosion or siltation on water quality from construction.

Significant_____; Insignificant___X___

If impact is significant

1. ___ Elaborate study, evaluation and monitoring of water quality of stream required.

2. ___ Mitigation measures as required.

3. ___ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

If impact is insignificant

1. _X_ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

2. ___ Other Methods?_____; Specify_____

V. Coordination with the Utah Division of Wildlife Resources and U.S. Fish and Wildlife Service

A. Is stream live? Yes__X__; No_____

B. Does stream carry any fish habitat? Yes_____; No__X__

C. If stream does not carry any fish habitat now, does it have potential for it in the future? Yes__; No__X__

If answer to all of the above questions is No, no further action is required.

If answer is Yes to any of the above questions during the design stage of a project, coordination with both agencies must be made.

VI. Coordination with the Utah State Division of Water Quality

Check the following items as applicable.

A. Does project involve design and construction of storm drain?

Yes_____; No__X__

If answer is No, no further action is required.

If answer is Yes, is storm drain outfall discharge greater than 0.057 cms (2 cfs)_____? Less than 0.057 cms (2 cfs)_____?

If storm drain outfall discharge is less than 0.057 cms (2 cfs), no further action is required.

If storm drain outfall discharge is greater than 0.057 cms (2 cfs), construction permit from the Utah State Division of Health must be obtained upon completion of the design of storm drain.

B. Does project disturb more than 2.02 hectares (5 acres) of surface area during construction?

Yes _X_; No _____

If answer is No, no further action is required.

If answer is Yes, UPDES General Storm Water Discharge Permit issued to UDOT applies.

As part of the requirements of the UPDES General Storm Water Discharge Permit:

a) Development and Implementation of Storm Water Pollution Prevention Plan required _X_.

b) Submittal of Notice of Intent (NOI) through the Environmental Division to the Utah Division of Water Quality required _X_.

VII. Evaluation of Encroachments on Floodplains and its Effect, if Any

A. Type and Size of Existing Structure

Check one

___ 1. Pipe Culvert
___ 2. Box Culvert
___ 3. Bridge
___ 4. Roadway Fill

Type of Proposed Structure

___ .1. Pipe Culvert
___ 2. Box Culvert
___ 3. Bridge
___ 4. Roadway Fill

B. Identify Existing Conditions and Features Near Existing or Proposed Structure.

Project is located in:

Check one

___ 1. An urban area
_X_ 2. A semi-urban area
___ 3. A rural area

C. Nearby Buildings

_X_ 1. Residences
___ 2. Farm Buildings
___ 3. Commercial Buildings
___ 4. Shopping Center
___ 5. Other_____Specify_____

_____

D. Adjacent Property

Check One

_X_ 1. Private
___ 2. Cropland
___ 3. Commercial
___ 4. Public
___ 5. Other_____Specify_____

_____

E. Determination of Floodplain

1. Is stream confined to a well-defined and deep-narrow channel for most flows?

   Yes___X_____; No_____

   If answer is Yes, then floodplain encroachment is insignificant or none.

2. If answer is No, is there a floodplain to convey ordinary high water flows?

   Yes_____; No_____

   If answer is Yes, does the floodplain area include sensitive features such as buildings, roads and other man-made facilities?

   Yes_____; No_____

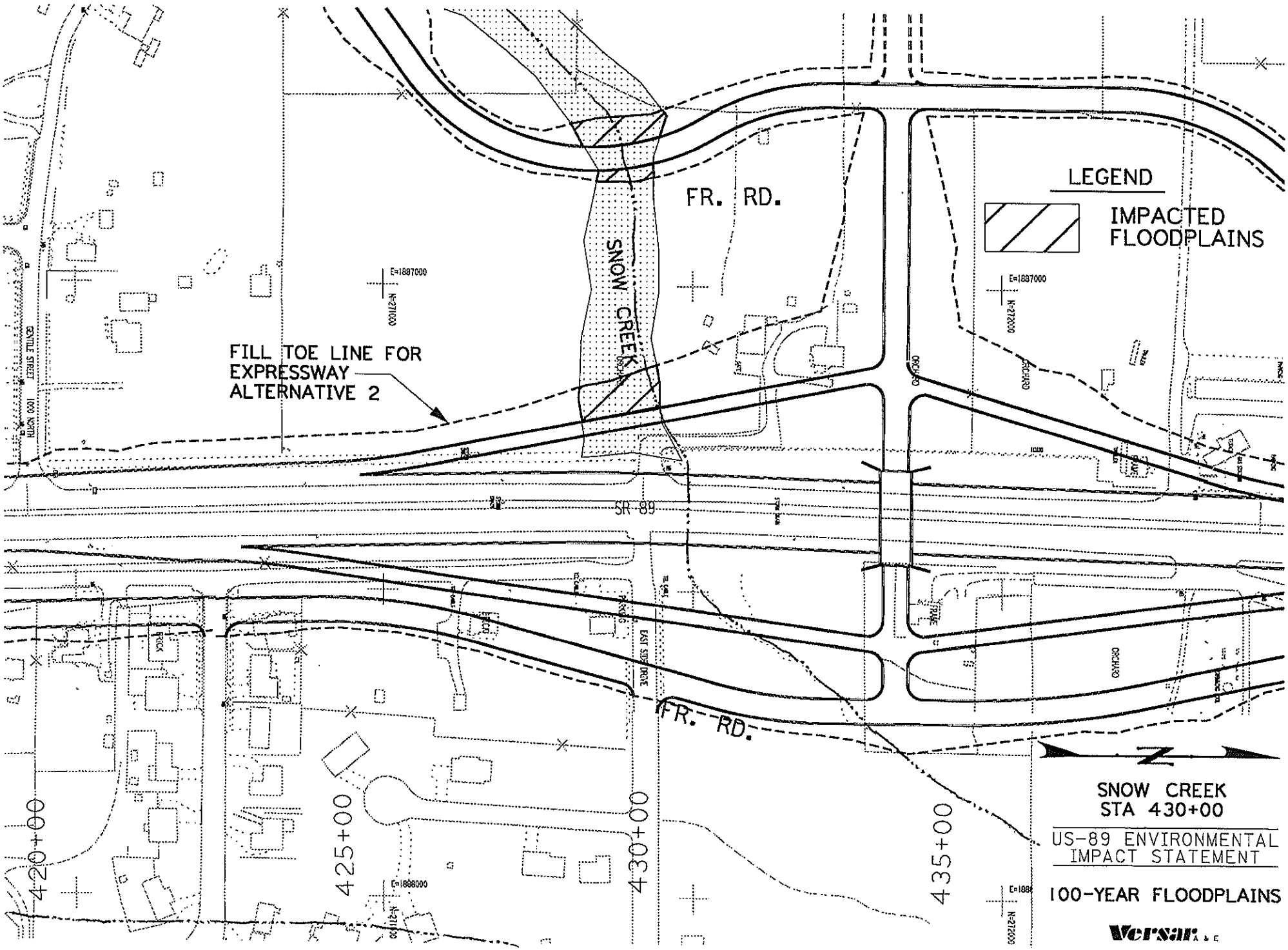
   If answer is Yes, will the overbank flow affect sensitive properties as described above?

   Yes_____; No_____

   If answer is No to the last two questions, no further action is required.

   If answer is Yes to either of the last two questions, an affirmative action for "economic assessment" must be completed for project at the design stage.

F. Determine whether encroachment on floodplain is significant or insignificant using economic assessment procedure developed by the UDOT.


LEGEND
IMPACTED FLOODPLAINS
FR. RD.
SNOW CREEK
FILL TOE LINE FOR EXPRESSWAY ALTERNATIVE 2
SR-89
FR. RD.
E=1887000
N=271000
E=1888000
N=271000
425+00
430+00
435+00
SNOW CREEK
STA 430+00
US-89 ENVIRONMENTAL IMPACT STATEMENT
100-YEAR FLOODPLAINS
Versar

UTAH DEPARTMENT OF TRANSPORTATION

FLOODPLAIN, WATER QUALITY, WETLAND, WATER BODY MODIFICATION AND WILDLIFE IMPACTS AND PERMIT EVALUATION

Name of Stream South Fork
Station 465+00
Reference Point Milepost 341.57
Approved by [signature]
Date Approved 7-31-95

Date 29 Jan. 1993
County Davis
Proj. Name US-89 EIS
Region 1
Prepared by B. Wilson

I. Coordination with the Federal Emergency Management Agency (F.E.M.A.) in Regards to Highway Encroachments on Floodplains.

A. Indicate which of the following F.E.M.A. programs local community has adopted.

1. _____ Emergency Program
2. X Regular Program
3. _____ Non Applicable; Explain _____

B. Types of F.E.M.A. maps available, if any.

1. X Flood Hazard Boundary Map (FHBM)
2. X Flood Insurance Rate Map (FIRM)
3. X Flood Boundary and Floodway Map (FBFM)

C. Do F.E.M.A. guidelines apply to the project?

Yes X ; No _____ ; Nonapplicable _____ ; Explain _____

II. 404 Permit Requirements with U.S. Army Corps of Engineers

A. Nationwide General Permit Requirements

1. Stream Crossing or Encroachment.

a. Does project involve a stream crossing or encroachment?

Yes X ; No _____

If answer is Yes, go to next question.
If answer is No, go to IIA2.

b. Is stream flow less than 0.14 cms (5 cfs) at least 6 months of the year?

Yes X ; No ___, Specify Quantity 0.048 (1.7) cms (cfs)

If answer is Yes, location is above headwaters, go to next question.
If answer is No, go to II Ald.

c. Is surface area of disturbed stream less than 0.405 hectares (1 acre)?

Yes___X___; No_____; Specify Quantity 0.227 (0.56) hectares (acre) - Alt. 1, 0.219 (0.54) hectares (acre) - Alt. 2, 0.219 (0.54) hectares (acre) - Alt. 3.

If answer is Yes, Nationwide General Permit applies.

If answer is No, and the disturbed surface area of the stream is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General Permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

d. Is quantity of fill material below ordinary high water less than 153 cubic meter (m^3) (200 yd^3)?

Yes_____; No___X___; Specify Quantity__m^3 (yd^3)

If answer is Yes, Nationwide General Permit applies.
If answer is No, go to IIB.

2. Wetlands

Will the project affect wetlands?

Yes_____; No___X_____

If answer is No, go to III.

If answer is Yes, check one of the following:

a. Project involves wetlands with no stream encroachment_____
b. Project involves wetlands with stream encroachment_____

If a. is checked, go to (aa).

If b. is checked, go to (bb).

(aa) Is surface area of disturbed wetlands less than 0.405 hectares (1 acre)?

Yes_____; No_____; Specify
Quantity_____hectares (acre)

If answer is Yes, Nationwide General Permit applies.

If answer is No and the disturbed surface area of wetlands is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General

permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

(bb) Will materials discharge into wetlands adjacent to the waterbody extend beyond 30.5 meter (100 ft) on either side of the ordinary high water of the waterbody?

Yes_____; No_____

If answer is No, Nationwide General Permit applies.
If answer is Yes, go to (cc).

(cc) Is quantity of fill material into wetlands greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____; No_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to (dd).

(dd) Is quantity of fill material into wetlands greater than 382.2 m^3 (500 yd^3)?

Yes_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

B. Statewide General Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____ No__X__; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to II C.

C. Individual Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 382.2 m^3 (500 yd^3)?

Yes_____; Specify Quantity_____m^3 (yd^3) Alt. 1, _____m^3 (yd^3) - Alt. 2, _____ m^3 (yd^3) - Alt. 3.

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

III. Coordination with the Utah Division of Water Rights in Regard to Stream Alteration or Modification.

Check one of the following:

A. ___ Project involves no stream alteration or modification at all. No further action is required.

B. _X_ Project involves minor stream alteration or modification of insignificant nature. During design stage of a project, coordination with the Division of Water Rights through the Hydraulics Section should be made.

C. ___ Project involves major stream alteration or modification of significant nature. During design stage of a project, application for alteration or modification of stream must be filed with the Division of Water Rights through the Hydraulics Sections.

IV. Water Quality Considerations

Check the following items that apply:

A. Live Stream___X____; Intermittent Stream_____

B. Impact due to erosion or siltation on water quality from construction.

Significant_____; Insignificant___X___

If impact is significant

1. ___ Elaborate study, evaluation and monitoring of water quality of stream required.

2. ___ Mitigation measures as required.

3. ___ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

If impact is insignificant

1. _X_ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

2. ___ Other Methods?_____; Specify_____

_____

V. Coordination with the Utah Division of Wildlife Resources and U.S. Fish and Wildlife Service

A. Is stream live? Yes__X__; No_____

B. Does stream carry any fish habitat? Yes__X__; No_____

C. If stream does not carry any fish habitat now, does it have potential for it in the future? Yes__; No_____

If answer to all of the above questions is No, no further action is required.

If answer is Yes to any of the above questions during the design stage of a project, coordination with both agencies must be made.

VI. Coordination with the Utah State Division of Water Quality

Check the following items as applicable.

A. Does project involve design and construction of storm drain?

Yes_____; No__X__

If answer is No, no further action is required.

If answer is Yes, is storm drain outfall discharge greater than 0.057 cms (2 cfs)_____?
Less than 0.057 cms (2 cfs)_____?

If storm drain outfall discharge is less than 0.057 cms (2 cfs), no further action is required.

If storm drain outfall discharge is greater than 0.057 cms (2 cfs), construction permit from the Utah State Division of Health must be obtained upon completion of the design of storm drain.

B. Does project disturb more than 2.02 hectares (5 acres) of surface area during construction?

Yes __X__; No _____

If answer is No, no further action is required.

If answer is Yes, UPDES General Storm Water Discharge Permit issued to UDOT applies.

As part of the requirements of the UPDES General Storm Water Discharge Permit:

a) Development and Implementation of Storm Water Pollution Prevention Plan required __X__.

b) Submittal of Notice of Intent (NOI) through the Environmental Division to the Utah Division of Water Quality required __X__.

VII. Evaluation of Encroachments on Floodplains and its Effect, if Any

A. Type and Size of Existing Structure

Check one

_X_ 1. Pipe Culvert 6' CMP
___ 2. Box Culvert
___ 3. Bridge
___ 4. Roadway Fill

Type of Proposed Structure

_X_ 1. Pipe Culvert 6' CMP
___ 2. Box Culvert
___ 3. Bridge
___ 4. Roadway Fill

B. Identify Existing Conditions and Features Near Existing or Proposed Structure.

Project is located in:

Check one

___ 1. An urban area
_X_ 2. A semi-urban area
___ 3. A rural area

C. Nearby Buildings

_X_ 1. Residences
___ 2. Farm Buildings
___ 3. Commercial Buildings
___ 4. Shopping Center
___ 5. Other_____Specify_____

_____

D. Adjacent Property

Check One

_X_ 1. Private
___ 2. Cropland
___ 3. Commercial
___ 4. Public
___ 5. Other_____Specify_____

_____

E. Determination of Floodplain

1. Is stream confined to a well-defined and deep-narrow channel for most flows?

   Yes___X_____; No_____

   If answer is Yes, then floodplain encroachment is insignificant or none.

2. If answer is No, is there a floodplain to convey ordinary high water flows?

   Yes_____; No_____

   If answer is Yes, does the floodplain area include sensitive features such as buildings, roads and other man-made facilities?

   Yes_____; No_____

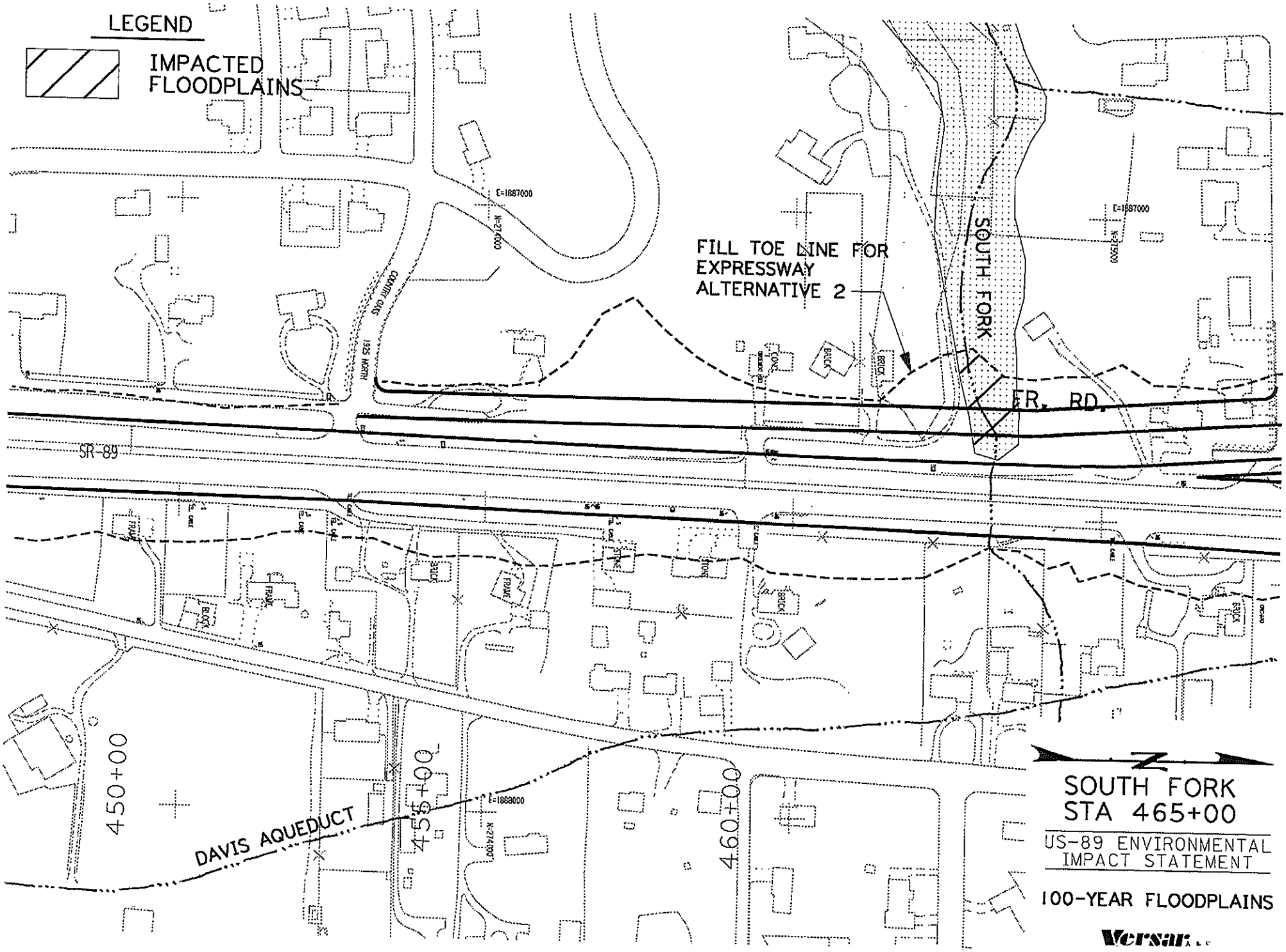
   If answer is Yes, will the overbank flow affect sensitive properties as described above?

   Yes_____; No_____

   If answer is No to the last two questions, no further action is required.

   If answer is Yes to either of the last two questions, an affirmative action for "economic assessment" must be completed for project at the design stage.

F. Determine whether encroachment on floodplain is significant or insignificant using economic assessment procedure developed by the UDOT.


LEGEND
IMPACTED FLOODPLAINS
FILL TOE LINE FOR EXPRESSWAY ALTERNATIVE 2
SOUTH FORK
FR. RD.
SR-89
DAVIS AQUEDUCT
450+00
455+00
460+00
E=1887000
N=274000
E=1888000
N=274000
SOUTH FORK
STA 465+00
US-89 ENVIRONMENTAL IMPACT STATEMENT
100-YEAR FLOODPLAINS
Versar

UTAH DEPARTMENT OF TRANSPORTATION

FLOODPLAIN, WATER QUALITY, WETLAND, WATER BODY MODIFICATION AND WILDLIFE IMPACTS AND PERMIT EVALUATION

Name of Stream Weber River
Station 650+00
Reference Point Milepost 345.17
Approved by [signature] Engineer
Date Approved 7-31-95

Date 28 Jan. 1993
County Davis
Proj. Name US-89 EIS
Region 1
Prepared by B. Wilson

I. Coordination with the Federal Emergency Management Agency (F.E.M.A.) in Regards to Highway Encroachments on Floodplains.

A. Indicate which of the following F.E.M.A. programs local community has adopted.

1. _____ Emergency Program
2. X Regular Program
3. _____ Non Applicable; Explain_____

B. Types of F.E.M.A. maps available, if any.

1. X Flood Hazard Boundary Map (FHBM)
2. X Flood Insurance Rate Map (FIRM)
3. X Flood Boundary and Floodway Map (FBFM)

C. Do F.E.M.A. guidelines apply to the project?

Yes X ; No_____; Nonapplicable_____; Explain_____

II. 404 Permit Requirements with U.S. Army Corps of Engineers

A. Nationwide General Permit Requirements

1. Stream Crossing or Encroachment.

a. Does project involve a stream crossing or encroachment?

Yes X ; No_____

If answer is Yes, go to next question.
If answer is No, go to IIA2.

b. Is stream flow less than 0.14 cms (5 cfs) at least 6 months of the year?

Yes___; No X , Specify Quantity 44.8 (1,600)cms (cfs)

If answer is Yes, location is above headwaters, go to next question.
If answer is No, go to II Ald.

c. Is surface area of disturbed stream less than 0.405 hectares (1 acre)?

Yes_____; No_____; Specify Quantity_____hectares (acre)

If answer is Yes, Nationwide General Permit applies.

If answer is No, and the disturbed surface area of the stream is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General Permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

d. Is quantity of fill material below ordinary high water less than 153 cubic meter (m^3) (200 yd^3)?

Yes_____; No__X__; Specify Quantity__m^3 (yd^3)

If answer is Yes, Nationwide General Permit applies.

If answer is No, go to IIB.

2. Wetlands

Will the project affect wetlands?

Yes_____; No__X_____

If answer is No, go to III.

If answer is Yes, check one of the following:

a. Project involves wetlands with no stream encroachment_____
b. Project involves wetlands with stream encroachment_____

If a. is checked, go to (aa).

If b. is checked, go to (bb).

(aa) Is surface area of disturbed wetlands less than 0.405 hectares (1 acre)?

Yes_____; No_____; Specify
Quantity_____hectares (acre)

If answer is Yes, Nationwide General Permit applies.

If answer is No and the disturbed surface area of wetlands is between 0.405 to 4.05 hectares (1 to 10 acres), U.S. Army Corps of Engineers will determine whether a Nationwide General

permit or an Individual Permit is required. When area exceeds 4.05 hectares (10 acres), an Individual Permit will be required.

(bb) Will materials discharge into wetlands adjacent to the waterbody extend beyond 30.5 meter (100 ft) on either side of the ordinary high water of the waterbody?

Yes_____; No_____

If answer is No, Nationwide General Permit applies.
If answer is Yes, go to (cc).

(cc) Is quantity of fill material into wetlands greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____; No_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to (dd).

(dd) Is quantity of fill material into wetlands greater than 382.2 m^3 (500 yd^3)?

Yes_____; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

B. Statewide General Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 153 m^3 (200 yd^3), but less than 382.2 m^3 (500 yd^3)?

Yes_____ No__X__; Specify Quantity_____m^3 (yd^3)

If answer is Yes, Statewide General Permit applies.

If answer is No, (i.e. quantity of material exceeds 382.2 m^3 (500 yd^3), go to II C.

C. Individual Permit Requirements

1. Is quantity of fill material below the plane of ordinary high water greater than 382.2 m^3 (500 yd^3)?

Yes__X__; Specify Quantity 3,189 (4,171) m^3 (yd^3) - Alt. 1, 3,067 (4,011) m^3 (yd^3) - Alt. 2, 1,227 (1,604) m^3 (yd^3) - Alt. 3.

If answer is Yes, Individual Permit applies.

If Individual Permit is required, during design stage of a project, an application should be processed through the Hydraulics Section to the U.S. Army Corps of Engineers for their action and approval.

III. Coordination with the Utah Division of Water Rights in Regard to Stream Alteration or Modification.

Check one of the following:

A. ___ Project involves no stream alteration or modification at all. No further action is required.

B. ___ Project involves minor stream alteration or modification of insignificant nature. During design stage of a project, coordination with the Division of Water Rights through the Hydraulics Section should be made.

C. _X_ Project involves major stream alteration or modification of significant nature. During design stage of a project, application for alteration or modification of stream must be filed with the Division of Water Rights through the Hydraulics Sections.

IV. Water Quality Considerations

Check the following items that apply:

A. Live Stream__X____; Intermittent Stream_____

B. Impact due to erosion or siltation on water quality from construction.

Significant_____; Insignificant__X__

If impact is significant

1. ___ Elaborate study, evaluation and monitoring of water quality of stream required.

2. ___ Mitigation measures as required.

3. _X_ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

If impact is insignificant

1. ___ Implementation of temporary erosion and sediment control plans developed by the UDOT required.

2. ___ Other Methods?_____; Specify_____

_____

V. Coordination with the Utah Division of Wildlife Resources and U.S. Fish and Wildlife Service

A. Is stream live? Yes__X__; No_____

B. Does stream carry any fish habitat? Yes__X__; No_____

C. If stream does not carry any fish habitat now, does it have potential for it in the future? Yes__; No_____

If answer to all of the above questions is No, no further action is required.

If answer is Yes to any of the above questions during the design stage of a project, coordination with both agencies must be made.

VI. Coordination with the Utah State Division of Water Quality

Check the following items as applicable.

A. Does project involve design and construction of storm drain?

Yes_____; No__X__

If answer is No, no further action is required.

If answer is Yes, is storm drain outfall discharge greater than 0.057 cms (2 cfs)_____?
Less than 0.057 cms (2 cfs)_____?

If storm drain outfall discharge is less than 0.057 cms (2 cfs), no further action is required.

If storm drain outfall discharge is greater than 0.057 cms (2 cfs), construction permit from the Utah State Division of Health must be obtained upon completion of the design of storm drain.

B. Does project disturb more than 2.02 hectares (5 acres) of surface area during construction?

Yes __X__; No _____

If answer is No, no further action is required.

If answer is Yes, UPDES General Storm Water Discharge Permit issued to UDOT applies.

As part of the requirements of the UPDES General Storm Water Discharge Permit:

a) Development and Implementation of Storm Water Pollution Prevention Plan required __X__.

b) Submittal of Notice of Intent (NOI) through the Environmental Division to the Utah Division of Water Quality required __X__.

VII. Evaluation of Encroachments on Floodplains and its Effect, if Any

A. Type and Size of Existing Structure

Check one

___ 1. Pipe Culvert
___ 2. Box Culvert
_X_ 3. Bridge 8' X 100'
___ 4. Roadway Fill

Type of Proposed Structure

___ 1. Pipe Culvert
___ 2. Box Culvert
_X_ 3. Bridge
___ 4. Roadway Fill

B. Identify Existing Conditions and Features Near Existing or Proposed Structure.

Project is located in:

Check one

___ 1. An urban area
_X_ 2. A semi-urban area
___ 3. A rural area

C. Nearby Buildings

_X_ 1. Residences
___ 2. Farm Buildings
_X_ 3. Commercial Buildings
___ 4. Shopping Center
___ 5. Other_____Specify_____

D. Adjacent Property

Check One

_X_ 1. Private
___ 2. Cropland
_X_ 3. Commercial
___ 4. Public
___ 5. Other_____Specify_____

E. Determination of Floodplain

1. Is stream confined to a well-defined and deep-narrow channel for most flows?

   Yes_____; No__X____

   If answer is Yes, then floodplain encroachment is insignificant or none.

2. If answer is No, is there a floodplain to convey ordinary high water flows?

   Yes___X_____; No_____

   If answer is Yes, does the floodplain area include sensitive features such as buildings, roads and other man-made facilities?

   Yes_____; No__X____

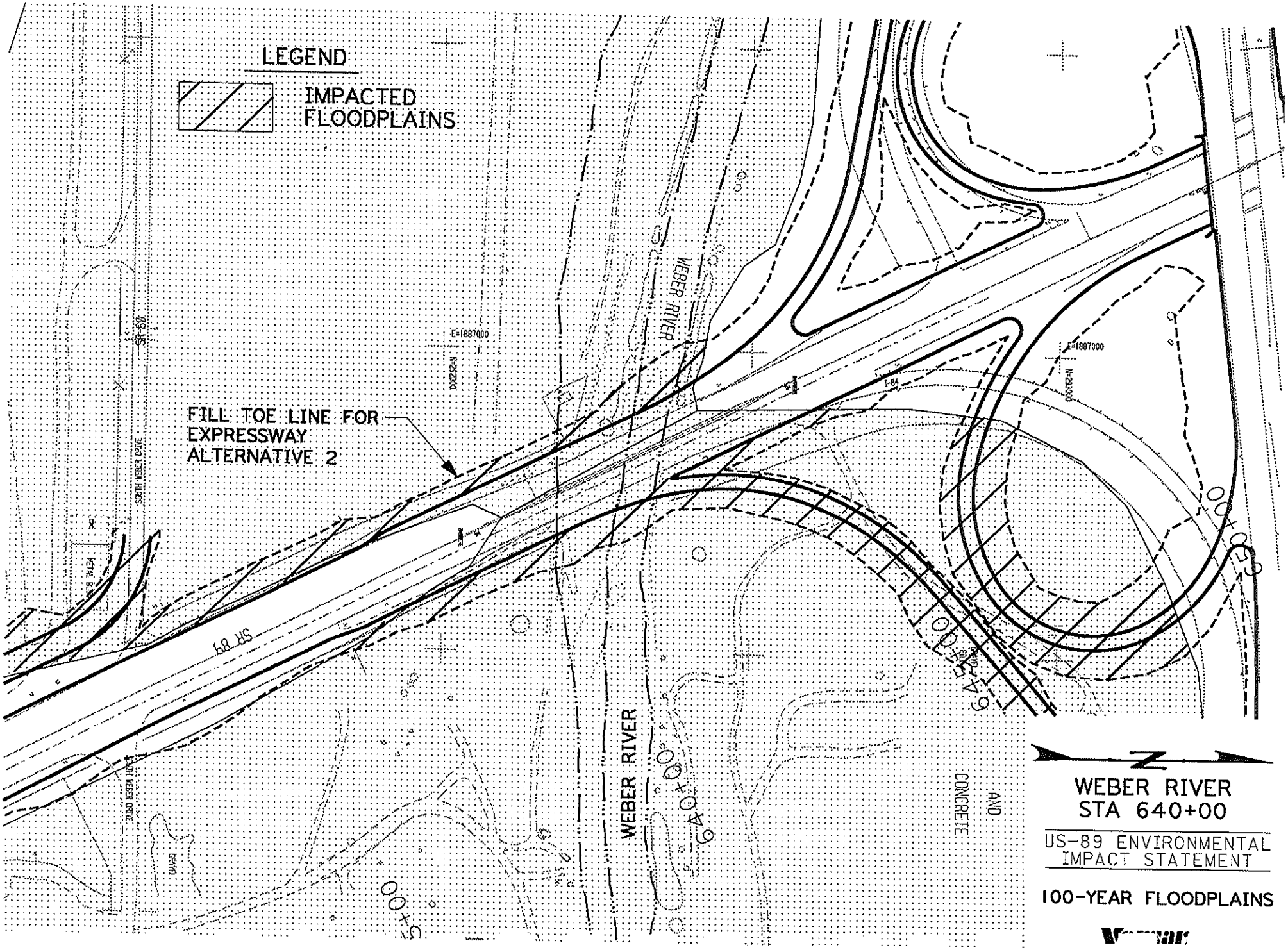
   If answer is Yes, will the overbank flow affect sensitive properties as described above?

   Yes_____; No_____

   If answer is No to the last two questions, no further action is required.

   If answer is Yes to either of the last two questions, an affirmative action for "economic assessment" must be completed for project at the design stage.

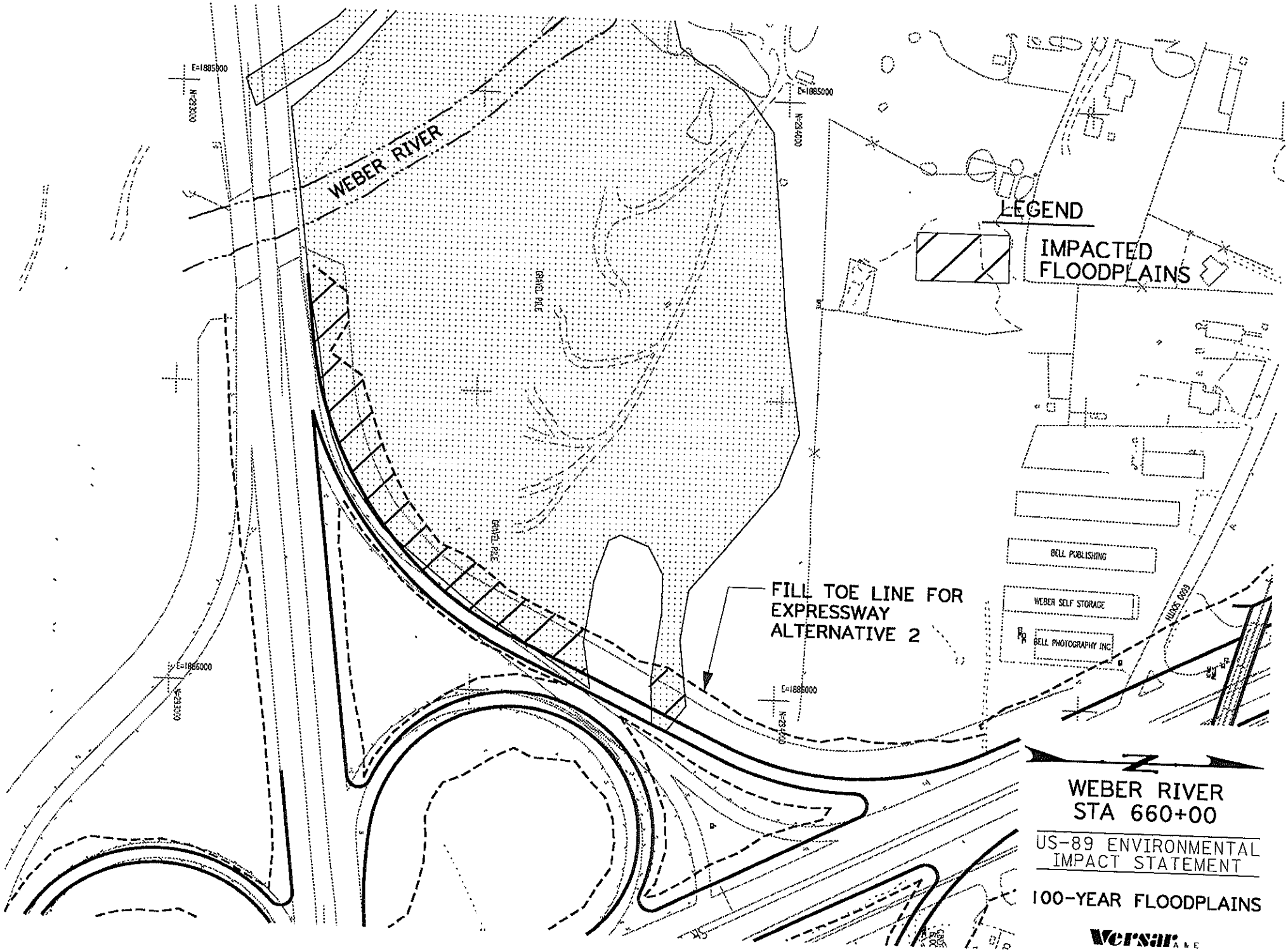
F. Determine whether encroachment on floodplain is significant or insignificant using economic assessment procedure developed by the UDOT.



WEBER RIVER
STA 640+00

US-89 ENVIRONMENTAL IMPACT STATEMENT

100-YEAR FLOODPLAINS

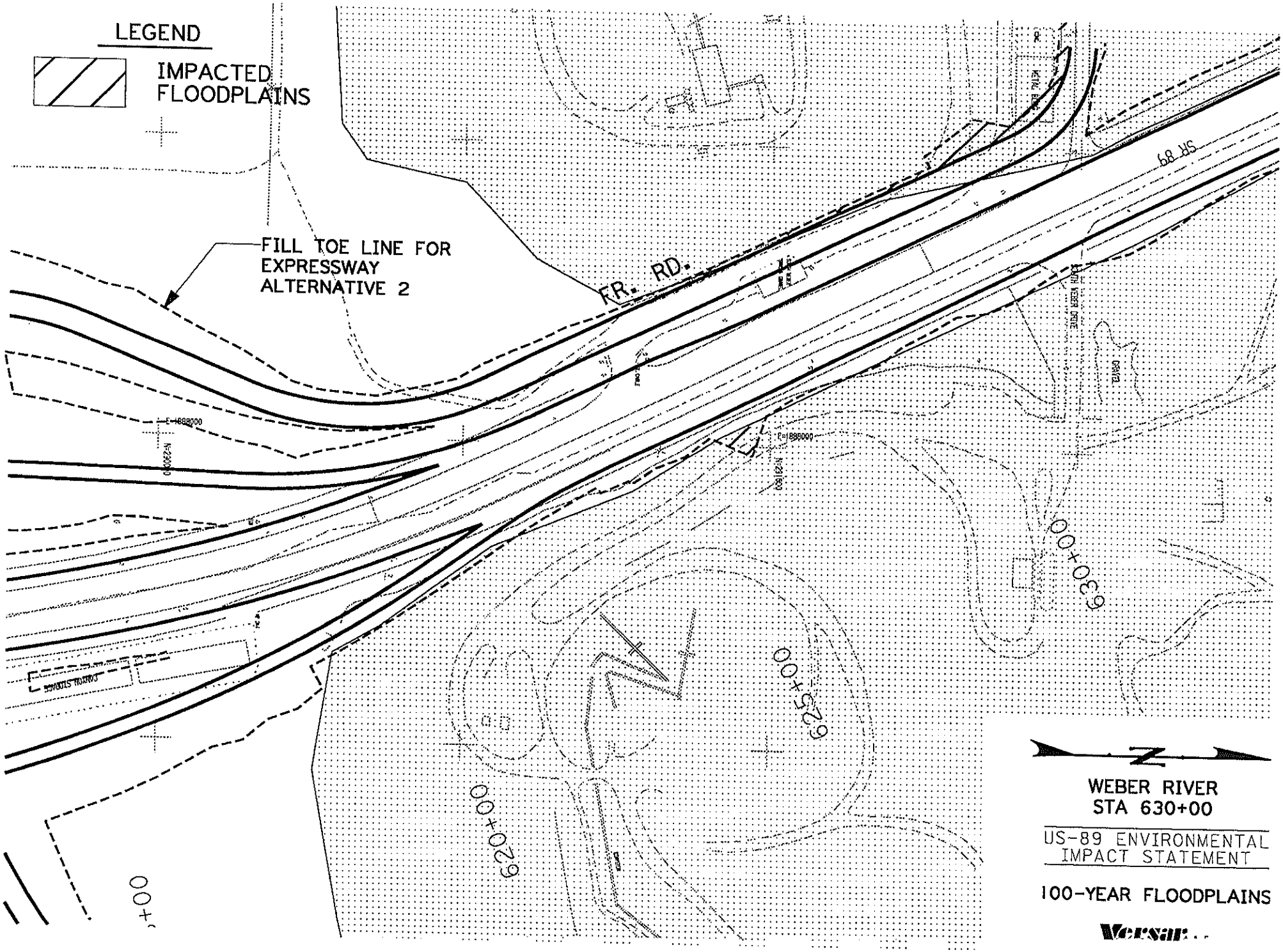


WEBER RIVER
STA 660+00

US-89 ENVIRONMENTAL IMPACT STATEMENT

100-YEAR FLOODPLAINS

Versar


LEGEND
IMPACTED FLOODPLAINS
FILL TOE LINE FOR EXPRESSWAY ALTERNATIVE 2
FR. RD.
SR 89
630+00
625+00
620+00
WEBER RIVER
STA 630+00
US-89 ENVIRONMENTAL IMPACT STATEMENT
100-YEAR FLOODPLAINS
Versar

APPENDIX G
MAPS

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ALTERNATIVE MAPPING

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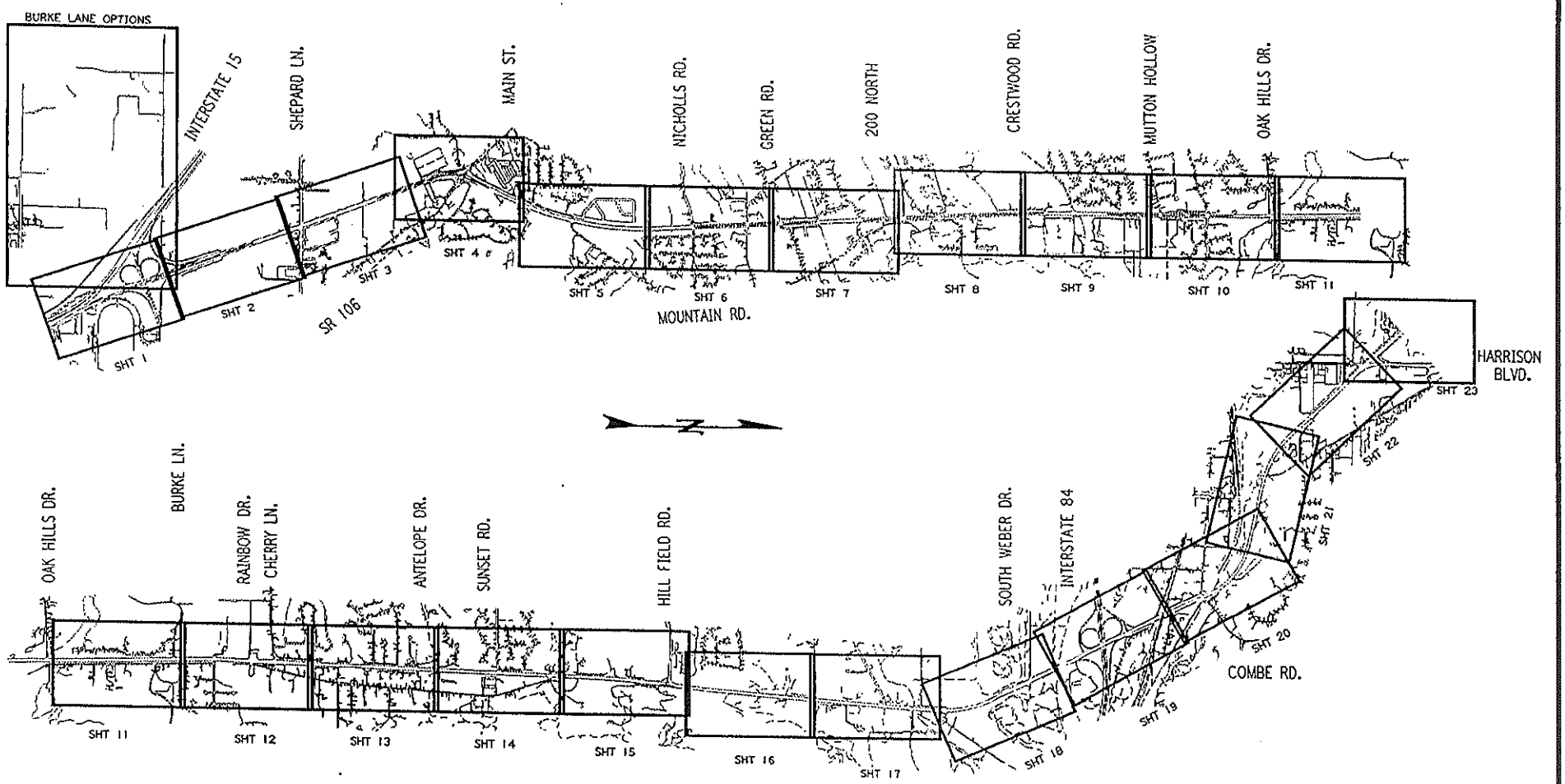
Alternative 2 - Expressway (Preferred) . . . . . Section 1



LEGEND

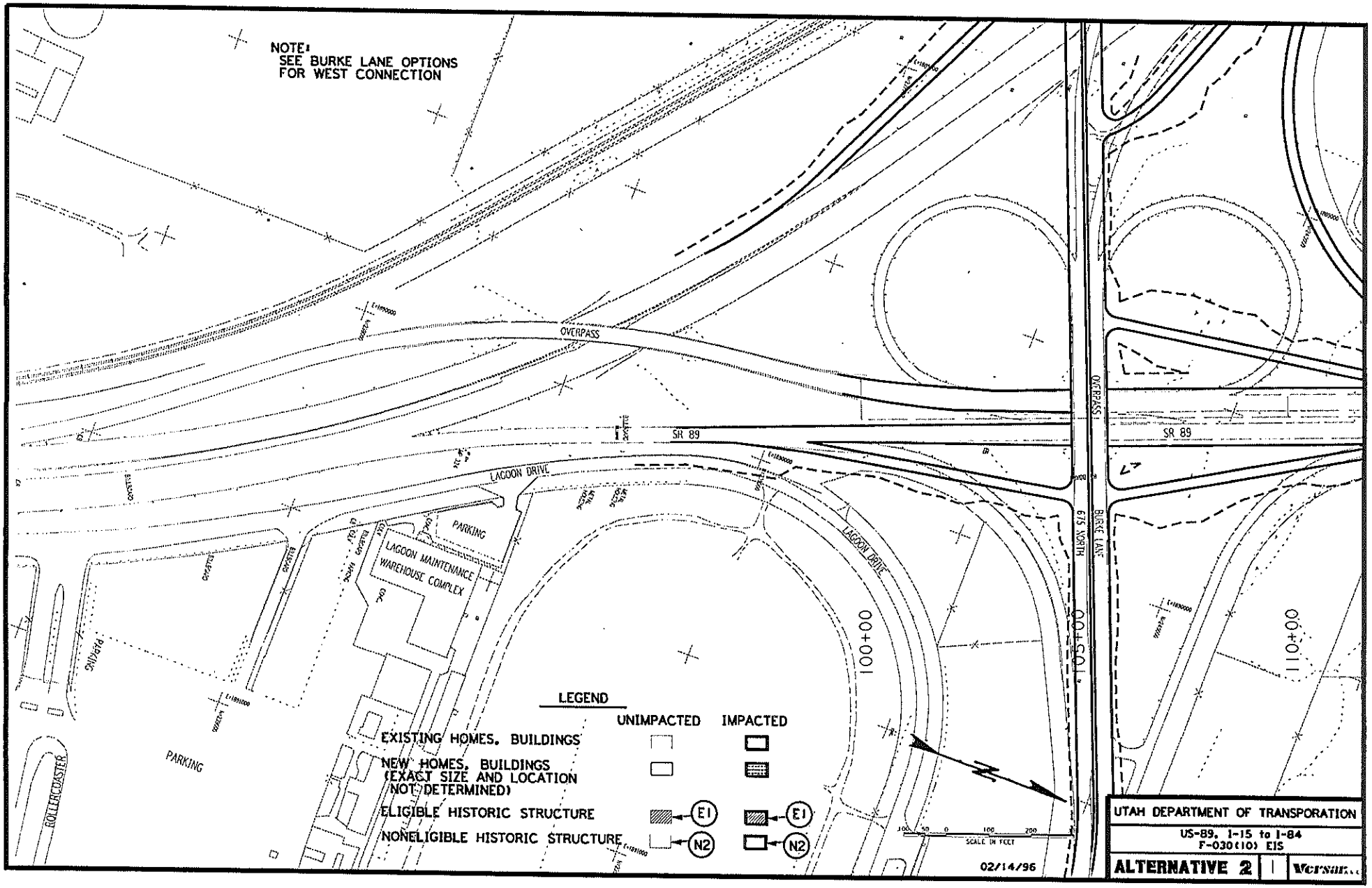
- CUT/FILL LINE OF CONSTRUCTION
- EDGE OF PAVEMENT
- EDGE OF PAVEMENT BY OTHERS
- (E2) ELIGIBLE SITES
- (N7) NON-ELIGIBLE SITES
- DISPLACED HOMES

UTAH DEPARTMENT OF TRANSPORATION

SR-89, I-15 to I-84
F-030(10) EIS

SHEET INDEX

Version...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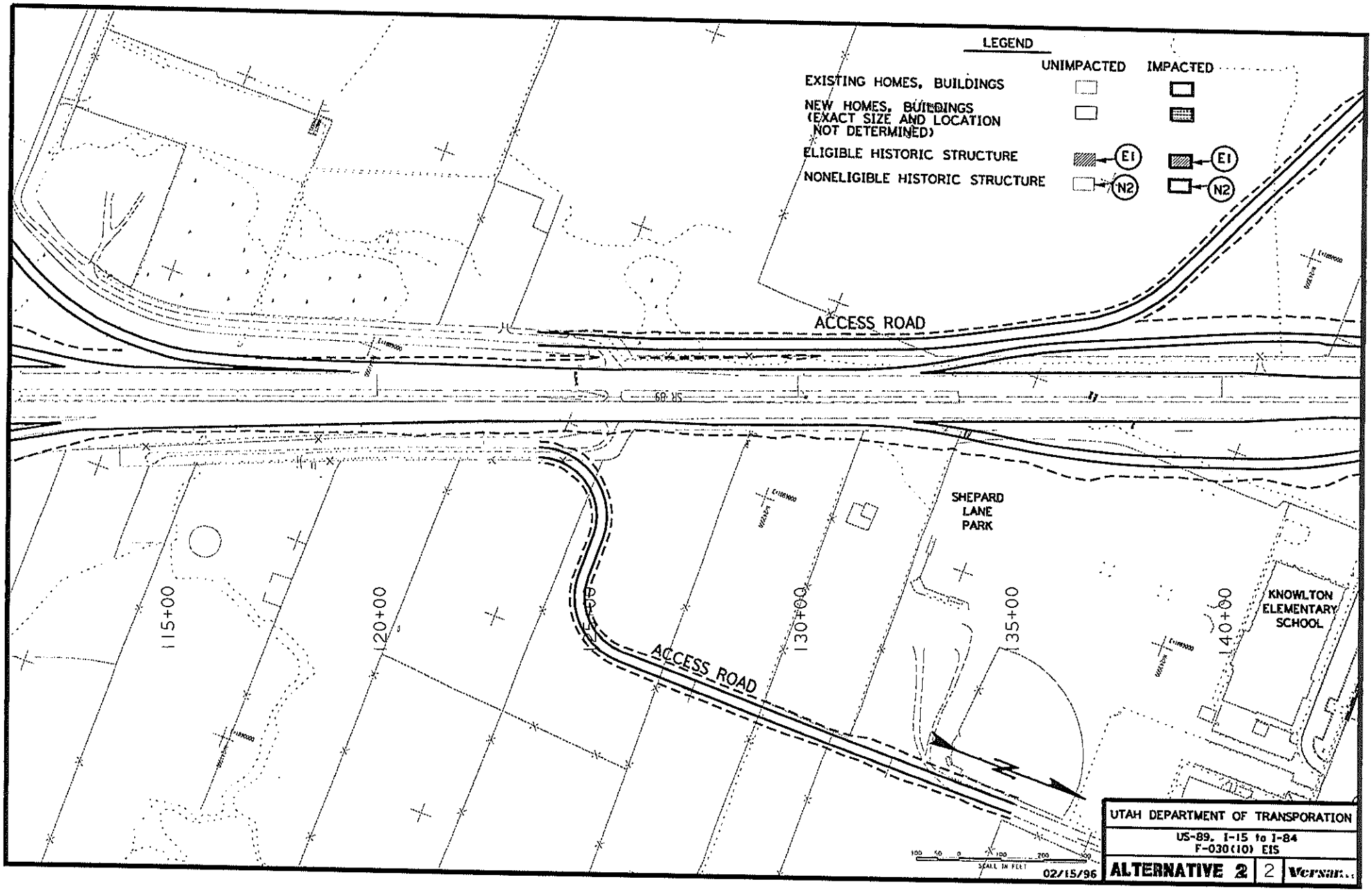
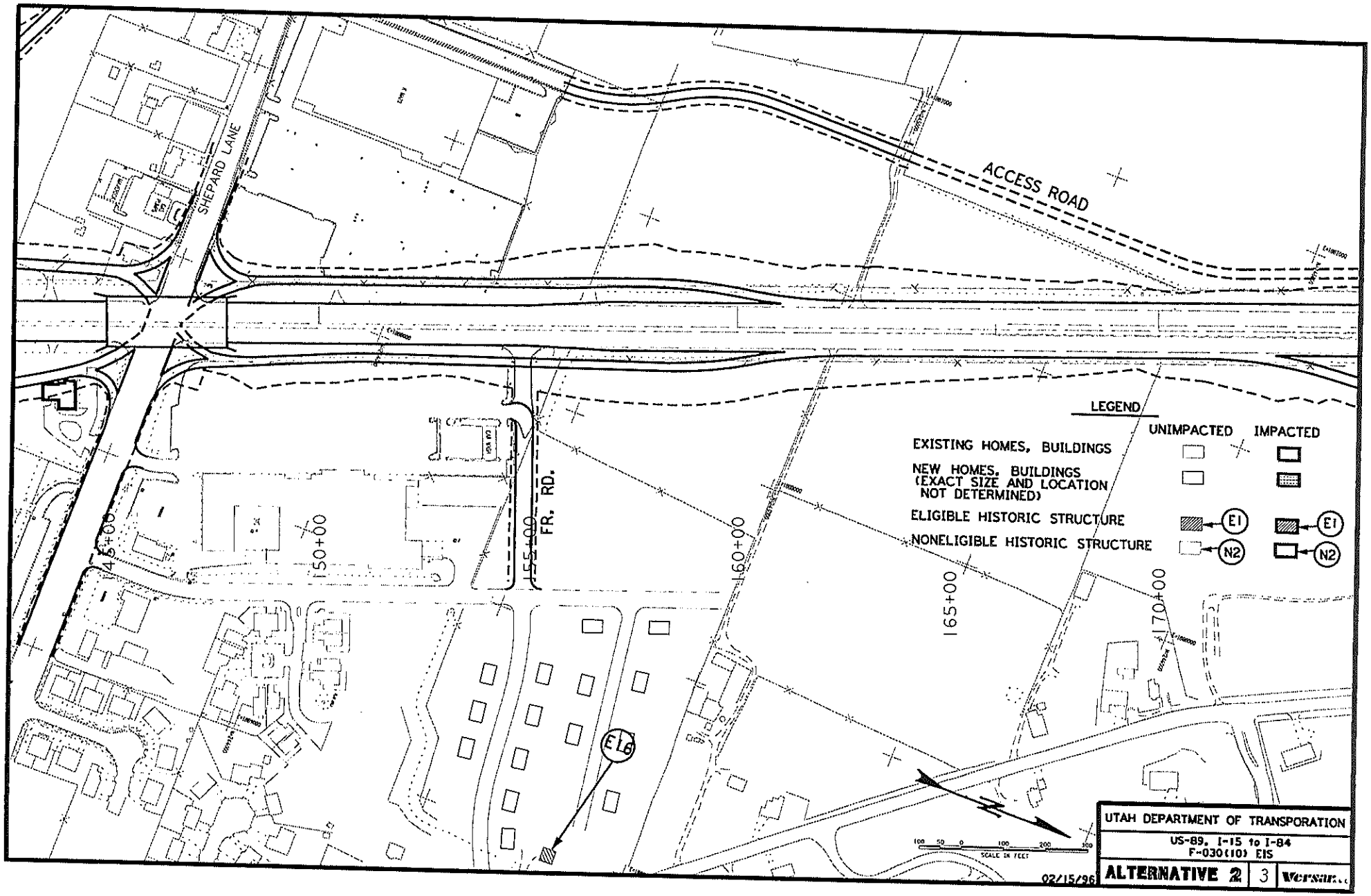
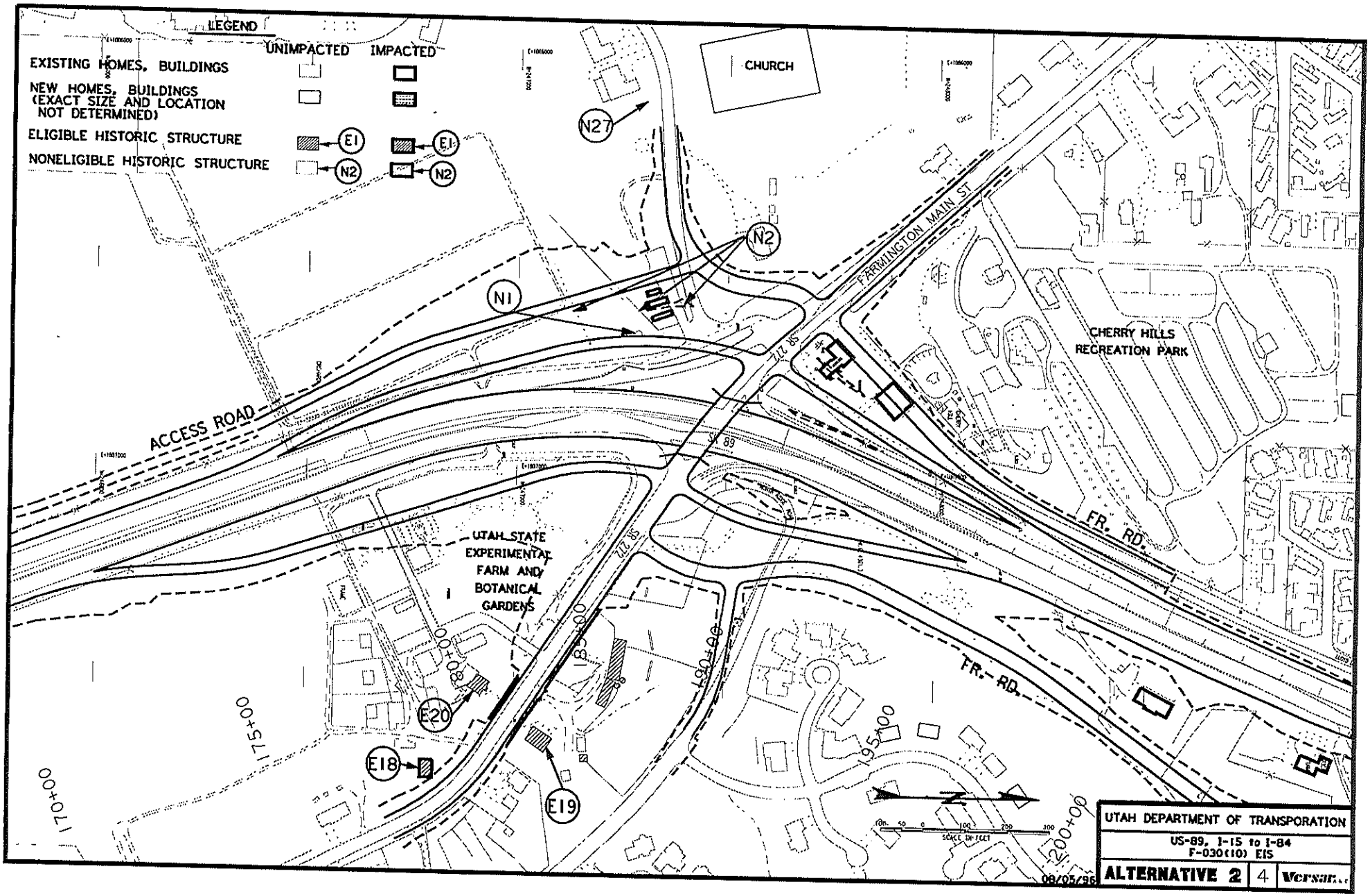
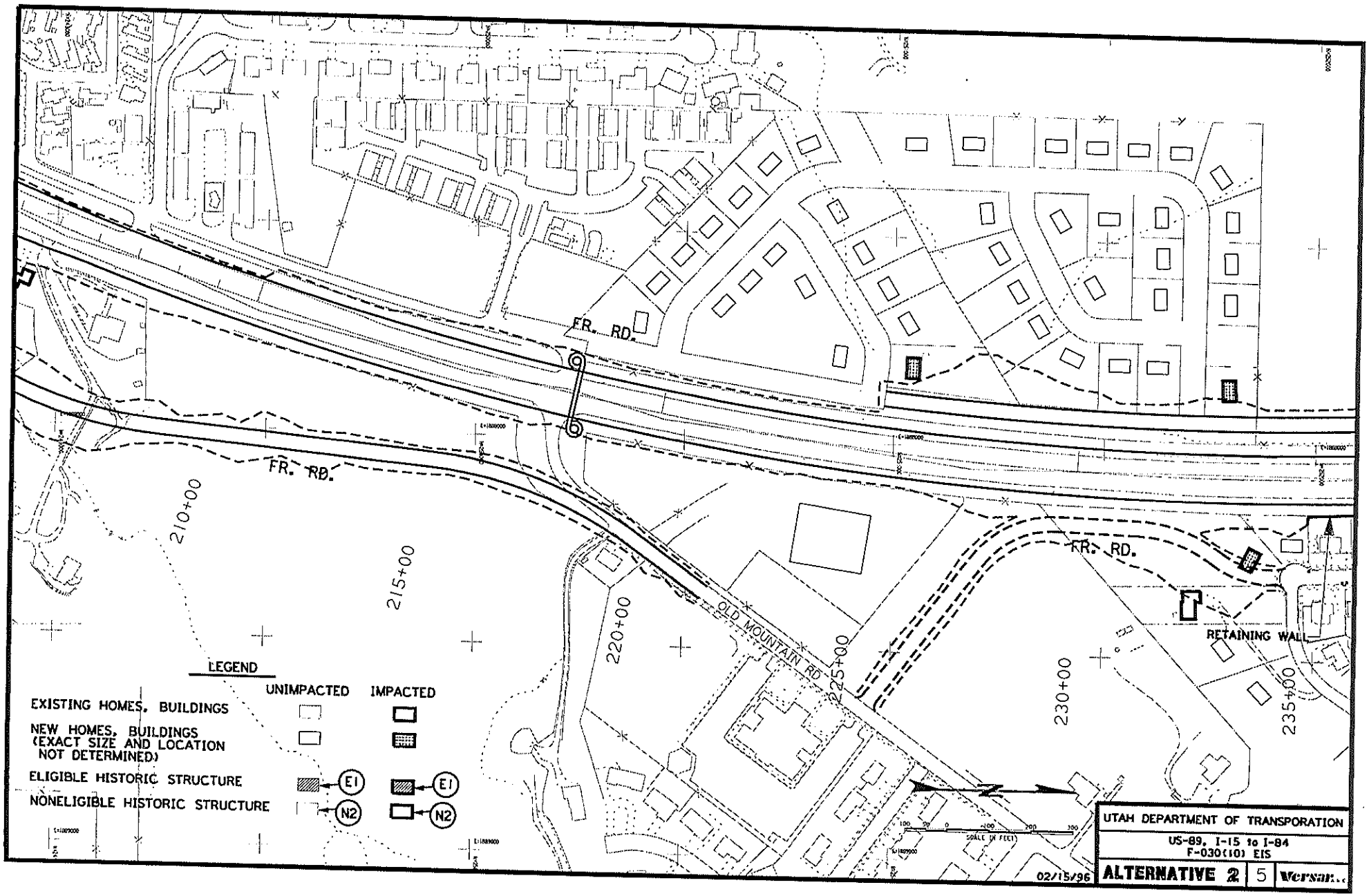
SEE BURKE LANE OPTIONS
FOR WEST CONNECTION
OVERPASS
SR 89
LAGOON DRIVE
PARKING
LAGOON MAINTENANCE
WAREHOUSE COMPLEX
PARKING
ROLLERCOASTER
LAGOON DRIVE
675 NORTH
BURKE LANE
OVERPASS
SR 89
100+00
105+00
110+00
LEGEND
UNIMPACTED
IMPACTED
EXISTING HOMES, BUILDINGS
NEW HOMES, BUILDINGS
(EXACT SIZE AND LOCATION
NOT DETERMINED)
ELIGIBLE HISTORIC STRUCTURE
E1
NONELIGIBLE HISTORIC STRUCTURE
N2
SCALE IN FEET
02/14/96
UTAH DEPARTMENT OF TRANSPORATION
US-89, I-15 to I-84
F-030(10) EIS
ALTERNATIVE 2
Versar


LEGEND
UNIMPACTED
IMPACTED
EXISTING HOMES, BUILDINGS
NEW HOMES, BUILDINGS (EXACT SIZE AND LOCATION NOT DETERMINED)
ELIGIBLE HISTORIC STRUCTURE
E1
NONELIGIBLE HISTORIC STRUCTURE
N2
ACCESS ROAD
SHEPARD LANE PARK
KNOWLTON ELEMENTARY SCHOOL
115+00
120+00
130+00
135+00
140+00
SCALE IN FEET
02/15/96
UTAH DEPARTMENT OF TRANSPORATION
US-89, I-15 to I-84
F-030(10) EIS
ALTERNATIVE 2
2
Versar


SHEPARD LANE
ACCESS ROAD
FR. RD.
145+00
150+00
155+00
160+00
165+00
170+00
E1a
LEGEND
UNIMPACTED
IMPACTED
EXISTING HOMES, BUILDINGS
NEW HOMES, BUILDINGS (EXACT SIZE AND LOCATION NOT DETERMINED)
ELIGIBLE HISTORIC STRUCTURE
E1
NONELIGIBLE HISTORIC STRUCTURE
N2
100 50 0 100 200 300
SCALE IN FEET
02/15/96
UTAH DEPARTMENT OF TRANSPORATION
US-89, I-15 to I-84
F-030(10) EIS
ALTERNATIVE 2
3
Versar...


LEGEND
UNIMPACTED IMPACTED
EXISTING HOMES, BUILDINGS
NEW HOMES, BUILDINGS (EXACT SIZE AND LOCATION NOT DETERMINED)
ELIGIBLE HISTORIC STRUCTURE
NONELIGIBLE HISTORIC STRUCTURE
E1
N2
CHURCH
N27
N2
N1
FARMINGTON MAIN ST
CHERRY HILLS RECREATION PARK
ACCESS ROAD
SR 225
I 89
FR. RD.
UTAH STATE EXPERIMENTAL FARM AND BOTANICAL GARDENS
E20
E18
E19
170+00
175+00
180+00
190+00
95+00
200+00
UTAH DEPARTMENT OF TRANSPORATION
US-89, I-15 to I-84
F-030(10) EIS
ALTERNATIVE 2
4
Versar...
08/05/96


FR. RD.
FR. RD.
FR. RD.
210+00
215+00
220+00
OLD MOUNTAIN RD
225+00
230+00
235+00
RETAINING WALL
LEGEND
UNIMPACTED
IMPACTED
EXISTING HOMES, BUILDINGS
NEW HOMES, BUILDINGS (EXACT SIZE AND LOCATION NOT DETERMINED)
ELIGIBLE HISTORIC STRUCTURE
NONELIGIBLE HISTORIC STRUCTURE
E1
N2
SCALE IN FEET
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UTAH DEPARTMENT OF TRANSPORATION
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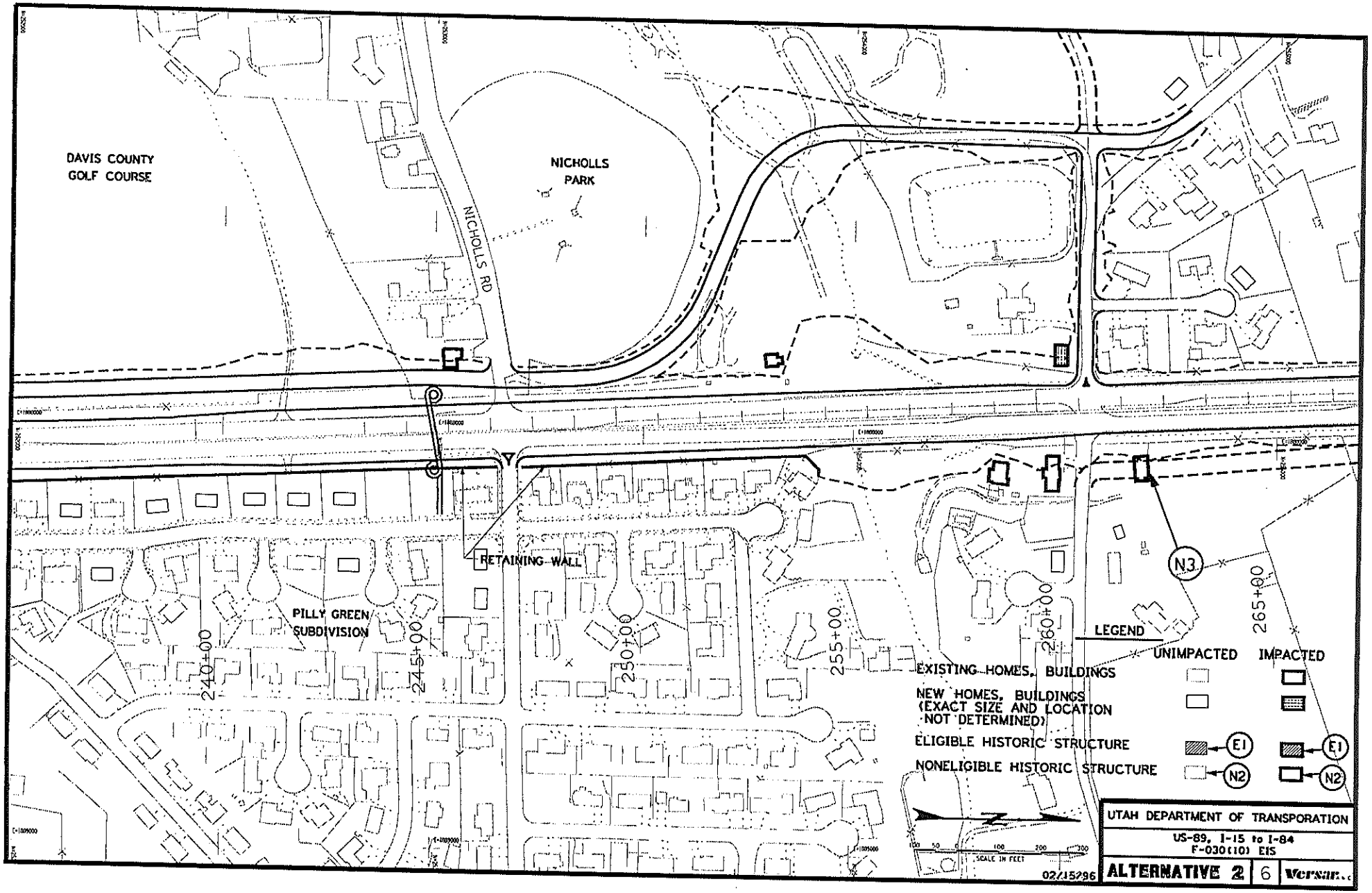
DAVIS COUNTY
GOLF COURSE
NICHOLLS
PARK
NICHOLLS RD
RETAINING WALL
PILLY GREEN
SUBDIVISION
240+00
245+00
250+00
255+00
260+00
265+00
N3
LEGEND
UNIMPACTED
IMPACTED
EXISTING HOMES, BUILDINGS
NEW HOMES, BUILDINGS
(EXACT SIZE AND LOCATION
NOT DETERMINED)
ELIGIBLE HISTORIC STRUCTURE
E1
NONELIGIBLE HISTORIC STRUCTURE
N2
100 50 0 100 200 300
SCALE IN FEET
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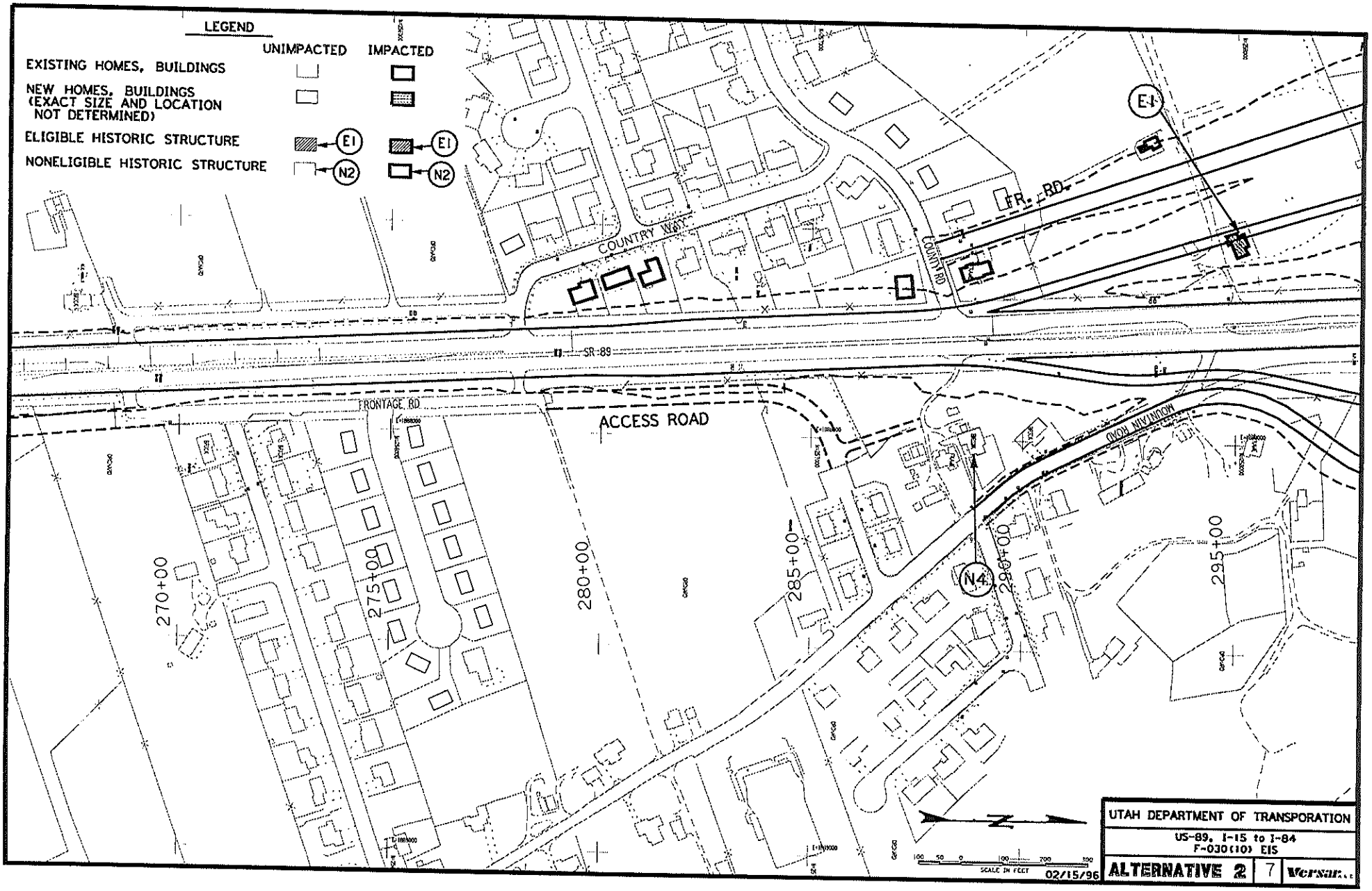
6
Versar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ELIGIBLE HISTORIC STRUCTURE
E1
NONELIGIBLE HISTORIC STRUCTURE
N2
COUNTRY WAY
COUNTY RD
FR. RD.
SR-89
FRONTAGE RD
ACCESS ROAD
MOUNTAIN ROAD
270+00
275+00
280+00
285+00
290+00
295+00
N4
SCALE IN FEET
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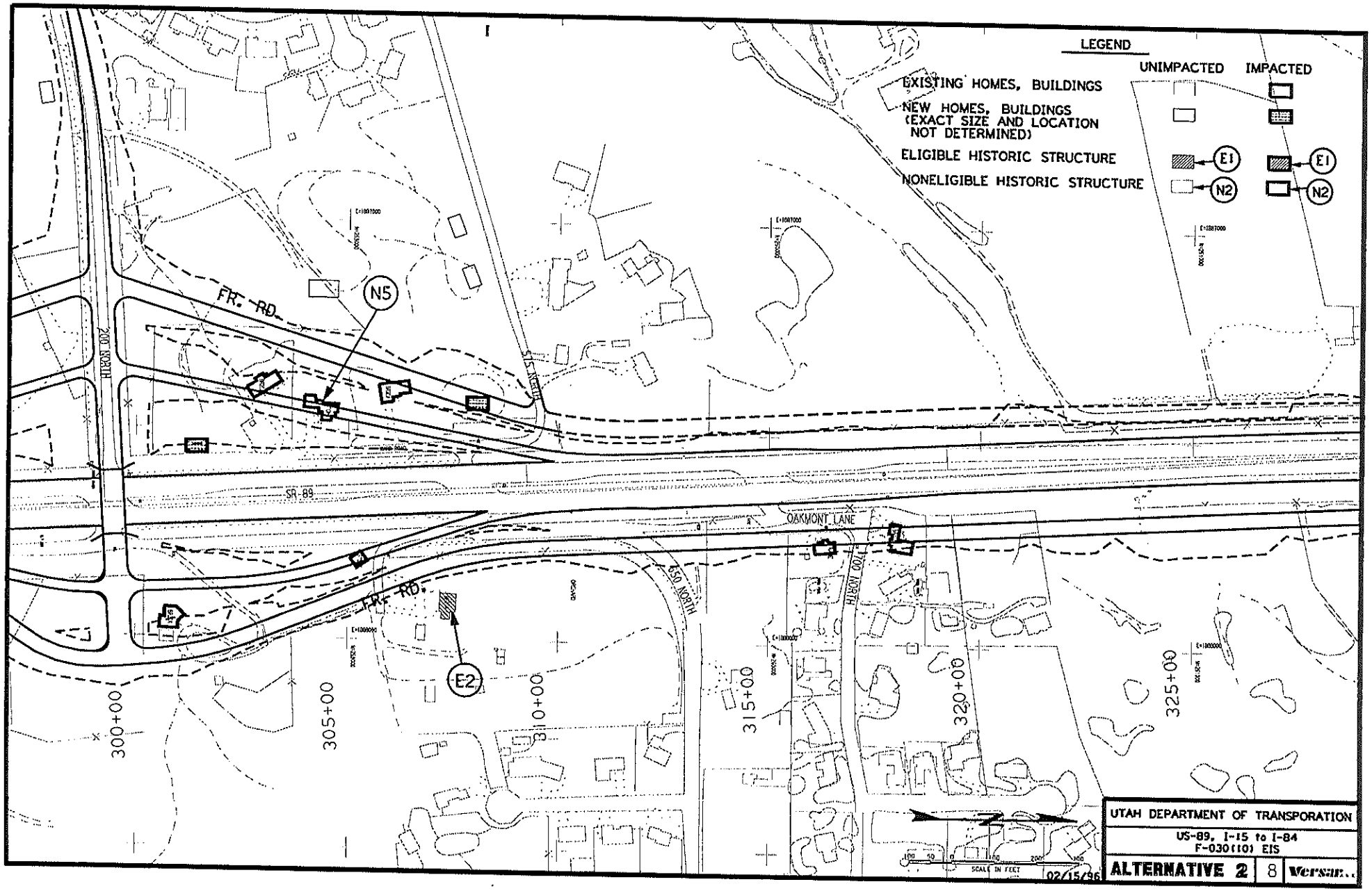
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ELIGIBLE HISTORIC STRUCTURE
NONELIGIBLE HISTORIC STRUCTURE
E1
N2
N5
E2
FR. RD.
200 SOUTH
515 NORTH
SR-89
OAKMONT LANE
700 NORTH
650 NORTH
300+00
305+00
310+00
315+00
320+00
325+00
SCALE IN FEET
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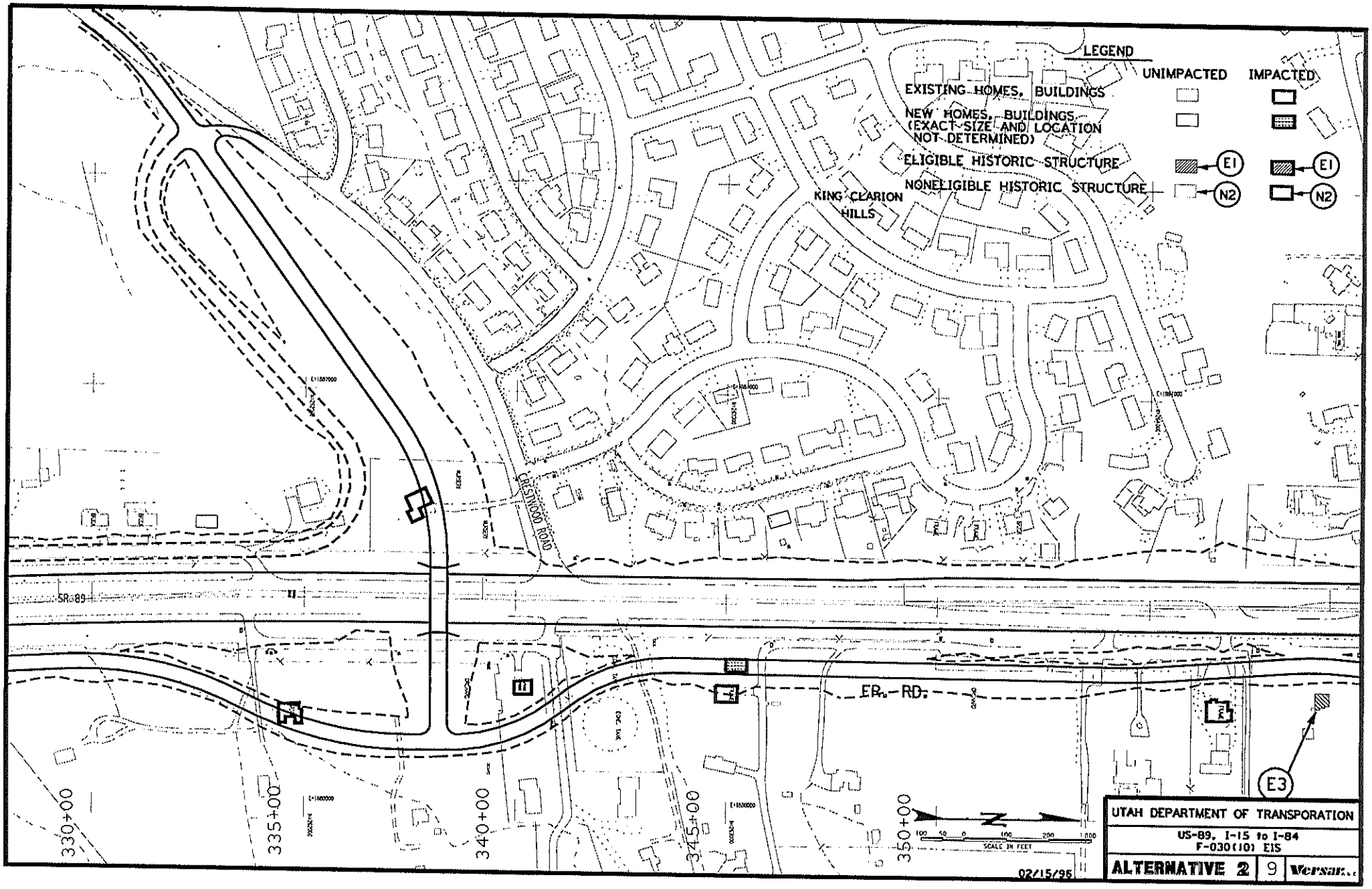
ALTERNATIVE 2
8
Versan...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ELIGIBLE HISTORIC STRUCTURE
NONELIGIBLE HISTORIC STRUCTURE
E1
N2
KING CLARION HILLS
CRESTWOOD ROAD
SR-89
ER. RD.
330+00
335+00
340+00
345+00
350+00
E3
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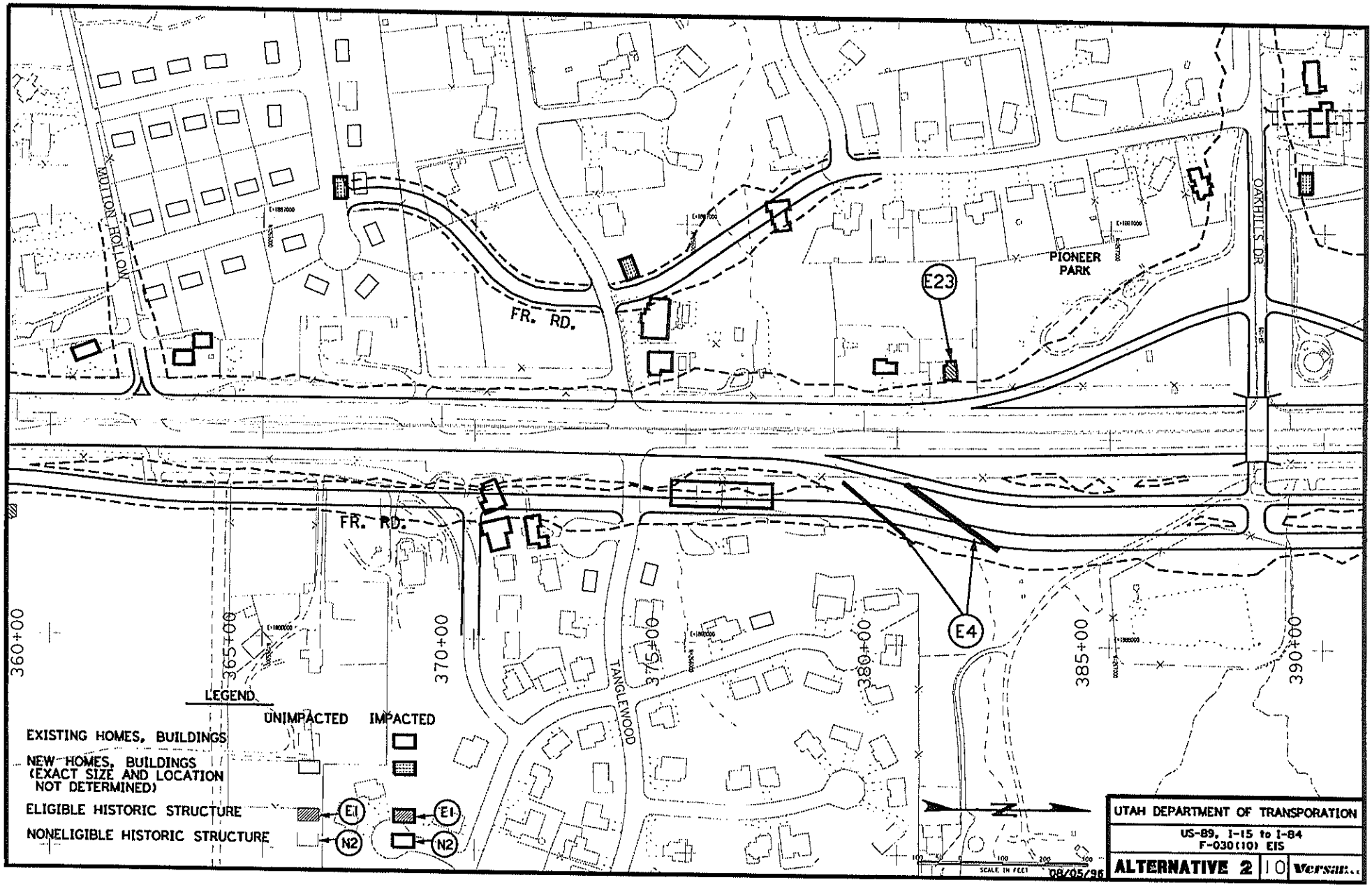
MILTON HOLLOW
FR. RD.
PIONEER PARK
OAKHILLS DR
E23
E4
FR. RD.
360+00
365+00
370+00
375+00
380+00
385+00
390+00
TANGLEWOOD
LEGEND
UNIMPACTED
IMPACTED
EXISTING HOMES, BUILDINGS
NEW HOMES, BUILDINGS (EXACT SIZE AND LOCATION NOT DETERMINED)
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NONELIGIBLE HISTORIC STRUCTURE
E1
N2
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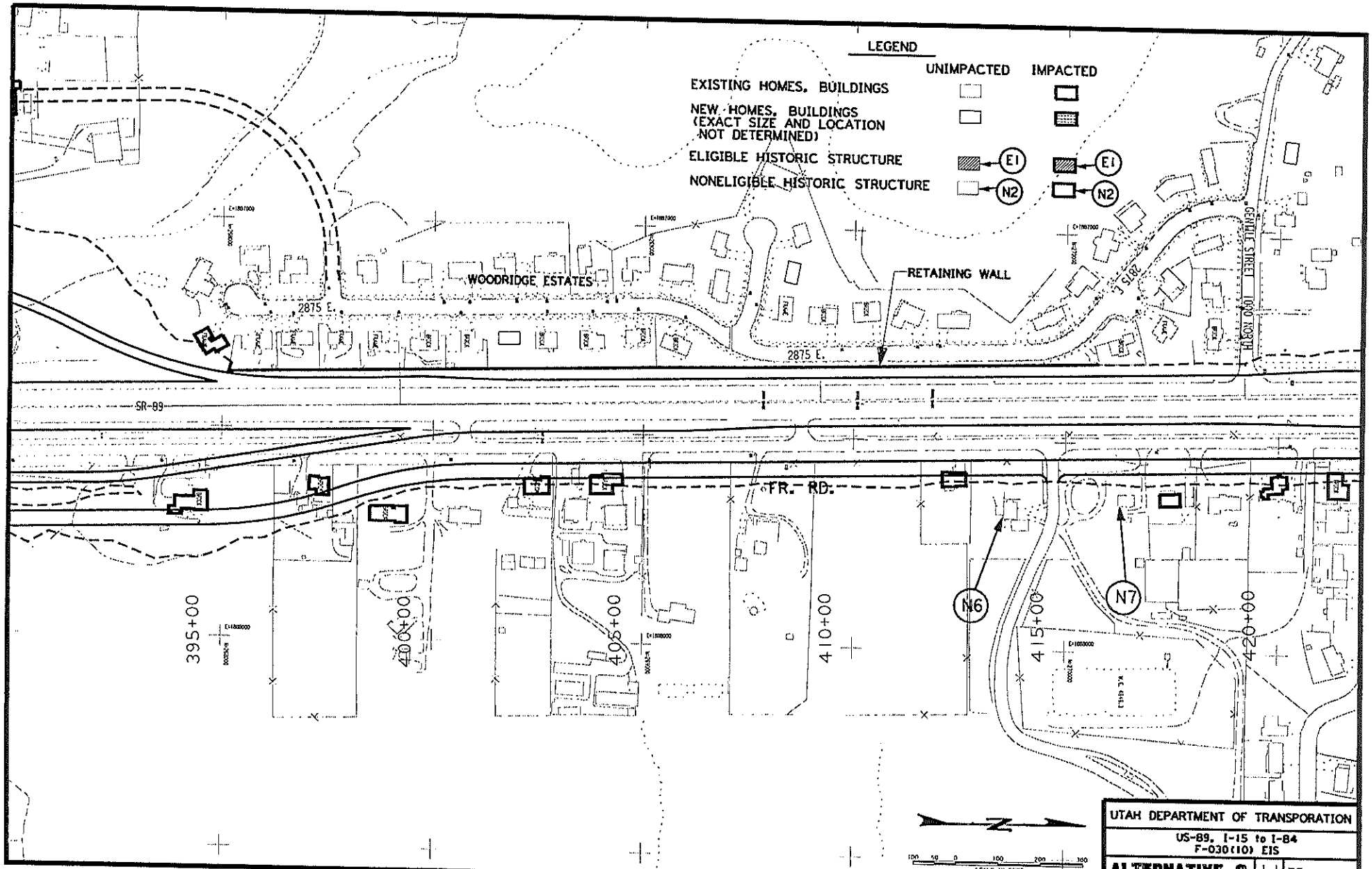
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NONELIGIBLE HISTORIC STRUCTURE
E1
N2
WOODRIDGE ESTATES
RETAINING WALL
2875 E.
2815 E.
GENTILE STREET
1000 NORTH
SR-89
FR. RD.
395+00
400+00
405+00
410+00
415+00
420+00
N6
N7
SCALE IN FEET
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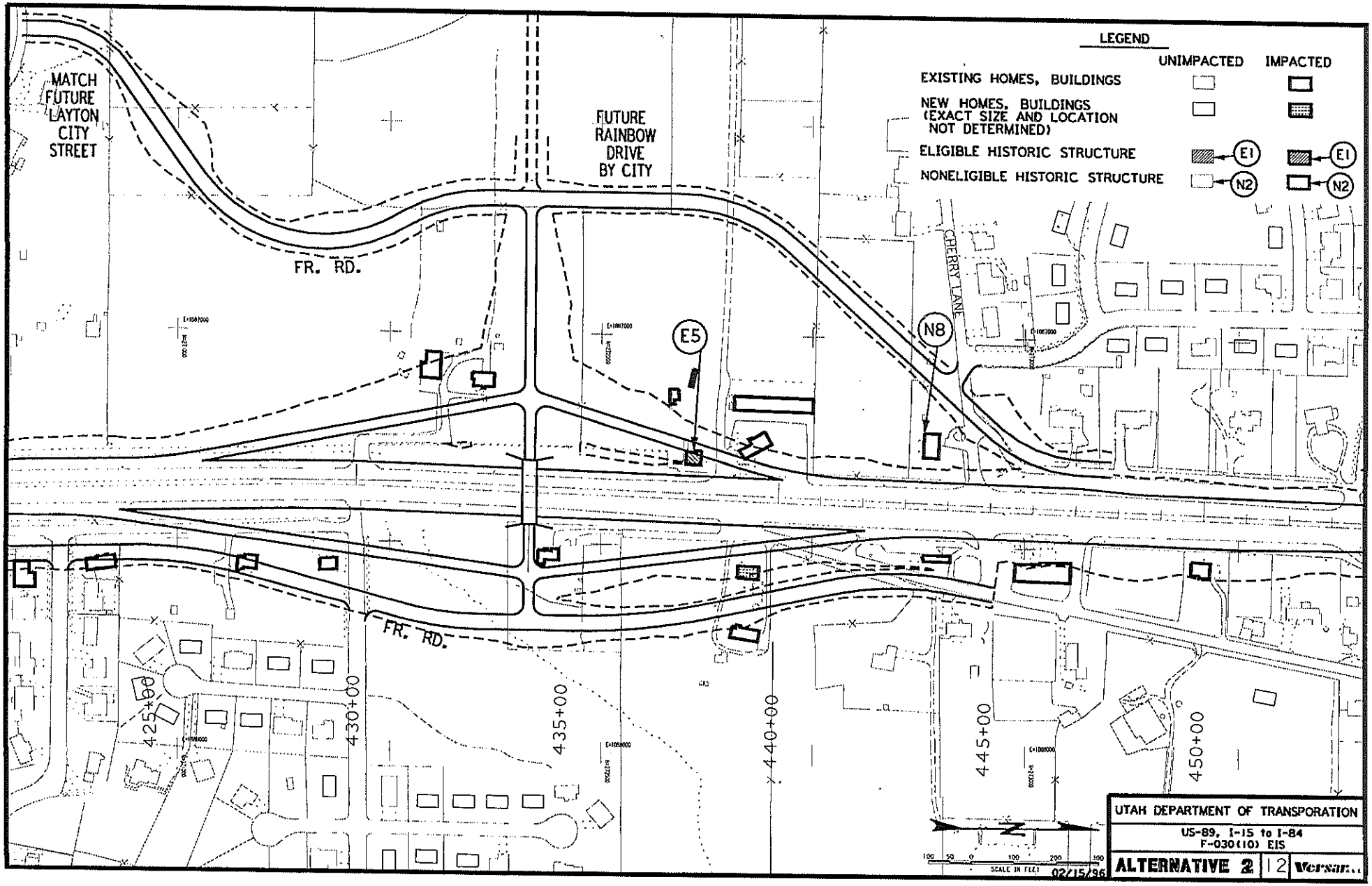
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E1
NONELIGIBLE HISTORIC STRUCTURE
N2
MATCH FUTURE LAYTON CITY STREET
FUTURE RAINBOW DRIVE BY CITY
FR. RD.
CHERRY LANE
E5
N8
425+00
430+00
435+00
440+00
445+00
450+00
100 50 0 100 200 300
SCALE IN FEET
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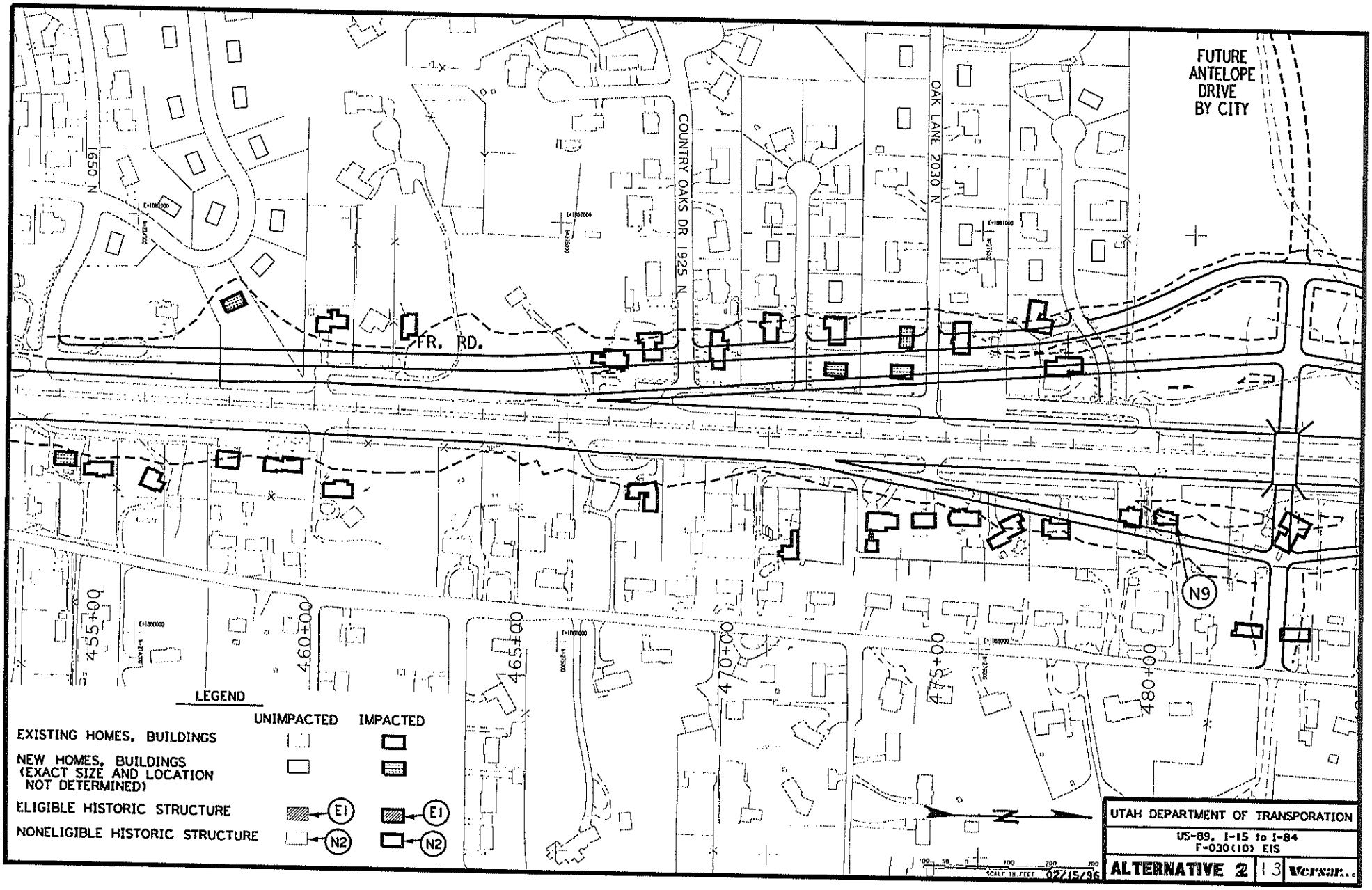
12
Versar...


FUTURE ANTELOPE DRIVE BY CITY
1650 N
COUNTRY OAKS DR 1925 N
OAK LANE 2030 N
FR. RD.
455+00
460+00
465+00
470+00
475+00
480+00
N9
LEGEND
UNIMPACTED
IMPACTED
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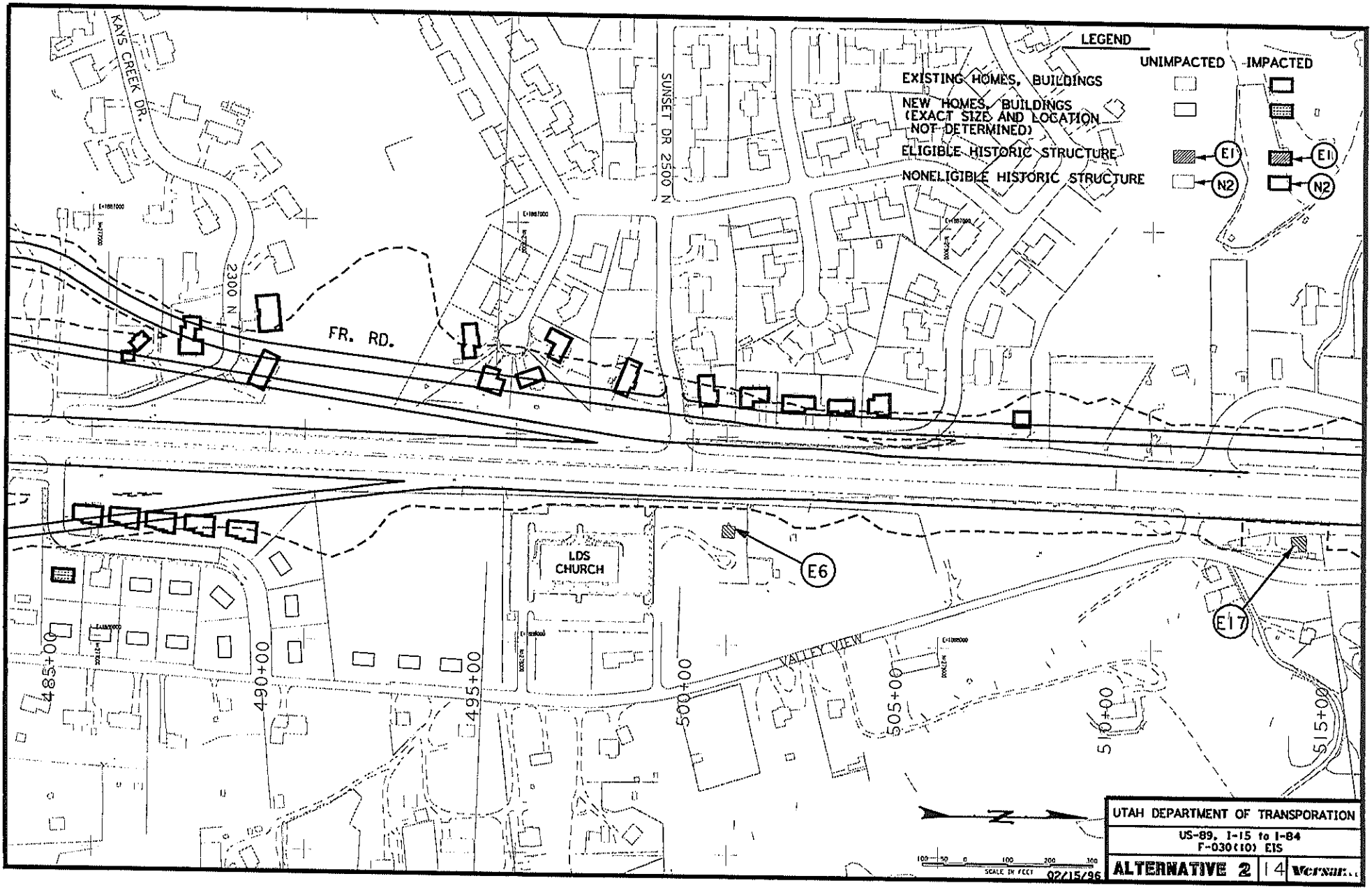
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NEW HOMES, BUILDINGS (EXACT SIZE AND LOCATION NOT DETERMINED)
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NONELIGIBLE HISTORIC STRUCTURE
E1
N2
KAYS CREEK DR.
SUNSET DR 2500 N
2300 N
FR. RD.
LDS CHURCH
E6
E17
VALLEY VIEW
485+00
490+00
495+00
500+00
505+00
510+00
515+00
SCALE IN FEET
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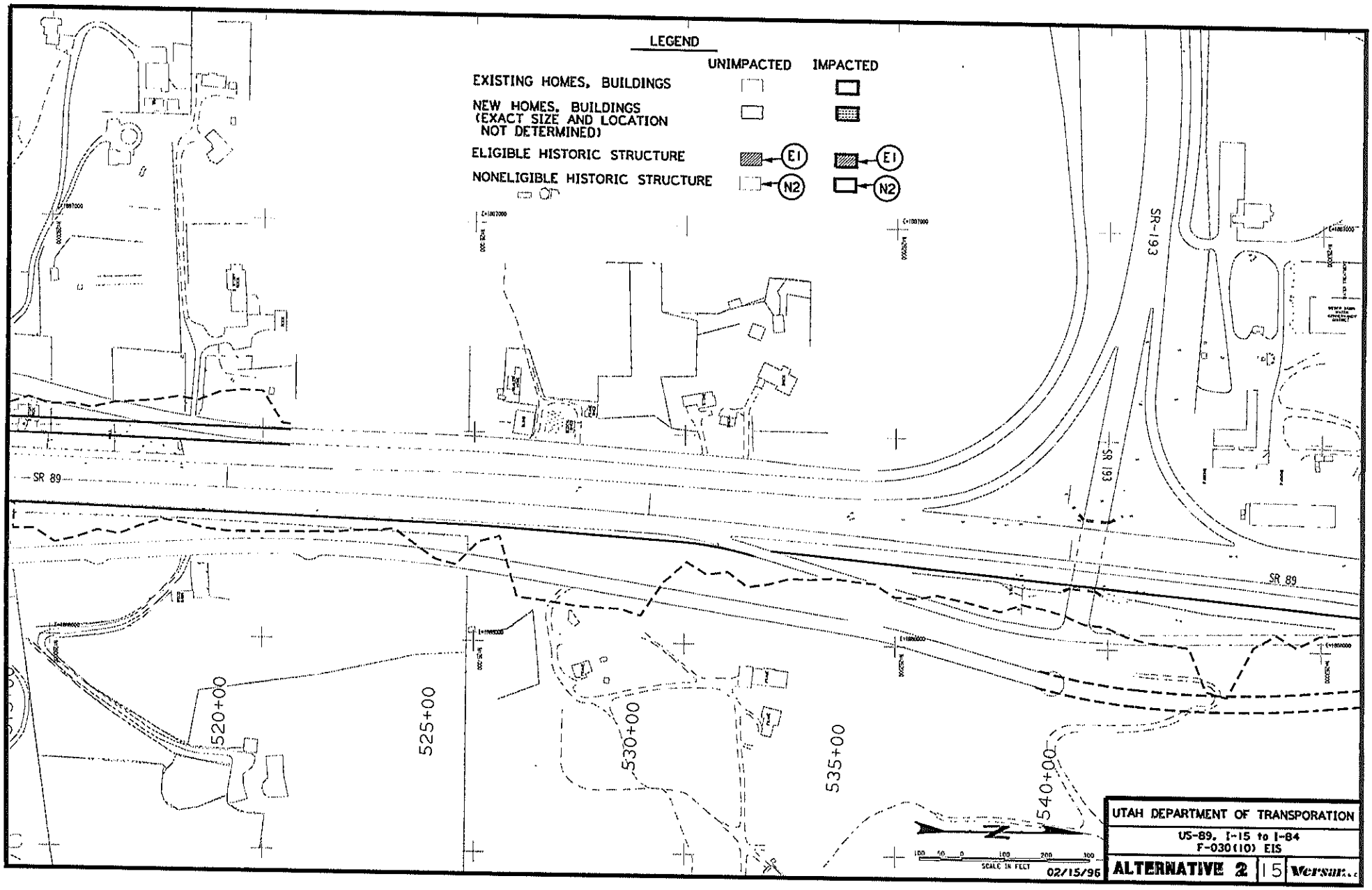
LEGEND
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ELIGIBLE HISTORIC STRUCTURE
E1
NONELIGIBLE HISTORIC STRUCTURE
N2
SR 89
SR 193
520+00
525+00
530+00
535+00
540+00
SCALE IN FEET
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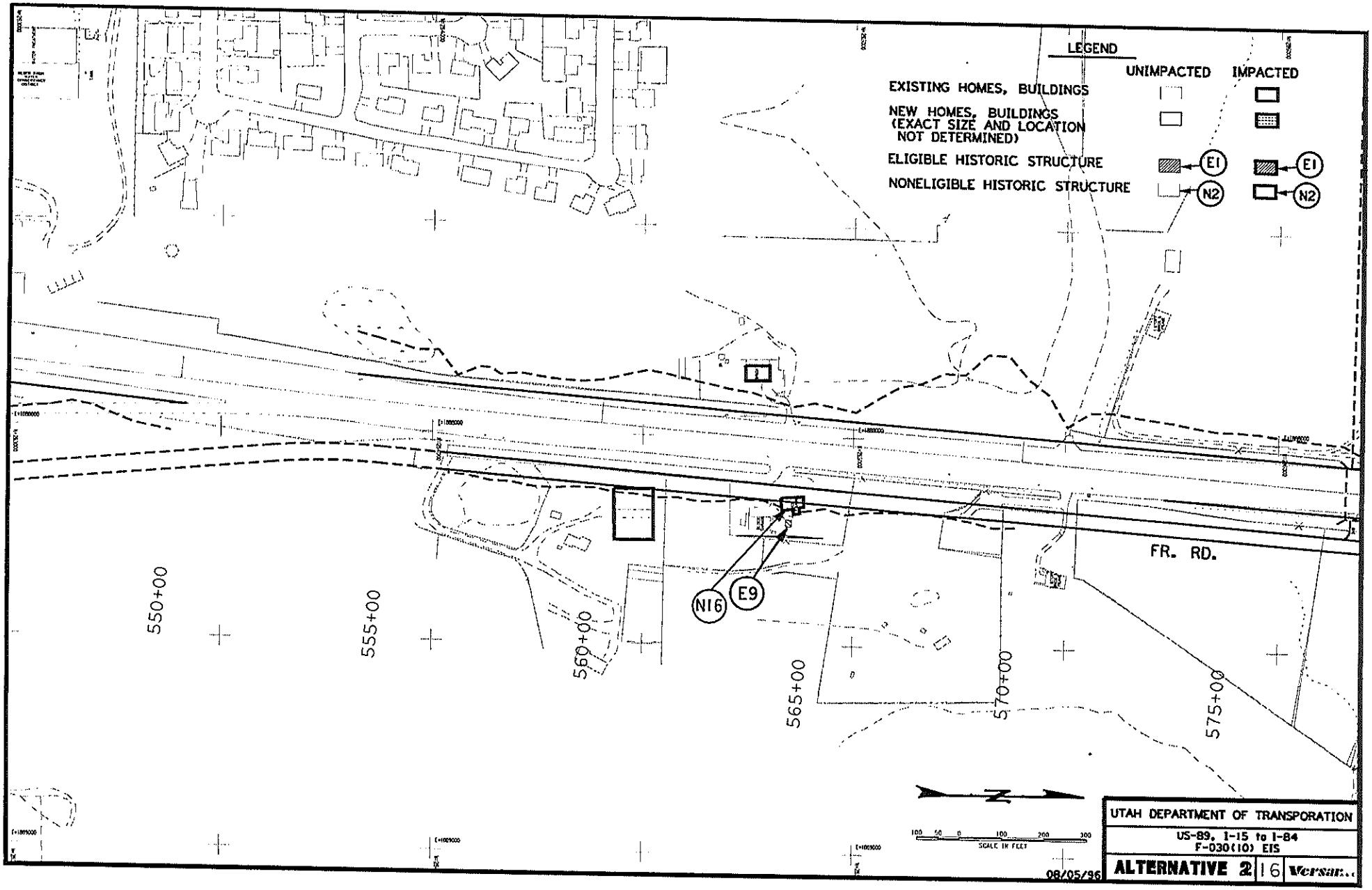
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E1
NONELIGIBLE HISTORIC STRUCTURE
N2
FR. RD.
N16
E9
550+00
555+00
560+00
565+00
570+00
575+00
SCALE IN FEET
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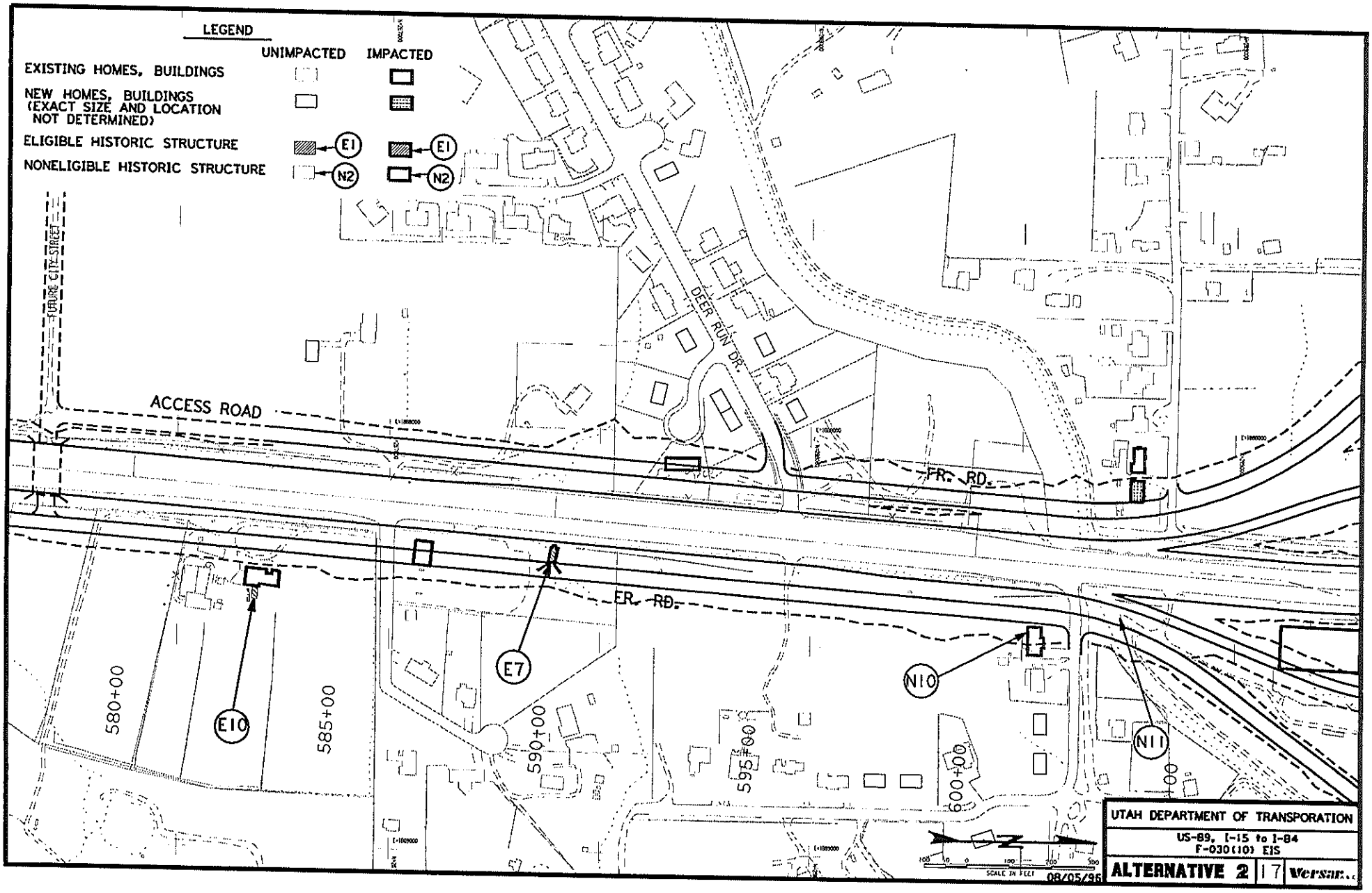
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IMPACTED
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E1
NONELIGIBLE HISTORIC STRUCTURE
N2
FUTURE CITY STREET
ACCESS ROAD
DEER RUN DR.
FR. RD.
ER. RD.
E10
E7
N10
N11
580+00
585+00
590+00
595+00
600+00
SCALE IN FEET
08/05/96
UTAH DEPARTMENT OF TRANSPORATION
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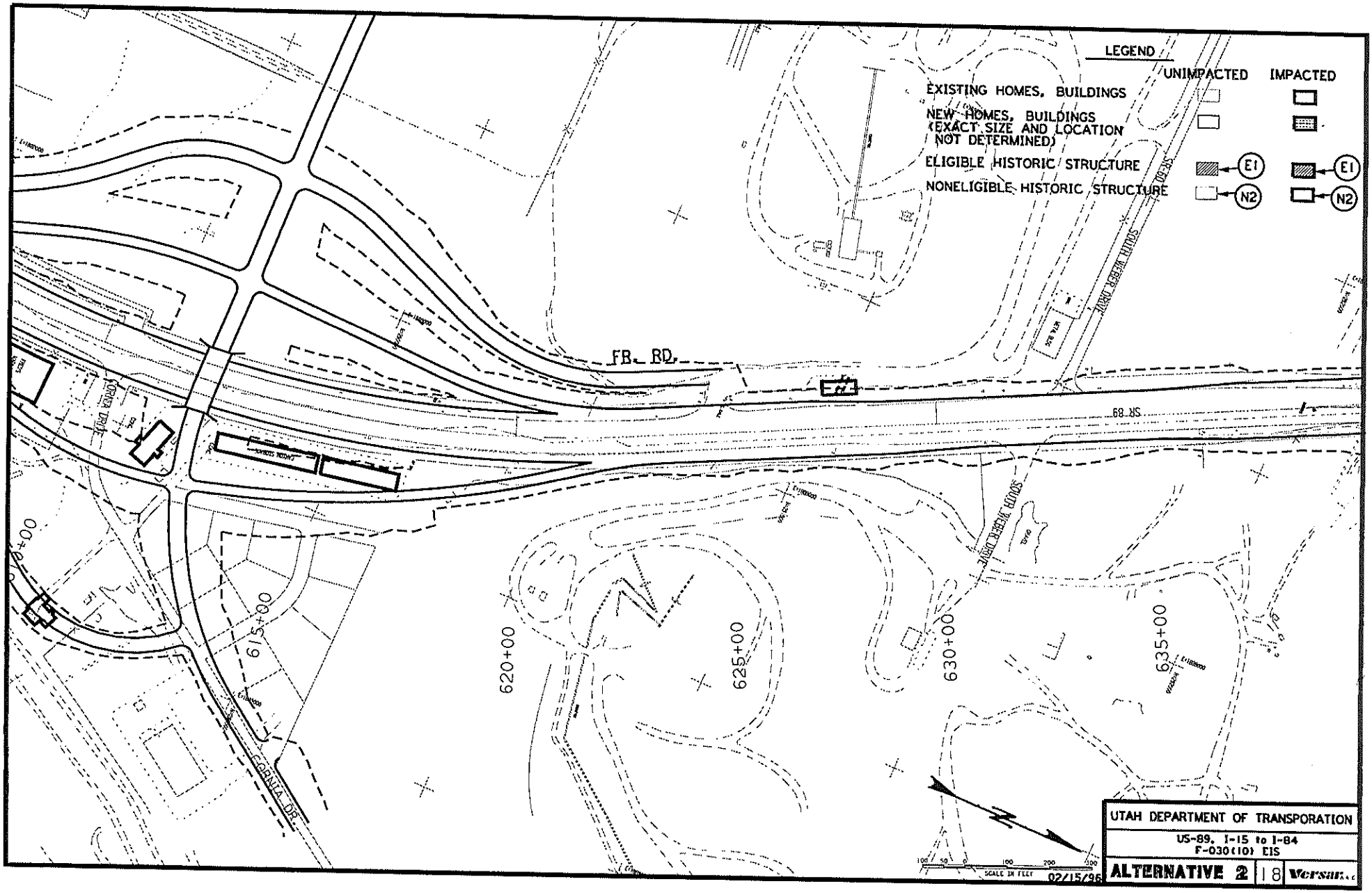
17
Versar...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ELIGIBLE HISTORIC STRUCTURE
NONELIGIBLE HISTORIC STRUCTURE
E1
N2
FR. RD.
SR 89
SOUTH WEBER DRIVE
CORNIA DRIVE
615+00
620+00
625+00
630+00
635+00
SCALE IN FEET
02/15/96
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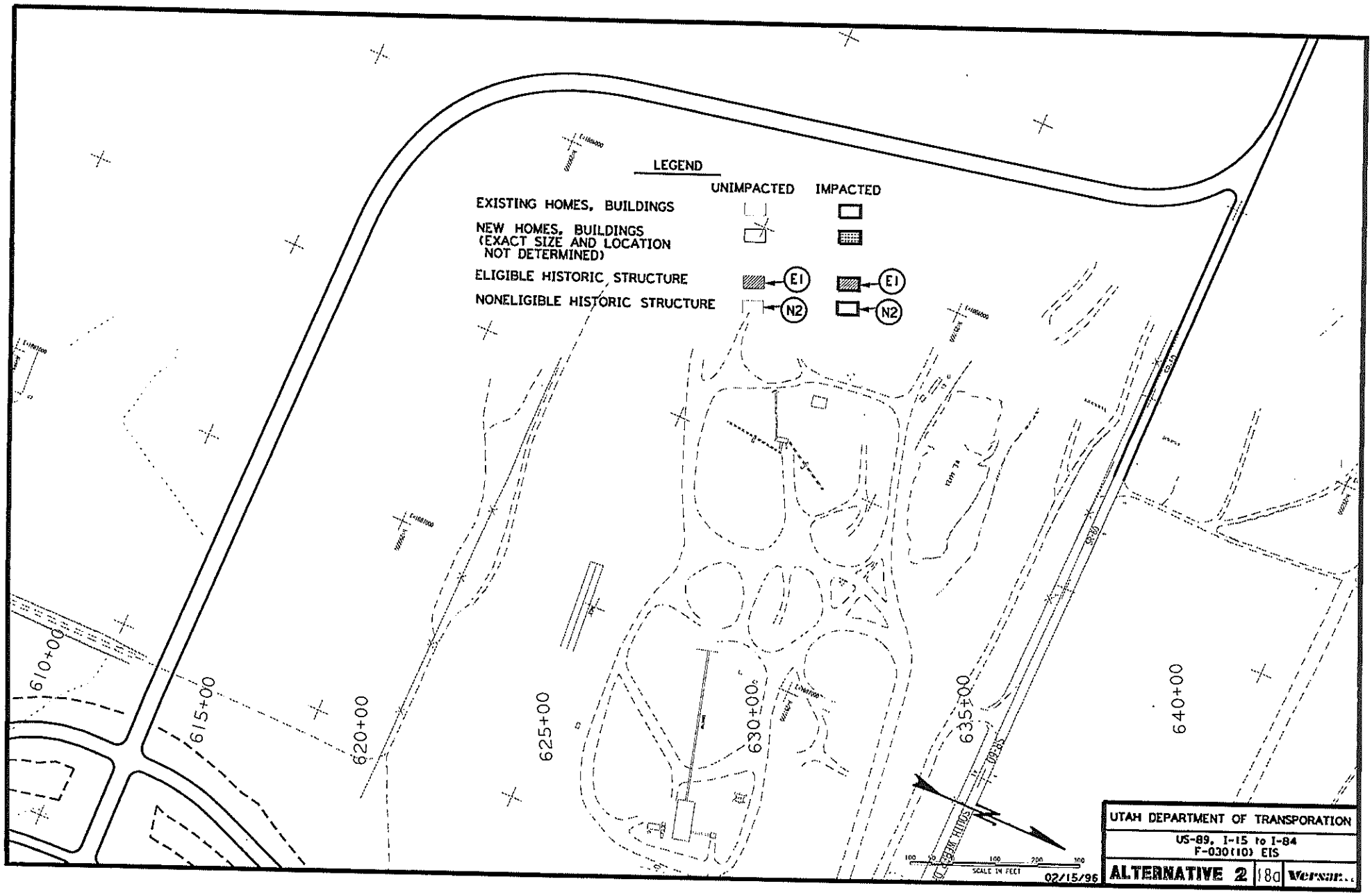
US-89, I-15 to I-84
F-030(10) EIS
ALTERNATIVE 2
18
Versar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ELIGIBLE HISTORIC STRUCTURE
E1
NONELIGIBLE HISTORIC STRUCTURE
N2
610+00
615+00
620+00
625+00
630+00
635+00
640+00
SCALE IN FEET
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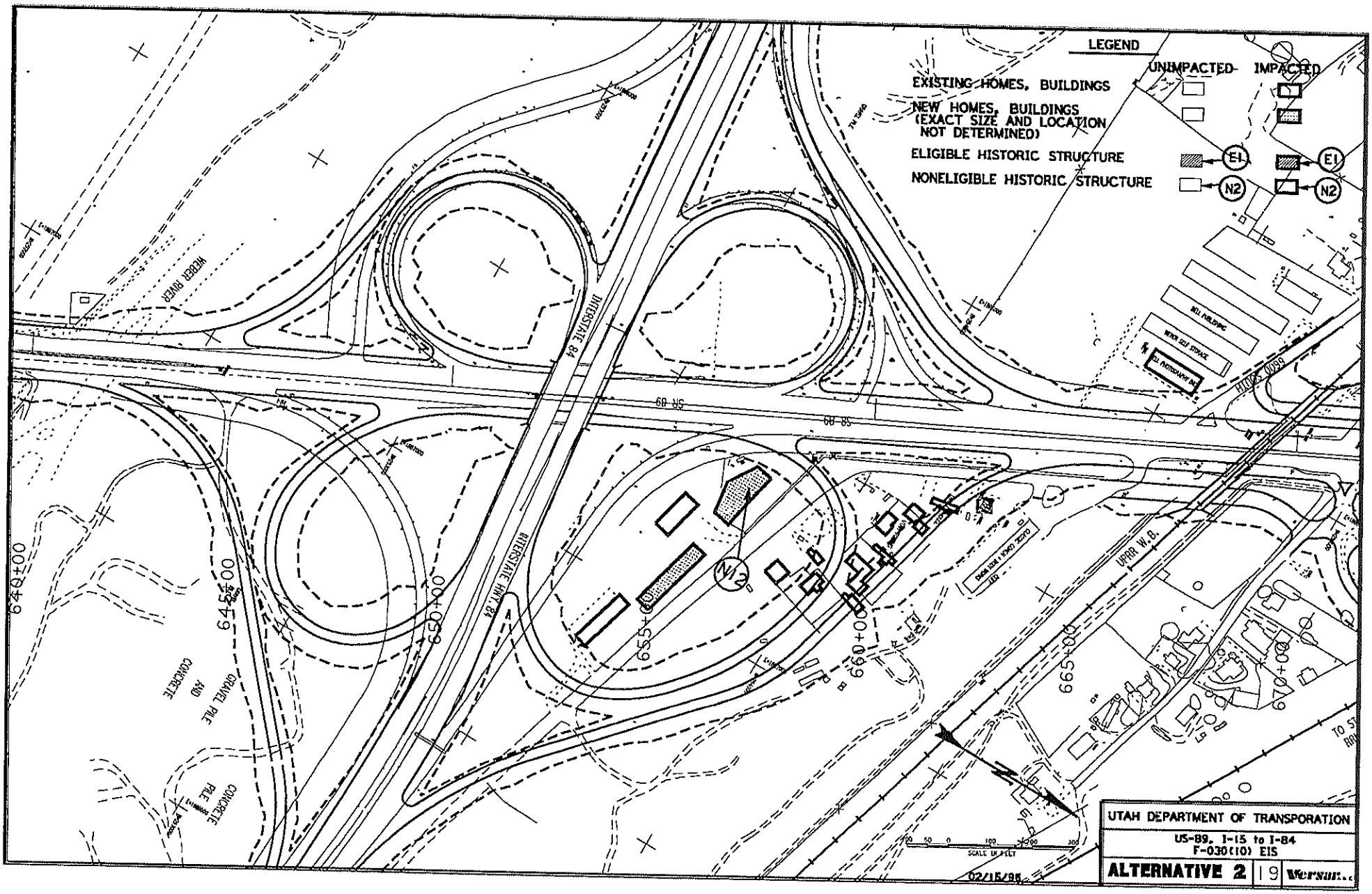
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ELIGIBLE HISTORIC STRUCTURE
NONELIGIBLE HISTORIC STRUCTURE
E1
N2
WEBER RIVER
INTERSTATE 84
SR 89
640+00
645+00
650+00
655+00
660+00
665+00
670+00
UPRR W.B.
SCALE IN FEET
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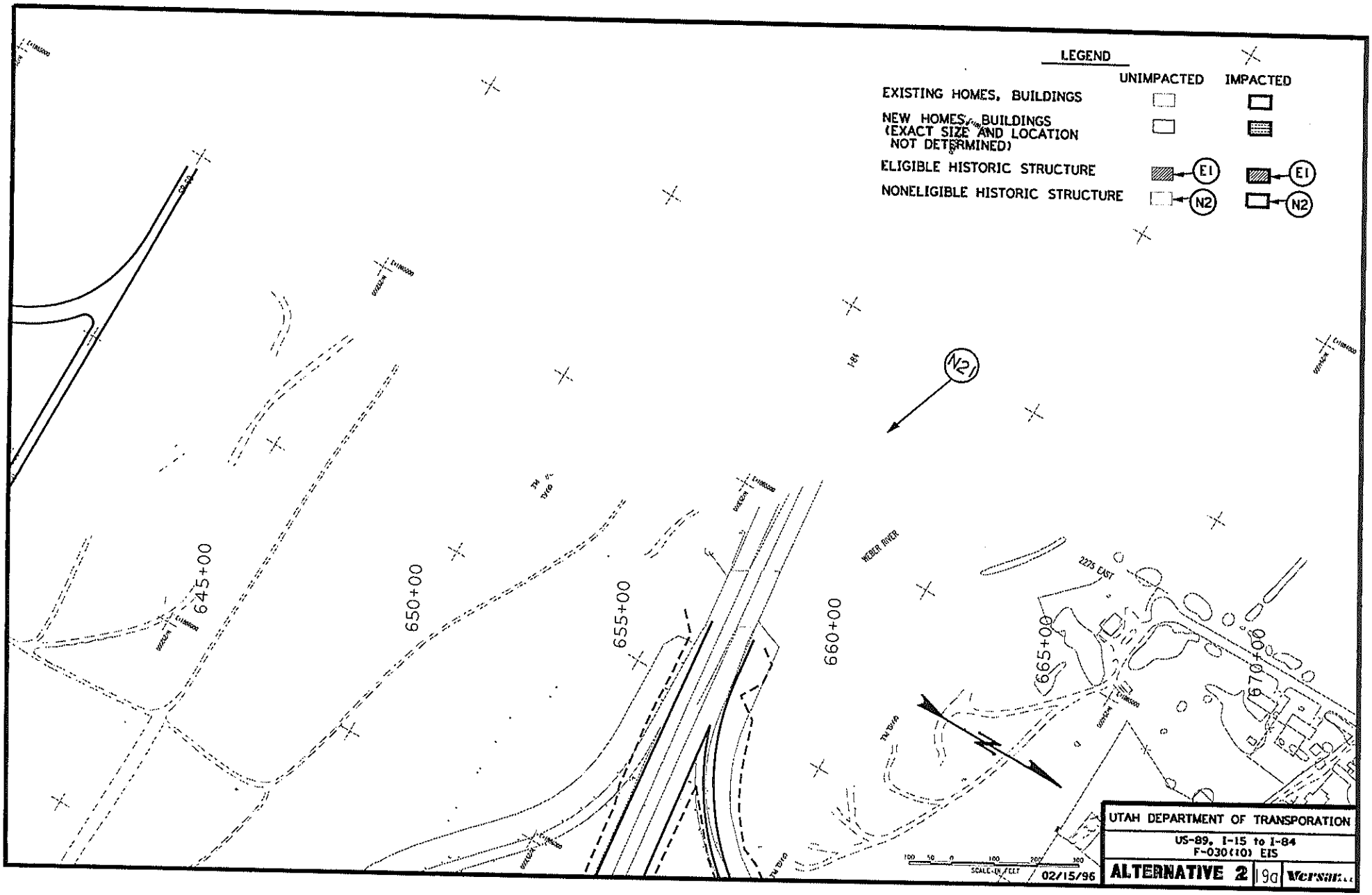
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E1
NONELIGIBLE HISTORIC STRUCTURE
N2
N21
645+00
650+00
655+00
660+00
665+00
670+00
WEBER RIVER
2275 EAST
SCALE-IN-FEET
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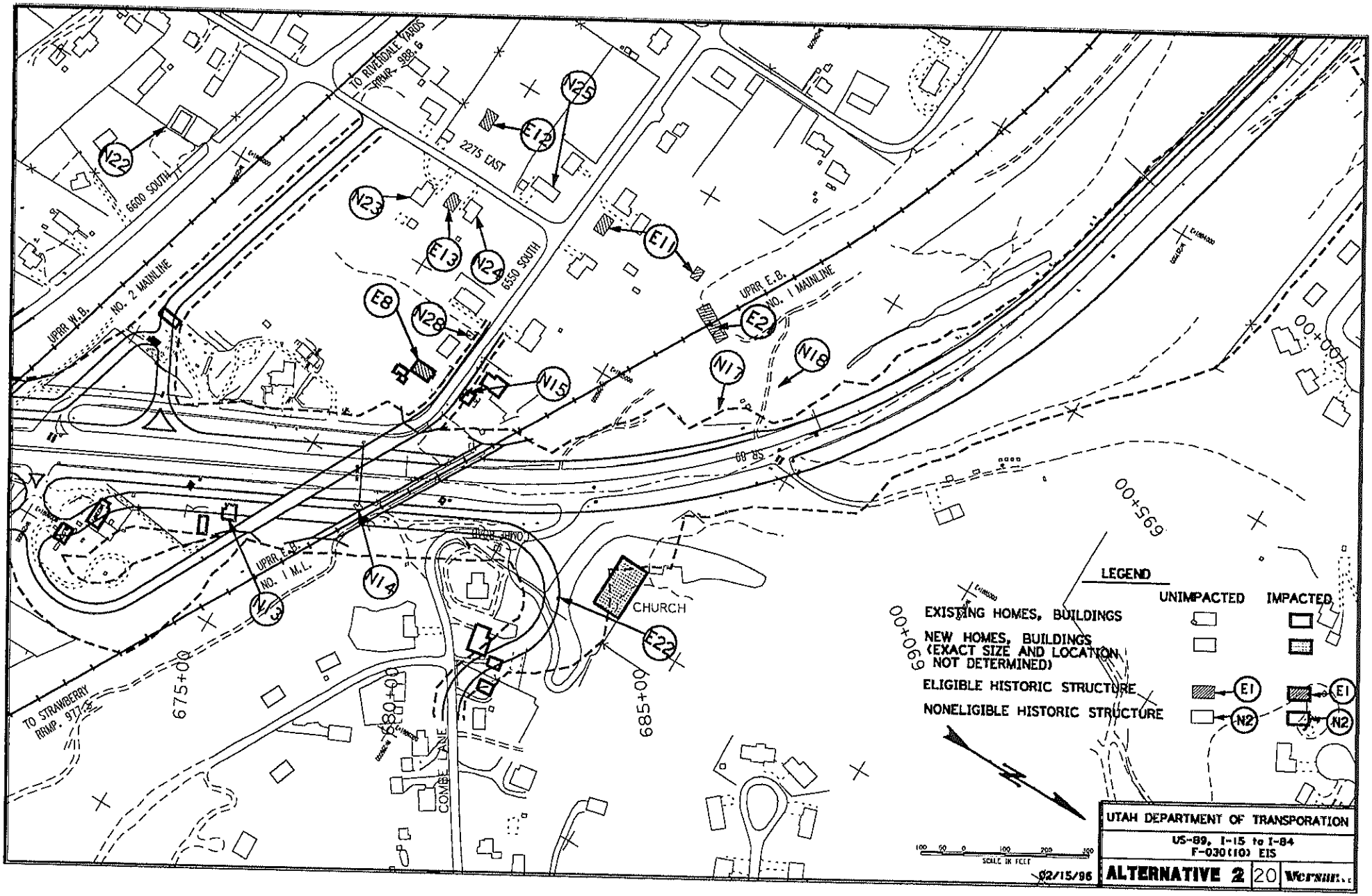
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RRMP. 968.6
2275 EAST
6600 SOUTH
6550 SOUTH
UPRR W.B.
NO. 2 MAINLINE
UPRR E.B.
NO. 1 MAINLINE
UPRR E.B.
NO. 1 M.L.
CHURCH
COMBE LANE
TO STRAWBERRY
RRMP. 977.6
675+00
680+00
685+00
690+00
695+00
700+00
LEGEND
UNIMPACTED
IMPACTED
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NEW HOMES, BUILDINGS
(EXACT SIZE AND LOCATION NOT DETERMINED)
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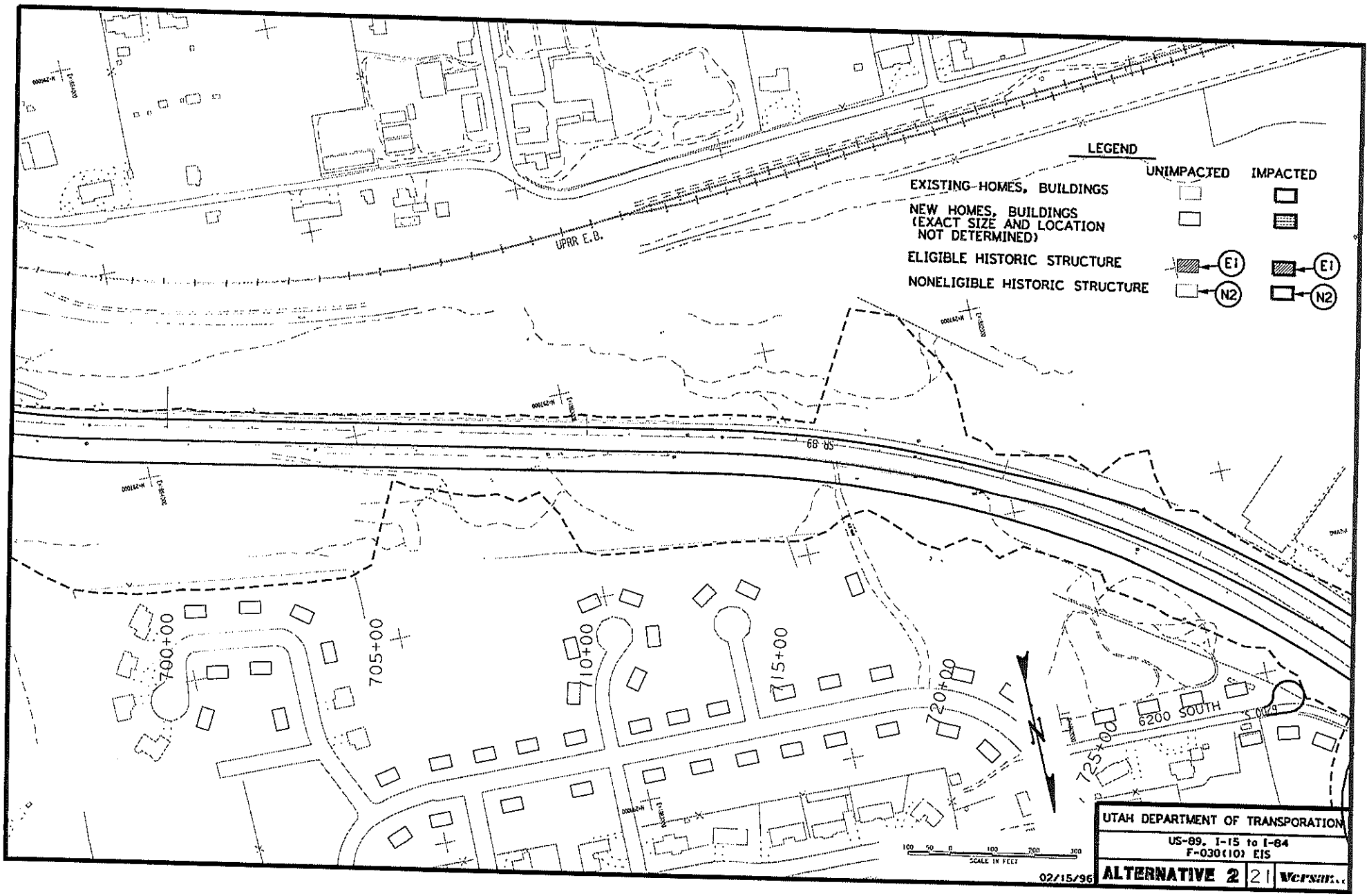
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NONELIGIBLE HISTORIC STRUCTURE
E1
N2
UPRR E.B.
SR 68 US
700+00
705+00
710+00
715+00
720+00
725+00
6200 SOUTH
SCALE IN FEET
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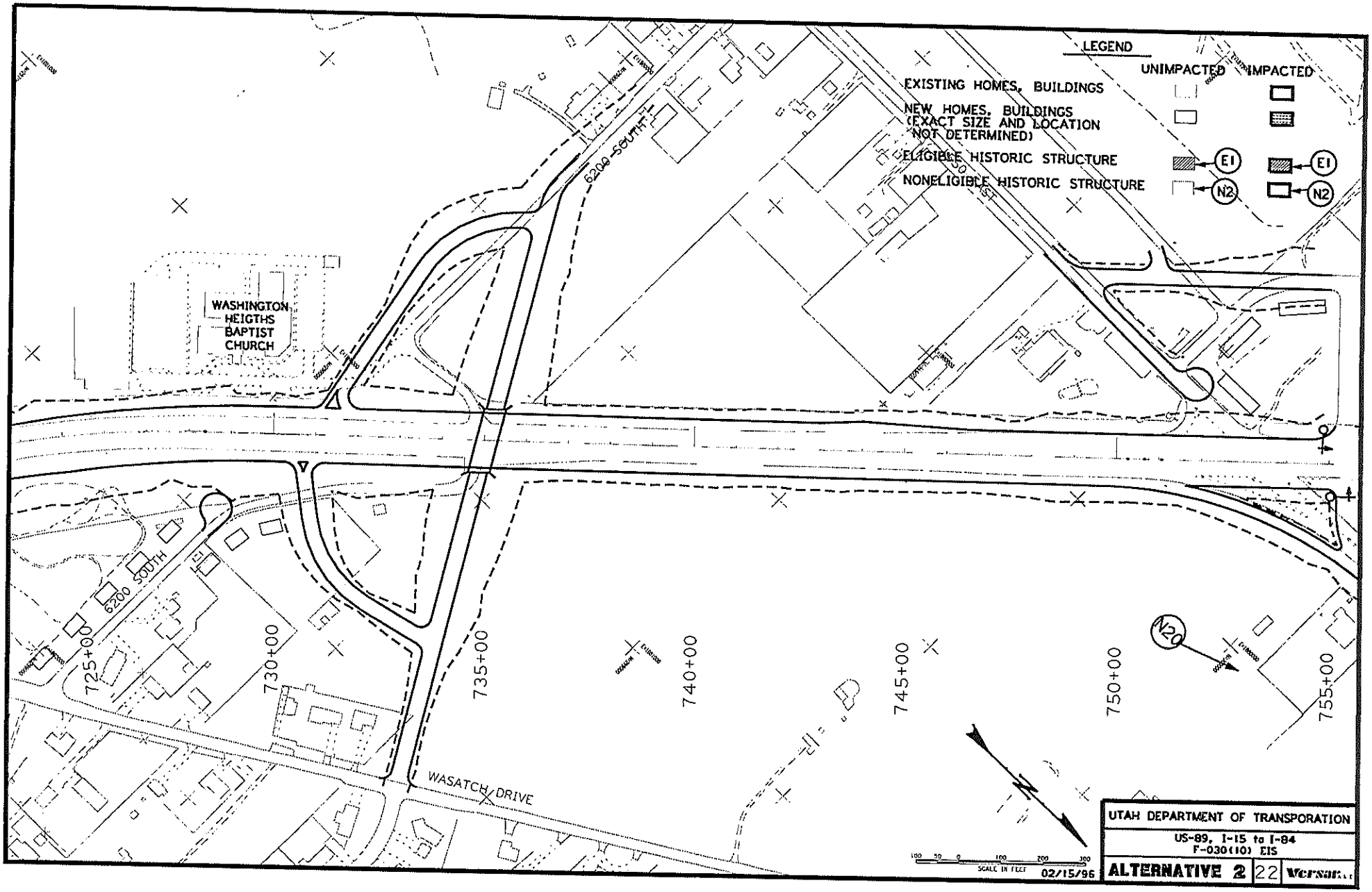
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IMPACTED
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NEW HOMES, BUILDINGS (EXACT SIZE AND LOCATION NOT DETERMINED)
ELIGIBLE HISTORIC STRUCTURE
NONELIGIBLE HISTORIC STRUCTURE
E1
N2
N20
WASHINGTON HEIGTHS BAPTIST CHURCH
6200 SOUTH
6200 SOUTH
WASATCH DRIVE
725+00
730+00
735+00
740+00
745+00
750+00
755+00
SCALE IN FEET
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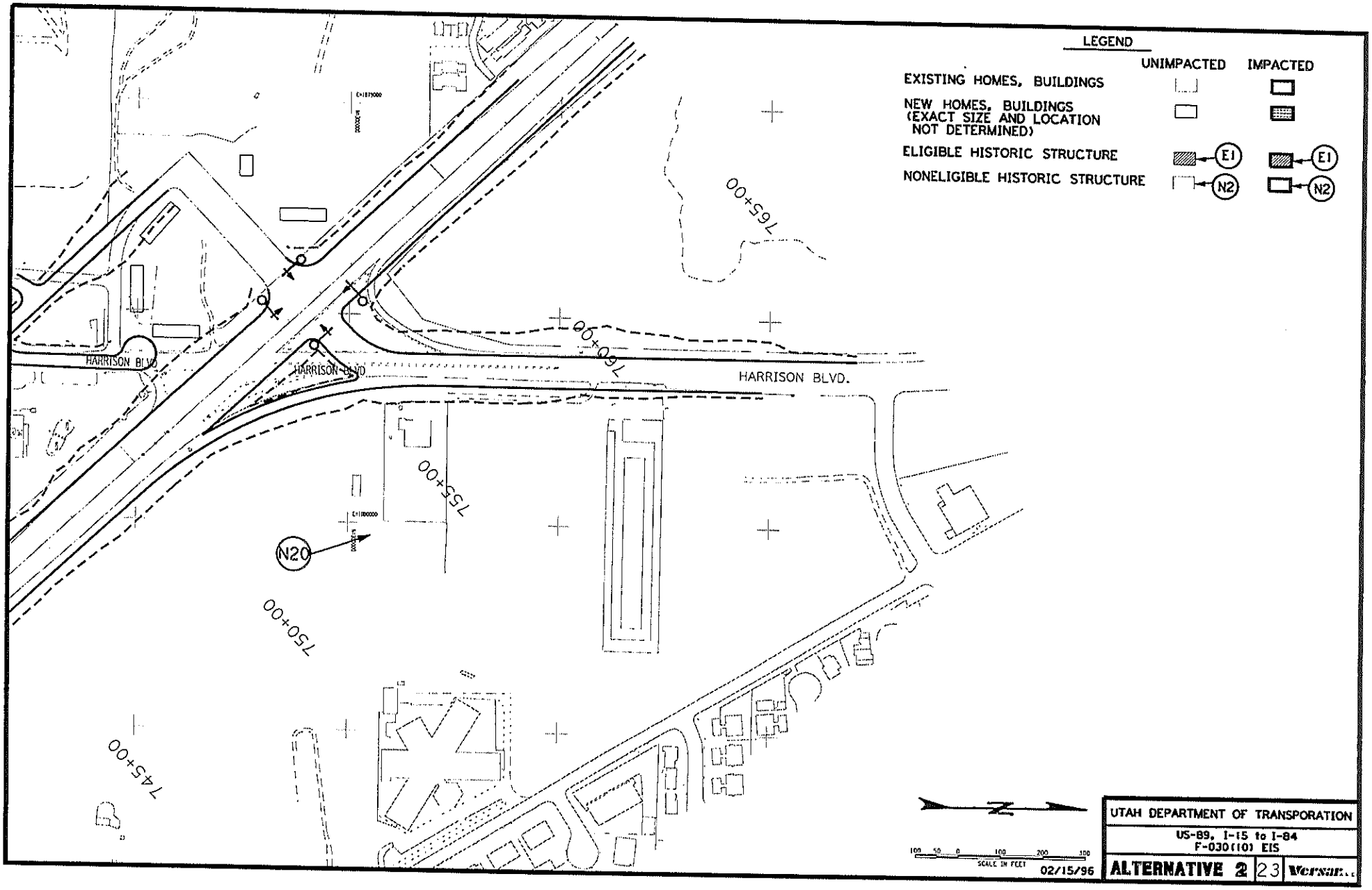
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IMPACTED
EXISTING HOMES, BUILDINGS
NEW HOMES, BUILDINGS (EXACT SIZE AND LOCATION NOT DETERMINED)
ELIGIBLE HISTORIC STRUCTURE
E1
NONELIGIBLE HISTORIC STRUCTURE
N2
HARRISON BLVD.
HARRISON BLVD
HARRISON BLVD
765+00
760+00
755+00
750+00
745+00
N20
100 50 0 100 200 300
SCALE IN FEET
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