Interstate 15 Through the Bear River Valley

U.S. Department of Transportation

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INTERSTATE 15 through the BEAR RIVER VALLEY

ADMINISTRATIVE ACTION
FINAL ENVIRONMENTAL IMPACT STATEMENT
U. S. DEPARTMENT OF TRANSPORTATION
Federal Highway Administration
and
Utah Department of Transportation

Submitted pursuant to
42 U.S.C. 4332(2)(c) and 23 U.S.C. 128(a)
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5-10-78

Date

William J. Hurley

Director, Utah Department of Transportation

Approved by the Federal Highway Administration

and filed with the Environmental Protection Agency
SUMMARY SHEET

(1) Federal Highway Administration
   Administrative Action
   Final Environmental Statement

(2) For additional information concerning the proposal and statement one may contact:

   C. Gene Sturzenegger, Engineer for Location and Environmental Studies, Utah Department of Transportation, Salt Lake City 84114 - Telephone (801) - 533-5228

   George W. Bohn, Division Administrator, Federal Highway Administration, 125 South State Street, Salt Lake City, Utah 84138 - Telephone (801) - 524-5141

(3) Proposed FHWA action:

   Construction of a 15-mile segment of four-lane-divided Interstate Route 15, between Interstate 84 near Tremonton and that recently completed portion of I-15 near the community of Plymouth, in Box Elder County, Utah.

   Other Federal actions in the vicinity are described on page 43.

(4) Environmental impacts would be expected primarily in the spheres of agriculture, wildlife, business relocation, aesthetics and changes in land use. In particular, two strong local concern groups exist: one for protecting the agronomic industry; the other for minimizing injury to the business community. Both feel that any damage to their area of concern would be of considerable importance. Other items such as air-noise-water pollution and sociologic dislocations would be relatively minor. As to whether the anticipated effects would be beneficial or adverse, a lot depends on the vantage point and frame of reference of the viewer.

(5) Alternatives considered include:

   1- Utilizing the existing US-191 alignment and right-of-way for the interstate alignment;
   2- Selecting an alternate alignment within the Bear River Valley;
   3- Choosing an alternate corridor;
   4- Exploiting a major route location extending into Idaho;
   5- Constructing an alternate type of highway to less than interstate standards;
   6- Developing transportation concepts involving alternate modes of travel;
   7- Doing nothing: maintaining the status quo;
   8- Postponing action for an indefinite period of time.

(6) Entities from which comments were requested (* and from which comments were received):

Federal Agencies -
*Advisory Council on Historic Preservation
*Department of Agriculture
Department of Commerce
*Department of Health, Education and Welfare
*Department of Housing and Urban Development
*Department of the Interior
*Department of Labor
*Environmental Protection Agency
*Federal Aviation Administration
Federal Power Commission
*General Services Administration
*Interstate Commerce Commission
Office of Economic Opportunity
National Endowment for the Arts
Urban Mass Transit Administration
Water Resources Council
State Agencies and Officials -
A-95 Clearinghouse (State Environmental Coordinating Committee)
Area-Wide Clearinghouse (Bear River Association of Governments)
Division of Wildlife Resources
State Senators: Miles (Cap) Ferry and Reed Bullen
State Representatives: Willis Hansen, Edward Kerr, C. W. Bullen, Alton Hoffman
and Todd G. Weston

Local Agencies and Officials -
Town President, Bear River City, Lee C. Johnson
Mayor, Brigham City, Harold B. Felt
Mayor, Corrine, Don C. Miller
Town President, Deweyville, H. G. Gardner
Town President, Elwood, F. L. Anderson
Town President, Fielding, Karl M. King
Mayor, Garland, George R. Hales
Town President, Honeyville, Boyd K. Gardner
Mayor, Logan, Desmond L. Anderson
Town President, Plymouth, Joseph Stokes
Town President, Portage, Larry L. Howell
Mayor, Tremonton, Max L. Mason
Box Elder County Commissioners: Don E. Chase, Ted W. Burt and Jay Reed Nielsen
Cache County Commissioners: M. Ted Karren, Marion Olsen and Robert G. Chambers

Private, Business and Civic Organizations -
Utah Environment Center, Inc.
Utah Wildlife Federation
Sierra Club (Uintah Chapter)
Utah Chapter, The Wildlife Society
Bonneville Chapter, American Fisheries Society
Defenders of the Outdoor Heritage
Utah Nature Study Society
Utah Audubon Society
Ducks Unlimited
Utah Motor Transport Association

American Travelers Motor Club
American Automobile Association
Rocky Mountain Regional Office of the Humane Society of the U.S.
Cache Chamber of Commerce
Greater Brigham City Area Chamber of Commerce
Utah Association of Soil Conservation Districts
National Farmers Organization
Union Pacific Railroad
Mountain Fuel Company
Utah Power & Light Company
Continental Telephone Company of Utah
Mountain Bell Telephone Company
Greyhound Bus Lines
Continental Trailways Bus System
Wendall H. Welling
Kleon Kerr
Box Elder County School District
LDS Church Stake President, Garland
Utah-Idaho Sugar Company
Bear River Livestock Association
Utah State University Extension Services
Bear River Canal Company, Inc.
Northern Utah Soil Conservation District

Media -
The Herald Journal (Logan)
Box Elder News
Leader and Garland Times
KBUH, Brigham City
Salt Lake Tribune
Deseret News
Ogden Standard Examiner.

(7) ACTIONS REQUIRED BY OTHER FEDERAL AGENCIES
U.S. Army Corps of Engineers - "Section 404" permit

(8) RATIONALE FOR THE PROJECT
(see pages 8-12 and 15-20)
A final environmental statement for a major interstate highway project must necessarily address itself in fairly specific terms to environmental concerns inasmuch as a decision on the project's approximate location and scope has already been determined. Because the design on the Interstate project is still not complete, many of the maps used throughout the document are still schematic. This document is for the review of input (since issuance of the draft EIS) into the decision-making processes; therefore, details pertinent to the draft statement's 3 alternate Bear River Valley Alignments have been condensed and information concerning the proposed action has been expanded.

Philosophy

Some of the background philosophy incorporated within the following statement was identical to that contained in remarks made by consulting engineer, Elmer B. Isaak at a seminar in New York City sponsored by the Met Section of the American Society of Civil Engineers and the Institute of Traffic Engineers. Excerpts from Mr. Isaak's presentation include:

In many quarters the Environmental Impact Statement has become a monster, the tail wagging the dog, the bull dragging its would-be tamer by the tail, if not a dragon requiring a veritable St. George to conquer. Recent project planning budgets have in some cases allocated two thirds of the total to EIS preparation against only one third for design. Time spent in preparing an EIS has in some instances been all out of proportion to time spent on planning and design of the actual facilities proposed.

All this need not be so. EIS preparation can really be a simple matter, causing virtually no extra work. All existing requirements for the preparation of the EIS can readily be satisfied, and a better job will be done, if a proper approach is made to the initial stages of planning and design.

The secret of making the EIS an easy task lies in the attitude adopted toward project planning. For years we have relocated sewers and water lines that were on the site, taken care of drainage, maintained traffic and provided access during construction. But we were not considering everything that should be considered; we left out some important basic elements.
Now we know that we have to stand back and look at every major construction proposal from a broader point-of-view. Is the project really needed? Does it justify an allocation of our limited resources, or are other things more urgent? How will it affect the neighborhoods it passes through, and the general area where it is located? What will it do to air quality, noise levels, the natural environment, and to development in the region? What alternative solutions are there, and above all, why not just do nothing?...

What about the environment? Do we really need to know all those things about air pollution, noise impacts, wildlife and the rest? Let's look at it this way. Before men knew about bacteria and germs, they suffered terrible epidemics and plagues and attributed them to Divine wrath and retribution. Once they found out where the root of the trouble was, and became convinced, they didn't depend on prayers alone but set out to show God they could help themselves, as He wished them to do.

Now that we know what effects can be caused by automotive emissions, industrial wastes and disturbance of the life cycle, we can no longer consider our work complete without dealing with these elements. Of course we need to do everything reasonably possible to avoid increasing air pollution or spoiling our wetlands. Of course we wish to preserve our sanity by avoiding excessive noise levels, even at substantial cost. No one has to be told that the social and economic impacts of public improvements, and especially transportation programs, should be a prime consideration in planning.

So I submit that all the elements that go into the Environmental Impact Statement are essential elements of planning and design. We must gather all the data for them just as we gather our data on traffic movements, foundation conditions and underground utilities. They are vital ingredients that form part of the basic information that must be considered to arrive at proper solutions.

The interdisciplinary team has ceased to be a novel idea because it has become a normal requirement of planning. Whether the various collaborators are all in house or come from several different organizations is a matter of convenience. The point is that expertise must be provided in some fashion to look into all the social, economic and environmental consequences of the proposed actions. What is not always present is a consciousness that these inputs are basic elements of good design, and not merely check-list items to be included in the Environmental Impact Statement.

Likewise the investigation of alternatives is an integral part of the planning job. To be fair to any proposed solution, we must consider the various options that are possible so a logical choice can be made. One of these options is to do nothing, and if logic leads to the conclusion that this is the best alternative, then the need for the project has not been demonstrated. The important concept is that the development and evaluation of all feasible alternatives is a basic step in systematic planning.

If all this is so, it follows that everything that goes into the Environmental Impact Statement is needed as input to solving the planning and design problems. Viewed in this light, the EIS is simply a recording of what has been done about things that need to be done anyway. The
only additional work is the writing of the report itself, but the investigations and data gathering are in reality part of the planning and design...

To summarize, the EIS is not to be looked on as an extra assignment needed to satisfy legal requirements. The elements of the EIS are simply the necessary elements of design. The EIS is no more than a recording of our findings if we approach the job, from the beginning, conscious of the need to consider as design inputs all the environmental, economic and social impacts of the project as well as the physical requirements and site characteristics...

In order to fulfill the philosophy outlined, the actual design of the project is to be undertaken by many of the members of the interdiscipline environmental study team (page 25) which prepared this statement.

Editing

Only a minimum amount of editing was done to the input provided by the various task forces of the environmental study team for the draft Environmental Impact Statement. Consequently, writing styles and word usage between sections are, in many cases, distinctly different. With the selection of an alignment from the 3 main alternate corridors, text throughout the document referring to other alignments than the proposal have been eliminated. Terms which might be unfamiliar to the reader have usually been accompanied by a brief description, definition or explanation to preclude the necessity of the reader posting his reviewing station adjacent to the public library's only copy of Webster's Unabridged.

In any case, comments relative to presentation of the information contained herein (as well as the information, itself) are welcome.

Appendices

Two separate documents were packaged with the draft statement for those reviewers who desired to explore some of the background reference information more thoroughly. (These are still available from the Utah Department of Transportation's Salt Lake City Office.)

(1) Supplement to the Environmental Impact Statement for I-15 through the Bear River Valley (16 pages)

(2) "Relocation Can Be Good For You" (1974) by Professor Stephen S. Stanford

Production

In the way of credits: Maps were the responsibility of Loma Lee and Bonnie Sneddon. Marvin Boase and Mike Minder assisted in the collection of biological data (pages 65-72). Photographs, graphics, layout, assembly and printing were done by Cal Briggs, Sylvia Fernley, John McEwan, Lois Schow and Steve Ames.
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DESCRIPTION

Interstate Route 15 has been planned as a National Defense Highway to extend from the metropolitan limits of Los Angeles to the Canadian border, a north-south freeway to serve Las Vegas, Salt Lake City, Pocatello, Butte, Great Falls and other communities along the route. The environmental assessment which follows is directed towards one segment of Interstate Route 15 (at about its mid point) in northern Utah.

Estimated cost for the proposed section tends to creep upward as more refinements to the concept as well as inflation take their toll. In the publication 1974 Estimate of the Cost of Completing the National System of Interstate and Defense Highways in the State of Utah the total cost for the proposed segment was estimated to be $16,707,000. It appears that, at present, the costs will range approximately $1,600,000 per mile based upon 1975 values. Thus, the total cost may range upwards from $24,000,000.

Interstate Route 84 (I-84) is closely entwined with I-15 in northern Utah. Since this is a relatively new designation - up to one year ago it was I-80N - both designations (I-84 and I-80N) will be found interchangeably throughout this document.
In northern Utah, the Bear River Valley defines a plausible corridor for a remnant section of uncompleted Interstate 15. At present, Interstate Routes 84 and 15 join together at Ogden and follow the same northerly course to the vicinity of Tremonton. From there they will diverge, I-84 continuing in a northwesterly direction while I-15 makes its way northward, passing through eastern Idaho and western Montana, eventually terminating at the Canadian border. The limits of the proposal presented in this statement, however, begin in the proximity of Tremonton on the south and end near Plymouth on the north (as displayed in the map on the facing page).

Traffic desiring through-access from Tremonton (or I-84 - I-15) to eastern Idaho must presently use the existing
US-191 (facing north) approaching the community of Plymouth (background - center). Northern terminus of the proposed project would be at the base of the foothills northwest of Plymouth. The mountains in the distant background are across the Idaho border.

Bear River Valley - 3

facility, US-191, a two-lane, 40 foot (13 m) roadway which carries not only through traffic, but local traffic of all shapes, sizes, travelling speeds and destinations. In order to span the length of the Bear River Valley with a more versatile transportation facility, one in compliance with Federal Interstate requirements, the proposed highway will be designed to a four-lane Interstate standard.

The southern terminus of the proposed alignment begins southwest of Tremonton and heads northward along the foothills (shown on U.S.G.S. maps with the surprisingly accurate designation "West Hills"), crosses the Malad River southwest of Plymouth and ends at the northern terminus above Plymouth. The length of this segment is approximately 15 miles (24 km).
The southern terminus of the proposal is an existing Interstate freeway; the northern terminus, just north of Plymouth, is a segment of Interstate freeway recently completed. Environmental considerations involved with this completed segment have been covered in a Negative Environmental Declaration (I-15-8(24)382) Plymouth to Idaho State Line dated August 2, 1971; approved by the Utah Highways Environmental Council on September 13, 1971; and endorsed by the Division Engineer of the Federal Highway Administration on October 31, 1971.

Shown on the facing page is an oblique rendering (facing to the north) of the Bear River Valley. Running diagonally across the foreground is I-80N which interchanges with US-191 near the lower right corner. US-191 travels north-south through the center of the valley until it veers to the northwest at Plymouth (shown at the base of the hills near the top center of the rendering). Tremonton, the largest community in the valley, is to the left of the foreground center adjacent to the Malad River. The wider Bear River informally parallels the Malad through much of the valley, both flowing north to south.
DESCRIPTION

Interchange of I-80N and US-191, facing south. The existing interstate freeway would provide the southern terminus for the proposed project. Paralleling US-191, immediately to its west, is the Corinne Canal.

Residential development in Tremonton is encroaching upon adjacent farmland. Continuation of this trend is expected to last through the next decade.
Just to the left of the center of the photograph is the Utah and Idaho sugar factory at Garland, one of the prime employment generators in the valley.
DESCRIPTION

TRAFFIC

In the accompanying schematic diagrams of the Bear River Valley, a forecast of the growing number of vehicles, based on a probable annual growth rate of two to three percent (the latter near Tremonton), compounded, is shown for the years 1975 and 2000.

Status Quo

Shown in the diagram to the right is what would happen if no expressway-type facility were built and vehicles were left to themselves in a normal growth pattern. Note that with the exception of momentary delays at Haws Corner (a four-way stop on US-191 near Tremonton) on no road or highway would the traffic be so great as to exceed a comfortable level of service, much less exceed design capacity.
STATUS QUO
000 = ADT FOR THE YEAR 1975
(000) = ADT FOR THE YEAR 2000

STREET NETWORK

BEAR RIVER VALLEY

Estimates are based upon a probable maximum growth rate annually of about 3% at Tremonton and 2% elsewhere.
Proposal

In general only through-traffic would use the proposed alignment (which is, of course, an important reason for building interstate freeways). While the proposal would relieve some US-191 traffic load, valley residents may find the interstate not especially useful for the shorter trips of an intercommunity nature.

Freeway construction along the base of the foothills would not be expected to draw much local traffic.
Other Considerations; Traffic Generators

Approximately 14% of the average daily traffic (ADT) - 10% of the peak hourly volume - along the Interstate System and travelled way in the Bear River Valley is comprised of heavy trucks, some 80% of which are diesel powered, indicating much long-distance hauling. No significant directional splits occur in north vs. south; neither are there any outstanding commuter-peak hours of traffic. Peaks there are, as typified in the two graphs below; however, these peaks are more dominated by business, shopping, church and recreation events rather than by commuting to work.

Traffic on the busiest days of the week (Friday through Sunday) during the busiest months (July and August) is roughly 1.6 times the average annual daily traffic which contrasts with the January weekday low of 0.6 times the average annual figure.

For the life of Interstate 15 through Bear River Valley, traffic density and potential merging conflicts would be of elementary proportions - not sufficient to cause much concern.

Thiokol

Some 1000 trips per day to Thiokol are made by commuters from Logan and Tremonton (divided about equally between them). Loganites favor a route through the Bear River Valley via Collinston and Tremonton where Tremontonites join the caravan through Thatcher and Penrose to Thiokol's main plant used for research and development (R & D) at Lampo Junction. A recent $140-million contract awarded from NASA for Thiokol (to build rocket motors for the upcoming space shuttle program) will not significantly increase the number of employees and corresponding commuter traffic. Stabilizing employment at Thiokol would be the only expected result of the contract.

Whereas Thiokol commuters noticeably break the overnight lull in traffic volumes between 7 and 7:30 A.M., they seem to travel incognito among the late afternoon shopping and business traffic on their return trip.

A variety of routes are possible for Thiokol commuters originating in or passing through the Bear River Valley (shown on page 12 sketch), although any expected changes among these various routes would not significantly affect I-15 travel. Commuters from Logan most generally would use the freeway. Another road, belonging to Box Elder County and crossing the Faust Valley from Bothwell to Air Force Plant #78, could be improved enough to attract as many as 1000 trips a day.

The routes used (and probably to be used) by Thiokol commuters are shown schematically on the map on the next page. Only a short segment of proposed interstate freeway would be involved as the majority of commuter traffic is east-west oriented.
DESCRIPTION

THIOKOL COMMUTER ORIGINS

SHOWING
ROUTE PREFERRED BY LOGANITES
PROBABLE ROUTE SHIFT WITH
NEW OR IMPROVED ROADS.
Haws Corner - also known as "Crossroads" - shown in the center of the photograph has long been the transportation hub of the Bear River Valley. At the junction of US-191 and US-30S, it will continue to play an important role in the local transportation scheme.

RIGHT-OF-WAY

Predominant right-of-way width for the presently utilized US-191 is approximately 90 ft. (27 m) in the portion from Elwood to Crossroads (Haws Corner) widening somewhat to 100 ft. (30 m) from Crossroads to the Malad River, and then increasing to 153 feet (46 m) wide between the Malad River and Plymouth. The proposed alignment, 14.5 miles (23.2 km) long, would require acquisition of totally new right-of-way and, in doing so, would convert 530 acres (212 ha) to highway use.

Approximately 300 feet (90 m) wide, depending on terrain, property agreements, etc., the controlled access interstate right-of-way would increase in breadth at each interchange in order to accommodate entrance and exit ramps.
DESCRIPTION

DESIGN FEATURES

Federal Highway Administration Interstate standards appropriate to the design needs of the proposed project include the following major features:

1. A four-lane interstate with controlled access, including a separation of directional vehicular traffic by means of a median strip of variable width, not less than 64 feet (19 m) wide. An aesthetic enhancement would be achieved by varying the median width and creating independent roadway alignments which would conform to the terrain.

2. Two twelve-foot (3.6 m) traffic lanes for each direction of travel, with a four-foot (1.2 m) median (internal) shoulder and a ten-foot (3.0 m) lateral (external) shoulder. In some cases safety and topography may dictate a necessity to widen either or both shoulders.

3. A thirty-foot (9.1 m) safety recovery zone extending into a total right-of-way width of approximately three hundred feet (90 m). Again, safety or terrain features may cause either the recovery zone or the right-of-way width to vary.

The typical section shown below illustrates the roadway proportions but does not include the right-of-way extension, since right-of-way would tend to vary to a greater degree than other more standardized design features.

Construction and Revegetation

If unusually unstable terrain (marshland, for instance) is crossed, granular borrow could be used for subgrade material. Regardless of terrain and soil complications such as above, there would be no departure from standard interstate designs for base and surface courses.
Surcharges of material would probably be needed, possibly to accelerate compaction of roadway fills, but particularly to aid settlement at sites of structures. Any surcharges would be temporary.

Should material for borrow or surcharge be needed, it will likely come from the sites indicated on the map to the left: POSSIBLE BORROW SITE AVAILABILITY.

Nature occasionally takes a long time to revegetate a disturbed area and frequently weeds and undesirable species thrive without competition from desirable species. Revegetation and establishment of desirable plant species will help as a deterrent to noxious weeds.

Proper revegetation of many disturbed sites would serve as a cushion against the impact of construction and provide a seed source for surrounding areas. With adherence to basic ground rules of reseeding and maintenance of seedlings, establishment of vegetation is expected to be successful.

Access

Access to this segment of freeway will be provided at four locations: the connection to I-84 at the south terminus, a half diamond at Tremonton Main Street and full diamond at Riverside and Plymouth as shown on the map on page 4. A new road from I-15 to U.S. 191 in Riverside will be a part of the construction. Although there will be no interchanges at Garland and Fielding, both will have access within four miles.
DESCRIPTION

Many of the more common shortcomings are not now part of the highway picture.

DEFICIENCIES

Many of the more common shortcomings usually encountered in existing transportation facilities are not found generally in the Bear River Valley. Congestion, poor circulation patterns, inefficient interfacing between modes, vehicular-generated air pollution, noise nuisance and related problems (with the exception of noise on US-191) are not now found throughout the valley’s roadway network. Some deficiencies do exist, but, as discussed below, they are not critical.

Adaptability

Growing gradually from a grid of farm roads, the existing road network was not planned to serve intercommunity needs and is not likely to adapt well to emerging growth patterns in the valley. Where different type, size and speed vehicles are required to use the same roadways, problems are likely to arise in connection with adequacy of service.

Maintenance

Because US-191 was not originally designed to carry the heavy trucks in use on highways today, a shorter pavement life is inevitable. In fact, present short-range plans call for extensive resurfacing of the road just to keep the facility operable. Extremely heavy vehicles tend to wear ruts in road surfaces along US-191, a characteristic which would virtually be eliminated by the construction of the proposed route that would be designed according to freeway specifications, and one which would carry the majority of pavement-damaging heavy trucks. Annual maintenance costs (including winter snow and ice removal) for this segment of US-191 presently average nearly $1100 per lane mile, as opposed to the $900 per lane mile expended on similar facilities throughout the State.

Planning Basis

Congressional mandates of 1944 and 1956 have supplied the primary motivation for planning a north-south interstate segment through the Bear River Valley. The valley is not part of an established metropolitan transportation planning area, the nearest one being Ogden, Ogden Area Transportation Study (OATS), some miles to the south.

The existing road network grew from a grid of farm roads.
ANTICIPATED BENEFITS

More pointed than the present need for the Interstate segment is the desirability and benefits to be derived from its construction.

Energy and Resources

By diverting approximately two-thirds of the long-distance-traveling vehicles to a freeway-type facility the resulting smoother flow, non-stop conditions could save the motorists up to 36,000 gallons of gasoline per year (not to mention wear on vehicle parts such as tires and brakes). But the more costly bills are still attributed to accidents: damaged property needs replacing; injured passengers need medical care — both of which use materials and services, which are resources requiring an expenditure of energy. Safety aspects are discussed below under a separate sub-heading.

Regional

On a regional basis (the northern tip of Utah), the principal benefits will be transporting of agricultural goods and the enhanced commercial prospects resulting from secondary benefits associated with "freeway magnetism". Other residents of the region to be benefitted by the completion of this section of I-15 may be from Cache Valley (Logan and surrounding communities to the east of Bear River Valley), who would be provided a more convenient access to the Interstate System.

Community

Some benefits to the community are expected to result when this I-15 section is completed. Construction usually brings a flow of dollars into the community which is particularly welcome during times of economic slow down. Diverting high-speed long-distance travelers from US-191 is expected to make local traffic and access safer.
DESCRIPTION

Total Transportation

At present the Bear River Valley and its environs support local, collector, arterial, intrastate and interstate traffic on roads which have standards which are acceptable for local and collector roads. The proposed Interstate segment would complement the total transportation picture by providing a freeway with design standards acceptable (for the purpose of safe and efficient transportation) at the top of the highway functional classification hierarchy.

Safety

Two inter-related items would be involved in the completion of I-15 through the Bear River Valley. First would be its contribution to the continuity of the National System of Interstate and Defense Highways, initially designed as a non-interrupted network totaling some 40,000 miles (64,000 km) in the continental United States. Second, because of the system's high geometric standards and controlled access, travelers generally benefit as a result of safe, efficient and smooth flowing traffic conditions.

Utah accident records for 1976 indicate that accidents on completed portions of interstate occur about once in every million vehicle miles (MVM) travelled. In the northern portion of Utah on a completed segment of rural interstate, between Brigham City and Elwood, accidents occurred at an average rate of 0.5 per MVM; similarly, a low rate of .99 accidents per MVM occurred on the completed slightly more urbanized interstate north of Ogden. Conversely, existing US-191 from Elwood to Plymouth, while having a relatively good safety record of 1.6 accidents per MVM in 1976, has experienced widely fluctuating accident rates ranging from 4.0 in 1973 to a low of 1.0 in 1975.

Other safety aspects have been recognized along US-191. Two of these are slow moving farm machinery and large trucks, both of which tend to impede through traffic. Another situation concerns school buses which, during the school year, make regular stops along the road. Such a combination of varied traffic characteristics hampers the driving for a majority of both the inter and intra-community traffic using US-191. Additional projected growth in the valley is expected to have an increasingly adverse effect on safety conditions in the future. Building an interstate freeway would separate the north-south traffic from the local and thus eliminate much of the conflicting interaction between the two traffic types.
Accident Records

Some interesting results appear from a recent study of 1973 to 1976 traffic accident records on U.S. 191 from Elwood to Plymouth. Presented below, in graphical form, is a chart showing the number of accidents in relationship to traffic volume along this stretch of highway grouped by day of the week. Weekend traffic (Saturday and Sunday) had the highest concentration of accidents, while Thursday the lowest. A small amount of correlation between traffic volume and number of accidents is evident.

Examination of the hourly traffic and number of accidents for day of the week indicates that the majority of Sunday accidents (80%) and the highest traffic volume happened from 3 pm to midnight. One third of the accidents transpired between 5 pm to 7 pm.

Most of the accidents (84%) on Monday were between the daylight hours of 6 AM and 6 PM.

Tuesday's high number of accidents are puzzling, especially when considering that the lowest traffic volume of the week occurred on this day. Approximately 40% of Tuesday's misfortunes happened between the hours of 12 noon to 3 pm. But because the location and the apparent cause of these early afternoon accidents vary so widely, the likelihood is reduced considerably that these accidents relate to a particular local meeting schedule. Moreover, an examination of traffic count records from the permanent recording station on U.S. 191 near Fielding for all Tuesdays in the year 1974, reveals no consistent patterns of travel during early afternoon.

Accidents occurring on Wednesdays, the next to lowest number for day of the week, are similar to Monday accidents which are prevalent during the daylight hours.

Thursday's accidents, the lowest number for the week, are most common (57%) during the hours 9 am to 3 pm.

Although Friday had the highest traffic volumes occurring during an average week, the number of accidents was the fourth highest. Mishaps during this day were fairly well distributed throughout the daylight and evening hours.
DESCRIPTION

Saturday, the day of the highest number of accidents, accounted for 20% of the total accidents of the week. Approximately 2/3 of the accidents happened during the daylight hours.

Examination of accidents and traffic volume by the hour of the day illustrates many of the differences in the occurrence of accidents on U.S. 191.

Early morning (12 am to 3 am) traffic is low with half the auto mishaps alcohol related. Morning commuter traffic (6 am to 10 am) increases the volume and the number of accidents. Midday traffic volume stabilizes while accidents increase, peaking near 2 pm. With the addition of afternoon commuter movement, traffic peaks between 4 pm to 5 pm, but the number of accidents is much less than the midday totals but somewhat similar to the morning's. Both traffic and accidents decrease during the evening hours, with approximately 85% of these accidents having access and obstacles as the main cause.

As indicated in the "pie graph", more than half of all accidents involved access to and from U.S. 191 (such as driveways, crossroads, businesses and parked vehicles). The next most common type of accident were those of hitting animals and objects both on and off road. Passing or being in the opposing traffic lane (one was apparently an impatient motorist following an accelerating truck from Haws Corner) was the third most common type. Excessive speed, out of control, miscellaneous problems and drunk motorists accounted for the remainder.
BACKGROUND REFERENCES

The following is a listing of some studies which have been conducted on the project, Tremonton to Plymouth, I-15 through the Bear River Valley. For the most part, the studies have been made since the controversial aspects of the proposed project became apparent. Also included are two documents concerning relocation which may be of interest to residents of the Bear River Valley.

Technical, Social and Economic Studies

1. Route Study Report, October 1970, Utah Department of Highways
   Route C, the Center Alternate, is considered the most favorable in this report, based exclusively on operating costs and road user costs.

2. Report from Blaine J. Kay, State Highway Engineer, to the Utah State Road Commission, March 26, 1971, Utah Department of Highways
   A response to inquiries and criticisms voiced at the public hearing of May, 1970. Based on the information as presented, the report concludes that Alternate C (the Center Alternate along the Malad River) is the most feasible and recommends to the Utah State Road Commission that it not rescind its earlier decision in favor of that alignment.

3. Report by Blaine J. Kay to the Utah State Road Commission, April 26, 1971, Utah Department of Highways
   Essentially the same report as #2 above as reported in State Road Commission minutes for that date.

4. Interstate Route 15 through the Bear River Valley between the towns of Elwood and Plymouth, c. 1971, Gordon E. Harmston, Department of Natural Resources, Environmental Impact Statement Evaluation Committee
   Basing its summary on the tremendous impact on farming in the Bear River Valley, the West Corridor is put forward as the best choice with Alternate A (West Alternate) having the least effect on the agricultural industry and being, therefore, the most desirable.

   A breakdown of soil types, showing the crops and expected incomes from the different alternates.

6. Utah Recreation - Box Elder County, 1974, Utah Department of Highways
   This report is an inventory of public recreation in Box Elder County. After an introduction, charts give the recreation sites, locations, activities and facilities.

7. Bear River Valley Study, 1974, Preliminary Draft, Dr. Stephen S. Stanford
   Dr. Stanford made a reconnaissance to discover the "Climate of Opinion" toward the construction of I-15 through their region. He determined this by a postcard survey done with the cooperation

8. "Relocation Can Be Good For You", 1974, Stephen S. Stanford, PhD, Weber State College, in cooperation with the Utah State Department of Highways
   A report on a study of the relocation of 189 households in metropolitan Salt Lake City and Ogden, Utah (1963-1973) was meant to allay fears of relocation for residents living along a highway project.

9. Relocation Assistance Brochure (revised), June 1, 1977, Utah Department of Transportation
   Description of the rights, duties and programs available to the State Highway Department for assisting those persons being relocated as well as what those persons can expect while being relocated.

10. Supplement to the (Draft) EIS for Interstate 15 through the Bear River Valley, 1976, Utah Department of Transportation
    Background information which was used in the development of the draft environmental statement.
Shoshone and Bannock Indian Tribes roamed the Bear River Valley long before the first Caucasian explorers entered the region. The Indians hunted and fished both the Malad and Bear Rivers, grazing their horses on the abundant grasses as they established their summer camping grounds (within what is now the site of the proposed corridor).

During the 1820's, Peter Skene Ogden, Jedediah Smith and Jim Bridger (early trappers) explored the valley for fur-bearing animals as well as a possible route to the Pacific Ocean. As they sought a westward route across the salt desert on their way to California, pioneer companies, in the 1830's and 1840's, traveled along the Bear River crossing at Hampton's Ford before moving onward to Rocky Ford, near Plymouth, where they crossed the Malad River. Soon after John C. Fremont and the Bartleson-Bidwell companies made the initial wagon exploration roads through the valley, Captain Samuel T. Hensley followed their wagon routes as far as Rocky Ford and then continued west through the Snowville area, thereby missing the desert and creating a faster route to the Pacific Coast. Later, their road became known as the Salt Lake Cutoff. Subsequently, a discharged company of men from the Mormon Battalion followed Hensley's trail eastward on their way to Salt Lake City. Today, three of these historic trails can be found within the Bear River Valley, especially at Hampton's Ford, Fielding and Plymouth as well as that portion ending eventually at Rocky Ford. The routes are known as Peter Skene Ogden's Trail, Fremont Trail and the Bartleson-Bidwell Trail.
Mormon pioneers, in the late 1800's, used this early wagon crossing at Hampton's Ford on their way to settle the Bear River Valley. This site near Collinston became the predominant crossing point for wagons traveling to the California Gold Fields. In 1853, Benjamin Hampton began operating a toll-ferry and later constructed a bridge at this location, continuing to charge a fee for horses and wagons. As stage-coach travel took the place of wagon trains, Hampton's Ford was converted to an important stage stop and pony express station (presently it is an historic site listed on the National Register of Historic Places).

Settlement of the valley began in 1869 as a small group of Mormons established a permanent camp at Square Town, later renamed Plymouth, for the express purpose of raising sheep. Subsequently, however, several men from Farmington, in Davis County, Utah, came to Plymouth in 1876 to secure land for dry farming which, from that time on proved to be so successful that by 1895 stock raising had become virtually extinct. Incidentally, it was here, in the Cache Valley to the east and in central Utah near Nephi that dry farming techniques first were perfected to the point that non-irrigated agriculture became profitable. Eventually, additional settlements were started in Fielding and Tremonton, primarily from 1892 to 1900. Garland, settled in 1890, flourished immediately due to the fertile soil for raising sugar beets, and the construction of a sugar factory as well as its close proximity to the Bothwell Canal.
<table>
<thead>
<tr>
<th>DATE</th>
<th>EVENT</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 2, 1958</td>
<td>First public meeting discussing tentative plans for the interstate project.</td>
<td>November, 1967 to April, 1969 Design advanced to stage where a field review and approval of preliminary geometrics were requested.</td>
</tr>
<tr>
<td>December 6, 1962</td>
<td>Project program was approved providing authorization to proceed with preliminary engineering for route location.</td>
<td>May 21, 1969 Approval of preliminary plans until public hearing.</td>
</tr>
<tr>
<td>January, 1963 to September, 1965</td>
<td>Locations studied.</td>
<td>May 12, 1970 Public hearing held. Sharp criticism from public officials and private individuals on location led the State Highway Department to update the study by obtaining new information pertaining to the project.</td>
</tr>
<tr>
<td>September 8, 1965</td>
<td>Location approval requested (center of valley).</td>
<td>September 24, 1976 The Utah Transportation Commission adopted west alternate A.</td>
</tr>
<tr>
<td>September 30, 1965</td>
<td>General location of project approved, Elwood - State Line.</td>
<td>January 14, 1977 The Utah Transportation Commission adopted the location for the interchanges in the Garland-Tremonton area. There will be a complete interchange between interstates (allowing all movements) and a half diamond interchange on the north side of Tremonton Main Street.</td>
</tr>
<tr>
<td>September 7, 1966</td>
<td>Authorization to proceed with aerial photogrammetric mapping.</td>
<td>April, 1976 Draft E.I.S. was completed and circulated.</td>
</tr>
<tr>
<td>September 13, 1966 to December, 1966</td>
<td>Aerial surveys performed.</td>
<td>June 22, 1976 A public hearing was held. Strong feeling was expressed for the west alternate.</td>
</tr>
<tr>
<td>Spring, 1974</td>
<td>Under new guidelines, work was begun anew on an EIS with an Interdisciplinary Environmental Team.</td>
<td>July 8, 1977 The Utah Transportation Commission held a commission meeting in Tremonton for the purpose of allowing local residents to express their ideas on I-15 through the Bear River Valley. After all comments were aired, the Commission reaffirmed the September 24, 1976 decision.</td>
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ENVIRONMENTAL STUDY TEAM

Coordinators:

Lester A. Abbey Jr., Environmental Engineer
John D.A. Neil, Environmental Engineer

Environmental Task Force:

Megan Friedland, Geographer
Ralph Schamel, Agricultural Specialist
Randall Isham, Wildlife Biologist
Richard N. Griffin, Materials Engineer
Caine Alder, Aesthete
Lloyd Hunt, Recreation Specialist
Richard Copenhaver, Roadway Designer-Naturalist

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John Short, Consulting Economist
Richard Alston, PhD, Associate Professor of Economics, Weber State College
Stephen S. Stanford, PhD, Professor of Sociology, Weber State College
Pat Burnham, Research Assistant, Weber State College

Technological Task Force:

Stephen R. Noble, Design Engineer
Archie Meadows, Area Engineer, Federal Highway Administration
Lynn Zollinger, Design Engineer
M. Kent Lee, Right-of-Way Specialist
James W. Thompson, Hydrologist

(Team members are employees of the Utah Department of Transportation where not otherwise indicated.)

Tentative Design And Construction Sequence

Completion of final plans Winter 1979
Beginning of Construction from I-80N to the Garland Interchange Spring 1980
Beginning of Construction from the Garland Interchange to Plymouth Spring 1981
Construction completed and the road opened to traffic Fall 1985
SURROUNDING TERRAIN

The Valley's Physiography

Comprising roughly the eastern one-third of Box Elder County in north central Utah, the Lower Bear River Valley (elevation: 4350) is a portion of the relatively flat Great Salt Lake Valley that drains towards the Bear River. It consists of a basin with a level lake plain (the remains of ancient Lake Bonneville) and surrounding north-south trending mountains (elevation approximately 7700) which are scarred with lake terraces caused by the recessive stages of former Lake Bonneville.

Since the arrival of the early settlers much of the valley floor has been converted for agricultural purposes. Its appearance creates the illusion of a massive green, yellow, and yellow-green checkerboard, a view most aesthetically pleasing from the air, and one which is filled with the peace and freshness associated with rural Americana.
Bounded on three sides by medium to high mountains, the valley seems as if beach sands had blown in and slowly flattened and buried half the mountains. Agricultural land gives way to sagebrush and then to gravel as the floor approaches the foothills. The center of the valley's major economic endeavor is bisected by both the Malad and Bear Rivers, which meander gracefully in their straths, complimentary to the encroaching developments around them.

Agricultural land gives way to sagebrush as the floor approaches the foothills.

Deep nearly level soils, among the most productive in the State...

Pedologic
Soils of the lake plain in the bottom of the valley are among the most productive in the entire state consisting of deep, nearly level to gently-sloping silt loams and clay loams. Rising from the valley floor toward the mountain slopes, the soils become distinctly coarser, having occasional pockets of gravel.
DESCRIPTION

Climate

The climate of the Lower Bear River Valley is a typical mountain-continental type which is characterized by low rainfall (Tremonton 14"/35 cm annually), generally coming during the winter season. Winter storm fronts are consistently from the northwest, originating in cold North Pacific air masses. During short periods in the winter months, fog is present which settles in the lowest central elevations, often capped by high pressure air masses (layered inversions), and the presence of fog through the center of the valley may at times inhibit vehicular traffic. Summertime exhibits much more comfortable conditions, broken only by occasional thunderstorms. The frost-free season in the valley is approximately 150 days, which is ample time for agricultural production; accordingly, the climate is well suited to the present agricultural economy. Though terrace areas receive slightly more precipitation, rainfall is heaviest in the surrounding mountain regions where it averages above 30" (75 cm) annually. Temperatures range from 13-33°F (-10 to 1°C) in January and from 57-91°F (14 to 33°C) in July.

Wildlife

Wildlife within the valley tends to be restricted in distribution to those habitats favorable to their survival.

Agricultural lands are utilized by small rodents and song birds. Ranked highest for sportmen's use within the valley, the ringnecked pheasant is essentially dependent on croplands for feed and bottomlands for cover. The valley pheasant habitat, rated as tops in the state, receives heavy hunter utilization and accounts for a significant amount of the total state harvest. Waterfowl, associated with the stream channels and marshlands, also utilize the croplands for feed.

Wildlife within the river bottom zone is the most abundant and varied in the valley. Habitat here is essential for many species of song birds, waterfowl, as well as being critical for pheasant survival during the winter. Small mammals, such as rodents, carnivores and lagamorphs, as well as a few resident mule deer are found throughout this zone. Within the river are also found many aquatic organisms including channel catfish, largemouth bass and walleye pike.

Along the valley sides, amidst the more "native" vegetation, exist many of the birds (grouse and song birds) and small mammals (rodents and carnivores) formerly found throughout the valley before the advent of man in agriculture.

(COMMENT ON THE DRAFT STATEMENT BY THE U.S. DEPARTMENT OF THE INTERIOR)

It would be helpful if wildlife discussions also included species lists of wildlife known to inhabit the areas to be affected by the proposal. It would also be helpful to know if reports by the Wildlife Environmental Task Force are available for public review. Were raptors found in the study areas? If so, they should be documented in the text. If there are any rare or endangered species in the project area, they should be discussed in the Wildlife section under the Description of the Environment.

Due to the nature of terrain (primarily agriculture) crossed by the project, the Ecological Task Force deemed that the inclusion of a species list in the document was unnecessary. A list of species present in the project vicinity is available for public review along with other pertinent backup information used for the ecological section at the UDOT Environmental Unit (Rm. 408 State Office Building, Salt Lake City, Utah). Raptors, as well as rare and endangered species, are also mentioned in the ecological section.
Streamside vegetation, along the flood plains, is dominated by willows, shrubs and marsh-type plants.

Vegetation

Native plant life in the valley floor consists of sagebrush and grasses which, for the most part, have been replaced by agricultural row and grain crops. Along the two flood plains, streamside vegetation is dominated by thick growths of willows, cottonwoods, and other riparian shrubs, as well as marsh-type plants (cattails, bulrush and salt grasses) in the low wetlands and river oxbows. Composition of the foothills and lower mountain slopes are covered predominantly with sagebrush, grasses, junipers and gambels oak. Irrigated crops, wheat, alfalfa, sugar beets and corn, while restricted to the valley floor, constitutes the major land use within the valley. While the non-irrigated crops, such as dryland wheat, are commonly found just below the valley foothills.

Irrigated crops of wheat, alfalfa, sugar beets and corn have replaced the native plants of the valley floor (background) while sagebrush and grasses predominate in the foothills (foreground).
Information shown on the accompanying map was provided by the U.S. Soil Conservation Service. Although the information is intended for general planning, it does indicate, in a general manner, the types of soils which would be traversed by each alternate. Uses for which each soil might be best suited are shown in order of decreasing value. A condensed description of the main soil types which I-15 would be expected to traverse begins on the following page.

**SOIL ASSOCIATIONS**

- HUPP - STERLING - ABELA
- KEARNS - PARLEYS
- FIELDING - KILBURN - KIDMAN
- HONEYVILLE - GREENSON - COLLETT
- LASIL - FRIDLO

**KEY FOR SOIL USE**

- CROP LAND
- PASTURE LAND
- WILDLIFE HABITAT
- ROAD FILL MATERIAL
- POND RESERVOIR
- SANITARY LAND FILL
- DWELLINGS WITH BASEMENTS
- SEPTIC TANK ABSORPTION FIELDS
- RECREATION (PLAYGROUNDS, CAMP AREAS, TRAILS, PICNIC AREAS)
Soils above the valley floor are used for range, non-irrigated crops and wildlife habitat.

Where the ground is level, sagebrush has given way to alfalfa and other irrigated crops.

Hupp-Sterling-Abela
Well-drained and somewhat excessively drained, gently sloping to very steep gravelly silt loams; on alluvial fans, lake terraces, escarpments, and mountain foot slopes. The soils were formed in alluvium and colluvium derived from limestone, dolomite, sandstone, quartzite, and in mixed lake sediments. Slopes are anywhere from 1 to 50 percent, all major soils in the group being more than 60" (150 cm) deep. Soils are used chiefly for non-irrigated crops, range, wildlife habitat, and water supply. Some areas are used for urban developments or as a source of gravel for construction purposes and some provide habitat for game birds.

Kearns-Parley Association
Well-drained and moderately well-drained soils that are nearly level to steep silt loams and that exist on alluvial fans and lake terraces. The soils were formed in alluvium derived from mixed lake sediments. Slopes are 0 to 20 percent, and soils are more than 60" (150 cm) deep. The major soils in this association are used for irrigated and non-irrigated crops and as wildlife habitat. Small areas are also used for urban developments, and some provide a good habitat for upland game birds.

Fielding - Kilburn - Kidman Association
Soils that are well-drained and somewhat excessively drained, nearly level to very steep silt loams, gravelly sandy loams and fine sandy loams. Such soils can be found on lake terraces, benches, alluvial fans and broad valley plains. The soils were formed in mixed lake sediments and alluvium derived from limestone, quartzite, sandstone, gneiss
and schist. Slopes are 0 to 60 percent, and the major soils in this association are more than 60" (150 cm) deep. Soils of this kind are used mainly for irrigated and non-irrigated crops, for range and as wildlife habitat. Some areas are used for urban developments or as a source of sand and gravel for construction purposes.

**Honeyville-Greenson-Collett Association**

Moderately well-drained and somewhat poorly drained, nearly level silty clay loams and silt loams that exist on broad low lake terraces and lake plains.

Soils of the Fielding-Kilburn-Kidman Association are used for crops, range and urban development.

Soils of this nature were formed in fine textured and moderately fine textured, mixed lake sediments derived dominantly from sandstone and limestone. Slopes are 0 to 1 percent and soils in this association are used for irrigated crops and native pastures. In this case, the water table occurs 30-60" (75-150 cm) below the surface.

**Lasil-Fridlo Association**

Somewhat poorly drained and moderately well-drained, nearly level and gently sloping silt loams that exist on broad low lake terraces and lake plains. Soils are used for irrigated and non-irrigated crops and for range with the water table 30-60" (75-150 cm) deep.

The soils in this association are used for irrigated and non-irrigated crops and for range.
Geological

A valley composed of Pleistocene lacustrine (lake) sediments, that were deposited in ancient Lake Bonneville, of which the Great Salt Lake is a remnant, comprises the physiographic area of the proposed alignment of the Interstate Highway (I-15). Generally speaking, the sediments of the valley are the finer grained varieties, to wit: sands, silt and clays. Minor amounts of gravel are also present in the center of the valley; however, a coarsening of the soil particles usually becomes apparent on either side of the valley as the foothills to the mountains are approached.

Lake Bonneville, which at its maximum covered an area of more than 19,000 square miles (50,000 square kilometers) or nearly equal to that of existing Lake Michigan, sculpted and deposited lake terraces in and on the faces of the surrounding mountains; the highest terrace noticeable is the Bonneville formation which occurs at approximately the 5200 foot elevation (above mean sea level) or approximately 1000' (300 m) above the valley floor. The next lower terrace, which may be either lacking, covered or hard to discriminate, is the Alpine formation (oldest of the Bonneville group) which occurs at an elevation of 5100 feet. The lowest and youngest in age and the most predominant terrace of the Lake Bonneville Group is the Provo formation which occurs at an elevation of 4800 feet. Partial covering or obliteration of the terrace benches has been accomplished in some locales by alluvial stream, and colluvial slope sedimentation or subaerial (close to earth surface) erosion as well as combinations of these processes.
DESCRIPTION

Terraces remaining from Lake Bonneville (predecessor of the Great Salt Lake) are discernable at 5200', 5100' and 4800' above sea level.

Meander patterns have been incised in the valley floor by the Bear River, and to a lesser degree by the Malad River and their tributaries, as the Lake Bonneville bottom was exposed to subaerial erosion by the reliction of the lake waters.

Bordering each side of the valley are low-rounded mountains of the Wasatch Range. East of Tremonton are the Wellsville Mountains, reaching an elevation of 9300 feet and composed of sandstones, quartzites, shales, limestones and dolomites of the upper

Meander patterns incised in the valley floor have formed a strath or depressed, grassy area along the river's course. Usually marshy, this low-lying ground is mainly used for pasture for livestock
Palozoic geologic era and, near the northern end, those of the lower Cenozoic geologic era. East of the Plymouth area are the Clarkston Mountains, reaching an elevation of 8000 feet and composed of limestones, dolomites and shales of the lower Paleozoic geologic era. On the westerly side of the valley are the West Hills reaching an elevation of 6500 feet and composed of quartzites, limestones, dolomites, sandstones and shales of the upper Paleozoic geologic era.

East of the Bear and Malad Rivers' valley, the Wellsville and Clarkston Mountains show ample evidence of faulting, most of which is believed to be of the normal type. At the westerly base of these mountains, but concealed by sediments, lies a major zone of normal faulting: the Wasatch Fault. Movement on and along the Wasatch and associated faults is responsible for the assignment by the U.S. Coast and Geodetic Survey (ESSA) of a seismic risk of Zone 3: expected major destructive damage. A Zone 3 classification in seismic risk, the same as most of California, is reportedly capable of earthquakes of at least 7.1 Richter Magnitude, approximately the same as the Hebgen Lake, Montana, earthquake of August 17, 1959. However, the northern Wasatch Fault appears to have been relatively quiet with most quakes being 3.9 Richter Magnitude or less. A notable exception occurred on March 27, 1975, with a Richter Magnitude of 6.1 having an epicenter 40 mi. northwest of the project.

Faulting in the West Hills, although not as readily recognizable as in the Clarkston and Wellsville mountains, is probably present but, for the most part, unmapped due to lack of fresh exposure because of erosional and sedimentational processes that have concealed traces of faulting. Seismic activity of similar magnitude as the Wasatch Fault has been noted on and along the unmapped faults of the West Hills.

The Clarkston Mountains east of Plymouth.
DESCRIPTION

NEIGHBORHOOD AND DEMOGRAPHIC INVENTORY

In 1970 the population of the Bear River Valley was placed at approximately 5500 persons. Its present and projected populations are given in the accompanying table:

<table>
<thead>
<tr>
<th>City</th>
<th>1970</th>
<th>1990</th>
<th>Annual Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elwood</td>
<td>294</td>
<td>221</td>
<td>-1.42%</td>
</tr>
<tr>
<td>Fielding</td>
<td>254</td>
<td>259</td>
<td>0.10%</td>
</tr>
<tr>
<td>Garland</td>
<td>1187</td>
<td>1401</td>
<td>0.83%</td>
</tr>
<tr>
<td>Honeyville</td>
<td>640</td>
<td>685</td>
<td>0.34%</td>
</tr>
<tr>
<td>Plymouth</td>
<td>203</td>
<td>181</td>
<td>-0.57%</td>
</tr>
<tr>
<td>Portage</td>
<td>144</td>
<td>81</td>
<td>-2.84%</td>
</tr>
<tr>
<td>Tremonton</td>
<td>2794</td>
<td>4694</td>
<td>2.63%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5516</td>
<td>7522</td>
<td>1.56% overall</td>
</tr>
</tbody>
</table>

Demographic statistics, which may further define the characteristics of the valley's population, are represented by the following percentages:

- Percent non-Caucasian: 3.8%
- Percent under 18 years of age: 43.8%
- Percent 18 to 64 years of age: 48.7%
- Percent over 64 years of age: 7.5%


ECONOMIC INVENTORY

As reported by the 1970 census, the population in the portion of the Bear River Valley being considered was 5500 people or approximately 20% of the 28,300 people in Box Elder County. These people earned, based solely on the county's overall population, 20% of the 93.9 million dollars earned in personal income in Box Elder County in that year or 18.8 million dollars. Of this 18.8 million, 3.4 to 6.8 million dollars were estimated to be agricultural based income and 12.0 to 15.4 million dollars were derived from non-agricultural businesses found mainly in the larger communities of Tremonton and Garland.

If the current projections are realized, the county's population will have increased 36% by the year 1990. Much of the increase in the Bear River Valley is expected to be in the form of non-skilled or semi-skilled employees working in the expanding industrial and commercial enterprises within the project study limits and surrounding communities. In the same time period, agriculture will likely see a significant increase from rising farm prices, but the need for additional farm employees will probably not increase as rapidly as the need for industrial employees. Possible reasons for this could be found in the development of new types of farm equipment allowing for more efficient procedures in planting, irrigating, cultivating and harvesting crops.

Thiokol Chemical Company, about 20 miles to the west, is the largest single employer of Bear River Valley residents outside of the valley itself, and has just (May, 1975) been awarded a 140-million dollar contract for the development of a space shuttle craft. This event should help to support the present economic base of the Bear River Valley and not precipitate any acceleration in the growth rate.
RECREATION

Recreation facilities listed on the accompanying chart would probably not be affected adversely by the completion of I-15 through the Bear River Valley since their attraction is primarily for the local residents. The local network of roads and streets would not be altered or significantly interrupted by the proposed project, and thus would remain the primary routes of travel to and from recreation sites. However, for certain longer distances of travel, the new interstate would provide a time savings and an incentive for outlying communities to participate in Bear River Valley recreation activities.

Sites

Thirty-one miles southwest of Tremonton, the Golden Spike National Historic Site (opened in 1965) attracted more than 95,000 visitors in 1976. The last spike driven May 10, 1869, connected the cross-continental railroad's eastern and western portions, giving the Union Pacific and Central Pacific Railroad companies the honor of having the first uninterrupted transcontinental railway service. An annual event, Golden Spike Days, celebrated May 10th is held at the site of the completion of the transcontinental facility, commemorating the event.

At Belmont Springs Recreation Site located 10 miles from Tremonton, a private resort, health spa and swimming complex is being developed. It will offer swimming, motel and restaurant facilities, health spa, sauna, trailer hook-ups for travel trailers and condominiums on a year-round basis with golf offered when in season.

An Interstate System through improved access might induce more visitors to the above facilities, but limited increase is expected, as similar facilities are found in surrounding communities.
DESCRIPTION
AESTHETICS

The southbound traveler moving along the west side of the valley will see, from the vantage of the west corridor's elevation, a long stretch of Bear River Valley as well as a portion of northern Utah from the area of the Bear River Migratory Bird Refuge and the city of Tremonton ahead to the northern extremities of the Wasatch Front on the left. These, together with the splendid views of the broad cultivated fields, could do much to alter the image held by many first-time visitors to Utah that the state is a dry wasteland containing some National Parks which they must see as part of the tour of the Rocky Mountains. Although he may not receive a conscious realization of it, the northbound traveler could get the impression of the open-space of the valley and the peaceful, undisturbed agricultural land found there.
Facing southward, the Wasatch Mountains appear to fade into the distance.
LAND USE PLANNING

Scope and status of the planning process for the Bear River Valley, together with an outline of the relationship between the proposed action and land use and public facility plans, policies and controls which have been promulgated by Box Elder County follow. Existing and proposed land uses include other proposed federal actions; although no important conflicts or inconsistencies presently exist, machinery for reconciliation (should any develop) has already been established.
LAND USE PLANNING

Policies

The Box Elder County master plan for 1990, as prepared by Planning and Research Associates in March of 1973, has recommended the following land use policies:

1. Nearly all residential development should occur inside municipalities or new communities anticipating incorporation.

2. Few subdivisions should be approved in unincorporated regions.

3. Commercial activities must generally group together more than in the past.

4. Central business districts in municipalities must be rebuilt over the years into more intensive, inter-related, more attractive and convenient units.

5. The existing downtown centers of Brigham City and Tremonton should be encouraged to become the regional commercial centers for the county.

6. With some few specially-justified exceptions, all new businesses should be required to locate within the central business districts of the municipalities, or in appropriate community or neighborhood centers.

7. All manufacturing enterprises, trucking terminals, warehousing, salvage or wrecking yards and other uses (often grouped together as "Industrial") should be located, developed and served in harmony with the overall land use plan.

8. Industrial regions should be located near municipalities except where natural resource development or safety requires other locations. In some cases, of course, the required location of the use is determined by raw materials or other factors.

9. Development of the county's resources is important to present and future citizens, and restrictions should be exercised in procedures and timing to prevent gross conflicts with other land uses and community values.

10. In the county, increasing the amount of land used for agriculture should be encouraged.

11. Water development for increased agricultural use is considered essential for the present as well as future stability of the county's economic base.

12. Agriculture is the most important part of Box Elder County's economic base, and the master plan indicated it should remain so and be recognized as a permanent major use of land, not as a transitional use to some other future use thought more desirable.

13. The major part of unincorporated land in Box Elder County is shown on master plan maps as regions of multiple use, and it is proposed that these lands be subject to conditional use permits for all uses.

LAND USE: Present

Land use in Box Elder County is mainly comprised of agricultural endeavors. The Master Plan for the county recommends retaining as much land as possible for agricultural uses and limiting residential development to in-city. All industrial uses should be grouped together geographically and be in harmony with other land uses and community values. This implies that only limited-polluting industries should be accepted for residence. Recreational use in the Bear River Valley is limited at the present time to a few parks, a golf course and a fairground. The current world food crisis seems to dictate that alternative land uses should be critically evaluated and used wisely as priorities dictate.

LAND USE: Proposed

Transportation facilities in Box Elder County should provide transportation of people and goods in circulation routes of Box Elder County to provide whatever help necessary to assure the domestic and economic well-being of the county. Freeways and freeway exits should be designed for fast through transportation; other highways and roads should provide a complete transportation network within the county as well as to and from it. The Utah Department of Transportation's intention is to aid in implementing this goal.

The Master Plan suggests that the Interstate corridor (through the Bear River Valley) be proposed on the benchland above the prime agricultural area (the location of the proposed freeway) rather than through the center of the irrigated farming district. It is also recommended that all roads in the county be considered part of the public landscape and made attractive as well as useful.

To date no conflicts can be seen between the construction of an interstate and the present or proposed use of the land. In fact, the master plan confirms a need for increased agricultural use and the need to retain as much land as possible for agricultural purposes.
and a desire for fast, efficient and safe transportation through the valley.

Proposed land uses can be noted on the accompanying map. Little change in present uses is expected or desired.

Other Proposed Federal Actions

Only four major federal actions are presently (the summer of 1977) underway or being contemplated in the Bear River Valley:

(1) The Honeyville Reservoir on the Bear River presently being conceived by the Bureau of Reclamation;

(2) The Plymouth Reservoir on the Malad River, also by the Bureau of Reclamation;

(3) Plymouth Culinary Water Improvement Project, northeast of Plymouth, by the Department of Housing and Urban Dev.

(4) Tremonton water system, by the Farmers Home Administration and the Four Corners Regional Commission.

The following federal agencies were also contacted to ascertain if they were planning any major actions in the Bear River Valley: U.S. Department of Interior (Bureau of Land Management, Fish and Wildlife Service, Geologic Survey, National Park Service); U.S. Department of Agriculture (Forest Service, Soil Conservation Service); U.S. Department of Commerce; U.S. Department of Health, Education and Welfare; U.S. Department of Housing and Urban Development; Environmental Protection Agency; Federal Energy Administration; and the Interstate Commerce Commission.

Each of the above agencies was made aware of the proposed I-15 segment through the Bear River Valley and, should any new actions be proposed, they are to be coordinated with the Federal Highway Administration actions.
At the time of the circulation of the draft environmental statement (March, 1976), all feasible alternatives were open for consideration in the varying degrees expressed. After receipt of comments made at the public hearing, the Utah Transportation Commission selected the West Alternate (A) referred to, throughout this document, as the proposal.
ALTERNATIVES

From a conceptual point of view, the alternatives to proceeding with the proposed action fall into the following categories:

1. Utilizing the existing US-191 alignment and right-of-way for the interstate alignment;
2. Selecting an alternate alignment within the Bear River Valley;
3. Choosing an alternate corridor;
4. Exploiting a major route location extending into Idaho;
5. Constructing an alternate type of highway to less than interstate standards;
6. Developing transportation concepts involving alternate modes of travel;
7. Doing nothing: maintaining the status quo;
8. Postponing action for an indefinite period of time.

US-191 Alignment

Using the existing US-191 alignment for placement of the 4-lane interstate, though potentially feasible, would involve displacing many residence and commercial buildings. The existing average right-of-way width of US-191 is approximately 90 feet (27 m) in the portion from I-15 (Elwood) to Haw's Corner, widening somewhat to 100 feet (30 m) from Haw's Corner to the Malad River and then increasing to 153 feet (46 m) from the river to Plymouth. Present design criteria for the interstate requires additional right-of-way width as well as supplemental lands for placement of a frontage road alongside the freeway. As indicated below, between 45 to 88 buildings would be displaced depending on which side (east or west) of the existing road the lands would be taken.

<table>
<thead>
<tr>
<th>Side</th>
<th>Businesses</th>
<th>Family Homes</th>
<th>Churches</th>
<th>Other (Barns, Sheds, Utilities, etc.)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Side</td>
<td>7</td>
<td>31</td>
<td>1</td>
<td>6</td>
<td>45</td>
</tr>
<tr>
<td>East Side</td>
<td>9</td>
<td>63</td>
<td>1</td>
<td>15</td>
<td>88</td>
</tr>
</tbody>
</table>

Many obstacles, such as telephone and power transmission lines, as well as established trees would have to be removed or relocated. Grade separation structures would be numerous (9 or more) in order to allow east-west movement on the many roads which criss-cross the valley and provide access to adjacent properties.

Although the total amount of new acreage required for the freeway right-of-way using the existing US-191 facility is less than the proposal found on the west side of the valley, costs for relocating residences and commercial establishments would be great. Adding to the costs are the removal of obstacles and the requirements of many structures on the alignment. Total costs may be similar to the interstate proposal situated on the west side of the valley but would involve disrupting many people located along existing US-191.

COMMENTS ON THE DRAFT STATEMENT BY U.S. DEPARTMENT OF THE INTERIOR

It is noted that no consideration was given to use of the US-191 right-of-way as an alternative. Although this possibility would place a great amount of inconvenience to all motorists utilizing the existing highway during construction, the overall environmental impact may be much less in the long term.

A discussion of the US-191 alignment has been included in this final statement.
Alternate Bear River Valley Alignments

West "B" Alternate

Situated 3/4 of a mile east of the proposed alignment and adjacent to the city of Tremonton, the "B" Alternate would parallel the proposal for 5 miles before joining into a common corridor. Total distance would be 14.8 miles (23.6 km), three-tenths of a mile longer than the proposed alignment and would require 10 more acres of right-of-way or about 540 acres (216 ha). This alternate would cause the least impact, second only to the proposal, to the agricultural lands of the valley but would cause some community dislocations as well as some noise impact to residents of Tremonton.

Center Alternate

Interstate 15, southeast of Tremonton, would be the southern terminus of the Center Alternate which heads north between the Malad and Bear River flood plains and swings westward around the south of Plymouth just before connecting with the northern terminus. Approximate length would be a little under 17 miles (27 km). Various modifications of the conceptual alignment for the Center Alternate carry a "C" designation.

The Center Alternate would traverse some of the prime agricultural land in the valley (requiring the largest amount of farmland to be converted to right-of-way of any of the alternates), but it has the advantage of being most proximate to the activity centers and would find greatest use by the residents of the Bear River Valley.

PF Alternate

By combining the southern portion of the Center Alternate and the northern portion of the proposal (with a diagonal link connecting the two), the "PF" idea attempted to utilize certain merits of both the central and western portions of the valley. However, the alternate would consume almost as much prime farmlands as the Center Alternate.

East Alternates "D" and "E"

Having the greatest length (20-24 miles/32-38 km), the East Alternates would begin at the proximity of Honeyville at I-15/I-80W. These alternates also head north with the shorter ("D" Alternate) bypassing Honeyville on the west and the longer ("E" Alternate) bypassing Honeyville on the east. These alternates join together and bypass Deweyville on the east, swing westward somewhat southeast of Fielding and from there follow essentially the same alignment as the Center Alternate to the northern terminus, just north of Plymouth.

By choosing a path along the foothills on the east side of the valley, the through travelers would benefit at the expense of the local community. Cost for construction, however, would be considerably more than a west or center alignment and, insofar as the farther east of the two southerly connections ("E") is concerned, it would only be considered should all other concepts be unfeasible or unacceptable since it ("E") traverses a segment of 4(f) lands (Cache National Forest). A "4(f) Statement" is not included with this statement and the "E" segment is included primarily for comparison purposes.
ALTERNATIVES

Alternate Corridors

Several alternate and parallel valley corridors, east and west of Bear River Valley, could link the I-15 segments, although it would involve extra mileage for the travelers.

Alternate Corridors West of Bear River Valley

An alternative to connecting the I-15 segment through the Bear River Valley (the shortest distance) would be for northbound motorists to travel west on I-80N from Tremonton whence they would have a choice of four different canyons as alternate corridors to reconnect with I-15. (Southbound vehicles, of course, would traverse the same route in the opposite direction.) Additional trip distance could be as short as nine or as long as sixteen miles (14-26 km) out-of-the-way for the traveler. Problems encountered with any one of these westerly corridors would include narrow canyons, steep gradients, heavy and costly construction plus impact on, or elimination of, a number of natural streams. At the eastern mouth of Portage Canyon there is a cemetery that would probably be impacted by a freeway through the canyon.

The combination of additional construction cost, additional travel distance, ecological damage and the moving of the Interstate away from the principal activity centers and economic generators tended to discourage further investigation into the feasibility of using an alternate corridor to the west of the Bear River Valley.

Alternate Corridors East of the Wellsville Mountains

One conceivable alternate east of the Bear River Valley would be for northbound I-15 traffic to use the canyons east of Brigham City (Box Elder-Wellsville), skirt the east side of the Wellsville Mountains northward, veer west and join the East Alternate alignment near Fielding. An additional 14 miles (23 km) would be imposed upon the through-traveler with such a routing.

If a roundabout corridor were to be desired, Cache Valley planners may be willing to consider bringing this leg of the Interstate closer to Logan as shown in the blue line on the map. However, an easterly-oriented routing around Bear River Valley would not only inconvenience I-15 through traffic by adding twenty-five additional miles (40 km) to the Interstate System but the crossing of Cutler Reservoir looms as a potential major problem. Severe impact on the biota of canyons traversed would be a certainty. The above-mentioned factors discouraged any further consideration.
Numbers in red and blue indicate additional mileage required of the through traveler on each corresponding routing. Those in black are the corresponding highway segment lengths.
Alternatives

Alternate Corridors

Several alternate corridors extending into Idaho, bypassing the recently completed section of I-15 Idaho Line to Plymouth, are conceivable and were discussed in the Draft EIS in both Idaho and Utah. Economically, these alternatives are not feasible since they necessitate abandoning already completed portions of I-15 in both Idaho and Utah.

Since no interest was shown toward these major route relocation ideas subsequent to the circulation of the Draft EIS, no further discussion will be made of these alternates.
Alternate Type of Facility

Physical and geometric structure of US-191 through the Bear River Valley may possibly lend itself to modification to less than Interstate Standards, enabling adequate and efficient traffic flow for the quantity and type of vehicles that are expected in the future. Some design suggestions to achieve the above could include the two concepts below:

(1) Construction of another two-lane facility adjacent to the present US-191 or expansion of the existing two-lane road into a four-lane highway. Expressway rather than freeway standards would be used, and few, if any, frontage roads would be added. Limited access and cross-traffic would be permitted and signal lights could be installed at logical points. A right-of-way between 150' to 200' would be required. Many of the same obstacles and approximately the same amount of buildings as the construction of the interstate on the US-191 right-of-way would be encountered and removed. Community impacts would still be considerable. As compared with the proposed interstate facility, total costs of the expressway would be slightly less, with the estimated expenditure at upwards of $17 million.

(2) Construction of a third lane for US-191, identified so that passing zones would alternate every several miles. Very little additional right-of-way would be needed and costs would be minimal, amounting to about $6 million. Community disruptions would be slight.

Alternate Modes

Locally, a different type of mode would not serve the purpose of the Interstate System of highways. Conflicts and corresponding delays at the interfaces between modes would be sure. Turning attention to very long-distance travelers, there is the possibility of using airplanes, railroad trains and buses, each being feasible to varying degrees. Most likely of the three modes to complement the Interstate System would be greater use of buses but then, since they use highways, buses cannot, in all reality, be considered an alternate mode.

Postponing Action

No evident ecological consequence would result from postponing the action. On the other hand, safety on the existing facility, while not a problem of severe dimension, has already been shown to be a reason for following through with a 4-lane divided controlled access highway. The most serious environmental problem which would come about from postponing action (a problem involving the human environment) is that local businesses and residents involved had been (prior to the UDOT Commission’s recent selection of the proposal) "in limbo", not being free to dispose of or to purchase properties because of disagreeing speculations about which alternative action would be chosen. It is to the local residents' great interest, therefore, that there be no further postponing of action since there would be many disagreeable socio-economic consequences.

Status Quo

Leaving the Bear River link of I-15 unbuilt would mean simply "do nothing" (except for continued maintenance of US-191). The normal traffic increase along US-191 (projected through the year 2000) indicates that, with no improvements, the traffic would not exceed a "comfortable" level of service (see pages 8 and 9). However, the increasing traffic flow would create increased hazardous conditions along this rural two-lane highway which has a present legal speed limit of 55 miles per hour. High speed traffic would encounter slow-moving agricultural equipment and other local traffic, including stray livestock from some of the adjacent fields. There would also be increasing delays at Haws Corner (a four-way stop on US-191) east of Tremonton, at the intersection with old US-30S, also known as the "Cross roads". Unless the act by Congress (23 U.S.C. 109(b)) which created the goal of a complete Interstate System is modified, "Status Quo" is unacceptable as an alternative to the proposed action.

Selection of the Proposal

The graphic summary of probable impacts, which appears on the next four pages, was designed to represent as concisely as possible a comparison of the environmental impacts of the various alternate alignments within the Bear River Valley, (as described on page 47). This summary was printed in the Draft Statement and an enlarged version was displayed at the public hearing. Depicting the information in this abbreviated form enabled the reviewers and decision makers to understand the problems presented by each alternate alignment and the ecological trade-offs involved in each possible selection.
## ALTERNATIVES

<table>
<thead>
<tr>
<th>ALTERNATE</th>
<th>Relation to Communities</th>
<th>Dislocating Businesses</th>
<th>INDIRECT IMPACTS</th>
<th>Freeway Access</th>
<th>Multiple Use</th>
<th>NATURAL Commitment of Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROPOSAL (WEST A)</td>
<td>Bypassing of valley communities</td>
<td>Dislocating of highway service businesses</td>
<td>Encouragement to natural growth patterns</td>
<td>Providing attractive freeway access to Tremonton-Garland</td>
<td></td>
<td>Irretrievable commitment of 940,000 tons of natural resources and 530 acres of land</td>
</tr>
<tr>
<td>WEST (B)</td>
<td>Bypassing of valley communities</td>
<td>Dislocating of highway service businesses</td>
<td>Limitations to natural growth patterns</td>
<td>Providing attractive freeway access to Tremonton-Garland</td>
<td></td>
<td>Irretrievable commitment of 940,000 tons of natural resources and 530 acres of land</td>
</tr>
<tr>
<td>CENTER and WEST (PF)</td>
<td>Bypassing of northern valley communities</td>
<td>Dislocating of highway service businesses</td>
<td>Permitting natural growth patterns</td>
<td>Providing convenient and attractive freeway access to and from Tremonton-Garland</td>
<td></td>
<td>Irretrievable commitment of 1,100,000 tons of natural resources and 600 acres of land</td>
</tr>
<tr>
<td>CENTER (C)</td>
<td>Bypassing of highway service businesses</td>
<td>Dislocating of highway service businesses</td>
<td>Permitting natural growth patterns</td>
<td>Providing convenient freeway access to and from Tremonton-Garland</td>
<td></td>
<td>Irretrievable commitment of 1,100,000 tons of natural resources and 600 acres of land</td>
</tr>
<tr>
<td>CENTER (Using Malad Strath as Median)</td>
<td>Dislocating of highway service businesses</td>
<td>Dislocating of highway service businesses</td>
<td>Permitting natural growth patterns</td>
<td>Providing convenient freeway access to and from Tremonton-Garland</td>
<td>Opportunities available for multiple joint development</td>
<td>Irretrievable commitment of 1,100,000 tons of natural resources and 600 acres of land</td>
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<td>EAST (D)</td>
<td>Bypassing of valley communities</td>
<td>Dislocating of highway service businesses</td>
<td>Undetermined affect on growth patterns</td>
<td>Limits freeway access to and from Tremonton-Garland</td>
<td></td>
<td>Irretrievable commitment of 1,300,000 tons of natural resources and 700 acres of land</td>
</tr>
<tr>
<td>EAST (E)</td>
<td>Bypassing of valley communities</td>
<td>Dislocating of highway service businesses</td>
<td>Undetermined affect on growth patterns</td>
<td>Limits freeway access to and from Tremonton-Garland</td>
<td></td>
<td>Irretrievable commitment of 1,600,000 tons of natural resources and 890 acres of land</td>
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<tr>
<td>ECOLOGICAL AND SCENIC RESOURCE IMPACTS</td>
<td>Bear River Valley - 53</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>--------------------------------------</td>
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<tr>
<td><strong>ECOLOGICAL AND SCENIC RESOURCE IMPACTS</strong></td>
<td><strong>Bear River Valley - 53</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Energy Consumption</td>
<td>Loss of Farmland</td>
<td>Weeds &amp; deer habitat</td>
<td>Pheasant Habitat</td>
<td>Reptiles</td>
<td>Scenic Quality</td>
<td></td>
</tr>
<tr>
<td>Net energy loss of 80 billion BTUs</td>
<td>Taking some dry farmland out of production</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net energy loss of 90 billion BTUs</td>
<td>Taking some dry and some irrigated farmland out of production</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net energy loss of 110 billion BTUs</td>
<td>Taking some dry and considerable irrigated farmland out of production</td>
<td>Anticipated invasion of agricultural lands by noxious weeds and insect pests</td>
<td>Loss of pheasant habitat; significant reduction of pheasant population</td>
<td></td>
<td>Provision of both panoramic vistas and intimate settings for road users</td>
<td></td>
</tr>
<tr>
<td>Net energy loss of 110 billion BTUs</td>
<td>Taking considerable irrigated farmland out of production</td>
<td>Anticipated invasion of agricultural lands by noxious weeds and insect pests</td>
<td>Loss of pheasant and waterfowl habitat; significant reduction of pheasant population</td>
<td></td>
<td>Setting a scene for road users of intimacy with the surroundings</td>
<td></td>
</tr>
<tr>
<td>Net energy loss of 110 billion BTUs</td>
<td>Taking considerable irrigated farmland out of production</td>
<td>Anticipated invasion of agricultural lands by noxious weeds and insect pests</td>
<td>Loss of pheasant and waterfowl habitat; significant reduction of pheasant population</td>
<td></td>
<td>Setting a scene for road users of intimacy with the surroundings</td>
<td></td>
</tr>
<tr>
<td>Net energy loss of 150 billion BTUs</td>
<td>Taking considerable farmland and range out of production</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net energy loss of 210 billion BTUs</td>
<td>Taking some farmland and wetlands and considerable range out of production</td>
<td>Removing of deer winter range and infringement on Bighorn Sheep herd</td>
<td>Loss of some waterfowl and pheasant habitat</td>
<td></td>
<td>Provision of panoramic vistas for road users</td>
<td></td>
</tr>
</tbody>
</table>

Shading Key:
- **Generally Favorable Impacts in Green**
- **Moderately Unfavorable Impacts in Tan**
- **Unavoidable and/or Severe Impacts in Red**
- **Unshaded Blocks Indicate No Essential or Important Impacts**

Continued on the following page
# Alternatives

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Relocation</th>
<th>Social</th>
<th>Air Quality</th>
<th>Noise</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proposal (West A)</strong></td>
<td>Low impact (unless the airport becomes involved)</td>
<td>Strong community support</td>
<td>No impact</td>
<td>Removal of major truck noise from US-191 receptors</td>
<td>Minor siltation potential during construction</td>
</tr>
<tr>
<td><strong>West (B)</strong></td>
<td>Moderate impact</td>
<td>Strong community support</td>
<td>No impact</td>
<td>Noticeable noise increase for western Tremonton residents</td>
<td>Some siltation potential during construction</td>
</tr>
<tr>
<td><strong>Center and West (PF)</strong></td>
<td>Low to moderate impact</td>
<td>Moderate community support</td>
<td>No impact</td>
<td></td>
<td>Moderate siltation potential during construction</td>
</tr>
<tr>
<td><strong>Center (C)</strong></td>
<td>Moderate impact</td>
<td>Moderate community support</td>
<td>No impact</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Center (Using Malad Strath as Median)</strong></td>
<td>Moderate impact</td>
<td>Moderate community support</td>
<td>No impact</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>East (D)</strong></td>
<td>Low impact</td>
<td>Little community support</td>
<td>No impact</td>
<td>Transfer of truck noise from US-191 to Deweyville</td>
<td>Temporary siltation potential</td>
</tr>
<tr>
<td><strong>East (E)</strong></td>
<td>Low impact</td>
<td>Little community support</td>
<td>No impact</td>
<td>Transfer of truck noise from US-191 to Deweyville - Honeyville</td>
<td>Temporary siltation potential</td>
</tr>
<tr>
<td>QUALITY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ground Water</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetlands</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Stream Modification</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Flood Hazard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction Impacts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Possible increase in salt and chemical contamination - Malad River**

- **Possible increase in salt and chemical contamination - Malad River**
  - Modification of soil moisture characteristics
  - 600 ft.
  - None
  - Railroad service; local traffic flow; erosion; sidehill scarring; dust; wildlife

**Possible increase in salt and chemical contamination - Malad River**

- **Possible increase in salt and chemical contamination - Malad River**
  - Modification of soil moisture characteristics
  - 900 ft.
  - None
  - Railroad service; local traffic flow; erosion; sidehill scarring; dust; wildlife; noise

**Possible increase in salt and chemical contamination - Malad River**

- **Possible increase in salt and chemical contamination - Malad River**
  - Modification of soil moisture characteristics
  - 100 ft.
  - None
  - Local traffic flow; dust; wildlife; noise

**Possible increase in salt and chemical contamination - Malad River**

- **Possible increase in salt and chemical contamination - Malad River**
  - Modification of soil moisture characteristics
  - 2000 ft.
  - None
  - Local traffic flow; dust; wildlife; noise

**Possible increase in salt and chemical contamination - Bear River**

- **Possible increase in salt and chemical contamination - Bear River**
  - Changes in drainage patterns
  - 100 ft.
  - None
  - Railroad service; local traffic flow; erosion; sidehill scarring; dust; wildlife; noise

**Possible increase in salt and chemical contamination - Bear River**

- **Possible increase in salt and chemical contamination - Bear River**
  - Changes in drainage patterns
  - Moderate localized impact
  - 100 ft.
  - None
  - Railroad service; local traffic flow; erosion; sidehill scarring; dust; wildlife; noise

---

**SHADING KEY**

- Generally Favorable Impacts in Green
- Moderately Unfavorable Impacts in Tan
- Unavoidable and/or Severe Impacts in Red
- Unshaded Blocks Indicate No Essential or Important Impacts
PROBABLE IMPACT OF THE PROPOSED ACTION

Both indirect and direct impacts which the proposed project would impose on the environment are discussed on the following pages. Assessments were made by the members of the interdiscipline team, analyzed by the appropriate task forces and then reviewed by the entire team. Principal subsections are as follows:

SECONDARY ACTIONS
NATURAL, ECOLOGICAL AND SCENIC RESOURCES
RELOCATION ASPECTS
SOCIAL
AIR QUALITY
NOISE
WATER QUALITY
WETLANDS
STREAM MODIFICATION
FLOOD HAZARD
CONSTRUCTION

Proposed measures to minimize harm are found after discussion of the probable environmental impacts.
PROBABLE IMPACT OF THE PROPOSED ACTION (Indirect)

SECONDARY ACTIONS

Preliminary Anxiety

Indirect consequences of undertaking the proposal outlined under DESCRIPTION could be of an important magnitude, possibly of a greater magnitude than the direct consequences when considering the agricultural component of the economy. Community as well as regional levels of impact would be evident. In fact, already, even before the first shovelful of dirt has been moved, the uncertainties of implementation ("when", "where" and "if") are causing community disruptions. The extremely long gestation period in getting the project underway has created anxiety on the part of local residents and business interests - particularly those along and near US-191.

In a paper delivered at a conference held in October, 1969 by the Highway Research Board, Anthony Downs of the Chicago-based Real Estate Research Corporation declared:

... The mere announcement that an area is being considered for a new highway or urban renewal project has a great impact on life and investment in the area to be affected. It causes a substantial degree of uncertainty of the future of the area and reduces the willingness of other people to invest there because they are not sure what property is going to be taken and what the effect will be on the remaining community. Likewise, owners are unwilling to spend necessary money to provide adequate maintenance and repairs because they think that their buildings are going to be torn down. This uncertainty as to the future of the individual property and the community often results in a decline in property values even before there is actual acquisition of property for the improvement. Thus, the announcement of the planning of a new transportation facility or urban renewal project causes an investment and maintenance gap while people wait to find out what is going to happen to the community.

During this time when people are forced to sell their property before the government is willing to buy it, buyers are frequently difficult to find, and if one is found he may discount future uncertainties in terms of lower market value for the property. In turn, when the government is ready to purchase property for the renewal project. comparable sales values in the area indicate a much lower market value and therefore all property owners may be adversely affected.

The opposite effect can occur if the improvement is expected to raise the general market value of property within the area affected. In this situation announcement of the improvement triggers land speculation and forces up the value of property within the vicinity with the effect that a new price level is established at which the government must acquire the land.

The actual process of displacement imposes costs on the owners and renters for moving and adjusting to new environments.

Residents of the Bear River Valley from Elwood to Plymouth might be able to capitalize on higher real estate values, but the attendant uncertainties make for necessary changes in their life-style. Mr. Downs goes on to state:

Under the 1968 Federal-Aid Highway Act, allowances are made for relocation costs for owners and renters of property taken for the improvement. However, the Act ignores certain costs for compensation that are really true costs of the improvement, such as the loss of equity built up by a contract buyer if title reverts to the seller because sufficient equity has not been paid on the property...

Since 1968, several items not specifically cited in the Act have been ironed out and are further elaborated on under the subsection on relocation.

Business Activity

When Interstate 15 is connected between I-80N and Plymouth, the effect on the local business community would be much like a bypass. What then could be the indirect consequences?

In a study prepared by the Utah State University College of Business and Science on ECONOMIC AND SOCIAL EFFECTS OF A HIGHWAY BYPASS - American Fork, Utah, effects which would normally be expected as well as a few somewhat surprising observations were cited concerning... the economic impact on a small (7,000 population) community as a result of traffic diversion to a newly constructed segment of the Interstate System of Highways. The by-passed community, American Fork, Utah, is situated some 30 miles south of Salt Lake City. Prior to the by-pass, it was located on the principal north-south traffic artery of the State.
A number of similarities between the subject project and the study are readily noted:

(1) Small community;
(2) Major north-south traffic artery;
(3) Involvement of Interstate 15;
(4) Anticipated traffic diversion;
(5) Some 30 miles from an important urban center.

A "mixed-bag" of consequences resulting from the American Fork bypass was discovered. For instance:

The one segment of the business community that appears to have been strongly adversely affected by the by-pass is retail gasoline sales. In this category, the number of service stations declined, and the volume of sales per outlet remained almost stationary compared with a very substantial increase in the county at large. Also, sales of eating and drinking establishments, while never vital in American Fork, declined further after the through highway was opened to traffic.

From the evidence at hand, it must be concluded that these highway oriented businesses were definitely adversely affected. The motel business in American Fork was quite inconsequential prior to the by-pass; hence, there was slight room for any further deterioration in this business category.

While overall employment in the community was relatively untouched:

... there is no definitive evidence, that the interstate has either contributed to or adversely affected employment. ...
PROBABLE IMPACT OF THE PROPOSED ACTION (Indirect)

Visitors

The Bear River Valley may lose some of the tourist business it now attracts from US-191 (as implied from the studies cited above), when I-15 is completed, since it will no longer be as convenient to leave the highway to take advantage of the eating and fuel facilities that are available to travellers now. Logically, travellers on I-15 will refuel and eat at Pocatello and then travel the 166 miles to Salt Lake City without intermediate stops. The business community seems to hold the opinion that only with convenient access will there be any future for tourist-oriented business in Tremonton.

<table>
<thead>
<tr>
<th>CITIES AND THEIR DISTANCES NORTH OF TREMONTON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idaho Falls, Idaho</td>
</tr>
<tr>
<td>Pocatello, Idaho</td>
</tr>
<tr>
<td>Twin Falls, Idaho</td>
</tr>
<tr>
<td>Boise, Idaho</td>
</tr>
<tr>
<td>Burley, Idaho</td>
</tr>
<tr>
<td>West Yellowstone, Montana</td>
</tr>
<tr>
<td>Butte, Montana</td>
</tr>
</tbody>
</table>

What actually happens in many cases (according to the National Cooperative Highway Research Program, Report 18 - Community Consequences of Highway Improvement), and reinforcing what was said before, the optimism of the townspeople and business interests is not rewarded; instead they are disappointed and disillusioned. For even if there are convenient exits and entrances, tourists tend to bypass small towns for larger cities or more important tourist destinations, and projected tourist trade just does not materialize.

According to the Utah State University Committee Report on Interstate Highway Location, if the right frame of mind can be established in the tourists approaching from outside the valley, they could be enticed to stop in Tremonton where they can satisfy their needs for food, lodging and fuel.

The proposed highway would have southbound travelers approach from the hillside on the west, allowing them to obtain a long perspective view of the valley, giving them a feeling of orientation and making less likely the chance of starting off in the wrong direction after a pause in their journey. Coming from the south, travelers, on realizing the long jump to the next major centers to the north and west, may consider stopping for refreshment and refueling. Eastbound travelers will find the valley a pleasant vista and an inviting place to stop.

Farms and Homes

Some land currently in crop production will be converted to residential use as the growth projected for the valley and for Thiokol transpires. The location of future residential developments would be expected to be restrained by the limits of the freeway. Inasmuch as these impacts are more of a direct than indirect nature, fuller discussion of both topics is contained later on in this document.

In June of 1974 the citizens of Tremonton played host to a distinguished guest. (Photo courtesy of the Deseret News)
Taxes

Many persons have brought up the issue of tax loss (to the community) as a consequence of property taken for Interstate highway construction because the right-of-way requirements are so much greater than for a two lane road. Typical local reaction has been exemplified in a comment made at the May 12, 1970 Public Hearing at Tremonton by businessman and former County Commissioner Charles J. Wood:

I am concerned about this 300 feet of road that is being taken out of the most expensive ground in Box Elder County, taken off the tax roll.

However, several studies made nearly two decades ago, show that there could be a net gain in the community tax base through conversion of land adjacent to and near the freeway from agricultural to industrial, commercial or residential uses. FORTUNE (Robert Lubar, Interchange Ahead, October, 1958) and Michigan State University of Agriculture and Applied Science (Moore and Barlowe, Agricultural Experiment Station Bulletin 253, 1955) both imply that while losing some accessible land, with the higher use and resulting higher taxation of the remaining land, the community actually has a higher tax income after the highway goes through. More recent studies have tended to uphold this viewpoint.

Long Range Outlook

Whatever indirect or secondary impacts that are likely to occur, it is certain that they will be in effect for a considerable period of time. Most of the significant ones (such as those which relate to agriculture) are developed to a greater extent further on under the heading LONG TERM CONSEQUENCES vs. SHORT TERM IMPACTS.
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

NATURAL, ECOLOGICAL AND SCENIC RESOURCES

Bear River Valley resources would, in varying ways, be on the receiving end of effects resulting from construction of a new freeway. To a lesser extent, the greatest burden will be placed on those ecological and agricultural resources which highway pavement and right-of-way would commit sacrilege upon.

Natural

Some of the more prominent natural features and resources which will be impacted include soils (as described on pages 30-35) including corresponding land uses; aesthetics; and energy.

Impact on soils would include both the extraction for road-building materials (quantified to an extent under the heading of IRRETRIEVABLE COMMITMENTS) and the use of 530 acres (212 ha) of land for right-of-way. Aesthetics was touched-on briefly, on pages 38 and 39 and would more properly fit under scenic resources, while the energy issue finds itself right in the middle of a tradeoff: Are the anticipated four billion BTU's from the 36,000 gallons of gasoline to be saved each year worth the expenditure of an estimated 180 billion BTU's for construction of the segment? Evidently not. Considering that the expected life-span of the Interstate (before major reconstruction becomes necessary) may be only 25 years, a reasonable case cannot be made (in the cause of conservation of energy) for implementation of the proposal.

Preliminary geologic reconnaissance of the valley was conducted in 1971 by the Materials and Tests Division of the (then) Utah State Department of Highways. As indicated on page 35, seismic risk is high with recent earthquakes registering 6.1 to 7.1 on the Richter scale. Consequently, all structure designs would take this factor into consideration.

Ecological

In the biologic realm, two "ologies" are involved: vegetation and wildlife, with the latter broken down further into subcategories of mammals, birds, fish, amphibians and reptiles. Unlike the natural features, the biologic elements are highly sensitive to where a freeway will actually go. Hence, the following analysis offers comparisons as to how the proposal will react on the basic ecology it traverses.

Vegetation

As in many parts of Utah, existing vegetation within the Bear River Valley often reflects the extent of man's influence on the environment. Present dominant plant forms in the valley can be categorized as (1) Agricultural (irrigated and dry farm); (2) Riverbottom; (3) Rangeland; and (4) Wetland. These forms represent about 65%, 10%, 20% and 5%, respectively, of the total acreage in the valley.

Very little of the original plant life is now to be found in the agricultural land except close-by paved roadways, ditch banks and fence lines. Irrigated crops which include sugarbeets, sweet corn, wheat, alfalfa, barley and silage corn represent about 57% of the cultivated lands with the remaining 43% planted in the dry farm crops such as wheat, alfalfa and hay-grass. (Wheat and alfalfa are grown both on irrigated and dry lands with a greater yield per acre on the irrigated lands.)

Within the flood plain, the riverbottom consists of trees (willow, cottonwood and elderberry), thick shrubs (sawbush, sagebrush, Oregon grape, rabbit brush), grasses (sedge, cheatgrass, crested wheat, bunchgrass) and marshland plants (cattail, tules, bulrush, etc.). Thick vegetation predominates in many locales with moderate to heavy livestock grazing occurring throughout the bottomlands.

Rangelands (uncultivated), common on the slopes of the valley, are dominated by sagebrush, cheatgrass, annual grasses, forbs and shrubs. Here plant life reflects the abusive use in the form of years of overgrazing, with the range quality being typically poor.

Found along sections of the riverbottom and on the southeastern portion of the valley mouth, wetlands are dominated by low-growing plants such as grasses, sedges, some salt grass, bulrushes and cattails. During much of the year extensive grazing takes place with moderate use by waterfowl occurring throughout the year.
Rangelands are dominated by sagebrush and cheatgrass.

Marshland plants (cattail, tules, bulrush).

Riverbottom vegetation consists of trees, thick shrubs, grasses and marsh plants.
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

Plant life within a 300-foot right-of-way will be directly impacted by the elimination of existing plants. Some prime agricultural lands would be lost for future production. Direct impact on non-agricultural plant types will be insignificant when compared with agricultural plant life impact.

After grading of the freeway right-of-way, the vegetation-type of impacted plant communities is expected to change and be dominated by introduced grasses and weedy-type plants, a change which will occur in one to two growing seasons and be similar in nature throughout the right-of-way. Secondary consequences would be the continuing problem of noxious weeds and insect pests (commonly associated with these weeds) invading agricultural lands from the right-of-way. Besides reduced agricultural production, increased control measures and their subsequent costs would be necessary as adjacent farmers and maintenance personnel of the Department of Transportation attempt to control the weeds and pests. In addition, contaminated runoff containing de-icing salts and herbicides extending into adjacent lands (up to 200 feet away from the right-of-way) will cause a slight-to-severe localized decrease in plant production. The degree of severity would be dependent on topography, concentration of salts and type of plant affected.

<table>
<thead>
<tr>
<th>Affected Plant Communities</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Subtotal</td>
<td>520</td>
</tr>
<tr>
<td>Irrigated (80)</td>
<td></td>
</tr>
<tr>
<td>Dry (245)</td>
<td></td>
</tr>
<tr>
<td>Range (325)</td>
<td></td>
</tr>
<tr>
<td>Wetland (175)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>520</td>
</tr>
</tbody>
</table>
Use of live traps permitted animals to be set free after identification.

WILDLIFE

In October, 1974 and again in August, 1975 Randall Isham of the Environmental Task Force supervised on-site inspection, observations and trapping of endemic wildlife in the Bear River Valley for the purpose of inventorying and assessing the expected consequences of proposed freeway construction.

Mammals

Both native and non-native animals found within the Bear River Valley tend to be situated in the noncultivated lands such as the range and riverbottom locales. On-site observations together with previous scientific studies indicate that about 50 mammalian species are found in the valley. Rodents are the dominant ones comprising 55% of the species as well as the most numerous valley animal type. Carnivores (11+ species) are scarce with the exception of skunks and foxes which tend to be abundant. Proportions of mammal species found in different valley habitats are as follows: 88% found in range lands, 70% found in riverbottom lands and 37% found in agricultural lands. Harvested mammals commonly found include the game animals: mule deer, two species of cottontail rabbit; and two fur bearers: beaver and muskrat.

Currently the valley is part of two deer management units of the State Division of Wildlife Resources: Herd Unit 1 (Box Elder, Promontory Mountains) and Unit 4 (Wellsville). Hunter utilization within these units (1970-76) averaged 7600 hunter days with a harvest of approximately 680 animals. Occurrence of deer within the valley is limited to the foothills and lower mountain slopes.
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

Deer Winter Range

PLYMOUTH

Bighorn Sheep are present in the Wellsville Mountains
during the winter in the adjacent mountains during the spring-to-fall plus a year-round small resident herd in the Bear River and Malad River flood plains. Hunting averages (1967 to 1975) for the 2 species of cottontail rabbits in Box Elder County totaled 15,500 hunter days and 33,100 harvested animals which is 15% and 18%, respectively, of the State totals. Available rabbit habitat in the valley is about 20% of the available Box Elder County habitat. Fur bearer harvest is approximately 1% of the total State harvest, from Utah State Division of Wildlife Resources: Utah Big Game Harvest 1971-76; Utah Upland Game Annual Report 1968-76; Utah Fur Bearers Harvest Report & Management Recommendations 1971-72 to 1975-76.

A unique and potentially harvestable mammal found in the Wellsville Mountains is the Bighorn Sheep. Transplanted eight years ago near Brigham City in a former Bighorn range, they are restricted to the higher sections of the mountains but have been occasionally seen in the foothills around Deweyville (outside of the project vicinity) during the winter.

With destruction and replacement of plant types within the right-of-way involved along the proposal, mammals will be initially displaced into adjacent locations. Gradual return of some species, mostly rodents, would occur with the re-establishment of plant cover. Other than a loss of habitat, impact to small mammals, including small game, will be insignificant.

Losses to the hunter (as estimated by the Utah State Division of Wildlife Resources, March 19, 1976 letter found on pages 203-208) includes the loss of 16 hunter days and 27 animals during the cottontail rabbit hunt.

As no major deer migrations across the valley occur, resident deer found in the riverbottoms will not be affected. Slight infringement on an historic winter range occurs near Plymouth at the northern terminus and would be of an insignificant nature to the deer due to the conversion of these lands to agricultural use, thus limiting deer utilization. No other deer range will be impacted.

**Birds**

Avian life within the Bear River Valley is quite varied and numerous, as evidenced by the approximately 185 species observed and reported in the literature. The majority of birds are located in lands with adequate water present (riverbottom and agricultural). Passerines (perching birds such as flycatchers, wrens and sparrows) represent more than half of the avian species of the valley and are commonly found in the wooded riverbottoms and sections of agricultural lands. Utilization by the existing avian life of the available major habitat includes 65% of the
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

species in the agricultural (and adjacent wooded) lands; 58% in the riverbottom locales; and 30% in the rangeland. Many wading and shore birds as well as other migratory birds, visitors as well as residents to the Bear River Refuge operated by the U. S. Fish and Wildlife Service, 18 miles (29 km) southwest of Tremonton, use the valley for feeding purposes. Valley game birds include waterfowl (23 species) and upland game (5 species).

Waterfowl, represented by ducks, swans and geese, many of which nest in the riverbottom and feed in the agricultural lands, are common in the valley. The valley serves as a resting and feeding point for many migrating waterfowl during the spring and fall migration.

Seven raptor species are known to be present in or adjacent to the valley. Several of raptors exploit the agricultural environs in their search of prey, primarily rodents.

Ringnecked pheasant, an abundant species for which the valley is much noted (during the fall hunting season), are found in the extensively agricultural and riverbottom plant communities as well as in lesser numbers in rangelands adjacent to farms. The valley, containing prime habitat, is one of the most important pheasant locations in Box Elder County as well as in the State. In the years 1965 to 1975, the County received 13% of the total State pheasant hunting pressure (10,500 hunters) and 17% of the total State harvest (40,000 birds). Quality of the hunt during the same years was listed as highest in the State - at 1.3 birds/hunter day. These factors plus the relative productivity make the pheasant the most important game animal of the valley. In the summer and fall months the birds commonly reside in the agricultural lands where they also are extensively hunted in the autumn. During the winter and spring months, the birds seek cover normally in tall and thick vegetation as commonly found in the riverbottoms.

Here too they nest and initially raise their broods. This cover is critical for the pheasant survival and is a limiting factor for population growth. A freeway alignment on the west side of the valley, as proposed, would be preferred to the other alternate alignments shown in the Draft EIS, because it only slightly impacts the river strath.

Other upland game include sage grouse, an uncommon valley bird found in the sagebrush community; the mourning dove, common throughout the valley; Hungarian partridge and chukar, commonly found in the sage-grassland slopes of the valley; and California quail, locally present in the riverbottoms. Populations of each vary in abundance with hunter utilization from moderate to sparse.

Bird life would be directly impacted by a loss of habitat taken by the right-of-way. The degree of impact will be proportional to the amount and type of acreage taken as shown on the preceding "Affected Plant Communities" chart. Passerines as well as other non-game birds will be displaced from the habitat existing within the right-of-way, especially in places dominated by woody plants as in the riverbottom and adjacent to the agricultural lands.

Valley raptors will be little affected by the project with the exception of reducing their prey's habitat (and their food supply) which could change the territoriality of some individual raptors.

Other upland game would receive a slight impact due to displacement from the existing habitat. The proposal will cause insignificant displacement of some localized Hungarian partridge and chukar populations. Lastly, the mourning dove population will receive slight displacement from within the existing habitat.
Annual effect of the freeway on the upland game can be translated into the slight loss of hunter use as was compiled by the Division of Wildlife Resources (March 19, 1976 letter found on pages 175-180).

**WILDLIFE VALUES (losses)**

<table>
<thead>
<tr>
<th>Birds</th>
<th>Hunter Days</th>
<th>Harvest Lost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pheasant</td>
<td>96</td>
<td>86</td>
</tr>
<tr>
<td>Mourning Dove</td>
<td>38</td>
<td>140</td>
</tr>
<tr>
<td>Hungarian Partridge</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Chukar Partridge</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Fish**

Both major waterways, the Bear River and Malad River (a tributary of the Bear River) within the valley possess fish life.

Bear River: The river, a warm water fishery, has been classified by the Utah Division of Wildlife Resources in 1970 as a Class 3 water (the type of waterway which supports the bulk of stream fishing pressure in Utah). Warm water fish such as black crappie, largemouth bass, green sunfish, walleye pike and channel catfish (probably the most sought after of the fish, many of which are caught over 10 lbs. in size) dominate the river.
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)
Malad River: Due to the high mineral content and other pollution factors, the river is Class 4 water (typically poor in quality and fishery value) possessing limited fishery which is restricted to the lower portion of the valley (Tremonton and below). North of Tremonton, the fishery is scarce or non-existent. Fish found in the river are similar to those found in the Bear River with the minnows (carp, chubs, dace and shiners) being most numerous and dominant over the others which are occasionally present.

The Plymouth crossing on the Malad River would involve the relocation of a meander loop of some 500 to 700 feet (150-210 m). During construction increased siltation may occur which could damage the limited habitat immediately below the crossing site causing the temporary movement of any fish which might be present downstream. Removal of vegetation at the crossing site could cause continued siltation until vegetation is replaced within about one growing season. At the river crossing, immediate bank stabilization (rip-rap and bank revegetation) is expected to limit additional occurrence of silt after construction and encourage a stable habitat should the water quality and habitat above the bridge site(s) significantly improve to support a fishery. In their March 19, 1976 letter, the Utah State Division of Wildlife Resources concluded similarly:

The Malad River is a class 4 stream with a limited channel catfish population in the lower five miles of stream. No other game fish have been established, due to water quality and temperature restraints. A single Malad River crossing above Udy Springs will not adversely affect the stream aquatic resource. Fish populations in that area consist of rough fish (Utah Chub, Utah Sucker) and are at their lowest abundance. Channel alignment for spanning, if required, will not create headcutting problems due to the slight gradients of the river. Non-direct impacts, such as snow removal, salting, and oil and gasoline spills discharged from interstate traffic, should not readily reach the river, adding to habitat deterioration.

As proposed, the freeway will not impact the Bear River.

Amphibians, Reptiles and Others

Species found here are typical of those present along the Wasatch Front. Amphibians, represented by 6 frog and toad species and one salamander, are common in the riverbottom and wetlands. Reptiles, 9 snake and 6 lizard species, are more commonly found to inhabit the range and riverbottoms than the agricultural lands.
Implementation of the proposal will cause more reptiles to be temporarily displaced than amphibians.

Even the insect population has evoked comment, for in October, 1971, the State Division of Health informed the (then) State Highway Department:

... one more point to... comments on environmental impact of the construction of a portion of Interstate Route 15 through Box Elder County.

We have noted some areas in the past where ponding of water in borrow pits has caused a difficult problem of mosquito breeding. It is essential that in all new construction drainage facilities are provided which will eliminate any possibility of ponding.

New procedures for restoring borrow pits have virtually eliminated the mosquito-breeding problem over the past two years.

Rare and Endangered Species

There are no known threatened or endangered species in the project area.

Utah State Division of Wildlife Resources, March 19, 1976 (page 178).
Scenic

With the selection of the proposed route along the hillside, a good opportunity exists to capitalize on the visual aspects of the project. As was stated in a joint publication of the Council on Environmental Quality; U.S. Department of Housing and Urban Development; and the U.S. Environmental Protection Agency titled The Costs of Sprawl (April, 1974):

It is necessary, in the process of development, to distinguish between the actual and perceived changes in visual impacts in an area. The changes in perceived visual character of an area are:

a. Loss of a sense of rurality, through development in existing agricultural or woodland areas.

b. Loss of sense of "place" through removal of historically significant features (old houses, farms, etc.).

c. Encroachment of ancillary urbanizing features such as widened and straightened highways, electrical transmission lines and substations, solid waste disposal sites, commercial facilities.

A simple measuring of the land use changes involved will not, however, give a true indication of the perceived changes, and it is what is actually seen that is most significant in visual terms.

Topographic relief and the character of tree cover are also critical factors in terms of visual impact.

Hilly country can offer opportunities for some concealment of construction between ridges, but is, on the other hand, more likely to contain long views and vistas which may more than offset such opportunities to lessen impacts of built-up areas. Heavily wooded areas can render individual structures at low densities almost invisible. Clustered groups can be interspersed by belts of trees which effectively cut down the expanse of views and, thus, the total visual impact.

The problem of quantification of visual and cultural factors is complicated by differences in individual attitudes on visual "quality", and is further affected by widely varying levels of design competence.

Another important factor of visual impact is time, which should not be overlooked in evaluating visual character. Communities change in appearance over time.

In support of the concept that selecting a highway alignment can be an improvement to the landscape, the following excerpt is cited from the Landscape Design Guide for Highways and Expressways published by California's County of Santa Clara:

The primary consideration in highway or expressway route selection is the safe and expeditious movement of people from one point to another. But social, economic, and environmental factors must be considered at the same time. The best solution is always one that resolves all of these problems.
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

RELOCATION ASPECTS

Inventory

With the selection of the proposed route along the west side of the valley, relocation problems have been minimized. As currently envisioned, no residences will be displaced. Only one service station will be relocated.

Automotive service station where the proposed highway would cross US-305.
Businesses and Farms

Since indirect impacts, as previously described, would have an important bearing on the future of automobile-related businesses, the dislocation and/or relocation of automotive service stations may actually be an asset to those businesses affected. Anticipated adverse impacts on farm properties go considerably beyond the actual individual relocations and are further discussed in the section LONG TERM CONSEQUENCES vs. SHORT TERM IMPACTS.

Tremonton Airport

A tertiary effect, possibly resulting from the construction of the proposed highway, could be Tremonton’s growth overrunning the existing airport. Such being the case, I-15 could very indirectly contribute to the relocation of the Tremonton Airport - and possibly the fairgrounds - as land succumbed to the highest price offered for its use.

In a September, 1974 communication from the (then) State Division of Aeronautics the statement was made: . . . relocation of the Tremonton Municipal Airport may be a possibility in the future . . . it would depend on many factors such as community response, site location, environmental impact statement, FAA approval, available funds at the federal, state and local level, and whether or not it conforms to the Statewide Airport System Plan.

COMMENT ON THE DRAFT STATEMENT BY FEDERAL AVIATION ADMINISTRATION

We have reviewed the draft report transmitted with your April 6, 1976, letter and offer no objection to any of the proposed alignments provided that the airport/highway clearances and coordination procedures referred to on page 72 are adhered to in the event either of the west alternatives is selected.

As far as the concerns expressed that west alternate A would permit expansion of the community to overrun the airport, we feel this is the community’s responsibility to protect the airport facility by zoning or other suitable land use controls, and will likely be required whether or not this route is developed.

(Information on page 72 of the draft is on page 76.)
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

Several restraining conditions will be imposed on I-15 geometries in order to comply with Federal-aid Highway Program Manual (FHPM) 6-1-1(2) Highway Improvements In The Vicinity of Airports. Several points in the FHPM need to be recognized, namely:

... coordination of airport and highway developments to insure (1) that airway-highway clearances are adequate for the safe movement of air and highway traffic, and (2) that the expenditure of public funds... is in the public interest.

... Federal funds shall not participate in projects where substandard clearances are created or will continue to exist.

Consequences

Very little adverse impact on the Bear River Valley communities is foreseen by anticipated relocations. Some long range consequences are alluded to in the section LONG TERM CONSEQUENCES vs. SHORT TERM IMPACTS, though not of a widespread or particularly hardship-imposing nature. Some farms, however, would be severely impacted as described under ADVERSE EFFECTS.
Relocation Assistance Program

On this and succeeding pages, a brochure describing the revised (June 1, 1977) relocation procedures of the Utah Department of Transportation is reproduced. Several minor modifications to the procedures, which were reproduced in FHWA-Ut-EIS-72-02-P, Final Environmental Statement, I-215 Interchange I-80 - Salt Lake City, have deemed it desirable to include the revised version herein.

This brochure describes the programs provided by the Utah Department of Transportation for assistance to those who are required to move because the property they now occupy, either as a tenant or owner, lies in the path of a Federal-aid highway project. These services are available to persons, businesses, farmers and non-profit organizations.

In an effort to provide effective, sincere assistance, the following programs have been formulated:

1. Relocation Assistance Program
2. Moving and Related Expense Payments
3. Replacement Housing Payments

This brochure is a general description of these programs, and describes among other things, the pre-requirements for determining one's eligibility for benefits and how these benefits may be obtained.

No persons, businesses, farmers or non-profit organizations will be required to move without at least 90 days written notice. Any individual or family who is required to move from real property occupied as a dwelling on land required for highway use, will not be required to move until notice has been made available or provided (built if necessary) which meets decent, safe, and sanitary requirements; is available to all persons regardless of race, color, religion, sex or national origin; is adequate for the needs of the individual or family, is within the financial means of the individual or family, and is reasonably accessible to place of employment, public services and other conveniences.

You may secure additional information or assistance from a representative of the Transportation Department by calling or telephoning the Property Management Unit, Utah Department of Transportation, Room 300 State Office Building, Salt Lake City, Utah, 84115, telephone 533-3591. A copy of State Regulations implementing the Relocation Assistance Program is available and may be obtained at the above office.

RELOCATION ASSISTANCE PROGRAM

1. What is the Relocation Assistance Program?
The Relocation Assistance Program is a service provided by the Utah Department of Transportation to give assistance to those who are required to move because the land they occupy, either as an owner or tenant, is required for highway use. Assistance may be in the form of services in locating replacement accommodations and/or reimbursement of expenses incurred in relocating. Listings are maintained of property being offered for sale or rent, and counsel is available on mortgages, code standards, home repair, and house moving.

Information is also available concerning help which may be given through social service agencies in the area and referral thereto are initiated, where advisable, as a part of the program.

Pre-requisites for determining one's eligibility for benefits and how these benefits may be obtained are outlined in this brochure.

2. Who is entitled to assistance?
Those who occupy land required for highway use as home owners, tenants, businesses, farm operators and non-profit organizations. Assistance is also extended to persons occupying property immediately adjacent to the real property acquired who substantial injury is caused due to the acquisition. Determination is made by the State.

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MOVING AND RELATED EXPENSE PAYMENTS

1. ELIGIBILITY

Any individual, family, business or farm operator is eligible to receive payment for the reasonable expense of moving his personal property when:

Initial Occupancy

a) he is in occupancy on the date the acquiring agency makes its first personal contact with the owner of the property to be acquired, or his representative, to give him a written offer for the property to be acquired;

b) he is in occupancy at the time he is given written notice by the State that it is their intent to acquire the property by a given date;

c) he moves from the real property after the earlier date of (a) or

(3) above;

d) the real property is acquired by the State;

e) if the move occurs after a written Order to Vacate is issued, the occupant is eligible even though the property is not acquired.

Subsequent Occupancy

f) any person who does not qualify as an initial occupant and who is in occupancy at the time the property is acquired and who subsequently moves from the real property is defined as a subsequent occupant.

Where the acquisition of real property used as an eligible business or farm operation causes a person to vacate a dwelling or other real property not acquired, the additional expenses of moving such property are eligible as moving payments.
State that the due date is not within 30 miles.

5. Storage
When an actual expense basis is used, and the State determines that it is necessary for a displaced person to store his personal property, the Utah Department of Transportation will pay storage charges for a reasonable time, not to exceed 12 months. Storage expenses are not covered when the personal property is stored in the acquired property or property owned by the displacement.

6. Variable
In hardship cases, arrangements may be made for payment of moving expenses in advance.

7. Personal and Reinstallation Expenses
The expenses of removal, reinstallation and re-establishment of occupants.

The costs of removal, reinstallation and re-establishment of occupants, and the expenses of the personal property and other items which are not acquired, including equipment, appliances and other items which do not constitute an improvement or substantial improvement, or the personal property are eligible for reimbursement. Such costs are not applicable to items classified by the State as real property and owned by the owner through the owner retention process. Prior to payment of any expenses for removal and reinstallation of such property, the owner and the State shall agree to writing that the property is being used by the State as real property and that no expenses will be reimbursed for any expense for the property as real property.

8. Reimbursement
When an owner retains his dwelling, the cost of moving it onto another property or replacement land is not reimbursable. However, the owner is eligible for reimbursement on a fixed schedule (from event) basis for personal property moved with the house including that located in the basement. As additional allowance will be reimbursable for storage of personal property.

9. Eligible and Ineligible Expenses
Payment of moving expenses is made for the reasonable moving costs to relocate personal property into replacement or other accommodations. Such expenses include the costs of dismantling, disconnecting, moving, loading, unloading, transporting, reassembling, and reinstalling of personal property including service charges in connection with affecting such reinstallation. Also included are the necessary, temporary storage costs of personal property, and temporary lodging and transportation of eligible persons.

The following expenses are considered ineligible for payment as "actual moving expenses."

a) additional expenses incurred because of living in a new location;

b) cost of moving structures, improvements or other real property in which the displaced person resides ownership;

c) improvements to the replacement site, except when required by law;

d) interest on loans to cover moving expenses;

ea) lost of goodwill;

f) loss of business and/or profits;

g) loss of trained employees;

h) personal injury.

10. Application and Claim Form Required
An application for reimbursement moving expenses should be completed prior to payment. The Department of Transportation will certify that the furniture or personal belongings to be moved are actually in place, and that the expense is incurred.

A claim form must be submitted in order to receive payment. The claim form must be submitted within 10 months after the completion date of the move from the property, or the date of acquisition of the property, whichever is later.

Informations, applications, and claim forms are available through the Reimbursement Office, 300 State Office Building, Salt Lake City, Utah.

11. Actual Reasonable Moving Expenses
The expenses of moving expenses are made for the reasonable moving costs on the basis of actual, reasonable moving expenses or a Moving Expense Schedule.

a) Commercial Move
A displaced individual or family may be paid the actual, reasonable cost of a move accomplished by a commercial mover. Such expenses will be supported by receipts.

b) Self-Drive
In the cost of self-drive, the displaced individual or family may be paid his actual moving costs, supported by receipts and absence of expenses incurred; but such payment may not exceed the estimated cost of moving commercially.

12. Transportation of Individuals and Families
The costs of transportation of individuals and families to the new location are the same as the salaries or reasonable cost of such services, as the cost of an ambulance to transport invalid displacements. The actual reasonable costs of salaries and lodging, when the State determines such costs are required, because of practical necessities, are also eligible. Generally, the cost of transportation for individuals and families shall be limited to expenses incurred in one (1) trip from the old location to the new location. All such costs must be supported by evidence of expenses incurred.

13. Payment to Individuals and Families
An eligible, displaced individual or family may receive a payment for moving his personal property, himself and his family.

14. Actual Reasonable Moving Expenses
The expenses of moving expenses are based on the basis of actual, reasonable moving expenses or a Moving Expense Schedule.

a) Commercial Move
A displaced individual or family may be paid the actual, reasonable cost of a move accomplished by a commercial mover. Such expenses will be supported by receipts.

b) Self-Drive
In the cost of self-drive, the displaced individual or family may be paid his actual moving costs, supported by receipts and absence of expenses incurred; but such payment may not exceed the estimated cost of moving commercially.

15. Transportation of Individuals and Families
The costs of transportation of individuals and families to the new location are the same as the salaries or reasonable cost of such services, as the cost of an ambulance to transport invalid displacements. The actual reasonable costs of salaries and lodging, when the State determines such costs are required, because of practical necessities, are also eligible. Generally, the cost of transportation for individuals and families shall be limited to expenses incurred in one (1) trip from the old location to the new location. All such costs must be supported by evidence of expenses incurred.

16. Expenditures for an Owner-Occupant or a Tenant With His Own Establishment
An eligible, displaced individual or family may receive a payment for moving personal property based on the number of rooms of furniture and personal belongings in the residence.

The Final Payment Schedule for an Owner-Occupant or a Tenant with His Own Establishment is as follows:

<table>
<thead>
<tr>
<th>Rooms</th>
<th>Maximum Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 room</td>
<td>87.00</td>
</tr>
<tr>
<td>2 rooms</td>
<td>115.00</td>
</tr>
<tr>
<td>3 rooms</td>
<td>165.00</td>
</tr>
<tr>
<td>4 rooms</td>
<td>225.00</td>
</tr>
<tr>
<td>5 rooms</td>
<td>300.00</td>
</tr>
</tbody>
</table>

If you select the Final Payment Schedule, you may receive a maximum payment of $200.00, regardless of the number of rooms.

17. Residences and Eligibility

- A displaced individual or family may choose to receive payments for moving personal property based on the number of rooms of furniture and personal belongings in the residence.

- The Final Payment Schedule for an Owner-Occupant or a Tenant with His Own Establishment is as follows:

<table>
<thead>
<tr>
<th>Rooms</th>
<th>Maximum Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 room</td>
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<td>165.00</td>
</tr>
<tr>
<td>4 rooms</td>
<td>225.00</td>
</tr>
<tr>
<td>5 rooms</td>
<td>300.00</td>
</tr>
</tbody>
</table>

If you select the Final Payment Schedule, you may receive a maximum payment of $200.00, regardless of the number of rooms.
The allowable additional allowance for paid moving expenses is $50.00 per room. The total allowable paid moving expenses is $200.00. The additional allowance is paid as follows:

1. For distance of 10 miles or less:
   - Less than 5 rooms: $150.00
   - 5 to 10 rooms: $300.00
   - 11 to 15 rooms: $450.00
   - 16 rooms or more: $600.00

2. Over 10 miles:
   - Less than 5 rooms: $145.00
   - 5 to 10 rooms: $290.00
   - 11 to 15 rooms: $435.00
   - 16 rooms or more: $580.00

Each added room will cost $75.00 additional.

The additional distance allowance of $50.00 will also be paid to a tenant-occupant of furnished accommodations who chooses the Fixed Payment Schedule (as outlined on page 7 of this brochure or "Furnished Accommodations" as shown on page 8 of this brochure), whichever applies.

The additional paid moving expenses method is chosen, displacements are not allowed the additional $200.00 distance allowance.

21. Actual Direct Losses of Tangible Personal Property (continued)

The actual direct losses of tangible personal property are allowed when a person is displaced from his place of business, and the property is actually moved to the new location. The person must prove that the item was actually moved, the value of the item, and the reason for moving the item. The values of personal property must be recorded at the time of the move, and the estimated value of the item at the new location, and the difference between the estimated value and the actual value of the item.

22. Tenants of Mobile Homes

Tenants who are displaced from a mobile home may claim to be reimbursed for moving their personal property on an actual reasonable cost basis, or in accordance with the schedule identical to that entitled "Residences and Furnished Apartments" as shown on page 7 of this brochure, or Furnished Accommodations as shown on page 8 of this brochure.


Eligibility for moving payments to the owner of a displaced business is outlined in paragraph 3, "Eligibility," on page 2 of this brochure. Eligible owners of a displaced business are entitled to receive a payment for actual reasonable moving and related expenses which include:

a) actual reasonable expenses in moving his business or other personal property;

b) actual direct losses of tangible personal property in moving or discontinuing his business as outlined on page 11 of this brochure;

c) actual reasonable expenses for searching for a replacement business as outlined on page 11 of this brochure.

24. Commercial Space

The owner of a business may be paid the actual reasonable cost of a move accomplished by a commercial mover. Such expenses will be supported by receipted bills and an inventory of the items actually moved. If the items listed are those "as moved" inventory details in any appraisable extent from the original certified inventory, the amount bid, or estimate, will be appropriately adjusted for payment.
21. Rent paid in lieu of actual moving expenses (continued)

b) the business is not a part of a commercial enterprise having at least one other establishment which is not being acquired by the State or the United States, and which is engaged in the same or similar business; and

c) a part-time individual or family occupant in the home which does not contribute materially to the income of the displaced person is not eligible for this payment.

For the owner of a business to be entitled to this payment, he must make his Federal or State Income Tax Return available and his financial statements and accounting records available for audit for confidential use to determine the payment authorized.

26. In Lieu of Actual Moving Expenses

In lieu of actual moving expenses, the owner of a displaced farm operation is entitled to receive a payment equal to the average annual net earnings of the farm operation, except that such payment shall not be less than $7,500 or more than $10,000. For the owner of a displaced farm operation to be entitled to this payment, the State must determine that the farm operation has discontinued or relocated its entire farm operation at the present location, and in case of a partial relocation, that the property remaining after the acquisition is not longer an economic unit as determined by the State during its appraisal; or, the acquisition caused the operation to be discontinued from the farm operation on the remaining land, or caused a substantial change in the nature of the existing operation so as to constitute a displacement.

27. Moving Payments to Non-Profit Organizations

a) A displaced nonprofit organization is entitled to receive payments for actual reasonable moving expenses, actual direct loss of tangible personal property and actual reasonable expenses in searching for a replacement site.

b) In lieu of the payments described in (a) above, the nonprofit organization may be paid $7,500 if:

28. State Regulation for Decent, Safe and Sanitary Housing

Before making payment in the displaced, the State must have inspected the replacement dwelling and determined that it meets the standards for decent, safe and sanitary housing.

Such determinations by the State that a dwelling meets the standards for decent, safe and sanitary housing is made solely for the purpose of determining the eligibility of displaced individuals and families for payments and is not a representation for any other purposes. Approval by the State is no assurance or guarantee that there are no deficiencies in the dwelling or in its fixtures and equipment which may be discovered at a later date.

A decent, safe and sanitary dwelling is one which conforms with all applicable provisions for existing structures that have been established under State or local building, plumbing, electrical, housing and occupancy codes and similar ordinances or regulations.

Minimum standards for decent, safe and sanitary housing are as follows:

a) has a continuous, adequate supply of water, sanitary water;

b) has a kitchen and or area set aside for kitchen use which contains a sink in good working condition and connected to hot and cold water and an adequate sewage system. A stov and refrigerator in good operating condition shall be provided when required by local codes or ordinances. Where these facilities are not so required by local codes or ordinances, the kitchen area shall have utility service connections and adequate space for the installation of such facilities;

c) has an adequate heating system in good working order which will maintain a minimum temperature of 70 degrees in the living area under local outdoor design temperature conditions. A heating system will not be
20. Advance Replacement Housing Payment

A displaced owner-occupant of a dwelling may receive additional payments, the combined total of which may not exceed $10,000 for the additional cost necessary to:

a) purchase replacement housing;

b) compensate the owner for the loss of favorable financing on his existing mortgage in the financing of replacement housing;

c) reimburse the owner for incidental expenses incident to the purchase of replacement housing when such costs are incurred as specified herein.

35. Eligibility (continued)

b) he is a person who has an ownership interest in the property at the time of the notice of the acquisition of the property as required by the Act, and

c) the owner occupant is not a subtenant or lodger of the owner-occupant.

37. Amount of Replacement Housing Payment (continued)

When a single-family dwelling is owned by several persons and occupied by one of them, the replacement housing payment shall be the lesser of:

a) the difference between the owner-occupant's share of the acquisition cost of the acquired dwelling and the actual acquisition cost of the replacement dwelling; or

b) the difference between the total acquisition cost of the acquired dwelling and the amount determined by the State as necessary to purchase a comparable dwelling.
31. Increased Interest Payments

Increased interest payments are provided to compensate a owner-occupant of 100 days or more for the increased interest costs he is required to pay for financing a replacement dwelling.

The increased interest payment shall be allowed only when the following conditions are met:

1. The dwelling acquired by the owner was encumbered by a bona fide mortgage which was a valid lien on such dwelling for not less than 100 days prior to the establishment of eligibility.
2. The mortgage on the replacement dwelling bears a higher rate of interest than the mortgage interest rate on the acquired dwelling.

32. Amount of Increased Interest Payment

The increased interest payment will be computed in accordance with the following procedures:

1. The computation of the payment for increased interest costs will be based on the actual term of the new mortgage or the remaining term of the old mortgage, whichever is longer, and the computation will be based on the actual amount of the old mortgage or the amount of the new mortgage whichever is the lesser, reduced to discounted present value.
2. The discount rate shall be the prevailing rate of the interest paid on purchase money advances offered by commercial banks in the general area in which the replacement dwelling is located.
3. The interest rate on the mortgage for the replacement dwelling will be used in the computation shall be the actual rate, but may not exceed the prevailing interest rate currently charged by a mortgage lending institution in the vicinity.

33. Replacement Housing Payment

For Whom the Payments Are Made

A distinctly owner-occupant otherwise eligible, except that he has owned and occupied the dwelling for less than 100 days, but not less than 90 days, may receive an amount not to exceed $2,000 to enable him to make a down payment on the purchase of a replacement dwelling and reimbursement for actual expenses incident to such purchase; or for additional costs to renovate his retained dwelling as outlined below.

4. Computation of Down Payment and Incidental Costs

The amount of the down payment shall be determined by the State as the lesser of:

1. The amount that would be required as a down payment for financing a conventional loan on a comparable dwelling plus incidental expenses as listed in paragraph 41.
2. The amount that would be required as a down payment for financing a conventional loan on the replacement dwelling actually purchased plus incidental expenses as listed in paragraph 41.

To the amount in (1) or (2) above shall be added the amount required to be paid by the owner as points and originations or loan services fees, if such fees are normal to the real estate transaction in the area, or the comparable dwelling, or the replacement dwelling, whatever is the lesser.

Upon purchase and occupancy of a dwelling, safe and sanitary dwelling by the displacing within the specified time limits, the displacing may be reimbursed:

1. The full amount of the down payment as determined above and incidental expenses if such total amount does not exceed $2,000.

41. Amount of Increased Interest Payment (continued)

4. To the amount as determined above will be added the amount actually paid by the owner as points and a fee actually charged as an origination or servicing fee on the amount advanced but not to exceed an amount which would have been paid if the original mortgage balance was refinanced. The origination or servicing fee shall not exceed such fees advanced to real estate transactions in the area.

51. To Whom Payment Made

The increased interest payment may be made directly to the displaced individual or family, or upon written request from the displaced individual or family, to the mortgagee of the interest capital or the replacement dwelling. In either case, or if the State may make an advance payment into escrow prior to the displaced's moving.

51. Incidental Payments

The incidental expenses payment is the amount necessary to reimburse the owner for the actual expenses incurred by his displacement in the purchase of the replacement dwelling, but not personal expenses. Such expenses may include the following:

a. Legal, filing and related costs including title search, survey fees, appraisal fees, etc.
b. Home inspection fees, etc.
c. FHA or VA, application fees
d. Credit report
e. Annual property taxes

In addition to the above, the owner may receive, at the discretion of the State, an additional amount not to exceed $2,000 to enable him to make a down payment on the purchase of a replacement dwelling and reimbursement for actual expenses incident to such purchase; or for additional costs to renovate his retained dwelling as outlined below.

52. Replacement Housing Payment

For Whom the Payments Are Made

An eligible owner-occupant of 100 days or more who elects to rent a replacement dwelling is eligible for a rental housing payment not to exceed $2,000. The payment shall be computed and distributed as outlined in paragraphs (4) and (5) of this section.
11. Rent Supplement Payments for Tenant
For the first Fifty (50) Days

(a) Computation of Payment
The payment, not to exceed $4,000, shall be determined by subtracting from the amount actually paid or the amount necessary to rent a comparable dwelling, whichever is less, for the next four years the following amount:

1. Eighty-eight times the average monthly rental paid by the displaced individual or family during the last three months;
2. If such average monthly rental is not reasonably equal in market rentals for similar dwellings, the economic rent as established by the State shall be used.
3. The "rent being paid" shall include any rent supplements applied by others except, when by law, such supplements are to be discontinued upon vacation of the property.

The average monthly rental being paid by the displaces, not including supplemental rent by public agencies, exceeds 25 percent of the monthly gross income of such individual or family, the payment, not to exceed $4,000, shall be determined by subtracting 12 times the average monthly income of the displaced from the lesser of the following amounts:

1. Eighty-eight times the monthly rental determined by the State as necessary to rent a comparable dwelling;
2. Eighty-eight times the monthly rental the displacement is required to pay if it relocate in public subsidized rental housing.

(b) Down Payment
The down payment amount, including the expenses incident to purchase of the replacement dwelling, is to be computed as outlined on page 29 of this brochure, under paragraph 44(b), "Computation of Down Payment and Incidental Costs."
33. Principles for Replacement Housing or Rent Supplement Payment Computation

a) The ownership or tenancy of the mobile home (not the land on which it is located) determines the occupant's status as an owner or a tenant. The length of ownership or tenancy of the mobile home on the mobile home site will determine the occupant's status as an 180-day or 10-day owner or tenant.

b) The mobile home must be occupied on the same site (or on the same mobile home park) for the required 90 or 180 days to make the occupant eligible for the appropriate payment limitation - $6,000 or $15,000.

c) After the determinations of (a) and (b) are made, the replacement housing payment is computed in two parts:
   1. The replacement housing or rent supplement payment is computed for the mobile home in accordance with the same procedures for any other comparable dwelling unit.
   2. The replacement housing or rent supplement payment for the mobile home will be computed in accordance with the same procedures of comparability but the payment is limited to the maximum according to his ownership or tenancy of the land.

The sum of the two parts computed in (1) and (2) above cannot exceed the maximum limitation of $4,000 or $15,000.

55. Acquisition of Mobile Home (continued)

b) the amount determined by the State as necessary to purchase a comparable mobile home and site.

c) if the owner elects to rent, the rent supplement payment shall be determined by subtracting 63 times the economic rent of the mobile home and site from the lesser of:
   1. the amount determined by the State necessary to rent a comparable mobile home and site for a period of four years; or
   2. 48 times the monthly rent he actually pays for his replacement dwelling.

56. Acquisition of Site Only from Owner-Occupant

Upon acquisition of the site, the mobile home is not required to be moved, the replacement housing payment will be the amount, if any, when added to the amount for which the State acquired his mobile home site equals the lesser of:

a) the amount determined by the State necessary to rent a comparable mobile home site for four years; or

b) 48 times the monthly rent he actually pays for his replacement mobile home site.
33. Replacement Housing Payment for Owner-Occupant of Mobile Home or Less Than 180 Days but More Than 90 Days
A displaced owner of a mobile home who has occupied said home for less than 180 days but not less than 90 days, and who is otherwise eligible, may elect to receive an amount not to exceed $5,000:
(a) to make a down payment on the purchase of a comparable mobile home or site for a period of four years, and 60 times the rent being paid on the site acquired;

(b) or the amount determined by the State necessary to rent a comparable mobile home site for a period of four years, and 48 times the rent being paid on the site acquired.

The owner may elect to purchase a comparable mobile home site as an alternative to renting a site. If he elects to rent, the payment shall be determined as outlined on page 26, paragraph 44(a), "Computation of Down Payment and Incidental Costs," except that the amount of the down payment shall be determined by the State as the amount required as a down payment on the purchase of a comparable mobile home site.

34. Rent Supplement Payment
If the owner elects to rent, the rent supplement payment shall be determined by subtracting 48 times the actual rent of the site from the lesser of:
(a) the amount determined by the State necessary to rent a comparable mobile home and site for four years, or
(b) 60 times the monthly rent he actually pays for his replacement dwelling.

35. Acquisition of Mobile Home and Site - 90-Day Owner

a) Replacement Housing Payment

If the owner acquires a replacement mobile home and site for a period of four years, or the amount of the down payment determined by the State as the amount required on page 26, paragraph 44(a), "Computation of Down Payment and Incidental Costs," except that the amount of the down payment shall be determined by the State as the amount required as a down payment on the purchase of a comparable mobile home site.

b) Rent Supplement Payment

If the owner elects to rent, the rent supplement payment shall be determined by subtracting 48 times the actual rent of the mobile home and site from the lesser of:

1. the amount determined by the State necessary to rent a comparable mobile home and site for four years; or
2. 60 times the monthly rent he actually pays for his replacement dwelling.

APPROVED

United States Department of Transportation
Federal Highway Administration
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

SOCIAL

Community Values

Any community or region lacking adequate transportation facilities must be largely self-sufficient. Throughout history, development of transportation systems has been a moving factor in social and economic development of communities; transportation systems have served to extend the market areas and stimulate in-migration and expansion of local industry. They have been imperative to agricultural regions producing for distant markets. Such has been true in the Bear River Valley which still maintains a rural, small community atmosphere while producing a relatively large share of the agricultural products consumed outside the region. Thus, production of agricultural goods for other than local consumption has been the valley’s economic mainstay.

Sociologically, highway alignment may create or break up residential patterns of social life in communities and neighborhoods. Since the communities have had ties to the land for about 100 years (often a farmstead has been held in the same family for several generations), the idea of cutting up individual farmlands or irrigation systems, or removing land completely from cultivation is expected to be met with stiff resistance, as exemplified more than seven years ago during earlier stages of project development:

You are cutting me right in two, said Donald E. Scott, a farmer, at the public hearing held at the Bear River High School on May 12, 1970.

More than a decade earlier, when the Interstate was first proposed, resistance to removing agricultural land was evidenced. Representing a group of farmers on April 2, 1958, at the public meeting held in Tremonton, Robert Potter commented,

And to take out of production, the . . . small percentage of agricultural land that is available in this state and in this county, is really a serious problem to us.

Cutting up, or removing, established neighborhoods, on the other hand, appears to be a non-issue. The proposal will coincide with natural flow barriers in the region, following the less productive line of the foothills. Natural barriers tend to form neighborhood boundaries, and the Bear River Valley is no exception. Construction of I-15 through the Bear River Valley should, in and of itself, cause no major change in social patterns which have developed within the valley.

Such construction can raise several other questions, however. First, will the Interstate, while not a barrier in fact, become a psychological barrier precipitating changes in social interactions in the Bear River Valley? Probably not, since roads which cross or are crossed by the freeway, in all likelihood, will continue to be used in the same way as before. After a short period of time, local traffic should pay no heed to the new highway as residents carry on their normal routines. Second, will land use around the interchanges be altered in such a way as to cause changes in the social make-up of the area? While this is a possibility, it is far more likely that other factors acting on the Bear River Valley will have greater effect. For example, on June 2, 1975, a $140,000,000 contract was awarded to Thiokol Chemical Corp. (West of Tremonton) for a space hardware program. Events of this nature could have more far reaching effects on the valley than the construction of a new Interstate.

Secondary consequences, while primarily economic in nature, could also creep over into the future sociological makeup of the communities. Concern was expressed by J. Glen Nelson, then president of the Elwood Town Board, at the public hearing of May 12, 1970 in Tremonton, over the possibility of conversion of ground, in addition to that to be used for I-15, to industrial purposes with a resultant change in community values and goals. This trend has already begun with development of a small "bedroom community".

As the increasing population along the Wasatch Front and in the State requires more and more space for dwelling units, the advent of a new freeway would accelerate the process of transformation of land from agriculture uses by providing better access and thereby lending encouragement to new residents looking for a rural atmosphere in which to settle. The freeway would make the communities within the valley closer, psychologically, to industrial and market centers. This tendency was indicated during the late 1950’s in a study conducted by W. A. Anderson, Professor of Rural Sociology at Cornell University, on The Rural Penetrating, Urban Encirclement Movement. The social changes to the environment by this phenomenon can only indirectly and partially be attributed to the construction of an interstate highway.
Public opinion may be grouped into three broad categories: affiliated, aligned, and unaligned.

Affiliated opinion reflects a sense of obligation to support policies and statements of a group one is affiliated with. Loyalty to the group generally prevails over expression of an individual opinion.

Aligned opinion reflects the tendency to adopt or adapt positions held by popular leaders. Personal reflection and evaluation is not considered essential to those holding this type of opinion since they tend to identify with popular leaders and their assumed expertise.

Unaligned opinion reflects the individualism of those taking time to inquire, attend hearings, investigate the alternatives and arrive at views reflecting their personal assessments without tendency to follow popular leaders or to parrot the opinion of groups they are affiliated with.

All three types have been present in the controversy surrounding this project and the history of the project has seen the emergence of two opposing community groups. These groups are broadly separated into commercial interests and farming interests. Both sides have developed popular leaders, and citizens with the strongest commitment on either side have been the most vocal.

The farming interests would generally be positively impacted by removal of interstate and commuter traffic leaving the local roads more accessible to farm vehicles. Local traffic would receive this same benefit. The negative impact on the farming would be, of course, the removal of agricultural land from production and replacement with pavement, shoulders and slopes.

Commercial interests may increase their sales revenue, or show a decline. However, the section dealing with indirect impacts indicated that businesses have, in similar situations, been able to reorient their sales to local traffic when bypassed by a freeway and thus, have not been as adversely affected as might be expected.

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The dichotomy resulting would be reflected in making any appraisal of community values. In fact, assignment of values reflected in (and by) a community could be a misleading approach, particularly if one is not involved closely and up-to-dately in the community. Likewise, if one is involved in a community and its day-to-day activities, there is a strong chance that personal prejudices as well as a limited sphere of interest would color or jade any objective assignment of values. In addition, other factors come into play when any attempt is made to get a collective sense of values reflected by a community. From the publication

**COMMUNITY VALUES IN HIGHWAY LOCATION AND DESIGN** published in 1971 by the Urban Systems Laboratory at Massachusetts Institute of Technology:

"... different interest groups assign different priorities to values. The area of agreement on values, if it exists at all, is only at the abstract "God-mother-country" level. At operational levels -- for example the weights to be given to displacements of families versus development of business districts versus taking of parklands -- we can accept as a fundamental premise that there is no agreed order of importance. Groups will have different opinions about such alternatives because they have different interests and will be affected in different ways. We cannot expect to get a single consistent, operational ranking of the values of the community -- because in a pluralistic society, there are many rankings.

The basic problem, then, is how to go about reaching a decision when we almost never can get agreement from diverse groups on an operational statement of values. But the problem is not impossible: Instead of striving for the unachievable objective of agreement on goals, what we can hope to achieve is agreement on a course of action -- where different groups agree about the desirability of an action for their own, different, reasons. This is a realistic, achievable objective.

Postulating our objective as achieving agreement on a course of action raises this question: Why in fact do we want to get a statement of values at all? To determine what is best for society? Why can't society do that for itself?
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

Out of this tangle of emotionalism and public opinion connected with the subject Interstate segment, the Utah Transportation Commission chose on September 24, 1976 the alignment passing along the west foothills of the valley, only after careful study of all the issues involved.

Climate of Opinion

In June of 1974 a study was made to document the "climate of opinion" concerning several proposed alignments of Interstate-15 through the Bear River Valley.

An initial visit was made to the area in order to gain an overview of the land and its uses. At this time personal contacts were made with individuals in Tremonton and Garland. On a more impersonal basis, post card type questionnaires were distributed through the LEADER-GARLAND TIMES (the valley's weekly newspaper) with the assistance of publisher, Curtis Starr.

Notices in the LEADER indicated questionnaires could be obtained at the newspaper office by individuals who had not received one with their regular newspaper delivery. Questionnaires were not sent to the newspaper "racks" located in stores in order to prevent several copies of the questionnaires from being completed by one individual. In addition to marking categories provided, respondents were provided space for any comments they wished to make.

Two interviewers conducted followup studies and completed some questionnaires in their personal contacts. Response to the questionnaire by community and the choice of alternate is illustrated by both a printout and translater chart. Of 1907 questionnaires that could be obtained at the Lea Valley, 890 were completed. When personal contacts were made, 200 more were returned. Of 510 questionnaires returned by mail, 230 contained reasons for preference, etc.:

Between Elwood and Plymouth:

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4 JAN 1973

Prepared by Stephen S. Stanford, Ph.D.
Consultant, Utah State Department of Highways

Q U E S T I O N N A I R E
Utah State Highway Department

Federal, state and local agencies are increasingly concerned with the impact highways are having upon man's environment. Cultural and social factors are carefully investigated along with the natural factors in attempts to best serve the needs and interests of all concerned. Consequently, the opinions of those living within an area become vital to the decision-making process preceding road construction.

In June of 1974 a study was made to determine the "climate of opinion" concerning several proposed alignments of Interstate-15 through the Bear River Valley.

This questionnaire provides an opportunity for you to express your views regarding a highway being proposed through the Bear River Valley. If you elect to complete and return this to us, we will not need to call at your residence. If you would like to be interviewed personally, please indicate on your card: we will then endeavor to contact you, either by telephone or house call. The stamped permit makes a postage stamp unnecessary in mailing this back to our office.

Between Elwood and Plymouth:

| ) Existing roads are adequate and no further construction is needed at present and probably will not be for another five or ten years. |
| ) Existing roads (such as 191) should be widened and otherwise improved without going to the expense of building an additional road. |
| ) A new highway is, or will be, needed within a few years, and should be constructed: |
| ) Along either side of 191 to accommodate faster and heavier through-traffic; |
| ) Along the east side of 191, without going down into the riverbottom area; |
| ) Along the west side of the valley, probably above the Bearwell Canal. |

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RESPONSE AND CHOICE OF ALTERNATES

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COMMUNITY RESPONSE AND PARTICIPATION

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*Questionnaires were available at the LEADER newspaper office

nares sent out, only 444 (23%) were returned. It is interesting to note that there was no response by 77% of the valley residents queried. Failure to respond could have been motivated by several factors:

1. People may have been too busy at the time even though they were concerned about the location of the highway;
2. Non-respondents may have felt their efforts were futile because (a) the (then) Department of Highways had already made the location decision; or (b) the Department would make the decision without regard to the results of the questionnaire;
3. They may have felt too ill-informed to register an intelligent response or simply felt that the decision should be left to the "experts";
4. Those not responding may have been suffering from "opinion fatigue" due to the length of time this project has been under discussion;
5. Non-respondents may have perceived the survey as an instrument of vested political or economic interests, the results of which would be manipulated to serve those vested interests.

Many of those responding to the questionnaire made additional comments. The usual type of remark was one showing great concern for land and water in the central part of the valley, a concern which has been evident since the project conception. For instance, at the 1958 public meeting, Ford Scalley, representing the Utah-Idaho Sugar Company, expressed the view that disruption of the Bear River Valley Irrigation Systems must be kept to a minimum. Other comments were related to tourism, trucking economy and aesthetic values of the valley. Concern was also expressed about building lots purchased several years ago for right-of-way along the Center corridor which were still vacant and growing weeds.
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

Other topics respondents felt were relevant to extension of the Interstate through the valley and should be considered by the decision makers are listed below.

(1) Is there an urgent need for the proposed facility?

(2) What effect will the facility have on future development in the valley?

(3) What will be the effect on existing commercial interests?

(4) Would the West Alternate shift business locations away from the center of the valley?

(5) Will there be any zoning changes as a result of the location of the facility?

(6) Health and safety of the valley residents, noise and pollution problems caused by the new facility should be considered.

(7) Some residents expressed concern about bringing "outsiders" into their quiet community; others were concerned with the cutting up of "their" valley by the central route.

Deweyville and Honeyville, both in the proximity of the East Alternate, had no respondents favoring that alternate. Eight percent of the population of Riverside (located on US-191) responded to the questionnaire but only one person favored improving the existing facility and the majority favored the West Alternate.

If the valley residents were concerned primarily with obtaining immediate access to an interstate freeway these conclusions might seem surprising. However, the results of this survey tend to reinforce the feelings expressed again and again by many of their long term ties to the soil and the feeling that land is a scarce resource. This is coupled with increasing recognition of population pressures on agricultural productive capacity and associated rising food prices.

It appears that the majority of those responding to the questionnaire (57%) favor the West Alternate. Improvement to the existing highway and the Center Alternate were close to each other in percent of responses (17.8, 16.9 respectively) but considerably below those favoring the West Alternate.

Tremonton and Garland, each with 7% of the population returning the questionnaire, favored the West Alternate by nearly double the combined votes for the Center and improvement to US-191.

It is imperative that the reader understand surveys of this type decide nothing but merely provide input to the decision makers. However, what people think and express is an important factor. When persons such as Kleon Kerr, educator, community leader and resident of east Tremonton, take time to express themselves - as displayed in the accompanying letter and enclosed newspaper clipping - their viewpoints must be treated as important factors.
In Freeway Survey

Number Not Responding Is Significant Survey Factor

The most significant factor in a recent survey conducted to test local opinions concerning the extension of the freeway from Elwood to Plymouth seems to be the number of people who didn't respond.

Dr. Stephen S. Stanford, Weber State College, said only 444 questionnaires out of 1,907 distributed were returned by respondents.

Of the 23-percent who did respond 57-percent (or 253 respondents) indicated they favored a "new western route" which would roughly parallel the western mountains north to Plymouth. A total of 75 respondents or 17-percent expressed preference for a "new central route" running roughly parallel to the Malad River valley.

"It is most significant scientifically, that 77-percent elected not to respond to the study," Dr. Stanford said. He listed as possible "motives" for the large number failing to respond as:

- "they were too busy at the time even though they might have cared about the highway.
- "they might have felt the Highway Department had already made up its mind anyway and therefore would not really respond to the returns--or else would make up its mind in the future without much credence being given to the poll.
- "they might have felt ill-informed on the variables and thus not able to vote intelligently."
- "there might have been a kind of 'opinion fatigue' inasmuch as this kind of inquiry, by one means or another, had been going on for many years already."
- "some might have felt the poll to be designed to 'mask' other motives such as vested economic or political interests and would be 'slanted' by statisticians to reinforce predetermined biases."
- "It is possible that many or at least some of the 77-percent felt inclined to trust the experts to make the best possible decision without needing the 'lay' opinion," the doctor said.

The survey cards were distributed in an edition of The Leader-The Garland Times at the request of the Weber State professor who said he was asked by the Utah State Department of Highways to study the "climate of opinion" in the Bear River Valley.

Dr. Stanford and Steve Lawson, community relations director for the Department of Highways, both stressed that the survey does not in any way indicate the final decision on where the new road should go.

"It is imperative that people appreciate that surveys of this nature decide nothing; they only provide added evidence which... must be placed into a total pattern..." surveys of this nature decide nothing, they only provide added evidence which... must be placed into a total pattern...

"less common comments related to tourism, trucking economy and esthetic values like the beauty of the valley," he added. "Many expressed concern for the fact that land purchased some years ago for a central-route freeway was still growing weeds."

In addition to the survey, Dr. Stanford assigned two interviewers to do follow-up work in the Bear River Valley.

LEADER January 31, 1975

Controversy surrounding the project has seen the emergence of commercial interests opposing farming interests.
Recreation

Augmenting the sketch of information on page 37, expected impact on the existing recreational resources would seem to be positive: access would be enhanced. Should even one half of the projected 1980 visitations to the Golden Spike National Historic Site (as indicated in the accompanying letter) materialize, I-15 would be expected to provide an important portion of a busy access route.

Pheasant hunting, mentioned previously, is also prominent as a recreational resource. Access via I-15 (or lack thereof), however, would not necessarily enhance the prospects or attractiveness of this pursuit.

From the sociological point of view, the development of Belmont (Uddy) Springs
one and one-half miles south-southwest of Plymouth, promises to become the most impressive recreational item in the Bear River Valley. Projected facilities include, in addition to those listed on page 37, a senior citizens' center which would tend to complement existing valley social programs. Proximity to I-15 (1-2 miles/2-3 km) is not likely to be a negative factor.

Belmont Springs in 1974 shortly after development began (above) and how it appeared in the Spring of 1975 (below).
No publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance is to be taken or impacted for this segment of I-15.

Additionally, no land from a historic site of national, State, or local significance is involved in connection with any of the alternate proposals.

Education
Two elementary schools with a total enrollment of 723 are located in Tremonton. Garland has one elementary school with 250 students, one junior high with 636 students and one high school with an enrollment of 664. Elementary schools are also located in Fielding and Honeyville.

Since school buses generally follow routes which are not main thoroughfares (with the exception of some stops on US-191, stated on page 18), there is no direct impact expected on access to schools. Neither is any impact expected on school facilities by the construction of I-15.
The concern of the Box Elder County School District was expressed in this 1971 letter; their position has remained the same over the past six years.

Sheldon W. McConkie, P.E.
Route, Surveys & Location Engineer
Utah State Department of Highways
State Office Building
Salt Lake City, Utah 84114

Dear Mr. McConkie:

Relative to your letter of September 29 in regards to the construction of Interstate Route 15 through the Bear River Valley in Tremonton area, there appears to be no serious problem as far as the school district is concerned in this regard.

As you are no doubt aware, our school buses follow routes off the main thoroughfares, therefore, it would seem that, providing adequate crossings are made which I am sure are contemplated, there should be little, if any, effect on the schools in this area regardless of which route is made for the new interstate.

As far as the effect of the economy in the area, I am not in a position to know whether the property to the west would be more advisable than that to the east.

Sincerely,

C. Morgan Hanks
Administrator of Curriculum and Instruction

October 20, 1971
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

Religious

The great majority of Bear River Valley citizens are affiliated with the Church of Jesus Christ of Latter-Day Saints (Mormon) which has 21 wards (congregations) in the vicinity.

A Methodist Church is located in Tremonton; other denominations have churches in

- Brigham City
  - Assembly of God
  - Southern Baptist
  - Bible
  - Roman Catholic
  - Christian Reformed
  - Church of Christ
  - Protestant Episcopal
  - Jehovah's Witnesses
  - Lutheran
  - United Methodist
  - United Presbyterian

and in

- Logan
  - Assembly of God
  - Southern Baptist
  - Roman Catholic
  - Church of Christ
  - Protestant Episcopal
  - Independent Bible
  - Jehovah's Witnesses
  - Lutheran
  - United Presbyterian

No impact from I-15 is foreseen.

Rationale for the placement of interchanges has been outlined on page 15; further discussion of the Garland issue is presented on page 223.
Emergency vehicles (above) based at the Tremonton Civic Center (below).

Services

Population in the project area is approximately 5000 with the majority living in Tremonton (approx. 2800) and Garland (approx. 1200). Tremonton has 100 retail establishments while Garland has 14. Emergency services include firehouses and police in both Tremonton and Garland; county sheriff based in Brigham City and hospitals in Tremonton, Brigham City and Logan. Social services are provided by the State government through the Tremonton offices of Family Services and Migrant Counsel. Public libraries are available in Tremonton and Garland in addition to the State-sponsored touring bookmobile.

Here again, no direct impact on any emergency or social service is evident except for the enhancement of transportation which would result from construction of the subject I-15 segment.
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

AIR QUALITY

Amounts and dispersion of traffic generated pollutants depend upon the combination of five factors: meteorology, traffic volumes, emission factors, topography and highway design. Calculations based on traffic volumes and emission factors predict the amount of motor vehicle pollutants (CO, HC and NOx) that would be produced from a specific facility. Meteorology, topography and highway design determine dispersion of these pollutants into the atmosphere. Assuming construction in 1985, CO concentrations were estimated for the years 1975, 1985 and 2000.

The CALINE II Line Dispersion Model was used to estimate CO concentrations in the microscale at 50 feet (15 m) from the roadway under the worst and most probable conditions. A microscale analysis refers to the location on and near the roadway where concentrations of pollutants from vehicles are highest and may contribute noticeably to background levels. Limits of the microscale analysis extend several hundred feet perpendicularly to the roadway until the pollutants are diluted by atmospheric turbulence as they proceed downwind. Only carbon monoxide (CO) concentrations were estimated because it is relatively inert; hydrocarbons (HC) and nitrogen oxides (NOx) react in the presence of sunlight to form photochemical smog.

Meteorology - Wind velocity measurements in the Bear River Valley are not available although there are a few weather recording stations. Precipitation, snowfall, maximum and minimum temperatures are recorded at Garland and Brigham City. Only precipitation is recorded at Plymouth. The Tremonton Municipal Airport does not record any meteorological data. Information provided by State Climatologist, Arlo Richardson, complemented the available data in order to provide adequate information for the following analysis.

Primary surface wind movements are south-to-north, and north-to-south. The north-to-south movement is characteristic of drainage winds, shown as solid arrows on the simplified wind streamline chart. Drainage winds occur from sundown to about 10 a.m. each day and they range from 5 to 10 knots (2.5 - 5 m/sec). During daytime hours (approx. 10 a.m. to sundown) a south-to-north pressure gradient wind gradually overcomes the drainage wind and blows at a speed of 10 to 15 knots (5 - 7.5 m/sec) until evening hours. These wind directions and durations were supported by observations at the Tremonton Airport where the runway is oriented north to south.

In contrast to drainage winds, pressure gradient winds are shown as broken arrows on the wind streamline chart. Essentially drainage winds occur in the opposite direction to pressure gradient winds. Of course, the wind can blow from any direction in the Bear River Valley due to the influence of various fronts moving through the area, but under stable conditions the above described surface wind patterns would occur.

Inversions do happen in the Bear River Valley in conjunction with inversions at Salt Lake City and along the Wasatch Front. Relatively long periods of ground-based or elevated inversions pass almost unnoticed in the Elwood to Plymouth region. Agriculture and dairying are the principal occupations of the people between Elwood and Plymouth, and...
very little industrial activity exists. Therefore, long periods of inversions and stable air do not tend noticeably to concentrate pollutants, and apparently few pollutants are transported from the Salt Lake area.

Judging from the wind streamline chart, in most instances the wind would be parallel to the proposed alignment, but in a few cases the wind would be nearly perpendicular to the route.

Therefore, the meteorological conditions for this analysis are as follows:

<table>
<thead>
<tr>
<th>Outdoor Conditions</th>
<th>Stability Class</th>
<th>Winds</th>
<th>Wind Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worst Conditions</td>
<td>&quot;F&quot;</td>
<td>Parallel</td>
<td>13° to</td>
</tr>
<tr>
<td>Most Probable Conditions</td>
<td>&quot;C&quot;</td>
<td>Parallel</td>
<td>route</td>
</tr>
</tbody>
</table>

Traffic Volumes and Emission Factors - Traffic estimates are based upon a probable maximum annual growth rate of about 3% at Tremonton and 2% elsewhere. Projections are for the years 1980 and 2000, and include the proposal along with the two principal arterial routes. In addition, a no-construction alternate is included. Traffic counts show that about 10% of the traffic volumes are heavy duty vehicles, and morning peak hours are 8-1/2% of the ADT, while afternoon peak hours are 10% of the ADT.

Traffic counts show that about 10% of the traffic volumes are heavy duty vehicles, and morning peak hours are 8-1/2% of the ADT, while afternoon peak hours are 10% of the ADT.

Emission factors used were derived from EPA Publication AP-42, Supplement 5. High altitudes, ambient temperature of 25°F, 27% hot starts, 20% cold starts and a vehicle mix of 80.4% LDV, 11.8% LDT, 4.6% HDG and 3.2% HDD were used in the derivation.

As displayed on page 14, the Interstate would consist of four traffic lanes separated by a depressed median. Taking advantage of the favorable terrain in the Bear River Valley, the new facility would be on a five to seven foot fill in nearly all locations. Exceptions could be at interchanges and structures. Very few large fills or cuts would be required.

Findings - Hourly CO estimates were made at Tremonton Main Street, US-191 through Elwood and at sites along the proposal for the years 1980 and 2000 under "worst" and "most probable" conditions and peak hour traffic. Under worst conditions, traffic contributed CO concentrations are less than 1 ppm.

Some limited monitoring performed in Tremonton during the spring of 1977 indicated that background levels were in the neighborhood of 1 ppm. Therefore, total hourly CO concentrations would be in the neighborhood of 2 ppm.

Basic assumptions of the Gaussian Diffusion model are that pollutants come from a continuous line source; CO concentrations in the mixing cell are independent of surface stability; there is uniform wind flow; and pollutants are inert. Because traffic volumes are too light to form a continuous line source and atmospheric stability could affect mixing cell concentrations, estimates of highway generated CO level tend to be higher than actual field measurements would indicate.

Conclusions - Results of the microscale analysis indicate that the ambient air quality of the Bear River Valley will not be adversely affected at the present or at any time in the future. Under all times and conditions, pollutant concentration levels will not exceed any national health standards.

In addition, it would most likely be no problem with the photochemical oxidants since the total HC and NOx emissions are small now and will be small in the future.

Consequently, the Utah Department of Transportation, after coordination with the State Bureau of Air Quality (as displayed by the letter on the following page), has determined that the proposed construction of I-15 from Tremonton to Plymouth is in compliance with the State Implementation Plan.
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

Mr. Sheldon W. McConkie, P.E.
Route, Surveys & Location Engineer
State Department of Highways
State Office Building
Salt Lake City, Utah 84114

Dear Mr. McConkie:

This is in answer to your request for our comments on environmental impact of the construction of a portion of Interstate Route 15 through Box Elder County.

We believe there are three points which you must keep in mind in development of this project in order to avoid adverse environmental impact.

1. Any hot mix plants utilized in connection with the project must be equipped with adequate controls to insure compliance with Utah's visible emissions regulations.

2. If deep drains are used on any part of the project their design and location should be carefully investigated to avoid possible pollution of underground aquifers.

3. Contractors must be required to exercise control measures in making excavations near and into water channels to avoid silting of stream flows.

If these comments raise any questions in your mind we will be pleased to discuss them in further detail.

Sincerely yours,

Lynn W. Thatcher
Deputy Director of Health
The Bear River Valley (facing north from above US-30S near Haws Corner - showing the Corinne Canal and Bear River in the foreground) is relatively free from air pollution. Most of the time visibility is in excess of 50 miles (80 km). Connecting I-15 from I-80N to Plymouth is not expected to have any affect on the local air quality.
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

NOISE

Summary

Residents along the proposed freeway section will be minimally impacted. Noise levels will be very low at sensitive locations.

Businesses on Tremonton Main Street near the I-15 interchange will be diverted to the Interstate highway. Noise levels will be very low at sensitivity standards.

Residents along the proposed freeway will be minimally impacted. Noise levels will not increase greatly and will remain below design standards.

Residents along US-191 will be benefited, since much of the through traffic will be diverted to the Interstate highway.

Therefore, no abatement is necessary, and no exception requests are needed.

Construction noise will probably be a problem mostly to animals and, is discussed on page 128.

Coordination with local officials will occur before the interstate facility is constructed.

Existing Noise Environment

Bear River Valley varies from small town business districts to open country and from flat farmland to rolling hills. It is traversed from north to south by straths made by the Malad River and the Bear River.

BACKGROUND FUNDAMENTALS

Health

Although traffic noise is often regarded as loud by nearby residents and, in some cases, annoying, traffic noise may usually be disregarded as a source of hearing loss. Very noisy trucks and motorcycles are too infrequent to maintain a sufficiently high noise level to cause hearing damage (unless one's domicile straddles a heavily-used drag strip). As for the degree of annoyance, it depends upon the amount and nature of the intruding noise, the amount of background noise and the nature of the working or living activity of the people at the time the noise is heard. Thus, the degree of annoyance is relative, and the most often-used criterion to fit this subjective element is speech interference.

Even though interference with speech is considered the dominant noise consideration, economics, aesthetics, air pollution, community preference and safety are other factors to be reckoned with in the overall picture.

<table>
<thead>
<tr>
<th>TYPICAL SOURCES</th>
<th>NOISE LEVEL (dBA)</th>
<th>HUMAN RESPONSE</th>
<th>CONVERSATIONAL RELATIONSHIPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gunfire (to marksmen)</td>
<td>140</td>
<td>Painfully loud</td>
<td></td>
</tr>
<tr>
<td>Truck (80')</td>
<td>120</td>
<td>Hearing Damage (less than 15 min/day exposure)</td>
<td></td>
</tr>
<tr>
<td>Auto Horn (2')</td>
<td>110</td>
<td>Hearing Damage (1-hr/day exposure)</td>
<td></td>
</tr>
<tr>
<td>Food Blender</td>
<td>90</td>
<td>Hearing Damage (8-hrs/day exposure)</td>
<td></td>
</tr>
<tr>
<td>Heavy Truck (50')</td>
<td>80</td>
<td>Annoying</td>
<td>Raised Voice</td>
</tr>
<tr>
<td>Car 40 mph (20')</td>
<td>70</td>
<td>Telephone Use Difficult</td>
<td>Normal Voice</td>
</tr>
<tr>
<td>Office</td>
<td>60</td>
<td>Low Voice</td>
<td>Law Voice</td>
</tr>
<tr>
<td>Light Auto Traffic (100')</td>
<td>50</td>
<td>Quiet</td>
<td>Low Voice</td>
</tr>
<tr>
<td>Library</td>
<td>40</td>
<td>Whisper</td>
<td>Whisper</td>
</tr>
<tr>
<td>Broadcasting Studio</td>
<td>30</td>
<td>Very Quiet</td>
<td>Very Soft Whisper</td>
</tr>
<tr>
<td>Office</td>
<td>20</td>
<td>Very Quiet</td>
<td></td>
</tr>
<tr>
<td>Just Audible</td>
<td>10</td>
<td>Threshold of Hearing</td>
<td></td>
</tr>
<tr>
<td>Threshold of Hearing</td>
<td>0</td>
<td>Threshold of Hearing</td>
<td></td>
</tr>
</tbody>
</table>
As indicated on the accompanying map, noise tests were taken at several locations. Because the proposed facility is primarily intended to complete a link in the Interstate System, rather than to alter local traffic patterns, no extensive noise studies were made within the larger urban boundaries. As will be pointed out in more detail later, there is expected to be less noise near the existing US-191 once the proposed freeway is constructed than if through traffic must continue using the old highway.

Test Sites I, J and K (all located near US-191 between I-80N and Haws Corner) and Test Site H west of Fielding (similar in setting to Site J) were made in flat terrain. The existing highway (US-191) is practically at ground level in the proximity of nearby homes. Far-spaced homes and a church building are located as close as 50 feet from the highway shoulder, while several commercial buildings are clustered at Haws Corner. Test Site H was made in predominantly agricultural land.

Test Site G, at Plymouth, was situated in gently sloping foothill terrain. US-191 is approximately four to five feet above ground level as it brushes by Plymouth's western side, where most of Plymouth's homes and commercial buildings are located.
Proximity of homes at Site J; readings were taken in the parking lot between this house and the church shown in the photograph on page 96.

Looking northerly from Tremonton Main Street (Site A), one notices that there are very few noise sensitive receptors along the proposed route.
Tests of Sites A through F were all taken along the proposed project which runs along the foothills west of Bear River Valley and to an elevation approximately one hundred feet above the valley floor.

Site A was typical for commerce along Tremonton Main Street; B and D for moderately sensitive receptors (isolated rural homes); E for undeveloped agricultural land representing the minimum background noise level; also C and F for other activities where people might be moderately sensitive to disquietude, namely, the Garland cemetery and the Plymouth cemetery.

**Measurements**

As already pointed out on page 11 in the DESCRIPTION, weekday traffic peaks on US-191 are assumed to be more dominated by business, shopping, church and recreation events than by commuting to and from work. Therefore, existing noise levels on the old highway were chosen to represent the midday environment rather than early morning and late afternoon commuting traffic contributions to noise.

A summary of the field tests in the accompanying table shows the wide range of L10, L50 and L90 noise descriptors (those noise levels exceeded ten, fifty, and ninety percent of the time, respectively). Distinctive peak and background noise sources accompany the descriptors for each site.

Of particular note for sites H and J: truck noise is normally the dominant noise source for residents along US-191 (which fact could readily be deduced from the first sentence on page 11). But when the project is built, many diesel trucks will prefer to use the freeway, thereby reducing the noise level on US-191.

**Outlook for Future Noise**

Noise measurements already cited represent three basic acoustic environments:

1. Residences along US-191 are currently subjected to noise from heavy trucks;
2. Businesses on Tremonton Main Street are conditioned to some traffic noise now with emphasis on automobile noise rather than heavy truck noise;
3. Residences in quiet open fields or small communities are far enough away from any highways so that the imposition of a freeway nearby could cause some increase in noise.
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

PREDICTED L10 AT PEAK HOUR NOISE LEVELS (dBA)
FOR NEAREST SENSITIVE RECEP'TORS
(70 dBA is design maximum)

<table>
<thead>
<tr>
<th>Roadway Section</th>
<th>1977</th>
<th>2000</th>
<th>Increase Above Existing Levels</th>
<th>Assessment of Impacts</th>
<th>Is Abatement or Exception Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>I-15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Built</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I-80N to Tremonton</td>
<td>48</td>
<td>54</td>
<td>48</td>
<td>I-15+6</td>
<td>Minimal Impact</td>
</tr>
<tr>
<td>Tremonton to Riverside</td>
<td>54</td>
<td>49</td>
<td>54</td>
<td>None</td>
<td>No Impact</td>
</tr>
<tr>
<td>Riverside to Plymouth</td>
<td>50</td>
<td>44</td>
<td>50</td>
<td>None</td>
<td>No Impact</td>
</tr>
</tbody>
</table>

(Predicted L10 Due To Highway is Less Than Existing Background Levels Measured for Nos. 2 & 3)

<table>
<thead>
<tr>
<th>Roadway Section</th>
<th>2000</th>
<th>2000</th>
<th>Increase Above Existing Levels</th>
<th>Assessment of Impacts</th>
<th>Is Abatement or Exception Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I-15</td>
<td>US-191</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Built</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elwood to Tremonton</td>
<td>72</td>
<td>67</td>
<td>78</td>
<td>Substantial Benefit</td>
<td>No</td>
</tr>
<tr>
<td>Tremonton to Riverside</td>
<td>65</td>
<td>63</td>
<td>75</td>
<td>Some Benefit</td>
<td>No</td>
</tr>
<tr>
<td>Riverside to Plymouth</td>
<td>65</td>
<td>62</td>
<td>73</td>
<td>Some Benefit</td>
<td>No</td>
</tr>
</tbody>
</table>

Tremonton Main Street

<table>
<thead>
<tr>
<th>Roadway Section</th>
<th>2000</th>
<th>2000</th>
<th>Increase Above Existing Levels</th>
<th>Assessment of Impacts</th>
<th>Is Abatement or Exception Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>I-15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Built</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>West of Airport</td>
<td>67</td>
<td>69</td>
<td>67</td>
<td>+2</td>
<td>Minimal Impact</td>
</tr>
</tbody>
</table>

Because the predicted traffic on the proposed freeway will be of such low volume and the nearest sensitive receptors will be far from the freeway, the resulting noise (L10) will be close to (or below) the quiet existing noise levels in the open fields, as shown in lines 1 through 3 of the accompanying table.

Since the predicted noise is well below the FHWA's design levels (maximum allowed) of 70 dBA for residences, the impact is minimal or non-existent.

Even though the "L10" noise levels will not be a problem, noise "peaks" from individual trucks, as they pass by the distant residents, may disturb the serenity of the west hills. Especially at night time or early morning, the low pitched throb of diesel truck exhaust will occasionally interrupt the chirp from crickets.

Line 4 of the table shows the effects that I-15 will have in drawing heavy interstate trucks and through travelers away from the already impacted community of Elwood. When the freeway is opened for use, Elwood will be about 5 dBA quieter compared to its present traffic noise, or 11 dBA quieter than it would be in the year 2000 if the proposed project were canceled.

Similarly (lines 5 and 6), other residents and communities along US-191 would benefit by the proposed project.

Line 7 indicates a maximum of 2 decibels increase on Tremonton Main Street where I-15 will cross. Because of the grade separation at this interchange, some acoustic benefit will occur shielding those businesses within about 200 feet of the freeway - canceling the effect of the 2 dB increase. Receptors farther than 200 feet from the freeway and closer than 100 feet from Main Street will notice the Main Street noise more than the freeway noise.
Therefore, no noise abatement measures are necessary, and no Federal Highway Administration exception requests are necessary.

A map showing noise level contours would be meaningless for this document, as there are no existing or planned developments or single dwellings close enough to be identifiable on such a map. However, should such developments be planned in the future, the Box Elder County and community officials might be benefitted by the following generalizations:

The $L_{10}$ will probably never exceed 70 dBA at a distance of 20 feet or greater outside the freeway right-of-way.

The $L_{10}$ will probably never exceed 65 dBA at a distance of 75 feet or greater outside the freeway right-of-way.

The $L_{10}$ will probably never exceed 60 dBA at a distance of 200 feet or greater outside the freeway right-of-way.
WATER QUALITY

Where water is not abundant, its care and nurture are of paramount importance not only as an environmental resource, but as a means for survival. All of the contiguous western states have a strong concern for water resources.

Included within The Executive Summary of The Critical Water Problems Facing The Eleven Western States, Westside Study, as published by the United States Department of the Interior, is the following passage:

In virgin or undepleted conditions it is estimated that the average annual surface runoff or yield of the stream systems of the 11 Western States aggregated 427 million acre-feet including 50 MAF of inflow from Canada. Today, due to the cumulative activities of man, this virgin water supply has been depleted by 83 MAF of consumptive water use annually leaving 344 MAF or about 81 percent of the virgin yield still not consumed. On its face this appears to be ample to meet the consumptive water needs of the West far beyond the foreseeable future. As a practical reality, however, these statistics only demonstrate that it is hazardous and misleading to generalize about water supply and water resources for a region as large as that encompassed by the 11 Western States.

Within this western region there are large areas such as the Upper Rio Grande and the Gila River basins where the total surface water supply, for all practical purposes, is completely consumed. In the Colorado River Basin this condition will be reached when the Central Arizona Project is completed. After that, as the Upper Basin expands it water consumption under its Colorado River Compact allotment, uses in the Lower Basin will have to be curtailed due to limitation of water supply unless the natural supply of the Colorado River is augmented. In the Arkansas-White-Red and the Great Basin, it is forecast that by the year 2000 the total water supplies essentially will be utilized.

Both the Bear and Malad Rivers flow into the Great Salt Lake and are thus considered part of the supply of the Great Basin which, as stated, will expectedly have its total water utilized by the year 2000. The Summary goes on to declare:

Ground water is an important source of water supply in the 11 Western States as it is estimated that there are 6.2 billion acre-feet of water in storage at depths ranging from 50 to 200 feet. In certain areas such as Central Arizona, the high plains area of New Mexico, several sections of the San Joaquin basin in California, and the southern California coastal area, ground water is being mined to the extent of creating major problems. Generally, however, the ground waters of the West are not being utilized optimally due to lack of sufficient information as to location, quality, physical characteristics and costs to develop, and policies as to their use. Much remains to be done to bring about the best conjunctive development and management of surface and ground water supplies.

Which implies that many agencies, both public and private, are expected to attempt better management of the available ground water in the west.

Two Rivers

Hydrologically, the Bear River Valley is dominated by the Bear and Malad Rivers which flow north to south through the middle of the valley. The larger, the Bear, is probably the Western Hemisphere’s longest stream which does not flow into an ocean. Originating in northeast Utah, the river flows through parts of Wyoming, Idaho, and then back into Utah for a distance of about 500 roundabout miles (800 km), and ends in the Great Salt Lake, only 90 miles (140 km) from its origin. Smaller in size (about 1/20 the flow of the Bear), the Malad River flows into the Bear River south of Tremonton. Unlike the Bear River (with a mineral content 320-2600 mg/liter) which is the primary source for irrigation waters in the valley, the Malad water, being heavily mineralized (800 to 5700 mg/liter), is not extensively utilized for irrigation or industry. Both rivers receive about 60 percent of their water flows during the runoff months of March to June. Maximum flood flows for the Bear and Malad Rivers are 11,300 cubic feet per second (317 m³/sec) and 2030 cfs (57 m³/sec) respectively. Minimum flows within the valley occur during the irrigation season (mid June to September) during which the water flow contains the highest mineral content due to agricultural groundwater influx, evaporation and spring flow.

Both the Bear and Malad Rivers were classed as "CW" waters by the Utah State Division of Health on August 7, 1971. Recommended and mandatory standards for water quality parameters were also set at this time. The "C" classification is represented on a quality scale from A, the purest, deteriorating to E, the poorest; while the "W" is indicative of water above 680°F. These type of waters
are suitable for the following uses: municipal (following complete treatment), aesthetics, irrigation, stock watering, fish propagation, wildlife, recreation (except swimming), industrial supplies and other similar uses as determined by the Utah State Board of Health and the Utah Water Pollution Committee.

Drainage
The valley drainage patterns are influenced by the shallow and ancient basin of Lake Bonneville which existed many thousands of years ago. Side valleys, canyons and gullies of the Wellsville and Clarkston Mountains as well as the West Hills, all of which are normally dry except in rare cases during the presence of heavy precipitation, abruptly end after exiting from the mountainous terrain and entering the valley. The valley is naturally level (except in the shallow riverbottoms) and, due to the extensive irrigation farming practices, most of the natural drainage systems have been essentially eliminated. A high water table exists beneath the irrigated lands.

Irrigation
An extensive network of irrigation canals exists south of Plymouth with several major canals carrying up to 450 cfs (13 m³/sec) of water. Numerous secondary and tertiary canals and ditches branch from these primaries, bringing irrigation water to most of the valley floor. Water for these canals originates from the Cutler Reservoir (located in the northeastern section of the valley) which stores waters of the Bear River. Principal uses of the canal water are seasonal in nature and occur between the months of June and September, although water does flow year-
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

round in the primary canals. Maximum flows from the primary canals are:

<table>
<thead>
<tr>
<th>Location</th>
<th>Maximum Water Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>West (Bothwell)</td>
<td>450 cfs (13 m³/sec)</td>
</tr>
<tr>
<td>Corrine</td>
<td>300 cfs (9 m³/sec)</td>
</tr>
<tr>
<td>East Hammond</td>
<td>55 cfs (2 m³/sec)</td>
</tr>
<tr>
<td>West Hammond</td>
<td>110 cfs (3 m³/sec)</td>
</tr>
<tr>
<td>Highline</td>
<td>18 cfs (1 m³/sec)</td>
</tr>
</tbody>
</table>

The proposed alignment will cross the West and Highline canal as well as numerous minor irrigation canals and ditches which are not shown on the accompanying map.

Box culverts and/or pipes will be placed at the canal crossings. Construction work on canal crossings will necessarily be conducted in such a manner that the irrigation water flows will not be interrupted during the irrigation season; extensive economic impact to many of the valley farmers would occur if the flows were stopped.

Erosion and Sedimentation

While some localized erosion will likely occur during and immediately after construction, the use of mitigative measures will minimize erosion and subsequent sedimentation. Such measures will include revegetating the right-of-way and the use of temporary erosion structures. It is expected that such measures will stabilize the slopes within one to two growing seasons. Borrow pit erosion will be slight and will expectedly be contained within each of the pit locations. As mentioned before, canal or irrigation ditch crossings are planned to include box culverts and/or pipes. Major canals will be lined within the right-of-way to prevent canal bank erosion.

Drainage courses from surrounding slopes are shown in black. Some are intercepted by the canal systems (in green) before reaching the Malad and Bear River watercourses (in blue).
COMMENT ON THE DRAFT STATEMENT BY U.S. DEPARTMENT OF THE INTERIOR

It appears that all alternatives would affect existing ground water rights (wells and possibly springs). If so, it is suggested that this potential legal impact be addressed in the final EIS.

Potential legal impacts were addressed in a September 8, 1977 UDOT memorandum, and the text is included below.

Investigation was made on September 6, 1977, into possible impacts which the proposed alternates would have on existing wells and springs. Only one well, southwest of Riverside, which is used to irrigate bench land that is above the West Canal and which will probably be purchased as right-of-way, could be affected. It is not likely, however, that the use of the well would continue after freeway construction due to land use change; but if the owner of the well wishes continued use of his water from the well, facilities will be provided in the design stage of the project to give him access to his water.

Conflict with a developed spring above a house and farm on the benchland west of Fielding is also possible. Since access to the property was denied at this stage, it is not possible to determine exact problems; however, in the design stage redevelopment, pipes, or other facilities will be provided to continue functioning of the springs for their present usages.

Furthermore, if in the design stages of this project, additional conflicts with wells and springs are encountered, facilities will be provided to continue usage of the waters as they were before construction.
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

Sodium Chloride Contamination

Salt used for wintertime highway maintenance must be considered an environmental hazard, for, as stated in a 1972 paper delivered in Madison, Wisconsin by Franklin S. Adams, Assistant Professor of Biology at Pennsylvania State University, and reported in the Highway (now Transportation) Research Board Record, Number 425 (1973),

... The elemental constituents of salt casually or quite deliberately cast into the environment must, at a later time and place, be accounted for.

Because salt is readily dissolved in water and snow or ice is the solid form of water, any salt-snow mixture will ultimately result, to a lesser or greater degree, in the disappearance of salt into solution. At the time of environmental distribution salt, snow, and salt in solution will enter into any one or combination of the following three possible alternative pathways:

1. Salt may dissolve in the melting snow and run off directly;
2. Moving traffic may splash salt or salt in solution onto the adjacent roadside environment where salt may percolate downward into the soil and become available to plant roots or the underlying water table or be deposited directly on roadside vegetation; or
3. Salt-laden ice and snow may be picked up, hauled away, and eventually discarded.

The ultimate fate of all salt liberated into the environment will be to enter the oceans or an equivalent reservoir such as fossil geologic water supplies (underground pools of water formed only during interglacial intervals called pluvials). At all other times, salt is free to become involved in all manner of living and nonliving environmental processes, many of which possess the potential for causing significant ecological alterations.

What then are some of the more significant consequences? In the same HRB Record (#425), Avery E. Rich of the New Hampshire Agricultural Experiment Station goes on to declare,

Sodium chloride, applied to the highways in winter to prevent ice formation and to aid in snow and ice removal, is an important contributing factor to the decline of roadside trees. Trees within 30 ft. of the edge of the highway are affected most frequently and most severely.

... Although he qualifies this indictment by adding,

Probably other contributing factors include drought, low soil fertility, soil compaction, mechanical injury to roots, and possibly air pollution.

Other problems, cited elsewhere in this environmental statement relate to agricultural crops, surface water and ground water. Researchers of the Department of Geological Sciences at the University of Rochester in studying effects of de-icing salts on the Irondequoit Bay Drainage Basin concluded:

The data clearly show that de-icing salts have a notable effect on the physical behavior of Irondequoit Bay. The ecological effects are unknown. Continued heavy use of de-icing salt will impair groundwater resources of the Irondequoit Bay drainage basin and of Monroe County. The time scale is a few years to a few tens of years, depending on the locality and the details of the groundwater reservoir.

(Also reported in HRB #425)

Sand and salt in equal volumes have been applied in the past to the interstate highway (I-80N) near Tremonton at the rate of 500 lbs. (230 kilos) per two-lane mile per application. With an average of 72 applications per winter season, a 4-lane divided highway has annually required putting 18 tons of salt per mile on the road.
Reflecting upon Professor Adam's discussion, where does it all go? An Iowa Highway study on de-icing salt effects indicated that up to 50% of the salt gets carried away by traffic, 25% is removed by surface water and 25% reaches the soil with about half of this remaining in the upper 3" of the soil and the other half leaching through the soils. Using the above as a guide, approximately 4.5 tons of salt per mile (equivalent to 1.7 lbs. per linear foot) would be contained in surface runoff, another 4.5 tons per mile (332 lbs. per acre at a soil concentration of 166 ppm) would be distributed in the soils, and of the 4.5 tons, approximately half (159 lbs. per acre or 80 ppm) would be leached out should the present application of salt be projected to the proposed facility.

Even though the argument is still smoldering as to whether or not spreading salt on roads during wintertime maintenance extensively damages plant life and excessively pollutes waterways, the general trend seems to indicate that less road salting will occur in the future. In a paper delivered at the November, 1974 proceedings of the American Association of State Highway and Transportation Officials, Robert C. Terry, Jr. and David L. Richardson of Arthur D. Little, Inc. declared:

State highway departments, turnpike authorities, municipal street departments, and other organizations (shopping centers, hospitals, schools) annually purchase approximately 9 million tons of salt and other deicing chemicals with a total value of about $140,000,000. As the amount of these materials have increased, so too has the concern for what these materials are doing to our environment.

... In addition to the direct costs there are additional indirect costs that are borne partly by highway agencies in the form of corrosion damage to trucks and equipment and to bridge decks; but mostly, these delayed costs must be paid by other segments of the public in the form of rusted automobiles and degraded drinking water.

For these environmental and economic reasons, it is important that maintenance authorities use no more salt and other chemicals than are absolutely necessary to improve the driving conditions during winter storms. The problem is that excess amounts have been applied routinely. The causes include lack of awareness of the problem, lack of managerial controls over salt usage, lack of calibrated equipment, and lack of understanding and cooperation by the driving public.

Understanding the problem and cooperation by the driving public will come about as the facts are brought to light - primarily via the media. Managerial controls and calibration of equipment have recently been implemented by the Utah Department of Transportation, Maintenance Division. Coupled with an awareness of the problem, it is anticipated that the total salt burden from highway maintenance which would enter the Malad and Bear Rivers after completion of the proposed project would be less than that amount which occurred during the 1974-1975 winter. Measures are also presently under study to protect roadside and upstream vegetation. By the time of project construction the state-of-the-art will undoubtedly be far advanced so that a detailed discussion of suggested remedies would be an exercise in futility if included in the environmental statement at this time.

Ground water adjacent to the proposed alignment will increase in sodium content and may adversely affect nearby wells and springs within the drainage. Agricultural fields adjacent to the right-of-way will be susceptible to increased salt content in the soils: some by direct runoff and some by vehicle spray or mist (which is effective up to 200 feet away from the source). Both sources of contaminants will create unfavorable consequences to the growing future of crops. Of course, as stated previously, within the right-of-way, plants used for landscaping will begin to be affected four to eight years after construction by the expected increased sodium content in the soils.

Also found in the runoff waters are the residues of oil, fuel, tar, products of combustion and other miscellaneous substances commonly found on the roadways. These residues will normally be locally impounded within the right-of-way and drained off at specific locations. Total effect or impact of these residues, due to the dependency on the concentration and potency of these substances, is not known. The impact is expected to be localized and insignificant, except to roadside vegetation which will be slightly-to-moderately affected.
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

Other Chemicals

Oil and hazardous material spills potentially could occur along the right-of-way, and would be locally contained except in the following locations: at the river crossing and all canal crossings. Measures for spill control and clean-up are contained within the Oil and Hazardous Spills Directory set up to handle these emergencies.

As alluded to previously in the subsection on ecological impact, herbicide spraying of noxious weeds within the right-of-way chosen will occur during the late spring and summer months with chemicals such as "2,4-D", "2,4,5-T", or an equivalent herbicide. An infrequent pesticide spraying within the right-of-way may be justified if the insect pest is determined to be abundant and of a sufficient economic agricultural concern to warrant such action. With all types of chemical sprays, residues could be present in runoff waters from the right-of-way causing contamination problems within the drainage as before indicated, or the chemicals could be accidentally sprayed into adjacent irrigation canals. Although either situation could cause significant degradation of the waters or adjacent soils, the chances are very small.
5. Kind and amount of material spilled;
6. Cause of spill;
7. Waterways involved or proximity to waterways;
8. Emergency action taken for containment and cleanup;
9. Other agencies contacted.

The basic provisions relating to oil pollution and hazardous material spills are contained in The Federal Water Pollution Control Act (PL 92-500, 1972, Sec. 311). According to this regulation:

(a) (1) 'Oil' means oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil;

(b) 'Discharge' includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying or dumping;

(c) 'Hazardous substance' means any substance, ... (d) which, when discharged in any quantity into or upon the navigable waters of the United States or adjoining shorelines or the waters of the contiguous zone, present an imminent and substantial danger to the public health or welfare, including, but not limited to, human health, fish, shellfish, wildlife, shorelines, and beaches.

Hazardous substances include, but are not limited to, those listed in the regulations of the Federal Register, Vol. 39, No. 164, Aug. 22, 1974.

The following information has been extracted from the National Oil and Hazardous Substances Pollution Contingency Plan (Fed. Reg., Aug. 15, 1972) prepared by the Council on Environmental Quality:

(a) 'Public health or welfare' includes consideration of all factors affecting the health and welfare of man, including but not limited to human health, the natural environment, fish, shellfish, wildlife, and public and private properties, shorelines and beaches.

(b) Minor discharge - is a discharge, in the inland waters of less than 1,000 gallons of oil;

(c) Medium discharge - is a discharge of 1,000 to 10,000 gallons of oil in the inland waters;

(d) Major discharge - is a discharge of oil of more than 10,000 gallons in the inland waters, or a discharge of a hazardous substance that (1) generates critical public concern; or (2) poses a substantial threat to the public health.

(e) Potential discharge - is any accident or other circumstance which threatens to result in the discharge of any substance, which discharge shall be classified by its severity based on the guidelines above.

Penalty provisions in the Federal regulations are severe for responsible parties who fail to immediately notify the appropriate agencies:

"Any person who fails to notify immediately such be fined not more than $10,000, or imprisoned for not more than one year, or both, for each day on which such violation occurs. Each day upon which such violation occurs shall constitute a separate violation.

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The attached list of agencies and companies provides contacts for reporting spills and soliciting information and/or services on oil and hazardous material spills in Utah.
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

In general, runoff and spills will be contained within the right-of-way by check dams, berms, dikes and holding ponds. Drainage from the roads thereby will be directed away from adjacent lands, canals and waterways. Canals and ditches within the right-of-way will be covered to prevent the runoff from entering the waterways. Finally, decrease in application of de-icing salts is anticipated which, when implemented, probably as recommended by the EPA's MANUAL FOR DEICING CHEMICALS: APPLICATION PRACTICE (EPA-670/2-74-045) could still achieve the desired results of de-iced highways while reducing soil and water degradation.

Pollution Control

As stated on page 25, the proposed interstate segment is programmed for construction beginning in 1981 and is to be, hopefully, opened to traffic in 1985. However, the Federal Water Pollution Control Act (FWPCA, as amended by the Clean Water Act of December 27, 1977) contains a national goal calling for the elimination of pollutants into the nation's waters by 1987. Since the critical issue is that further degradation should not take place, positive efforts to decrease pollutant discharges into streams will be made to comply with the intent and spirit of the FWPCA (as amended).

Watershed Modification

The proposed alignment will cause essentially little change or impact to the existing drainage systems. Newly exposed slopes will additionally increase the volume of runoff (and the erosion) which will adversely affect the drainage and flood potential below (downstream from) the right-of-way. On the proposed alignment, this problem will be of minor consequence.

Sanitary Waste

The proposal will not intercept existing sewer lines, although a few residential septic tanks may be encountered. Containment of sewage from such tanks is not expected to be a problem.

A recent Water and Hazardous Materials report was prepared under an EPA grant to reveal abatement measures taken in the Tremonton-Garland area and to announce further steps to be taken which will eliminate all untreated waste water discharging directly into the Malad River. This report is a prelude to preparation of final plans and specifications for proposed sewerage system improvements to be constructed in the vicinity of Tremonton.

No freeway-associated impact on sanitary waste or its future treatment is foreseen.
Utah has over one million acres classified as "Wetlands" (according to the U.S. Department of the Interior, Fish and Wildlife Circular Number 36): approximately one-third of all the wetlands in the eleven contiguous western states.

Compaction of the soils from construction will restrict natural water drainage and cause increased ponding. Small pockets of wetland conditions are found throughout the valley; marshes and wet meadows are common along sections of the Bear and Malad River bottomlands, especially in the river oxbows.

At the river crossing, several acres of wetland pasture will be affected by construction of the bridge and approaches. Coordination with the U.S. Fish and Wildlife Service and Utah State Division of Wildlife Resources indicates that this will be of insignificant impact.

Soil compaction, resulting from highway construction in high water table areas, could restrict natural water drainage and cause increased ponding.
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

STREAM MODIFICATION
The Malad has an emphatically indecisive flow pattern (demonstrated in the page 71 photograph) which decries channel straightening and its corresponding alteration of stream gradient. Nevertheless, some channel modification will probably be necessary.

As proposed, the projected I-15 will cross the Malad River near Plymouth necessitating a slight channel change of approximately 600 feet (180 m).

The Plymouth crossing site is located in a shallow valley flood plain of the Malad, is vegetated with bulrushes and grasses. Water velocity is slow with a bottom type of a mud-silt composition. Turbidity of the river is high but light-to-moderate livestock grazing nevertheless occurs at the proposed site.

In order to maintain (and potentially improve) the stream characteristics, the following general procedures will be followed wherever stream modifications of more than a few feet would be required:

STEP 1 - Reconstruct the new channel meander to the approximate length and gradient as the section to be relocated.

STEP 2 - Stabilize the new channel banks with rip-rap and the bottom with medium size rubble to a thickness of 2-3 feet.

STEP 3 - Place deflector gabions and random rocks (three foot in diameter or larger) in the new channel bottom following the recommendations of the Utah Division of Wildlife Resources.

STEP 4 - Transplant willows, cottonwoods and other trees or shrubs native to the locale to the new channel banks and seed with grass the exposed upper bank slopes (placement can occur concurrently with Steps 2 and 3).

STEP 5 - Fill the new channel meander as a still water pond for at least several months to insure settling; maintain the streamside plants.

STEP 6 - Redirect the river flows from the existing channel to the new one.

STEP 7 - Remove the old channel in accordance with construction requirements.

Consultation with other agencies, both federal and State, has been on a continuing basis regarding possible stream channel relocations as partially displayed in the accompanying copies of correspondence. Consultation and coordination with the U.S. Fish and Wildlife Service and the State Division of Wildlife Resources will continue during project development.
Moderate livestock grazing tends to discourage use of the waterways for swimming and other similar recreational pursuits.

Mr. Richard W. Copenhaver
Highway Technician
Room 400, State Office Building
Salt Lake City, Utah 84114

Dear Mr. Copenhaver:

In response to your August 22nd letter to Mr. Charles Heumier requesting biological information on alternative routes for I-15 between Elwood and Plymouth in Box Elder County, we are not able to supply any numerical data regarding wildlife in the proposed area. However, the following observations are submitted for consideration.

The area involved is mostly farm lands, either dry or irrigated. Almost all of these lands are utilized as feeding areas by waterfowl, especially during the fall, winter, and early spring. The wet bottomlands along the Malad and Bear Rivers provide nesting habitat for waterfowl during the summer. Many other birds utilize this area for feeding and/or nesting also. This, gulls, and mourning doves are common among the migratory birds - the ringnecked pheasant is found all over the area under consideration throughout the year. Chuckar and hungarian partridge are found in limited numbers mostly around the foothills. A valuable sport fishery is found along the Bear River in the subject area.

Since any construction diminishes habitat for some form of the wildlife present in the area, We believe that the least harmful route would be the one shown on your planning map as the West Alternate. This route would destroy the least productive wildlife (and agricultural) lands. This route would also put any future polluting spills from tank trucks, etc., the farthest from the Bear River fishery.

Sincerely yours,

James A. Young
Acting Area Manager
Mr. Randall S. Isham, Wildlife Biologist
Utah Department of Transportation
State Office Building
Salt Lake City, Utah 84114

Dear Randy:

In response to your request of November 3 concerning the proposed addition to Interstate 15, we offer the following comments for your consideration.

As was the case with comments submitted by our office on September 20 (see attachment), we still believe the west alternate to be the most favorable.

We find the east alternate unacceptable because it would:
(1) destroy a significant amount of irrigated and dry farm lands which provide valuable cover and feeding areas for pheasants, waterfowl, and many other species of nongame birds and mammals; (2) destroy a high use wetland area (in wet years) used primarily as a resting-feeding area during spring migrations of waterfowl—and we have also noted significant use by gulls, ibises, and other water birds; (3) destroy approximately 80 acres of big game winter range; and (4) involve a major crossing of the Bear River, leading to channelization and reduction in quality of a valuable sport fishery. Debris from passing vehicles and runoff from salted roads may also deteriorate the fishery of the Bear River.

The center alternate, including the "PF" crossing, is also unacceptable. The center alternate would:
(1) account for approximately 600 acres of irrigated farm lands being lost—these lands supply prime ringneck pheasant habitat and are heavily used by feeding waterfowl, mourning doves, and a variety of shore birds, song birds, and small mammals; (2) destroy irreplaceable wet bottomlands along
the Malad River which provide cover, feeding, nesting, and brood-rearing habitat for ducks, geese, and many other water birds—we also noted muskrat use of the wetland areas and several birds of prey all along the center alternate; and (3) require a crossing of the Malad River, resulting in channelization. The "PF" crossover utilizes the south half of the center alternate and the north half of the west alternate, requiring the Malad River to be crossed twice. Points 2 and 3 above also apply to the "PF" crossover. The "PF" crossover would also result in considerable loss of irrigated and dry farm lands.

We believe the west alternate to be most favorable because; (1) it destroys the least amount of irrigated and dry farm lands; (2) it removes the least amount of wildlife habitat; (3) it routes traffic farther away from high density wildlife areas, reducing potential road kills and the effects of vehicle-generated pollutants; (4) it involves crossing the Malad River at a point where channelization could be minimized; and (5) it can most easily be mitigated. Mitigation should include use of a clear span bridge at the Malad River crossing with riprap placement around abutments, revegetation of all construction scars with indigenous plant life, and returning surrounding areas which may be altered by the project as close to their original condition as is possible. Vegetation mowing practices along the right-of-way should be limited to a single cutting blade length from the shoulder until September of each year. This practice supplies additional nesting, feeding, and protective cover for surrounding wildlife.

We appreciate the opportunity to express our opinions on this matter and hope our comments will be useful to you if we may be of any further assistance, please feel free to contact us.

Sincerely,

Mitchell G. Sheldon
Acting Area Manager
Utah State Division of Wildlife Resources
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

FLOOD HAZARD

Both the Malad and Bear Rivers have described flood plains; nevertheless, flooding has not been a serious problem in the past, should not be in the future and is not considered a danger to the proposed freeway segment.

As stated previously, flow in the Bear River is controlled by the Cutler Reservoir. Future dams and reservoirs would provide additional safeguards against flooding. Two dam sites, the Honeyville and Plymouth, on the Bear and Malad Rivers respectively, have been considered by the U.S. Bureau of Reclamation. Both reservoirs created would be designed primarily for irrigation water usage with limited industrial, municipal and recreational use.

The proposed Honeyville dam site on the Bear River is about four miles (6 km) southeast of Tremonton near the town of Honeyville. At the maximum water surface elevation (4,275 feet or 1284 m above sea level), the reservoir would create backwater to the Cutler Reservoir 13 miles (21 km) away with a lake width of up to 1300 feet (391 m). The East Alternate would require a long fill and a structure to cross both the present river valley and the future (20 years) reservoir.

Located one and one-half miles south of Plymouth on the Malad River, the Plymouth dam would hold back approximately three to four times the water capacity of the Honeyville Reservoir at a maximum surface elevation of 4,400 feet (1320 m) above sea level. The reservoir would surprisingly store Bear River water conveyed by a canal from the

COMMENT ON THE DRAFT STATEMENT BY U.S. DEPARTMENT OF THE INTERIOR

The only relationship to Bureau of Reclamation projects was covered on pages 41 and 118 of the report. Page 118 should be revised to indicate that the Honeyville and Plymouth dam sites were investigated in prior years by Reclamation. Currently, the Bureau of Reclamation has no firm proposal that these reservoirs should be built, nor do they presently have any active investigations at these sites.

The text on page 118 of the Draft Statement has been modified and moved to this page.
To Control Great Salt Lake Level

Official Urges Malad River Dam, Dikes

BRIGHAM CITY (AP) — To control the level of the Great Salt Lake and keep needed water in Northern Utah, a dam and series of dikes should be built on the Malad River, says Box Elder Commissioner John Holmgren.

Holmgren, a Box Elder representative to the Bear River Association of Governments, said the dam and dikes near Plymouth, Box Elder County, could help keep the level of the Great Salt Lake stable and keep water in the three association counties for agricultural and residential development.

Box Elder, Rich and Cache counties comprise the association.

Praises Proposal

Holmgren praised a proposal by the association's Resource Conservation and Development Technical Assistance Committee for putting the dam-dike proposal together. The association met Wednesday.

"When the people in central Utah suggested running the Bear River right past Salt Lake and down to their territory, we felt we better do something about keeping the water here in our area where we need it," Holmgren said.

The proposal recommends building a dam across the Malad River north of Plymouth before the Malad River joins the Bear. Dikes similar to those at Willard Bay would be built on the northern part of the dam to hold the water and prevent large mud flats from forming when the dam's level is lowered.

6,000 Acres

The dam would cover about 6,000 acres of dry sand and salt pasture, Holmgren said. But it would bring more dry land under irrigation as far north as Malad, Idaho, and into western Box Elder County, he added.

"It wouldn't cost any more to build this storage facility than to pump water out of Cutler Dam as well as waters from the Malad River. The proposal will cross the existing Malad River bottom with a structure near where the dam site is most likely to be chosen. The proposed freeway bridge structure would be at a sufficiently high elevation to clear the reservoir waters and the river flood plain.

Flooding from drainages ( exiting from the valleys, gullies and canyons) on the valley sides, although a remote occurrence, will be anticipated. Drainage structures, therefore, will be designed to withstand a 50-100 year flood in order to prevent flood waters from entering upon the proposed roadway.

Plans for the proposed improvement will necessarily conform to FHWA Federal-aid Highway Program Manual 5-7-3, subsection 2: HYDRAULIC DESIGN OF HIGHWAY ENCROACHMENTS ON FLOOD PLAINS which states as its purpose and policy:

... to prescribe policies and procedures for hydraulic designs for highway projects constructed with Federal-aid funds and projects under the direct supervision of the Federal Highway Administration.

... Pursuant to Executive Order 11296, it is the policy of the Federal Highway Administration to encourage a broad and unified effort to prevent uneconomic, hazardous or unnecessary use and development of the Nation's water resources in southern Cache County.
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

Federal Aid Highway Program Manual
Transmittal 30, May 29, 1974

The following extracts from "Flood Hazard Evaluation Guidelines for Federal Executive Agencies," United States Water Resources Council, May 1972, are applicable to the location, design and construction of Federal and Federal-aid highways. The WRC publication has been distributed by various sources. Additional copies are available from FHWA on request.

"(6) Select the floods to be used in a flood hazard evaluation to fit conditions of the area being investigated."

"(10) Determine the effects of proposed highway construction in the floodplain and its vicinity, and of proposed upstream or local flood prevention or control measures, if any, on the elevations of the evaluation floods."

"(12) Adopt the policy of discouraging the construction of those roads, utilities, and other public facilities (except those crossing streams) within the most hazardous portions of the floodplain that aggravate flooding and encourage undesirable developments in that zone."

"(14) Delineate, or ensure the delineation of, on Federally owned properties, the elevation of the 100-year flood, and the magnitudes should be known by the public."

"(15) Encourage State and local agencies to keep a permanent record of information on each floodplain evaluated, the flood hazard measures proposed or adopted, the flood prevention or control elevation delineations..."
An aerial view of the Malad visually shows the extent of its flood plain.
CONSTRUCTION

Although Utah's Standard Specifications for Road and Bridge Construction (1970) require each contractor to pay earnest and particular attention to preserving natural vegetation, land features, streams, lakes and reservoirs; to control dust and smoke; and to control, finish and, in some cases, reseed material borrow pits and waste disposal sites in an aesthetically pleasing manner as far as is practicable, the following items of concern are to be given special attention.

Railroad Crossing Structures

Wherever the project crosses railroad tracks, a grade separation will be provided but there is a potential for temporary disruption of railroad service. The proposed alignment would cross Union Pacific rail lines once near Plymouth. Appropriate agreements between the State Department of Transportation and U.P.R.R. will be worked out prior to beginning of work.

Hydrology and Water Quality

The effect of construction of I-15 through the Bear River Valley on surface water quality can be viewed with respect to both short-term and long-term adverse impacts. Short-term impacts on water quality may result from construction operations which involve earth moving activities. The travel of heavy vehicles over freshly disturbed soil and rock would lead to increased silt concentrations in affected water courses. When construction is completed, erosion of raw earth slopes would continue to carry silt into nearby waterways until the earth became stabilized and was covered with grasses (about two years). Even then, some erosion would probably continue on a long-term basis due to high volume flow in certain areas. Most vulnerable to runoff from eroded new fill slopes would be the Malad River crossing of the proposed alignment near Plymouth.

Disruption of Traffic Flow

Some disruption of traffic flow (including temporary closing of some streets while overpasses are being constructed) can be expected but, with appropriate planning, can be kept minimal. The following local roads will probably suffer some degree of impact due to the construction of the proposed I-15: US 30-S (Tremonton Main Street), county road west from Bear River High School, and the road to the Plymouth Cemetery.

COMMENT ON THE DRAFT STATEMENT BY THE INTERSTATE COMMERCE COMMISSION

A search of our records indicates no proposals on file for abandonment of all or portions of the Union Pacific Railroad branch line which terminates in the north of the project area at Malad, Idaho.

It was noted that two and possibly all three alternatives would cross Union Pacific rail lines. While it is assumed that separated grade crossings will be constructed with no measurable impact on rail service, clarification of this point would be useful.

 COMMENT ON THE DRAFT STATEMENT BY U.S. DEPARTMENT OF THE INTERIOR

The statement should mention the number of people who would be involved in constructing the proposed project and relate this to the length of construction. It would also help to point out that construction would or would not be carried on during the winter months. Would construction inhibit traffic flow on the existing highways?

It is estimated that from 90 to 130 people will be employed. Some limited construction activity would continue through the winter months. Some disruption of local traffic will occur but mitigative measures will be taken to hold the disruption to a minimum.
Erosion

Concurrent with siltation problems, adverse impacts of both a short and long duration would occur because of the modification of the ground surface and clearing of vegetation. During and shortly after construction of I-15 newly exposed soils on cut surfaces, graded slopes and fills would be most susceptible until sufficient vegetation or ground cover has been re-established. Revegetation will require at least one year, more probably two or three, to establish root systems sufficiently dense to impede further erosion.

Aesthetics

Borrow site scars will be visible during construction, but afterward healed through application of standard Department of Transportation procedures outlined in the afore-cited Standard Specifications for restoring borrow sites to natural conditions. Independent alignments of the northbound and the southbound traffic lanes are expected to help considerably to decrease the amount of fills and cuts required, thereby improving the appearance of the freeway along the contours of the valleys and hills.

Air Pollution and Dust

Dust due to construction can be kept to a minimum by sufficient watering, a common practice used in the construction industry. An effective watering program (complete coverage twice daily) could keep dust down to some 50% of the dust which would otherwise occur. Therefore, the State Air Quality Implementation Plan will not be violated.

Combining refuse disposal and depleted borrow sites may be jointly developed to eventually enhance aesthetics, even though, at the circulation of this document, no commitments have been made.
PROBABLE IMPACT OF THE PROPOSED ACTION (Direct)

Biologic
During construction, removal of essentially all vegetation will occur within much of the road right-of-way, borrow sites, haul roads and stream crossings (except right at the stream banks). Wildlife inhabiting these locales will be displaced. Noise and other construction-related activities usually causes wildlife adjacent to the above locales to temporarily move away from the disturbance. Of particular concern are those strips of land immediately adjacent to the rivers and marshes, which are suitable habitats for concentrations and breeding of many animal species. Construction will also restrict some of the normal animal movements.

Behavioral changes could include a curtailment of exploration, interferences with breeding, and limitation of access to or avoidance of food and shelter;

Non-auditory physiological effects have been shown to occur, not so much in wildlife as in the lab and on farm animals. Changes in blood pressure, chemical processes (more specifically hormonal balance) and reproductivity are documented;

Animal ability to adapt to noise behaviorally and physiologically are still unknown.

It is reasonable to assume that noise, vibration and dust disturbance of construction machinery will cause many species to leave the construction zone. Upon leaving their home territory, these denizens of the valley and foothills have two choices. They can move into an unsuitable habitat or enter the territory of another member of the same species. Both choices cause stress to the animal because of competition for food, space and cover. Stress may be significant for some species because activities will last several hours a day and over at least one entire construction season. It also seems reasonable that loss of hearing sensitivity can make an animal less able to detect danger and distress signals, and thus more vulnerable to mortality from predation. Additional mortality can occur during construction when danger signals and distress signals are masked by the noise of equipment. Domestic animals would be generally far enough removed from the construction zone to have no severe impact. In those pastures which are adjacent to or severed by the construction zone, any animals tend to move to a more comfortable hearing distance away from the project.

Designers and planners have been alerted to consider construction noise, particularly near towns. However, construction activity will probably not annoy any people, since haul routes will normally be close to the project. Box Elder County does not yet have its own noise ordinance; however, if a need arises for a phase of construction activity to take place near sensitive human activities, the contractor will be required to obey temporary local noise regulations.

Utah lacks a statewide noise edict to cover those localities not having their own ordinance. Currently, the State Health Division is preparing a bill for the next regular legislative session (January, 1979). If passed, the bill would be patterned after the successful Salt Lake City-County noise ordinance, would establish funds and would provide for consultation to counties and cities in order to enforce the State law (adjusted to local needs).

Whether or not the proposed Utah noise legislation becomes law, certain cities in other states are showing interest in the successful Salt Lake City-County ordinance. As a result, Richard B. Ranck, Chief of Occupational Health and Noise Control for Salt Lake City-County Health Department, has been visiting interested cities at the request of EPA. Thus, the proposed State noise bill would likely reflect inputs from many varied sources.

Noise
In March, 1974 the U. S. Environmental Protection Agency (EPA) published a documentary report which summarizes a great deal of acoustical research: Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.

While EPA in the above document recognizes a great deficiency of information on the effects of noise on animals - particularly on hearing loss, adverse reactions, physiological changes and predator-prey relationships - EPA for now assumes noise criteria to be identical as that for humans, including: hearing loss, masking of communication, behavioral change and non-auditory physiological change. In addition:

Hearing loss as well as masking of auditory signals complicate effects of the animal world to recognize its young, detect and locate prey and evade predators;
MINIMIZING IMPACTS

Several proposed procedures and techniques have been mentioned which would tend to reduce or eliminate adverse effects. Two were discussed in some detail:

Relocation Assistance Program (pages 77-85)
Stream Channel Modification (Page 118)

In order to mitigate some of the more severe anticipated impacts, the following suggestions are offered.

Restoration of Pheasant Habitat

Revegetation of the right-of-way with grasses and shrubs, as well as limiting the amount of mowing to 10-15 feet (3-5 m) from the shoulders, would encourage the growth of sufficiently high cover as to invite additional pheasant usage. Potentially utilized for both pheasant winter and nesting habitat, the cover would aid in future pheasant population expansion within the Bear River Valley. Reader reaction could be that, by providing cover near the roadway, a situation may develop which would endanger the young birds which have not yet achieved flight competence. But, in fact, the total effect would be a net gain in population growth because of an increase in cover and available habitat.

Erosion Control

Grubbing, grading, constructing bridges over water courses, surfacing and providing for control on haul roads, borrow and disposal pits will have measures for erosion control. Right-of-way cut and fill slopes would be mulched and seeded with quick growing grasses or covered with mulch (at least 2" deep) immediately after grading to provide rapid as well as temporary stabilizing cover on the bare ground. Seeding of all exposed soils with quick growing grasses such as wheat or barley would be done immediately after grading. Light waterings of the seed beds for several weeks after planting would help to insure rapid establishment of these grasses which, in turn, would hold on to the topsoil and reduce the susceptibility to erosion, and resultant siltation of waterways.

Berms, check dams, dikes and siltation basins of a temporary nature would be used to catch any runoff from the right-of-way and/or to prevent silt from entering the adjacent water courses.

Channel alterations as outlined in the subsection on stream modification would be stabilized before allowing full stream flows to pass through. As always, the contractor would be required to comply with all Federal and State water quality laws and regulations as well as to meet the water quality standards existing for the present waters.

An extract quoted on page 72 pinpointed the rather sloppy treatment of borrow pits which occurred in the past. An awareness and new procedures for restoring borrow areas is now practiced by the Utah Department of Transportation. During the initial stage of removing borrow material, topsoil is scraped and stockpiled for future use. Upon completion of the project or the exhaustion of the source, whichever comes first, the cuts and slopes of the pit are graded to drain properly, dressed with topsoil and seeded with grasses (wheatgrass) and shrubs (such as sagebrush). Seed germination, growth and survival are enhanced by periodic watering (twice weekly during dry weather) for the first two months after seeding. This procedure usually produces a reasonably rapid vegetational cover for the soil, reducing the erosion potential while at the same time improving the aesthetic appearance.
ADVERSE EFFECTS

Even though considerable efforts - using reasonable correction and abatement measures - would be made to reduce impacts to acceptable levels, there would be several adverse environmental effects remaining from the project. Such unavoidable, undesirable consequences of undertaking the proposed action relate primarily to the agronomic nature of the Bear River Valley.

Of those impacts judged by the interdisciplinary team to be unavoidable and adverse, most have been discussed elsewhere in the statement:

- Dislocation of one highway service business (Page 74);
- Irretrievable commitment of natural resources and land (second following section);
- Loss of bird habitat and pheasant population (Pages 60-69);
- Increase in soil salinity in and adjacent to the proposed facility right-of-way (Pages 112-113);
- Construction (Pages 126-129).

Agricultural Output

Cropland is but 4% of Utah's total land area compared to a nationwide cropland average of 20%, while range and grassland account for nearly 50% of total Utah land area, compared to less than 40% for the nationwide average. Commensurately, the total cultivated area of the Bear River Valley comprises only 1.5% of the total land area of Box Elder County, while it comprises some 14% of the total cultivated area in the county. Even more significant is that this same 1.5% contains 25% of the irrigated farm land in the county.

As proposed, the interstate will consume 80 acres of irrigated farmland, representing 0.27% of irrigated acreage in Bear River Valley and 0.07% of Box Elder County's irrigated lands. Approximately 245 acres of dryland farms will be taken, equally about 1.05% and 0.09% of dryland acreage found in Bear River Valley and Box Elder County, respectively.

Although the lands taken by the proposed alignment are significantly less than other proposed alternate Bear River Valley alignments (page 47), it is worthy to indicate, in light of the heavy dependence by the valley resident on, the agrarian economy, the amount of agricultural lands to be taken.

The difference between irrigated bottom lands and dry farm acreage is not just one of water, but also involves the depth of soil, soil texture, soil development, available fertility, potential mineral supply and the levelness of the surface. How does one transport the crop potential of the deep valley loams to the sand and gravel of the bench lands? The bottom lands of the Bear River Valley can grow sugar beets, alfalfa, grains and row crops. The crops that can be supported by the bench lands are somewhat more limited to fruit trees, cereals and alfalfa.

By diverting irrigation water from acreage usurped by the freeway to dry land acreage, much of the present productivity of the valley can possibly be retained. It would be necessary to pump the water to these higher levels. If an effort is going to be made toward maintaining the same volumes of crop production on the remaining land available, then regulations requiring compensation for loss arising from highway construction projects would have to be broad enough to cover the additional costs of crop production resulting from the taking of the valuable farm land under discussion. The cost of this compensation could be considered as part of the complex series of tradeoffs made while deciding any major construction project.
LONG TERM CONSEQUENCES vs. SHORT TERM IMPACTS

By its nature, the subject proposal is geared to a short-term goal - completion of the Federal-aid Interstate Highway network. Longer range ramifications resulting from the proposed action, if historical evidence tells us anything, will be a bit more far-reaching. Life-span of the proposed freeway segment is expected to extend at least into the next century. After its life-span, will I-15 be renewed? If so, will the Bear River Valley be nothing more than a heavily-trod path for those who are bent on going from some place to somewhere? Will the valley have lost its aesthetic amenities; its agricultural productivity; its recreational potential? Is the proposed freeway segment to be a cause of, or a part of, the demise of a valley which nature and man have molded into a highly attractive component of both the natural and human environment? Or will the future present a more optimistic picture?
In the 1975 publication ENVIRONMENTAL DESIGN FOR PUBLIC PROJECTS edited by David W. Hendricks, Evan E. Vlachos, L. Scott Tucker and Joseph C. Kellogg (Water Resources Publications), the editors stress the "Frontier Ethic".

Traditions of development in the United States have their roots in the challenges of survival of the frontier. Customs of society, the focus of business, and the legal structure that evolved all supported the ethic of unhindered development. The individuals who faced the sprawling continent generally were concerned with facilitating and promoting various types of development, the mastering of often harsh territory, and with an overall goal to develop a viable economy. All entrepreneurial forces coalesced and shaped an aggressive ethic whose primary objectives were exemplified in such terms as "development," "growth," "expansion," and economic prosperity. In this context, the function of government was to facilitate and support such forces, not to regulate, constrain, or otherwise interfere.

The pervasiveness of the frontier ethic is well documented not only on the historical records and the legends of fortunes made, but it has been circumscribed also in the appropriate legislation. Such legislation has been only one indicator of the spirit of the times -- but it is probably the most important and the most tangible expression of shared social values. The various federal acts enumerated in Table 1-1 are representative of the type of social climate that has prevailed in the United States since early times; the lingering influence of such legislation survives strongly today.

<table>
<thead>
<tr>
<th>Date Enacted</th>
<th>Name of Act</th>
<th>Key Provisions or Effects Related to Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>1824</td>
<td>Administrative Action</td>
<td>Corps of Engineers assigned responsibility to improve waterways</td>
</tr>
<tr>
<td>1852-1871</td>
<td>Railroad Land Grants</td>
<td>128 million acres to railroad use of which 91 million went to railroad corporations and 37 million acres went to states for benefit of the railroads</td>
</tr>
<tr>
<td>1862</td>
<td>Homestead Act</td>
<td>160 acre land grants to individuals 285,000,000 acres were patented under this act (1/3 of original public domain)</td>
</tr>
<tr>
<td>1872</td>
<td>1872 Mining Law</td>
<td>Permits unrestricted mineral exploration on all public lands and permitted complete control of all resources by a claimant</td>
</tr>
<tr>
<td>1877</td>
<td>Desert Land Act</td>
<td>Provided for sale of land at $1.25 per acre of 640 acres to settlers who would irrigate it within three years. Ten million acres were patented under the act</td>
</tr>
<tr>
<td>1902</td>
<td>Reclamation Act</td>
<td>Further advanced the amount of land irrigated</td>
</tr>
<tr>
<td>1908</td>
<td>Administrative Action</td>
<td>Inland Water Waterways Commission advances the doctrines of the river basin unit and multiple purpose water control projects</td>
</tr>
<tr>
<td>1920</td>
<td>Mineral Leasing Act</td>
<td>Provides for leasing by the Secretary of the Interior of coal, phosphate, sodium, oil and oil shale on public lands</td>
</tr>
<tr>
<td>1953</td>
<td>TVA Act</td>
<td>TVA was created</td>
</tr>
<tr>
<td>Date Enacted</td>
<td>Name of Act</td>
<td>Key Provisions</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1891</td>
<td>Forest Reserve Act</td>
<td>Established forest reserves—the precursor to the National Forests</td>
</tr>
<tr>
<td>1920</td>
<td>Federal Water Power Act</td>
<td>Created Federal Power Commission and authorized it to issue licences for navigation and power production from navigable waters</td>
</tr>
<tr>
<td>1940</td>
<td>Ohio River Valley Sanitation Compact</td>
<td>For control and reduction of pollution in the streams of the Ohio River drainage basin</td>
</tr>
<tr>
<td>1948</td>
<td>Taft-Barkely Water Pollution Control Act PL80-845</td>
<td>Declared a pollution control policy and provided aid to state agencies to control stream pollution</td>
</tr>
<tr>
<td>1956</td>
<td>Federal Water Pollution Control Act of 1956 PL84-660</td>
<td>Extended and strengthened 1948 law, encouraged interstate compacts and uniform state laws, financed research and technical assistance to states; grants for construction of treatment plants</td>
</tr>
<tr>
<td>1961</td>
<td>Federal Water Pollution Control Act Amendments of 1961 PL87-88</td>
<td>Further strengthening of act by extending federal authority to control abatement of interstate waters; further financial authorizations</td>
</tr>
</tbody>
</table>

* Prior to this act, the only three federal water pollution acts existed: (1) Rivers and Harbors Act of 1899; (2) Public Health Service Act of 1912; (3) Oil Pollution Act of 1924
LONG TERM CONSEQUENCES vs. SHORT TERM IMPACTS

Referring to Table 1-1, one can discern how the railroads, through land grants, became major economic forces controlling much of the development that did occur, such as the rise and fall of settlements, as well as the drawing of the economic map of the nation. The 1872 Mining Law, with the 1920 Mineral Leasing Act, has been the authorization for almost unlimited and virtually unregulated activity on public lands. Then, under the impetus of the 1902 Reclamation Act and with the strong presence of private irrigation companies, 43 million acres of land were under irrigation by 1969—a literal blooming of primarily arid land in seventeen Western States. This transformation has been the basis for a viable and agriculturally based economy for much of the West and the basis for the "urban oasis" that increasingly have come to characterize most states in the West....

The major legal support bolstering the cause of reclamation and other private irrigation activities in the West has been the appropriation doctrine of beneficial use. Under such a doctrine, in-stream uses have no legal status; this has become the cause for serious conflicts emerging strongly around 1969 between those benefiting from the traditional uses of water requiring diversion and those wanting flowing streams for additional ecological purposes. This doctrine was amended in some states in 1972 when in-stream uses were recognized as beneficial use.

That there is evidence of a long-term concern for the environment would be an understatement. Environmentally-oriented legislation has been with us for more than half a century. Even longer, have been environmental consequences of man's past construction efforts. The editors cite that -

Many people have built large structures over the centuries. Most of these structures, as a result of both planning and respect to the local culture, tend to blend harmoniously with the surrounding landscape. Many of these great edifices and buildings are now a part of the cultural heritage of the past...

Is I-15 through the Bear River Valley to become (in the year 2100) a part of the cultural heritage of the past?

Probably.

Farming

As suggested in the preceding section on adverse effects, agriculture is the dominant entity in the Bear River Valley and will be the prime "common denominator" of all changes which will be expected to occur in the valley. For this reason, a great emphasis is placed on farming, ranching and related efforts. Long run consequences are a composite of short run impacts compounded over time and the cost of continual adjustment by farmers (in the case of the agricultural segment of the economy) trying to obtain a 'crop mix' that would be profitable. 'Crop mix' is a term coined by economists when referring to crop rotation; a cycle of crops; farming and fertilizing practices designed to provide the highest cash return from the farm on a sustained basis with the least amount of work; and the least (if any) long-term damage to the land.

When a farmer is confronted with a sudden change in his farming procedures he must evaluate what the future holds for him as a farmer, in light of changes in production costs and future market expectations. In other words, when something happens to make a farmer modify his operation, the modification must fit the equipment available to him, his land, his own resources and the expected returns from these changes.

A farmer is not only compensated for the fair market value of his land taken by right-of-way or associated proximity damage but he generally finds himself adequately compensated for the cost of his time and efforts spent in rebuilding his irrigation system, reorienting his farming methods or radically changing the crops he produces. The farmer will usually maximize profits by seeking the lowest cost in the long run and this may require such changes in established farming practices.

The short term impacts of cutting up farm acreage may lead, in the long run, to loss of the economies of scale (being able to produce more efficiently due to a large scale operation). Thus, in order to produce the same level of output, it becomes more costly to farm fields separated by a roadway. This is so because investment in capital equipment (fixed costs) for large scale operations cannot often be as fully utilized in smaller operations.

The long run must consider the social cost of change to farmers when they must decide to transform farming operations or leave farming altogether. No doubt some farmers may choose the latter if, as a result of the changes brought on by the roadway, farming just becomes too unprofitable, particularly if there are opportunities in other occupations. Farmers faced with this dilemma have the option, of course, of leasing their land.
to agribusiness (or another farmer willing to take on a larger operation) and seek work elsewhere. The net result to the neighborhood, the industry and the farmer, himself, is essentially zero: the same land is farmed, the farmer who stopped farming has approximately the same income (from the lease of the land plus his wages), and the same crops are produced. This is where the social cost to the farmer comes in for there are some very difficult and profound psychological adjustments to be made by those who are facing a radical change in life-style, losing the freedom of self-employment, etc. A benefit can be seen in this type of situation where the possibility exists for these people to continue to live in similar surroundings (of home, farmstead and agricultural background) while the actual farming operations are undertaken by others, making the transition to the new mode of living less traumatic.

All of these factors have been considered in several recent papers on the impact of highways through farming areas. Most notable is a study conducted at Texas A&M University in 1970: Right-of-way Effects of Controlled Access Type Highway on a Diversified Farming Area in Colorado and Fayette Counties, Texas. The findings indicated that the taking of right-of-way, indeed, had short term affects on farm operations, but no noticeable adverse effects in the long run. After a few years, the farmers as a whole made noticeable gains in average net income relative to a control group of farmers whose land was not impacted by the highway but whose net income also increased. In both groups there was a long term dynamic shift toward more profitable crop mixes (i.e., farmers tended to shift land use from commodity crop production to cattle pasture).

Since both groups shifted land use and both groups increased their net income, this would imply the relative impact of the highway as a cause in overall net income change was slight when compared with the forces of the market mechanism.

While it is not certain that the same results in Texas would be found in northern Utah, one would certainly expect flexibility in farming practices to minimize the long run impacts.

Industry and Distribution

Although the farmer holds sway in the valley at the present time, trends seem to say that industry, commerce and even manufacturing are likely to become important voices in the future - whether or not the segment of I-15 is completed. Industrial and manufacturing enterprises in Box Elder County are presently involved in sugar refining, clothing, construction, aerospace design and construction, fruit canning, and metal manufacturing.

An industrial park near Tremonton Airport now covers 22 acres; there is an option to purchase another 200 acres. Such a location is in accordance with the Box Elder County Master Plan, which indicates, "Industries should be located... near municipalities except where natural resource development or safety requires other location." At the time of the Draft Statement, a metal manufacturing company was operating at the park, but presently both the company and the park are closed. In the event new distribution firms locate in the park one can expect them to employ from 5 to 10 persons. Any new manufacturing firms can be expected to employ approximately 50 to 100 persons.

In the future, industries related to fertilizer packaging and distribution, farm equipment, and petroleum may locate in the park. Much of the growth of the industrial park (if actualized) is expected to be in distribution.

If, in the long run, the park does develop more in the province of distribution, it will entail the use of large trucks to transport goods, and a resultant demand for interstate access. The proposed freeway would, therefore, be very beneficial to industrial-manufacturing-distribution enterprises due to their proximity to the industrial park.

### New Dwelling Units

<table>
<thead>
<tr>
<th>Year</th>
<th>Garland No. of Units</th>
<th>Tremonton No. of Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>1965</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
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<td>0</td>
<td>2</td>
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<tr>
<td>1967</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1968</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>1969</td>
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<td>0</td>
</tr>
<tr>
<td>1970</td>
<td>0</td>
<td>1</td>
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<tr>
<td>1971</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>1972</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>1973</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>1974</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>1975</td>
<td>3</td>
<td>9</td>
</tr>
</tbody>
</table>


Trends in construction over the past ten years can be observed in the above table. It appears that there has been a slight increase in new dwelling units...
LONG TERM CONSEQUENCES vs. SHORT TERM IMPACTS

Demography

Two independent attempts to forecast population growth, each based on different sets of assumptions, have recently been made for the project area and the state. Population projections prepared by Dr. Yun Kim of Utah State University are shown in the fertility-mortality table. Dr. Kim's projections are long run and are therefore, a constant migration rate over the entire state, the projections are somewhat limited in assessing changing employment patterns and their impact on expected population. An alternative methodology was used in the study prepared by the office of the state planning coordinator. "Economic and Demographic Projections of the Utah Process Economic and Demographic Projections (UPED) Model" (1974, 1975).

Among the advantages of the UPED model over other models available for use is the fact that this model not only projects job totals, but accounts for population characteristics in terms of age, sex, and size of the labor force. In the UPED model, fertility and mortality rates are assumptions constant for the entire state. Based on assumptions concerning future employment patterns, this model builds into the projections different rates of migration for different areas. UPED projections are compiled on a regional basis. Our interest is in the Bear River Multi-County Planning District (MCD) consisting of Box Elder, Cache, and Rich Counties.

"Alternative Futures" serve as the analytic tool employed by the UPED model. In this methodology specific plausible future events which have sufficient impact to alter the general state of the environment are outlined. The UPED model analyses 11 alternative futures in all, ranging from depression economy to large scale expansion.

Two basic assumptions underlie the UPED model. Conceptually, the most important factor controlling population of a state or open area is the level of economic activity occurring therein. Methodologically, the impact of level of economic activity controls small area population in "basic change in latitude and direction of net "economic opportunity induced migration". Defined as "that migration which comes about as a result of interregional differences in economic opportunity as perceived by the migrant", the forecast emphasizes that the individual will shift his labor activity to those regions where he perceives the greatest opportunity of selling his labor services. Thus, the model projects the supply of and the demand for labor in a specific region. The projected demand for labor is based on the assumption that a change in the basic employment (employment in those industries which produce goods and services for sale outside the specific region) is a causal factor in producing still further changes in regional employment: i.e., export demand for regionally produced goods and services is the driving force behind regional growth or decline.

Projections of Alternative Future Zero are based on certain economic events which are either presently occurring or are highly likely to occur in the projection period (1970-1990). Events in Alternative Future Zero are not extrapolations of past trends but are based on a plausible set of events considered most likely to occur in the future. It is not necessarily the "best" forecast, however, but serves as a baseline projection against which the impacts of the other Alternative Futures can be measured.

The Alternative Future Zero forecast for the Bear River MCD assumes manufacturing will be the primary driving force sector (i.e., that sector controlling in-migration).

While no specific events of the type exemplified by the proposed, but now defunct, Kaiparowits Power Plant Project in Southern Utah are specified, significant growth in manufacturing is projected as a continuation of the short term trend (1970-73). It is assumed that, as manufacturing employment continues to increase, the Bear River Valley will become more industrialized. Specific large scale industrial developments are not projected, however, rather a continuation of the increase in small scale plants is assumed. Also no major contractionary events, such as the possible phasing out of the Intermountain Indian School at Brigham City or a slow down in employment at Thiokol, have been included.

Importance of growth in manufacturing employment as the driving sector is clearly represented in the population projection. While some significant additional employment inputs of other sectors have been projected, these primarily represent employment in those sectors required to service the basic manufacturing sector. The population implication of Alternative futures in the Bear River MCD represent a significant increase from the roughly 1% ten-year growth rate of the 1960's (note decadal growth rate of 1960's in the Bear River Valley was 14%) to 3% growth rate in the 1970's and a 2% rate in the 1980's. Thus, the 1990 population projection of 120,341 represents an increase of 48,226 or 67% over the 1970 census count.

Other UPED "futures" which specify alternative assumptions for the Bear River MCD are Future Two, Future Five, and Future Eight. Alternative Future Two, a recession economy, assumes that the rapid
growth of the early 1970's incorporated into Alternative Future Zero is not sustained. Decreases in manufacturing, recreation and tourism, trade and warehousing, and other sectors are assumed. The experience of Utah as a whole is roughly similar to that of the 1960's when slight net out-migration occurred and population growth was attributable to the excess of births over deaths.

Alternative Future Five projects some urban and rural development occurring somewhat faster than predicted in Alternative Future Zero. The leading event in this future is development at Thiokol.

Alternative Future Eight projects growth based primarily on the development of energy resources, specifically the geo-thermal plant in the Bear River MCD.

Population Projections for Futures Zero, Two, Five, and Eight are summarized in the accompanying tables. Comparison of the various forecasts thus indicates a range of Bear River MCD's population in 1990 to be an estimated low of 91,000 and a high of 126,000 (Future 5).

### Alternative Future Zero

**Continued Increase of Small Scale Manufacturing**

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<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Value</td>
<td>72,075</td>
<td>84,170</td>
<td>98,719</td>
<td>110,338</td>
<td>120,341</td>
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</table>

**Percent Change 1970-1990** 66.9%

### Alternative Future Two--Recession Economy

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<tr>
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<tr>
<td>Value</td>
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<td>84,196</td>
<td>95,706</td>
<td>107,345</td>
<td>116,850</td>
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</table>

**Percent Change 1970-1990** 62.1%

### Alternative Future Five--Some Urban and Rural Development

<table>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>72,075</td>
<td>86,248</td>
<td>102,812</td>
<td>115,577</td>
<td>126,425</td>
</tr>
</tbody>
</table>

**Percent Change 1970-1990** 75.4%

### Alternative Future Eight--Energy Development

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>72,075</td>
<td>84,279</td>
<td>99,521</td>
<td>110,518</td>
<td>120,610</td>
</tr>
</tbody>
</table>

**Percent Change 1970-1990** 67.3%
LONG TERM CONSEQUENCES vs. SHORT TERM IMPACTS

Bear River
Multi-County Planning District

The Salt Lake Tribune

Thursday Morning, December 11, 1975

Rampton Raps No-Growth Policy, Urges Plan

By Jim Wooli
Tribune Staff Writer

Utah Gov. Calvin L. Rampton dismissed as "detrimental" no-growth proposals Wednesday, and instead outlined a three-step, comprehensive growth policy for the state.

Speaking to the annual meeting of the Wasatch Front Regional Council at the Salt Lake Hilton, 150 W. 5th South, the governor called for a continuing a program of "balanced growth with adequate preparation to accommodate it."

Gov. Rampton described the three steps of his growth policy as:

- Administrative requirement that any new industrial installation meet state requirements involving ambient air standards before approval is given.
- Creating a comprehensive water planning program.
- Backs Land Use
  - The governor said his first step toward a comprehensive growth policy was the state wide land use planning bill which was defeated in a referendum election.
  - "In the absence of a land use planning program, the development of a state growth policy has been difficult . . . it is not impossible. The legislature during its last general session overwhelmingly approved a strip mining bill which affects the extraction of both metalliferous and nonmetalliferous minerals. This is an important component of Utah's blueprint for growth policy," he said.

On the second step of his plan, the portion dealing with air quality, the governor admitted, "will never be able to achieve a pristine air quality along the Wasatch Front unless we shut down all industrial emissions and all vehicular traffic, but we can require the use of the most reasonable technology available to control air pollution."

Dealing with water planning Gov. Rampton noted, "We have changed our perception of what constituted a desirable use of water over the years. The fundamental decision today is not whether to develop our water, rather, which of the competing uses will develop it."

Diversification the Key

"In all areas of the state there are opportunities to more fully control the rivers and streams . . . however, each of these decisions must be weighed carefully to assure that these waters are put to the most productive and beneficial use," the governor said.

He also urged a far-reaching plan for the expanding needs of energy, noting the long lead time necessary for development of major projects.

"Diversification is the key to a healthy economy, and developing a diverse economic mix has been a major objective of the industrial promotions of the past decade."

"A no-growth policy portends, in my opinion, serious consequences for the quality of life that Utahns have become accustomed to in recent years. Our present policy of controlled or planned growth has provided the economic sustenance which has enabled us to keep pace with the demands put upon the state and local governments for more and better services by our citizens," Gov. Rampton said.
The policy is a reflection of the State's legislative and executive mandate. It recognizes that controlled growth is desirable and often essential; that growth can be controlled in a qualitative sense qualified only in that it would be better to use the verb "directed." Growth and development efforts should be directed and selective to ensure economic diversity and proper balance between many factors including environmental, social, and economic interests.

Further, the Board's policy is based on the fact that Utah stands to suffer from being satisfied with things as they are. During the 1950s, the booming rocket and missile industries combined with mining to boost Utah's growth rate to fourth in the nation. Then, in 1963, these lucrative defense contracts were cut back. The job market sagged but the number of young people graduating into the work force still continued to grow. Now, for over a decade, the importance of diversification of industry as a key to a healthy economy has been stressed. A major objective of the Board is the encouragement of a diverse economic mix.

The Board's policy makes a solid commitment to directed economic development efforts in areas of Utah that have experienced high rates of unemployment and outmigration, especially nonmetropolitan counties that lack comparative advantages.

The Board has gone on record as deeming a "no growth" policy for Utah untenable and with serious consequences for the quality of life that Utahns have become accustomed to. The policy alternative will balance environmental protection and other considerations with the need for jobs and payrolls. The Board's efforts, supported by the Governor and the State Legislature, will be guided by a policy of directed growth for the State of Utah.

In testimony before the Utah Public Service Commission during the latter part of 1975, Milton L. Weilenmann, Executive Director of the Department of Development Services for the State of Utah, outlined the rationale behind the State's "directed" growth policy. Two pertinent excerpts from his testimony are reproduced on this page.

Coordination with the State Planning Office in February 1978 verified that this growth policy has not changed.

The continuation of a directed growth policy in Utah is a result of the realization that it is in the best interest of the citizens of this state. If our people are to be able to improve their economic conditions then we must have a continuation of economic growth. We must have an increase in the numbers of jobs if our citizens are to find work for themselves and their children when they join the labor force. We must have growth in income if our people are to experience higher standards of living. Currently Utah does not have a very favorable per capita income and only a continuation of economic growth will allow for its expansion. Economic growth must continue if we are to aid the disadvantaged members of our society. Increases in their income or opportunities for upward mobility are made possible through incremental increases in the level of the economy. And equally as important, is the role that continued growth plays in providing a basis for our free enterprise type of economy. Without expanding markets there would be little chance for new businesses to be developed and existing business would grow financially less viable and, therefore, less able to provide for our needs.
LONG TERM CONSEQUENCES vs. SHORT TERM IMPACTS

Benefits and Costs

Up to now the implications seem to be that short-term gains involving some valley farmers, local manufacturing, regional commerce and road users must be traded off against long-term deficits in the realm of overall agricultural production and lifestyle. Do the benefits to be gained outweigh the costs? Not just the direct and obvious money benefits and costs, but the total - sometimes not easily quantified - benefits (sociological) and costs (ecological) must be included.

According to the previously cited ENVIRONMENTAL DESIGN FOR PUBLIC PROJECTS, the direct user benefit-cost ratio is not the only reason for undertaking a public project:

The ideas of cardinality and ordinality are extremely important. For years there has been a delusion that a public project can be evaluated by benefit-cost criterion alone. In the 1972 Draft Guidelines of the Water Resources Council, benefit cost is only one criterion for decision making. The other criteria, which include environmental values, are difficult to evaluate because of their intangible characters. Despite the inherent difficulties with these new criterion (sic) it has been a great stride forward to identify and formalize the importance of intangible values.

"Inherent difficulties" in labeling and measuring some of the more subjective and intangible characteristics of major undertakings have slowed down adoption of any criteria which are not easy to display. This is why the benefit-cost (or cost-benefit) analysis remains an essential tool for decisionmakers who operate in a goldfish bowl, subject at all times to public scrutiny.

Naturalists have, justifiably, become indignant when an over-dependence on benefit-cost ratios (using only easily measured values) crops up. Jacques-Yves Costeau in an address delivered at the University of Michigan in October, 1975 leveled a salvo at the "Cost accountant syndrome":

"... Nothing today can be done without a so-called "cost-benefit" assessment.

This "cost-benefit" fury has become such a fad that it often reaches the absurd. Recently I was invited to participate in the "National Energy Conference" in Beverly Hills. One of the topics was a "cost-benefit" study of the Santa Barbara disaster. Every single damage was evaluated in dollars and cents, to prove that the benefits from careless offshore drilling outweighed the cost of the accident. But the nonsense of the system when it is pushed to its extreme, exploded when it came to put a price-tag on life: How much the cost of a bird? One dollar! One dollar is the price poachers get for a squirrel! How much for an extinct species? How much for the blue whale? Are we going to plan a price-tag to my 3 year old granddaughter? What savings would justify the sacrifice of future generations?

No attempt is going to be made in this document to rationalize the construction of the subject I-15 segment by stating (as advocated for the Santa Barbara case) that benefits outweigh the costs. A simple comparison of road-user benefits and construction costs would indicate that I-15 through the Bear River Valley (as well as a great many other interstate segments throughout the nation) is not justified in spite of the mandate from Congress. But more is involved than just construction (as well as maintenance) dollars and road-user direct savings.

Nevertheless, notwithstanding, in spite of warnings from all sides, an application of benefit-cost analysis can be of value if placed within its proper perspective. In trying to analyze the results of the cost-benefit ratios, emphasis must be placed on the economic aspect of these numbers. If the use of an analysis is to determine whether the measurable benefits accruing from constructing the new facility can justify the cost of construction and increased maintenance cost of the new interstate highway, the answer is obviously in the negative (-0.10, as described in the supplementary documentation to this statement). However, that is not to say that the interstate should not be completed. Justification (if that is the correct word - which it probably is not) must be based also upon criteria other than reduced user costs on automobiles, savings in accidents, reduced travel time, etc. Non-measurable benefits (i.e., a chance for motorists to observe the scenic beauty of the Bear River Valley, allowing Utah to complete the National Defense Highway System, aid the trucks to avoid the congestion of the existing facility as well as decreasing the congestion they create for the local travelers) must outweigh the economic loss attributable to a new highway in order to "justify" the construction of I-15. Decision-makers must place a value on these non-measurable factors to include them into their decision-making process.
IRRETRIEVABLE COMMITMENTS

An identification of the extent to which irreversible effects of construction may curtail the range of potential uses of the environment (and components thereof).
IRRETRIEVABLE COMMITMENTS

The proposal represents 14.5 miles (23.2 km) of freeway construction involving a commensurate range of resources. Exact quantities of each type of resource to be expended would not be available until after the project is designed. However, ENVIRONMENT (Vol. 14, No. 9) published a table, Materials and Labor Required for Highway Construction, based upon 1972 values. Adjusting to 1975 dollar values, the approximate total of resource material required for the facility (using the figures from the table) would be 940,000 tons.

Each ton of resources would be apportioned approximately as follows:

- Cement: 3.4% (by weight)
- Bituminous material: 1.1%
- Aggregates: 94.3%
- Steel: 0.5%
- Lumber: 0.1%
- Petroleum: 0.6%

Labor to be expended (also derived from the ENVIRONMENT table) would be expected to exceed 500,000 person-hours.

Anticipated net energy loss is shown on page 62.

**TABLE**

**MATERIALS AND LABOR REQUIRED FOR HIGHWAY CONSTRUCTION**

<table>
<thead>
<tr>
<th>Material</th>
<th>Unit</th>
<th>Number of Units Per Million Dollars of Construction Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement</td>
<td>Barrels</td>
<td>13,600</td>
</tr>
<tr>
<td>Bituminous Material</td>
<td>Tons</td>
<td>856</td>
</tr>
<tr>
<td>Aggregates</td>
<td>Tons</td>
<td>42,000</td>
</tr>
<tr>
<td>Purchased by Contractor</td>
<td>Tons</td>
<td>30,000</td>
</tr>
<tr>
<td>Produced by Contractor</td>
<td>Tons</td>
<td>182</td>
</tr>
<tr>
<td>Steel</td>
<td>Tons</td>
<td>128</td>
</tr>
<tr>
<td>Structural</td>
<td>Tons</td>
<td>230</td>
</tr>
<tr>
<td>Reinforcing</td>
<td>Tons</td>
<td>49,000</td>
</tr>
<tr>
<td>Lumber</td>
<td>Board feet</td>
<td>125,000</td>
</tr>
<tr>
<td>Petroleum Products</td>
<td>Gallons</td>
<td>68,000</td>
</tr>
</tbody>
</table>

*Costs of right-of-way acquisition and engineering are not taken into account.

Fiscal commitments (page 1) as well as projected returns (page 142) have already been discussed.

One essentially irreversible loss would be the 530 acres (212 ha) required for freeway right-of-way. Although no plans have been made to retrieve some of this land through multiple use and joint development, it would not necessarily be entirely lost because of its change from existing use to transportation use. It could still remain productive land, as cited in the publication SOCIAL AND ECONOMIC EFFECTS OF HIGHWAYS prepared by the U.S. Department of Transportation, Federal Highway Administration, Office of Program and Policy Planning, Socio-Economic Studies Division, 1974:

Highway use of space is becoming more productive. Space used for the 3.7 million miles of roads and streets in the United States amounts to about 22 million acres, slightly over 1 percent of the 1.9 billion acres in the United States. Efforts are made to minimize land needed by locating highways on existing right-of-way and by making better use of this space than in the past. This increasing productivity of road space is suggested by some of the changes since 1916, when the Federal-State road partnership emerged. Street and highway mileage has increased by one-fourth, population has doubled, and vehicles have increased 30 fold. The Interstate System illustrates this efficient use of space. It accounts for less than 2 percent of all highway mileage, 10 percent of all land used for roads, but handles 20 percent of all vehicle travel.

Highway use of space appears relatively efficient when compared with space used by air or rail transporta-
tion. Highways handle more passenger miles of travel per acre than air or rail transport. The passenger miles per acre of land used are about--

74,600 for highways and streets,
40,000 for airports, and
4,600 for railroad rights-of-way.

Highway space also provides significant service for recreation apart from transportation between places. Pleasure driving with no destination accounts for about 3.6 percent of auto travel (or it did with the gasoline available in 1972). In hours, this amount of recreation exceeds that provided by all National Parks even though highways and streets use less space than the National Park System. Highways appear to provide more hours of recreation per acre of land than National Parks. For example, an acre of land devoted to National Parks provides about 30 hours of recreation. An acre of land used for roads or streets provides about 124 hours of recreation, ... Not to say that all National Parks should be paved over - but then, neither should all highways be scarified, planted and then placed in the National Park System. Although the above extract may appear to have been inserted as a
rationale for proceeding with the project, it is provided mainly to place the "commitment of land" concept in its proper confines within the whole human environment.

Issue with the above FHWA position has been taken by Hal M. Clyde, member of the Utah Transportation Environmental Council, who states:

... each acre of ground used and covered is no longer available for its present use. If it is an acre of grazing, or farming, or swamp, or rocky hillside, it is gone for that use. If acres versus acres are to be compared it cannot stop here. It must have additional values applied. What is the present use? What use can be projected? Is there anything equivalent available close by? For instance, the mere transfer of a water right to another piece of ground does not mean the use of the swamp can be transferred to another location... Here again, the matter filters down to one of trade-offs. These trade-offs have been evaluated by the Utah Transportation Commission before their decision to proceed with the proposed Interstate segment.
HISTORIC AND CULTURAL

In the following section is an identification of properties included in or eligible for inclusion in the National Register and an evaluation of the effect the proposed action may have on such properties. It also contains a record of the coordination with the State Historic Preservation Office concerning the identification of such properties.
HISTORIC AND CULTURAL
HISTORIC PRESERVATION

The Act

With an eye to preserving the cultural foundations of the Nation... in order to give a sense of orientation to the American people and to insure future generations a genuine opportunity to appreciate and enjoy the rich heritage of our Nation... the Federal Government ordered itself (via the National Historic Preservation Act of 1966) to accelerate its historic preservation programs and activities.

Continuing with extracts from its text, the Act (1) authorizes the Secretary of the Interior to expand and maintain a national register of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, and culture; (2) establishes a program of matching grants to locate, preserve and restore the already-mentioned historically significant properties; (3) creates a means to block any other Federal or Federally-assisted project if a grant for historic preservation has been given or promised in the affected locality; (4) authorizes the President to issue regulations that would implement the Act and coordinate policies and actions with other Federal activities; (5) requires that any proposal using Federal money must take into account the effect of the proposal on properties listed on the National Register, and then allow the Advisory Council on Historic Preservation a reasonable opportunity to comment with regard to such undertaking (Sec. 106); and finally (6) defines the structure, duties and compensation of the Advisory Council, its Chairman and its Executive Director.

Executive Order 11593
May 13, 1971

Five years after the Act was passed (and from under the pen of a new President) a directive emerged that put action into the Act. Beginning with a one paragraph statement of policy, the Executive Order then defined responsibilities for the Secretary of the Interior and Federal agencies in general, including a deadline (July 1, 1973) by which time Federal agencies were to have located, inventoried and nominated all sites, buildings, districts, and objects under their jurisdiction or control that appear to qualify for listing on the National Register of Historic Places. A liaison officer for historic preservation for the State was to aid in this inventory.

Noteworthy is Section 2(b) charging the Advisory Council with the responsibility to provide Federal agencies with comments on the agencies' plans that affect cultural resources. Also noteworthy from the same section: properties that might qualify for nomination to the National Register are entitled to the same protection afforded properties listed on the National Register.

Comments set Precedents

Comments received from the Advisory Council and the Utah Division of State History on a few past environmental impact statements prepared by the then Utah State Department of Highways have spotlighted the following concerns (among others):

Construction work: Since there may be archeological sites present within construction zones that are not discernable by surface surveys, and since there may be no feasible way to conduct an intensive survey of suspected buried resources over extensive areas, ... the State Archeologist would like to request that the [Utah] Department of Transportation notify him in the event of cultural sites being discovered by construction work on the project. (John Smith, Division of State History; January 2, 1976; regarding Interstate 70 through the Sevier Valley.)

By way of note here - the preceding request is in accordance with (and reaffirms) the official policy of the Utah Department of Transportation. Quoted below is a paragraph from Section 203.02 "ROADWAY EXCAVATION: Construction Requirements" of STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION 1970 (Revised 1976).

When the Contractor's excavating operations encounter material of historical, archeological or paleontological significance, the operation in that vicinity shall be temporarily discontinued. The Engineer will contact archeological authorities to determine the disposition thereof. When directed by the Engineer, the Contractor shall excavate the site in such a manner as to preserve the materials encountered and shall remove them for delivery to the custody of the proper State authorities. Such excavation will be paid for as extra work.
Timing important for Council comments:

Louis S. Wall, Assistant Director, Region VIII Office of Review and Compliance, of the Advisory Council stated in his May 28, 1975 letter commenting on the draft EIS for Interstate 70 through the Sevier Valley:

"Until the Council has been notified by a Federal agency that it has determined an undertaking will affect a property included in or eligible for inclusion in the National Register of Historic Places, the Council is unable to comment."

More elaboration required for "no adverse impact": Commenting on another item from the Sevier Valley Draft Environmental Impact Statement that "no historic site of significance is endangered by any of the proposed alternatives", the Council responded that "further explanation" is required. Therefore, the Council requests FHWA consult with the SHPO and submit to the Council pursuant to the procedures the appropriate determination of effect.

Local significance means possible national significance: Noting that for one particular project in an urbanized area as many as twelve properties possessing historical significance could be affected by the proposal, the Council acknowledged the draft EIS conclusion that "... these resources are not eligible for inclusion in the National Register, but have been placed on the State Register." Then came the following comment: Nevertheless, because they have been identified as having State significance, and because the National Register is a listing of cultural resources having local, State and National significance, the Council requests the FHWA to request in writing an opinion from the Secretary of the Interior respecting the properties' eligibility for inclusion in the National Register. ... The FHWA is reminded that should the Secretary of the Interior subsequently determine the properties are eligible... it is required to follow the remaining steps in [the procedure] to evaluate the effect of the undertaking upon the resources and obtain Council comments prior to proceeding with the project. (Louis S. Wall, Region VIII Office of Review and Compliance; June 11, 1975; Comments on draft EIS for I-215 Southeast Belt Route, Salt Lake County.)

Procedure for Compliance

Currently in use in the State of Utah and incorporated into the Division of State History's guidelines is a graphical version of the "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800), detailing the steps to be taken in compliance with Executive Order 11593. Differing only in format from the parent document, the State's complete version is in the form of a flow chart so as to give other State (and local) agencies a handy "birds-eye view" of the program. Arrows direct the reader to what comes next, depending on the outcome of each step. Each step has a number which is keyed to an explanation following the flow chart. Some of the decision steps which may be particularly puzzling, or their outcomes complex, have appendages (lettered A through G) that are detailed under the appropriate step number in the explanation following the flow chart. As far as historic preservation is concerned, compliance can be satisfied and the procedure terminated at any of the following events on the flow chart: lettered boxes C, E, and G, STOP or END.
A. Definitions (800.3)

NHPA = National Historic Preservation Act with associated executive orders and guidelines for compliance.

NEPA = National Environmental Policy Act

Advisory Council (or Council) = Advisory Council on Historic Preservation. For correspondence write to: Director, Office of Review and Compliance, Region VIII, Advisory Council on Historic Preservation, P. O. Box 25085, Denver, Colorado 80225. Telephone (303) 234-4946.

National Register = National Register of Historic Places, published in its entirety in the Federal Register each year, usually on the first Tuesday in February. Addenda are normally published on the first Tuesday of each succeeding month (March through December). The National Register contains separate lists of properties included in the National Register and lists of properties eligible for inclusion in the National Register. Those properties which are eligible for all practical purposes should be treated as though they are included in the National Register.

SHPO = State Historic Preservation Officer - the liaison officer designated to implement the NHPA. For correspondence write to: Melvin T. Smith, Director, Division of State History, 603 E. South Temple, Salt Lake City, Utah 84102. Telephone 533-5755.

Agency Official = The state or federal employee having primary charge of the proposed project and its environmental assessment.

Chairman = Chairman of the Council or his designated representative.

Executive Director = Executive Director of the Council or his designated representative.

1. NEPA is independent from NHPA; in other words, NEPA must be complied with for federally assisted projects, even when an environmental impact statement (EIS) is not required. However, an EIS should contain applicable documentation to satisfy both NEPA and NHPA.

2. Because of the long and involved consultation and review processes to satisfy NHPA, the procedure for compliance should commence in the earliest stages of the EIS process.

3. In addition to the usual number of copies of the EIS sent to the Department of Interior for review, an additional copy should be sent directly to the Advisory Council for review when the project affects properties included in or eligible for inclusion in the National Register.
HISTORIC AND CULTURAL

C. Procedure for Agency Official (800.4, 800.5)

*1. Using the National Register as a quick source, identify national historic resources ("districts, sites, buildings, structures, and objects, . . . including their settings", . . . which are . . . "significant in American history, architecture, archeology, and culture, . . . within the area of the project's potential environmental impact").

(A) If unsure of extent of project's influence, consult the design engineer.

2. Request from SHPO a field investigation (if one has not already been conducted) in the vicinity of the project's potential environmental impact. The SHPO will evaluate the vicinity for historical, architectural and cultural significance and will help secure a contract with the State Archeologist to make a field investigation.

(B) Any findings of "significance to the State Historical Society" usually become eligible for National Register status. Therefore, if the Agency determines that a property appears to meet the criteria and the SHPO determines that it is questionable whether the criteria are met, the Agency Official or the SHPO shall request, in writing, a determination from the Secretary of the Interior respecting the property's eligibility for inclusion in the National Register.

National Register Criteria @

(a) "National Register Criteria" means the following criteria established by the Secretary of the Interior for use in evaluating and determining the eligibility of properties for listing in the National Register:

The following is a correction to the National Register "Criteria for Evaluation" previously published in the Federal Register, Tuesday, February 4, 1975. The numbers in the first section should have been capital letters:

The quality of significance in American history, architecture, archology, and culture is present in districts, sites, buildings, structures, and objects that possess the following attributes:

(1) that are associated with events that have made a significant contribution to the broad patterns of our history; or
(2) that are associated with the lives of persons significant in our past; or
(3) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity, or whose components may lack individual distinction; or

(C) SHPO and State Archeologist will write letters to the Agency Official indicating the significant sites (if any) which the project (including alternatives) may affect, or else the letters will declare that the project will affect no important sites. NHPA processing ends here in the case of the latter; otherwise proceed with Step 3.

(D) For each property included in or eligible for inclusion in the National Register that is located within the area of the undertaking's potential environmental impact and in consultation with the SHPO, apply the Criteria of Effect, set forth below to determine whether the project would have an effect upon the property.

(E) Upon applying the Criteria and finding no effect, the project may proceed. Keep adequate documentation of a determination of no effect. For those sites that would be affected, go to Step 4.

numbers correspond to accompanying flow chart

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(D) that have yielded, or may be likely to yield, information important in prehistory or history.

Ordinarily, cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

(A) a religious property deriving primary significance from architectural or artistic distinction or historical importance; or
(B) a building or structure removed from its original location but which is significant primarily for architectural or artistic value, or which is the surviving structure most importantly associated with a historic person or event; or
(C) a birthplace or grave of a historical figure of outstanding importance if there is no other appropriate site or building directly associated with his productive life; or
(D) a cemetery which derives its primary significance from graves of persons of transcendent importance, from artifacts, or from distinctive design features; or from association with historic events; or
(E) a reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
(F) a property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own historical significance; or
(G) a property achieving significance within the past 50 years if it is of exceptional importance.
Criteria of Effect. A Federal, federally assisted, or federally
licensed undertaking shall be considered to have an effect on a
property eligible for inclusion in the National Register of Historic
Places if the undertaking causes or may cause any adverse
effect, including the following:

(a) Destruction or alteration of all or part of a property;
(b) Isolation from or alteration of its surrounding environment;
(c) Introduction of visual, audible, or atmospheric elements
that are out of character with the property; or
(d) Transfer or sale of a federally owned property without ade-
quate conditions or restrictions regarding preservation,
maintenance, or use; and
(e) Deterioration or destruction of a property resulting in its deterioration or
destruction.

Criteria of Adverse Effect. Generally, adverse effects occur
under conditions which include but are not limited to:

(a) Destruction or alteration of all or part of a property;
(b) Isolation from or alteration of its surrounding environment;
(c) Introduction of visual, audible, or atmospheric elements
that are out of character with the property;
(d) Transfer or sale of a federally owned property without ade-
quate conditions or restrictions regarding preservation,
maintenance, or use; and
(e) Deterioration or destruction of a property resulting in its deterioration or
destruction.

Finding of adverse effect. Upon finding the effect to be adverse or upon
notification that the Executive Director does not accept a determina-
tion of no adverse effect, go to Step 5.

Prepare a preliminary case report containing all relevant information con-
cerning the project. Obtain such information and material from any
applicant, grantee or other beneficiary involved in the undertaking as
required for the proper evaluation of the project, its effects, and
alternate courses of action.

Request, in writing, the comments of the Advisory Council. Provide the
Executive Director and the SHPO each with a copy of the preliminary case
report.

The Executive Director will acknowledge the request and initiate the con-
sultation process.

At the request of the Agency Official, the SHPO, or the Executive Director,
the Agency Official shall conduct an on-site inspection of the project and
its setting; upon receipt of adequate documentation, the Agency Official
may proceed with the project.

Finding of no adverse effect. Upon finding the effect not to be ad-
verse, forward adequate documentation of the determination, includ-
ing evidence of the views of the SHPO, to the Executive Director for review.

Unless the Executive Director notes an objection to the determination,
the Agency Official shall proceed with the project.

8. At the request of the Agency Official, the SHPO, or the Executive Director,
the Executive Director shall conduct a meeting open to the public, where
representatives of national, state, or local units of government, repres-
representatives of public or private organizations, and interested citizens can
receive information and express their views on the undertaking, its effects
on historic and cultural properties, and alternate courses of action. The
Agency Official shall provide adequate facilities for the meeting and shall
afford appropriate notice to the public in advance of the meeting.

9. Upon review of the pending case and subsequent to any on-site inspection
and any public information meeting, the Executive Director will consult
with the Agency Official and SHPO to determine whether there is a feasible and
prudent alternative to avoid or satisfactorily mitigate any adverse
effect.

10. It is the responsibility of the Executive Director to prepare each Memo-
randum of Agreement. In preparation of such a document, however, the
Executive Director may request the Agency Official to prepare a proposal
for inclusion in the Memorandum, detailing actions to be taken to avoid
or mitigate the adverse effect.

11. Upon receipt of a Memorandum of Agreement acknowledging avoidance or
satisfactory mitigation of adverse effect, the Chairman
shall institute a 30-day review period. Unless the Chairman shall notify
the Agency Official that the matter has been placed on the agenda (Step 16) for
consideration at a Council meeting, the memorandum shall become final:
(1) Upon the expiration of the 30-day review period with no action taken;
or (2) When signed by the Chairman. Memoranda duly executed in accordance
with these procedures shall constitute the comments of the Advisory Coun-
cil. Notice of executed Memoranda of Agreement shall be published in the
Federal Register monthly.

12. Upon the failure of consulting parties to find and unanimously agree upon
a feasible and prudent alternative to avoid or satisfactorily mitigate the
adverse effect, the Executive Director shall request the Chairman to
schedule the project for consideration at the next Council meeting and
notify the Agency Official of the request.

13. Upon notification of the request, the Agency Official shall delay further
processing of the undertaking until the Council has transmitted its com-
ments or the Chairman has given notice that the undertaking will not be
considered at a Council meeting.

14. To assist the Chairman in the determination below (Step 15), the Agency
Official and the SHPO shall provide such reports and information as may
be required.
15. Upon receipt of a request from the Executive Director for consideration of the proposed undertaking at a Council meeting, the Chairman shall determine whether or not the undertaking will be considered and notify the Agency Official of his decision.

16. If the Chairman decides against consideration at a Council meeting, he will submit a written summary of the undertaking and his decision to each member of the Council. If any member of the Council notes an objection to the decision within 15 days of the Chairman’s decision, the undertaking will be scheduled for consideration at a Council meeting.

17. If the Council members have no objection, the Chairman shall notify the Agency Official at the end of the 15-day period that the project may proceed.

18. Upon determination that the Council will consider a project, the Chairman shall: (1) schedule the matter for consideration at a regular meeting no less than 60 days from the date the request was received, or in exceptional cases, schedule the matter for consideration in an unannounced or special meeting, and (2) notify the Agency Official and the SHPO of the date on which comments will be considered.

19. The Chairman shall authorize the Executive Director to prepare a case report, requiring reports from the Agency Official and others (as described below) to be submitted at least two weeks prior to the Council meeting.

D. Content of the Case Report

For purposes of arriving at comments, the Advisory Council prescribes that certain reports be made available to it and accepts reports and statements from other interested parties. Specific informational requirements are enumerated below. Generally, the requirements represent an explication or elaboration of principles contained in the Criteria of Effect and in the Criteria of Adverse Effect. The Council notes, however, that the Act (NHPA) recognizes the historical and cultural resources should be preserved "as a living part of our community life and development." Consequently, in arriving at final comments, the Council considers those elements in an undertaking (project) that have relevance beyond historical and cultural concerns. To assist it in weighing the public interest, the Council welcomes information not only bearing upon physical, sensory, or aesthetic effects but also information concerning economic, social, and other benefits or detriments that will result from the undertaking. Elements of the case report. The report on which the Council relies for comment shall consist of:

1) A report from the Executive Director to include a verification of the legal and historical status of the property; an assessment of the historical, architectural, archeological, or cultural significance of the property; a statement indicating the special value of features to be most affected by the undertaking; an evaluation of the total effect of the undertaking upon the property; a critical review of any known feasible and prudent alternatives; and recommendations to remove or mitigate the adverse effect;

2) A report from the AGENCY OFFICIAL requesting comment to include a general discussion and chronology of the proposed undertaking; a time schedule to comply with Section 102(2)(A) of the National Environmental Policy Act of 1969 (83 Stat. § 452, 42 U.S.C. § 4321): an evaluation of the effect of the undertaking upon the property, with particular reference to the impact on the historic, architectural, archeological, and cultural values; steps taken or proposed by the agency to take into account, avoid, or mitigate adverse effects of the undertaking; a thorough discussion of alternate courses of action; and, if applicable and available, a copy of the draft environmental statement prepared in compliance with the National Environmental Policy Act of 1969;

3) A report from any other Federal agency having under consideration an undertaking that will concomitantly or ultimately affect the property, including a general description and effect of the undertaking, and discussion of the relation chronology of that undertaking and discussion between that undertaking and the undertaking being considered by the Council;

4) A report from the State Historic Preservation Officer to include an assessment of the significance of the property; an identification of features of special value; an evaluation of the effect of the undertaking upon the property and its specific components; an evaluation of known alternate specific components; an evaluation of known alternate courses of action; a discussion of present or proposed participation of State and local agencies or organizations in preserving or assisting in preserving the property; an identification of the support or opposition of units of government and public and private agencies and organizations within the State; and the recommendations of his office;

5) A report by any applicant or potential recipient when the Council considers comments upon an application for a contract, grant, subsidy, loan, or other form of funding assistance, or an application for a Federal lease, permit, license, or certificate, or other entitlement or the submission and presentation of reports by applicant or recipient. Potential recipients shall be made through the AGENCY OFFICIAL having jurisdiction in the matter;

6) Other pertinent reports, statements, correspondence, transcripts, minutes, and documents received by the Council from any and all parties, public or private. Reports submitted pursuant to this section should be received by the Council at least two weeks prior to a Council meeting.

Coordination of case reports and statements. In considerations involving more than one Federal agency, either directly or indirectly, the AGENCY OFFICIAL requesting comment shall establish a coordinator in arranging for a full assessment and preparation of all interdepartmental facets of the proposal to be made available to the Council and the record of such coordination to be made available to the Council at request of the Council. The State Historic Preservation Officer shall notify appropriate governmental units and public and private organizations within the State or pending con-
Council meetings. The Council does not hold formal hearings to consider comments under these procedures. Two weeks notice shall be given, by publication in the Federal Register, of all meetings involving Council review of Federal undertakings in accordance with these procedures. Reports and statements will be presented to the Council in open session in accordance with a prearranged agenda. Regular meetings of the Council generally occur on the first Wednesday and Thursday of February, May, August and November.

Oral statements to the Council. A schedule shall provide for oral statements from the Executive Director; the referring AGENCY OFFICIAL presently or potentially involved; the applicant or potential recipient, when appropriate; the State Historic Preservation Officer; and representatives of national, State, or local units of government and public and private organizations. Parties wishing to make oral remarks shall submit written statements of position in advance to the Executive Director.

Comments by the Council. The comments of the Council, issued after consideration of an undertaking at a Council meeting, shall take the form of a three-part statement, including an introduction, findings, and a conclusion. The statement shall include notice to the AGENCY OFFICIAL of the report required under Section 800.6(j) (below) of these procedures. Comments shall be made to the head of the Federal Agency requesting comment or having responsibility for the undertaking. Immediately thereafter, the comments of the Council will be forwarded to the President and the Congress as a special report under authority of Section 202(b) of the Act and published as soon as possible in the Federal Register. Comments shall be available to the public upon receipt of the comments by the head of the Federal agency.

Report of agency action in response to Council comments 800.6(j). When a final decision on the undertaking is reached by the Federal Agency the AGENCY OFFICIAL shall submit a written report to the Council containing a description of actions taken by the Federal Agency subsequent to the Council's comments; a description of actions taken by other parties pursuant to the actions of the Federal Agency; and the ultimate effect of such actions on the property involved. The Council may request supplementary reports if the nature of the undertaking requires them.

Records of the Council. The records of the Council shall consist of a record of the proceedings at each meeting, the case report prepared by the Executive Director, and all other reports, statements, transcripts, correspondence, and documents received.

Continuing review jurisdiction. When the Council has commented upon an undertaking pursuant to Section 800.6 such as a comprehensive or area-wide plan that by its nature requires subsequent action by the Federal Agency, the Council will consider its comments or approval to extend only to the undertaking as re-
Illustrated on this page is part of the State's version of the procedures for compliance with the National Historic Preservation Act, Executive Order 11593 and the Advisory Council's plan for implementation.

Step #1, identifying properties listed on or eligible for the "National Register" that are within the vicinity of the project's potential environmental impact, was completed for the draft EIS in late December of 1975. Only one entry on or eligible for the National Register was deemed close enough to any of the then six proposed alternatives to be considered "within the vicinity of the project's potential environmental impact" and was listed as "Hampton's Ford Stage Stop and Barn, northwest of Collinston on Utah 154 at the Bear River". (A short history of Hampton's Ford and surroundings is given on page 23.) In a May 23, 1975 letter from the Division of State History, the Zundell...
cabin in Plymouth was brought to the attention of UDOT as a potential historic site (but not listed on either State or National Registers).

Upon selection of the present alignment, the corridor considered "within the vicinity of the project's potential environmental impact" is restricted to the western portion of the valley.

Consequently, the only two historic sites (potential and listed) in the valley are considered outside of "the vicinity of the project's potential environmental impact" (Zundell cabin 1½ miles and Hampton's Ford 5 miles away).

The seven historic trails mentioned in the memo on the next page have been described on page 22. These trails later became known as the Salt Lake Cutoff.
Mr. Sheldon W. McConkie, P. E.
Engineer
Utah State Department of Highways
State Office Building
Salt Lake City, Utah 84114

Re: Proposed road in Bear River Valley between the towns of Elwood
and Plymouth.

Dear Mr. McConkie:

A preliminary investigation reveals that from an historical standpoint the
area has little that will be destroyed as a result of the proposed road.
The road will, however, traverse or parallel seven historical trails.

If you need specific information when the final route is selected we will
be happy to respond.

Sincerely,

Kent Fortsgard
Preservation Program Director
Zundell Cabin is being considered for placement on the State Register. According to its present owner, Oleen Josephson, Zundell Cabin was the first home ever to be constructed in Plymouth (1869), and though it has been moved a few blocks from its original location, the home itself has been carefully preserved.

Since the cabin is over one and one half miles from the proposed freeway, no threat to the structure (or its setting) from highway construction is foreseen.
HISTORIC AND CULTURAL

Step #2 occurred in late 1974 with surveys conducted to find archeological sites along the three alternate corridors. The researchers' findings were negative (letter on this page).

The second paragraph of Professor Jennings' letter (p.163) refers to work performed on the Collinston to Riverside road (page 8). As a consequence of these (and other) citations, the Utah Department of Transportation district offices have become a trifle "gun shy" in the matter of archeologic sites and have beefed up their coordination efforts with the State Archeologist and with the Utah academic institutions which have expertise in this field.

Additional coordination with the Division of History in December, 1975 (p.164) resulted in a new survey being conducted in March, 1977. Two ("prehistoric") sites near the Malad River were noted, as the March 25, 1977 memo from Kay Sargent indicates. One of the two sites was recommended for excavation by the State Archeologist (March 29, 1977, p. 165).

Examination of this site will occur after procurement of the property and before construction, as agreed in the August 16, 1977 letter (p. 167) from State Historic Preservation Officer and during a September 20, 1977 on-site inspection with UDOT and Division of History personnel.

Presently, the position of the State Historic Preservation Officer (August 16, 1977 letter) on the project is that the Interstate segment "will have no known effect on any listed or potential National Register site," on the condition that site 43 BO 379 is examined, as previously agreed to by both UDOT and the Division of State History.
TO: Curt Wilson
FROM: Patrick Hogan
RE: Archeological survey of proposed Routes I-15 Elwood to Plymouth
DATE: November 19, 1974

Survey of proposed I-15 routes Elwood to Plymouth was undertaken on November 15, 1974 and completed on November 17, 1974. Members of the survey team were Chris Plimpton and Patrick Hogan. An earlier survey, begun in July, 1974, by Dr. John Marwitt and Jim Dodge for the department, was discontinued due to heavy ground cover and illness in the crew. Utilizing Highway Department aerial photographs Elwood to Plymouth I-15-8(10) 37-1, October 1970, the area covered by this party was noted and not resurveyed.

Western Alternate: Following aerial photos mentioned above, Alternate A of the West Alternate was surveyed from present I-15 to TIN line and Alternate B of the West Alternate from present I-15 to a point west of Garland. Proposed routes cut through level cultivated land showing evidence of long agricultural use. No evidence of aboriginal habitation was found.

Central Alternate: Following route marked as Central Alternate on composite USGS map given us by the Highway Department, only Alternate C, drawn on aerial photos, was surveyed. Alternates C1 and C2 were not checked as routes shown on topographic map and were assumed to supersede previous information. Alternate C was surveyed from a point ca. 9000 ft. southeast of Plymouth to the beginnings of a ramp on I-15 at Elwood. Again, the area was the site of long agricultural use and exhibited no evidence of archeological materials.

Eastern Alternate: The Eastern Alternate was surveyed from Plymouth to a point west of Callis Fort. About two miles of the route between this point and the proposed juncture with present I-15 could not be checked as high water levels had put a sheet of water over the area. The Eastern Alternate cuts across the same type of intensively farmed land as
previously described from Plymouth until it crosses the Bear River southwest of Fielding. On the western side of Bear River north of Collinston, fill has been laid down as a road bed for approximately one-quarter mile. From this point, the route moves onto a terrace (Stanbury?) and essentially follows the power pole lines until it crosses Highway 69 south of Honeyville towards a juncture with I-15. While some of this area is under cultivation, the majority is grazing land. The vegetation is a Power Sonoran community with sagebrush and oat grass dominate. This heavy ground cover made detection of any localized surface scatter improbable while offering the best possibilities for site location. Despite careful check, no sites were discovered. The section between I-15 and Highway 69 is an area characterized by marsh grasses and cattails. Much of this area is used for cattle grazing. As mentioned, the area could not be surveyed.

Recommendations: Survey disclosed no evidence of aboriginal occupation along any of the proposed alternatives. However, considering occupation along any of the proposed alternatives. However, considering occupation of any construction along the Eastern Alternate peoples, a monitoring of any construction along the Eastern Alternate by vegetation. Also, the swampland section of the Eastern Alternate should be surveyed, if possible at a later time, as such an area would be attractive to aboriginal inhabitants for the variety of available food resources.

January 29, 1976

John D.A. Neil
Environmental Engineer
Utah Department of Transportation
Salt Lake City, Utah 84114

To: Bear River Valley

Dear John:

I was mistaken about having responded to your December 18th letter and the preliminary pages of the draft environmental statement.

The following were the comments made by our three specialists:

"Document outlines history of region but does not discuss the impact of the project on the physical remains relating to history. Would recommend an on site survey and further research."

"A survey is doubtless required. There are many register sites and potential register sites in the general area described."

"Must be surveyed as a matter of course. West route is least likely to contain sites and should be favored in a historical/archeological view." It would appear, therefore, that the State Historic Preservation Officer will require both an historical and archeological survey of the proposed route.

Sincerely,

John S.M. Smith
Preservation Planning Specialist
JHHS-clw

STATE OF UTAH
Cabinet of Governors
DEPARTMENT OF DEVELOPMENT SERVICES
Division of State History
106 E. Temple, State Office Building
Salt Lake City, Utah 84114
Telephone: (801) 328-3733

STATE HISTORICAL BOARD: Dr. Milton C. Adams, Chairman • Thomas H. Lake • Howard C. Payson, Jr. • Dr. Richard O. Lilburn • John C. Pappenheiser • Clyde L. Miller • Elizabeth M. Nancey • Naomi Backley
TO: David B. Madsen  
March 25, 1977

FROM: Kay Sargent  
March 25, 1977

RE: I-15 Survey from Tremonton to North Plymouth.


On March 22, 23, and 24, Thomas Zeidler and I surveyed the proposed right-of-way for a fourteen mile segment of I-15. The new highway would join the present I-15, 1/2 miles east of Tremonton and 1/2 mile south of Highway 30S in the NW Quarter of Section 9, T12N, R3W and rejoins it to the north in the SE Quarter of Section 34, T14N, R3W.

The survey was conducted by both persons walking on first one side of the flagged right-of-way to a distance of at least 200 feet, and generally more, from the flagged route and then for the same distance on the other side of the route was covered, back to the point of departure. In this way, a width of at least 400 feet, and often more, was covered for the length of the proposed route. The land was almost all in use as plowed fields or pasture. There were a few areas where sagebrush and grasses made for poor visibility, but was otherwise good.

Only two sites were encountered, both of these in plowed fields on the north side of the Malad River. Site 42B0378 is in the NE Quarter of the NW Quarter of Section 15, T13N, R3W, and consists of a small lithic scatter atop a ridge running north-south off of the level flood plain to the river below. The site is approximately 8 meters in diameter and is sparse.

Site 42B0379 is on three ridges, similar to the one 42B0378 is on, covers a much more extensive area, and contains a denser scatter of debitage than 42B0378. This site is in the NE Quarter of the NW Quarter of Section 15, T13N, R3W. Concentration of cultural material is on the ends of the three ridges (the center of which contains TP #51) which are connected by sparser scatter. Ground stone and chipped stone artifacts were present but as with the previous site, no diagnostics were found, which allows no cultural designation for these sites other than "prehistoric."

42B0378 is approximately 260 meters east of the center of the proposed highway, while 42B0379 is on the route itself. It is recommended that 42B0379 be tested to determine cultural affiliation and subsurface depth since it will be destroyed by the...
March 23, 1977

Construction of I-15. While 42Bo378 may not be directly affected by the highway construction, it is likely to be indirectly by its proximity to the highway. It is unlikely that this site has much depth due to its small size and sparseness of cultural debris. (Site report is filed with the Antiquities Section, Utah State Historical Society.)

Recent historical debris was occasionally found all along the route but was of little significance. The only exception was a small brick structure in the SE40 of the SE1/4 of Section 10, T13N, R14W. This is most likely of recent origin since it has and appears to be equipped for electrical hookups. This is on the route itself, approximately one mile from Plymouth.

Three days were spent on this project. At the rate of $125.00 per day ($125.00 x 3 days) $375.00 is due.
Preliminary archeological evaluation of one site near the Malad River, which, as shown on the map on the facing page, lies directly in the path of the proposed alignment, did not indicate the full nature or importance of the site. Additional test excavations by the Division of State History are necessary in order to determine if the site, itself, is critical or if the artifacts (which can be removed and placed on appropriate repository) are the essential elements.

Close examination between the March 29, 1977 and August 16, 1977 reveals a discrepancy in the test site (42 Bo 379 and 43 Bo 379, respectively). Conversations with Dr. David Madsen, State Archeologist (Division of State History), on September 27, 1977 indicates that the March 29, 1977 site number of 42 Bo 379 is correct while 43 Bo 379 (August 16, 1977) is a typographical error.
Construction Crews Discover Ancient Artifacts, Archaeologists Study Find

Special to The Tribune

RICHFIELD — A group of bones and artifacts discovered by construction workers here Feb. 5 have turned out to be "a very significant archaeological find for Utah," according to the state archaeologist.

Dr. David Madsen took a group of archaeologists from the antiquity section of the State Historical Society to "dig" in the area for further evidence of Fremont agricultural Indians believed to have lived in the area from approximately 500 to 1250 A.D.

The archaeologists have found approximately seven skeletons, three types of pottery, bone and stone tools and several partial structures.

The remains were discovered by a construction crew excavating on the southwest outskirts of Richfield, to be the site of a new campus for Sevier Valley High School and the construction of new residential areas.

The construction crew found a skull and gave it to Sevier County Sheriff Rex Huntsman, who sent it to Salt Lake City to be analyzed.

Five days later Dr. Madsen, his associate, LaMar Lindsay, and the archaeologists were combing the area for more clues to the remains.

The group has pinpointed nine locations the "dig" will concentrate on. The bones and artifacts were found as much as five feet below the ground surface.

Dr. Madsen said it will probably take four to 12 months before everything found will be analyzed. After that most of the objects will be given to the State Natural History Museum.

Jerry Michael, construction general manager for the State Building Board, said he would be willing to hold up construction of the $2.5 million vocational school for about two weeks while the archaeologists dig in the area. It was later agreed, however, that the construction crews could work in other areas of the site without hampering efforts of the archaeologists.

The unfinished construction site will be closed to the public due to dangerous trenches.

ARCHEOLOGIC PALEONTOLOGIC

It seems that whenever any interesting skeletal finds are turned up during highway and building construction, national media coverage is generated. This makes it a matter of course that procedures (as previously cited) be incorporated into contract documents to assure consultation and professional evaluation of archeologic and paleontologic discoveries.

Since 1906, the Federal government has had a law on the books which was designed to protect our antiquities. For five years the State of Utah has had a law to collect as well as preserve and catalog archeologic artifacts. One interesting point in both acts is the relatively minor penalty for law violation.

A group of bones and artifacts discovered by construction workers here Feb. 5 have turned out to be "a very significant archaeological find for Utah," according to the state archaeologist.

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construction crews could work in other areas of the site without hampering efforts of the archaeologists. The unfinished construction site will be closed to the public due to dangerous trenches.

The remains of approximately seven skeletons, three types of pottery, bone and stone tools and several partial structures.

The remains were discovered by a construction crew excavating on the southwest outskirts of Richfield, to be the site of a new campus for Sevier Valley High School and the construction of new residential areas.

The construction crew found a skull and gave it to Sevier County Sheriff Rex Huntsman, who sent it to Salt Lake City to be analyzed.

Five days later Dr. Madsen, his associate, LaMar Lindsay, and the archaeologists were combing the area for more clues to the remains.

The group has pinpointed nine locations the "dig" will concentrate on. The bones and artifacts were found as much as five feet below the ground surface.

Dr. Madsen said it will probably take four to 12 months before everything found will be analyzed. After that most of the objects will be given to the State Natural History Museum.

Jerry Michael, construction general manager for the State Building Board, said he would be willing to hold up construction of the $2.5 million vocational school for about two weeks while the archaeologists dig in the area. It was later agreed, however, that the construction crews could work in other areas of the site without hampering efforts of the archaeologists.

The unfinished construction site will be closed to the public due to dangerous trenches.
AN ACT CREATING WITHIN THE DIVISION OF STATE HISTORY A STATE ANTIQUITIES SECTION TO ESTABLISH ARCHAEOLOGICAL SITES, FOR THE COLLECTION AND PRESERVATION OF SPECIMENS AND RECORDS AND FOR THE EDITING AND PUBLICATION OF ANTIQUITIES RECORDS; PROVIDING FOR THE CREATION AND COMPOSITION OF AN ANTIQUITIES COMMITTEE TO ADVISE THE STATE BOARD OF HISTORY IN POLICY MATTERS RELATED TO ANTIQUITIES; AND PROVIDING PENALTIES.

Be it enacted by the Legislature of the State of Utah:

Section 1. The legislature declares that the public has an interest in the preservation and protection of the state's archaeological and anthropological resources and a right to the knowledge derived and gained from scientific study of those resources. It is the purpose of this act to provide that activities for the preservation, excavation, study and exhibition of the state's archaeological and anthropological resources be undertaken in a coordinated and organized manner for the general welfare of the public.

Section 2. As used in this act:

(1) "Specimens" means all man-made relics, artifacts, and remains of a prehistorical, archaeological, or anthropological nature found on or below the surface of the earth.

(2) "Site" means any aboriginal mound, fort, building, earth work, village location, burial ground, prehistoric ruin, cave, petroglyphs, pictographs, or other location which is the source of specimens.

Section 3. There is created within the division of state history a state antiquities section. The division of state history is the authority of the state for the protection and orderly development of archaeological

Bear River Valley - 169
HISTORIC AND CULTURAL

Engrossed Copy
H. B. No. 34

or which have been designated as landmarks pursuant to this act, for the
purpose of appropriating, injuring, or destroying a specimen without a
permit from the division of state history. Application for a permit shall
be made on a form furnished by the antiquities section and accompanied by
the payment of a fee or posting of a bond to be determined by the board
of state history. All archaeological work shall be carried out under
the supervision of the state archaeologist under the direction of the
division director and in accordance with rules adopted by the board of
state history in such a manner that the maximum amount of historic, scientific,
archeological, anthropological, and educational information may be recovered
and preserved in addition to the physical recovery of items. The division
of state history may revoke or suspend a permit or declare the bond to be
forfeited if the permittee fails to conduct the excavation in a manner con­sis­tent
with rules promulgated by the state antiquities section. All items recovered by permittees shall be the property of the state; provided,
that the board of state history with the advice of the antiquities committee
may allot a fair share of the items recovered to the permittee. A permittee
may be required to submit duplicates of any written or photographic data
obtained in the course of field investigations to the division of state
history.

Section 9. Sites of significance may be recommended to the governor's
historic and cultural sites review committee by the antiquities committee
with the approval of the board of state history as "state archaeological or
anthropological landmarks," provided that no privately owned site shall be so
designated without the written consent of the owner. It is unlawful to excavate
upon a privately owned designated site without a permit from the division of
state history. Before any alteration is commenced on a designated landmark,
three months' notice of his intent to alter the site shall be given the division
of state history.

Section 10. Any person who discovers any site or specimen on lands
owned by the state shall promptly report such discovery to the division of
state history. It is the intention of the legislature that discovery on

Engrossed Copy
H. B. No. 34

privately owned lands of sites or specimens should be immediately reported
to the division of state history and that field investigations should be
discouraged except in accordance with this act.

Section 11. The museum of natural history is the depository for copies
of archaeological field notes, photographs, publications, or other records
obtained by whatever agency or person, pursuant to any permit. All specimens
which the antiquities section retains shall be deposited at the museum of
natural history; provided, that items may be loaned to appropriate institutions
upon request. Data collected by the antiquities section shall be made available
to qualified individuals consistent with this act. The museum of natural
history shall provide for display of selected items as appropriate.

Section 12. It is unlawful to appropriate, injure, or destroy any
site or specimen situated on lands owned or controlled by the state or its
subdivisions, or which have been designated as landmarks pursuant to this act.
No specimen shall be removed from the state without permission of the division
of state history. Any person seeking to remove specimens from the state shall
forfeit to the state all articles and materials discovered, collected,
evacuated, or offered for sale or exchange, together with all photographs
and records relating to such objects.

Section 13. It is unlawful to reproduce, rework, or forge any specimen
or make any object, whether copied or not, or falsely label, describe,
identify, or offer for sale or exchange any object, with intent to represent
the same as an original and genuine specimen, nor shall any person offer for
sale or other exchange any object with knowledge that it was collected or
excavated in violation of this act.

Section 14. Any person who violates this act is guilty of a misde­
manor.
CULTURAL

The rustic nature of the Bear River Valley, together with its sparse population, precludes any of the more urbanized cultural aspects (opera, theatre, symphony, ballet, lecture, library, crime, etc.) from being major features in the lives of its citizens. Yet a half-hour journey to Logan or Ogden puts virtually all residents within relatively easy access to a wide range of cultural activities, most of which are centered around Utah State University and Weber State College.

If a foreseen transition in the demographic makeup occurs in the valley (agricultural orientation to a greater emphasis on commerce, recreation and manufacturing), a corresponding change in cultural values and opportunities is sure to come about.
COMMENTS AND COORDINATION

Presented on the next pages is a summary of agency coordination and public involvement during the development of the project together with pertinent comments received during the coordination.
As sketched on page 24, the development of the project has had a long (and sometimes tortuous) development. Considerable coordination and many, many comments have been received expressing viewpoints from an equally sundry number of vantage points. Comments received concerning the draft EIS (issued April, 1976) are included on pages 209 to 224 with referenced responses. Pertinent remarks from the public hearing held at Tremonton, Utah, June 22, 1976, are continued on pages 225 and 226. Input documents published in the draft EIS are found on the following 34 pages.

Throughout the statement correspondence, clippings and similar documentation have been displayed in appropriate places and, as much, demonstrates a portion of the coordination which has taken place:

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Mr. Blaine Kay
Utah State Department of Highways
612 State Office Building
Salt Lake City, Utah

Dear Mr. Kay:

Some time ago Mayor Westergard of Garland showed me a letter he had written to you concerning the new highway construction through the Garland, Utah area.

I would like to support the requests made by Mayor Nephi Westergard in connection with the location and construction of Interstate Highway 15 through this area. In an agricultural area such as Box Elder County, disruption of farming units attains greater significance than in urbanized areas, and Mayor Westergard’s calculations are very impressive, showing a west side freeway would involve a property tax loss of less than one-third the amount lost if the freeway were built along the east side route.

Breaking up of 66 farms and disrupting many family farmsteads by an eastern route, as described by Mayor Westergard, would seem to make that location of questionable worth compared with involvement of only 16 farms and even fewer farmsteads by a westerly route.

I would like also to support the mayor’s request for adequate access and egress to and from the highway in the Garland area.

Sincerely,

UTAH-IDAHO SUGAR COMPANY

Norman E. Carver
Utah District Manager

NED:inf

cc: Mayor Nephi Westergard

NOTE: During the earlier stages of Project development, the Center Alternate - traveling east of Tremonton parallel to US-191 and involving several options (C, C-1, C-A) - was often referred to as the "eastern route" or the "east alignment".
Henry C. Bolland, Director
Utah State Highways
Capitol Building
Salt Lake City, Utah

Dear Director Bolland:

The Cache Chamber of Commerce would like to go on record in support of the construction of route number one with the alignment on the east side of Tremonton, or the first and original alignment. This will serve the people of Cache Valley best in that it will encourage travel to the interchange for people going north into Idaho and south into the Salt Lake area.

As east alignment will save several miles and encourage traffic south on the interstate. If it were located on the west route, it would eliminate any southbound traffic because of its round-about routing.

We lend our support and assistance and encourage your decision to favor route one on the east side of Bear River Valley.

Respectfully yours,

CACHÉ CHAMBER OF COMMERCE

Dean N. Smith, Manager

The People Have A Point

Editorial from the BOX ELDER NEWS
Brigham City
November 15, 1970

Whatever first coined the phrase "The noisy wheel gets the most grease" must have been referring to a situation similar to that involving the selection of a route through Bear River valley for Interstate-15 and citizen reaction to it.

Earlier this year, the Utah Highway department announced it's intended alignment. A heavy tide of opposition swelled up in the valley where folks contended that such a route would cut through some of the county's most fertile farm ground.

It would bisect farms, harming their economic feasibility to operate, and take out a large portion of prime agricultural land, they argued.

OPPONENTS RECOMMENDED instead that alternate routes be considered, showing preference for one which would skirt the valley's west side.

After voicing their displeasure at two public hearings, foes didn't give up the fight. As a result, Governor Rampton, accompanied by state highway officials, this past week flew into Bear River valley to take a first-hand look at the three proposed routes.

He promised a decision on the highway alignment would be made soon.

We acknowledge that often times the opposition of local residents is emotionally-based and melts in the clear light of practicality. Such doesn't appear to be the case this time.

The resistance is rooted in economic reason.

It's estimated the proposed highway route, roughly parallel to existing U.S. 191 to the Idaho line, would consume 600 acres of choice land and result in a crops loss of $5 million over 10 years.

NATURALLY, IN MAPPING a route, the highway department must consider all factors and sometimes its conclusions don't agree with local wants.

But we believe in this instance the preservation of fertile farm ground in a county so heavily dependent upon agriculture should be a prime consideration.

Like the governor pointed out, the construction of a highway is so permanent. Once gone, this productive land could never be restored.
Bear River Valley - 177

1970

Dear Mr. Smith,

I wanted to express my appreciation for the help you provided to the people in the valley. Your assistance in organizing the agricultural business and your efforts to make the valley more efficient and productive are greatly appreciated. You have made a significant contribution to the livelihoods of the people in the valley.

Thank you for all your hard work.

Sincerely,
[Signature]

Bear River Valley - 177

May 15, 1970
COMMENTS AND COORDINATION
1970

Ross Plant, State Soil Engineer
State Capitol Building
Salt Lake City, Utah

Dear Mr. Plant:

The Supervisors of the Northern Utah Soil Conservation District have a responsibility of encouraging good land use and using land within its capability.

At the September Board meeting it was reaffirmed and agreed that we oppose highway construction on land classes of I and II where any reasonable alternate is available.

We have reviewed the various proposed routes for Interstate Highway 1-15 and believe the east route through the center of the valley violates the principal of good land use. The Board of Supervisors favors full consideration of one of the west routes.

Extensive technical and financial assistance has been applied to the irrigated area involved along the east route. We believe this has been done with orderly community development as a goal and any unwarranted disruption would be a violation of public trust. It would also seem to be an unwarranted waste of public funds.

We have discussed this matter with numerous District co-operators whom we represent and without exception they feel this is the proper stand.

We trust you will give consideration to the conservation of our limited natural resources and the interests of the communities affected as you arrive at ultimate decisions.

Sincerely,

D.M. Bourne, Chairman
Northern Utah Soil Conservation District

Mr. Ross Plant
Capital Building
Salt Lake City, Utah

Dear Mr. Plant:

We wish to go on record in opposition to the proposed route C of the I-15 road through Bear River Valley.

We urge you to consider the route B on the west side of the valley.

Bear River Livestock Association
Jay Holmgren, President

cc: Governor Rampton
Joseph Francis

J. HOLMGREN
Two Houses, Six West Austin
Box 354
Garland, Utah

November 24, 1970
Routing Of I-15

 Raises Questions

By CURT BURNETT
Deseret News Staff Writer

Serious land use questions involving the routing of I-15 between Edward and Plymouth in Box Elder County were raised Friday at a meeting of the State Road Commission.

State Agricultural Commissioner Joseph H. Francis, who also chairs the State Soil Conservation Commission, urged the road commission "to avoid, where possible and reasonable, routing highways over and through our prime soil resource areas."

Several alternate routes have been proposed by the road commission, and all have met stiff resistance from landowners in Box Elder County.

Francis stipulated that he was not arguing for any particular route, but urged the commission to "route our highways over the 96 per cent of our less valuable lands and preserve our four per cent prime agricultural lands."

He cited figures to show that from 1958 to 1967, some 67,000 acres of the state's nearly two million acres of choice farm lands have been diverted to other uses, which amounts to about 20 acres a day.

"It is just common sense that we cannot continue to liquidate our farm land, increase our population at the present rate, and expect to forever produce an adequate food supply for our people," he said.

Speaking for the road commission, Ross Plant, commissioner for the Northern District, said the matter of routing is "confusing and complex."

"No matter where we build this highway, some agricultural land is necessary. The only way you are going to conserve land is through legislative control," he said.

While initial opposition was strong against routing the highway on the east side of Tremonton, Plant said he also has letters from people opposing its construction on the west side.

THE HERALD JOURNAL
Logan
November 29, 1970
COMMENTS AND COORDINATION

1971

STATE ROAD COMMISSION OF UTAH
612-D STATE OFFICE BUILDING
SALT LAKE CITY, UTAH 84114

June 17, 1971

Box Elder County Commission
Box 46 North 2nd West
Brigham City, Utah 84302

Attention: Commission Chairman Don E. Chase

Gentlemen:

Director Holland and I appreciated very much the opportunity to review with you in some depth the situation as concerns the Commission's recent decision on the alignment of Interstate 15 from Elwood to Plymouth. This particular problem has received as much, if not more, attention by the Highway Department and all members of the Road Commission, than any other problem which we have had to deal with. Actually five different alternatives were developed and each studied in considerable detail.

The first three alternatives, C, C9, and C1, commence at a common point near Elwood and proceed northerly to a common point near Garland where they diverge. Alternative C9 parallels the Milad River on its west bank, Alternative C traverses prime farmland in the Valley, and Alternate C traverses prime farmland approximately 200 feet east of the River and parallel thereto, approximately 200 feet east of the River and parallel thereto.

The other two alternatives commence from Interstate 80 on the west side of Tremonton. Alternative B proceeding northerly toward Plymouth and Alternate A immediately west of the airfield and Alternate C immediately east of the airfield. All alternatives are shown on the attached prints of a map of the area.

Until recent years, the location and design of a highway facility was principally a function of engineering and economic considerations, including design, construction, maintenance, and vehicle-operating costs. These considerations are summarized in Figure 81 of the engineering report which is attached with consideration given only to the engineering and economic factors. Alternative C and C9 are most preferable and were evaluated at that time and on occasions reannounced through meetings in the area and by news articles. It was as a result of the inquiries and criticisms voiced at the public hearing of May, 1970, the Utah State Road Commission directed the Department of Highways to reevaluate the alignment of Interstate 15 from Elwood to Plymouth, taking into consideration, not only the engineering and economic factors, but also the socio-economic elements of the Bear River Valley area. In conformance with the Commission's direction, the Department looked at and reported on several elements which were carefully reviewed and considered by the Commission in arriving at our recent decision. These are:

Farming - The most serious consequence of the proposed highway appears to be its impact on local agriculture. The easternmost alignment produces the most serious immediate impact on agriculture, not only through consumption of prime farmland, but also through seoration of the irrigating system. The other alternatives lying east of Garfield produce so serious an impact on agriculture in that they are located immediately adjacent to the River and do not sever the irrigating system. They do sever pasture land from other farming activities, but crop production and pasture land are normally separated. It is further noted that all of the C alternates between Elwood and Garland align with a quarter section line which is generally the individual property boundary.

The western alignments also traverse agricultural land, but since a larger portion of the farmlands on the west are not irrigated, the total immediate impact on agriculture is less with the western alignments.

Table 81 compares acreage of the various classifications of farmland on each of the alternatives and you will note that the savings in prime Irrigation land by construction of a westerly alignment would be approximately 140 acres. On the other hand, the taking of residential land would be increased.

Another thing that was looked at were trends in land use and the economic base. This indicated that there is change occurring wherein more lands are being put to residential and commercial uses at an increased rate.

Travel - The Interstate Highway System, as part of the total transportation network, should provide a proper level of service to local and long-distance travelers, all of whom are motivated by time-distance economy in the selection of a route. The location of Interstate 15 on the west side of Tremonton will not provide this level of service because:

1. It will increase the total time and distance for through trips either originating or terminating north of Plymouth and south of Elwood, and
2. It will increase the time and distance requirements of predominant local trips either originating or terminating east of Tremonton and southerly toward Ogden and Salt Lake City.

It is believed that, if either of the west alternates are adopted, the future demands of local traffic on the east side of Tremonton will require an improvement of the local roads on the east, perhaps to the extent of causing an impact to agriculture on the east as would the construction of Interstate 15 on the east at this time.

Community Growth - One of the most serious results of highway location has been that of severance of existing communities, severance of a community from its promising areas of growth, and disruption of existing facilities. If a new highway can be located immediately adjacent and parallel to or coincident with an existing facility severing a community, the impact of its location will be less than if located on a new line. Those alternates on the east adjacent and parallel to the River appear to offer less impact in this regard.

The easternmost alignment severs prime agricultural land and irrigating facilities throughout its length. The westernmost alignment severs the City of Tremonton from the dry farmland to the west but parallels and coincides with the base of the mountain as it proceeds northerly. The second most westerly alignment separates city of the developed community, the fairground, golf course, and the airport from the remainder of the City. Two of the three westerly alignments are immediately adjacent and parallel to the River from north of Garland to north of Fielding.

Commerce - The business community has developed over the last several years in such a manner as to suggest local acceptance of the earlier actions of the Commission. Numerous motorist service facilities have been developed and improved on the east side of Tremonton in anticipation of the construction of Interstate 15 on this side of the city. The commercial interests generally appear to have endorsed the east side location. Much has been said about alleged commitments being made along the previously adopted westerly alignment. It was never represented that the Department or Road Commission had made commitments to any individual that their interests were paramount in the reanalysis of the Interstate 15 alignment through the Tremonton and Garland area. It has been indicated several times that the Road Commission and Department do recognize that land owners and developers, in trust of the official decision rendered previously, have likely committed themselves to financial and land use obligations. Since the officials of both the Commission and Highway Department are men of integrity, consideration is and will continue to be given to this factor. Again, this consideration cannot and will not be placed above or in a category paramount to the total public interest.

This has been, as I am sure you can appreciate, a situation of divided public opinion; therefore, the Road Commission could help you and others have given us in what has been a most difficult experience in Box Elder County.

Sincerely,

Clem R. Church
Chairman

Attachment

cc: Governor Calvin L. Rampton - P.S. This has been a very difficult problem to the Road Commission in that there has been a very definite difference in public opinion and both sides have been very active in promoting their position. It is our decision that could not have been right in everybody's mind no matter what we decided. We are certain in this decision made in the right one.

Senator Miles (Cap) Perry
Representative Willis E. Hansen
Representative William E. Packer
Mayor Wayne Randell
Melvin Poulson, Former Director, Tremonton Chamber of Commerce
Mr. Sheldon McConkie
Route Surveys and Location Engineer
Utah Department of Highways
State Office Building
Salt Lake City, UT 84114

Dear Mr. McConkie:

Ralph Schamel contacted me by telephone this morning to request permission to quote or use excerpts from the "Interstate Highway Location" report prepared by a committee from Utah State University.

This report was compiled at the request of a group of citizens from Box Elder County. We attempted to be very objective in our approach to the problem and to present the facts as we saw them without bias for or against either of the route alternatives. Although we did not intend the report to be a formal document, the information contained therein is supported by official data and/or research. Therefore, we consent to your use of excerpts from the report providing they are used in proper context.

We are conscious of the tremendous responsibility highway planners have to include all of the factors that have a bearing on the decision to locate a highway. Success to you.

Sincerely,

C. Dennis Funk
Associate Director

NOTE: Extracts from the report were included in the text on page 60.

...
August 3, 1971

Mr. Ralph Schamel
Room 304
State Office Building
Salt Lake City, Utah 84114

Subject: Preliminary Environmental Impact Statement - I 15, Elwood to Plymouth

Dear Mr. Schamel:

An examination of the alternate routes A, B, C, CA and Cl was conducted by personnel of our Division on July 29, 1971. It was concluded that detrimental impact would result from any route the highway might take in this area, but different alternate routes would cause varying degrees of damage.

Alternate A, west of the airport into the foothills west of Garland, would cause the least amount of detrimental impact to wildlife. This route would affect habitat of mourning doves, Hungarian partridge, some pheasant and other songbirds and small mammals. Plentiful contiguous habitat for all species makes this alternative the alignment we would prefer.

Alternate B, east of the airport into the foothills presents the same situation but slightly more adverse impact as it would affect more pheasant area. This, of course, would be our second choice from an impact standpoint.

Alternate C would, by far, cause more detrimental impact than either A or B because it completely traverses premium pheasant habitat, through irrigated lands, its entire length. This habitat is important for pheasant production and for various species of songbirds and small mammals. In addition, both Alternates CA and CI run along the bluffs of the Malad River and may encroach on very important winter pheasant habitat offered by the Malad River area and might also infringe on some waterfowl areas and reduce production.

Irreversible or Irretrievable Impact: The area used for the actual road bed is irreplaceable. As pheasants are the most important species here, and possible encroachment on the Malad River, both from a wildlife and possible future fisheries resource, we recommend Alternate A be selected as the alignment in this area.

Very truly yours,

John E. Phelps, Director

Earl A. Sparks
Environmental Specialist

LEADER - GARLAND TIMES
Tremonton
August 19, 1971

Councilman Glen Crump told council members that he had been asked several days ago by a Ralph Schamel, representing the State Road Commission, to reevaluate the question of the routing of Interstate 15 through the valley. According to Mr. Crump, Mr. Shampal (a location engineer) wanted the opinion of the city council about where they thought the road should go.

Mayor Sandall said he thought the question had been settled some time ago and seemed surprised to see it come up again.

Councilman Crump told his fellow members that "I think we can live with it. The idea of it is. Going west would mean problems." Councilman Kerr commented that "We shouldn't waste our breath talking about it and get on to something else more important."

Councilman Robert E. Poulson then put the squelcher on the deal by making a motion that "we ignore the request." It was seconded.
COMMENTS AND COORDINATION

1971

Box Elder County
COUNTY COMMISSIONERS
DON E. CHASE
MALCOLM C. YOUNG
WILLIAM L. PACKER

OFFICERS
GLEN M. BENNION, County Treasurer
E. R. OLSON, Clerk-Auditor
WARREN W. LUTZ, County Clerk
MARGARET E. EVANS, County Recorder
D. DEE LUND, County Attorney
CLIFTON H. M. KEE, County Assessor
DENTON BEECHER, County Surveyor

BRIGHAM CITY, UTAH

August 20, 1971

Mr. Sheldon McConkie
Rt. Surveys and Location Engineer
Highway Department
State Capitol Building
Salt Lake City, Utah 84114

Dear Mr. McConkie:

Enclosed you will find information requested by Mr. Ralph Schamel of Ben W. Lindsay concerning the I-15 road in the Bear River Valley.

The enclosed ideas represent our thinking after numerous public meetings and special meetings with the Highway engineers.

We are vitally concerned about the loss of productive family farms and the social life of these rural communities.

We feel there is a good alternative route the Highway engineers can design to reach the same destination at less construction cost and save our tax and economic base for future generations.

Very truly yours,

Don Chase, Commissioner

FRANK E. MOSS
UTAH

United States Senate
WASHINGTON, D.C. 20510

August 27, 1971

Mr. Henry C. Holland, Director
Utah State Department of Highways
State Capitol Building
Salt Lake City, Utah

Dear Henry:

I have received a response to my inquiries with regard to delays in the construction of Interstate highway 15 in the Tremonton area. I am forwarding this on for your evaluation.

I have also been in contact with the Environmental Protection Agency and am waiting for their response.

Please advise me of ways in which I can be of further assistance.

Sincerely,

Frank E. Moss
United States Senator
Honorable Frank E. Moss  
United States Senate  
Room 6205 New Senate Office Building  
Washington, D. C. 20510  

Dear Senator Moss:

Knowing that you have a personal interest in the aligning of Interstate 15 through the Tremonton area, I appreciate the opportunity to furnish you with pertinent information on which the Commission decided an easterly routing for construction of Interstate 15 between Tremonton and Plymouth. Mr. Blaine J. Kay's report to the Commission, I believe, outlines the various factors that were considered and evaluated in making this decision.

This was definitely one of those situations where there were mixed feelings in the community with the agricultural interest generally supporting the westerly alignment and the business community supporting an easterly routing. The economic factor as concerns the highway user was about equal for either route, but the westerly alignment would not serve the locally generated traffic as it would be out of direction to their desired travel line and would, in the opinion of several, severely restrict the development of the high elevation land to the west for residential purposes. The loss in utility of this segment of Interstate Highway for local traffic was considered by the Commission too high a price to pay for the 146 acre savings in prime agricultural land especially in that over a long range program, it is most likely that this amount of acreage would be taken by needed improvements on the local street system to accommodate the increased local traffic. Changes have been made in the alignment and preliminary design along the easterly route to minimize severance or taking of prime agricultural land. These changes seem to have satisfied at least one of the major concerns to our originally proposed design. Now that the decision on the alignment has been made by the Road Commission, there appears to be a general satisfaction by most of the communities which have been involved.

The Department is now in the process of preparing the environmental statement which, when complete, will be submitted as a part of the final design report to the Federal Highway Administration for their consideration and, hopefully, their approval.

Sincerely,

Henry C. Holland, P.E.  
Director of Highways

Senator Frank E. Moss  
November 23, 1971  

Bear River Valley - 185
October 1, 1971

Mr. Sheldon W. McConkie, P.E.
Route, Surveys & Location Engineer
Utah State Department of Highways
State Office Building
Salt Lake City, Utah 84114

Dear Mr. McConkie:

I am replying to your letter of September 29 to Dr. Talbot, asking for our reaction to the impact on the environment of the construction of the Interstate Route 15 through Box Elder County.

It would be our judgment that your alternate route C1 would have best impact on the environment of the area. Some of our people were even wondering if it might not be better to bring C1 into the old U.S. 191 immediately after crossing the Malad River. You would know whether or not this would be feasible.

Alternate A, Alternate B, and Alternate C would tend to get into more agricultural ground than would appear necessary.

I trust that the above information will be helpful to you.

Sincerely,

LEURIE WINGET
Deputy Superintendent
Office of Instructional Services

October 6, 1971

Mr. Sheldon W. McConkie, P.E.
Route, Surveys & Location Engineer
Utah State Department of Highways
State Office Building
Salt Lake City, Utah 84114

Dear Mr. McConkie:

In regard to the Environmental Impact Statement on I-15 (Box Elder County), the Industrial Promotion Division can develop a better report of our immediate environmental impact from an industrial standpoint as a result of the proposed new I-15 construction.

The new section would, of course, offer better access than now exists for any company considering a plant location in the area. However, we anticipate that any larger new industry, e.g., U & I Sugar in Garland, Utah.

If we may provide any further information, please contact me.

Sincerely,

STEPHEN L. BARRETT
Transportation Specialist

State of Utah
Cabin 1, Rampton, Governor
DEPARTMENT OF DEVELOPMENT SERVICES
Division of Industrial Promotion
No. 2 Arrow Press Building, Suite 200
145 South First Temple
Salt Lake City, Utah 84111
Telephone: (801) 328-5326
Mr. Shaldon W. McConkie
Route, Surveys, and Location Engineer
Utah State Department of Highways
State Office Building
Salt Lake City, Utah 84111

Dear Mr. McConkie:

In reply to your letter dated September 29, 1971, we do have some information that would be useful in evaluating the environmental impact of the proposed highway alternatives. We have recently completed a soil survey of the eastern part of Box Elder County.

In mapping soils our investigations usually go to a depth of five to six feet. Each mapping unit is described. From the basic soils information we make interpretations for various land uses. Most of these interpretations are based on limitations of the soil for a specific use, such as a watertable problem as it would limit use for agriculture, or for houses using septic tanks, etc. Some interpretations are based on suitability such as for topsoil, sand and gravel, etc.

If you would like additional information including soil descriptions and interpretations you may contact our State Soil Scientist, Dr. T. B. Hutchings or State Resource Conservationist, John W. Metcalf. Either can be reached at 524-5054.

We will be pleased to furnish any information we have.

Sincerely,

A. W. Hamelstrom
State Conservationist

October 26, 1971

NOTE: The Utah Department of Transportation has taken up the offer of the Soil Conservation Service. The map and soil descriptions on pages 30-32 were derived from the SCS publication, SOIL SURVEY OF BOX ELDER COUNTY, UTAH - EASTERN PART, (issued June, 1975). In addition, a continuing liaison between the local SCS office and the Landscape Unit of UDOT for several years has been exchanging information on plant and soil types which would aid in erosion control. Several of these findings have already been incorporated into UDOT contract documents.

The topsoil along the proposed alignment is generally adequate for grasses. This topsoil will be stripped off and stockpiled, to be later used as base for revegetation of cut and fill slopes.
COMMENTS AND COORDINATION
1971

December 7, 1971

Mr. Sheldon W. McConkie, P.E.
Route, Surveys & Location Engineer
Utah State Department of Highways
State Office Building
Salt Lake City, Utah

Dear Mr. McConkie:

SUBJECT: Potential Reservoir Sites in Bear River Valley

We appreciate this opportunity to help you decide upon your highway alignment in the Bear River Valley. In answer to your specific questions concerning our proposed reservoir sites in the area, we offer the following information.

There are two potential reservoir sites in the valley. The Plymouth dam and reservoir is the only site that will directly affect the highway. The Honeyville Reservoir will not directly affect any of the alternatives, but we include the information regarding it for whatever it may be worth to you.

Plymouth Reservoir Site

There has been two reservoirs considered on the Malad River which would be of concern to you. One is a small reservoir located near Riverside, as shown on the map, which has been under consideration for a number of years. If this reservoir were built it would, of course, have major conflicts with Route CA.

Our more recent studies, however, have favored the much larger Plymouth Reservoir with two possible dam locations as shown on the map.

It appears that the maximum practical size of Plymouth Reservoir that could be operated by gravity would be near 385,000 acre-feet at water surface elevation 4,600 feet. The dam would be 85 feet high with crest length of 3,650 feet. This reservoir would store Bear River water conveyed by a canal heading at or near Cutler Dam and also the flow of the Malad River. Two dams are to be designed with normal water surfaces at elevation 4,360 feet and

4,404 feet respectively. Dead storage is to be at elevation 4,360 feet providing 15,000 acre-feet dead storage. Designs for the low dam with crest elevation 4,401 feet (height 93 feet) and a high dam with crest elevation 4,418 feet (height 110 feet) have been prepared. A Parshall Flume would be provided downstream of the Stillinger Basin for measurements of discharges from the outlet works. The estimated cost for the high dam is $57,376,000 and for the low dam $30,250,000.

Honeyville Reservoir Site

This potential reclamation development does not interfere with any of the proposed 7-15 alternative alignments, but it does come near enough to Alternative C to warrant further investigation. The Honeyville Reservoir on Bear River is formed by a dam at a point about 4 miles southeast of Tremonton, Utah, and 13 miles north of Bear River Bay of Great Salt Lake. The dam would be 76 feet high and the reservoir would have a capacity of 120,000 acre-feet of which 105,000 acre-feet would be active. A minimum river flow of 50 second-feet would be maintained below the reservoir for fish. A permanent pool of 15,200 acre-feet would be maintained in Honeyville Reservoir for fishery management and recreation. An upland game habitat would be developed to replace that inundated by the reservoir. Lands would be acquired for recreational purposes and recreational facilities would be provided at the reservoir. The Honeyville Reservoir, although not operated for flood control, would provide minor flood control benefits. The estimated cost would be $11,641,000.

As you can see on the map one of the alternative sites for the Plymouth Reservoir comes close to your Alignment A and B. Perhaps it would be feasible to construct the highway across the dam itself instead of attempting to bridge it.

For further information concerning the reservoir sites we refer you to:

2. Unpublished Correspondence from the Bureau of Reclamation to Mr. Daniel Lawrence on the Plymouth Reservoir, dated September 8, 1971.

In your letter you asked for some input on the impact of the construction of the highway on the environment. We understand that the Department of Natural Resources Environmental Impact Statement Committee is working on a report in regards to this particular project. We do not doubt will have some contribution to that report, so that should be our input at that time.

Sincerely,

Daniel F. Lawrence
Director
Tremonton, Utah

Mr. Henry C. Helland, Director
State Road Commission
612 State Office Building
Salt Lake City, Utah.

Dear Sir:
The undersigned property owners urge your administration to begin right-of-way acquisition for completion of I-15, Elwood to Garland.

Your decision some years ago and the reaffirmation of that decision relative to the location of I-15 is sound. Your delay in finalization of right-of-way acquisition is frustrating. Consequently, this communication comes from property owners directly affected by your formal action indicating the location of I-15 between Elwood and Garland.

We do not feel that those opposing your decision are particularly interested in saving us.

Further delay is causing economic loss to Box Elder County, the State of Utah and the traveling public, and in addition, leaving property owners in a state of “suspended indecision”.

We again thank you for your efforts and consideration and recommend your immediate action.

Sincerely,

3/5 72 petitioners

NOTE: The 72 petitioners, together with an additional 14 names submitted on May 23, 1972, represent more than 70% of those property owners who would be affected by selection of the Center Alternate.
May 20, 1972

Governor Calvin L. Rampton
State Capitol Bldg.
Salt Lake City, Utah 84101

Dear Governor:

It has been brought to my attention that pressure groups are still trying to move I-15, going north of Tremonton, to the west side of the valley, instead of up the center of the valley and east of Tremonton as planned by the Federal and State Highway Departments.

I would like to make it known, that the people instigating this move are certainly in the minority, if you were to take a poll of all the people served by this freeway, you would find that a great majority would insist on having the new road up the center as originally planned.

This whole movement was started by two people, who called meetings and tried to persuade as many neutrals as they could, to get on the "band wagon", as they called it, and save the taxpayers from the Highway Department's blunders, and for awhile, they were successful in brainwashing a lot of people who thought this action was being well taken. They even got up petitions to be signed by anybody who didn't mind letting them do their thinking for them.

It has taken the people of this valley a little while to figure out why the great concern shown by these two diplomats, to the extent they have carried this thing, regards our tax dollars. Well, it boils down to this: one of them was crying about the way it would cut up his little farm, which he has since sold, while the other wanted both interchanges (80 & I-15) to be next to his place of business at the west end of Tremonton, where also he might benefit from the sale of some poor ground that he owns in that area.

The people of the towns of Wheelon, Fielding, Beaverdam, Collinston, East Garland, Plymouth, and all those in between these towns, in the north-east portion of this valley, would like to be able to use this new road when traveling to Tremonton and points south.

With sincere reaction,

Wendell H. Welling

cc State Highway Department
As noted on page 24, an initial attempt at a draft environmental statement was prepared beginning in 1971. In its preliminary form, it was submitted to the Utah Highways Environmental Council (now Utah Transportation Environmental Council). The members of the Council, feeling that the document was entirely inadequate, offered four pages of comments to be used "... as guidance for improvement prior to distribution of the Draft EIS." Receipt of this communication, probably more than any other event, caused the (then) Utah State Department of Highways to "go back to the drawing board", re-establish an Environmental Study Team and embark anew in preparation of a revised draft environmental impact statement. Virtually all of the suggestions included in the Council letter (reproduced on the next two pages) were incorporated into the revised Draft Statement, or its appendix. These comments continued to be an influence during preparation of the Final Statement, as follows:

1. The problems of drainage and land severance discouraged serious consideration of the "PF" Crossover.

2. Location of borrow sites which may be available has been included on page 15.

3. A benefit-cost analysis was provided in the appendix together with an economic effectiveness analysis included in the section on LONG TERM CONSEQUENCES vs. SHORT TERM IMPACTS.

4. A close estimate of the number of families to be relocated for each alternative alignment was included in the Draft Statement. However, since only one service station is to be relocated by the proposed alignment, a somewhat abbreviated relocation section has been provided in this document, beginning on page 74.

5. More consideration was given to railroad crossings; disruption of railroad service; canal, stream and river crossings.

6. The Box Elder County Master Plan (which embraces Tremonton) was used as a source document.

7. More attention was given to local and long-distance travel as shown on pages 8-12.

8. An East Alternate was included in the Draft Statement for comparative assessment purposes. As shown on pages 88 and 89 it met with virtually no community support.

9. Total agricultural land which would be lost through each alternate was tabulated in the Draft Statement.

10. A study of the relative economics involved for the various alignments was conducted and presented in the appendix to the Draft EIS.

11. A cost estimate for each alternate was included in the Draft Statement.

12. An extract from the Utah Energy Resources Map was included in the appendix to the Draft EIS.

13. On page 28 reference is made to the fog situation through the center of the valley. The heavy fog which occasionally hampers vehicular traffic through the center of the valley further tended to discourage consideration of the Center Alternate.
Utah Highways Environmental Council

August 24, 1973

Mr. C.V. Anderson, P.E.
Utah State Department of Highways
State Office Buildings
Salt Lake City, Utah 84114

Dear Mr. Anderson:

The Utah Highways Environmental Council has reviewed the Preliminary Draft of the Environmental Statement - Elwood-Plymouth, I 15-8419371. In order to better understand the complexities of this project, the members of the Council completed a field inspection of the area. Mr. Bert Taylor was helpful in showing us the situation in the field. Mr. Ross Plant explained some of the history of relationships between the community and the Road Commission.

In the interest of helping the Department of Highways to optimize its efforts in meeting the legal requirements outlined by the National Environmental Policy Act of 1969 (NEPA), the following information compiled from efforts by Mr. Powis and our staff as well as members of the Council is presented in support of our recommendations.

Our comments are grouped in three parts:
A. Description of the alternate which we feel offers a minimum of environmental impact.
B. Comments regarding the contents of the Environmental Impact Statement. (EIS)
C. Recommendations for action by the Department of Highways.

A. DESCRIPTION OF OPTIMUM ALTERNATE

1. The Council is cognizant of the dilemma faced by the Department. Consequently, our recommendations shall have their basis in the requirements of NEPA pertaining solely to a full disclosure requirement in the Environmental Impact Statement. For the representation of the environmental, social, and economic considerations, the majority of the Council assesses the far west alternate (Alternate A) as having the most favorable long-range benefits and the least impacts.

B. COMMENTS RE: CONTENTS OF EIS

If any party were to enjoin the Utah Department of Highways related to this project, an obvious target which they might select centers around the question of - full compliance with the requirements for "full disclosure". A concern for this possibility prompts a critical review and includes the following:

1. A field review of alignment of C, C1, Ca, indicates drainage and land severance potential problem areas have not been fully disclosed. Possible high costs from severance claims against the Department, as well as the impact on severed farmland may influence conclusions in a discussion of trade-offs.

2. The location of borrow sites are not indicated. An alignment cost comparison of materials required and haul distance involved would be helpful.

3. What are the costs in the cost/benefit ratio? The chart is not meaningful to the layman. Perhaps a short explanation of how the cost/benefit ratios are derived would be more helpful to the layman.

4. Clarify the number of persons severed by the implementation of each alternate. It is not clear if the 84 landowners, indicated on page 87, are representative of the total number of property owners or 80 percent of the total acreage involved. Include any petitions that have been initiated.

5. Alternates should consider comparative costs of railroad crossings, canal crossings, grade separation, and stream or river crossings.

6. The statement does not discuss a Master Plan for the city of Tremonton. If a plan is being developed the impact of the proposed project should be equated to the plan. The route west (A) may discourage city development to the west by severing community cohesion.

7. The report does not adequately evaluate impacts on local and long distance travelers for each alternative route. The report and attitude of involved highway people gives inappropriate emphasis to local transportation impacts to the detriment of long-distance (primary) traffic. Design geometry seems to give emphasis to criteria related to land ownership-location, to the possible loss of "best" criteria for the traveler.

8. The possibility of an extreme east corridor should be considered.
GENERAL COMMENTS TO THE AUTHOR OF THE EIS

1. Indicate the economics involved for the various alignments pertaining to the following comparisons:
   a. Number of structures required.
   b. Railroad crossings.
   c. Right-of-way severance and current comparable land values.
   d. A discussion of the trade-offs involving the above and other pertinent environmental issues.

2. State the total cost of each alternate.

3. A paragraph on "Conservation of Energy" should be added before the Statement is released.

4. A possibility exists that up to 70 fog days/year could be anticipated on the east alternates. Road safety in winter conditions should be addressed in the Statement.

5. The construction of a route in the east corridor would cause removal of prime irrigated farmland in lieu of residential development. Commercial and residential development would be encouraged by the east corridor. The only possibility of preserving the agricultural land may lie in "Greenbelt" zoning. This possibility should be investigated and discussed in the EIS.

The following comments by botanist, Dr. Bertrand Harrison, are pertinent to the arable land question:

"Overshadowing all other considerations in the choice of a corridor is property requirements of each alternate. Alternate A would require 118 acres of irrigated land, Alternate C, 441 acres. (The memorandum of March 26, 1971, from Blain Kay to the Utah State Road Commission gave these figures as 80 acres and 409 acres, respectively)

Of the total 52,721,550 acres in Utah, only 1,348,625 acres are irrigated. This amounts to 2.56 percent of the total area of the state. An additional 800,000 acres is in use for non-irrigated crops. A total of 2,155,186 acres is in cropland, both irrigated and non-irrigated. This is 4.09 percent of the total area in the state.

The above figures were taken from:

Utah Agriculture Statistics for 1971
Prepared by: United States Department of Agriculture
Utah State University
Utah Crop and Livestock Reporting Company
Released by: Utah State Commissioner of Agriculture, Joseph H. Francis
Elwood Town Corporation
ELWOOD, UTAH 84015

Dear Sirs,

Elwood Town board is opposed to I-15 being built up through the middle of the valley, they have expressed themselves that way before and want to reaffirm the fact that the people of the valley would much rather see the highway built on the foothills than up through the middle of the valley when it will interfere with irrigation ditches, cut up fields that have been leveled for irrigation, and direct the center of the town level for irrigating and direct the center of the valley. There are many other reasons which you are aware of. The board wants you to know that they and the people of the town are opposed to bring cut up again.

Sincerely,

Earl Lewis Peterson
Elwood Town Clerk

cc: Road Commission Members
D. V. Anderson
D. L. Sargent
Shelton McConkie
Hart Taylor
Chancey Paris
January 21, 1974

Dear Mr. Helland:

The Executive Board of the Bear River Resource Conservation and Development Project has followed with interest your plans for the section of Interstate Highway 15 from Elmo to Plymouth.

During the latter part of 1970, we gave considerable study to the three alternate routes. Members of our executive board reviewed the Highway Department’s Route Study Report, met with Governor Romney in Tremonton, and accompanied state officials on a tour of the proposed routes. On December 4, 1970, we sent a letter to the Department of Highways stating our opposition to Route C which bisects the fertile Bear River Valley.

According to the Highway Department’s own report, this route will put out of production, a minimum of 134 acres more prime agricultural land than Route B, west of Tremonton. This irreversible loss of resources, together with the adverse social effects of cutting through the community and other environmental and economic problems we feel would be created by Route C are contrary to the objectives of the Bear River RC&D Project. Therefore, we would like to again state our firm opposition to Route C.

We appreciate your consideration of our opinion on this matter.

Sincerely,

Robert D. Worthington, President
Bear River RC&D Executive Board

NOTE: The letters on following page refer to and supplement the Feb. 7, 1972 petition (six pages back).
Mr. Klein Kerr
Tremonton, Utah

Dear Mr. Kerr:

I appreciate very much receiving the updated information as concerns the property owners desires in the routing of I-15 between Elwood and Plymouth. This has been forwarded to our Environmental Study Team so that it can be made a part of the Environmental Impact Statement.

Your efforts and interest in helping the Department to achieve a final resolution to this problem and early right-of-way acquisition is very helpful.

Sincerely,

Blaine J. Kay, P.E.
Director

cc: Commissioner Ross Plant - w/att.
bcc: Sterling Davis - P.S. - As indicated, please process..BJK

"safe today - alive tomorrow"
Many comments on the proposal were heard at the areawide State Highway Planning Meeting for the Bear River Association of Governments Planning District, held Thursday, October 3, 1974 in the Bear River High School, Garland.

Some of the typical statements and reactions (taken from the official transcript) follow:

STEVE LAWSON (MODERATOR OF THE MEETING)

... I'd like to take a moment now to introduce the people who are here with us this evening and I will hold the people that are going to make a presentation until later.

Commissioner Wayne Winters from American Fork is here this evening. Commissioner Winters is not the commissioner for this district. Ross Plant is, but he is ill, and he was unable to be here this evening and he asked Commissioner Winters to come and sit instead. It's been the policy of the Road Commission always to have a commissioner in attendance so that they can get a firm grasp of the situation and can be able to go back and report for their fellow commissioners. So, Commissioner Winters will serve in that stead this evening.

STEVE NOBLE

The draft statement which goes in first of all will be finished probably around April or May of next year and approximately a year after that it will be finished.

BERT TAYLOR

I would think that that's about right if he gets his draft in by April or May, why, it would probably be a year before the final is out and complete.

BRUCE KING

And that will be the date at which the route will have been determined, is that right?

BERT TAYLOR

Yes. This will give the Commission a chance to have a new opportunity to look at it with the new information that has been presented in this statement. And the final statement is the one that they would probably want to look at and make their decision with.
I'm Ed Kerr, State Representative and I understand that we have been in a process of discussing this road since 1958 and there has been many studies made and a lot of money spent on studies. Now, we have another study that the State Highway Department has turned over to Weber College and how much is that going to cost for maybe the tenth study that may have been made in the last 14 or 15 years.

I don't care to respond on that because I don't think I'm qualified, but Commissioner Wayne Winters has been with the Commission for a long time and I think he probably has an opinion on it.

They are not doing the entire study. They will have a portion of the study. One of the requirements in an E.I.S. is that there be an economic evaluation made of the impact. I haven't worked directly with this one but I think that's the phase Weber College is doing. We have the college doing another portion of a different project down in Provo Canyon. Again, it relates to the economic part of the study, not to the total study.

Now, I'm sure some of you are just as impatient as some of us with the repetition that we have had to go through on this project and we have had to do it on a number of other projects in the state.

There is a federal law that says that we must do it. Whether there has been several studies done in the past doesn't matter, there has to be an E.I.S. made, an environmental impact statement made that is done in accordance with those guidelines and this is what we're trying to do on the road you're talking about tonight as well as some others in the state where we were quite a ways along on planning and design and then were hit with this requirement and had to back up and make the study.

but there is no doubt that there needs to be a few changes made in some of the laws they have written and this Environmental Policy Act is one where I think some changes certainly are needed because it's tying us up an undue period of time.

I don't think any of us have an objection to making an environmental evaluation of any road before it's built but certainly one such as this where studies have been made for the period you mentioned has been studied sufficiently that a decision could be made. Obviously, the decision we made earlier wasn't the one everybody liked, but it's the one we thought was right and many others in this area thought it was right.

Well, now, we have to back up and go through the whole procedure again. We don't particularly like it and I'm sure many of you don't like it, mainly because the money to do that is coming right out of your pockets. It's not only increasing the cost of the project directly, but just think of the inflation factor that's come into this type of a project in the last few years. It's going to make them very, very costly but that's why it's being done.

Representative, I think we all appreciate the tone of the question. We are suffering the same frustrations I'm sure.

In one of our meetings in Logan two or three years ago, they said that the Highway Department already made their environmental study. Ross Plant said it had already been done.

We made what we thought was sufficient but it wasn't and we had to back up. We thought at the time that the study we had made would suffice for the environmental study. We were in error, it did not suffice. We had to back up and do a complete study.
Excerpts from the Oct. 3, 1974 Public Meeting (Cont.)

DON SCOTT

I'm Don Scott, Fielding area, working on the side to pay my taxes. What kind of looked odd to me is, you know, you built that road coming in from Logan, instead of following the old right-of-way coming straight on through to the top of the hill and coming right on straight through, they couldn't do that, they had to veer off the road at the bend and just make a diamond all the way down through them fields going from nothing to 280 feet taking this choice ground and I understand President Ford says that we got to stop inflation, food's too high, the farmer's getting too much but take a little more.

Now, it looks to me like they would try with the limited amount of agricultural ground in our country not just our area, in our country, that they would try and locate these roads in a minimum of loss of agriculture because one day and it's not too far away we are all going to have to wake up to the fact that there ain't going to be enough ground to raise food on and it's coming faster all the time.

Now, I'd like to know why they can't--there's many ways it can be done. Even as green as I am I can sit down and draw a sketch that would be more feasible than some that has been drawn. Is there some way that we can do this to preserve this ground?

STEVE LAWSON

I'll attempt to answer the question and I'll leave it open to discussion. I would suggest that that's the very reason why we have gone back to do an environmental impact statement as required on the I-15 project and a lot of others because you value very highly agricultural ground and it should be. Highways in some instances and other types of utility have gone between the two shortest points and for the least amount of money where practical and by the best engineering standards, not always in full consideration of agricultural land or for that matter for homes. And so the consideration today for an environmental impact statement is to try to make the best possible choice and in your case perhaps the choice might have been otherwise. I'm not sure. I'm not familiar with the exact project, but we are trying to make the very best decision we can with the least amount of impact where everyone is concerned.

DON SCOTT

I know that wherever a road goes it hurts somebody. Let's face this, but when it cuts right through the center of a man's field where it could be engineered on a lot of this--I'm talking specifically on C Route right now of I-15, the proposed route to begin with, which one of the commissioners, I will not say his name, and one meeting was held right in this--not in this building, but in this school several years ago. I said, "Well, it will cut me right between my two reservoirs." He said, "Well, that won't hurt you to lose one reservoir. I don't have none."

Now, is this still the attitude that the State Road Commission and the State of Utah are going to carry through or is it just an out statement of this individual?

STEVE LAWSON

I'm not satisfied that that attitude ever existed. It certainly. It's on the records. It's none of you gentlemen, by the way.

STEVE LAWSON

Well, that's what I'm say, the State Road Commission, I don't think, has that attitude.

WAYNE WINTERS

For the last approximately five years that I recall we have been discussing this particular road and the impact that it would have on land as well as other values. We met with numerous groups, elected officials, citizens and I know Commissioner Plant has spent a lot of time talking to groups and individuals and I can assure you that when we made our decision and we did make one we felt that it was the best decision that we could come up with and it wasn't Commissioner Plant alone, it was the decision of the five men.
COMMENTS AND COORDINATION
Excerpts from the Oct. 3, 1974 Public Meeting (Cont.)

LORUS KING
We have seen some people become awfully unhappy, of course, as you explained it's bothered them. I wondered, though, and I've often wondered and I guess this is a good place to ask the question. Has the old 91 route ever been considered for this thing? It's there, it's got the roadbed, it's got the right-of-way from Elwood to Garland and it doesn't seem like there's too much of a problem in putting a freeway right through that Highway 91.

WAYNE WINTERS
I think that every conceivable route has been considered. Let me just say this, though, you will have an opportunity in the work that's being done now to have further input and I'm sure there will be a requirement for another location hearing, again you'll have that opportunity and I wish there were some way that we could take all of your feelings and plug it into a computer and come up with the one right answer.

NOTE: EVIDENTLY MR. KING, WHEN STATING "... THE OLD 91 ROUTE ...", WAS REFERRING TO US-191 BETWEEN ELWOOD AND GARLAND.

LAVRA ASKEL
I am wondering why they can't use that Highway 191. Thirty-six years ago the State Highway Department purchased land along the east side of that road to widen it and they said it would be widened in the very near future. For 36 years that ground has grown nothing but weeds. They moved our fences and ditches back and there's the whole railroad right-of-way on the west side of us that's growing weeds. There hasn't been one thing done with that road. Why can't you use that now for a highway instead of cutting through the middle of our choice farmland, the choicest land in this valley. .

HARRY MORGAN
I'm Harry Morgan. After this study is made and the environmental people say that it should be on the west side of the valley, the Highway Department says that they're going to build it on the east side of the valley, then what happens?

STEVE LAWSON
The Utah State Road Commission will make the best possible judgment as to where the road should go.

MAX WARD
My name is Max Ward and I wonder, now, if we have made a commitment to Texaco before, are we still committed to them that it has to go right there?

WAYNE WINTERS
... but I can say there's no commitment to Texaco or anyone else. . . . The final decision on that road is made by the Commission. . . . I wouldn't suppose that any two people in this room would look at the project we have been discussing quite the same way. Each one of you have your biases and your feelings and that's great because that makes sure we get all the viewpoints.

STEVE LAWSON
We discussed on our way up here this evening what might be the topic of conversation or topics and we are all aware that Plymouth to Elwood would be primary in everyone's mind. You haven't disappointed us in that regard.
Blaine J. Kay, Director
Department of Highways
State Office Building
Salt Lake City, Utah

Dear Blaine J. Kay:

I want to thank you for your letter dated October 28, 1974, regarding I-15 through the Bear River Valley. Delays in construction have become very frustrating to the residents of that vicinity, the travelling public and to many of us within the Highway Department.

As you are probably aware, the National Environmental Policy Act of 1970 requires an "environmental impact statement" to be written before the Federal Highway Administration can release funds for completion of the Interstate System or construction of any other federally-aided highway projects. Studies for the Environmental Impact Statement on I-15 through the Bear River Valley have been, for the most part, completed, and the draft statement should be ready for circulation and comment before June of 1975.

There are many individuals and special interest groups all trying to make their opinions heard. We appreciate your interest and point of view, and wish to assure you that your thoughts and ideas will be considered along with the many other group and personal interests being expressed.

The card survey which you expressed concern about was not only economical for such a large undertaking (under $200), but more effort was put into this survey to get an accurate cross section of opinions than any other card survey known to its author, Dr. Stephen Stanford of Weber State College. Careful control was maintained, and opinions were not counted unless an address was included in the response. A follow-up survey was rendered to people who were missed by The Leader. Enclosed are final survey results for your information.

Again, let me thank you for your concern and comments as they are always welcome.

Sincerely,
Sterling C. Davis
P.E.
Engineer for Location & Environmental Studies

October 28, 1974

Attached hereto are copies of communications directed by local citizens to the Utah Department of Highways. The transcripts are self-explanatory and supplement and up-date previous communications relative to I-15 (Elwood to Garland-Plymouth).

Many of the signatories expressed concern over the undue delay in obtaining right-of-way clearances for construction of I-15 (Elwood to Garland-Plymouth) directly north from I-80 junction (Elwood), as proposed.

Also, expressions indicated dissatisfaction with the mechanics and cost of the recent "card" survey.

The signatures hereto carry signatures of some of the people who are very favorable to I-15 (Elwood to Garland) along the quarter section line and just east of Highway 191. Their feeling is that when all considerations are made the logical route would be directly north from I-80 (Elwood) to Garland.

Your consideration is always appreciated.

Sincerely,
Kleon Kerr
For Signato
In October of 1974, Commissioner Ross Plant passed away. His place on the Utah State Road Commission was taken by Charles E. Ward.

February 5, 1976

Mr. Charles Ward
State Road Commission
1014 11th Street
Ogden, Utah

Dear Mr. Ward:

For several years, the Bear River RC&D Executive board has been interested in the plans for the interstate highway between Elwood and Plymouth.

In 1970, we sponsored a study of the alternate locations and as a result decided that the highway should not bisect the farmland of the Bear River Valley when there is a good alternative site. We informed the State Highway Department of our recommendation at that time.

Our reason for opposition to locating the interstate down the middle of the valley is primarily the loss of good agricultural land. Not only will the land covered by the interstate be lost to food production, but also many other farm fields will be cut up so badly that they will become uneconomical to operate. The higher cost to road users cited in your October, 1970 report for alternate "B" is so small that on a per user per year basis it is almost nonexistent. We feel the drivers would be happy to pay this cost for increased food production.

With these facts in mind, we want to reaffirm our position that this highway should be built on the western side of the valley, not along the route designated in 1970 as Route "C". We hope that you will keep the recommendations of our organization in mind. We would appreciate being kept informed about the status of your decision on this question.

Sincerely,

Grant Laaborn, president
Bear River RC&D Executive Board

cc: Dyke LeFevre, Dist. Engr.
March 19, 1976

Mr. Blaine Kay, Director
Department of Transportation
State Office Building, Room 603
Salt Lake City, Utah 84114

Dear Blaine:

Enclosed, is a general report concerning the wildlife resources, in relation to various alternate routes for I-15 between Elwood and Plymouth, which you requested as assistance in completion of your Environmental Impact Statement.

Ordinarily we would charge a modest fee for gathering and compiling a report of this nature, but, in view of our cooperative agreement, we will consider it a provision of technical data.

We hope the material we are providing you will be adequate for your needs. While the fisheries data is brief, it is apparent there will be little or no direct impact resulting from this project.

Sincerely,

Don Andriano
Acting Director
COMMENTS AND COORDINATION

Wildlife

A variety of wildlife is found throughout the county. Mule deer and Rocky Mountain bighorn sheep utilize the forested mountain areas and lower foothills seasonally for their summer and winter ranges. Some deer inhabit streamside areas along the Malad and Bear Rivers year around. Pronghorn antelope utilize the lower foothill-plain areas year around. Sage grouse and sharp-tailed grouse utilize sagebrush foothills and also higher mountainous areas seasonally. Blue grouse and ruffed grouse inhabit higher elevation forests and streamside canyon bottoms. Pheasants are dependent upon both irrigated and non-irrigated agricultural croplands, sagebrush foothill and streamside habitat interspersed with agricultural croplands. The highly mobile migratory mourning dove utilizes all the habitat types from valley bottoms to high mountains for feeding, nesting and brooding. Their resting areas are generally in foothills away from feeding areas. In addition, furbearers such as beaver, muskrat and mink utilize water areas for seasonal needs. Cougar and bear are found in limited numbers in the mountains. A variety of non-game mammals and birds occupy all habitat niches from the lowland marshes to the higher mountains. Coyote, bobcat, red and gray fox, badger, weasel and spotted and striped skunks are found in mountains, foothills and marshes in the county. Various species of birds of prey utilize all habitat within the county. Many summer residents migrate to warmer climates during the winter to be replaced by northern nesting species such as the rough-legged hawk and bald eagle.

Box Elder County contains four State and one Federal waterfowl management areas to include Locomotive Springs, Salt Creek, Public Shooting Grounds, Harold S. Crane and Bear River Migratory Bird Refuge with a total area of 98,354 acres of first magnitude wetland habitat. In addition to the developed waterfowl marshes, there are 160,299 acres of natural and private wetland habitat and six reservoirs and lakes which provide significant waterfowl habitat. These are Willard, Mantua, Howell, Lynn and Etna Reservoirs and Honeyville Ponds.

Also there are 161 miles of streams that provide waterfowl habitat with a total of 10,758 surface acres. The developed State and Federal marshlands provide 70,581,020 waterfowl days use annually or 730 waterfowl days use per acre per year. Natural and private wetland habitat provides 116,438,930 waterfowl days use annually or 728 waterfowl days use per acre per year. Total waterfowl habitat in Box Elder County provides more than 187,000,000 waterfowl days use annually, a significant contribution to the Pacific Flyway waterfowl population.

Ducks and geese utilize mainly the lower elevation marshes, streams, rivers, lakes and wet meadows for resting, nesting and feeding in spring, summer and fall. In fall and winter both irrigated and non-irrigated croplands provide important feeding areas for ducks and geese especially when near open (unfrozen) water areas. Extensive feeding use of isolated dry farms is made by both ducks and geese, however. Other migratory waterfowl utilize all wetland habitat types in spring, summer and fall for their daily and seasonal requirements.

Project Description

Six main alternatives of Interstate 15 are proposed from existing I-15 and I-80 near Elwood to link up with I-15 now under construction north of Plymouth in Bear River Valley. All alignments would be on private land within a 300 foot right of way. The West Alternate "A" would be 14.5 miles long and consume 530 acres mostly non-irrigated along the lower foothills west of Tremonton. The alignment would leave I-80 one mile west and north of Tremonton and go across agricultural lands between the Division of Wildlife Resources Upland Game Bird Management area and Tremonton Airport, across the West Canal and traverse the lower east foothills of the West Hills immediately west of Garland Cemetery at elevation 4,400-4,500 feet, across the Union Pacific Railroad and Malad River one mile southwest of Plymouth and link up with I-15 (U.S. Highway 191), two miles north-northwest of Plymouth. West Alternate "B" would be 14.8 miles long and consume 540 acres mostly along the foothills. It would leave I-80 one half mile east of "A" and go across agricultural lands between Tremonton and Tremonton Municipal Airport, across the West Canal one mile west of Garland and join the "A" alternate alignment in the lower foothills immediately south-southwest of the Garland Cemetery. The Center Alternate "C" would be 16.6 miles long and consume 600 acres of primarily irrigated agricultural land in the center of Bear River Valley. The alignment would
leave I-15, two plus miles east of Alternate "B", one-fourth mile east of Elwood, and proceed north between the Malad and Bear River east of Garland at elevation 4,285 to 4,420 feet along the east side of the Malad River, across the West Canal north of Fielding and join with U.S. Highway 191 alignment at Plymouth. It would link up with I-15 two miles north-northeast of Plymouth. The PF crossover between the West and Center alignments would be a diagonal approximately 16.6 miles long and consume approximately 590 acres of agricultural area including some irrigated lands and low foothills. This alternate would leave West Alternate "A or B" one mile west-northwest of Riverside, cross the Union Pacific Railroad and West Canal west of Riverside, cross the Malad River one plus mile east-northeast of Garland where it would join the Center alignment "C". East Alternate "D" would be 19.3 miles long and consume 710 acres of agricultural and foothill lands on the east side of Bear River Valley east of the Bear River. The alignment would leave I-15 one mile west of Honeyville somewhat diagonally and proceed north over the south end of Crystal Springs pond, across the Hammond West Branch Canal, the Union Pacific Railroad and State Highway 69 at the Honeyville--Deweyville City boundaries. It would proceed along the lower west foothill deer winter range of the Wellsville Mountains at elevation 4,320 to 4,800 feet east of Deweyville and Collinston, and swing diagonally north-northwest of Collinston, across State Highway 69, the Union Pacific Railroad, the Bear River and the West Side Canal and continue northerly to join the alignment of U.S. Highway 191 at Plymouth. It would link up with I-15 two miles north-northeast of Plymouth. East Alternate "E" would be 24.4 miles long and consume 870 acres of marsh-wetland and foothill deer winter rangelands on the east side of Bear River Valley and the Bear River. The alignment would leave I-15 midway between Brigham City and Honeyville and proceed north across intermittent wetland-marsh at elevation 4,230 to 4,800 feet, across the Union Pacific Railroad and State Highway 69 one and one-half miles south of Honeyville, across the Hammond East Branch Canal between the Honeyville Cemetery and the power Substation, along foothill deer winter rangelands, and the Hammond East Branch Canal to a point one-half mile southeast of Deweyville Junction where it would join the East Alternate "D" alignment previously described.

Project Impact

All the lands in the project area provide wildlife habitat. Therefore, detrimental impact would result to wildlife with any alignment. The west corridor would have the least detrimental impact on wildlife. The middle and east corridors would both have considerable detrimental impact on wildlife. West Alternate "A" would traverse habitat used by pheasants, Hungarian partridge, mourning doves, cottontail rabbits, a few deer and non-game birds and mammals. West Alternate "B" would be similar to "A" but would impact more pheasants. Center alternate "C" would traverse 400 acres of irrigated premium pheasant production habitat, mourning dove habitat, waterfowl winter feeding habitat and encroach on important pheasant winter habitat along the Malad and Bear Rivers. High pheasant losses would result annually from highway mortality as the birds traveled seasonally from the summer range in agricultural fields to winter range along the rivers. In winter the highest pheasant concentrations are in the marshes along the Malad and Bear Rivers. Non-game birds and mammals also would be adversely affected by "C" alignment. The "PF" crossover would consume 285 acres of irrigated pheasant production habitat and have significant adverse effects on pheasants, mourning doves, some waterfowl winter feeding and non-game. This alignment would impact wildlife only slightly less than alternate "C". Alternate "D" would destroy some pheasant, chukar partridge, cottontail rabbit and waterfowl habitat and 765 acres of critical winter range for deer and in severe winters, Rocky Mountain bighorn sheep. High deer losses would result annually from highway mortality as the deer descended to the limited winter range on the west foothills of Wellsville Mountains. Some highway mortality of Rocky Mountain bighorn sheep could be expected in severe winters on this alternate. Non-game birds and mammals would be adversely affected by loss of habitat on the alignment. Alternate "E" would destroy 85 acres of wetland marsh that provide year round waterfowl habitat, some pheasant habitat, and 1,910 acres of critical winter range for deer and Rocky Mountain bighorn sheep. Higher deer losses would result annually from highway mortality as the deer
descended to the limited winter range on the west foothills of the Wellsville Mountains. Some highway mortality of Rocky Mountain bighorn sheep could also be expected on this alignment in severe winters. Non-game birds and mammals would also be adversely affected by this longest alternate.

Summary

The game species in Bear River Valley that would be adversely affected by the project include: mule deer, Rocky Mountain bighorn sheep, pheasant, Hungarian and chukar partridge, mourning dove, cottontail rabbit, several species of ducks, the Snow goose and Great Basin Canada goose. Numerous species of non-game birds and mammals including other migratory waterfowl, would also be adversely affected. Based on wildlife habitat, hunter days and harvest losses shown in Tables 1 and 2, Alternate "A" would have the least detrimental impact on wildlife resources with a combined total of 147 hunter days lost. Alternate "B" would have more detrimental impact on wildlife resources than alternate "A", with a combined total of 170 hunter days lost. Alternate "C" would have considerable detrimental impact on primarily pheasants and waterfowl, more than alternate "B" with a combined total of 597 hunter days lost and 36,300 waterfowl feeding days use lost. Alternate "PF" alignment would have considerable detrimental impact on primarily pheasants, slightly less than alternate "C" with a combined total of 507 hunter days lost. Alternate "D" alignment would have considerable detrimental impact on primarily mule deer, pheasants and waterfowl, slightly less than alternate "PF", with a combined total of 400 hunter days lost, and the loss of 765 acres of primarily deer winter range and 10,890 waterfowl days use. This alignment could be detrimental to bighorn sheep in a severe winter. Alternate "E" alignment would have considerable detrimental impact primarily on mule deer, pheasant, waterfowl, cottontail rabbit and chukar partridge, more than alternate D, with a combined total of 736 hunter days lost and the loss of 1,910 acres of primarily deer winter range, 85 acres of wetland marsh and 61,710 waterfowl days use. This alignment could also be detrimental to bighorn sheep in a severe winter. Non-game birds and mammals would be impacted by all the alternatives, but no estimate of their losses is available at this time. There are no known threatened or endangered species in the project area. The Utah State Division of Wildlife Resources recommends that Alternate "A" be selected as the freeway alignment in the area.

Mitigation

The losses of high quality wildlife habitat, hunter days and harvest of various species are significant and should be mitigated by replacement and/or development of an equal area of comparable habitat exclusively for wildlife. To prevent accelerated highway mortality, replacement habitat should be provided in selected appropriate area(s) outside the freeway right of way. A minimum of seven miles of type "G" big game barrier fence with one-way deer gates would be required to prevent hazards to motorists and deer highway mortality with alternate "D". A minimum of 11 miles of type "G" fence would be required for the same purpose with alternate "E".

Fisheries Resources

The Bear River is a class 3 river supporting a variety of warm water fish species. Game fish include channel catfish, black crappie, largemouth black bass, walleye and black bullhead catfish. The Malad River is a class 4 stream with a limited channel catfish population in the lower five miles of stream. No other game fish have been established, due to water quality and temperature restraints. Any impact on the Bear River system fisheries would best be placed on the Malad River, rather than Bear River.

Alternate 1 (West Alternate)

This would probably serve as the route with least impact on the Bear River system. A single Malad River crossing above Uly Springs will not adversely affect the stream aquatic resource. Fish populations in that area consist of rough fish (Utah Chub, Utah Sucker) and are at their lowest abundance. Channel alignment for spanning, if required, will not create headcutting problems due to the slight gradients of the river. Non-direct impacts, such as snow removal, salting, and oil and gasoline spills
Alternate 1 continued...

...discharge from interstate traffic, should not readily reach the river, adding to habitat deterioration.

Alternate 2 (Center Alternate)

This would allow for immediate discharge of all possible pollutants, previously mentioned, directly into the river. This fact, and terrestrial wildlife considerations, discourage this alternate.

Alternate 3 (East Alternate)

This would involve a single, but extensive, river span which would have slight impact on the superior Bear River Fisheries. Another factor to consider, is traffic noise and its impact on the esthetics of a relatively undisturbed river. Most current routes that reach the Bear River cross the river without paralleling the stream and carry relatively low traffic volumes. Floating and fishing the river is possible without traffic associated disturbance. This factor is important, and rejection of the east alternate would avoid the interstate traffic addition and maintain a disturbance-free length of river.

---

### TABLE 1.

<table>
<thead>
<tr>
<th>Description</th>
<th>Acres Consumed by Proposed 1-15 Alternates in Bear River Valley</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Hyland</td>
<td>245</td>
</tr>
<tr>
<td>Irrigated</td>
<td>80</td>
</tr>
<tr>
<td>Riverbottom</td>
<td>20</td>
</tr>
<tr>
<td>Anger</td>
<td>175</td>
</tr>
<tr>
<td>Island Marsh</td>
<td>--</td>
</tr>
<tr>
<td>County dry farm</td>
<td>0.09</td>
</tr>
<tr>
<td>Valley Dry Farm</td>
<td>1.05</td>
</tr>
<tr>
<td>County irrigated</td>
<td>0.07</td>
</tr>
<tr>
<td>Valley irrigated</td>
<td>0.27</td>
</tr>
<tr>
<td>Length - Miles</td>
<td>14.5</td>
</tr>
<tr>
<td>Area - acres</td>
<td>520</td>
</tr>
</tbody>
</table>

---

### TABLE 2.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Beasant</td>
<td>H.</td>
<td>34,532</td>
<td>30,599</td>
<td>96</td>
<td>86</td>
<td>104</td>
<td>92</td>
</tr>
<tr>
<td>Burning dove</td>
<td>H.</td>
<td>27,488</td>
<td>99,835</td>
<td>38</td>
<td>140</td>
<td>41</td>
<td>150</td>
</tr>
<tr>
<td>Hungarian partridge</td>
<td>H.</td>
<td>5,197</td>
<td>3,679</td>
<td>7</td>
<td>5</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Bobcat</td>
<td>H.</td>
<td>10,936</td>
<td>14,500</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cotton tail</td>
<td>H.</td>
<td>11,714</td>
<td>19,181</td>
<td>16</td>
<td>27</td>
<td>18</td>
<td>29</td>
</tr>
<tr>
<td>Male Deer</td>
<td>H.</td>
<td>18,736</td>
<td>1,958</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rockies</td>
<td>H.</td>
<td>78,656</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Mule deer</td>
<td>H.</td>
<td>31,093</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Mule deer</td>
<td>H.</td>
<td>1,414</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

1971-1974 average
+ 1970-1973 average
COMMENTS AND COORDINATION

May 3, 1976

Mr. Blaine Kay, Director
Department of Transportation
State Office Building, Room 603
Salt Lake City, Utah 84114

Dear Blaine:

We wish to include the following corrections and additions to our wildlife material on I-15, Elwood to Plymouth, which was forwarded to you on March 19, 1976.

Sentence 13, lines 17-19 on page 5 should be changed as follows: "Alternate "P" would destroy sage pheasant, chukar, cottontail and waterfowl habitat and eliminate 1,910

An explanatory footnote should be added on this page as follows: "Big game winter range losses within and west of the freeway."

We feel these changes will adequately explain the big game winter range loss figures.

Sincerely,

John E. Phelps
Director

May 18, 1976

Mr. Blaine Kay, Director
Department of Transportation
State Office Building, Room 603
Salt Lake City, Utah 84114

Dear Blaine:

We wish to include the following corrections and additions to our wildlife material on I-15, Elwood to Plymouth, which was forwarded to you on March 19, 1976.

Sentence 13, lines 17-19 on page 5 should be changed as follows: "Alternate "P" would destroy sage pheasant, chukar, cottontail and waterfowl habitat and eliminate 1,910 acres of critical winter range used by deer and Rocky Mountain bighorn sheep."

An explanatory footnote should be added on this page as follows: "Big game winter range losses within and west of the freeway."

We feel these changes will adequately explain the big game winter range loss figures.

Sincerely,

John E. Phelps
Director
Copies of a preliminary draft of this environmental statement were submitted to the Utah Transportation Environmental Council on December 17, 1975. Individual council members offered suggestions and comments which, for the most part, were incorporated into the document. (The statement by Hal Clyde on page 147 was one of those comments.)

A-95 input and review was provided via three steps:

1. By signed agreement, comments by the clearinghouse on the annual highway program are solicited;

2. Members of the interdiscipline team maintained contact and liaison with personnel from other agencies, many of whom are involved in the A-95 process;

3. In Utah the A-95 review is conducted by the Governor's Environmental Coordinating Committee (ECC); the ECC was provided with copies of a preliminary draft of this environmental statement on January 6, 1976. All comments received from ECC prior to March 1, 1976 were incorporated into the Draft Statement.

The Draft Statement was circulated on April 12, 1976, as shown by the accompanying clipping from the Federal Register. A list of those entities from which comments were requested is shown on the summary sheet near the front of this document. Comments from these agencies were due by June 15, 1976. Response was received from the following agencies:

- June 2, 1976 Advisory Council on Historic Preservation
- June 7, 1976 Department of Agriculture
- May 3, 1976 Department of Health, Education and Welfare
- May 3, 1976 Department of Housing and Urban Development
- May 28, 1976 Department of the Interior
- May 12, 1976 Federal Aviation Administration
- May 26, 1976 General Services Administration
- April 12, 1976 Interstate Commerce Commission
- Oct. 16, 1976 Garland Mayor George R. Hales

These comments and the UDOT Response to each are reproduced on the following pages.
To any reviewer who has gotten this far in the document, it is evident that most of the salient comments on the draft have been extracted from the full texts which are reproduced on these following pages and a direct answer was provided. However, in many cases, comments on the draft were of a more general nature which would require a more general response. Those type of responses are reproduced in this section.

Advisory Council
On Historic Preservation
1522 K Street N.W.
Washington, D.C. 20005

May 28, 1976

Mr. Sterling C. Davis, P.E.
Engineer for Location and Environmental Studies
Utah Department of Transportation
State Office Building, Room 408
Salt Lake City, Utah 84114

Dear Mr. Davis:

This is in response to your request of April 12, 1976 for comments on the draft environmental statement (DES) for Interstate 15 through Bear River Valley, Utah.

Pursuant to Section 106 of the National Historic Preservation Act of 1966, and Sections 1(3) and 2(b) of Executive Order 11593, "Protection and Enhancement of the Cultural Environment" of May 13, 1971, the Advisory Council is charged with the responsibility of providing Federal agencies with comments on their undertakings which affect cultural resources. Until the Council has been notified by a Federal agency that it has determined an undertaking will affect a property included in or eligible for inclusion in the National Register of Historic Places, the Council is unable to comment.

The Council on Environmental Quality's guidelines for compliance with the National Environmental Policy Act of 1969 directs Federal agencies to forward copies of environmental statements prepared for undertakings which will have an impact on historical resources to the Advisory Council for review and comment. Therefore, because the Council has no legislative or administrative authority to comment to state agencies on their undertakings or environmental statements, the following remarks are directed to the Federal Highway Administration (FHWA).

Pursuant to its responsibilities under Section 102(2)(C) of the National Environmental Policy Act of 1969, the Advisory Council has determined that this DES demonstrates compliance with Section 106.
May 28, 1976
Mr. Sterling C. Davis, P.E.
Interstate 15

of the National Historic Preservation Act of 1966, but that it does not demonstrate compliance with the provisions of Executive Order 11593, "Protection and Enhancement of the Cultural Environment" of May 13, 1971, with regard to this proposal. However, it appears that the FHWA and the Utah Department of Transportation recognize their responsibilities pursuant to Executive Order 11593 and will carry them out in the future. Should this proposal be approved, the Council looks forward to working with the FHWA in accordance with the "Procedures for the Protection of Historic and Cultural Properties" (36 C.F.R. Part 800) as appropriate.

Should you have any questions or require any additional assistance, please contact Brit Allan Storey of the Advisory Council staff at P. O. Box 25085, Denver, Colorado 80225, telephone number (303) 234-4946.

Sincerely yours,

Louis M. Wall
Assistant Director, Office of Review and Compliance

RESPONSE TO THE ADVISORY COUNCIL

Compliance with the provisions of executive order 11593 will be undertaken on a continuing basis as the project is developed. Several items in the HISTORIC AND CULTURAL section have been incorporated in this document up through the summer of 1977 (see page 167).
COMMENTS AND COORDINATION

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
4012 Federal Building, Salt Lake City, Utah 84138

June 3, 1976

Mr. Sterling C. Davis, P.E.
Engineer for Location and Environmental Studies
Utah Department of Transportation
State Office Building
Salt Lake City, Utah 84114

Dear Mr. Davis:

The Draft Environmental Statement for Interstate 15 through the Bear River Valley that was transmitted by your April 2, 1976 letter to the Office of the Secretary, U.S. Department of Agriculture, Washington, D.C., has been referred to us for review and comment. We find the document to be well-organized, attractively arranged, and adequately covers the environmental impacts of the proposed action. The following specific comments are included for your consideration:

1. Recent communication from the Council on Environmental Quality re-emphasizes the Council's position on the appropriate focus, use and length of environmental impact statements. They emphasized that the data and analysis in the EIS should be commensurate with the importance of the impact and that the impact should be ranked in order of importance and the more significant ones analyzed in depth. This EIS would be strengthened by application of these principles. The impact statement reads somewhat like a justification statement rather than a statement of problems, a listing of alternate solutions to those problems and a display of the impacts of those solutions.

2. The document would be strengthened by shortening the sentences and eliminating technical jargon.

3. The summary tables on pages 132-135 are excellent and give a quick comparison of impacts. These tables would be strengthened by including quantities such as acres of farmland, acres of wildlife habitat, etc.

4. On page 143, in the key provisions column under National Environmental Policy Act, change "Council on Environmental Policy" to "Council on Environmental Quality".

We appreciate the opportunity to review and comment on this document and hope that these comments will be useful in preparation of the final environmental impact statement.

Sincerely,

George D. McMillan
State Conservationist

cc: Marsel Tingey, AC, Logan
    Floyd Bailey, DC, Tremonton

RESPONSE TO THE SOIL CONSERVATION SERVICE

The Utah Department of Transportation appreciates the first two comments of the accompanying letter and would be happy to undertake future reports in line with guidance from the Council on Environmental Quality. Nevertheless, as one reads on, it is evident that even a document of this size is inadequate for many commenting agencies. Comment 3 would be somewhat academic at this point since the final alignment has been determined based on comparisons of acres of farm land, and acres of wildlife habitat which were contained in the draft statement. Comment number 4 is valid but it needs to be directed to the authors of the source document who are listed on page 134. (The citation referring to page 143 of the draft statement is contained on page 135 of this final statement.)
Bear River Valley - 213

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
REGION VII
FEDERAL OFFICE BUILDING
19TH AND STOUT STREETS
DENVER, COLORADO 80202

OFFICE OF THE REGIONAL DIRECTOR

April 27, 1976

Mr. Sterling C. Davis, P.E.
Engineer for Location and Environmental Studies
Utah Department of Transportation
State Office Building
Salt Lake City, Utah 84114

Dear Mr. Davis:

Thank you for the opportunity to review the draft Environmental Impact Statement (EIS) for Interstate 15 through the Bear River Valley.

It appears that the impacts expected to result from the proposed project and reasonable alternatives thereto have been adequately addressed.

Sincerely,

[Signature]

Malcolm R. Garfield
Regional Director

cc: Office of Environmental Affairs,
HEW, Washington, D.C.
April 28, 1976

Mr. Sterling Davis
Utah Department of Transportation
State Office Building
Salt Lake City, Utah 84114

Dear Mr. Davis:

This is in response to your letter of April 2, 1976, forwarding a copy of the Draft Environmental Impact Statement for Interstate 15 through the Bear River Valley.

As you may know, this Department's main areas of concern in responding to a draft EIS are (1) the consistency of an action with the comprehensive planning for the area; and (2) the action's impact on housing, particularly in an urban environment. Our review indicates that you have adequately addressed these areas of HUD's jurisdiction as assigned by CEQ.

Sincerely,

David L. Witt
Director, Environmental Quality Division
Community Planning and Development

RESPONSE TO HUD

Thank you Mr. Witt.
Dear Mr. Davis:

This responds to your April 2 letter requesting the Department of the Interior’s review and comment on the draft Environmental Impact Statement for I-15 (Bear River Valley), Box Elder County, Utah.

General Comments

The only relationship to Bureau of Reclamation projects was covered on pages 43 and 118 of the report. Page 118 should be revised to indicate that the Honeyville and Plymouth dam sites were investigated in prior years by Reclamation. Currently, the Bureau of Reclamation has no firm proposal that these reservoirs should be built, nor do they presently have any active investigations at these sites.

Specific Comments

Description

This section should be reorganized to include all important and necessary information to describe the existing environment. This section gives only superficial descriptions of the various components of the ecosystem. Apparently many of the necessary data are located in the Probable Impact section (pages 51-179). These data should be incorporated into the Description of the Environment section of the report instead.

Alternatives

It appears that all alternatives would affect some existing ground water rights (wells and possibly springs). If so, it is suggested that this potential legal impact be addressed in the final EIS.

While the location of corridors and configuration of the roadway were presented, other important factors were not discussed such as location of cut, fill, exits and entrances of the proposed alternative routes, area of aimed, depressed sections of roadway, and riprap, grade profiles, depressed or elevated sections of roadway, detailed topography, areas where significant air pollutant builds up, occur, detailed description of construction work, solid waste disposal, air quality standards, and presence of barriers within the route corridors. The statement indicates no firm route selection has been made and that the proposed route would be selected at a later date. It appears that if the final selected route has significant deviations from the alternative alignments displayed herein, there would be a need for circulation of another draft statement for public review and Government agency comment.

It is noted that no consideration was given to use of the US-191 right-of-way as an alternative. Although this possibility would place a great amount of inconvenience to all motorists utilizing the existing highway during construction, the overall environmental impact may be much less in the long term.

Probable Impact of the Proposed Action

The outline matrix of “impact verses alternate option” is an innovative and useful tool in this impact statement. It would appear from the outline matrix that Alternate West (A) would be the most acceptable route to select under the parameters listed. Statements in much of this section were made without documentation as to the source; for example, the information on harvest and hunter days for mule deer presumably came from Utah Division of Wildlife Resource data, but it is not referenced.

It would be helpful if wildlife discussions also included species lists of wildlife known to inhabit the areas to be affected by the proposal. It would also be helpful to know if reports by the Wildlife Environmental Task Force are available for public review. Were raptors found in the study areas? If so, they should be documented in the text. If there are any rare or endangered species in the project area, they should be discussed in the Wildlife section under the Description of the Environment.

The final EIS should be more specific about discharges of the Bear and Malad Rivers. It would be more meaningful to give actual average annual discharges of the two rivers (as gaged at appropriate gaging stations in or near the proposed interstate alternative corridors) than to merely state that the Malad River has 1/20 the flow of the Bear River. Regarding maximum flood flows of the Bear and Malad Rivers, where and when were these flows measured? According to Part 2, Water Resources Data for Utah, maximum daily discharge of the Bear River at
COMMENTS AND COORDINATION

Corinne for the complete period of record was 7,170 ft³/s June 17, 1971, and the maximum discharge of the Malad River near Plymouth for the period of record was 740 ft³/s.

The final EIS also should be more specific regarding dissolved solid concentration of the Bear and Malad Rivers. It should be stated that the ranges of dissolved solids are for those reaches of the two rivers in the proposed interstate alternative corridors and that the lowest concentrations are during high runoff periods, while the higher concentrations are for low runoff and irrigation periods. Suggest utilizing the pertinent part of the surface-water quality map in U.S. Geological Survey Hydrologic Investigation Map HA-417 for the final EIS.

On page 105, we suggest that the last sentence of paragraph 2 be changed from "high water table" to "shallow water table." We also suggest that the last sentence of paragraph 3 be changed from "June" to "May."

The statement should mention the number of people who would be involved in constructing the proposed project and relate this to the length of construction. It would also help to point out that construction would or would not be carried on during the winter months. Would construction inhibit traffic flow on the existing highways?

It is not believed that the selection of any one of the three proposed routes for the proposed highway through Bear River Valley will have an adverse effect upon Golden Spike National Historic Site. If anything, the project development will prove to be particularly beneficial for park visitors traveling between the park and points north of the Bear River Valley. We believe this will be a safer, less congested route for travel. The proposed highway may also prove to be a traffic generator, a fact that is not recognized in the subject document, and may have some minimal impact upon visitation patterns at Golden Spike National Historic Site.

Historic and Cultural

The statement recognizes the importance of cultural resources and establishes that appropriate procedures will be taken to locate, identify, and evaluate any such resources which may be present within the project area. In this regard, the Sundell Cabin has been identified on page 170 of the draft statement as a site that is being considered for placement of the State Register. The final Environmental Statement should establish whether the site is eligible for inclusion in the National Register of Historic Places.

If this is found to be correct, the final statement should also indicate that Section 106 compliance review procedures as set forth in the "Procedures for the Protection of Historic and Cultural Properties" (36 CFR, Part 800) will be implemented for this site and any others that are also found to meet National Register criteria.

Particular attention should be given to whether there will be a visual or aesthetic intrusive effect upon such cultural resources. In that the State Historic Preservation Officer, in consultation with the Malad River Administration, determine the extent of such adverse effect and how it may be mitigated.

The final Environmental Statement should also include specific guidelines for immediate work stoppages in the event archaeological resources are encountered during construction. These guidelines should provide for review in consultation with the State Historic Preservation Officer and archaeological excavation if warranted. However, it should be recognized that recovery of archaeological remains is but a last resort. Ideally, and wherever feasible, right-of-way corridors should be shifted to avoid all adverse impacts upon such sensitive areas.

Sincerely yours,

John E. Raybourn
Special Assistant to the Secretary

Mr. Sterling C. Davis, P.E.
Engineer for Location and Environmental Studies
Utah Department of Transportation
State Office Building
Salt Lake City, UT 84114
RESPONSE TO DEPARTMENT OF THE INTERIOR

Back on page 212, the Utah Department of Transportation was chided by the Soil Conservation Service for including too much information in the draft statement. Evidently this point of view is not shared by all reviewers. The accompanying four page comment appears to be an unedited compilation of reviews from perhaps a half-dozen of the bureaus and divisions which comprise the Department of the Interior. UDOT's response will attempt to address the heterogeneous array of comments based upon such an assumption.

- First page, second paragraph (General Comments): The text which was on page 118 of the Draft Statement is now on page 122 of this Final Statement. Rather than revising our original text, as suggested, we have reproduced this paragraph of the DOI comment on page 122 in order to bring the BUR position to the attention of the public.

- First page, third paragraph (Specific Comments, Description): It appears that this comment was generated by DOI practices in preparing EISs. Clearly the DOI guidelines for preparing Environmental Statements differ from those of the FHWA. Since the FHWA is the lead agency, its guidelines (which do not require, or even mention, a specific section on "Description of the Environment") would be expected to prevail. As noted by DOI, the "necessary data" is located in the most useful places for the respective reviewers.

- First page, fourth paragraph (Alternatives): This suggestion has been carried out on page 111.

- First page, fifth paragraph (continued onto second page, first paragraph): Such definitive detail as, "... area of cut, fill, and riprap, grade profiles, depressed or elevated sections of roadway, detailed topography, ...detailed description of construction work...", cannot be furnished until much of the final design is complete. Inasmuch as the final design cannot be started until the Final Statement is accepted by the FHWA (and EPA) such discussions as mentioned by DOI would seem premature. FHWA guidelines assure checkpoints during development of design for ascertaining that environmental concerns and commitments are being adhered to. In addition, the Utah Transportation Environmental Council (see page 191-193) performs additional watchdog duties in this area.

The selected alignment was covered in the Draft Statement so there seems to be no need for circulation of a new draft.

- Second page, second paragraph: This DOI comment is germaine and deserves more than offhanded treatment. Further investigation into the suggestion of looking at the US-191 right-of-way was undertaken. Complications involving an alignment along existing US-191 have been presented on page 46.

- Second page, third paragraph (Probable Impacts on the Proposed Action): Inasmuch as the outline matrix was intended to be a synopsis of material contained in the body of the EIS and elsewhere referenced, members of the Interdiscipline Team felt that little of value would be gained by encumbering a "useful tool" with pleonastic documentation. As stated in the Eighth annual CEQ report, ENVIRONMENTAL QUALITY: "... care should be taken to ensure that the statement remains an essentially self-contained instrument, capable of being understood by the reader without the need for undue cross reference."

- Second page, fourth paragraph: The request for inclusion of an extended species list into the document brings to mind the Fifth annual CEQ report which stated: "... Many impact statements now resemble encyclopedias. They discuss the project's setting in overly elaborate detail and contain lengthy descriptions of all species of plant and animal life in the affected area. Frequently, this reflects a lack of understanding of what is important and what is not. As the crucial environmental questions start to come into focus, it should become increasingly clear that much of this verbiage can be dispensed with..." In our judgment, this particular DOI comment is but an example of the insatiable bureaucratic, propensity for purposeless paper-pushing that CEQ has cautioned against. However, a species list is available, with other backup data, at the office of the UDOT Environmental Unit.

Raptors and other endangered species as may be found in the area have been discussed on pages 68 and 72 of this document.

- Second page, fifth paragraph and third page, first and second paragraphs: Discharge rates and dissolved solid concentrations of the two rivers (Bear and Malad) may be of cogent interest to some technical reviewers; however, public reviewers and decision-makers seem to find little use for such inordinate detail. Inasmuch as DOI has taken the trouble to research the information, it is now available to readers of this document who have already read the DOI letter.
COMMENTS AND COORD

• Third page, third paragraph: The information formerly contained on page 105 (of the draft) is now on page 109 of this document. Discussions between Interdiscipline Team members resulted in keeping "high water table" rather than "shallow water table" as was suggested. "Shallow water table" could be easily misconstrued to mean the same as "depthless water table" which was not what we meant to say.

Useless nitpicking is evidenced in the final sentence of this paragraph, if we correctly interpret the non seq. (Change the sentence from "June" to "May")?

• Third page, fourth paragraph: The discussions on page 126 cover the construction schedule and potential traffic inconvenience.

The remainder of the comments (Historic and Cultural) are within the province of the Advisory Council on Historic Preservation which made its agency comments by separate letter (reproduced on pages 210-211).

Although we took an unaccommodating stance in our response to DOI, the Utah Department of Transportation appreciates the time and effort expended by DOI personnel in reviewing the draft statement. In spite of some of the linguistic satire in our response, primarily to illustrate a point, none of the Department of the Interior comments were taken lightly and none were dismissed without adequate consideration.

Thank you, Mr. Raybourn, for your patience.

U.S. DEPARTMENT OF LABOR
MANPOWER ADMINISTRATION
WASHINGTON, D.C. 20210

Mr. Sterling C. Davis
Engineer for Location and
Environmental Studies
Utah Department of Transportation
State Office Building
Salt Lake City, Utah 84114

Dear Mr. Davis:

This is in response to your letter of April 2, 1976, requesting that the Department of Labor review the Draft Environmental Impact Statement for Interstate 15 through the Bear River Valley (together with two appendixes). The statement has been reviewed and we have no comments.

Sincerely,

WILLIAM B. HEWITT
Administrator
Policy, Evaluation and Research

*New Name: Employment and Training Administration

Thank you Mr. Hewitt.
Dear Mr. Kay:

Mr. Blaine J. Kay, Director
Utah Department of Transportation
State Office Building
Salt Lake City, Utah 84114

The Environmental Protection Agency has reviewed the draft environmental impact statement (EIS) for Interstate 15 through the Bear River Valley in Utah. EPA has found this draft EIS to be a very refreshing, objective and well-balanced document, and your Department is to be complimented on its effort.

EPA's analysis of the three basic proposed alternatives shows that the West Alternate "A" is the most acceptable from an environmental viewpoint. Although any highway construction is likely to have a significant impact on the environment, the West Alternate clearly minimizes the impact of constructing an Interstate highway through the Bear River Valley. The basic rationale that EPA has used in arriving at this determination is discussed in the following paragraphs.

Because of their longer lengths, East Alternates "D" and "E" require the largest amounts of materials and energy for construction and the greatest loss of land (37-65% more than West Alternate "A") without a commensurate decrease in environmental impacts compared to other alternatives. Additionally, East Alternate "E" would require the construction of 85 acres of valuable wetlands. Water quality would also be adversely affected by implementing the East Alternate; as the EIS points out, the East Alternate crosses many canyons and gullies which would receive runoff from the highway, increasing erosion and salinity in the waterways. EPA is supportive of the comments made by the U.S. Fish and Wildlife Service (pages 116 and 117) concerning impacts on wildlife. Both the East Alternate and the Center Alternate would have substantial adverse impacts on wildlife habitat.

The Center Alternate has the greatest potential for adverse impacts due to changes in land use. Because good agricultural land is also usually attractive for residential development, it could be expected that the Center Alternate would tend to induce strip development and expansion that would sacrifice agricultural land is apparently against the wishes of many valley residents, and it also appears to be contrary to the land use policies of the Box Elder County master plan. Urbanization of the valley would certainly have an adverse impact considered the least favorable from an air quality perspective. EPA is supportive of the comments made by the Fish and Wildlife Service concerning impacts on air quality from the three basic alternatives would be deteriorated in the valley due to the secondary impact of induced urbanization. Aside from environmental impacts, the Center Alternate seems to be the most hazardous to Interstate travelers due to the dense fog which occasionally is present in the center of the valley during the winter.

The West Alternate, compared to the other alternatives, requires the least amount of materials, energy, and land for its construction, with the least impact on valuable agricultural lands and community support and according to the study referenced in the EIS, offers more potential for promoting tourist-oriented business in the Bear River Valley. The "A" option of the West Alternate is recommended by EPA because it would not have the noise impacts associated with the "B" option.

If the proposed alternative were West Alternate. "A", EPA's rating objection would be LO-1 (lack of expected from the Center and East Alternates are not as acceptable environmentally and financially.

Thank you for providing EPA the opportunity to comment on this draft. If you have any questions or would like to discuss our comments.

Sincerely yours,

John A. Green
Regional Administrator

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UDOT RESPONSE TO ENVIRONMENTAL PROTECTION AGENCY

Thank you Mr. Green.
COMMENTS AND COORDINATION

UDOT RESPONSE TO FEDERAL AVIATION ADMINISTRATION

As mentioned on page 76, UDOT is cognizant of design criteria that need to be addressed as the facility approaches the Tremonton Airport.

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

SALT LAKE CITY AIRPORTS DISTRICT OFFICE
116 North 24th West
Salt Lake City, Utah 84116

Mr. Sterling C. Davis, P.E.
Engineer for Location & Environmental Studies
Utah Department of Transportation
State Office Building
Salt Lake City, Utah 84114

Dear Mr. Davis:

SUBJECT: Bear River Valley Draft Environmental Statement

We have reviewed the draft report transmitted with your April 6, 1976, letter and offer no objection to any of the proposed alignments provided that the airport/highway clearances and coordination procedures referred to on page 72 are adhered to in the event either of the west alternates is selected.

As far as the concerns expressed that west alternate A would permit expansion of the community to overrun the airport, we feel this is the community's responsibility to protect the airport facility by zoning or other suitable land use controls, and will likely be required whether or not this route is developed.

Sincerely,

VICTOR J. KIESLING
Chief, Airports District Office
Mr. Blaine J. Kay, Director
Federal Highway Administration and
Utah Department of Transportation
U.S. Department of Transportation
Salt Lake City, Utah 84114

Dear Mr. Kay:

We have reviewed the Draft Environmental Impact Statement entitled Interstate 15 through the Bear River Valley, and have no substantive comments to make relevant to our areas of expertise.

We would, however, appreciate receiving a copy of the Final Environmental Impact Statement when it is ready.

Thank you for giving us the opportunity to comment.

Sincerely,

ANDREW E. KAUDERS
Director
Environmental Affairs
Mr. Sterling C. Davis, P.E.
Engineer for Location &
Environmental Studies
Utah Department of Transportation
State Office Building
Salt Lake City, Utah 84114

Dear Mr. Davis:

Thank you for the opportunity to review the draft environmental impact statement for Interstate 15 through the Bear River Valley.

A search of our records indicates no proposals on file for abandonment of all or portions of the Union Pacific Railroad branch line which terminates to the north of the project area at Malad, Idaho.

It was noted that two and possibly all three alternatives would cross Union Pacific rail lines. While it is assumed that separated grade crossings will be constructed with no measurable impact on rail service, clarification of this point would be useful.

Sincerely yours,

Richard L. Chais
Assistant to the Director
Environmental Affairs

UDOT RESPONSE TO INTERSTATE COMMERCE COMMISSION

A separate grade crossing will be constructed at the railroad crossing near Plymouth. Appropriate agreements between UDOT and Union Pacific rail lines will be worked out prior to beginning of work.
Mr. Blaine J. Kay, Director
Community Relations Division
Utah Dept. of Transportation
612 State Office Bldg.
Salt Lake City, Utah 84114

Dear Mr. Kay:

As the Mayor and City Council of Garland, Utah, we strongly urge an off ramp coming into the City of Garland in the planning of the new interchange West of our town. We have several important reasons for this request.

We understand that one suggestion has been made that the road come in next to the high school. We feel that this would present a safety hazard to our students and would not be in the best interest of our valley. The high school is within our city limits but we feel that an exit from the freeway into the main part of town would be much more plausible.

At the present time we have a great deal of added traffic coming through town from Logan since the new highway has been added in that area. We have beet and wheat trucks coming to our factories from all over our valley. This would be a great convenience to our truck drivers and a big safety factor to our town. We feel that to by-pass our town with an off-ramp would be detrimental to Garland business and to the farming business of our entire valley.

May we again strongly urge this consideration.

Sincerely,

GARLAND CITY COUNCIL

George R. Hales, Mayor

RESPONSE TO GARLAND CITY

On March 15, 1978, Governor Scott M. Matheson sent a memo to the Director of Transportation requesting update on the following items:

"Mayor Ray Evans of Garland is concerned about the proposed plan which disallows an exit off the interstate at Garland. Provide me with a report outlining this situation and whether there is any alternative which would provide an off ramp.

"Mayor Reese B. Mason of Tremonton expressed strong feelings about having a diamond interchange on I-80 going west out of Tremonton. If you could give me the specific problems concerning this proposal, I would appreciate it."

Director Hurley replied:

"Attached is a small map which shows in red the proposed I-15 project from West Tremonton to Plymouth. As shown, a half-diamond interchange is proposed on Highway US-30S west of Tremonton; and full-diamond interchanges west of Riverside and west of Plymouth. Federal regulations require interchanges to be justified on the basis of need and, in addition, no more than an average interchange spacing of two miles in urban areas, four miles in suburban areas, and eight miles in rural areas.

"Applying the spacing standard in this rural area, no more than three interchanges can be built between Tremonton and Plymouth. Also, construction costs outweigh..."
potential benefits. As a compromise to provide a full diamond west of Tremonton and better access to Garland, the Department proposed an interchange on 10th North in Tremonton. About a year ago this matter was last discussed by UDOT staff and Commission representatives with City officials and businessmen of Tremonton and Garland. It was agreed, under the circumstances, that the best solution was the half diamond on US-30S. The issue has been thoroughly reviewed with FHWA, and they will approve only one interchange at either West Tremonton, 10th North, or west of Garland.

"Diamond Interchange at West Tremonton"

"Referring again to the attached map, it will be seen that west of Tremonton a full-diamond interchange is provided on I-80N and a half-diamond interchange on I-15. The close proximity of the east-west Interstate section to US-30S (less than 1/2 mile) makes it impossible to provide I-15 on and off ramps to the south from US-30S. Ramps could be provided if the interchange were located on 10th North; however, the 10th North location is not acceptable to local residents."

(The map referred to in the above quotes was a copy of the one reproduced on page 103 of this document.)

At the time of the publication of this Final Statement, this was the status of this question.

REFERENCE TO BEAR RIVER RC&D

The Honorable Calvin Rampton
Governor of Utah
State Capitol Building
Salt Lake City, Utah 84114

Dear Governor Rampton:

The members of the Bear River RE&ED Executive Board were very pleased to hear of the decision regarding the site for Interstate 15 west of Tremonton.

We appreciate the thorough study that was conducted by the State Transportation Department and recognize that they put in a considerable amount of time and effort. We were especially pleased that the state had concern for prime agricultural land that we feel is extremely important to our area.

If we can be of any help in the preparation of the final environmental impact report, please call on us.

Sincerely,

Grant Lamborn, President
Bear River RE&ED Executive Board

RESPONSE TO BEAR RIVER RC&D

Thank you Mr. Lamborn.
Excerpts from the Transcript of the Official Public Hearing for I-15 through the Bear River Valley held at Tremonton, Utah, June 22, 1976.

The following are typical of the comments.

ROBERT POTTER

... I made a plea to not destroy our good farm property. Some of the most productive land that we have in the State of Utah is on Alternate C. ...

W. EDWARD KERR

I support the Environmental Study. It doesn't tell us which route to take but it shows us which we should take. The shortest route to I-80 and also the least expensive. At the present time we are being asked to consider a raise in gas tax because of being short of funds for road maintenance. In considering which route the freeway will go, we should consider maintenance costs over a period of many years. ...

... Let's be careful where we lay that freeway and save our good agriculture land.

PAUL HOLMGREN, President of the Utah Sugar Beet Growers Association

I, being vitally interested in agriculture and primarily interested in sugar beets, I'm like Commissioner Potter, I feel that we had better take another look at what we are doing to our agriculture land ...

So I want to ask you to consider another route other than Route C. I don't know whether the west route or the east route would be the logical one, but I certainly agree with the two speakers ahead of me that Route C would be very damaging to our agriculture in this State.

EARL L. PETERSON, Elwood Town Clerk

Now since that time the eastern route has been brought into comprehension and either route would be much better than the Central route. If the western route is chosen, Elwood Town will not be affected any more than it is already. If the central route is taken, it will greatly affect Elwood Town and the people that live therein.

The inconvenience which it will cause people cannot be paid for with money. They cannot be fully realized until it is too late to do anything about it. When you have to drive one to two miles in order to get 300 feet to check or change a stream of irrigation water, it becomes impractical to continue to operate your farm any longer.

If the people of this valley want to eliminate agriculture from it, then I could see the benefit of establishing a freeway right up through the middle, but if agriculture is to continue to exist in this valley, it must not be saddled with another barrier right up through the center of it.

RICHARD PETERSEN

My name is Richard Petersen. I live in Elwood. I'm employed at the Thiokol Corporation. I also have a job in the maintenance of the Elwood Cemetery.

If the Central Route is chosen, I would certainly like consideration for the noise, inconvenience and other problems that it will effect me with. To participate in the Maintenance of the Elwood Cemetery I would have to drive at least an additional 1/4 miles, and this trip needs to be in the evening time because of the fluctuation of the water system. It will involve at least three to four trips each evening as I irrigate.

Above and beyond this, I would like to state my opposition of Route C because of the effect it will have on the agricultural production of this valley. I've been raised in this valley and I can foresee crowding, and I want to really speak against the disruption because of Route C.

WENDELL WELLING

... I have always thought it would service more people going up the center. The people of Fielding, East Garland, Collinston, Beaver Dam and Cutler Station and all the houses in between, if it went up the center, would get a chance to use it, this freeway, going to Tremonton, and we wouldn't be faced with using the old roads where you're facing traffic and where about every mile somebody crosses in front of you. For my children and offspring I felt the safer road was the freeway, and it would give us better service...
COMMENTS AND COORDINATION

SHARON ARCHIBALD

My name is Sharon Archibald. I am the local Ford Dealer here in Tremonton. Commissioner Ward, gentlemen and ladies, we are all looking at this through individual eyes. I as a business man look at it through a business man's point of view and the farm folk look at it through the farm point of view. Of course the engineers can see his part, etc. and etc. Of course as a business man I can tell you that a good 80% of the business that we do is farm related, and if the farmers don't make it certainly there won't be any chance for the business to survive.

KLEON KERR

Now let me state this. It's interesting to sit and think that everybody as we were told were opposed to the C Route, and that's not so at all. We made a good study of this. First we went to the business owners in East Tremonton. You've got a number of them here. We talked to them today. There isn't a business owner in East Tremonton who opposes the C Route. You know why. And you've got business owners on the west side with property, and they want you boys to put the highway out there. We want it out where we've got property and that's putting it right on the table where it ought to be. Who are we kidding?

MEL FOXLEY

Commissioner Ward, my name is Mel Foxley. I am Secretary-Manager of the Bear River Valley Chamber of Commerce, and at the Board of Director's meeting the other morning we discussed these routes very thoroughly, and I was instructed to come up here and express our views.

What we would like to see is an interchange where the people can get off and come into Tremonton and go back or go on through whichever way you gentlemen decide. We are utterly opposed to the interchange at the high school. We feel that Garland, because of the sugar mill, deserves an interchange, one at both opposite Tremonton's Main Street and one opposite Garland's Main Street...

... I am chairman of the Hospital Board, and the farmers graciously gave us 11 acres west of Tremonton, about a quarter of a mile west of the railroad tracks. We are going to have an open house there for a new hospital and a nursing home, and you are putting this--on Route B--you are putting this interchange, I mean this route. Again, if you have the interchange at the high school you'll have the same gearing up and gearing down which will be very disturbing to the nursing home and the patients of the hospital.

Communications on pages 165-167 show an as-yet-unresolved problem concerning a potential archaeological site near where the Malad River would be crossed by the proposed alignment. Clearance to obtain access to the site has still not been resolved as of the summer of 1978 - as demonstrated by the communications on the following two pages. Nevertheless, if the site does turn out to fall within "4f" provisions, UDOT is committed to modify the proposed I-15 alignment so as to avoid destroying any archeological resource determined to be significant by the State Historical Preservation Officer.

Although most of the participants in the hearing spoke against the Center (C) alternate, the proponents of the Center alternate took advantage of the opportunity to send in written testimony.
August 1, 1978

Mr. Edwardo Norat
Environmental Specialist
Utah Department of Transportation
State Office Building
Salt Lake City, Utah 84114

Subject: I-15, Tremonton to Plymouth

Dear Ed:

In reference to your letter of July 28, 1978, the site is a large lithic scatter with no structures or buildings. Within the context of the total site, the critical value is the critical value. It is my opinion that the artifacts can probably be salvaged.

The test excavation to further determine significance is another problem. If your office cannot get clearance to address and we could try. Whatever happens, we will not be able to excavate by August 15th, but we will try to do it as quickly as possible.

Call me when you can find out about the landowner.

Sincerely,

James L. Dykman
State Preservation Archeologist

JLD:ap

cc. Jerry Fenn
Dyke LeFevre

STATE HISTORY BOARD: Dr. Milton C. Abrams, Chairman • Theron H. Luke • Dr. Ted J. Warner • Elizabeth Montague • Howard C. Price, Jr.
Dr. Delia G. Dayton • Dr. Wayne K. Hutson • Helen Z. Papanikolas • David S. Monson • Elizabeth Griffith • Mabel J. Oliver
Memorandum

TO: George W. Rohn, P.E., Division Administrator  
FROM: J. W. Yarrington  
SUBJECT: Bear River Valley EIS

From our discussion with Don Yarrington of your staff, we have learned that the Washington Office of the FHWA is concerned about the center line of the proposed alignment for I-15 through the Bear River Valley (pages 165-166 of the final EIS).

We therefore propose that project development continue along the proposed alignment subject to the contingency that, if test site 42 Bo 379 is found to be, in fact, an important site falling under "41" provisions, the alignment would be modified so as to avoid taking property within the...