BENCH/VALLEY
TRANSPORTATION
STUDY

BENCH/VALLEY TRANSPORTATION STUDY DRAFT PLAN

Prepared for
Ada County Highway District

Prepared by
Centennial Engineering, Inc.

MK CENTENNIAL

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II-B	Public Comments from Nighborhood Outreach Meetings held in August, 1994.
III	Record of Public Comment from County-Wide Community Meeting, March 2, 1995.
IV	Public Comments from the Neighborhood Meetings held June 6 and June 7, 1995.
V	Technical Analysis Inventory Emerging 1990-1993 Development Patterns. Land Use Alternatives. Bench/Valley Household Travel Survey. Base Year TRANPLAN Input Files. Revised Base Year Trip Table Calibration. Bench/Valley Model Documentation Bench/Valley Travel Model User's Guide. Traffic Modeling Results.

The Supplemental Volumes are available for inspection at the offices of the Ada County Highway District, the Ada planning Association and Centennial Engineering.

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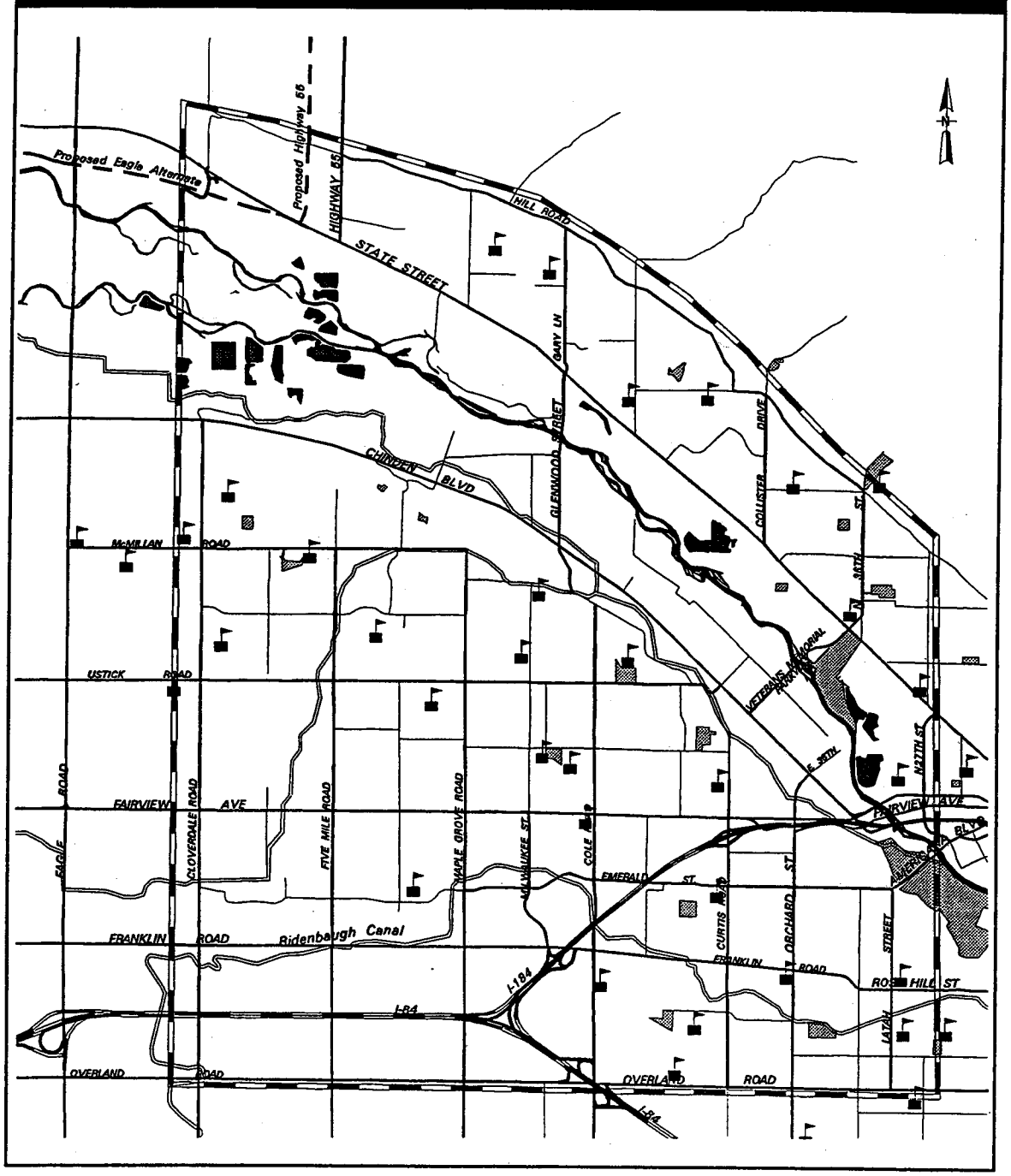
A. INTRODUCTION TO THE BENCH/VALLEY TRANSPORTATION STUDY

A.1 THE BENCH VALLEY STUDY AREA

The Bench/Valley Transportation Study is a marriage of technical analysis, public involvement and public agency participation.

The Bench/Valley Transportation Study focuses on a 33 square mile area that includes some of the fastest growing portions of the City of Boise and Ada County. Study boundaries are formed by Orchard Street/28th Street on the east, Cloverdale Road/Idaho 55 on the west, Hill Road on the north and Overland Road on the south.

BENCH/VALLEY STUDY PROJECT BASE MAP



An area with some of the highest levels of traffic congestion in the state, the Bench/Valley area suffers poor road continuity because of two prominent features: a bench which rises from a point south of the Boise River and the Boise River itself. No roadways within the 4.5 mile wide Bench/Valley Study area have a continuous and direct alignment from the north to the south of the study area. Irregularities in the alignment and inconsistencies in the number of roadway lanes are common.

POPULATION IN THE BENCH/VALLEY STUDY AREA		
1980	1990	1993
70,421	84,557	96,180

HOUSEHOLDS IN THE BENCH/VALLEY STUDY AREA		
1980	1990	1993
25,901	31,783	37,448

EMPLOYMENT IN THE BENCH/VALLEY STUDY AREA		
1980	1990	1993
31,713	50,075	59,481

The Boise area is served by Boise Urban Stages (THE BUS) transit system, which has experienced significant increases in ridership and service during the course of the study. Bus routes currently serve the downtown area from the West Bench, but cross-bench (north/south) travel, and travel across the Boise River in the study area is not conveniently served by bus. Considerable improvement has also occurred in the bikeway system during the course of the study, but many bike routes lack good continuity. Sidewalk continuity is generally poor as well, although some recent gains have been made including several miles of continuous sidewalks along Mitchell Street and Franklin Road.

Residential growth and industrial and retail expansion have resulted in rapidly increasing traffic congestion in the study area.

A.2 GOALS AND OBJECTIVES OF THE BENCH/VALLEY TRANSPORTATION STUDY

The Bench/Valley Transportation Study is an extensive, $1.5 million, two-and-a-half-year effort that relies heavily on public involvement in order to provide a 20-year plan that will have public support in an area where previous transportation planning efforts have been controversial and unsuccessful. The study is being paid for and managed by the Ada County Highway District (ACHD) in close cooperation with the Ada Planning Association (APA).

The goal of the Bench/Valley Transportation Study is to provide a plan that will guide the development of transportation systems and programs in the study area for the next 20 years. When adopted, the Bench/Valley Transportation Plan will become part of the Ada Planning Association's "Destination 2015" Transportation Plan. The purpose of the Bench/Valley Transportation Study is to evaluate current transportation needs, estimate future demands and develop potential solutions in the 33 square mile area of West Boise.

The Bench/Valley Transportation Study is not limited to an analysis of road systems. Alternative transportation, techniques for reducing trips (travel demand management), changes in public policy, and particularly suggestions on how to pay for transportation system improvements were considered and are addressed in the study team's recommendations.

Aerial Photograph of the Bench/Valley area looking west from downtown.

A.2.a. THE PRESENT TRANSPORTATION SYSTEM IN THE BENCH/VALLEY STUDY AREA

Before addressing the study's methods and recommendations it may be of value to consider the present roadway system.

The present transportation system in the Bench/Valley study area is deficient. An "Existing Highway Needs Analysis" conducted by the study team early in the project, examined 129 arterial and collector segments in the study area. Existing traffic was compared to each segment's service flow (the number of cars it can comfortably carry) and deficiencies were identified.Eighteen of the 129 roadway segments analyzed were inadequate. An estimated $30 million would be needed just to make the present system achieve desirable standards. The needs analysis deals only with the current conditions and does not consider the substantial growth predicted to continue in the Bench/Valley area, as well as the rest of the Treasure Valley.

The Bench/Valley study area contains some of the busiest intersections in the state and of the 30 most critical accident locations in southwestern Idaho, 13 are in the Bench/Valley study area.

Details of the "Existing Highway Needs Analysis" can be found in Appendix A.

A.2.b. ANTICIPATED GROWTH IN THE BENCH/VALLEY AREA

Even as the existing roadway system is inadequate to meet present needs, the Bench/Valley area continues to grow.

The following growth projections, from research by the Ada Planning Association, are based on the assumption that development will continue at a medium density land use level in the study area.

PROJECTED POPULATION FOR THE BENCH/VALLEY STUDY AREA	
1990	2015
84,557	129,745

PROJECTED POPULATION FOR ADA COUNTY	
1990	2015
205,775	363,000

PROJECTED HOUSEHOLDS FOR THE BENCH/VALLEY STUDY AREA	
1990	2015
31,783	56,574

PROJECTED EMPLOYMENT FOR THE BENCH/VALLEY STUDY AREA	
1990	2015
50,075	89,048

An even greater growth rate is anticipated in adjacent areas: Southwest Boise Metro Area, Meridian, Eagle, and the West Foothills. Many of the trips generated in those areas, will impact the Bench/Valley area because they will be either destined for the Bench/Valley area or travel through the area.

In order to prepare for future population growth and development, it is important to provide transportation systems that have adequate capacity.

A.2.c PREVIOUS PLANNING EFFORTS FOR THE BENCH/VALLEY AREA

The need for transportation planning in the Bench/Valley area was recognized before the study was initiated in 1992. The study area was included in the 2010 Regional Transportation Plan. The 2010 Regional Transportation Plan was adopted by all local governments in Ada County following endorsement by the Ada Planning Association in 1992. This plan will be updated to include the Bench/ Valley recommendations eventually adopted by the Ada Planning Association Board (comprised of elected representatives of Boise, Garden City, Meridian, Kuna, Eagle, Ada County, the Ada County Highway District and several special districts).

But during hearings on the 2010 plan in 1989, some residents complained about a lack of opportunity to participate in developing the plan, lack of consideration of other roadway corridors, lack of consideration of other methods of travel and lack of addressing mitigation of impacts of roadway construction. Adoption of the plan was delayed. When it was finally accepted, in 1992, it was on the condition that a separate Bench/Valley Transportation Study be completed.

An important goal of the Bench/Valley Transportation Study is to involve as much of the public as possible. Neighborhood organizations, through representation on the Citizen's Advisory Committee, have had an important role in the development and conduct of the study and the establishment of recommendations. Community meetings, publications and other techniques (which will be described in detail) have also been used to help the study team encourage extensive public participation. Sensitivity to neighborhood issues, honest consideration of new ideas and continuous dialogue on the controversial issues inherent in transportation planning are used in the Bench/Valley Transportation Study in order to avoid the pitfalls of previous efforts.

A.3. THE BENCH VALLEY TRANSPORTATION STUDY TEAM

In September, 1993, the Ada County Highway District (ACHD) approved a contract with Centennial Engineering, Inc. for the Bench/Valley Transportation Study. The Bench/Valley Transportation Study is a cooperative effort between the Ada County Highway District, Ada Planning Association, the City of Boise, Garden City and Ada County.

A.3.1. THE STUDY TEAM MEMBERS

The Ada County Highway District (ACHD) is responsible for the maintenance, design and construction of all city streets and county roads in Ada County and the ridesharing services in the Treasure Valley. ACHD paid for the study and played a leading role in it's direction. ACHD officials established guidelines on what needed to be examined, stipulated what study methods would be used and provided technical oversight along the way.

The Ada Planning Association (APA) is a county-wide planning agency. The APA board includes elected representatives from Boise, Ada County, Garden City, Meridan, Kuna, Eagle, the Ada County Highway District and other special districts. It is the metropolitan planning organization for Ada County and is responsible for long range transportation planning. The APA served in an advisory role, providing the Bench/Valley Study with technical assistance and an understanding of their requirements and jurisdiction over the recommended improvements, such as air quality conformance.

The Technical Advisory Committee (TAC) met regularly with the study team to review technical issues, analyze alternatives and to discuss the long-range compatibility of the study findings. Additional information on the TAC can be found in Section A.4.c of this report.

The Citizen's Advisory Committee is a group of citizen volunteers representing neighborhoods and other groups. Activities of the CAC are explained in depth later in Section B.1. of this report.

Centennial Engineering, Inc. was formed in 1974 in the Denver, Colorado area. The firm has grown from the original five founding partners to a professional staff of more than 450. Centennial is an engineering company that provides planning, design and construction management services for transportation projects. Centennial Engineering developed the study methods used in the Bench/Valley study, supervised and coordinated work between the subconsultants and was responsible to the Ada County Highway District for all technical studies, the development and analysis of alternatives and the establishment and presentation of recommendations on alternative transportation, transportation demand management, roadway improvements, funding options and other elements of the Bench/Valley Transportation Draft Plan.

Group 2000 has earned a national reputation as a winner in the public communications arena. The firm is credited with the development of a new public hearing approach that promotes closer relationships between government agencies and the citizens they serve. Group 2000 directed all public involvement activities of the study, including the planning, production and promotion of all public meetings, publications and video materials. The company also facilitated discussion at public meetings, coordinated activities of the Citizen's Advisory Committee, and was responsible for media relations, public speaking and other activities designed to provide a high level of public involvement.

Cambridge Systematics, Inc provides planning and management services in the areas of transportation planning, economic development, telecommunications, management information systems and energy. The firm has a national reputation for applying state-of-the-art analytical techniques to complex problems, particularly in the area of travel forecast modeling. Cambridge Systematics was responsible for recruiting volunteers for the household travel survey, conducting the survey and compiling results for use in the travel forecast model. In addition, Cambridge Systematics performed traffic forecast modeling which helps demonstrate the effectiveness of roadway improvement options.

Scientech, Inc. is an employee-owned company that provides assistance to clients in information management. Founded in 1983 in Idaho Falls, the company now has more than 300 employees in 13 cities. For the Bench/Valley Transportation Study, Scientech was responsible for compiling geographic information systems and providing displays, graphs and other items pertaining to demographics, land use and the environment.

Smith and Associates was founded in 1977 to provide research and technical writing support to private and public-sector clients. Smith and Associates provided information on historical properties, coordinated information on local community comprehensive plans and assisted with the land use alternative scenarios.

Ecological Design, Inc. consults with engineering specialists to facilitate resolutions to natural resource issues. Ecological Design provided an environmental inventory, examining potential issues involving air and water quality, noise, wildlife and wetlands.

Intermountain Demographics provides a wide range of custom data services. The company developed community socio-economic profiles, inventoried the emerging development patterns for 1990 to 1993 and prepared the population and employment statistics for the land use alternatives.

A.4.a. TECHNICAL TRAFFIC ANALYSIS

Simply stated, technical analysis provides the study team with statistical information about who wants to go where and how often. A variety of sources provide the consultants with information on vehicle counts travel patterns, future residential and commercial growth, demographic information, travel methods and other data.

Technical information used to analyze transportation system changes includes transit use, land use plans and policies, a household travel survey, socioeconomic data, surveys of major employers and other trip generators.

Once the data are compiled a "traffic model" can be developed. The model makes it possible for engineers to predict what effects specific roadway improvements will have on the transportation system. Traffic modeling was an important part of the Bench/Valley study, as many travel corridors, roadway alignments and street configurations were analyzed. The technical traffic analysis is described in further detail in Section C of this report.

A.4.b. PUBLIC PARTICIPATION

As important as the technical analysis is to the effort, the Bench/Valley Transportation Study is a product of an extensive public involvement process. A Citizen's Advisory Committee, consisting of volunteers from neighborhoods, public institutions and business groups in the Bench/Valley Study area has been meeting monthly since late 1992.

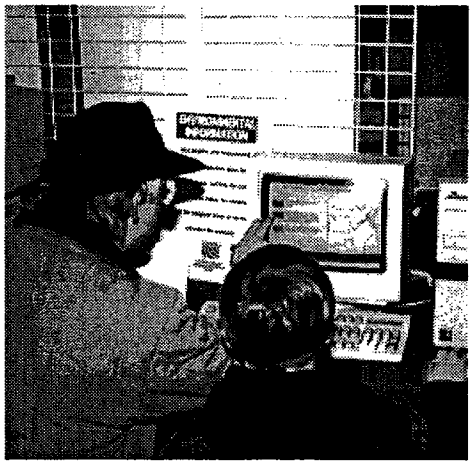
The Citizen's Advisory Committee reviews technical data, shares opinions from neighborhoods and other groups and helps formulate specific study recommendations.

Community open house meetings and smaller neighborhood gatherings have been used throughout the project to solicit ideas, provide project updates and to discuss issues raised by the Bench/Valley study.

The ideas considered by the study team came from citizens at these public meetings. Public awareness and interest in the project have increased during the life of the study and resulted in a turnout of more than 700 people at the March 2nd, 1995 community meeting.

By making public involvement as fundamental to the project as the technical analysis, the Bench/Valley Transportation Study benefits from the ideas, comments and criticism of the community. The public has an opportunity to play a legitimate role in development of the Bench/Valley Transportation Plan.

Public involvement is discussed in more detail in Section B of this report.



A.4.c. PUBLIC AGENCY PARTICIPATION

Just as the study team is responsible for conducting technical analysis and managing the public involvement effort of the Bench/Valley Transportation Study, various public agencies have also played an important role in completion of the project.

The Idaho Transportation Department (ITD) was given progress reports and consulted when discussions concerned transportation facilities in their jurisdiction, such as state highways, Interstate 84 and Interstate 184. ITD was also involved in the selection process to pick the team of consultants to work on this project.

Technical information, suggestions and periodic study reviews were contributed by a number of other public agencies and organizations including the City of Boise, Garden City, Eagle, Ada County and Boise Urban Stages.

The Technical Advisory Committee (TAC) was established at the beginning of the project to provide technical oversight of the assumption made in developing the data necessary for the project, the methodologies used to analyze the data and to monitor the progress of the project. The TAC was formed as a sub-committee from the Ada Planning Association's TAC which meets monthly to provide the APA with technical oversight on their transportation planning for Ada County. The Bench/Valley TAC met regularly also, generally monthly, with the study team to review the technical issues, provide input on the alternatives being considered, and to discuss the long-range compatibility of the alternatives. The TAC was also asked to develop their own set of recommendations concerning the corridor options for the study.

A list of the members that participated on the TAC for the Bench/Valley Study and the TAC's recommendations can be found in Appendix B.

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B. PUBLIC PARTICIPATION

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An intensive public participation program distinguishes the Bench/Valley Transportation Study from previous efforts at transportation planning. This on-going focus which considers social concerns along with technical information and environmental analysis, creates a unique blend of options most capable of meeting the community's transportation needs. As part of the public participation process, newsletters updating the public as to the study's progress were developed and direct mailed to households within the study area, as well as those on the Bench/Valley mailing list who had expressed an interest in the project previously. The newsletters have also been available at each of the major public information meetings. Copies of the four published newletters can be found in Appendix C.

B.1 CITIZEN'S ADVISORY COMMITTEE

The public participation process began with the formation, late in 1992, of a Citizen's Advisory Committee or CAC. This committee was designed to represent the interests and concerns of various neighborhoods, businesses and others affected by transportation issues both in and outside the Bench/ Valley Study area. The Ada County Highway District, through newspaper and direct mail outreach, encouraged citizens to participate on the CAC.

Meeting regularly throughout the course of this study, these individuals have expressed their views as well as the views of their friends, neighborhoods and the community at large, assisting planners, engineers and one another in creating a variety of transportation options. Through monthly committee meetings, neighborhood outreach and their participation at city-wide public involvement meetings, the CAC has helped to bring together many diverse points of view.

During initial meetings, the CAC was provided with historical perspective on the Bench/Valley study area including information about areas of controversy, as well as the scope and purpose of the study. As the Bench/Valley study progressed, the CAC has been regularly briefed on technical, environmental and social factors which might influence study decisions or recommendations.

Additionally, the CAC provides a vital communications link between agencies, the study team and the public. CAC members are encouraged to provide their neighborhoods and other interested citizens with current information about the process, progress and results of the Bench/Valley study. At the same time, they provide regular feedback from the public to the study team, allowing team members to have a sense of current public opinion.

As a group, the CAC shares ideas. They have now made their recommendations to the study team.

A complete list of people who have served on the Citizen's Advisory Committee and their recommendations can be found in Appendix D.

CAC MISSION STATEMENT

Goals and Objectives

OUR GOAL as citizen volunteers is to suggest ways to get traffic moving and keep it moving within and through the study area. In this endeavor, we will do our best to strike a responsible balance between transportation needs, community and neighborhood wishes and environmental values. We make a commitment to fairness and open-mindedness in researching and debating every available option, and to exchange this information with community leaders, our own neighbors and the general public.

OUR MISSION as citizen volunteers is to research and suggest ways to reduce traffic congestion and better manage Boise's transportation needs within the study area and beyond. We will take into account growth projections, community and neighborhood needs and environmental values. As we proceed we will initiate an information exchange in our own neighborhood, with community leaders and the general public, to help ensure that our decisions are a true reflection of the community.

B.2 NEIGHBORHOOD MEETINGS

Neighborhood meetings offer a non-confrontational setting in which citizens can sit down with study team members to discuss the Bench/Valley Transportation Study. Often, these meetings offer citizens their first factual information about transportation issues and their role in planning for the future. Citizens are invited to participate in neighborhood meetings through various means including direct mail, door hangers, newsletters, media reports and CAC outreach.

These gatherings provide an opportunity for the Bench/Valley study team to share their ideas and information as well as to hear the ideas of citizens. They also offer the public a chance to ask questions, offer opinions and share concerns. Representatives from ACHD, APA, BUS and the CAC, as well as members of the study team have played important roles in neighborhood meetings. While community meetings provided input from all parts of the study area and Ada County, the neighborhood meetings gave the study team an opportunity to address the very specific concerns of neighborhood residents. An integral part of the Bench/Valley study, four separate rounds of neighborhood meetings have been held to date.

The first series of neighborhood meetings, held in late summer and fall of 1993, focused on the history of transportation planning in and around Ada County, defined transportation system deficiencies in the study area, and reviewed the goals and objectives of the Bench/Valley Transportation Study. The majority of meeting time involved citizens sharing their concerns and suggestions.

The second series of neighborhood meetings was held in August, 1994. These sessions offered participants an opportunity to look at all transportation system options which had, to date, been suggested to the study team. Displays on the viability of alternative transportation, environmental impacts and early analysis of roadway options were offered in an open-house format which allowed for interaction with key study team members. Each meeting provided an open forum so that residents could share their ideas with the study team.

In early 1995, members of the Citizen's Advisory Committee conducted the third round of neighborhood meetings without members of the study team.Candid interaction between citizens and their neighborhood CAC representative offered an important opportunity to share ideas and concerns prior to the CAC making it's final study recommendations.

The final neighborhood meetings occurred in June, 1995. These meetings offered the public an opportunity to review the working draft recommendations made by the CAC, and study team members and to offer comments on the recommendations.

A complete list of all neighborhood meetings can be found in Appendix E.

B.3 COMMUNITY MEETINGS

Community-wide meetings allow the Bench/Valley study team to more formally track the feelings and concerns of citizens both inside and outside the study boundaries. The meetings incorporate technical information into understandable videos, photographs, computer simulations, print displays and three-dimensional modeling.

As a result of direct mail to up to 40,000 households, extensive press relations efforts, newspaper advertising and CAC outreach, the Bench/Valley study has enjoyed record attendance at community meetings which have been held at significant points during the project.

The first public involvement meeting in December, 1993, introduced the Bench/Valley Transportation Study to the community. Participants were encouraged to talk with study team members and to share their ideas for transportation solutions. Aerial photographs, displays and a three-dimensional model of the study area allowed the nearly 350 citizens who attended the meeting to review the current system and the geographic and social challenges facing transportation planners. Additionally, participants were shown the technology used in transportation planning projects.

Through the use of computer comment stations and written comment forms, the public offered dozens of options to help solve transportation problems in the study area.

The second formal public involvement meeting on the Bench/Valley Transportation Study was held in March, 1995. More than 700 citizens came to review the work from the first 18 months of the project. Extensive displays outlined options which had been studied and refined, including those which were deemed no longer viable.

Computer displays identified proposed roadway corridors and offered the public a broad range of information about proposed options within those corridors, including various alignments, lane widths, mitigation options and cost projections. Again, the study team was on hand to answer questions, address concerns and encourage the public to comment via computer comment stations and written forms.

The public responded at record levels, with 80% of the 734 people attending the meeting providing written comments to the study team. These comments have been used to refine recommendations proposed in this document.

Notebooks documenting the public comments received as a part of the December 2, 1993 Early Public Involvement Meeting; the Neighborhood Meetings held in August 1994; the March 2, 1995 Community Wide Meeting and the Neighborhood Meetings held in June 1995 can be found in Supplemental Volumes I-IV which are available for review at the offices of ACHD, APA or Centennial Engineering.

B.4 FOCUS GROUPS

Focus groups provide the study team with an opportunity to determine the level of public knowledge and test current public preceptions about the study and the agencies involved in the project.

Focus groups are comprised of randomly selected Ada County residents. In order to encourage candor and frank discussion the focus group members are promised anonimity.

Two series of focus groups have provided valuable information to the Bench/Valley study team. The willingness of participants to communicate their ideas, concerns and frustrations in these facilitated sessions have afforded the study team and involved agencies frequent opportunities to see the value of improved public communication.

The first series of focus groups, held in the fall of 1993 by Goddard/Claussen consultants, tested public opinions about ACHD, the history of transportation planning in Ada County, and impressions about the current transportation system in the study area.

In general, those focus groups felt ACHD lacked respect for the community and its concerns, but was improving. Also, at that time, participants knew very little about the Bench/Valley Transportation Study and transportation planning in general.

The second series of focus groups, held by Clearwater Research one year later, in November of 1994, indicated the public was more aware of the Bench/Valley Study, however, they were still unclear as to its content. As a rule, groups felt basic transportation problems revolve around growth which has forced reactive transportation planning.

Seven basic corridors identified through the first year of public and agency input, and alternatives within those corridors were also presented to these groups. Their responses were later considered in the preparation of the working draft recommendations, and ultimately into this document.

B.5 STAKEHOLDERS

From the beginning of the Bench/Valley Transportation Study, a number of individuals were identified as key stakeholders in the success of the Bench/Valley project. These stakeholders, representing business, industry, education, government, civic, social and fraternal organizations, were contacted regularly and provided with information about the progress of the study and impressions of the public. Their participation provided another opportunity for the study team to regularly test impressions of the project. Additionally, they provided the study team another communication link to vital segments of the community.

In initial interviews, stakeholders were asked to identify key areas and individuals in the community who should be targeted for specific study information and interaction. In later interviews,stakeholders shared their perceptions of the process, the agencies involved and the progress to date.

Most recently, these individuals provided feedback to the study team on proposed travel corridors, specific alignments and transportation alternatives. Their responses were considered in the recommendations.

A complete list of key stakeholders can be found in Appendix F.

B.6 SERVICE GROUP OUTREACH

An intensive effort was made to contact and interact with a variety of civic organizations and other groups with special interests in transportation issues.

Through a valuable liaison with the Boise Senior Center, the city's senior citizens were accorded special attention by the Bench/Valley study team. Arrangements were made for transportation services to allow seniors to attend community-wide meetings. Additionally, several presentations by study team members were made at the Senior Center location.

During the winter and spring of 1995, the study team made additional presentations to the following organizations:

Boise Rotary Club
Knights of Columbus
Golden Age Kiwanis
Meridian Kiwanis
Broadway Area Neighbors in Business Association
Garden City Chamber Board
Fairview Area Neighbors in Business Association
Idaho Gems Retired Citizen's Group
Boise Area Chamber of Commerce

These presentations included displays used at neighborhood and community-wide meetings, as well as facilitated discussion by study team members.

B.7 PRESS RELATIONS

Throughout the Bench/Valley Transportation Study, particular attention was paid to media coverage. Early in the study process the press was given a comprehensive media kit which included background on the purpose and scope of the study, a study time line, history of transportation planning in our area and an overview of the study team members.

At significant project milestones, press advisories were sent to all local and regional print and electronic media, and solicitations for coverage were regularly made. Members of the Bench/Valley study team appeared on public affairs programs on all three network television affiliates and performed numerous radio and newspaper interviews.

Press conferences were held prior to both community-wide meetings. Citizen input from those meetings became part of public documents also released to the press at specific times. Additional press conferences were held to release information about the Household Travel Survey and, later, the survey results. The first draft of identified roadway corridors and alternative alignments within those corridors and the release of the white papers on alternative transportation options, were also the subjects of press conferences.

With a high level of interest in growth and transportation issues the press has been extremely responsive to the efforts of the Bench/Valley study team.

A list of the news conferences conducted during the study can be found in Appendix G.

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C. TECHNICAL ANALYSIS

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Technical analysis for the Bench/Valley Transportation Study began with a determination of present conditions, developed predictions of future growth and provided recommendations on how the transportation system can best meet those challenges over the next 20 years.

Specialists collected current land-use and demographic data. Using planning information from public agencies and other data, future growth assumptions were developed. Maintaining consistency with local land use plans was a major factor in this process. Transportation planners created a computer model of the existing roadway network and applied the growth assumptions in order to forecast what our system needs will be like in the year 2015.

Engineers used this model to test different combinations of roadway improvements, transit use and land-use scenarios to determine what would be most successful. Based on the modeling results, the consultants were able to develop conceptual roadway plans, cost estimates and likely impacts to property owners.

Roadway designs were refined and, in some cases, dropped from further consideration because of environmental (wildlife, wetlands, air quality), social, technical or financial conditions.

During the technical analysis process ACHD, APA and the TAC provided valuable input regarding technical issues, funding, policy matters and the long-range compatibility of the study findings. At the same time, the CAC consistently reminded the study team of the real world consequences of potential solutions.

In order to examine the technical studies in more detail the process may be broken into four parts: land use, travel survey, forecast modeling and environmental analysis.

C.1 LAND USE

Land use analysis is very important in establishing future growth assumptions. In the Bench/Valley Transportation Study a current vacant land inventory and demographic report from the Ada Planning Association were updated in order to provide a variety of information:

- Land use patterns and economic conditions.
- Population, employment and land use information for small zones within the study area.
- The amount of developable land specified by land use policy plans.

The study team also developed information on major employers and other "trip attractors" in the study area and analyzed emerging development patterns noted through building permit and subdivision platting activities.

As part of the study, three land use scenarios were developed as to how the future growth of Ada County would occur between now and 2015. All three scenarios used the same future total population and employment figures for Ada County that were established by the Demographics Advisory Committee. These projections were developed by the Demographics Advisory Committee (DAC) prior to the start of the Bench/Valley Study, and the scenario assumptions were reviewed and monitored by the DAC during development of the population and employment figures to be used by the study team. The three scenarios developed included low, medium and high density land use scenarios.

The detailed technical memoranda prepared to document the Inventory Emerging 1990-1993 Development Patterns and the Land Use Alternatives used in this study can be found in Supplemental Volume V. The Supplemental Volumes are available for review at the offices of ACHD, APA, or Centennial Engineering.

C.2. TRAVEL SURVEY

An ambitious household travel survey provided information for the traffic forecast model, needed to predict future transportation demands in the Bench/Valley area. This was the first comprehensive travel survey for Ada County since the 1960's.

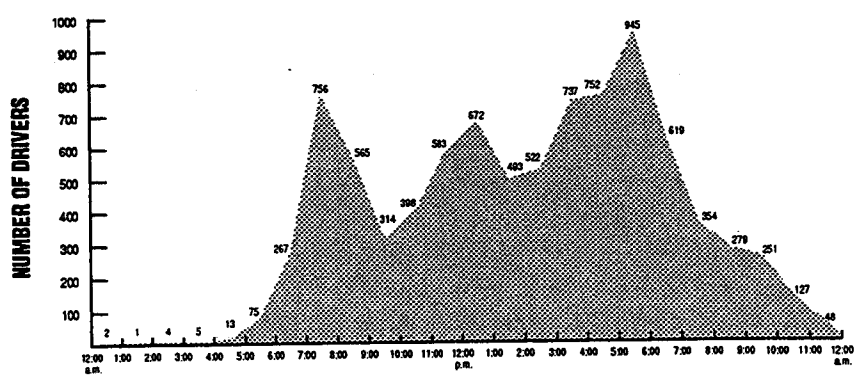
Conducted over several weeks in early 1994, the household travel survey recruited 1,500 Ada County households to keep a record of all trips made by all members of the household during a single day. The trips were categorized by purpose, method of travel and destination. More than 15,000 trips were recorded by the randomly selected, volunteer households.

Information from the household travel survey provides insight on resident's travel habits, time of travel, methods of transportation and other personal and household data.

Using that data, engineers identify specific travel patterns between neighborhoods in the Bench/Valley study area and beyond. Combined with current traffic counts and anticipated future land-use, information from the household travel survey was important in establishing the traffic forecast model used in analyzing potential transportation improvements.

Information collected in the household travel survey can be found in Supplemental Volume V.

TRIP START TIMES BY THE NUMBER OF AUTO DRIVERS



One of many questions asked in the household travel survey had to do with the time that drivers started each automobile trip, which is depicted in the graph above. Travel demand in Ada County shows a fairly typical pattern with the highest peak occurring between 5 p.m. and 6 p.m., followed by a morning peak hour from 7 a.m. to 8 a.m. Since engineers plan capacities to meet these peak times, at other times there is more capacity than is needed. The challenge then becomes finding ways to distribute the trips more evenly, utilizing the existing system more efficiently.

C.3. TRAFFIC FORECAST MODELING

Once engineers have information about current traffic levels, current and future land-use, anticipated growth and the public's travel habits, a traffic forecast model can be developed.

The traffic forecast model is a computer generated process that simulates travel behavior. A map created in the computer contains the road segments, intersections and traffic zones in the study area. Each zone generates traffic which is routed onto arterials and collectors. After routing traffic from all zones in the study area, the model predicts the cumulative traffic expected on each road segment.

Many assumptions are included in the model and they can be adjusted to reflect the consequences of specific system changes. Model assumptions include such things as the number of lanes, traffic speed, intersection delays, future development and the subsequent generation of traffic from that development.

Assumptions used in the model included low, medium and high density land use scenarios. Low density growth assumes that future development will be spread out, with 2 to 4 homes per acre. Low density growth is very auto dependent, increasing the need for more roads. High density growth encourages clustered development with 6 to 8 homes per acre, more townhouses and apartments, less dependance on the automobile and higher use of alternative transportation (transit, bicycle, pedestrian etc.) To date, Boise has developed at a level between low and medium density.

The medium density scenario was the development assumption ultimately used in the comparison of alternatives because it was most consistent with the land use goals in the Bench/Valley area as well as Ada County.

Many alternatives examined in the Bench/Valley Transportation Study were analyzed with the traffic model, which provided the traffic numbers shown later in this report. The traffic forecast model is but one of several tools used to evaluate the transportation options, and is not the sole basis for the recommendations. Other important tools include environmental analysis, neighborhood impacts and whether there is public support for particular options.

Detailed traffic modeling results can be found in Supplemental Volume V.

C.4. ENVIRONMENTAL ANALYSIS

As technical studies established current and future travel patterns and system use levels, other studies determined existing environmental conditions.

An inventory of existing environmental conditions made it possible to develop a constraint map, used by the study team in defining possible alternatives. The maps indicate environmentally sensitive areas such as wetlands and eagle perch sites.

Other environmental issues were analyzed through field studies and a modeling process that makes it possible to predict how transportation system changes may affect noise levels, air quality and other environmental factors.

These studies were conducted where appropriate so that the study team could identify whether environmental conditions might affect the development of future transportation system improvements.

- Noise Analysis
- Air Quality Analysis
- Land Use Issues
- Natural Features, including wildlife
- Socioeconomic/Community Facilities, including historical preservation issues
- Hazardous Materials

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D. THE "NO ACTION" ALTERNATIVE

D.1. THE "NO ACTION" ALTERNATIVE

A "no action" alternative is carried through every stage of the study. This simply means that no action would be taken beyond traffic improvements already planned and funded by the Ada County Highway District and the Idaho Transportation Department in their respective adopted plans for 1995-2000.

Current funded plans for street widening, intersection improvements and other projects within the study area are identified in the ACHD and Idaho Transportation Department five year plans.

FUNDED ACHD PROJECTS IN THE BENCH/VALLEY STUDY AREA

Project	Type	Year	Total Cost
Five Mile Road from Franklin to Fairview	Widening	1998	$2,865,000
Five Mile Road from Fairview to Ustick	Widening	1997	$1,065,000
Maple Grove Road from Franklin to Fairview	Widening	1999	$1,550,000

FUNDED IDAHO TRANSPORTATION DEPARTMENT PROJECTS IN THE BENCH/VALLEY STUDY AREA

Project	Type	Year	Total Cost
I-184	Widening	1998	$10,380,000
Eagle Alternate	Relocation	1995	$5,930,000
I-184/Cole Road* Off Ramp	New Ramp	1998	$330,000

* Assumes contribution of right of way from private party.

FUNDED IDAHO TRANSPORTATION DEPARTMENT PROJECTS NEAR THE BENCH/VALLEY STUDY AREA

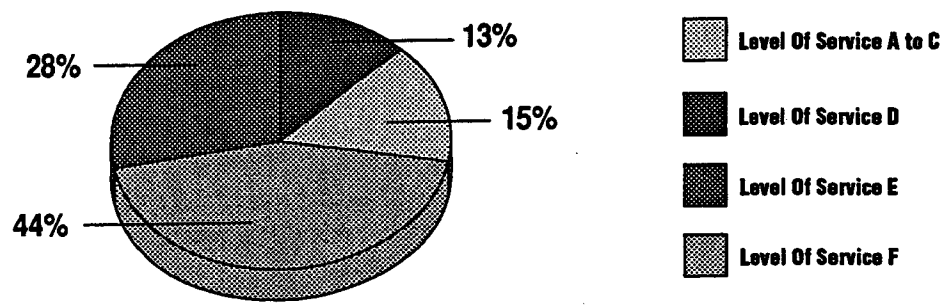
Project	Type	Year	Total Cost
SH-55 Alternate State St. to Beacon Light Rd.	Relocation	1996	$3,040,000
Eagle Road Fairview to Chinden	Widening	1997	$8,510,000
Eagle Road Chinden to Eagle	Widening	1999	$2,210,000
Chinden (US 20) Eagle Rd. to HP Main Entrance	Widening	1999	$2,160,000

The no action alternative would not affect these projects since they are already planned and funded. The "no action" alternative assumes that no additional traffic improvements be provided in the Bench/Valley Transportation Study area for the next 20 years.

Traffic forecast modeling was used to analyze the effect of the "no action" alternative.

The following chart indicates what would happen to roads in the Bench/Valley Transportation Study area if no action is taken. The Highway Capacity Manual, which is the accepted professional guideline, classifies roads according to their "level of service." It should be noted that the chart indicates the level of service for all vehicle miles traveled, all day (24 hour period) not just during the peak hour.

Level of Service Summary – No Action Alternative
Bench/Valley Study Area



Level of Service for All Vehicle Miles Traveled One Typical Weekday in the Design Year 2015

Level of Service A: Represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream.

Level of Service B: In the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable.

Level of Service C: In the range of stable flow, but marks the beginning of the range of flow in which the operation of the individual users becomes significantly affected by interactions with others.

Level of Service D: Represents high-density but stable flow. Speed and freedom to maneuver are severely restricted.

Level of Service E: Represents operating conditions at or near the capacity level. All speeds are reduced to a low but relatively uniform level.

Level of Service F: Represents the point at which flow is broken. Lines of traffic form and operations within these lines are characterized by stop-and-go waves. Level of service F is reached when the number of cars approaching a point exceeds the number of cars able to move through that point.

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E. ALTERNATIVE TRANSPORTATION

E. ALTERNATIVE TRANSPORTATION RECOMMENDATIONS

Alternative transportation plays a vital role in modern urban transportation planning. From public transit, light rail and commuter rail systems, vanpooling and carpooling, to additional bicycle and pedestrian facilities, the Bench/Valley study team examined the viability of alternative transportation options and the economic and social impacts of those options within the study area and beyond.

In general, the community is responsive to the idea that alternatives can be found to driving alone. Throughout the neighborhood and community wide meetings, citizens in general want to maintain some form of public transit, particularly for the future, but a majority of people still want to drive. This mind set creates a challenge for expanding or creating alternative services.

Many, also, expressed support for expanding bicycle and pedestrian facilities as part of future roadway improvements.

E.1 EXISTING SERVICES

The Boise area is currently served by Boise Urban Stages (THE BUS) transit system which will provide approximately 1.32 million passenger trips this year. This ridership level represents a 55% increase from just two years ago.

THE BUS operates 19 routes Monday through Friday from 5:15 a.m. to 8:45 p.m., with the exception of one route on the Boise State University Campus which operates Monday through Thursday until 11 p.m.

Within the past two years, THE BUS has replaced 22 of its 36 buses with vehicles powered by clean, compressed natural gas, leading to improved air quality in Boise. With both this and the dramatically improved ridership increases during that same period, THE BUS is playing a much more significant role today in addressing both Boise's air quality and traffic congestion problems.

THE BUS recently completed a long-range planning process which included an extensive public involvement process. From that planning effort came a community vision of what the transit system should look like in 15 years with specific short-term recommendations including a route restructure plan to be implemented early next year.

Like other transportation programs across the country, both transit and roadway projects, Boise's transit system is dependent upon public agency funding in addition to fares. The federal subsidies, which have been so important in sustaining THE BUS are currently at risk as Congress looks for ways to balance the federal budget. Creative financial planning will be necessary to allow THE BUS to maintain current service levels and to expand as the federal dollars decrease or disappear altogether.

The Ada County Highway District offers a vanpool and a free carpool ridematching service. Commuters who might otherwise drive to work alone are invited to complete a ridematch application. Valley Commuteride employees at ACHD will return a list of people who live in the same area and have similar destinations and working hours. Carpools as small as two people can be arranged, with participants sharing costs and driving responsibilities. ACHD estimates that for a 20 mile round trip commute, travel costs can be cut from $1,968 a month for a person using a mid-size care, to $660 for a 3-person carpool, based on 21 days per month.

While all of the technologies studied had appealing elements, the study team agreed, based upon costs and community characteristics, none of the fixed guideway technologies are currently feasible in the Bench/Valley Study area, or elsewhere in the Treasure Valley; THE BUS is the appropriate mode for the near future, and even that needs some increased residential density to run more efficiently.

The full text of "Transportation Planning - Supply Side Improvements" can be found in Appendix H.

A second technical report "Transportation Characteristics and Transit", reviewed current transportation trends which reveal rising automobile use, and declining transit use. Personal convenience and America's move to the suburbs are cited as key factors in these trends. As a part of this analysis, various transit technologies were reviewed in terms of successful system characteristics and then compared in terms of their viability in the Bench/Valley study area.

The paper examined other traffic management strategies such as transit incentives, transportation demand management and transportation control measures. Specifically, these strategies are designed to reduce trips and, as a result, utilize the existing roadway system more efficiently.

The full text of "Transportation Characteristics and Transit" can be found in Appendix I.

E.3 TRANSPORTATION DEMAND MANAGEMENT

Transportation demand management (TDM) refers to programs and policies designed to reduce travel demand and to improve utilization of the transportation system. TDM programs and policies include a variety of incentives and disincentives directed primarily at drivers of single occupant vehicles (SOV).

The purpose of introducing transportation demand management as a part of the Bench/Valley Transportation Study was to investigate the potential of TDM for changing travel behavior and reducing travel demand within the study area and the entire region.

The intent of a TDM measure is to encourage people to select transit or carpools/vanpools as an alternative to SOV trips, or to combine and eliminate trips. A TDM measure can accomplish this by either incentives or disincentives or both.

E.3.a. Incentives and Disincentives

An effective TDM program includes a combination of incentives and disincentives that affect both the demand for travel and the use of the existing capacity. Experience indicates that the most effective TDM measures are disincentives, such as paid parking or congestion pricing (although experience with congestion pricing is limited). Even though driving a car carries a considerable price in addition to the fuel costs; such as vehicle depreciation, insurance, and maintenance, these costs are not recognized by most drivers. Attaching a specific price to each trip with disincentives, such as paid parking and roadway tolls, will increase the awareness of the cost of driving. Roadway tolls are best accepted in corridors where new capacity or new roadways are being developed. The costs associated with these measures will cause some people to rethink making the trips at all, and others to seek out alternative transportation.

Incentives to TDM measures tend to be either improvements to SOV alternatives or supporting measures. Alternatives to SOV travel include transit, carpooling/vanpooling, bicycling and walking. Transit is often the most practical alternative for most, particularly for the work commute. Carpooling and

The Vanpool program serves seven to 15 commuters per vehicle. There are currently 21 vans serving the Treasure Valley area. A monthly fare covers the costs of the vehicle, gasoline, maintenance and insurance. There is also a monthly fare. ACHD estimates that for a 20 mile round trip commute travel costs can be cut from $2,952 a month for a person using a mid-size car to $492 for a 14 member vanpool that is used 21 days a month.

Free park and ride lots are located throughout Southwest Idaho and offer a place for commuters to park and collectively ride to work in a prearranged carpool, vanpool or on a bus. Information on the location of Park and Ride lots is also available through the ACHD Commuteride office.

E.2 ALTERNATIVE TRANSPORTATION TECHNICAL REPORTS

During the summer of 1994, the study team took an in-depth look at the viability of various transportation alternatives, preparing two separate technical reports outlining the findings indicated below.

The first, entitled "Transportation Planning - Supply Side Improvements" studied the viability of "fixed guide way transit technologies." In simpler terms, the study team examined the feasibility of gondola, light rail and commuter rail systems.

Cost comparisons were made between technologies, and factors which determine the success of systems in other cities were also evaluated. Among those considerations were community characteristics such as size, residential density and current commuter habits.

COMMUNITY TRANSIT CRITERIA

	Minimum Residential Density (Dwellings Per Acre)	Downtown Size (Millions of Square Feet)	Metropolitan Area Population
LOCAL BUS	4 to 15 Depending on Frequency	Variable	Smaller Cities 100,000 to 500,000
EXPRESS BUS	3 (Over 20 Square Miles)	20 +	Smaller Cities with Large Rural Populations 100,000 to 500,000
LIGHT RAIL	9	20 to 50	750,000 +
RAPID TRANSIT	12	50 +	1,000,000 +
COMMUTER RAIL	1 to 2	50 + Largest Cities	1,000,000 +
WHERE DOES BOISE FIT?	Average Residential Density (Dwellings Per Developed Acre)	Downtown Size (Millions of Square Feet)	Metropolitan Area Population
	2	4.4	Boise 141,000 Treasure Valley Appox. 350,000

The low residential densities shown for commuter rail systems in the above table appear because many of the large metropolitan areas are surrounded by substantial communities that may be separated from the cities by sparsely populated regions. Because these bedroom communities are considered part of the "metro" area, the large acreage make the population densities appear low.

vanpooling are also good alternatives for many, and more so if those in a carpool or vanpool receive some additional incentives such as discounted paid parking or use of High Occupancy Vehicle (HOV) lanes. Pedestrian and bicycle modes are usually less attractive due to trip length or during some parts of the year due to weather.

Because transit is the most practical option to SOV's for many commuters, it should be made as attractive as possible. To compete with the automobile, it must be convenient. Increasing the frequency of transit service and providing direct origin-to-destination service is the first step in shifting riders from SOV's to transit. If transit can reduce trip time through use of dedicated transit ways or HOV lanes, it will be an even more attractive alternative. Transit must also be offered at a price which will appeal to potential riders. If the perceived cost of driving is less that the transit fare, it will be difficult to shift people from their cars into transit.

The Bench/Valley study team examined, in depth, the pros and cons of implementing transportation management strategies. A TDM plan must be tailored specifically to meet the needs of not only the study area, but Boise, Ada County, as well as the Treasure Valley. Ideas used successfully in other cities and their relative effectiveness include:

TRANSPORTATION CONTROL MEASURES

	IMPACT OF TDM MEASURE																			
	LOWER																			HIGHER
Congestion Pricing (Flexible toll adjusted by time of day or by congestion)																				●
Higher Parking Fees and no free parking																●				
Licensing Fees or Quotas										●										
Limited Parking Supply									●											
Limited Capacity of Single Occupancy Vehicles								●												
Transit Subsidies								●												
Preferential Treatment for High Occupancy Vehicles – "Carpool Only" merge and Traffic Lanes							●													
Free or Discounted HOV Parking							●													
Direct Money Incentives for Alternative Transportation Use – Employer Paid Programs or Subsidies						●														
Emissions Tax Based on Vehicle Miles Traveled						●														
Increased Gasoline Taxes to Raise Gas Prices						●														
Seamless Transit Service (Single Transit Operator)					●															
Rail Transit					●															
Demand Responsive Transit Service				●																
Increase Transit Service				●																
Preferential Parking for Carpools and Vanpools				●																
Reduced or Free Transit Fares				●																
Ridesharing Programs (Carpools or Vanpools)				●																
Telecommuting (Working at Home Via Phone, Fax and Computer)			●																	
Community-wide Bike Lane System			●																	
Alternative Work Schedules (Flexible, Staggered, or Compressed Work Week)			●																	
Shuttle Services		●																		
Corridor Bicycle/Pedestrians Improvements	●																			

SUPPORTIVE MEASURES:

- Employer Paid Emergency Ride Service
- Work-site Transit Pass Sales
- Guaranteed Ride Home Program
- Park and Ride Lots
- Commuter Information Programs
- Carpool Ridematch Program
- Transportation Coordinator

* This chart, prepared by Centennial Engineering, is based on information provided by the U.S. Department of Transportation and the Federal Transit Administration.

The full text of "Transportation Demand Management" can be found in Appendix J.

E.4 ALTERNATIVE TRANSPORTATION RECOMMENDATIONS

In order to reduce the overall number of vehicles the roadway system will be expected to handle in the future, any transportation plan implemented should work toward a program which encourages the use c transit and other alternative modes of transportation. As a part of this study, the future needs of the stud, area were analyzed based on several different scenarios of trip reduction or transportation demand management in the future year of 2015. The analysis included travel forecast model runs assuming a zero, five, ten and twenty percent reduction in the total number of future trips within Ada County. The percentage of trips reduced were assumed to be accommodated on alternative modes such as bus, carpool/vanpool, bicycle or walking, or would not occur for some other reason such as telecommuting or because of the cost of making the trip.

The data gathered during the 1990 Census indicate that THE BUS was capturing approximately one percent of all of the trips being made in Ada County. During the peak hours that percentage is higher and varies depending primarily on the time of year and weather. Since 1993 THE BUS has experienced significant increases in ridership, also helping to raise the percentage of trips using transit.

The Boise Urban Stages (THE BUS) recently conducted a Long Range Regional Transit Plan, which is a 15 year plan designed to meet the changing needs of the Boise and Garden City area. The plan has not yet been implemented, pending approval of the Boise City Council. The plan would improve service annually for six years under the present spoke and wheel system. By 2001, the modified route configuration will evolve into a dual hub system, with routes operating out of both the downtown and Boise Towne Square areas. By the year 2010, the plan calls for the implementation of a "hybrid system", with routes running on major east/west and north/south thoroughfares while maintaining the dual hub system and improving the time between buses.

The current operating cost for THE BUS is $3.4 million, of which, $1.5 million is paid by the taxpayers o the City of Boise. If the Long Range regional Transit Plan is implemented, the operating costs would increase to $14 million in 2001 and an estimated $22.36 million when the plan is fully implemented in 2010.

The future BUS system is going to play a very important role in attaining the goal. The recommendations for attaining that goal represent a staged approach to changing the travel behaviors of the citizens of Ada County as well as the region as a whole.

The legislation allowing a regional transportation agency was approved by the Idaho legislature in 1994; however, no funding mechanism was provided. The legislation allowing funding of a regional transportation agency needs to be developed and approved. It can then better support a bus system that would be able to serve a larger portion of Ada County, and ultimately expand into a multi-county system, offering express service to other communities such as Nampa and Caldwell.

A dedicated funding source for transit must be identified. For THE BUS system to expand much beyond its current ridership, that is critical. In the past, when city budgets get tight, one of the early areas of budget cuts has been THE BUS. For the travel habits of our citizens to change, there must be an ongoing and increasing commitment to making the THE BUS system a viable option to the automobile, and reducing the subsidy to the automobile.

The Long Range Regional Transit Plan identified some options for providing the dedicated funding source for transit, and the Mayors Transit Advisory Committee suggested that implementation of the plan

be contingent on the identification of that source. That source may include some combination of the following options that were identified in the Plan:

1. Local option taxes
2. Employer/merchant contributions
3. Fare/Ridership contributions
4. Revenue/general obligation bonds
5. Impact fees
6. State revenue sharing

Changes in state law will be necessary to implement some of these funding options.

Recent discussions between the City of Boise and other communities within Ada County regarding expanding bus service into those communities is very encouraging. Those discussions need to be brought to fruition, so that the entire regional community is helping to pay for the service. Once a dedicated funding source is identified and implemented, then the bus system can begin serving a larger segment of the population. Garden City needs to be the initial focus of the increased cooperation between governmental agencies, because of its location and demographics. As Meridian and Eagle continue to grow, service to those communities will become more and more important.

The Long Range Regional Transit Plan (LRRTP), as developed by Boise Urban Stages, provided for an expanded system that would extend the hours of service, make all of the individual routes start and stop at the same time, increase the frequency of service both during the peak periods and the non-peak periods, as well as increase the community coverage so that the distance anyone would be from a bus route would be reduced. By implementing the LRRTP the greatest increase in ridership would occur during the non-peak period. It is the Bench/Valley study teams recommendation that the increased service be focused on the peak period trips, primarily the commuter, when congestion is the greatest, to get the greatest return on our investment.

The study team also analyzed a regional bus system that would provide express bus service to Canyon County initially, then be expanded to other areas as ridership becomes available. Generally, the first patrons of an express bus service from the outlying areas of a community are citizens who have gotten into the habit of using carpools or vanpools as their way to commute. The Ada County Highway District currently has a successful vanpool program which has 21 active vanpool routes, anticipates adding 6 new routes this fall, and has plans to acquire 15 more vans over the next three years (1996-1998). That program should be continued and expanded as quickly as possible. The Ada County Highway District also provides a free carpool ridematching program. It includes promotional material and programs to help match people interested in sharing a ride in a carpool or vanpool.

An important part of making a carpool and vanpool program work, is identifying and developing park and ride lots that are convenient, safe and strategically located for the users to encourage their use. The program of negotiating with existing parking lot owners and developers of new facilities during the approval process to identify park and ride lots should continue and be expanded. Additional facilities along the interstate at the interchanges need to be developed and will require programing of funds to accomplish. A portion of ACHD's current budget has been allocated toward these programs. If a dedicated funding source for a regional transportation agency were identified and developed, then these programs could logically be funded by this new agency. Many of the park and ride lots, and carpooling and vanpooling services are being provided for trips that are originating or destined to points outside of Ada County.

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F. CORRIDOR EVALUATIONS AND RECOMMENDATIONS

F.1. THE DEVELOPMENT AND EVALUATION OF CORRIDORS AND ALTERNATIVES

Allowing for significant increases in the use of alternative transportation and successful application of transportation demand management strategies, the present road system will still not be adequate to meet the demands of continued growth in the Bench/Valley area during the 20 year study period.

Most suggestions that came from the public concerned road improvements on major north-south corridors in the study area. These suggestions underwent initial evaluation by the study team including the Technical Advisory Committee and the Citizen's Advisory Committee. Some were removed from further consideration because of environmental problems, high cost, impracticability or other reasons.

A list of ideas submitted by the public and their status, including suggestions on alternative transportation, can be found in Appendix K.

Conceptual alignments and cost estimates were then developed for the remaining transportation corridors. These were presented to the public in a series of neighborhood meetings in August, 1994. Based on comments received at those meetings the number of alternatives was further refined.

More detailed information was developed for seven travel corridors. Within each corridor there were up to five possible alignments. The refined alternatives also provided more information on possible roadway design, better cost estimates and environmental data.

These designs were taken to the public in a community meeting on March 2, 1995. Public comments on the alternatives were considered when working draft recommendations were developed for two final neighborhood meetings in June, 1995. The draft recommendations which appear in this report were developed following those two final neighborhood meetings.

F.2. CLOVERDALE ROAD

What are the Cloverdale Road options?

One corridor identified by the public for potential improvements was Cloverdale Road. Two potential routes were identified. The west alternative would extend Cloverdale Road north from its current terminus at Chinden Blvd. across the Boise River to the proposed Eagle Alternate Bypass at Edgewood. The east alternative would extend Cloverdale Road from Chinden Blvd. to State Street at the proposed Highway 55. Each alternative is about 2 miles long. (See map.)

How Many Lanes and How Much?

During the selection process within the corridor, each alternative was assumed to four lanes with wide shoulders. The estimated cost is $32.2 million for the west alternative and $28.8 million for the east alternative in 1995 dollars. When the traffic forecasts later became available, these assumptions changed, but not the decision as to the preferred alternative within the Cloverdale corridor.

Which of the two alternatives is preferred?

Based on the following factors, the study team prefers the east alternative.

- *How much property is affected? – The west alternative would pass within 250' of the ranch* property on Eagle Island that has been in one family for over 100 years whereas the east option would be no closer than 1000'. The greater distance would reduce the noise and visual impacts.

- *How well does it work?* – The east alignment would provide a direct connection to Highway 55 which provides smoother traffic flow because there would be no need for this traffic to jog east-west on the Eagle Bypass.

- *How do the costs compare?* – The east alternative saves an estimated $3.4 million over the west alternative primarily due to the shorter bridges over the Boise River.

How does it fit with the "Big Picture"?

To determine how the option would work in conjunction with other corridors in the study area, we tested this option using the computer traffic model.

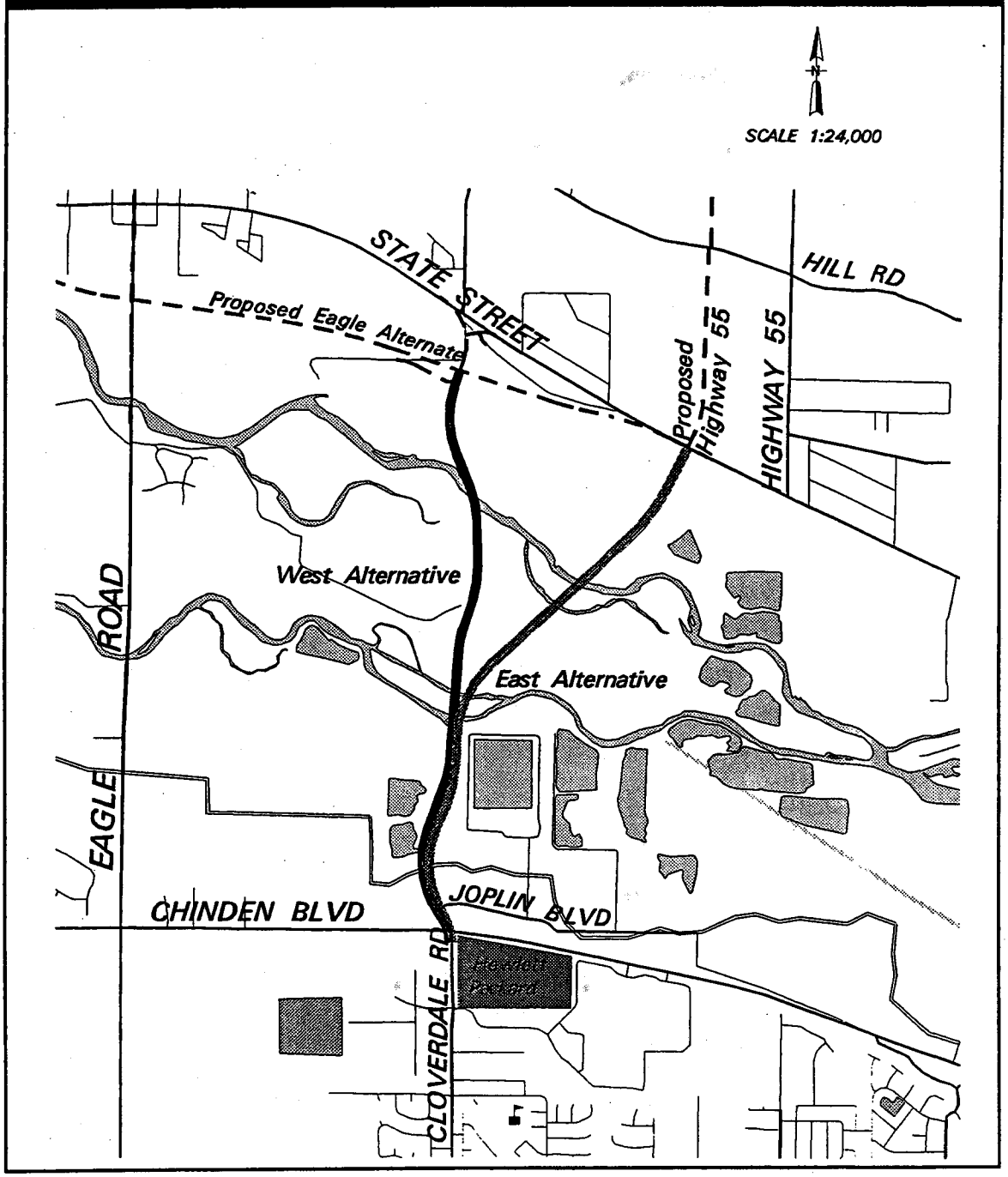
- *Will drivers use it?* – The traffic model indicates that approximately 17,000 vehicles/day would use the facility by the year 2015. This volume is only about half what a bridge connecting with Chinden a mile or more to the east will draw.

- *Is the road cost effective?* – The Study determined cost effectiveness by dividing the project cost by the number of miles traveled on the roadway in the design year. This provided us an idea of how much use the public receives for its investment. The low daily volume would warrant only a 2-lane roadway at an estimated cost of $25 million. The project has a cost effectiveness of $2.18 per vehicle mile traveled. Compared to other roadway options in the study area this is not very cost effective. By comparison, one of the Five Mile Road options has a cost effectiveness of $0.97/vmt.

Should the project be built?

Based on the above considerations, the study team believes that the Cloverdale extension should not be built within the next 20 years. A connection of Cloverdale to a new river crossing in the Five Mile area is a consideration under Version B in the Five Mile corridor discussed in Section F.3.

CLOVERDALE EXTENSION



F.3. FIVE MILE ROAD

What are the Five Mile Road Options?

A corridor identified by the public for extension was Five Mile Road. Several potential alignments were investigated that would extend Five Mile Road from where it ends near Chinden Blvd. across the Boise River to State Street. Combinations of an east and west river crossing and two intersection alternatives at Chinden Blvd. resulted in a total of four possible options. A fifth option was developed that just connects Five Mile from McMillan Road to Chinden Blvd. with no river crossing.

Considerable concern has been expressed during and since the last round of neighborhood meetings, with the potential for through traffic using Five Mile Road by connecting it to Idaho Highway 55 on the north at State Street, and with an interchange at I-84 on the south. The concern is that the directness of a continuous alignment on Five Mile, if connected at both ends, would be shorter than the intended state highway route of Eagle Road, so more than just local traffic would find its way to the Five Mile corridor.

In order to provide the public with an option to address these concerns, a second version for creating a new river crossing between Glenwood St. and Eagle Road has been developed, which is called Version B. Version B would still provide a new river crossing in the same location as a Five Mile river crossing, but it would disperse traffic more evenly to the three north/south corridors in the western portion of the Bench/Valley area, Maple Grove, Five Mile and Cloverdale. The Five Mile Road extension that was previously developed became Version A for this portion of the Bench/Valley Study area.

Version A - Includes a 4-lane river crossing extended south from the proposed Highway 55 at State Street to a signalized intersection with Chinden Blvd just east of Hewlett- Packard (HP). Five Mile between the signalized intersection on Chinden and Ustick Road would need 5-lanes to carry the estimated 21,000 vehicles per day on the section from Chinden to McMillan, and the estimated 31,000 vehicles per day between McMillan and Ustick in 2015. The approximate cost for Version A is $35.7 million. (See Map for Version A.)

Version B - Includes a 4-lane river crossing extended south from the proposed Highway 55 at State Street to a point north of Chinden where it would turn east and connect with Chinden Blvd west of Garrett, near Mountain View Drive. A 2-lane roadway would connect the river crossing to Cloverdale Road. Five Mile would be connected to Chinden and have three lanes between Chinden and McMillan Road, and be expanded to 5-lanes between McMillan and Ustick roads. Five Mile would not be connected directly to the river crossing. This version also has an impact on the proposed improvements in the Maple Grove corridor. Maple Grove would need to be built to a 5-lane section from Chinden to Goddard to accommodate the estimated 23,500 vehicles per day. The estimated cost for Version B is $35.9 million. (See Map for Version B.)

For the Five Mile Extension, how were the options for Version A narrowed down?

Because the preferred option for the continuous Five Mile corridor is a combination of the best river crossing and the best intersection option, each part was looked at separately.

The intersection alternatives included either a signalized intersection on Chinden Blvd. east of the HP Facility or a bridge over Chinden Blvd. The signalized intersection is preferred based on the following factors:

- *How well does it work?* – The bridge alternative would be most effective if the through movement on Five Mile were predominant. However, the traffic model indicates that of the projected 30,000 vehicles/day crossing the river in 2015, 20,000 would access Chinden Blvd. traveling to and from central Boise. To provide for the high turning demand, the bridge option would require ramps in two if not all four quadrants. Given the terrain and proximity to the Whispering Cliffs Subdivision and the storage facility, the cost of the ramps would be excessive. The signalized intersection near HP effectively provides for the turn movements.

- *Which one has the least impact on the neighborhood?* – The bridge option remains on the section line resulting in additional right-of-way acquisitions and greater noise and visual impacts to the Whispering Cliffs neighborhood. The signalized intersection option would be west of the neighborhood and have relatively fewer impacts.

The river crossing included both a west and an east alignment. Based upon the level of environmental analysis, neither river crossing is significantly better than the other. Both were judged to have less impact on the river and the wastewater treatment plant than a Cloverdale crossing. Further data will be needed to reach a decision on the Five Mile crossing based on the following issue:

- *What are the environmental effects?* – The east alternative has relatively fewer impacts to wetland areas than the west alternative because it passes through existing gravel pits where the ground has already been disturbed. The east alternative costs $3.4 million more than the west alternative due to longer bridges and need for more fill for the gravel pits. Detailed environmental and cost data, not available for this study, is needed to determine if it will be less expensive to mitigate the loss of wetlands than to avoid them. The study recommends that both river crossing alignments be evaluated in a future detailed location study.

For Version B, how were the options selected?

Because Version B was added to respond to concern expressed recently, just a single alignment rather than multiple alignments that were developed for the other corridors, was developed for the connection from the river crossing to Chinden Blvd. near Mountain View Drive. During development of the Five Mile River crossings, alignment options were developed for connecting Cloverdale to the river crossing. Because of the location of the West Boise Sewer Treatment Plant and existing farms in the area, the options were pretty limited. The river crossing and alignment north to State Street is the same for both Version A and B.

How do Version A and B compare?

- *Will drivers use it?* – To determine how the versions would work in conjunction with other corridors, we tested them using the computer traffic model. The model indicates that approximately 30,000 vehicles/day would use the river crossing by the year 2015 in either version. This indicates that users would find the route the most useful compared with the other river crossing options modeled.

- *Does it improve traffic on parallel routes?* – A new river crossing at Five Mile Road effectively reduces the future traffic on the Glenwood Street bridge by 9% in Version A and 7% for Version B when compared to the No-Build scenario. Both versions provide another

connection across the bench to Chinden which reduces future traffic on Mitchell Street by 28% in Version A and 14% in Version B when compared to the No-Build scenario.

- *Is the road cost effective?* – We determine cost effectiveness by dividing the project cost by the number of miles traveled on the roadway in the design year. Version A has a cost effectiveness of $0.99 per vehicle mile traveled in the design year while Version B is $0.97/vmt. Compared to a river crossing at Cloverdale, at $2.18/vmt, both versions are more cost effective projects.

- *How are the neighborhoods affected?* – Version A would allow a large amount of traffic to flow through the Five Mile neighborhood between Chinden and Ustick Road. In particular, the segment north of McMilllan would increase from less than 2,000 vehicles/day to nearly 21,000 vehicles/day in 2015. There would be opportunity for softening the impact by purchasing many of the homes fronting the 5-lane road and constructing landscaped berms or noise barriers to reduce the impact to the remaining homes. In addition, signals at the cross streets and bike lanes would serve to improve access to adjacent homes and pedestrian/bicycle safety. The cost estimates currently include an allowance to cover mitigation.

Version B diverts most of the traffic crossing the river to Chinden Blvd., Maple Grove, and Cloverdale. In this version, traffic is expected to increase to about 13,000 vehicles/day on the segment of Five Mile between Chinden and McMillan by 2015. This will require a 3-lane road which will substantially fit within the existing right-of-way. A large number of homes would continue to front the roadway and because of the confined right-of-way, there would be little opportunity for mitigation such as landscaping and berms. This is a moderate traffic volume for a 3-lane roadway but would seem excessive to residents currently accustomed to very light traffic. A continuous left-turn lane would improve access to homes fronting the road and signals at the cross streets and bike lanes would improve access to adjacent homes and improve pedestrian/bicycle safety.

The majority of the traffic crossing the river would be directed to Chinden near Maple Grove. It is estimated that traffic on Maple Grove from Chinden to Goddard would increase to 23,500 for Version B compared to 16,300 for Version A. To accommodate this traffic, Maple Grove would need 5 lanes for Version B as compared to 3 lanes for Version A. There is opportunity to mitigate the effects of the increased traffic on Maple Grove north of McMillan as the property there is currently undeveloped.

What is Proposed for the Neighborhoods?

Many ideas were suggested by the public to minimize the impact on neighborhoods. Although mitigation is likely to change based on specific input from the neighborhood during the design process, the study team recommends that the following neighborhood improvements be a part of the project:

Short-term improvements (3-lane Five Mile Road - McMillan to Chinden).

Landscaping – Provide a landscaped median for the new roadway section to make an esthetic gateway to the area.

Neighborhood Circulation and Pedestrian Safety – Provide traffic signals on Five Mile and McMillan, Edna, Hickory Drive, and the pathway behind Hewlett-Packard (pedestrian signal). The signal will provide safe places for pedestrians to cross the street and provide gaps in traffic

for motorists to enter the street from cul-de-sacs. The 2015 Version B volume of 13,000 vehicles per day is a moderate volume for a 2-lane arterial street.

Bike Lanes – Stripe bike lanes on the street from Ustick to Chinden.

Safety – A continuous turning lane would be striped in the existing roadway section and along with gaps from traffic signals would make entry and exit from the street safe and easy.

Long-Term Improvements - Version A.

Landscaping – Provide landscaped berms on both sides of Five Mile, north of McMillan, where residential properties are adjacent to the roadway.

Fronting Homes – Buy out and remove fronting homes to provide buffer for the neighborhood and compensate and relocate those affected most.

Neighborhood Circulation and Pedestrian Safety – Install additional traffic signals at new location south of Chinden, at Golden Rod and Country Squire, on Goddard at Chrisway and on Maple Grove at Goddard, McMillan, and at Mountain View Drive when warranted in the 20-year period.

Bikeways – Include bike lanes in 5-lane widening (Ustick to Chinden).

Long-Term Improvements - Version B.

Landscaping – Where feasible, provide attractive berms, fencing, and landscaping to reduce noise and visual impacts due to traffic. The best area for landscaping would be in the median between Chinden and McMillan.

Neighborhood Circulation and Pedestrian Safety – Install additional traffic signals on Five Mile at Golden Rod, Country Squire, and new street south of Chinden; on Goddard at Chrisway, and on Maple Grove at Goddard, McMillan, and at Mountain View when warranted in the 20-year period.

Bikeways – Include bike lanes in 5-lane widening (Ustick to McMillan).

Which Version is Better?

There are pros and cons to both versions. Version A represents the conventional approach of making roadways a near straight line from A to B in this case from I-84 to proposed Highway 55 North. The extension of Five Mile across the river would provide a logical boundary between Garden City on the east and the City of Boise on the west. Garden City's land use plan between the river and Chinden calls for residential development to their area of impact. The land west of the proposed Version A alignment is primarily industrial, so the roadway could provide the break between the two land uses. Some concern has been expressed by Garden City officials that the Version B alignment connecting to Chinden would reduce their future growth area.

Either version of the river crossing will have affects on the future planning of Garden City, City of Eagle as well as the City of Boise. The Comprehensive Plans for all three cities will have to be considered and addressed if a new crossing is ultimately approved to move forward.

Version B serves to impede and discourage the potential for regional traffic that would use this short cut and distribute local traffic over Cloverdale, Five Mile, and Maple Grove. Several Boise City officials expressed concern with the concentration of traffic in a single corridor in the mostly developed west bench area. Version B represents more of a neotraditional approach to routing traffic, making a variety o routes to be available for the same trip.

Version B actually ranks slightly better on reducing vehicle miles traveled, vehicle hours traveled, and carbon monoxide emissions. It costs only slightly more, $35.9 million versus $35.7 million for Version A. The two links north of Chinden for Version B, as compared to one for Version A and the 5-lane Maple Grove (Version B) versus 3-lane (Version A) are offset by the 5-lane requirement on Five Mile between McMillan and Chinden (Version A) versus 3 lanes (Version B).

Version B results in more traffic on the Maple Grove and on Mitchell, which have substantial front-on housing, but results in substantially less traffic than Version A would yield on Five Mile. Although Five Mile Road has fewer single-family residential frontage on the street than Maple Grove, residents who live on the dead-end streets off of Five Mile are concerned about accessing the street (and there are many such streets).

Future Five Mile traffic has been a particular concern to residents between McMillan and Chinden who have minimal traffic currently and believe they would see interstate traffic including trucks use Five Mile Road. The difference in traffic forecasts between the two versions is less significant as the distance south of Chinden increases.

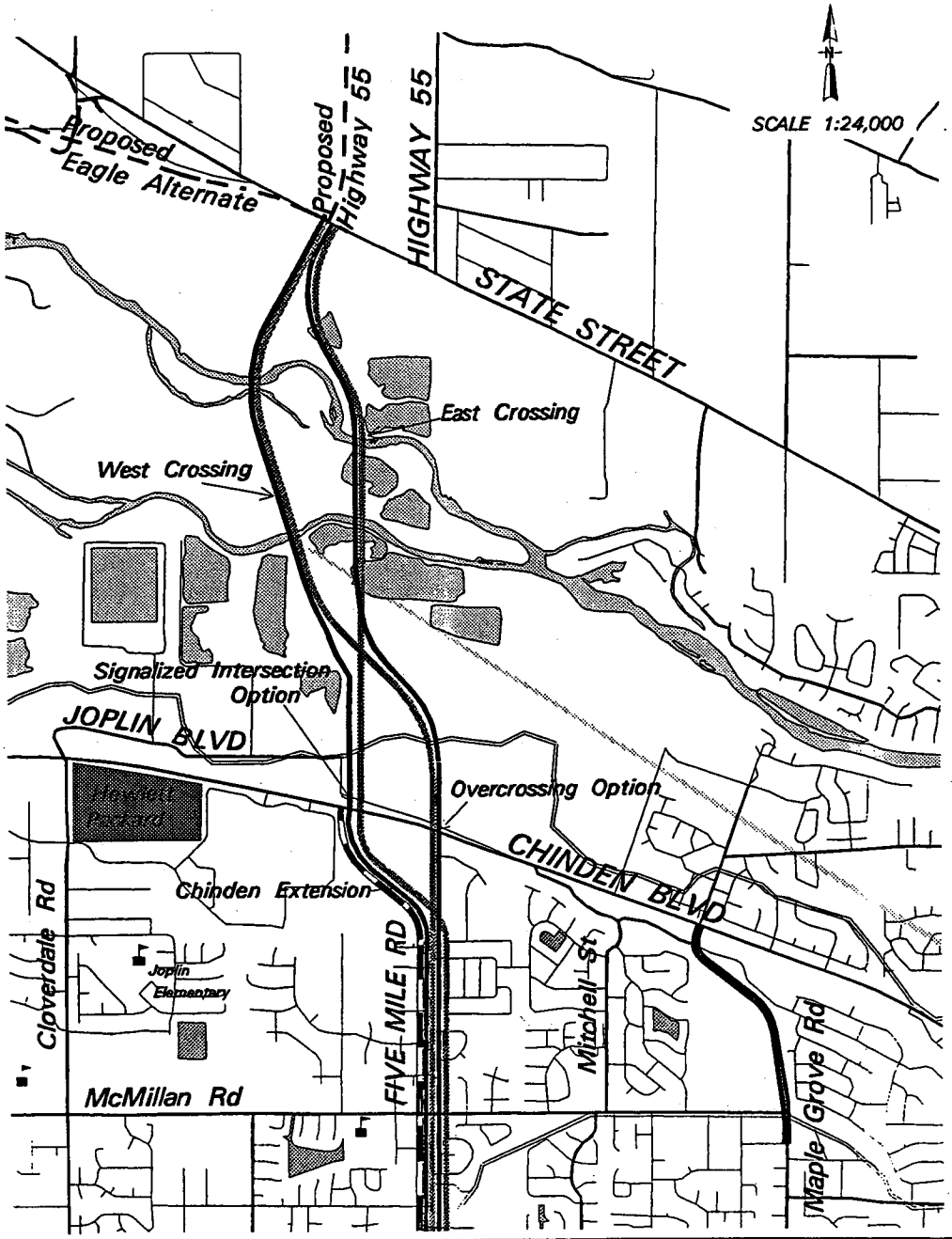
The preferences between the two versions is more philosophical and qualitative than quantifiable. The impacts are substantial with either alternative, as they are in the other corridors, but the cost estimates reflect extensive mitigation, that largely addresses this concern.

The Idaho Transportation Department has committed to and is in the process of completing a major transportation corridor, developing Eagle Road, the Eagle Alternate Route, and the proposed Idaho 55 as a key state highway route, to a high standard from I-84 to north of the City of Eagle. The corridor is being developed to efficiently accommodate intra-state and regional travel well into the future. It will also accommodate much of the local traffic needs, deferring the need for a new river crossing between Glenwood Street and Eagle Road is the near term.

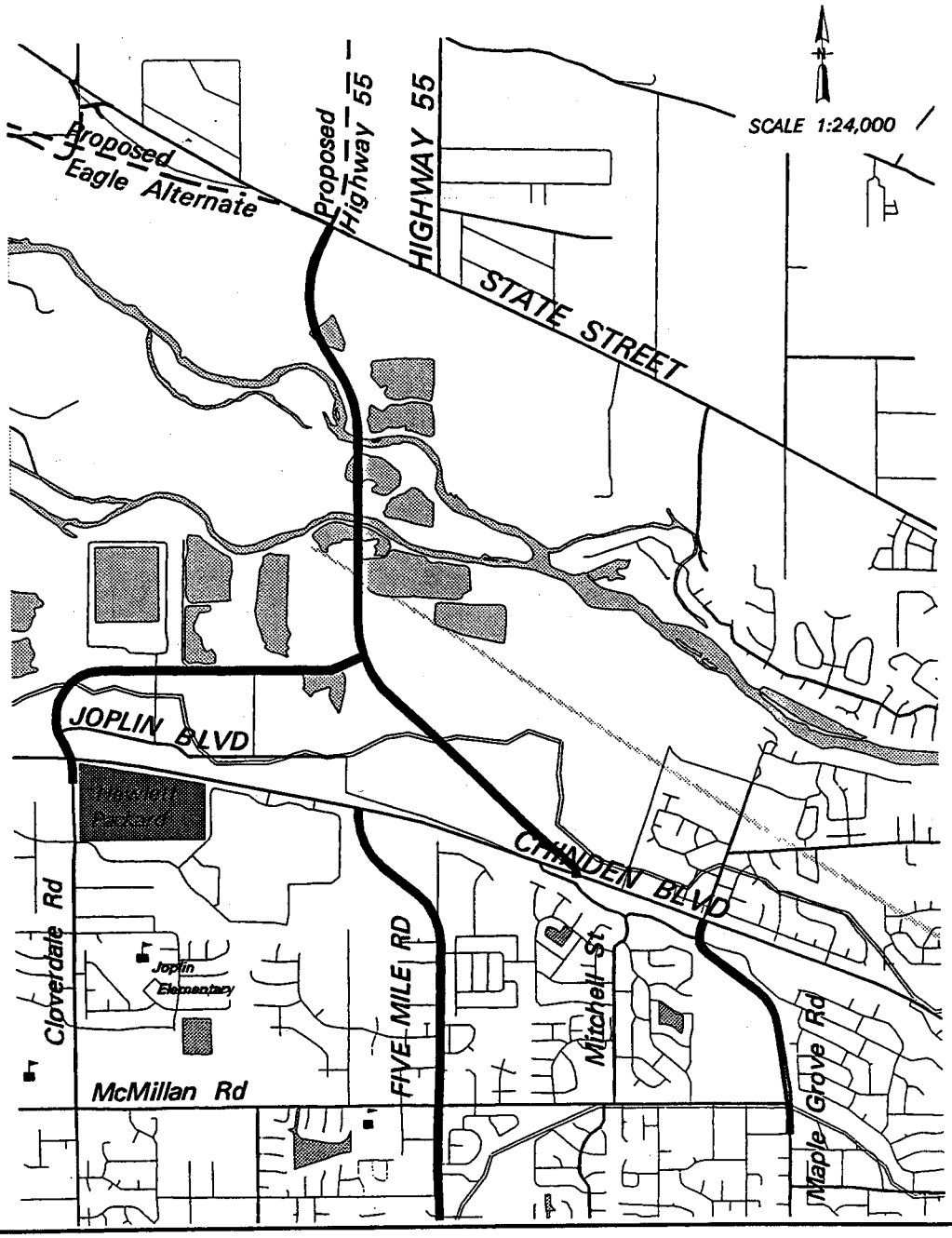
Where do we go from here?

The study team has completed its technical evaluation of Version A and B. Both of these versions will be presented at the public hearing in September, 1995. Based on the public comments and the technical analysis, final recommendations will be prepared in October.

FIVE MILE EXTENSION – VERSION A



FIVE MILE EXTENSION – VERSION B



F.4. FIVE MILE ROAD / I-84 INTERCHANGE

What are the Five Mile Interchange Options?

Over a year ago, the public expressed a desire for an interchange at Five Mile Road and Interstate 84.

What type and how much?

Possible interchange options include a tight diamond, a partial cloverleaf, and a single-point urban interchange. An example of a diamond interchange is at Curtis Road and the Connector (I-184). A partial cloverleaf is similar to a diamond in that it has on and off ramps for each direction of the interstate, but it also incorporates loop ramps for the heavier traffic movements. An example of a partial cloverleaf interchange is at Eagle Road and Interstate 84. A single-point interchange is similar to a diamond interchange except that the left-turn paths for each ramp are combined at one highly efficient intersection on the cross street. The total cost of an interchange is primarily dependent on construction costs (especially structures) and right-of-way costs. The table below shows the relative costs of construction and right-of-way for each type of interchange. A rough estimate of the cost of an interchange at this location is $25 million in 1995 dollars.

RELATIVE INTERCHANGE COSTS

Type	Relative Construction Cost	Relative ROW Cost
Tight Diamond	Moderate	Moderate
Partial Cloverleaf	Moderate to High	High
Single-Point Urban	High	Moderate to Low

How does it fit with the "Big Picture"?

To determine how the options would work in conjunction with other corridors, we tested them using the computer traffic model.

- *Will drivers use it?* – The traffic model indicates that approximately 41,000 vehicles/day would use the interchange to get on and off of the interstate by the year 2015. This indicates that users would find the interchange useful compared with the other interchanges in the study area.

- *Is it really needed?* – The interchange at Five Mile Road effectively serves the system-wide needs by reducing the volumes of traffic on interchanges at Eagle Road by 11% and Franklin Road by 10%. Also, the interchange reduces the congestion on east-west arterials because motorists have access to I-84 to travel downtown which increases the volumes on I-84 east of the interchange. Traffic volumes on Franklin Rd. Overland Rd. and Emerald St. decrease by 27%, 21%, and 17% respectively when compared to the No-Build scenario.

- Is the road cost effective? – We determine cost effectiveness by dividing the project cost by the number of miles traveled on the roadway in the design year. The Five Mile Interchange has a cost effectiveness of $1.67 per vehicle mile traveled. Compared to other projects in the study, this is an effective project.

Should the project be built?

Unlike other recommendations, this proposal involves new Interstate access and would require concept analysis evaluating adjacent interchange capacity and safetyand requires Federal Highway Administration approval, Funding would need to be some combination of federal, state, local, and private sources. It is unknown at this time what the economic impact would be on ACHD.

Based on the obvious benefits to the arterial roadway system and the adjacent interchanges, the study team believes that the Five Mile Interchange should be built. Due to the high benefits and great potential usage, we recommend that the project be built within the next 10 years (1995-2005).

What's Proposed for the Neighborhoods?

The degree of impact on the adjacent neighborhoods will depend on the type of interchange selected. This will be worked out in the design process with neighborhood input.

F.5. MAPLE GROVE ROAD

What are the Maple Grove Options?

One area the public focused on was an extension of Maple Grove from McMillan to Chinden Blvd at Garrett St. This option had already been developed prior to the Bench/Valley Transportation Study, therefore the focus of the study was to figure out if this option would help move traffic, to determine impacts, and to identify mitigation. A 3-lane option would cost about $3.5 million and a 5-lane option about $4.4 million in 1995 dollars. (See map.)

How does it fit with the "Big Picture"?

To determine how the options might work in conjunction with other corridors, we tested them using the computer traffic model.

- *Will drivers use it?* – The traffic model indicates approximately 16,300 vehicles/day would use the facility by the year 2015 with a Version A alternative for the Five Mile corridor and 23,500 with a Version B in the Five Mile corridor. A Maple Grove would reduce traffic on Five Mile Road between McMillan and Chinden and on Glenwood between Goddard and Chinden. Extending Maple Grove provides another route down the bench and tends to spread traffic around.

- *Is the road cost effective?* – The study determined cost effectiveness by dividing the project cost by the number of miles traveled on the roadway in the design year. The 3-lane (Version A) option has a cost effectiveness of $1.02 per vehicle mile traveled and the 5-lane (Version B) option is $1.08 per vehicle mile traveled.

Should the project be built?

Based on the above considerations, the study team believes that the Maple Grove extension should be built in the next 20 years. The traffic model indicates that a 3-lane facility would handle the traffic. However, given that the corridor is largely undeveloped it is recommended that sufficient right-of-way be preserved to accommodate a 5-lane facility if more lanes are needed in the future.
If a Version B is constructed for the Five Mile corridor, meaning that a connector would be built for Chinden and Mountain View to a river crossing extending to Highway 55, the 5-lane facility would be expected to be needed in the 20-year period.

What's proposed for the neighborhoods?

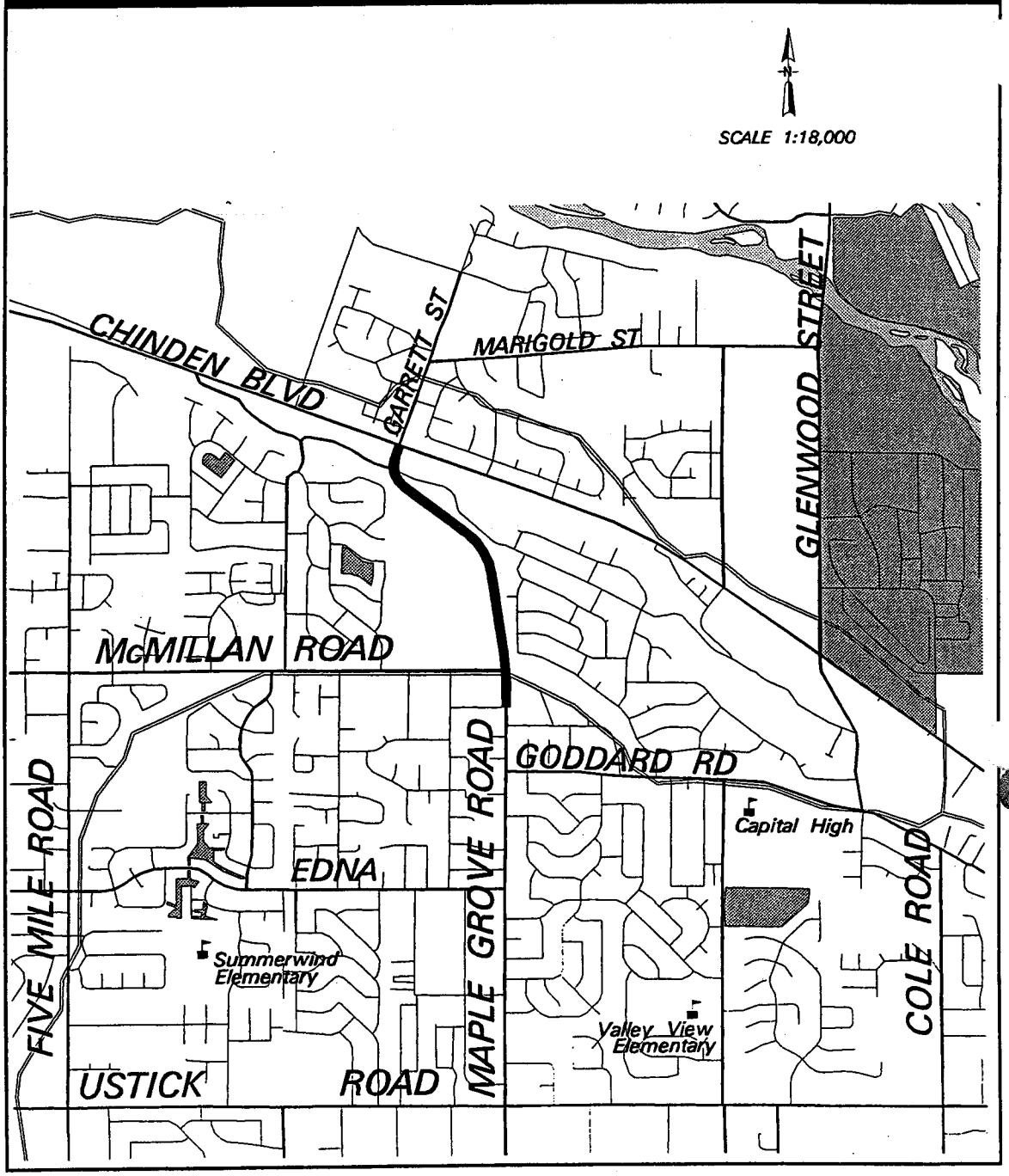
Many ideas were suggested by the public to minimize the traffic impacts on neighborhoods. It is recommended that the following neighborhood improvements be a part of the project:

Landscaping – Where feasible, provide attractive berms, fencing, and landscaping to reduce noise and visual effects due to traffic. The best area for landscaping would be in the median between Chinden and McMillan.

Neighborhood Circulation and Pedestrian Crossings – Install traffic signals at Maple Grove/ Goddard, Maple Grove/McMillan, and at Maple Grove/Mountain View when warranted in the 20-year period.

Bikeways – Provide a bike path along the west side of the new roadway from McMillan to Chinden and bike lanes and sidewalks on McMillan and Maple Grove.

MAPLE GROVE EXTENSION



F.6. COLE ROAD / GLENWOOD STREET

What are the Cole/Glenwood options?

One area the public focused on was Cole Road and Glenwood Street near Mountain View Drive. They identified three potential improvements which underwent extensive evaluation. The west alternative connects Cole Road to Glenwood Street on a new alignment west of the existing corridor. The east alternative widens and straightens the existing roadway along Cole Road and Mountain View Drive (Where we drive now). The third alternative provides a pair of 3-lane, two-way streets that route northbound traffic on the existing road and southbound traffic on a narrower version of the west alignment. Originally, a one-way couplet (two-lane, one-way streets) was proposed and presented at earlier public meetings. This option was later modified to provide a total of four through traffic lanes, but would allow local circulation on each street in the opposite direction of major traffic flow. Each option is about 1 mile long. (See map.)

How many lanes and how much?

The east and west alternative would have five lanes and the two-way couplet would have three lanes on each street. Two of the three lanes would be used by through traffic and a third lane would serve local residential traffic. The estimated cost is $3.7 million for the west alternative, $5.0 million for the east alternative, and $3.1 million for the two-way couplet.

Which one does the study recommend?

The study team recommends that all three alternatives be given additional consideration based on the following factors:

- *How well does it work?* – The west alignment has some operational advantages over the other alignments because it provides standard intersection configurations and leaves fewer driveways connected directly to the street. The east option has intersections on tight curves at Goddard and at Mountain View. Four driveways remain on the west alternative, 15 on the east option, and 35 on the two-way couplet. The east aliignment has some capicity advantage as it reduces the conflicts by making a "T" intersection at the Glenwood/Goddard/ Mountainview intersection.

- *How do the costs and neighborhood impacts compare?* – Table A summarizes the costs and impacts for each alternative.

TABLE A - SUMMARY OF COST AND IMPACTS

Option	Houses Removed	Houses Remaining on Road	Driveways Remaining on Road	# Houses W/Noise Impacts (>67 dBA)	# Houses Impacted - If Berms/Noise Walls Built	Estimated Cost of Alternative
East	**15**	**23**	**15**	**27**	**21**	**$5.0 million**
West	**12**	**9**	**4**	**18**	**11**	**$3.7 million**
Couplet*	**7**	**47**	**35**	**35**	**34**	**$3.1 million**

* Houses along the couplet would have about 16,000 cars/day passing by in 2015. (That's about what is on Cole Road now) Houses on the east and west option would have about 32,000 cars/day passing by. The noise level along the couplet would be less than the east and west option, but still an impact greater than 67 dBA.

The couplet takes the fewest houses, but leaves 47 homes along the roadway. However, each leg of the couplet will only carry half the traffic of the other alternatives. The east option cuts the number of houses remaining to 23, but at a cost of purchasing 8 more houses. The west option has the fewest houses and driveways remaining on the road. The number of houses remaining on the road is importan because they will be most affected by traffic impacts. The table also shows how many houses in each option will be affected by the additional noise. Again, the east option and the couplet don't perform as well as the west option. Because the east option and the couplet leave many driveways connected to the road, it will not be possible to use continuous berms and landscaping, to reduce the noise and visual impacts. These methods could be used in the west option to reduce the number of impacted homes to eleven. The east alternative would require much of the Boise Friends Church traffic (at the southwest corner of Glenwood and Goddard to get access through the Manorwood Subdivision.

Possible impacts to the historic Caron property were also considered. None of the options would remove the buildings on the property. The east option and the couplet would relocate a stone wall at the property line on Cole Road. The west option and the couplet would be closer to the barn and would divide the property. Recently, it was proposed that the entire property be declared a historic preservation district. Such a designation would effect the feasibility and/or cost of all three options. For instance, the west option and the couplet could be eliminated because they divide the property and the east option would emerge as the only viable option. However, it would need to be shifted to avoid the taking of the stone wall thereby increasing the number of homes taken and adding substantial cost to the project.

How does it fit with the "Big Picture"?

To determine how the options might work in conjunction with other corridors we tested them using the computer traffic model.

- *Will drivers use it?* – Traffic counts taken in 1993 indicate that 17,600 vehicles/day currently use Cole Road at this location. The design capacity of the existing road is regularly exceeded during peak periods. The traffic model indicates that the future 2015 traffic demand will be 31,800 vehicles/day. The road is congested today and that it will increase to unacceptable levels and may encourage diversion of traffic to local streets.

- *Is it really needed?* – The Cole/Glenwood corridor will soon be widened on both ends of the study segment to relieve existing and future traffic congestion. The Glenwood bridge is currently being widened, the intersections at Chinden/Glenwood and Ustick/Cole are scheduled for improvement in the next three years. The Cole/Glenwood corridor is more than six miles long and fixing the study segment will remove one of the last bottle necks.

- *Is the road cost effective?* – We determine cost effectiveness by dividing the project cost by the number of miles traveled on the roadway in the design year. The Cole/Glenwood options have a cost effectiveness of between $0.28 and $0.91 per vehicle mile traveled. Any of the Cole/Glenwood options would be one of the most cost effective projects considered in the study.

Should the project be built?

Based on the above considerations, the study team believes that one of the Cole/Glenwood options should be built. Because of frequent congestion on the road today, we recommend that the Cole/ Glenwood project be built within the next ten years (1995-2005).

What's proposed for the neighborhoods?

Many ideas were suggested by the public to minimize the impact on neighborhoods. Although specific mitigation is likely to change based on neighborhood input, the study team recommends that the following neighborhood improvements be a part of the project:

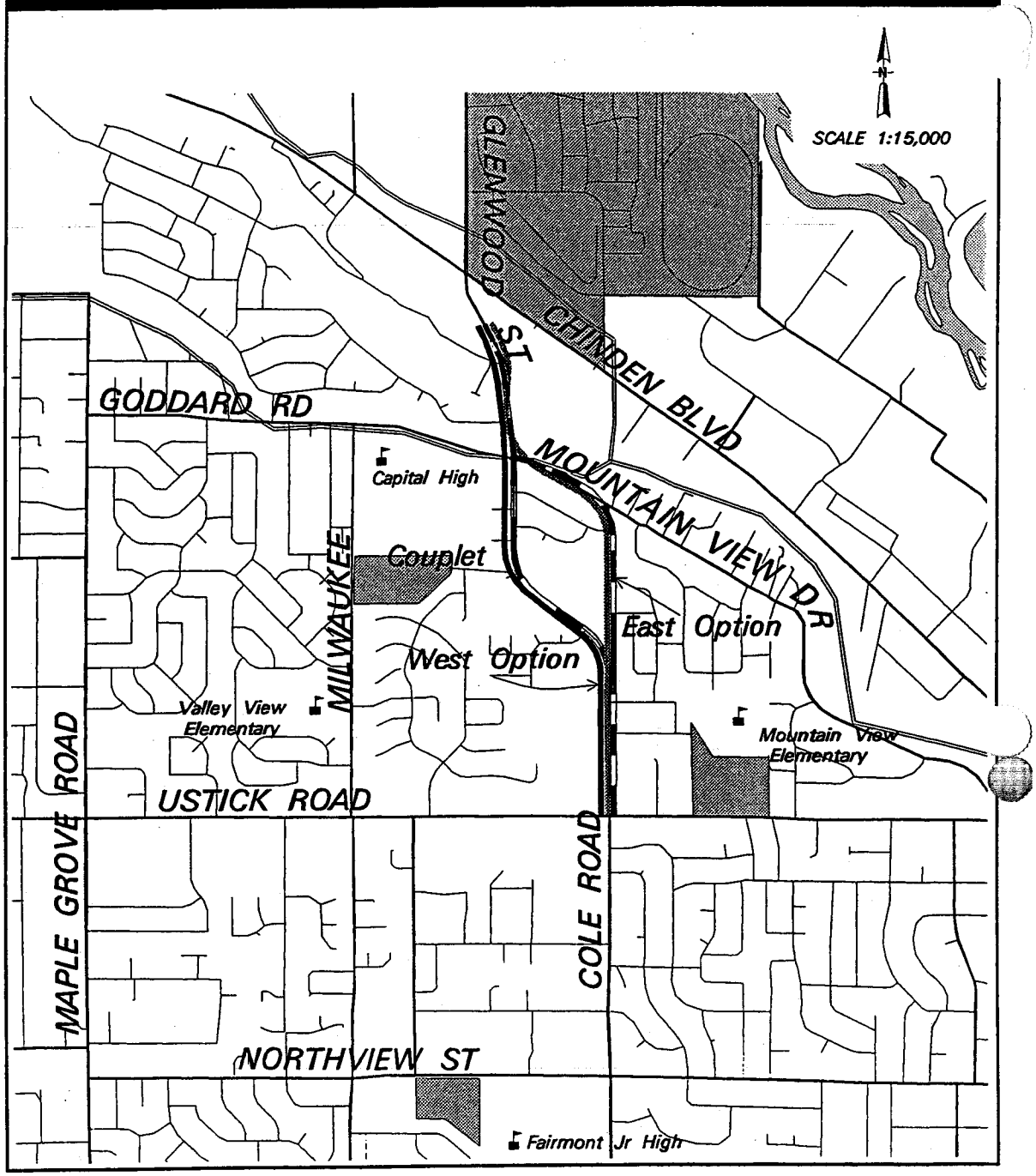
Frontage Road – Construct a frontage road on the west side of the west alternative between Bridlewood Circle and Pinewood Circle or along the north side of Mountain View between Cole Road and Goddard if the east alternative is selected. This would give residents a safe and hassle free way to get in and out of their driveway. It would also provide an 80' buffer area between these homes and the proposed arterial.

Cul-de-Sacs – Construct cul-de-sacs at the west end of Cherrywood and Manorwood Drive if the west alternative is selected. These will prevent cut-through traffic in the Manorwood Subdivision.

Landscaping – Where feasible, provide attractive berms, fencing, and landscaping to reduce noise and visual affects due to traffic. The best areas for this include both sides of the extension between Bridlewood Circle and Mountain View Drive and near the intersection with Long Drive.

Bike Lanes – Mountain View Drive from Glenwood to Ustick already serves as one of the best ways for bicyclists to move east-west on the bench. This needs to be enhanced by adding bike lane striping. Combine this segment with the McMillan/Goddard segment and we have a good start at a continuous east-west bike route.

COLE/GLENWOOD EXTENSION



F.7. CURTIS ROAD / USTICK ROAD

What are the Curtis/Ustick Options?

Working with the public the study team has developed three potential solutions. The Curtis Road alternative would widen the roadway from Fairview Ave to Mountain View and extend it down the bench to Chinden Blvd at Veteran's Parkway. The Ustick Road alternative would extend Ustick Rd. down the bench to Chinden Blvd at Veteran's Parkway. The third alternative would provide both the Curtis Road and Ustick Road extensions intersecting just south of Chinden Blvd. The approximate length is 1 mile for the Curtis Road segment and 0.7 miles for the Ustick Road segment. (See map.)

How many lanes and how much?

The Curtis and Ustick Road extensions would need five lanes by 2015 to meet the needs of projected growth. Two interim 3-lane options have been developed for Curtis Road, both of which are compatible with the ultimate 5-lane facility. The interim option would be used as the first phase of the ultimate 5-lane extension. The estimated project cost is $6.9 million for the ultimate Curtis Road extension, $3.9 million for the Ustick Road extension, or $10.8 million for the third alternative.

Which one does the study recommend?

To determine the best option for Curtis Road, the study team evaluated several ways to widen the road between Fairview and Mountain View. Widening to the west would take out a large number of mature trees and adversely impact circulation and parking at Koelsch School. Widening down both sides of the road would reduce the number of houses removed. However, it would remove all of the trees and leave most residents with very little set-back distance to the busy road. Widening to the east is the best option because it avoids the mature trees, preserves the yards on the west side, and purchases the homes on the east side, thereby relocating these residents off the busy street. The additional space would then be used to build attractive berms and landscaping to reduce impacts to residents near the roadway.

Based on the following factors, the study team recommends that the Curtis and Ustick extensions be constructed in the next 10 years:

- *How well does it work?* – The third alternative is superior because it addresses the existing and future needs for east-west traffic on Ustick Road and north-south traffic on Curtis Road.

The Ustick extension by itself does nothing to improve traffic congestion on Curtis Road and ignores the future travel demand for the Curtis Road extension. It also prevents traffic from using Mountain View Drive to get to Curtis Road. This would increase the potential for cut-through traffic on Esquire and Northview between Ustick and Curtis.

The Curtis extension by itself fails to provide relief for east-west traffic on Ustick Road. Options that would help this situation by widening Mountain View between Ustick and Curtis were investigated. However, it was quickly determined that widening Mountain View is too expensive because the road would either displace expensive property on the bench or require expensive structures along the base of the bench to hold the road up.

In summary, the third alternative will address both the east-west and north-south traffic problem. The Curtis extension alleviates existing congestion and provides for the future north-south travel demand. The extension of Ustick diverts through traffic out of the Mountain View neighborhood, replaces the inadequate 44th St connection (the "Goat Trail"), and eliminates the need for traffic to jog over to Veteran's Pkwy on Chinden. This results in improved safety and more efficient travel onto and off of the bench.

How does it fit with the "Big Picture".

To determine how the option would work in conjunction with other corridors in the study area, we tested it using the computer traffic model.

- *Will drivers use it?* – Traffic counts taken in 1994 indicate that 11,000 vehicles/day currently use Curtis Road. Traffic here and on Mountain View have serious congestion during the peak period. The model indicates that the traffic demand for Curtis in year 2015 is 28,300 vehicles/day. Volumes this high need five lanes.

- *Is the road cost effective?* – We determine cost effectiveness by dividing the project cost by the number of miles traveled on the roadway in the design year. The Curtis extension has a cost effectiveness of $0.71 per vehicle mile traveled and Ustick is $0.55/vehicle miles traveled. This is good when compared to other options evaluated. (Cloverdale is $2.18/vmt) Curtis and Ustick are two of the most cost effective options in the study.

When should the project be built?

Based on these considerations and frequent congestion on the road today, the study team believes that the Curtis/Ustick extensions should be built. However,the study team proposes that the Curtis extension be built at an interim 3-lanes as a first phase towards developing the ultimate 5-lane road.

What are the interim 3-lane options?

- One option would be identical to the ultimate 5-lane road except that the two inside through lanes between Mountainview and Fairview would not be constructed. Instead, this area would have inside shoulder and landscaping. This option purchases the same number of homes as the 5-lane alternative. The estimated cost for this interim option is $6.9 million and would require an additional $500,000 to upgrade to 5 lanes in the future.

- The second option would have the ultimate 5-lane section from Chinden to Mountainview and a 3-lane section between Mountainview and Fairview. It would require the purchase of fewer homes and therefore, have more homes left fronting the road. The estimated cost for this option is $5.1 million and would require an additional $3 million to upgrade to 5 lanes in the future.

What's proposed for the neighborhoods?

Many ideas were suggested by the public to minimize the traffic impacts on neighborhoods. As discussed above, the study team recommends that the homes along the east side of the street be purchased and the following neighborhood improvements be a part of the project:

Frontage Road – Construct a frontage road on the west side of the Curtis Road extension. The road would give residents a safe and convenient way to get in and out of their driveways. It would also provide an 85' buffer area between these homes and the emproved Curtis Road.

Landscaping – Where feasible, provide attractive berms, fencing, and landscaping to reduce noise and visual affects due to traffic. The noise barrier would have the greatest chance of being effective along the east side of Curtis Road at the property line. The best areas for berms and landscaping include both sides of Curtis Road and within the median area.

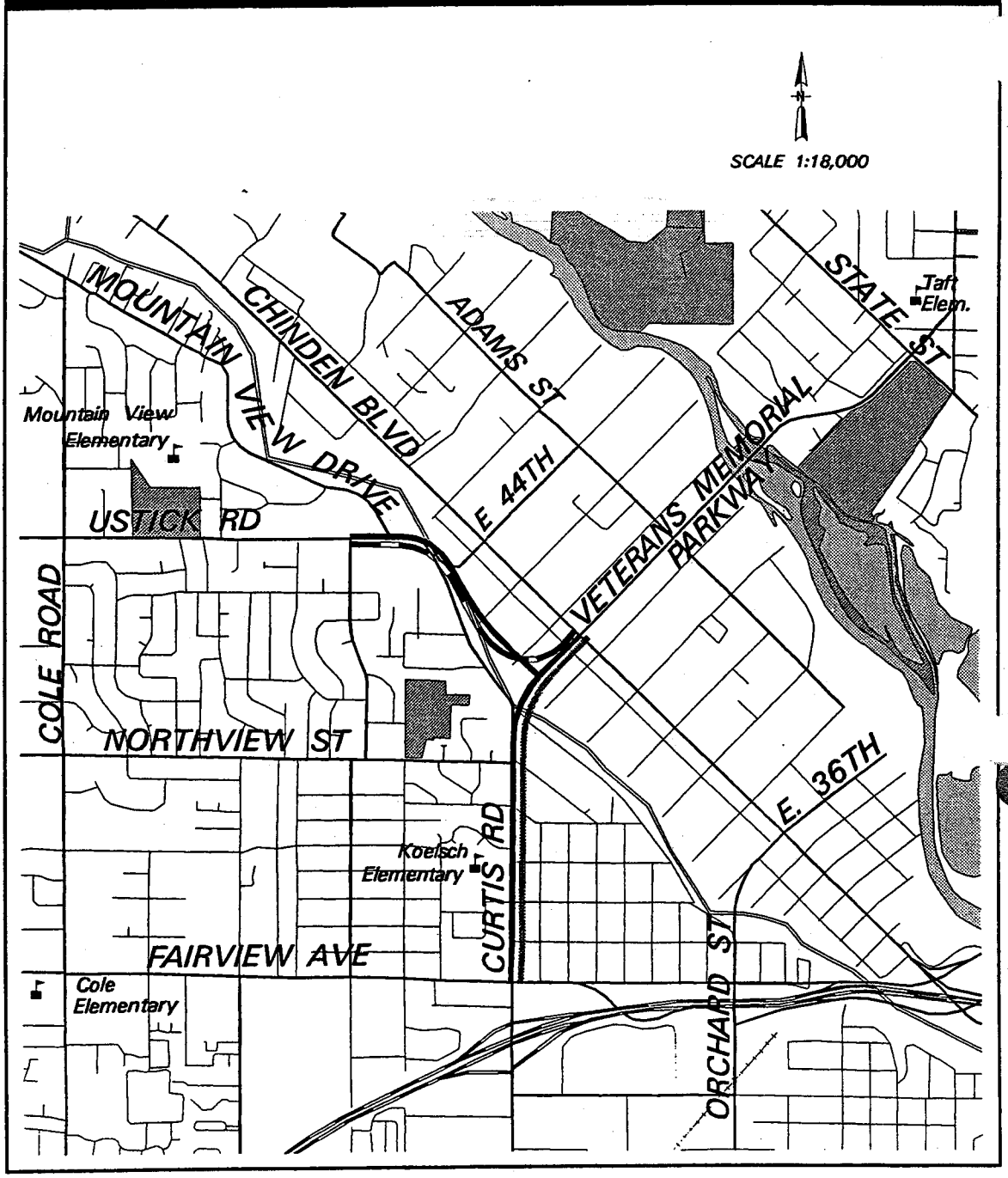
Pedestrian Crossing – Improve the signal controlled pedestrian crossing on Curtis Road at Koelsch Elementary School and add advance school flashing beacons. One possible solution would be a pedestrian bridge over Curtis at Plymouth Street when the 5-lane project is constructed.

Bikeways – Provide bike lanes on both Curtis Road and Ustick Road. Provide a separate bike path from Ustick at Mountain View down the bench to the signalized intersection on Chinden at 44th Street. This will provide an alternate way for pedestrians and bicyclists to get to the Greenbelt via 44th St to Adams St. to Veteran's Parkway.

Where do we go from here?

The study team has completed its technical evaluation of the Curtis and Ustick Road extensions. Information will be presented at the public hearing in September, 1995. Based on the public comments and the technical analysis, final recommendations will be prepared in October.

USTICK ROAD/CURTIS ROAD EXTENSION(S)



F.8. ORCHARD STREET / 30TH STREET / ADAMS STREET

What are the Orchard Street options?

One area the public focused on was a new river crossing at E. 36th Street. The study team put together three options. Option 1 would extend Orchard St. along E. 36th Street, cross the river, and connect to State Street at Rose Street. Option 2 would combine the first option with an extension of 30th Street from Fairview Avenue to the 36th Street extension. Option 3 was similar to the second option except the intersection at 30th/36th was reconfigured. All three of these options include an extension of Adams Street from 37th to 36th Street. (See map.)

How many lanes and how much?

Each river crossing alternative was originally assumed to have four lanes and cost about $14-$18 million in 1995 dollars.

Property Acquisition– Where the traffic volume is dramaticaly increased and a home is left fronting on the roadway, consideration should be given to purchasing the home at the owner's option and reselling it to a knowing buyer.

How does it fit with the "Big Picture"?

To determine how the options might fit in conjunction with other corridors, we tested the options with the computer traffic model.

- *Will drivers use it?* – The computer traffic model indicates that less than 4,500 vehicles/day would use the facility by the year 2015. This is an extremely low traffic volume relative to other river crossings indicating that users would not find the route particularly useful. The extension of Adams Street looks very popular in the model with 18,000 vehicles/day.

- *Is the road cost effective?* – We determine cost effectiveness by dividing the project cost by the number of miles traveled on the roadway in the design year. The daily volume would warrant only a 2-lane roadway at an estimated cost of $10 million. Therefore, the Orchard St extension has a cost effectiveness of $8.45 per vehicle mile traveled. Compared to an extension of Curtis Road at $0.71/vmt, it is clearly not cost effective. In fact, the Orchard St. extension is the least cost effective of the projects considered in the study. At an estimated cost of $500,000 the Adams Street extension by itself has a cost effectiveness of $0.54/vmt, one of the most cost effective of those projects considered in this study.

- *What are the environmental effects?* – Field studies indicate that the project would have potentially significant impacts on an eagle perch site on the south side of the river and on wetlands on the north side of the river.

Should the project be built?

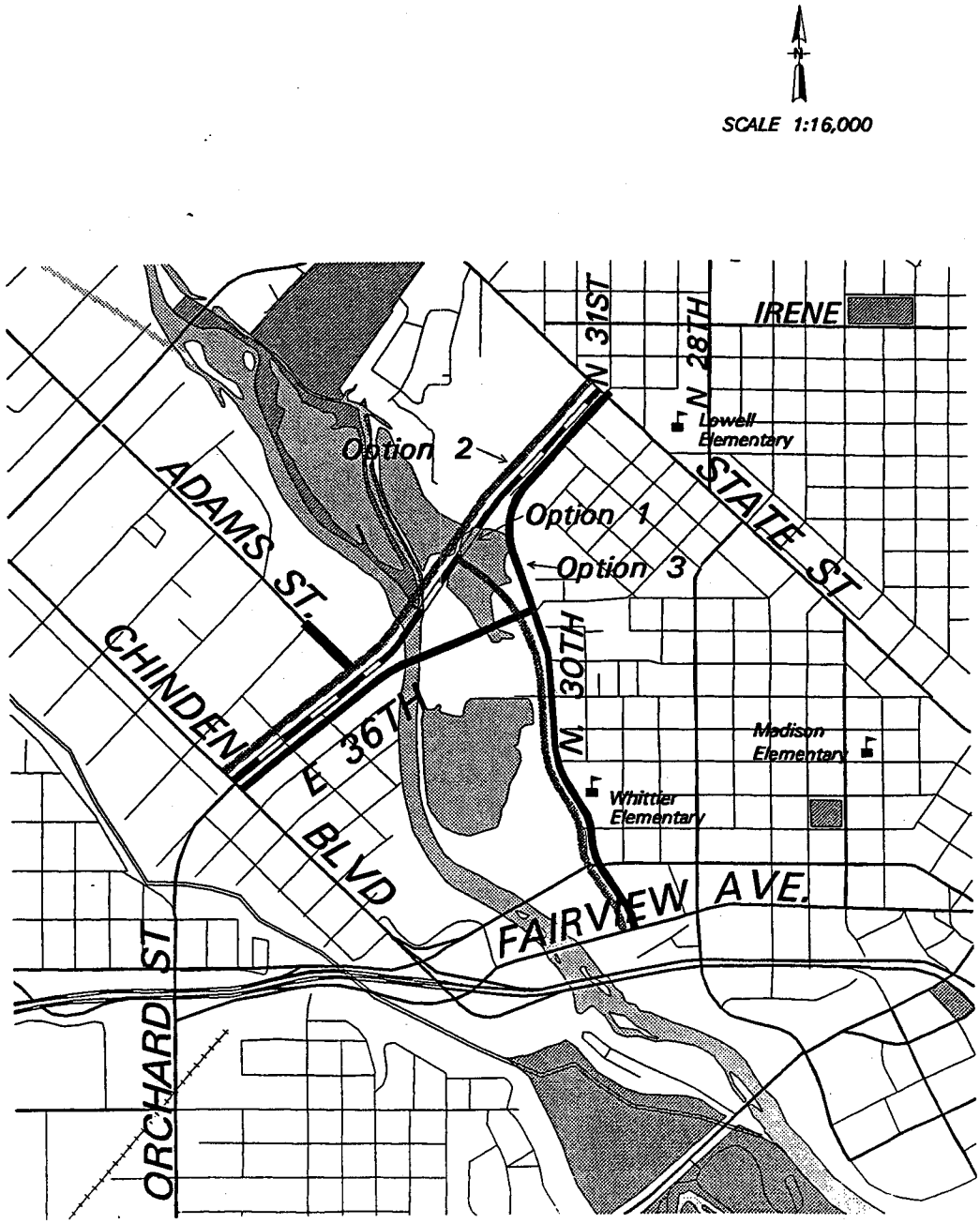
Based on the above considerations, the study team believes that the Orchard/E. 36th Street river crossing should not be built within the next 20 years. As far as both an extension of Adams Street and 30th Street are concerned, the study team recommends that these projects be built as development or

redevelopment occurs in those areas. Neither of these facilities directly address the county-wide traffic issues involved in this study, but both would be effective in relieving congestion and enhancing circulation in their surrounding area.

What's proposed for the neighborhood?

Since the project would be constructed with development, the type of new and remaining land use will affect mitigation considerations. Specific mitigation should be developed at that time with the effected neighborhood.

ORCHARD ST/N.30TH/ADAMS ST EXTENSIONS



F.9. OTHER SYSTEM IMPROVEMENTS

In addition to the corridor improvements specifically addressed above, there are additional existing roadway improvements necessary (roadway widenings) needed to handle the travel demands projected for 2015 in the Bench/Valley Study area. The table below summarizes the other system improvements anticipated within the next 20 years. The list of these other system improvements was developed from a combination of the current Long Range Transportation Plan, a review of the early traffic forecast model runs, and in consultation with ACHD, APA and the TAC.

OTHER SYSTEM IMPROVEMENTS
Bench/Valley Transportation Study

Roadway	No. of Lanes	Cost
Cloverdale Road		
Overland Rd. to I-84	3	$700,000
Fairview Ave. to Edna St.	3	$2,100,000
McMillan Rd. to Chinden Blvd.	3	$1,000,000
Cole Road		
Emerald St. to Court Ave	5	$2.800,000
Glenwood Street		
Chinden Blvd. to State St.	7	$3,500,000
Orchard Street		
Overland Rd. to Franklin Rd.	5	$2,300,000
E. 36th Steet		
Chinden Blvd. to Adams St.	3	$500.000
N. 36th Stree		
State St. to Hill Rd.	5	$2,200,000
State Street		
Collister Dr. to N. 27th	7	$3,400,000
Adams Street		
Veterans Pkwy. to 37th St.	3	$800,000
Chinden Blvd.		
Glenwood St. to Orchard St.	7	$4,600,000
McMillian Road		
Five Mile Rd. to Maple Grove Rd.	3	$1,000,000
Goddard Road		
Maple Grove Rd. to Milwaukee St.	4	$600,000
Milwaukee St. to Glenwoold St.	5	$400,000
Ustick Road		
Maple Grove Rd. to Mountain View Dr.	5	$2,500,000
Franklin Road		
Cole Rd. to Orchard St.	5	$2,500,000
Curtis Road / I-184 Interchange		$20,000,000
	Total System Improvement Cost	**$53,300,000**

BENCH/VALLEY
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G. TRANSPORTATION FUNDING OPTIONS

G. TRANSPORTATION FUNDING OPTIONS

Is there a funding problem?

Transportation funding has become increasingly complex in the last twenty years. Public expectations of what roadways will deliver and the pressure on traditional funding sources is unprecedented. In Ada County, the problem is exacerbated by dramatic economic and population growth in the last five years.

The Local Highway Needs Assessment Council (LHNAC) has undertaken two comprehensive needs assessment studies. The first study, done in 1990, concluded that revenue requirements for the Idaho Transportation Department (ITD) and the highway districts including ACHD were increasing rapidly due to the backlog needs which have developed because of past neglect. Simply put, we have not been investing enough in our system of roads and bridges.

Since the initial study, the state has increased the fuel tax by 3 cents per gallon to address the revenue shortfall. In addition, ACHD has increased registration fees and implemented impact fees to partially offset their funding requirements.

The LHNAC completed an Update Study in 1995 which clearly illustrates that these measures have done relatively little to reduce the large backlog of existing highway needs we face today. For instance, the update indicates that Idaho's total highway needs for the period 1994-2000 including construction, maintenance, and administration amounts to $8.65 billion. In this same period the estimated revenue will only amount to $2.72 billion resulting in a shortfall of $5.93 billion.

ACHD recently completed an analysis that estimated their own 6-year (1995-2001) shortfall at $210 million. In both cases the numbers can be argued, but only to a point. It is clear that a large funding shortfall exists and it is getting worse each year we fail to increase our investment in our transportation system.

How does the Bench/Valley Study fit in?

The study team investigated existing and potential funding mechanisms that could be used to fund the near and long-term recommendations of the study. A portion of the $210 million shortfall estimated by ACHD is attributable to the Bench/Valley Study.

What are the funding recommendations of the study?

Near-Term Plan – Implement an increase in the ACHD vehicle registration fee within the next two years. This increase has the best chance of public acceptance because those who pay receive the benefits and many people realize the current fee is low compared to other areas.

Central to the implementation of the fee increase is public support. Support for improvements in the corridors was assessed at a community meeting and was found to be substantial. This is very important when it comes to asking the public to pay for improvements. A proposal to the voters should provide very specific information regarding the need for such a fee increase and how it would be collected and spent. Ideally, it should describe the projects that will be built, how much they will cost, and when they will be built. It might also be more acceptable to the public if the fee expired after five years unless additional projects are proposed and an extension is approved by the voters.

Long-Term Plan – It is clear that a large backlog of roadway improvements currently exists in Ada county. It is also clear that unless additional revenue is generated, the long-term improvements recommended by the study will not get built. The cost of these improvements is between $65 million and $100 million.

For the long-term plan it is recommended that ACHD diversify their revenue base by pursuing the authority to collect a local option sales tax. Based on an increase of 0.25%, applied to the 1994 estimated sales in Ada County, the additional revenue would be as much as $8.8 million annually. The primary advantages of the tax include:

- Low Visibility – Because the tax is collected in small increments, compared to property tax for example, it is more acceptable to taxpayers.

- Broader Base – The tax is paid by residents as well as many non-residents using county roadways. The county is home to 25% of the state's population yet, taxable sales represent a third of state sales. Out of county drivers use many miles of ACHD roads but contribute nothing to the road system.

- The tax could also fund a broader range of transportation improvements. The Idaho constitution restricts the use of the gasoline tax and registration fees to roadways only. A sales tax increase could combine roadway funding with transit, bicycle pathways, sidewalks, rideshare incentives etc. to provide a wider range of benefits and a broader support base..

A potentially negative aspect of the sales tax is the border city effect. Various studies have estimated that for each 1% increase in the tax, taxable sales decreased by 3-6%. While some loss in sales can be expected, it will probably be insignificant if the tax increase is kept below 0.5%.

The table below summarizes the various tax options evaluated in the study and their effect on the average household. Each tax increase is calculated based on a theoretical annual revenue of $10 million. The impact fee, gas tax, and registration fee are paid almost entirely by residents and therefore have the largest impact on county households. The sales tax is collected from a large number of non-residents and therefore has the least impact.

TABLE A - SUMMARY OF COST AND IMPACTS

Tax/Fee	Current Tax/Fee	Tax/Fee Increase	Assumed Tax/Fee	Typical Increase to Ada County Taxpayer
Property Tax	**0.12%**	**0.12%**	**0.24%**	**$72/household/year[1]**
Impact Fee	**$837**	**$1603**	**$2440**	**$1603/new residence[2]**
Gasoline Tax	**$0.39/gal**	**$0.09/gal**	**$0.48/gal**	**$90/household/year[3]**
Vehilcle Reg. Fee	**$32/yr (avg)**	**$46/yr**	**$78/year**	**$92/household/year[4]**
Sales Tax	**5%**	**0.3%**	**5.3%**	**$24-$48/household/year[5]**

[1] Based on residential property with market value of $100,000 and assessed value of $60,000. (During the course of this study the ability of local governments and special districts to increase this significantly, has been greatly curtailed.)
[2] For single-family dwelling greater than 1,500 sf. This is a typical example. Increase would apply to all development categories. See text for discussion of Fee Justification.
[3] Assumes 1,000 gallons of fuel consumed per household per year.
[4] Assumes two vehicles per household.
[5] Based on taxable purchases of between $8,000 and $16,000/year/household

The full text of the Technical Memorandum on "Transportation Funding Options" can be found in Appendix L.

BENCH/VALLEY
TRANSPORTATION
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H. POLICY RECOMMENDATIONS

H. POLICY RECOMMENDATIONS

These policy recommendations come from the same public participation process which was used to develop the alternative transportation and roadway recommendations. The Citizen's Advisory Committee and the Technical Advisory Committee also contributed substantially to policies which have given birth to the recommended improvements, implementation strategies and mitigation concepts.

H.1. NEIGHBORHOOD PRESERVATION

Neighborhood preservation has been at the forefront of the study. Neighborhood representatives have actively participated on the Citizen's Advisory Committee, attending many meetings and listening to concerns from the general public as well as their own neighborhoods. Their participation is reflected in the recommendations in several ways:

1. The screening of alternatives eliminated roadways that would penetrate existing neighborhoods where no roadway existed previously. In the two neighborhoods where roadways currently carry almost all local traffic (Glenwood and Five Mile), the roadways were originally planned and built to the old ACHD 4-lane standard.

2. Spreading the traffic around in order to provide more alternative routes, rather than concentrating it on a few existing routes, was a recurring concern. This keeps any single neighborhood from taking an inordinate amount of traffic and it discourages cut-through traffic from using local streets. This is reflected in the recommendations that provide the existing and proposed river crossings spaced at approximately two miles and the bench crossings spaced at a maximum of one mile. In addition, the Five Mile Road interchange recommendation would improve freeway access by reducing the almost four mile stretch of unbroken I-84 to two miles or less between interchanges.

3. Preference was shown for more smaller roads rather than fewer large ones. The recommendations provide no more than five lanes on any north/south roadways and the implementation strategy calls for a stage construction of three lanes expanded to five lanes at a later time, wherever feasible. The smaller roadways create fewer impediments to pedestrian and bicycle traffic and allow the neighborhood to adjust to increased traffic over time.

4. If roadway improvements will create severe impacts to the front yards of homes, the homes should be acquired, relocation costs paid and the roadway should be located in such a way as to buffer the remaining neighborhood.In both the Curtis and Glenwood Corridors mitigation strategies were developed for 5 lane roadway projects. Where the project brings a dramatic increase in traffic and leaves a home fronting on the new route, the homeowner should be given the option of selling and relocating with fair compensation. The house could be resold to a knowing buyer.

5. Features should be included that will make the use of alternative transportation modes safer, more convenient and more comfortable. For example, bus turnouts and bus shelters can be provided at convenient neighborhood locations, such as the pedestrian crossing on Curtis Road at Plymouth. Bike lanes and pathways can be provided in accordance with the Ridge to Rivers Pathway Plan. Wide sidewalks, with a minimum measurement of seven feet, can be provided. Depending on input from the neighborhood, a new pedestrian signal with advance flashing beacons could be provided with the three lane Curtis Road project. A pedestrian overhead would be considered with the five lane project.

6. Incorporate aesthetic features in projects as a cooperative effort of roadway agencies and respective city or county governments. These could include landscaping, paving treatments, medians, meandering or setback sidewalks etc.

7. Develop truck routes and secure necessary legislation to prohibit all but local deliveries from the principal arterial and State Highway/Freeway system.

8. Projects should provide good, well mitigated neighborhood traffic circulation. Selected streets would be signalized to allow protected arterial access for the adjoining neighborhood and to provide traffic gaps for other, nonsignalized streets. Incorporate traffic calming in local residential streets where modifications in traffic circulation may have created additional traffic. Lead the community to a more balanced travel ethic

H.2. MORE TRAVEL OPTIONS AND BETTER USE OF ALTERNATIVE MODES

A fair proportion of citizens cited the need for transit and other alternative modes to bear a substantial part of the future travel load. The travel forecasts for the Bench/Valley study assume that 10 % of future trips (the number of which is predicted according to projected land use, population growth and the travel network) will be completed by alternative transportation. This can be accomplished by transit trips, ridesharing in carpools and vanpools, bicycle and walking trips, telecommuting, shorter work weeks, etc. The use of these alternative modes of transportation can be encouraged through employer incentives and disincentives, less availability and higher costs for parking, transportation system improvements and other strategies. Transportation system improvements include expanded service of buses, vans and paratransit services, an improved bicycle and pedestrian network and land use policies which provide higher densities and more neighborhood services in appropriate locations. Specific recommendations are as follows:

1. Approve land uses that are conductive to transit use and walking or bicycling to services.

2. Incorporate "park and ride" lots in major projects where land is available and location is appropriate.

3. Plan for long term transportation needs by facilitating land use and preserving right-of-way for a fixed guideway system consistent with the findings of the Treasure Valley Alternative Transportation Analysis (currently underway).

4. Continue to encourage private sector involvement by assisting employers in the development of alternative transportation plans and incentives for employers.

5. Continue to expand the van pool and car pool match programs through ACHD Commuteride.

6. Expand the transit jurisdiction and system to better meet the regional needs with bus service.

7. Improve bicycle corridors to provide continuous routes with appropriate destination signing.

8. Place sidewalks on collector streets and wider or buffer sidewalks on arterial streets to encourage walking as a viable transportation mode.

9. Increase the parking rates and parking fines to better reflect the real cost of driving.

H.3. EXPAND THE ROADWAY SYSTEM CONSISTENT WITH GROWHT AND OVERALL COMMUNITY GOALS

In order to expand the roadway system consistent with growth and overall community goals, the recommendations are as follows:

1. Complete the roadway network (grid system) wherever feasible, mitigating environmental impacts and other effects on adjacent properties.

2. Preserve the arterial street system for the efficient, safe movement of traffic.

3. Develop the system economically, but in scale with adjacent development.

4. Provide a higher level of design standard on streets designated for trucks and signing for preferred routes.

I. SUMMARY OF RECOMMENDATIONS

The draft recommendations are summarized below:

Roadway Improvements

The roadway recommendations include a near-term (10 years) and long-term plan (10-20 years). The tables below summarize these results and costs in 1995 dollars:

NEAR-TERM RECOMMENDATIONS

Corridor	#Lanes	Cost
Five Mile to Chinden	3	$1,300,000
Cole/Glenwood Extension	4/5	$3.5 - $5.1 million
Curtis Road Extension	3	$5.1 - $6.9 million
Ustick Extension	5	$3.900,000
Five Mile/I-84 Interchange	–	$25,000,000
	Total	$33.4 - $42.1 million

LONG-TERM RECOMMENDATIONS - VERSION A

Corridor	#Lanes	Cost
Five Mile Extension	4/5	$35,700,000
Maple Grove Extension	3	$3,800,000
Curtis Road Widening	5	$500,000 or $3.0 million
	Total	$40.0 - $42.5 million

LONG-TERM RECOMMENDATIONS - VERSION B

Corridor	#Lanes	Cost
Cloverdale Connection	2	$1,700,000
Five Mile River Crossing w/ Connection to Maple Grove	4	$33,300,000
Maple Grove Extension	5	$4,700,000
Curtis Road Widening	5	$500,000 or $3.0 million
	Total	40.2 - $42.7 million

BUILD WHEN DEVELOPMENT OCCURS

Corridor	#Lanes	Cost
Adams – 36th to 37th*	3	$500,000
30th St – Fairview to State	3	$3,000,000
	Total	$3,500,000

* Improvements of Adams, 37th – Veterans Memorial Parkway needed prior to completion of Adams extension, not imcluded. They are estimated at $800,000. Improvements of E. 36th, Adams to Chinden also needed prior to completion of Adams extension. They are extimated at an additional $500,000.

Alternative Transportation

The study evaluated several alternative transportation options including fixed rail systems, expansion of the bus system, expansion of the carpool/vanpool program Commuteride, and bicycle/pedestrian facilities. Based on the study's land-use assumptions and the cost of development, it was concluded that rail options are not viable in the Boise area within the planning period. The study recommends that the bus system be expanded into a county-wide system, with a dedicated funding source, identified, approved and implemented. It also recommends that the vanpool program run by ACHD continue to be expanded by increasing the number of routes available and by developing Park and Ride lots at key locations along the major corridors within the Treasure Valley. In addition, it is proposed that improvements be made to bicycle and pedestrian facilities.

Funding Options

The study recommends that within the next two years vehicle registration fees be increased. For the long-term improvements, the study recommends that a 1/4-cent local option sales tax be implemented.

Where do we go from here?

The study team will make their final recommendations to ACHD in October of 1995. Your elected officials will take a hard look at these recommendations and decide if this is what's best for the community. If approved, the recommendations will become part of APA's long-range Regional Transportation Plan. At the same time, the detailed design of some of the projects in the 10-year plan will begin. ACHD will continue to work closely with the public to iron out the design details with respect to neighborhood impacts.

BENCH/VALLEY
TRANSPORTATION
STUDY

I. SUMMARY OF RECOMMENDATIONS

SUMMARY

The results of the analysis are summarized in Table 1. Each roadway segment under consideration is listed with the corresponding service flow rate, peak hour volume, V/SF ratio, existing number of lanes, proposed number of lanes, and total estimated cost of the proposed improvements. Where deviations from the basic V/SF criteria occur, an explanation is provided in the foot notes.

With the exception of the proposed improvements already included in ACHD's Five Year Program, costs were estimated using current unit costs developed by Centennial. Costs for the improvements already in the program were taken from *ACHD Capital Budget and Five Year Work Program - 1995/2000* dated July 14, 1994. Centennial's estimates include engineering, right of way and construction costs. The cost to relocate the major utilities was assumed to be the responsibility of the respective utility companies.

CENTENNIAL

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TEL: 208-386-6036
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Date: October 19, 1994

Prepared For: Ada County Highway District

Prepared By: Centennial Engineering, Inc.

Subject: 1251.00 Bench-Valley Transportation Study
Existing Highway Needs Analysis
Technical Memorandum

INTRODUCTION

The goal of the *Existing Highway Needs Analysis* is to identify the arterial and collector roadway segments in the study area that are currently deficient, recommend improvements, and prepare planning level cost estimates for these improvements. The study area is bounded by Hill Road on the north, Overland Road on the south, Cloverdale Road on the west, and Orchard Road on the east. Each roadway segment listed in the attached table was evaluated to determine the improvements necessary to accommodate the existing traffic demands. The results of this analysis provide the basis from which the final 2010 Transportation Plan will be developed to meet future needs.

METHODOLOGY

The analysis used the calibrated 1994 traffic model developed by the Ada Planning Association and Cambridge Systematics to calculate the volume to service flow ratio (V/SF) for each roadway segment. The ratio was calculated using the highest one way peak hour volume divided by the estimated service flow corresponding to a C/D LOS. Typically, the highest peak hour volume occurred in the P.M. peak period. In general, segments having a V/SF ratio greater than 1.0 were considered deficient and evaluated for possible improvements.

Because the spacing between signalized intersections in the study area is generally a mile or less, overall capacity is limited by the capacity at the intersections. Therefore, the proposed improvements emphasize improving intersection capacity and adding laneage between intersections as a matter of practicality and operational continuity.

In certain cases, improvements were not proposed for segments even though the V/SF ratio is greater than 1.0. In general, these cases require additional study to determine what improvements are necessary to improve capacity.

BENCH/VALLEY
TRANSPORTATION
STUDY

APPENDICES
APPENDIX A:
Existing Highway Needs Analysis

EXISTING HIGHWAY NEEDS ANALYSIS
Bench/Valley Transportation Study
Table 1

Oct. 19, 1994

Roadway Segment	Service Flow Rate,SF LOS C/D	Peak Hour Volume,V 1-Dir.	V/SF	Exist. # of Lanes	Prop. # of Lanes	Total Estimated Project Cost
NORTH - SOUTH Roadways						
Cloverdale Road						
Overland Road to I-84	700	430	0.61	2	N/C	$0
I-84 to Franklin Road	700	460	0.66	3	N/C	$0
Franklin Road to Fairview Avenue	700	800	1.14	2	5	$3,850,365
Fairview Avenue to Ustick Road	700	680	0.97	2	N/C (1)	$0
Ustick Road to Edna Street	700	520	0.74	2	N/C	$0
Edna Street to McMillan Road	700	470	0.67	3	N/C	$0
McMillan Road to Chinden Boulevard	700	590	0.84	2	B/V	$0
Five Mile Road						
Overland Road to Franklin Road	700	520	0.74	2	N/C	$0
Franklin Road to Emerald Street	700	680	0.97	2	5**	$425,000
Emerald Street to Fairview Avenue	700	990	1.41	3	5**	$1,440,000
Fairview Avenue to Ustick Road	700	690	0.99	2	5**	$1,065,000
Ustick Road to Edna Street	700	490	0.70	2	N/C	$0
Edna Street to McMillan Road	750	500	0.67	2	N/C	$0
McMillan to Whispering Cliffs	550		N/A	2	N/C	$0
Mitchell Street						
Emerald Street to 150' S. of Rifleman St.	650	190	0.29	3	N/C	$0
150' S. of Rifleman St. to Fairview Avenue	650	190	0.29	2	3**	$440,000
Fairview Avenue to Cory Lane	650	400	0.62	3	N/C	$0
Cory Lane to Ustick Road	600	250	0.42	2	3	U/C
McMillan Road to Mountain View Drive	600	470	0.78	2	N/C	$0

** ACHD 5-Yr. Plan, N/C=No Change

'U/C=Under Const., B/V=Pending Study

EXISTING HIGHWAY NEEDS ANALYSIS
Bench/Valley Transportation Study
Table 1

Oct. 19, 199

Roadway Segment	Service Flow Rate,SF LOS C/D	Peak Hour Volume,V 1-Dir.	V/SF	Exist. # of Lanes	Prop. # of Lanes	Total Estimated Project Cost
Maple Grove Road						
Overland Road to Franklin Road	1560	970	0.62	4	N/C	$0
Franklin Road to Fairview Avenue	700	940	1.34	2-3	5**	$1,550,000
Fairview Avenue to Edna	700	900	1.29	2-3	5**	$2,260,000
Edna to McMillan Road	700	490	0.70	2	N/C	$0
Milwaukee Street						
Franklin Road to Emerald Street	1560	1160	0.74	5	N/C	$0
Emerald Street to Fairview Avenue	1560	1050	0.67	5	N/C	$0
Fairview Avenue to Northview Street	650	760	1.17	2	N/C (2)	$0
Northview Street to Ustick Road	650	480	0.74	2	N/C (2)	$0
Ustick Road to Goddard	650	680	1.05	2	N/C (3)	$0
Glenwood Street						
Goddard Road to Chinden Boulevard	1664	1650	0.99	4	N/C	$0
Chinden Boulevard to Marigold Street	1664	1170	0.70	5	N/C	$0
Marigold Street to Riverside Drive	900	1440	1.60	2	4	U/C
Riverside Drive to State Street	1664	1340	0.81	5	N/C	$0
Cole Road						
Overland Road to McMullen	800	890	1.11	3	5	U/C
McMullen to Franklin Road	800	890	1.11	3	5	$1,206,475
Franklin Road to Emerald Street	1664	1310	0.79	5	N/C	$0
Emerald Street to Fairview Avenue	1664	1110	0.67	4	N/C	$0
Fairview Avenue to Northview Street	1664	870	0.52	4	N/C (4)	$0
Northview Street to Ustick Road	1664	1090	0.66	4	N/C (4)	$0
Ustick Road to Court Avenue	1664	1140	0.69	4	N/C (4)	$0
Court Avenue to Mountain View Drive	800	740	0.93	3	N/C	$0

** ACHD 5-Yr. Plan, N/C=No Change

U/C=Under Const., B/V=Pending Study

EXISTING HIGHWAY NEEDS ANALYSIS
Bench/Valley Transportation Study
Table 1

Oct. 19, 1994

Roadway Segment	Service Flow Rate,SF LOS C/D	Peak Hour Volume,V 1-Dir.	V/SF	Exist. # of Lanes	Prop. # of Lanes	Total Estimated Project Cost
Curtis Road						
Overland Road to Franklin Road	700	590	0.84	3	N/C	$0
Franklin Road to Emerald Street	1560	1210	0.78	3	N/C	$0
Emerald Street to Fairview Avenue	1560	1590	1.02	5	N/C	$0
Fairview Avenue to Northview Street	700	1150	1.64	2	B/V	$0
Northview Street to Mountain View Drive	700	720	1.03	2	B/V	$0
Veterans Memorial Parkway						
Chinden Boulevard to Adams Street	1560	1240	0.79	4	N/C	$0
Adams Street to State Street	1560	1150	0.74	4	N/C	$0
Orchard Street						
Overland Road to Franklin Road	1664	590	0.35	4	N/C	$0
Franklin Road to Emerald Street	1664	780	0.47	4	5 (5)	$2,950,000
Emerald Street to Fairview Avenue	1664	830	0.50	4	5 (5)	$959,200
Fairview Avenue to Chinden Boulevard	1464	640	0.44	4	N/C	$0
Highway 55						
State Street to Hill Road	1352	740	0.55	2	N/C	$0
Bogart Lane						
State Street to Hill Road	600	60	0.10	2	N/C	$0
Gary Lane						
State Street to Hill Road	750	790	1.05	3	N/C	$0
Collister Drive						
State Street to Hill Road	700	600	0.86	2	N/C	$0
N. 36th Street						
State Street to Hill Road	700	520	0.74	2	N/C	$0

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EXISTING HIGHWAY NEEDS ANALYSIS
Bench/Valley Transportation Study
Table 1

Oct. 19, 199

Roadway Segment	Service Flow Rate,SF LOS C/D	Peak Hour Volume,V 1-Dir.	V/SF	Exist. # of Lanes	Prop. # of Lanes	Total Estimated Project Cost
EAST - WEST Roadways						
Hill Road						
Highway 55 to Bogart Lane	700	600	0.86	2	N/C	$0
Bogart Lane to Gary Lane	700	640	0.91	2	N/C	$0
Gary Lane to Collister Drive	700	610	0.87	2	N/C	$0
Collister Drive to N. 36th Street	700	520	0.74	2	N/C	$0
N. 36th Street to N. 28th Street	600	660	1.10	2	N/C (7)	$0
State Street						
Highway 55 to Bogart Lane	1664	1050	0.63	5	N/C	$0
Bogart Lane to Gary Lane	1664	1530	0.92	5	N/C	
Gary Lane to Collister Drive	1664	1130	0.68	5	N/C	$0
Collister Drive to Veterans Pkwy	2656	2070	0.78	5	N/C	$0
Veterans Pkwy to N. 28th Street	1992	2100	1.05	5	N/C	$0
Adams Street						
50th Street to 44th Street	600	270	0.45	2	N/C	$0
44th Street to Veterans Pkwy	600	330	0.55	2	N/C	$0
Veterans Pkwy to 38th Street	600	500	0.83	2	N/C	$0
Chinden Boulevard						
Cloverdale Road to Mountain View Drive	800	860	1.08	2	4	$2,470,100
Mountain View Drive to Glenwood Street	1664	1510	0.91	4	N/C	$0
Glenwood Street to Veterans Parkway	1864	2090	1.12	5	N/C (7)	$0
Veterans Parkway to Orchard Street	1864	1940	1.04	5	N/C (7)	$0
Orchard Street to I-184	1664	1910	1.15	5	N/C (7)	$0

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EXISTING HIGHWAY NEEDS ANALYSIS
Bench/Valley Transportation Study
Table 1

Oct. 19, 1994

Roadway Segment	Service Flow Rate,SF LOS C/D	Peak Hour Volume,V 1-Dir.	V/SF	Exist. # of Lanes	Prop. # of Lanes	Total Estimated Project Cost
Mountain View Drive						
Glenwood Street to Cole Road	650	850	1.31	3	B/V	$0
Cole Road to Ustick Road	650	40	0.06	2	N/C	$0
Ustick Road to Tonkin Drive	600	780	1.30	2	B/V	$0
Tonkin Drive to Curtis Road	600	720	1.20	2	B/V	$0
McMillan Road						
Cloverdale Road to Five Mile Road	700	360	0.51	3	N/C	$0
Five Mile Road to Maple Grove Road	700	420	0.60	2	N/C	$0
Goddard Road						
Maple Grove Road to Milwaukee Street	650	430	0.66	2	N/C	$0
Milwaukee Street to Glenwood Street	650	640	0.98	3	N/C	$0
Edna Street						
Cloverdale Road to Five Mile Road	650	110	0.17	2	N/C	$0
Five Mile Road to Maple Grove Road	650	300	0.46	2	N/C	$0
Ustick Road						
Cloverdale Road to Five Mile Road	700	590	0.84	2	N/C	$0
Five Mile Road to Mitchell Street	700	500	0.71	3	N/C	$0
Mitchell Street to Maple Grove Road	700	1000	1.43	2	5	$1,437,800
Maple Grove Road to Milwaukee Street	700	810	1.16	3	5	$1,390,500
Milwaukee Street to Cole Road	700	830	1.19	2	5	$1,613,600
Cole Road to Mountain View Drive	750	970	1.29	3	N/C (4)	$0
Mountain View to Chinden Blvd (44th St.)	780	1140	1.46	2	B/V	$0

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EXISTING HIGHWAY NEEDS ANALYSIS
Bench/Valley Transportation Study
Table 1

Oct. 19, 199

Roadway Segment	Service Flow Rate,SF LOS C/D	Peak Hour Volume,V 1-Dir.	V/SF	Exist. # of Lanes	Prop. # of Lanes	Total Estimated Project Cost
Northview Street /Cory Lane						
Mitchell Street to Maple Grove Road	600	670	1.12	2	B/V	$0
Maple Grove Road to Milwaukee Street	600	480	0.80	2	N/C	$0
Milwaukee Street to Cole Road	600	430	0.72	2	N/C	$0
Cole Road to Curtis Road	650	450	0.69	2	N/C	$0
Fairview Avenue						
Cloverdale Road to Five Mile Road	1664	880	0.53	5	N/C	$0
Five Mile Road to Mitchell Street	1664	1250	0.75	5	N/C	$0
Mitchell Street to Maple Grove Road	1664	1230	0.74	5	N/C	$0
Maple Grove Road to Milwaukee Street	1664	1320	0.79	5	N/C	$0
Milwaukee Street to Cole Road	1664	1610	0.97	5	N/C	$0
Cole Road to Curtis Road	1664	1660	1.00	5	N/C	[illegible]
Curtis Road to I-184 Ramp	1664	1520	0.91	5	N/C	$0
I-184 Ramp to Orchard Road	1664	730	0.44	5	N/C	$0
Emerald Street /Executive Drive						
Cloverdale Road to Five Mile Road	650	380	0.58	2	N/C	$0
Five Mile Road to Mitchell Street	650	690	1.06	3	N/C	$0
Mitchell Street to Maple Grove Road	650	580	0.89	3	N/C	$0
Maple Grove Road to Milwaukee Street	750	900	1.20	3	5	$1,235,500
Milwaukee Street to Cole Road	950	1010	1.06	3	5	$1,137,500
Cole Road to Curtis Road	950	740	0.78	3	N/C	$0
Curtis Road to Orchard Street	750	620	0.83	3	N/C	$0

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EXISTING HIGHWAY NEEDS ANALYSIS
Bench/Valley Transportation Study
Table 1

Oct. 19, 1994

Roadway Segment	Service Flow Rate,SF LOS C/D	Peak Hour Volume,V 1-Dir.	V/SF	Exist. # of Lanes	Prop. # of Lanes	Total Estimated Project Cost
Franklin Road						
Cloverdale Road to Five Mile Road	800	810	1.01	2	5	$2,821,000
Five Mile Road to Maple Grove Road	1664	840	0.50	2	5	U/C
Maple Grove Road to Milwaukee Street	1664	1430	0.86	5	N/C (6)	$0
Milwaukee Street to Cole Road	1664	1660	1.00	5	N/C (7)	$0
Cole Road to Curtis Road	1560	1050	0.67	4	N/C	$0
Curtis Road to Orchard Street	1560	1120	0.72	4	N/C	$0
Overland Road						
Cloverdale Road to Five Mile Road	800	900	1.13	2	5	$1,760,000
Five Mile Road to Maple Grove Road	1560	930	0.60	5	N/C	$0
Maple Grove Road to Cole Road	1560	1030	0.66	5	N/C	$0
Cole Road to Curtis Road	1664	1190	0.72	5	N/C	$0
Curtis Road to Orchard Road	1664	1680	1.01	5	N/C (7)	$0
I-84						
Eastbound						
Cloverdale Road to I-184	3000	2910	0.97	2	3	U/C
I-184 to Cole/Overland	3000	2250	0.75	2	3	U/C
Cole/Overland to Orchard Road	3000	2310	0.77	2	3	U/C
Westbound						
Orchard Road to Cole/Overland	3000	2550	0.85	2	3	U/C
Cole/Overland to I-184	3000	3040	1.01	2	3	U/C
I-184 to Cloverdale Road	3000	3690	1.23	2	3	U/C
I-184						
Eastbound						
I-84 to Orchard Road	3000	2330	0.78	2	N/C	$0
Westbound						
Orchard Road to I-84	3000	2340	0.78	2	N/C	$0

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EXISTING HIGHWAY NEEDS ANALYSIS
Bench/Valley Transportation Study
Table 1

Oct. 19, 1994

Roadway Segment	Service Flow Rate,SF LOS C/D	Peak Hour Volume,V 1-Dir.	V/SF	Exist. # of Lanes	Prop. # of Lanes	Total Estimated Project Cost
Summary Total of All Improvements						$30,012,040

(1) Capacity in this segment will be increased by improvements to the intersection of Fairview Ave. in the segment from Franklin Road to Fairview Ave.

(2) Minor widening and improvements in this area are currently under construction.

(3) A new signal at Goddard Road was installed (summer of 1994) to improve capacity in this area.

(4) The ACHD 5 year plan includes major intersection improvements at Cole & Ustick to improve overall capacity in this area.

(5) Model capacities do not reflect high left turn movements and their affect on overall capacity. Improvements proposed include a center left turn lane to reduce left turn conflicts.

(6) Intersection improvements at Franklin & 5 Mile currently under construction will improve capacity in this area.

(7) This area needs additional study beyond the scope of this analysis.

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BENCH/VALLEY
TRANSPORTATION
STUDY

APPENDIX B:
Technical Advisory Committee Members and Recommendations

Technical Advisory Committee Members

Jim Bennett
Ada County Development Services

William Cohen
Eagle, ID

Tim Gordon
Kuna, ID

Jerry Mahoney
Supervisor, Traffic Safety
Boise School District

Terry Little
Traffic Services Manager
Ada County Highway District

Chuck Mickelson
City Engineer
City of Boise

Mark McNeese
Idaho Transportation Department

Erv Olen
Deputy Director
Ada Planning Association

Dave O'Leary
City Clerk, Planning/Zoning
City of Garden City

Debbie Ruggles
General Manager
Boise Urban Stages

Jerry Reiniger
Transportation Administrator
Meridian School District

Lan Smith
Deputy Chief
Boise Fire Department

Dave Szplett
Ada County Highway District

Larry Sale
Development Services
Ada County Highway District

Charles Trainor
Ada Planning Association

Kent Brown
Manager of Engineering Services
Ada County Highway District

Doug Collins
Division of Environmental Quality

Roni Pratt
Project Manager
Ada Planning Association

Dave Georgiades
Grants Officer
Idaho Transportation Department

Hal Simmons
Planner with Boise Planning
and Community Development

Jim McFarlane
Senior Transportation Planner
Idaho Transportation Department

Gary Moles
District Traffic Engineer
Idaho Transportation Department

Dave Butzier
Project Manager
Centennial Engineering

Technical Advisory Committee Recommendations

Corridor	Build	Cost	Number of Lanes
Curtis Road Fairview to Chinden	Yes	$7.4 Million	5
Ustick Road to Curtis	Yes	$3.9 Million	5
Cole Road/Glenwood St. Connection	Yes	$3.7 Million	5
Five Mile Road Extension (To Chinden)	Yes	$7.5 Million	5

Technical Advisory Committee Recommendations

Corridor	Build	Cost	Number of Lanes
Interstate 84 Interchange	Yes	$25 Million	Includes 5 lanes on Five Mile, Franklin to Overland
Five Mile Road Extension (Chinden to State)	Yes	$28.2 Million	5
Adams Street Extension	Yes	$500,000	3
Maple Grove Extension to Chinden	Preserve Right of Way	$1.4 Million	5 Lanes of right of way
Maple Grove, Chinden to Five Mile Extension	Preserve with Develop-ment	$700,000	
Cloverdale Road Extension from Chinden to Five Mile Road Extension	Preserve with Develop-ment	$500,000	
Orchard Street Ext. To State	Reject		
Cloverdale Ext. To State	Reject		

BENCH/VALLEY
TRANSPORTATION
STUDY

APPENDIX C:
Bench/Valley Transportation Study Newsletters

December 1993

UPDATE

A Regular Publication of the
Bench/Valley Transportation Study

Highlights

- Public Involvement– You're the key to success.
- History– Why do we need the Bench/Valley Transportation Study?
- Citizen's Advisory Committee– What are their Goals and Objectives?
- Public Involvement Meeting.

We Want You To Be Involved!

JAMES E. BRUCE, President
GLENN J. RHODES, Vice President
SHERRY R. HUBER, Secretary

December 2, 1993

Welcome to this first Public Involvement Meeting on the Bench/Valley Transportation Study.

Your input at this meeting and throughout the course of the study process is vital. We can't create a future transportation plan that best serves your needs and the needs of the community if we don't hear from you first. I encourage you to make comments and suggestions as well as to share your concerns and ideas about transportation options in the study area.

I hope you will enjoy the open house concept we are using here. It is a key element in the extensive public involvement process for the Bench/Valley Transportation Study.

Thank you for your participation. We look forward to your input.

Very truly yours,

Jerry D. Nyman

Jerry Nyman
Director, Ada County Highway District

ada county highway district
318 East 37th • Boise, Idaho 83714 • Phone (208) 345-7680

ada county highway district

PUBLIC INVOLVEMENT PROCESS

In September, 1993 the Ada County Highway District (ACHD) approved a contract with Centennial Engineering, Inc. to perform the Bench/Valley Transportation Study. The study encompasses a 33 square mile area; bordered on the south by Overland Road, on the north by Hill Road, on the east by 28th Street, and on the west by Cloverdale Road and Idaho State Highway 55. The contract with Centennial Engineering, Inc. includes an extensive, innovative public involvement process.

The public involvement process for the Bench/Valley Transportation Study began with the establishment of a special Citizen's Advisory Committee. The Citizen's Advisory Committee, or CAC as it is commonly known, began meeting in late 1992. The CAC is designed to represent the concerns of various constituencies within the community, combining them into more manageable numbers.

The neighborhood meeting becomes another important ingredient in the public involvement process. Designed to help the project team establish relationships with citizens in each area, a series of neighborhood meetings has already been held, with another round scheduled for the spring of 1994. The purpose is to discuss the goals and objectives of the project, and more important, to listen to the ideas and concerns of each neighborhood.

A major milestone in the public inolvement process will be reached on December 2, 1993, when the first major public involvement meeting is to be held.

This national model for public-process meetings was created to encourage broader cross-sectional public involvement, and to promote a closer liaison with the public participants. The public involvement meetings will help ensure that all citizens get an early opportunity to assist in the creation of various solutions to the problem. The project team wants citizen's input on other transportation alternatives such as bike trails, foot paths, park and ride lots, mass transit expansion, in addition to roadway system changes.

During the first public involvement meeting, scheduled for December 2, 1993, the project team will have a chance to present the purpose and need for the project. More important, by listening to the ideas and concerns of citizens, the project team will have an opportunity to expand their knowledge and understanding of community and environmental issues.

All of the public involvement meetings will provide important feedback for both the project team and citizens. Although project specifics will still be preliminary, thes meetings will allow the public to share engineering technologies such as traffic modeling and air quality modeling. In this way, citizens can visualize what a project alternative may eventually look like.

Another step in the public involvement process is the formal public hearing. Again, the format will allow a greater exchange of information between the project team and the public. The hearing will summarize the issues and concerns identified throughout the public involvement process. Video will aid citizens in understanding the project, and knowledgeable team members will staff informational booths to answer questions and address concerns.

The hearing officer will receive testimony in a casual one-on-one setting, encouraging a broader range of discussion on issues associated with the alternatives being considered. Unlike the past, this national model advocates a public hearing process that is more informational – less confrontational.

Once public comment is received, the project team will refine the preliminary concept designs for alternatives, and a Final Draft Report will be assembled, published and delivered to ACHD.

HOW WE GOT HERE

The first extensive regional transportation plan was approved in 1975. It was updated in 1978, and again in 1982. By 1989, planners realized that there was a need to re-evaluate the earlier plans which had been based, in part, on projections that had not materialized.

Based on fresh data, a new planning operation began. Ten public workshops were held in May and June of 1989, and public hearings began in July. The hearings proved to be controversial. Most of the controversy centered around a proposed Curtis Road extension and a proposed Cole/ Glenwood connection. That controversy delayed approval of the new plan.

As a result, it was determined that transportation needs should be looked at on an area-wide basis, and the Bench/Valley Transportation Study was born.

The study encompasses a 33 square mile area; bordered on the south by Overland Road, on the north by Hill Road, on the east by 28th Street, and on the west by Cloverdale Road and Idaho State Highway 55.

In September, 1993, the Ada County Highway District Commission (ACHD) approved a contract with Centennial Engineering, Inc. to perform the Bench/Valley Transportation Study. The endeavor involves a cooperative management effort between ACHD, Ada Planning Association, the City of Boise, Garden City, and Ada County. Scheduled to be completed by the end of 1995, the plan will then be incorporated into the Ada Planning Association's 2015 Regional Transportation Plan.

THE TEAM

In September, 1993, the Ada County Highway District contracted with a consultant team led by Centennial Engineering to assist in the completion of the Bench/Valley Transportation Study.

CENTENNIAL ENGINEERING, INC. was formed in 1974 in the Denver, Colorado area. The firm has grown from the original five founding partners to a professional staff of more than three hundred. Centennial is an engineering consulting company that provides planning, design and construction management services for transportation projects. In fact, this expertise has made Centennial one of the leading transportation consulting firms in the Western United States.

CAMBRIDGE SYSTEMATICS, INC. provides planning and management services in the areas of energy, economic development, telecommunications, management information systems and transportation. Since its formation in 1972, the firm has gained a national reputation for applying state-of-the-art analytic techniques to complex problems, and developing innovative, practical solutions for its clients.

GROUP 2000 has earned a national reputation as a winner in the public communications arena. The firm is credited with the development of a new public hearing approach that promotes a closer relationship between government institutions and the citizens they serve. This "user friendly" procedure encourages broader cross-sectional participation in the process, and allows citizens to gain a much greater knowledge of and input into projects being undertaken by government.

BENCH/VALLEY TRANSPORTATION STUDY — TIMELINE —

MAY-OCTOBER 1993
Neighborhood Town Hall Meetings

SEPTEMBER 1993
Contract Agreement Signed

DECEMBER 1993
EARLY PUBLIC INVOLVEMENT MEETING

APRIL-MAY 1994
Neighborhood Town Hall Meetings

SUMMER 1994
FORMAL PUBLIC INVOLVEMENT MEETING

FALL/WINTER 1994
Neighborhood Town Hall Meetings

SPRING 1995
FORMAL PUBLIC HEARING

FALL 1995
Final Recommendations

The Citizen's Advisory Committee regularly meets twice monthly throughout the course of the study.

SCIENTECH, INC. is an employee-owned company that provides assistance to clients in information management, and in the environment, energy, and defense fields. Founded in 1983 in Idaho Falls, the company now has more than 300 employees and offices in 13 cities.

SMITH AND ASSOCIATES was founded in 1977 to provide research and technical writing support to private and public-sector clients. The company specializes in environmental analysis; land-use and transportation planning; impact analysis; public information programming; and preparation and editing of technical reports.

ECOLOGICAL DESIGN, INC. independently consults with other natural resource and engineering specialists to provide professional technical services and to facilitate resolutions to natural resource issues.

INTERMOUNTAIN DEMOGRAPHICS, founded in 1988, provides a wide range of custom data services to its clients. The company has prepared transportation data bases in Sandpoint, the Silver Valley, and Bannock County.

ADA COUNTY HIGHWAY DISTRICT (ACHD) has responsibility for construction and maintenance of all county and city streets in Ada County. The jurisdiction includes approximately 1,500 miles of road, 270 signals, and more than 400 bridges. An independent district, ACHD was established by referendum in 1972, and is governed by three elected commissioners representing separate geographic areas.

ADA PLANNING ASSOCIATION (APA), established in 1977, is committed to solving county-wide problems. Made up of elected community leaders, the mission of APA is to provide a forum to address community issues; serve as a catalyst to build consensus on the community's vision of the future; and develop and support activities to achieve that vision.

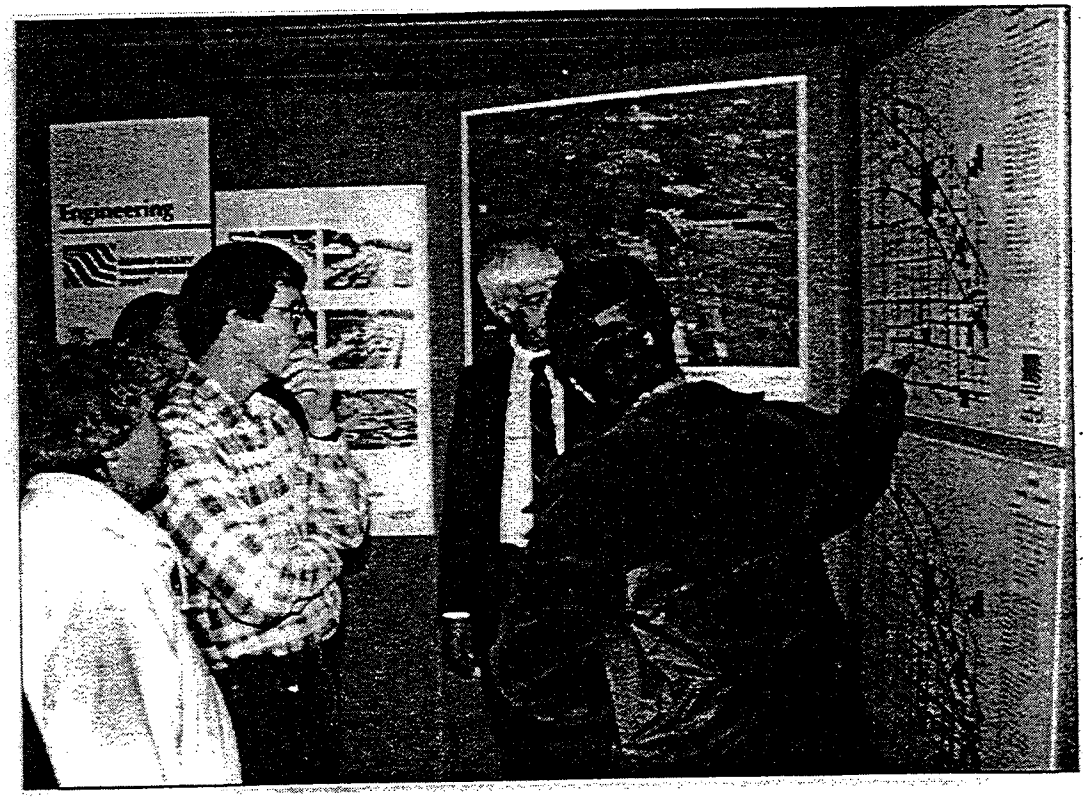
February 1994
Vol. 2

UPDATE

A Regular Publication of the
Bench/Valley Transportation Study

Highlights

- Bench Valley Transportation Study draws record crowd at December public involvement meeting.
- Innovative computer set-up facilitates public comment.
- 1,500 families participate in travel survey process.
- 3-Dimensional model spurs lively discussion on future transportation planning.



PUBLIC INVOLVEMENT MEETING DRAWS RECORD CROWD

Nearly 350 residents from around Ada County attended the first Bench/Valley Transportation Study public involvement meeting on December 2.

The "open house" format meeting featured video and computer presentations, photos and map displays, and a three-dimensional model of the study area. Displays covered a wide range of topics including land use, transportation alternatives, traffic modeling, and engineering.

The public had many opportunities to speak one-on-one with members of the project team throughout the display areas. Afterward, participants offered testimony in writing, via computer comment stations, or by drawing maps to illustrate their road and corridor concepts.

Participants at the December 2 Bench/Valley Transportation Study public involvement meeting discuss their suggestions for transportation options with representatives from Centennial Engineering.

ach d
ada county highway district

Survey Studies Commuter, Family Travel Habits

1,500 people will be asked to participate in a survey being conducted for the Ada County Highway District as part of the Bench/Valley Transportation Study.

Researchers may call up to 10,000 random telephone numbers in order to secure the 1,500 people needed for the survey.

Survey participants will receive a diary in which they'll record information about their personal travel habits.

The survey takes into account both automobile and alternative transportation trips including those taken via bicycle, bus and pedestrian means. Trips made by children over the age of five who live in survey households will also be included in the survey results. Participants will complete trip diaries on a single day specified by the research team.

Information from the survey will then be combined with population, land-use and vehicle-use projections in order to help engineers forecast future demands for transportation systems.

Anyone with questions about the telephone interviews or the travel survey can contact the Ada County Highway District at 345-7676.

Director's Letter

acHd

February 1994

In December we reached a significant milestone in the Bench/Valley Transportation Study with our first major public involvement meeting held at Potomac Place. With nearly 350 people in attendance, this represents one of the largest turnouts to date for an ACHD public meeting.

The Bench/Valley Transportation Study offers every Ada County resident the opportunity to help create our future transportation plan. Your participation now, and throughout the course of the study, is vital to its success. Our goal is to create a plan that addresses your concerns and serves the needs of the community. To do that, we need to hear from you first.

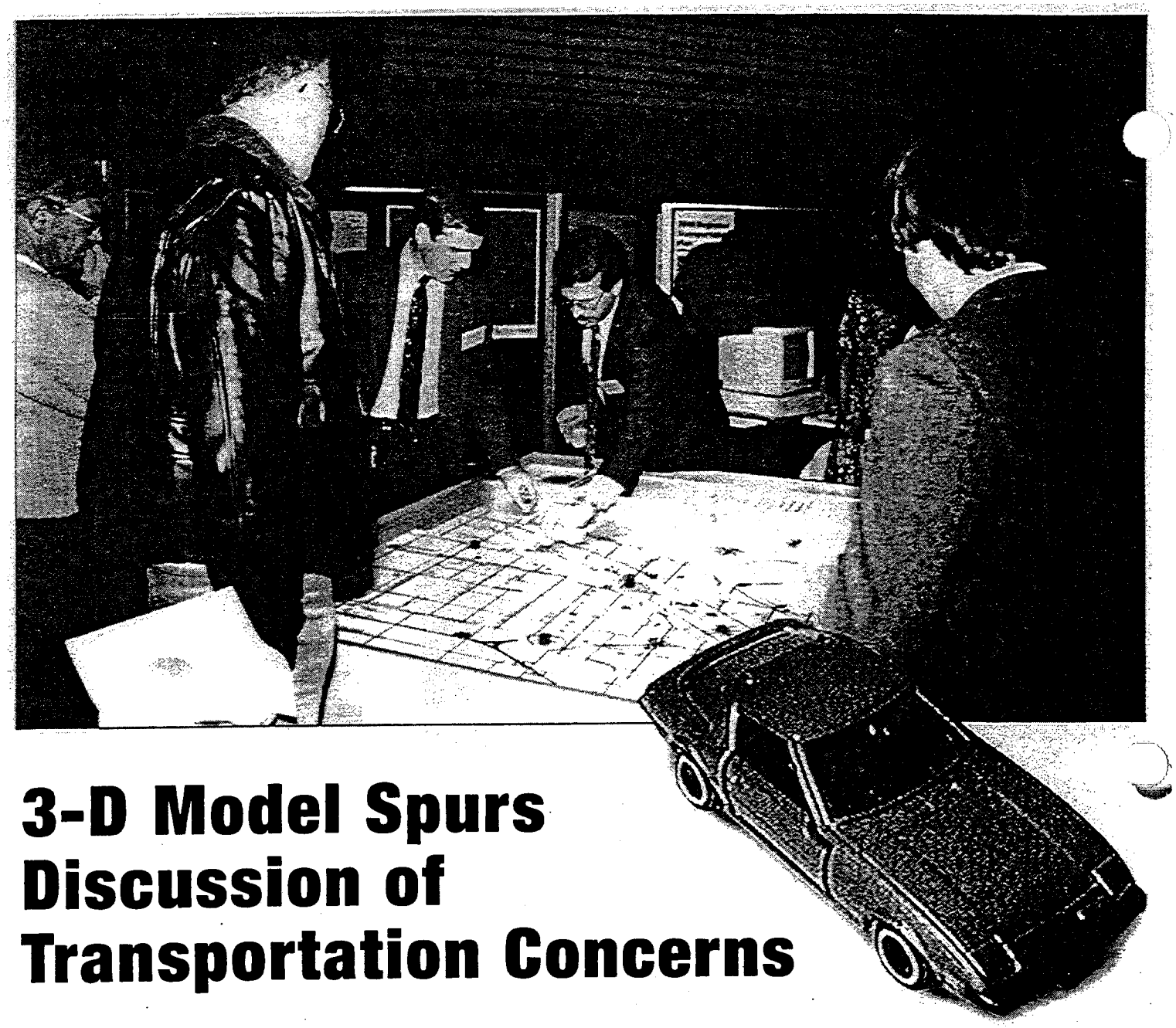
Through additional public involvement meetings like the December 2nd gathering, town hall meetings in many of your neighborhoods, and interaction with your local representatives on the Citizen's Advisory Committee you'll find there are many ways to participate in this exciting planning process.

I look forward to hearing more of your questions, comments and suggestions as we plan for the future together.

Very truly yours,

Jerry D. Nyman

Jerry Nyman Director, Ada County Highway District



3-D Model Spurs Discussion of Transportation Concerns

Terry Little, ACHD's Traffic Services Manager (2nd from left), and Dave Butzier, Centennial Engineering's Bench/Valley Study Project Manager (2nd from right), use 3-D model to illustrate transportation concepts.

A three-dimensional model of the Bench/Valley Transportation Study area displayed at the recent public involvement meeting, fueled often heated discussions about future transportation plans in Ada County.

"There was a constant flow of people around the model" says Dave Butzier, Centennial Engineering's Bench/Valley Study Project Manager. "This really helped people visualize some of the problems we face in designing future transportation options from the bench to the valley and across the Boise River."

The model, created by Brockett Design of Boise, included existing roads, bridges and landmarks such as parks, schools, the fairgrounds and the mall. To help people better illustrate their concepts, the model also included moveable bridge structures, tiny automobiles and a remarkable surface on which engineers and ACHD staff could draw and erase different suggested roads, river, and bench crossings.

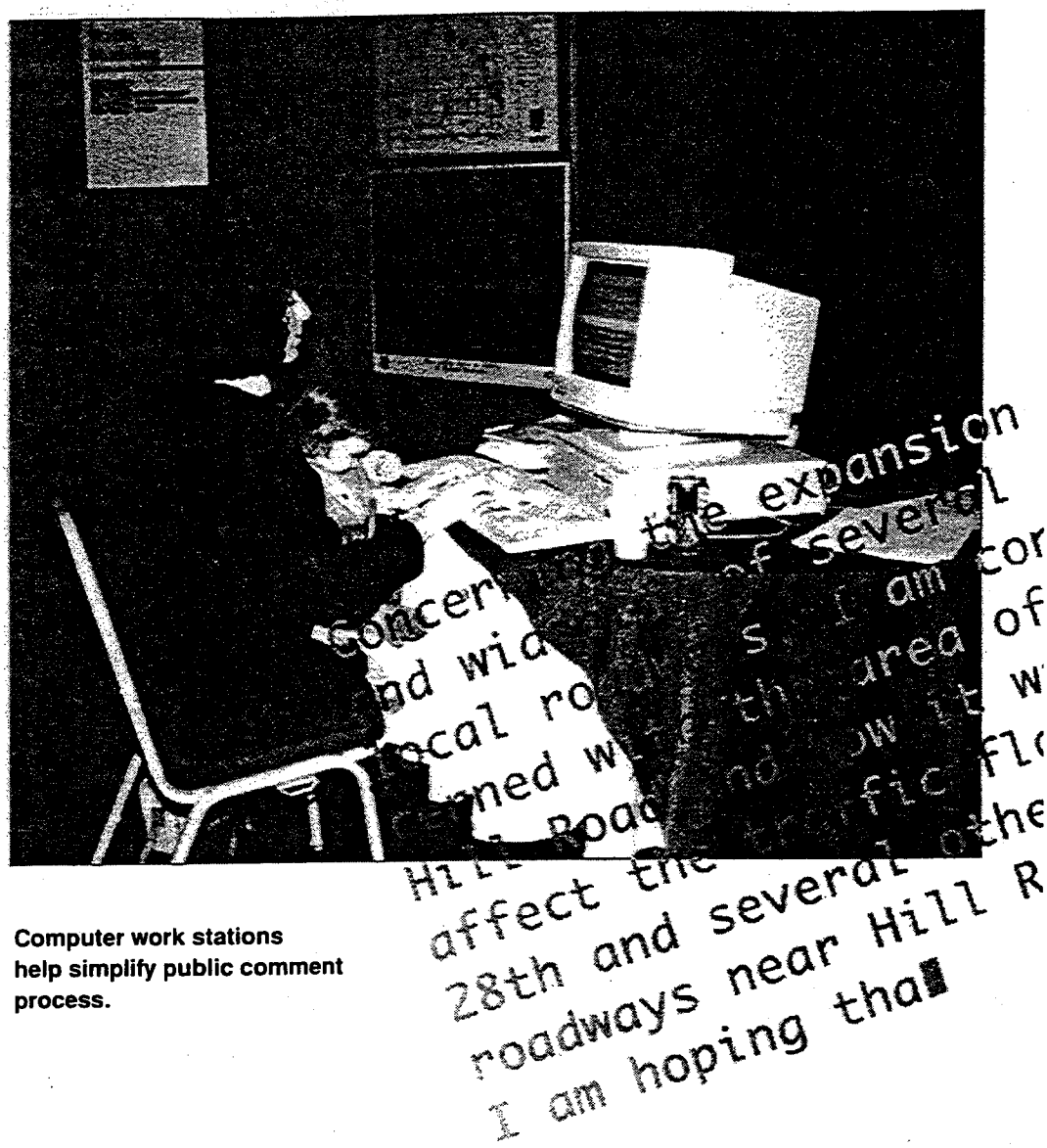
Issues raised by the public included specific corridor suggestions, bike paths, foot paths, signage and signalization, trucks and truck routes, noise, pollution, safety and many others.

All comments received at the public meeting and in subsequent weeks are incorporated into a published comment document. Anyone wishing to obtain a copy of this document should contact the Ada County Highway District at 345-7676.

Computers Facilitate Public Comment

Computer work stations facilitated easy opportunities for the public to comment on future transportation planning in Ada County. The system was set up at the December 2nd public involvement meeting on the Bench/Valley Transportation Study.

Nearly 72% of those people commenting at the December 2 meeting utilized the computer network. Comments were entered on the computers either by the participants themselves or through facilitators provided at each work station. Comments were also made via handwritten forms available at the meeting, through individually drawn maps of suggested corridors and via letters received both at and after the meeting.



Computer work stations help simplify public comment process.

NEED MORE INFORMATION ABOUT THE BENCH/VALLEY TRANSPORTATION STUDY?

Call or write to us:
Bench/Valley
Transportation Study
910 Main Street, Suite 260
Boise, Idaho 83701
(208) 331-1325.

BENCH/VALLEY TRANSPORTATION STUDY
910 Main Street,Suite 260
Boise, ID 83702
(208) 331-1325

ada county highway district
318 East 37th
Boise, Idaho 83714

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BOISE, ID
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February 1995
Vol. 3

UPDATE

A Regular Publication of the
Bench/Valley Transportation Study

Highlights

- **Possible changes to existing traffic corridors outlined.**
- ***Commentary:* Mayor advocates public involvement.**
- **Computer technology facilitates public comment.**

What is Your Transportation Future?

Does your drive to work take longer? Are you frustrated with increasing congestion? Worried that traffic is making your neighborhood streets less safe? Explosive growth in Ada County raises many questions. Among the most difficult: Is transportation *really* a problem? What can be done?

If you don't speak . . . someone will speak for you.

You've probably given those questions some thought. Have you shared your ideas with people who can make them happen? Maybe you think we should build a new freeway exit or a light rail system.

You have an opportunity to shape your own future. Exactly what is going to change? Where will the future take our community? Don't pass up this opportunity. Come to the countywide community meeting on Thursday, March 2, from 10 a.m. to 8 p.m., at the West Park Convention Center, in Boise.

You'll see information developed from more than 2 years of public participation in the Bench/Valley Transportation Study. Literally hundreds of ideas have been considered. All of them coming from the community through a Citizens Advisory Committee, extensive neighborhood meetings, and a 1993 countywide community meeting.

Now it's time to begin making decisions. Which of these ideas will become reality and which of them will go by the wayside? Will those decisions reflect your values? Will our community become what you want it to be?

The March 2 community meeting is designed to help you understand what transportation changes are being considered. You'll learn about possible road improvements and extensions, their cost and their effects on traffic, pollution, scenery and neighborhoods. You'll also see the latest ideas for reducing the need for road building by shifting to alternative transportation. And we'll show you the latest 20-year traffic projections to give you an idea of what travel will be like if we don't take any action.

You'll be asked to tell us what you think of these ideas. Which of them should we reject, and which should we pursue?

The Bench/Valley study area spans 33 square miles that contain six of the eight busiest intersections in Ada County. The study area boundaries are Overland Road on the south and Hill Road on the north. Cloverdale Road and Highway 55 is the western boundary, and the eastern boundary runs along Orchard Street and North 28th Street.

The meeting will feature displays that outline possible transportation improvements and the history of this project. Transportation professionals will be on hand to answer your questions. It's an open house meeting, so you can drop by any time for as short or long a visit as suits your schedule.

The agencies involved with this project want to hear your voice. Their decisions must include your needs. Your input is necessary in forming a plan that is in tune with what you and your neighbors want.

But without you, decisions will still be made. Your first decision must be whether you want this to happen without you.

We hope your next decision will be how to get to the meeting.

Why Should it Matter to You?

Sure you're busy. It's almost impossible to find time to do the important things.

So why bother to going to a meeting about transportation?

Because decisions in the near future will affect your travel and neighborhood life for years to come.

Here are some of the possible changes in your local travel. All of these ideas were suggested in the public involvement process. Citizens have suggested improvements in these corridors at earlier meetings and the engineers and other specialists have identified the feasible alternatives for further public consideration.

Please consider what you want to change as we enter the next century. Your input at this meeting does matter.

• ORCHARD STREET (E. 36TH STREET)/N. 30TH STREET EXTENSIONS
Options:

There are three different new road possibilities in this area. With some variations, when you drive down the hill on Orchard Street to Chinden, you'll continue straight (on East 36th Street) across the Boise River to State Street. Another option is a connection from Main Street (along the Boise River behind Bob Rice Ford) to both East 36th Street and State Street.

A third option includes both roadway extensions.

•COLE/GLENWOOD CONNECTION
Options:

There are three options for connecting Cole Road to Glenwood Street.

• MAPLE GROVE EXTENSION
Option:

There is an option for extending Maple Grove Road to Chinden Boulevard at Garrett Street.

• USTICK ROAD/CURTIS ROAD EXTENSION(S)
Options:

There are three options for improving access from the Bench to Garden City and across the Boise River using Ustick Road and/or Curtis Road. These include:

• Widen Curtis Road north of Fairview Avenue and extend it to Chinden Boulevard where Curtis would connect with Veteran's Parkway.

• Extend Ustick Road to connect with the Curtis Road extension described above. The new Ustick Road would "drop" below the Bench where it now intersects with Mountain View Drive.

• Extend Ustick Road to Chinden Boulevard at Veteran's Parkway. This option eliminates the steep, narrow route (44th Street), used to get from Ustick to Chinden today.

• FIVE MILE EXTENSION
Options:

There are two options for extending Five Mile Road across the Boise River to Eagle. In either case, the extended Five Mile Road could either intersect with Chinden Boulevard or cross Chinden Boulevard on a bridge.

Another option is to extend Five Mile Road only as far as Chinden Boulevard.

• FIVE MILE INTERCHANGE
Options:

There is an option for constructing an interchange on I-84 at Five Mile Road. This would include widening Five Mile Road from Overland Road to Franklin Road.

• CLOVERDALE EXTENSION
Options:

There are two options for extending Cloverdale Road across the Boise River to State Street.

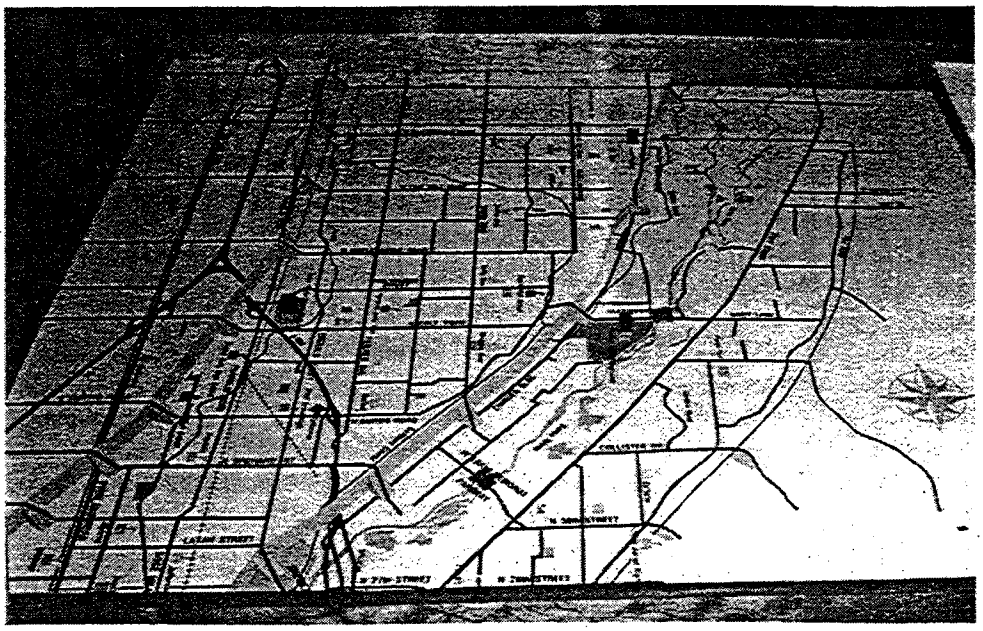
• ALTERNATIVE TRANSPORTATION

There are a variety of alternative transportation ideas that can reduce the need to build new roads.

• BUS

You'll get a look at the Boise Urban Stages' conceptual plan for possible expansion over the next 15 years.

A three-dimensional model helps in visualizing problems and possible solutions in designing future transportation options from the bench to the valley and across the Boise River



Computers Provide Info at Meeting

In this age of growth in Ada County, and possible changes for our area, where does computer technology fit in?

The March 2 community meeting will utilize a specially designed computer program. This program allows you to easily access *specific* information that affects you. For example, you are a resident of West Boise especially concerned that possible changes to Five Mile Road might increase traffic and noise in your neighborhood. Simply select those items from a menu screen on the computer and the information is immediately at your disposal. You can then express your opinion or concerns about that information.

Each available possible option for change will be clearly outlined at a display station. A computer terminal will be at each station as well as a staff person to answer questions.

Mayor Coles Urges Public Involvement

Mayor Brent Coles

If you were to ask every Boisean for their opinion on how to solve our transportation problems, you would get thousands of different answers. And each one of those answers would be important.

This is a critical time when we are planning for the future of our community, determining what it will look like, where we will live, where we will work and shop, and how we will get back and forth between our many destinations. These decisions will affect each of us in different ways.

Many of you can walk, ride your bikes, or take a bus to work. Many of you must use your cars to get where you are going. We want to hear about your individual needs and the needs of your neighborhoods. We want to know what your dreams are for this community we call home.

This is the time to speak up, before key decisions are made about our transportation system. So, take a few minutes and let us know how you feel.

Brent Coles
Mayor of Boise

Your Input *Essential* to 20-Year Plan

Your comments at the March 2 community meeting are vital. They will be considered in the development of the long-range transportation plan for Ada County.

Since 1990, Ada County's population has skyrocketed, with 18 percent growth over the past four years according to a recent study by Ada Planning Association (APA).

Destination 2015 is APA's long-range plan that will outline Ada County's transportation needs as the area's population continues to grow. The plan is scheduled for completion December 1995, and will be used as a guide for government agencies.

The Bench/Valley Transportation Study will be a major component of this plan. As a part of this study, the public input from the upcoming meeting will then form a large part of *Destination 2015*.

In other words, not only will you have a voice, you will be heard over the next 20 years in Ada County.

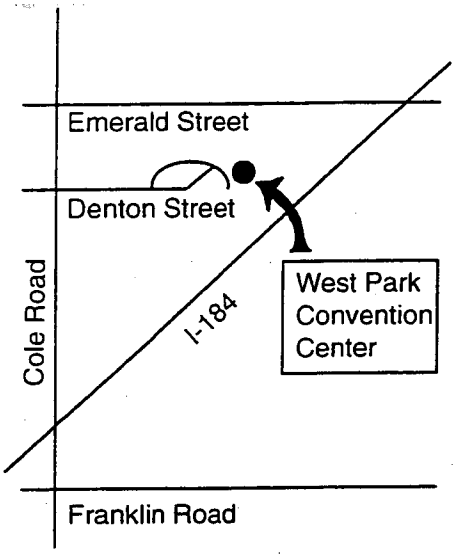
Clair Bowman, Executive Director of Ada Planning Association (APA) stresses the importance of public input in this plan. He is concerned that Ada County residents take an active role in shaping their future.

"We have a wonderful opportunity to take charge of the future of transportation," Bowman said.

For more information or to get involved in *Destination 2015* call APA at 345-5274 on weekdays (hotline: 345-5277 after 5 p.m. or on weekends).

To Find Us

On March 2, 1995, the Bench/Valley Transportation Study Countywide Community Meeting will be held at the West Park Convention Center, 7070 Potomac Drive, in Boise.



Need More Encouragement?

The importance of your attendance at the upcoming community meeting has been stressed throughout this newsletter. I would like to further encourage your participation in this event. Public involvement is a key element in the transportation planning process and your participation helps us to define our community's goals.

Previous neighborhood meetings have helped to clearly identify the transportation needs and desires of the community. The March 2 community meeting will illustrate the results of the public input process, detail the transportation impacts of the system alternatives, portray several travel mode alternatives and provide a format for your additional input.

We look forward to hearing your comments on the transportation alternatives. Thank you in advance for your help in planning the transportation future of Ada County.

Jerry Nyman, Director
Ada County Highway District

Shape Your Future! We Must Hear Your Voice!

What:

Bench/Valley Transportation Study, Countywide Community Meeting

When:

Thursday, March 2
10:00 a.m. to 8:00 p.m.

Where:

West Park Convention Center, 7070 Potomac Drive, Boise, Idaho 83704 (see map, top of page)

Questions?

Call us!

BENCH/VALLEY TRANSPORTATION STUDY
910 Main Street, Suite 260
Boise, ID 83702
(208) 331-1325

ach d
ada county highway district
318 East 37th
Boise, Idaho 83714

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September
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UPDATE

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Bench/Valley Transportation Study

Highlights

Bench/Valley Transportation Study Draft Plan Provides Several Options for Public Review

Public Hearing Offers Several Ways to Comment on the Draft Plan

Bench/Valley Study Nears End

Public Hearing for Draft Plan Set for September 21

The largest, most comprehensive study in Ada County Highway District's history, the Bench/Valley Transportation Study, is nearly complete. A final public hearing offers you a last chance for input before recommendations are made on this comprehensive, long-range, transportation plan.* The hearing will be Thursday, Sept. 21, from 10 a.m. to 8 p.m. at the West Park Convention Center, 7070 Potomac, Boise.

The study literally began with a blank sheet of paper. Suggestions for improvements to our transportation system came from public participation in neighborhood and city-wide meetings. In all, more than 2,500 people participated in a total of 30 neighborhood and county-wide public meetings.

A Citizen's Advisory Committee representing neighborhoods, community institutions, and businesses further added community perspective to the study.

A Technical Advisory Committee added the support of transportation and planning experts from throughout the valley.

Each committee met at least monthly for two and a half years to review information. They studied the impact of changes on neighborhoods, traffic, the environment and the overall quality of life in the Boise area.

A travel survey of 1,500 households was combined with actual traffic counts and housing density data to create a new traffic model. The model allows planners to forecast future traffic patterns on the present road system. It also allows them to predict how improved or new roads would impact traffic elsewhere.

Public input is still crucial to the Bench/Valley Transportation Study Draft Plan. Those attending the open-house public hearing will have a chance to view the plan and comment. After the hearing, the plan will be finalized with public input from the hearing and ACHD staff, then submitted to the Highway District Commissioners for review and adoption. When a plan is approved by the Ada Planning Association (APA), it will be incorporated into Destination 2015, APA's long range transportation plan.

*** The study area extends from Orchard St./28th St. on the east to Cloverdale Rd./Idaho 55 on the west and from Overland Rd. on the south to Hill Rd. on the north.**

BENCH/VALLEY TRANSPORTATION STUDY

Bench/Valley Transportation Study Draft Plan Highlights

- Alternative transportation recommendations including a regional bus system and priority bicycle corridors
- Extensions and improvements to several existing roadway corridors, an additional river crossing, and either three or four new Bench crossings

Bench/Valley Working Draft Released

Draft Plan Open to Comment at September 21 Public Hearing

The Bench/Valley Transportation Study's purpose was to examine transportation needs on an area-wide basis, and to formulate a plan that meets both traffic and community needs.

The study team set out to incorporate more than traffic counts in the plan. Neighborhood impacts, land use alternatives and alternative transportation were important considerations. Public input was a significant factor as the study team asked, "have we really looked at everything?"

Five key themes emerged from extensive public comment:

- new and improved roads are needed now,
- easing traffic congestion is a high priority,
- traffic must be spread around,
- changes must occur with an emphasis on mitigating their effects on neighborhoods, and
- alternative transportation should be an important future component.

The draft plan calls for extensions of Curtis and Ustick roads, and an upgraded connection in the Cole/Glenwood Corridor.

For the Curtis Road extension, the public will be asked to comment on two options for developing the new connection off the Bench. One option would be to widen along the approximate existing centerline, and stripe for three lanes south of Northview Street. Curtis Road would then swing to the east from a point just south of Northview Street to continue down the Bench. The other option would be to build three lanes but preserve for five lanes by acquiring the houses on the east side of Curtis Road south of Mountain View Drive. Both options would have Curtis Road at five lanes from Mountain View Drive to Chinden Boulevard.

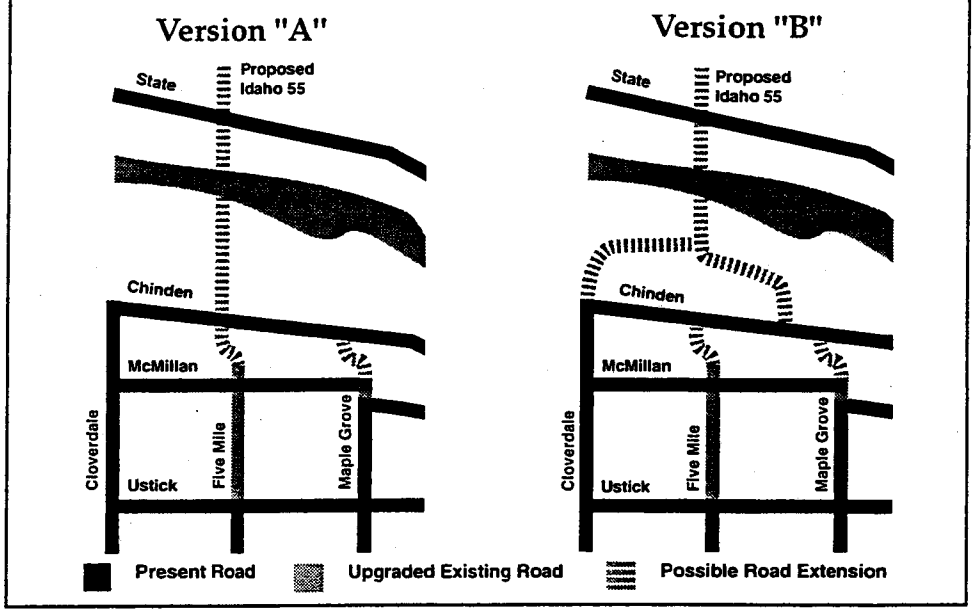
In the Cole/Glenwood corridor the public will be asked to comment on three different ways to accomplish the recommendation that additional capacity be provided in this corridor. Plans will show a comparison between a five lane "east alignment" which widens and straightens the existing roadway along Cole Road and Mountain View Drive. It also shows a five lane "west alignment" which connects Cole Road to Glenwood Street on a new alignment west of the existing corridor. A third alternative provides a pair of three-lane, two-way streets that route northbound through-traffic on the existing road and southbound through-traffic on a narrower version of the west alignment.

In the western half of the study area, there are two options (shown). Version A was the study team's working draft recommendation as presented at the June 1995 neighborhood meetings. It extends Five Mile Rd. to Chinden Blvd., and across the Boise River to a connection with State Street at proposed Idaho 55.

We've heard great concern about concentrating traffic on any one corridor, especially with respect to connecting Five Mile Road to I-84 on the south and proposed Idaho 55 on the north. Version B addresses these concerns by spreading traffic to Five Mile, Maple Grove and Cloverdale roads. Version B shows the same river crossing as Version A, but connecting with extensions of Cloverdale and Maple Grove roads indirectly. In this version, Five Mile Road would be extended to Chinden Boulevard but would not connect directly to the river crossing.

The option remains to do nothing at all. Boise's 1993 average of 830,000 vehicle trips per day is projected to grow to 1.33 million in 2015. So far the public has told us that congestion is one of their biggest concerns. Information on what a Bench/Valley Transportation Plan will do to reduce this impact will be available at the Sept. 21 public hearing. Your input at this meeting will help decide the Bench/Valley Transportation Plan.

Five Mile Corridor Options



Bench/Valley Transportation Study Draft Plan

Alternative Transportation

- Establish a **regional public transportation agency.**
- Establish a **regional bus system.**
- Continue and expand ACHD **Vanpool and Carpool programs.**
- **Increase parking rates** and parking violation fines in highly congested areas.
- **Increase vehicle registration fees** as a disincentive to single occupancy vehicles.
- Provide **bike routes** in accordance with the Ridge-to-Rivers Pathway Plan (a county-wide plan to improve non motorized transportation and recreation).
- Provide **priority bicycle corridors** to provide continuous routes.
- Adjust roadway maintenance and construction to better **accommodate bicycles and pedestrians.**
- Work with employers to provide **incentives for employees** to use alternative transportation.
- Provide **sidewalks** with all urban street construction and reconstruction projects where feasible.

Near-Term Roadway Improvements (constructed in the first 10 years)

Reconstruct **Curtis Rd.** to three lanes from just north of Fairview Ave. to Mountain View Dr. and extend five lanes to connect with Chinden Blvd. at Veterans Memorial Pkwy .(two options remain).

Extend **Ustick Rd.** as a five lane road from Mountain View Dr. down the Bench to the Curtis Rd. extension.

Construct **Cole Rd./Glenwood St.** connection to provide two through lanes in each direction with accommodation for left turns from Glenwood St. (starting north of Goddard St.) to Cole Rd. at Ustick Rd. (three options remain).

Extend **Five Mile Rd.** as a three lane road from one half mile north of McMillan Rd. to Chinden Blvd. east of Hewlett-Packard. Stripe Five Mile Rd. for three lanes from Ustick Rd. to Chinden Blvd.

Construct an interchange on Interstate 84 at Five Mile Rd.

Long-Term Roadway Improvements (Preserve for construction in 10 to 20 years)

Widen **Curtis Rd.** from three lanes to five between Fairview Ave. and Mountain View Dr.

(Version A) Reconstruct **Five Mile Rd.** to five lanes from Ustick Rd. to Chinden Blvd. Continue a four lane extension across the river to State St. at proposed Idaho 55. Construct a three lane extension of **Maple Grove Rd.** from McMillan Rd. to Chinden Blvd. at Garrett St. and preserve a five lane-right-of way.

(*Version B*) Reconstruct **Five Mile Rd.** to five lanes from Ustick Rd. to McMillan Rd. only. From McMillan Rd. to Chinden Blvd., Five Mile Rd. would remain three lanes. Extend Maple Grove Rd. and Cloverdale Rd. north of Chinden Blvd. to a four lane extension of Five Mile Rd. across the river. Construct a five lane extension of Maple Grove Rd. from Goddard Rd. to Chinden Blvd. at Garrett St. This version would not permit direct access on Five Mile Road. from I-84 to Idaho 55.

Traffic volumes, projections and specific mitigation recommendations on the roadway improvements will be shown at the Sept. 21hearing along with other roadway improvements needed in the study area.

Improvements to other travel corridors were also considered. Corridors that will remain under consideration as development occurs are:
- **Adams St.** from 36th St. to 37th St.
- **30th St.** from Fairview Ave. to State St. at Rose St.

Corridors that received extensive consideration, but are not recommended for future construction are:
- **Cloverdale Rd. extension** from Chinden Blvd., directly across the river, to State St. at Idaho 55.
- **Orchard St. extension** from Chinden Blvd., along 36th St. to State St., at Rose St.

Draft Ready for Public Review

The Bench/Valley Transportation Study Draft Plan is available for public review at the following locations:

Ada County Commissioner's Office
650 Main St.

Ada County Highway District
318 E. 37th St.

Ada County Library
10664 W. Victory Rd., Reference Dept.

Ada Planning Association
413 W. Idaho St.

Boise City Mayor's Office
150 N. Capitol Blvd.

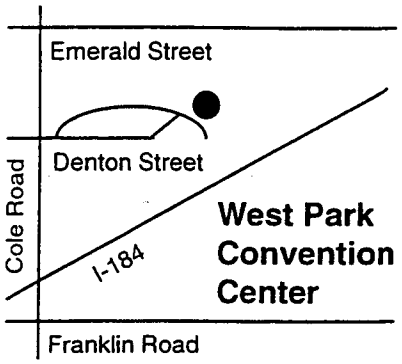
Boise Public Library
715 S. Capitol Blvd., Floor 3

Centennial Engineering
910 Main St.

Garden City Library
201 E. 50th, Reference Dept.

What You'll See September 21

The final public hearing will blend traditional and new technology. You will have three ways to comment. Oral testimony will be taken in front of a hearing board consisting of elected ACHD, county and city representatives. Hand written or computer entry comments will also be taken.



The September 21 public hearing will be held in an open-house format at the West Park Convention Center, 7070 Potomac, Boise. You are encouraged to come to the hearing at any time from 10 a.m. - 8 p.m.

You will be able to view displays and information at your leisure, as well as talk with the study team about changes proposed in the Bench/Valley Transportation Study Draft Plan. All comments must be received by the Ada County Highway District by 5 p.m. on Friday, October 6. This is the last major opportunity for public input on the Bench/Valley Transportation Study.

BENCH/VALLEY TRANSPORTATION STUDY

Public Hearing

Thursday September 21 10 a.m.- 8 p.m.

West Park Convention Center 7070 Potomac Boise, ID

For More Information, Call 208/331-1325

Ada County Highway District
318 East 37th Street
Boise, ID 83714

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BENCH/VALLEY
TRANSPORTATION
STUDY

APPENDIX D:
Neighborhood Meetings

Bench/Valley Transportation Study
Public Involvement

Date	Meeting	Attendees
6/10/93	Neighborhood Meeting - Five Mile Road	87
6/28/93	Neighborhood Meeting - Maple Grove Road	55
7/15/93	Neighborhood Meeting - Curtis Road	51
8/17/93	Neighborhood Meeting - Garden City	22
8/24/93	Neighborhood Meeting - Cole Rd./Mountain View	11
9/29/93	Neighborhood Meeting - Ustick Road	20
10/14/93	Neighborhood Meeting - Veteran's Park	35
10/19/93	Neighborhood Meeting - Manorwood	64
12/2/93	Public Meeting - West Park Convention Center	344
8/9/94	Neighborhood Meeting - Horizon Elementary	29
8/10/94	Neighborhood Meeting - Eagle Elementary	9
8/11/94	Neighborhood Meeting - Fairmont Jr. High	95
8/16/94	Neighborhood Meeting - Centennial High	58
8/17/94	Neighborhood Meeting - McPherson Elementary	12
8/18/94	Neighborhood Meeting - Idaho Transportation Department	34
8/23/94	Neighborhood Meeting - Cynthia Mann Elementary	67
8/24/94	Neighborhood Meeting - Capitol High	118
8/25/94	Neighborhood Meeting - Garden City Hall	43
11/28/94 - 11/29/94	Focus Group Sessions	24
1/10/95	Neighborhood Meeting - Manorwood	25
1/18/95	Neighborhood Meeting - Ustick Rd.	10
1/17/95	Neighborhood Meeting - N. Maple Grove Road	32
1/24/95	Neighborhood Meeting - Curtis Road	46
1/31/95	Neighborhood Meeting - Veteran's Park	11
2/16/95	Neighborhood Meeting - Cole Rd./Mountain View	4
2/16/95	Neighborhood Meeting - North End	4
2/22/95	Neighborhood Meeting - Southwest	5
3/2/95	Public Meeting - West Park Convention Center	734
4/12/95	Neighborhood Meeting - West Valley Neighborhood Assoc. (Five Mile Road)	84
6/6/95	Neighborhood Meeting - Koelsch School	240
6/7/95	Neighborhood Meeting - Pioneer School	181
	Total Attendees	**2,582**

BENCH/VALLEY
TRANSPORTATION
STUDY

APPENDIX E:
Citizen's Advisory Committee Members, Recommendations and Position Statement

Citizen's Advisory Committee
Current Members
July 1995

Steve Berch
West Valley Neighborhood

Bill Cohen
City of Eagle

Paul Fetrow
St. Alphonsus Hospital

Ilene Hill
Ustick Road Neighborhood

Bob Link
North End Neighborhood

Kathyn Pierce
Curtis Road Neighborhood

Kenneth Reglin Jr.
N. Cole/Mountain View

Jay Clemens
Metro Chamber of Commerce

Dana Coolbaugh
Southwest Homeowners

Elke Gribskov
Maple Grove Neighborhood

John Johnson
Veterans Park Neighborhood

Bill and Donna Matthews
Manorwood Neighborhood

Bruce Korstad
Garden City

Citizien's Advisory Committee
Previous Members who Participated in the Process
1993 to 1994

Wayne Watson
Five Mile Neighborhood

Mary Gail Standlee
Manorwood Neighborhood

Maligne Oldfield
Manorwood Neighborhood

Gwen Woodson
Ustick Road Neighborhood

Paul Franklin
Boise School District

Glenn Orthel
Meridian School District

Renn Ross
Emergency Services Orginization

Tony Hickey
City of Eagle

Citizen's Advisory Committee Recommendations

—Continue public involvement process in planning and implementation.

—Develop Corridors to begin a grid system and continue to enhance the grid system.

—Maintain neighborhood integrity and provide substantial mitigation for neighborhoods affected by transportation projects.

—Include Bicycle routes and sidewalks in Bench/Valley corridors.

—The ACHD should pursue authority to designate truck routes and restrict all but local truck traffic.

Citizen's Advisory Committee Recommendation

Corridor	Build	Cost	Number of Lanes
Curtis Road Extension	Build 3 Lanes Preserve 5 lane Right of Way	$6.9 Million	3/5
Ustick Road Extension	Yes	$3.9 Million	5
Glenwood Street Extension	Yes	$3.7 Million	5
Five Mile Road Extension from Chinden to Ustick	Build 3 lanes Preserve 5 lane right of way	$1.3 Million	3/5
Five Mile Road Extension from Chinden to State	Build 5 lanes and stripe 4 lanes	$28.2 Million	5/4

Citizen's Advisory Committee Recommendations

Corridor	Build	Cost	Number of Lanes
Interstate 84 Interchange	Yes	$25 Million	Includes 5 Lanes on Five Mile, Franklin to Overland
Adams Street Extension	Yes	$500,000	3
Maple Grove Road Extension to Chinden	Preserve Right of Way	$800,000	3
Orchard Street Extension to State Street	Preserve Right of Way	$3.3 Million	
Cloverdale Connector to Five Mile Extension	Preserve Right of Way	$500,000	
Maple Grove Connector to Five Mile Extension	Preserve Right of Way	$700,000	
Cloverdale Road Extension across the Boise River	Reject		

Bench/Valley Transportation Study
Citizens Advisory Committee Statement

The Bench/Valley Transportation Study Citizens Advisory Committee (CAC) submits the following report:
Over the length of the Bench/Valley Transportation Study, we have met monthly from December 1992 to June 1995 on behalf of our respective neighborhood areas to consider, as their representatives, the impact of transportation changes in the study area. We have outlined several areas of concern that we have tried to address with each neighborhood in mind to help in the decision-making process. We strongly recommend ACHD Commissioners give heavy consideration to our recommendations as the Bench/Valley Transportation Plan is implemented.

Public Involvement
Public involvement has been an important part of the Bench/Valley Transportation Study. We recommend public involvement be an integral part of all stages of planning and implementation of the Bench/Valley Transportation Plan.

Grid System
It has been our effort throughout this process to move this study forward as an initial step in planning and implementing a local grid based transportation system. As the Bench/Valley Transportation Plan is implemented we recommend the overall grid system be enhanced with local interconnecting grids as development occurs within the Bench/Valley study area.

Mitigation
Mitigation of all adverse impacts has been a primary concern of each member of the CAC. We recommend mitigation efforts such as those that maintain or improve the aesthetic qualities of a neighborhood be included in any transportation planning process. Such efforts may include, but are not limited to, noise abatement, pollution control, landscaping, and other elements specific to each neighborhood under consideration in the Bench/Valley Transportation Plan.

Furthermore, we include bike routes and sidewalks on our list of necessary mitigation elements for transportation corridors in the Bench/Valley Transportation Plan.

Truck Traffic
The CAC feels strongly about the restriction of truck traffic through residential neighborhoods. Truck traffic can seriously affect noise levels, safety and other concerns. The CAC therefore recommends that the Ada County Highway District pursue state legislation necessary to provide local agencies with the ability to designate specific truck routes and restrict all but local truck traffic. We further recommend that once state authority is obtained, that the Ada County Highway District select truck traffic routes in the Bench/Valley Transportation Study area.

State Highway Designation
We recommend against state highway designation of any of the corridors addressed in the Bench/Valley Transportation Plan.

Miscellaneous Issues
Despite the scope of the study, many issues and streets were not specifically addressed in our recommendations. Some of those include traffic enforcement, intersections, several east/west streets, other specific interconnecting streets, specific alternative transportation suggestions and funding. We recommend these and any other issues brought forth by the public be examined wherever and whenever appropriate.

The Bench/Valley Transportation Plan Process
In developing a viable transportation system for the Bench/Valley area, we feel this study process attained that goal.

Re: Public Input
Everyone in the community and in particular the residents in the study area were given more than ample opportunities to state their observations, suggestions and opinions. The massive efforts made to publicize these opportunities leave no room for ignorance of this study as an excuse by the public.

Re: The Citizens' Advisory Committee
Neighborhoods were consistently represented through the Bench/Valley Transportation Plan process. Each member filtered a tremendous amount of data and diverse public opinion during the two and one half year process. From this each person reached their own independent conclusion on each aspect of the overall plan and voted accordingly. Each specific part of the recommendations was reached by majority vote. We strongly feel our recommendations serve the overall good of the area and the community.

Re: The "Team"
We complement the study team in their efforts. They provided an extremely cooperative, knowledgeable source of data from which each of the committees could draw as much information as needed to make the most educated decisions possible. They also appeared to make a conscientious effort to effectively use the CAC to develop recommendations.

For Future Reference:

1. Shorten the process.
   A. The two and one half year time commitment was a burden.
   B. Two neighborhood meetings and one city-wide meeting should be enough to determine needs.
2. Reduce the CAC size by defining TAC and CAC carefully.
3. Provide more of the available traffic modeling and cost analysis data when a plan goes to the final public meetings.
4. Allow the CAC or a subcommittee thereof to review the information/questions

going to the public beforehand.

5. Develop Cost "Benefit" Analyses.

Conclusion:
The CAC feels the community as a whole "won" in contrast to individual neighborhoods "winning" on designated corridors. The recommendations of the CAC in particular reflect the attempt to strike a balance between the neighborhood needs and those of the community.

Recommended Corridors

We recommend to eliminate from further study:

* the Cloverdale Rd. extension across the Boise River

We recommend to build, in the following sequence:

* the Curtis Rd. extension to Chinden Blvd. We recommend to build three lanes and reserve right of way for five lanes on Curtis Road from Fairview Ave. to Mountain View Rd. We further recommend to build five lanes on Curtis Rd. from Mountain View Rd. to Chinden Blvd. and stripe for three.
* the Ustick Rd. extension to Curtis Rd. We recommend to build five lanes on Ustick Rd. from Five Mile Rd. to Curtis Rd.
* the Glenwood St. extension to Cole Rd. We recommend to build five lanes on the Glenwood St. connection to Cole Rd.
* the Five Mile Rd. extension from Chinden Blvd. to Ustick Rd., build three lanes and reserve right of way for five lanes.
* the Five Mile Rd. extension from Chinden Blvd. to State Street. We recommend to build five lanes on Five Mile Rd. from Chinden Blvd. to State St. and stripe for four lanes.
* the I-84 interchange at Five Mile Rd.
* the Adams St. extension from 37th St. to 36th St. We recommend to build three lanes on this extension from Veteran's Parkway to 36th St.

We recommend to reserve right-of-way for:

* the possible extension of Maple Grove Road to Chinden Blvd. with three lanes. We recommend to reserve 66' of right-of-way in this corridor from Chinden Blvd. to Ustick Rd.
* the Orchard St./30th St. extension to State St.
* a Cloverdale Rd./Maple Grove Rd. connector to the Five Mile Rd. extension north of Chinden and south of the river.

Bench/Valley Citizens' Advisory Committee Meeting Dates

December 3, 1992
January 7, 1993
January 20, 1993
February 4, 1993
February 18, 1993
March 4, 1993
March 18, 1993
April 15, 1993
April 29, 1993
May 13, 1993
July 12, 1993
September 28, 1993
October 28, 1993
November 11, 1993
December 9, 1993
January 20, 1994
February 17, 1994
March 24, 1994
April 7, 1994
April 21, 1994
May 18, 1994
June 28, 1994
July 12, 1994
October 6, 1994
October 27, 1994
November 17, 1994
December 15, 1994
January 19, 1995
February 23, 1995
March 23, 1995
April 6, 1995
April 20, 1995
April 27, 1995
May 16, 1995
May 30, 1995
June 20, 1995
August 29, 1995

BENCH/VALLEY
TRANSPORTATION
STUDY

APPENDIX F:
List of Stakeholders

BENCH/VALLEY STAKEHOLDERS

Steve Ahrens	Idaho Assn. of Commerce & Industry
Chris Anton	St. Alphonsus Hospital
Clair Bowman	Ada Planning Association
Tim Brennan	Idaho Retailers Association
Ted Ellis	Mayor of Garden City
Harlan Evans	Boise Senior Center
Jim Everett	YMCA
Wayne Gibbs	Boise City Planning
Steve Guerber	Mayor of Eagle
Bill Long	Waremart
Greg Nelson	Mayor of Kuna
Jerry Nyman	ACHD Director
Dave O'Leary	Garden City Planner
Peter O'Neill	Developer
Bobbie Patterson	Boise Convention & Visitors Bureau
Steve Pollack	Hewlett-Packard
Debbie Ruggles	Boise Urban Stages
Roger Simmons	Ada County Commissioner
Ray Stark	Boise Area Chamber of Commerce

BENCH/VALLEY
TRANSPORTATION
STUDY

APPENDIX G:
List of Press Conferences

News Conferences

The following is a list of news conferences conducted during the Bench/Valley Transportation Study:

DATE	SUBJECT OF NEWS CONFERENCE
November 24, 1993	Announce the first Bench/Valley Transportation Study community meeting and provide to the public details of the project.
February 22, 1994	Release to the public the comments, ideas and suggestions received at the first community meeting. Address future course of the study.
July 25, 1994	Announce results of the Household Travel Survey used to create the model for traffic forecasting.
August 8, 1994	Release information on travel corridors that were established after initial neighborhood and community meetings. The news conference was also used to promote another series of neighborhood meetings on the travel corridors.
June 5, 1995	Release working draft recommendations prior to two final neighborhood meetings.
September 5, 1995	Release Bench/Valley Transportation Study Draft Plan and promote the September 21, 1995 public hearing.

BENCH/VALLEY
TRANSPORTATION
STUDY

APPENDIX H:
Transportation Planning Supply Side Improvements

Prepared for

Ada County Highway District
Ada Planning Association

August 1994

Technical Memorandum

TRANSPORTATION PLANNING - SUPPLY-SIDE IMPROVEMENTS

As a part of

Bench/Valley Transportation Study

Prepared by

Centennial Engineering, Inc.

INTRODUCTION

Transportation planning for the Boise area should not just consider new highways or highway widening as the only solution to the transportation problems facing the community. An integrated planning approach addressing different mode choices, other capacity enhancements, and transportation demand management is required. Options to the traditional highway widening improvements include transportation systems management (TSM), transportation demand management (TDM), and supply-side improvements.

The first two methods of improving transportation, TSM and TDM, are discussed in detail in the *Transportation Characteristics and Transit* paper. The supply-side improvements in relationship to fixed-guideway transit technologies are the focus of this paper. Because gondolas, commuter rail, and light rail are the three technologies which have gained the largest following in the Boise area, they are the topic of this paper.

Table 1 presents an overview of these three transit technologies under consideration in addition to the bus for the City of Boise. The information is based on recently constructed systems and national averages. A more detailed description of gondolas and the two rail technologies are in the succeeding pages.

Table 1 - Transit Technology Options

	Avg. Max. Operational Speed (mph)	Average Operational Speed (mph)	Capital Cost ($ million/ mile)	Vehicle Capacity (persons)	Operating Line Capacity (persons/ hour)	Minimum Headway (seconds)
Gondola	17	12-15	5-10	4 - 12	4000	12 - 15
Light Rail	55	13	10-40	186	40,000	100
Commuter Rail	79	34	2-5	197	35,000	120
Bus	65	13	1-10	44	20,000	2.7

A critical criteria in determining the best transit technology for an area is the existing land use densities and the size of the downtown. These two factors have a strong influence on the success of each transit alternative.

The size of the metropolitan area alone will not make any specific transit systems work. A transit user mentality in the community must be developed over time. A city cannot simply build a high end system and expect that people will

automatically use it. Studies have shown that the majority of the rail patrons come from existing bus lines, not from the direct conversion of automobile drivers. The first phase in developing a good rail based transit system is to attract strong ridership to the bus system. Express bus service is an effective way to demonstrate the possibilities that will be available with more expensive rail transit systems. In fact, most of the areas with existing rail systems developed from a successful bus system with a strong express service.

Gondolas

Gondola, or cable technology, has been discussed as a transit alternative for the city of Boise. Currently, gondola use has been limited to resort areas due to their ability to transport a high number of passengers over difficult terrain or obstacles relatively cheaply. Ski areas, with their steep terrain and great gains in elevation over short distances, rely on the flexibility that a gondola provides. Gondola systems have a people moving capacity of up to 4,000 passengers per hour in one direction.

One of the few drawbacks to gondolas are the relatively slow speeds they travel in order to load and unload passengers. Over level ground, the maximum speed for a gondola is in the range of 12-17mph. Jig-back type gondolas that operate large cars can run at higher speeds but have lower passenger capacity of 500 to 700 persons per hour since they operate one car per direction at one time.

Urban and commuter use of gondola systems is very limited in the United States. A successful urban example is the Roosevelt Island apartments on the east side of Manhattan. These 3,300 apartments are on an island in the East River, with one connection to Manhattan being a jig-back type of gondola over the river and city streets. There is an additional subway connection to Manhattan, with the only vehicle access being through Queens. The system operates fairly slowly over a short distance.

Gondola systems have not proven to be successful for routine transportation where other more convenient means are available. An example is a gondola line constructed in New Orleans for a World Expo that was later closed because of low ridership.

The average capital costs of installing a gondola range between $5-10 million per mile. One likely route in Boise as has been presented by other parties is from the MK rail depot to downtown which traverses about one mile. There may be significant ROW issues involved in this gondola traversing an already developed area. For instance, buildings directly underneath a gondola must have fireproofing installed. The route of the gondola must be a straight line from

station to station. In most cases, stations must be built at a second level, so ADA requirements such as elevators will be necessary. The trip would take probably 3 to 5 minutes, depending on the type of gondola used. It should be an effective means of providing the connection between the rail terminal and downtown for a future commuter rail project since it will basically be serving a captive audience who are required to make a mode shift.

Other gondolas should consider the need for a large trip production and attraction at either trip end and how other modes of travel between the two ends will compete for riders. Over longer distances, the automobile will likely remain the mode of choice due to speed and convenience.

The use of a gondola raises major aesthetic concerns, especially in the corridor that has been discussed. Some of the greatest urban scenic amenities in the City and the State are in the corridor, including the State Capitol Building, the MK Rail Depot, two parks, and the Boise River.

Light Rail Transit

Another technology which often is presented as the solution to highway congestion is light rail. Light Rail Transit (LRT) employs electricity to propel passenger cars along a fixed track guide way. LRT's are characteristically quiet because mechanical engines are not used to move the train; rather, overhead lines, called catenaries, provide power to an electric motor in the train. The electric motor has no harmful emissions which makes this mode of transportation an environmentally conscious choice. The only pollutants emitted from this transit mode are the byproducts of electrical generation at a power plant. Power plants are much cleaner than automobiles for the amount of energy they produce.

The guide way for LRT can be the same as standard railroad tracks; it is a lighter weight because heavy locomotives are not used to move the passenger cars. The tracks can exist in right-of-way (ROW) exclusively for the light rail, or it may be built into an existing street; and, light rail trains can safely cross streets. This versatility allows it to go almost anywhere.

Light rail is an efficient, quiet mode of transit capable of transporting large numbers of people. Larger than buses, light rail "trains" have room for 120 people to sit in seats and room for an additional 106 people to stand; this compares with a total capacity of 65 on a bus. LRT offers a comfortable ride at speeds of up to 55 mph. The average speed, after all the stops are taken into consideration, is 11-25 mph. With a 100-second minimum headway, the maximum theoretical line capacity of LRT is 40,000 persons/hour.

A good method of analyzing the cost is by comparing it to another transit option such as the bus. With the average cost of buses a little less than $230,000, between 40 and 50 buses could be purchased for the amount of capital required for every mile of light rail track. The total capital cost for construction of recently constructed light rail systems range from $7.3 million per mile for the San Diego and Sacramento system to $19 million per mile for the Los Angeles system with most systems costing $10 million per mile. Additionally, the vehicle operation and maintenance costs for LRT are three times that of buses. Operation costs for light rail runs between $22 and $84 per vehicle hour and maintenance costs have run as high as $267,000 per mile for existing light rail systems. It is obvious that the costs of installing and running light rail is the primary downside of this technology.

Portland built a light rail system that went on line in 1987. Propositions have been made for Boise to model a light rail system after the Portland light rail system. Some figures on their project have been included for comparison. The Portland system contains 29.3 miles of track with 25 stations and 26 vehicles. At peak times, 22 of these vehicles are running with 7.5 minute headways. The midday headways are twice the preceding value and only 12 cars run during these off-peak hours. The total operating expense for this system in 1991 was nearly $6 million or roughly $205,000 per mile. As far as safety is concerned, they had 204 accidents with 210 injuries and only one fatality.

The city of Seattle did a comprehensive feasibility study to determine the most appropriate transit technology after some smaller Western cities had installed light rail systems. Seattle was considering building a rail line to connect communities along the eastern side of Puget Sound and the feasibility study was conducted to see if such a system would be practical and desirable in that area. The results showed the public attitude toward rail and it has helped predict future use. Seattle and the Puget Sound communities, with more than 1.6 million households, is much larger than the Boise area, which has under 100,000 households, or less than 7% the size of Seattle. After extensive analysis, Seattle determined that they have not yet reached a point where light rail would be a viable alternative for its community.

In the Seattle study, the question was asked, "What is the likelihood that you would use the following transit alternatives for commuting," equal numbers of people, 55% for both, said they would use an improved bus system or a rail transit system. There may be no added benefit to implementing a LRT over a better bus system as no significant amount more would use the rail system. An LRT would remove the numerous buses in the core of the city, yet LRT reduces the usual curb space available for loading or parking.

The Seattle study analyzed what kind of traffic congestion mitigation rail could produce. They found that by the year 2020 Transportation System Management (TSM) could reduce congestion by 1.8%. TSM and rail combined, reduce congestion by only 2% more. A rather insignificant benefit considering the $32.6 billion cost of their system. In many cases, LRT can actually increase the amount of congestion. In addition to added traffic signals at the crossings, the amount of room for cars is reduced by one lane because light rail often runs along the city streets. Seattle has an extensive system of buses and high occupancy vehicle lanes to help reduce some of their congestion problems.

Several cities in the United States have tried light rail, several with discouraging results. If light rail is going to work, it needs to be done in a city with enough people to use the system as well as cover the large costs of building and operating it. Examples of some of the existing light rail systems and their characteristics are shown in Table 2.

Table 2 - Existing Light Rail System Characteristics

City	City Population	System Length (km)	# of Rolling Stock	Ridership (Million/year)
Baltimore	800,000	28	35	2.6
Boston	2,700,000	56	237	60.0
Buffalo	900,000	10	39	8.5
Los Angeles	3,400,000	36	54	11.3
Philadelphia	4,000,000	22	26	4.6
Portland	1,200,000	24	30	7.8
Sacramento	1,000,000	30	36	6.8
San Diego	2,500,000	38	128	18.2
San Francisco	2,500,000	38	128	40.0
San Jose	800,000	32	55	6.1

Boise should strongly consider whether the benefits to the people will outweigh the large capital costs of building and operating a light rail system. Federal funds for this type of transportation, though reaching nearly 83% of the total cost at one time, are now relatively small, on the order of 20%. LRT is an efficient transit mode, but in order to be efficient, it must operate in a city that can generate

enough riders and have the capital to build the project. In time, Boise may be an ideal area for light rail.

A possible inclusion into the category of light rail is the CyberTran system, recently developed at the Idaho National Engineering Laboratory (INEL). This system, which has not yet been built in any communities, is estimated to have a cost of about 20% of the current light rail system costs. CyberTran utilizes computer-controlled, light-weight, electrically powered, low occupancy vehicles that travel in elevated guideways at high speeds. One appealing aspect of the CyberTran, is its ability to travel at high speeds, making it a possible alternative to a commuter rail system between distant stations. CyberTran is proposed with 14-32 passenger, driverless vehicles, that operate separate by computer control, with a minimum one-quarter mile headway.

Commuter Rail

A third technology which has received much attention in the Boise area is commuter rail. Commuter rail is a rail passenger service, typically using passenger trains on existing standard tracks. Typically, commuter rail provides a long-haul service to carry commuters from the suburbs and outlying communities with a dense urban core with maximum speeds up to 79 miles per hour and average operating speeds of 20-50 mph (79 mph is the maximum operating speeds for railroads having at-grade road crossings). Average trip length is approximately 22 miles. In addition, commuter rail usually has a limited number of stops in the metropolitan suburbs with typical spacing of 3-5 miles. The tracks are often shared in a joint commuter/freight arrangement on existing tracks. The commuter rail service provides a greater degree of passenger comfort over other modes of transit.

Commuter rail systems in operation consist of a wide variety of equipment: the cars can be either propelled by locomotives or self-propelled, operated by either diesel or electric, can be single decked or double decked and can have either low- or high-level boarding platforms. Most systems in operation in the United States are diesel powered. Most locomotive powered commuter trains are arranged for push-pull operations: the locomotive pulls the train in one direction and pushes it in the opposite direction.

In many American metropolitan areas, growing congestion and the suburbanization of the area has made it difficult to provide cost-effective transit service. The utilization of the existing tracks which serve outlying areas has become an attractive alternative to expensive capital improvements. Commuter rail is one of the lower-cost rail transit systems to implement on a per-mile basis.

The costs of implementing commuter rail service may include leasing or purchasing the railroad right-of-way; purchasing the right to operate commuter trains on the railroad's tracks; the costs of improving the tracks and adding passing tracks where necessary; improved signal systems; upgraded highway crossings which usually require flashing lights and gates; and the construction of stations and park-and-ride lots for the patrons. Dependent upon these elements, the costs of capital improvements may range from $2-5 million per mile of existing or renovated rail tracks.

The period to implement a commuter rail service is often shorter than the implementation of either a heavy rail or light rail system. The reason is that commuter rail utilizes existing railroad facilities, whereas heavy rail or light rail invariably requires major construction of facilities often including aerial structures, and/or construction in the streets or the highway right-of-ways.

The major time-consuming items involved in implementing commuter rail are obtaining agreements with the railroads for lease or sale of the right-of-way, or rights of access to the trackage for the operation of commuter trains; providing necessary improvement in tracks and the signal system; and construction of the stations and park-and-rides.

Commuter rail systems and their ridership have been growing significantly in the past decade. Examples of existing commuter rail systems and their characteristics are shown in Table 4.

Table 4 - System Description for Existing Commuter Rail Systems in the United States

Name of the System	Metropolitan Area	Route Miles	No. of Stations	# Trains/Wk Both Directions	Population (millions)	Dwelling Units/Acre	Range of Commuter Rail Line (Miles)	Avg. Daily Cost of Parking Downtown
Long Island Railroad (LIRR)	New York	319.1	134	723	18.1	13.9	14 - 117	> $20
Metro-North (M-N)	New York	338.1	120	494	18.1	13.9	14 - 117	> $20
Metropolitan Rail (Metra)	Chicago	499.5	233	660	7.3	7.6	24 - 63	n/a
New JerseyTransit (NJT)	New York	781.0	160	570	18.1	13.9	12 - 71	> $20
Southeastern Pennsylvania Transportation Authority (SEPTA)	Philadelphia	282.0	159	360	4.0	7.0	8 - 35	$7.70
Massachusetts Bay Transportation Authority (MBTA)	Boston	244.0	101	374	2.7	7.0	21 - 35	n/a
CalTrain Peninsula Commuter Service (PCS)	San Francisco	47.0	28	54	2.5	9.3	47	n/a
Maryland Rail Commuter (MARC)	Washington, D.C.	187.0	38	70	3.3	5.8	37 - 73	n/a
Northern Indiana Commuter Transportation District (NICTD)	Chicago	88.0	27	40	7.3	7.6	24 - 63	n/a
Tri-County Rail (Tri-Rail)	Miami	66.4	15	24	1.9	6.3	n/a	n/a
Orange County Commuter (OC)	Los Angeles	128.0	n/a	n/a	3.4	4.0	n/a	$20.00
Connecticut DOT (Conn)	New Haven	32.8	7	14	0.6	n/a	n/a	n/a
	Boise				***0.24***	***2.0***		***<$3.00***

Various sources

Summary

Development of a good transit system is a vital component of a balanced transportation system in a major city. The existing conditions offer potential for future implementation of these systems. Any of the three technologies discussed in this paper have possible long-term applications in the Treasure Valley. The question which must be answered is how can the largest number of services be provided most efficiently while reducing the transportation problems within the metropolitan area. Implementation strategy is the key to success of the transit system. A good transit system evolves out of a well-used bus system. When consumer confidence is attained through offering a convenient service that is a viable alternative to using their car, it can be assumed that they will continue use of a rail based system. Whatever system is implemented, it must be convenient, comfortable, and flexible to the transit user.

Of the rail transit systems, commuter rail has the greatest potential for application because of much lower "up-front" costs. Railroad tracks already connect to the MK station near downtown. Rolling stock, suburban park-and-ride lots, and signal improvements would likely be the major expenditures necessary to make commuter rail operational. The existing UPRR corridor is a logical corridor with the inclusion of the old loop to downtown, if possible. Most systems in the lower density cities are dependant upon terminals within walking distance of the employment centers, which the MK Depot is not. Transferring on transit systems is very detrimental to ridership due to the inconvenience it causes.

Light rail, although efficient, is expensive and would be overkill for Boise's current size. For the short term, expansion of the bus service will prove to be the most beneficial option for developing a good transit system in Boise. Preservation of ROW for a future transportation system such as one of the three major technologies discussed should begin soon and run concurrently with expanding the bus system.

In order for any mode of transportation to work, it must provide a benefit to the consumers that they couldn't otherwise get by providing their own transportation, and it must be convenient for them.

BENCH/VALLEY
TRANSPORTATION
STUDY

APPENDIX I:
Transportation Characteristics and Transit

Prepared for

Ada County Highway District
Ada Planning Association

August 1994

Technical Memorandum

TRANSPORTATION CHARACTERISTICS & TRANSIT

As a part of

Bench/Valley Transportation Study

Prepared by

Centennial Engineering, Inc.

INTRODUCTION

The purpose of this paper is to explain current transportation characteristics, transportation strategies and transit technologies available to the Boise area. Wherever possible, local characteristics have been included for comparison purposes.

TRANSPORTATION TRENDS

It is generally regarded as true that the root of the traffic congestion problem in the United States is the American fixation with the automobile. For half a century public policy has created a society which centers on the private automobile. This lifestyle will not and cannot change overnight.

Transit alternatives to the private automobile are often pushed as the solution to congestion problems, but the trip-making decision is a rational decision. The American driver chooses the private automobile because it provides comfort, convenience, and flexibility often far superior to transit. Until these amenities are provided by transit or are removed from the single occupant vehicle (SOV), the American driver will continue to rely on the private automobile.

Examples of traffic congestion in large metropolitan areas give some indication of the growing tolerance of Americans to congestion. Even cellular phones, portable computers, portable fax machines, and other technological products have helped Americans adapt to long hours in the automobile. In cities like New York and Los Angeles, and even smaller metropolitan areas such as Portland or Salt Lake City, congestion alone has failed to divert people onto transit systems. In a smaller metropolitan area like Boise, congestion levels can probably increase significantly before they reach a point where transit becomes an option that commuters or travelers with other purposes will consider.

A second constraint related to driver behavior is the work trip. A large percentage of the current transportation policy and new transit projects are targeted at this trip, even though they are only 26 percent of all trips. The most optimistic Traffic Control Measures (TCMs) can only hope to reduce work trips by twenty percent. This relates to a mere 5.2 percent reduction in all trips. This reduction would quickly be overshadowed with annual vehicle miles traveled (VMT) growth and existing latent demand. The following are descriptions of some national trends in automobile and transit use.

1. Reasons For Increased Auto Use

The important factor in the increase in auto use is the changing travel behavior of Americans. Automobile travel as measured by VMT has increased dramatically, far outpacing the population and household growth, in the recent past. Between 1983 and 1990, passenger VMT increased by 41 percent, compared to relatively slight increases in population and households, six and nine percent, respectively.[1]

There are several reasons for this dramatic increase in VMT. *Commuting in America: A National Report on Commuting Patterns and Trends*, a 1987 publication, focuses on three themes which are affecting national travel patterns: the worker boom, the suburban commuting boom and the private vehicle boom.

Worker Boom. The American worker boom is a phenomena in which the number of workers/jobs has outpaced the population growth. This increase in commuters is two part: the rapid growth of available jobs and an accompanying growth in the percent of working-age people in the work force.

The discrepancy between the rate of growth for workers/jobs and the corresponding population growth rate questions the standard transportation planning assumptions based on employment growth. For example, there is the belief that if population growth is stopped, it would result in zero growth of VMT. In actuality, data from the 1990 Nationwide Personal Transportation Survey shows that, for the period between 1983 and 1990, if no population growth were realized, person miles of travel would still have increased on the order of 14 to 15 percent.

Suburban Commuting Boom. The growth in metropolitan areas has been concentrated in suburbs for both residents and businesses. Suburbs have grown to 44 percent of the population, up from 23 percent in 1985. Between 1960 and 1980 suburbs have received about two-thirds of all metropolitan job growth.[2] These shifts in demographics have caused the suburb to suburb commute to become the predominant travel pattern. This shift to the suburbs has increased the average travel time and distance for commute trips. In fact, average trip length increased 6.9 percent between 1983 to 1990.[3] The average travel time for a work commute trip increased from 21.7 minutes in 1980 to 22.4 minutes in 1990.

Private Vehicle Boom. Private vehicle use has increased its percent of preferred mode for total travel. This increase can be attributed to the demographic shifts to the suburbs and the enormous growth of vehicles available per household. For example, the number of households without any vehicle shrank from 22% in 1960

to 13% in 1980. The most significant trend regarding vehicle availability is the number of vehicles available per worker, which rose from 0.85 in 1960 to 1.34 in 1980.[4]

In addition, while more people are traveling and the VMT per capita has increased, the highway capacity has been practically constant since 1970. Federal Highway Administration inventories show that highway road miles have increased only 4 percent between 1970 and 1991 (primarily all in urban areas, therefore the percent change would be higher for urban areas).

2. National Decline in Transit Usage

Although transit usage remains constant at about six million riders per year, the overall percent of transit usage of all work/commute trips due to an increase in total commuters has declined from about 6.4 to 5.3 percent between 1980 and 1990. Transit's share of all travel nationwide has declined from 2.4 percent in 1977 to 2.0 percent in 1990.

In addition, the average vehicle occupancy (AVO), which corresponds to ridesharing (carpools and vanpools) has declined from 1.9 in 1977 to 1.5 in 1990. Working trips occupancy rate is even lower with an AVO of 1.1 in 1990.

These trends in the decline of transit usage are attributed to the three themes previously discussed: the worker boom, the suburban community boom, and the private vehicle boom. The suburban boom has created an unfriendly transit environment, because it is difficult to efficiently serve suburban to suburban trips with transit.

Because of national transportation trends, there has been increased attention on controlling VMT with particular emphasis on work trips. However, work trips (normal commutes between home and work) have dropped to only 26 percent of all trips in 1990 (down from 32 percent in 1969).

While work trips decreased as a percentage of all trips, other trip purposes have increased during the same time period. The share of trips made on family or personal business increased from 14 to 24 percent and shopping trips increased from 15 to 20 percent.

These transportation trends emphasize the likelihood of the continued dominance of the automobile as the preferred mode of choice, although there is discussion that the rapid VMT increase previously experienced may be leveling. Reasons include potential vehicle ownership saturation and the increase of women in the workplace seems to be slowing or may have peaked.

3. Land Use Trends

The intensity, location, and type of developed land largely determines how people will travel. Successful transit systems are usually found only where the density of land use is very high. Examples of land use densities that support different types of mass transit is described later.

The goal of most American households is to own a single-family detached home with a yard. This type of development requires a large amount of land which promotes the use of the private automobile instead of transit, pedestrian, and bicycle use. The American marketplace for new housing and employment areas demands lower density, especially residential areas. Local governments have not supported higher density zoning, even around existing or proposed transit served areas.

Even if future land use decisions are made to be more transit friendly, existing land use patterns will remain relatively unchanged. It is going to be difficult if not impossible to change existing urban characteristics. Densities could be increased in vacant lots and other in-fill sites, but not enough to make a dent in the average density of the metropolitan area. Boise is typical of many smaller urban areas with relatively low densities of population that developed around automobile accessibility.

Boise has grown in a similar fashion to many western U.S. cities during the 1970s, 1980s, and early 1990s. Growth in suburban areas is outpacing growth in the central portion of Boise. This trend is projected to continue, both with population and employment growth. Land that is relatively cheap to develop is still widely available west of Boise along the I-84 corridor. The suburb to suburb trend for travel seen in other metro areas will likely continue to develop in Boise and Boise suburbs.

Employment is projected to more than double (159%) in Ada County over the next 25 years, with county population growth increasing by about 76% in the same period. As discussed earlier, this trend of job growth outpacing population growth in the county results in a more mobile population and likely more VMT.

4. Successful Transit System Characteristics

Most rail transit systems in the United States are conceived as solutions to auto congestion and air pollution problems. However, few of the recently developed systems can be considered successful in achieving this goal. It appears that most rail transit systems have taken a large percentage of ridership from the bus systems, while automobile use continues to be steady or increase. Even

optimistic forecasts for ridership on proposed rail systems, such as commuter rail in Seattle, find that almost the same reduction in auto travel could be attained with a greatly improved bus system, at a fraction of the cost.

What transit system is best for a city can somewhat be determined from the density of the residential area and the size of the downtown area. The following table offers a good guideline.

Transit Mode	Minimum Necessary Residential Density (dwellings per acre)
Dial-a-bus	3.5 to 6
Local Bus	4 -- 15 (Depending on frequency)
Express Bus	3 (Over 20 square miles)
Light Rail	9
Rapid Transit	12
Commuter Rail	1 to 2

Buses and taxi cabs still work best for smaller cities. Light rail would require a city or region population of at least 750,000 people to be effective. Rapid transit and commuter rail should not be considered for cities with populations under 1 million.

As described earlier, only about 26% of total trips are now the standard home to office "work-trip". That portion of total trips is getting smaller, as is the portion of those trips that are making the "typical" suburb to central-city trip. Rail transit systems, both long established and newer ones, are built to serve the suburb to central-city commute, so the result has usually been that a great deal of money is spent on rail systems that serve an ever decreasing minority of trips, and the overall automobile and VMT levels are barely affected. It is estimated that the

energy saved in San Francisco by having the BART system will never exceed the energy required to construct and operate it.

Transit ridership has continued to decrease over the past 20 years, even though the trend for new transportation projects is to allocate funding to those projects providing some transit alternative. Costs for providing new or expanded transit systems have increased dramatically, and new federal funding mechanisms have made obtaining federal matches for projects even more difficult.

The Denver-Boulder area has implemented a very successful program called Eco-Pass for their bus system. This program allows employers to purchase discounted monthly fare passes for their employees. These pass purchases are tax-deductible for the employer and in most cases allow unlimited free bus ridership for the employees. The intent of the program is to shift employer subsidies away from supplementing paid parking or building larger parking lots.

As part of the program, emergency trips by taxi are provided free of charge to the employee. More than 350 employers that represent almost 20,000 employees in the Denver/Boulder area have joined the program. The rates charged the employers vary from $20 to $55 per year per employee, depending on the level of bus service their location receives. Besides employers, the program is being expanded so that schools or even neighborhood associations can participate. The importance of only allowing groups to participate is that there must be a simple structure set up for collection of the yearly fee and organization of the enrollment.

One lesson learned from the Eco-Pass program is that Eco-Pass or some other form of marketable program must be implemented side-by-side with improvements to the bus systems, such as adding buses or routes. Having a specific program can extend beyond promotion of the transit system. The city of Boulder has been quite progressive in promoting alternatives to SOV use and has been quite successful. Boulder has found that the transportation solutions arise not from one solution but a "menu" of objectives that lead to a more efficient use of the transportation system.

First, the transportation system must be in place and operating well for all modes of travel, including automobiles, buses, and bicycle/pedestrians. Second, the land use and design of residential and commercial sites must promote the use of alternative modes. Developments built previous to the late 1980s were focused on the SOV, a design that required simple trips from one development to another to be made by a much longer trip that often requires use of collector and arterial streets. At the very least for pedestrians and bicycles, the grid system of streets has been found to be essential.

Finally, there must be some sort of incentive program in place for use of alternative modes, and even a disincentives program to discourage use of SOVs. Bicycle and pedestrian modes are very well utilized in Boulder, and they are promoted by free distribution of maps and increased locations of bicycle loop detectors and locking racks for security. The Eco-Pass program described earlier has been a major benefit to the bus transit system. Improvements to the bus service, such as high frequency direct routes between high activity areas, are being proposed to further take advantage of the Eco-Pass. Neighborhood scale buses utilizing alternative fuels are also part of the improvement program.

5. Transit Incentives/Transportation Demand Management

Perhaps the greatest advantage of Transportation Demand Management (TDM) strategies over traditional measures is they offer individuals and businesses the incentive to develop innovative options like telecommuting, flexible work schedules, vanpools, etc. TDM strategies attempt to reduce the capacity demand by either removing the trips from the system, changing the character or mode of the trip, or by shifting the trip to a different time or route. The object is to make the best use of available resources at the lowest cost.

TDM is not an exact science and is typically tailored to the community. TDM strategies are appealing, because often times there seem to be little or no expenditure in capital costs. The difficulty involved with TDM is trying to predict the change in the trip-making behavior of the driver.

There are several aspects of a trip which TDM measures may alter or eliminate. These different aspects of a trip in relationship to the TDM objectives are shown in the table below.

Aspect of Trip	TDM Objective
Trip generation	Eliminate trip entirely.
Trip distribution	Shift trip from a more congested destination to a less congested one.
Mode choice	Shift trip from a lower occupancy mode of travel to a higher occupancy one.
Route selection (spatial)	Shift trip from a more congested route to a less congested route.
Route selection (temporal)	Shift trip from a more congested time period to a less congested one.

The measures of effectiveness for TDM measures are based on their ability to alter the different aspects of the trip. The more aspects of the trip the TDM measure can alter, the more effective it is.

From looking at the list of Transportation Control Measures listed below, several themes are prevalent: pricing strategies, transit incentives and improvements and parking strategies. Current opinion in the transportation field is that pricing strategies hold the most opportunities, as well as having the most hurdles towards successful implementation.

Transportation Control Measures

- Zone Pricing
- Reduced Transit Fares
- Tolls
- Increased Transit Service
- Parking Management (pricing and preferential)
- Auto Free Zones
- Preferential Treatment for HOV's
- Transportation Allowance
- Direct Money Incentives for Alternative Transportation Use
- Emission Fare Charges
- Ridesharing Programs (Carpools or Vanpools)
- Increase in Gasoline Tax
- Establishment of an Integrated Bicycle Lane System
- Commuter Information Program
- On-Site Transit Pass Sales
- Guaranteed Ride Home Program
- Design Features to Facilitate Transit Rideshare Access
- Telecommuting
- Lunch-time Shuttle Service
- Park-and-Ride Lots
- VMT/Emissions Tax
- Queue Bypass
- Employee Transit Passes or Subsidies
- Area Licensing
- Alternative Work Schedules (Flextime and Staggered Work Weeks)

Pricing strategies are different from the mainstream, traditional TCMs because they consist of economic and market-based incentives to bring about behavioral changes. Perhaps the greatest advantage of these strategies over traditional measures is they enhance ridership on conventional travel alternatives such as bus and rail. They also offer individuals and businesses the incentive to develop innovative options like telecommuting and vanpools.

Other advantages include greater economic efficiency, reduced congestion and financing. The money received could be used to finance repairs to the deteriorating transportation infrastructure as well as improving or constructing a transit system competitive with the Single Occupant Vehicle (SOV). Examples include congestion pricing, increased parking prices, Vehicle Miles Traveled (VMT)/emission pricing and increased fuel taxes.

A congestion price is a charge that reflects, as closely as possible, the marginal social cost of each trip in terms of its impact to others. Such a charge is based on the difference between the cost perceived by a user when entering the traffic stream and the cost actually imposed on all users as a result of the addition resulting from that user's entry and movement through the traffic stream. With congestion pricing, the cost is collected at the point and time of use. Congestion pricing allows for tailoring of the price, a user would pay by time of day, day of week, and occupancy of the vehicle. Congestion pricing in all likelihood, would be used only during peak periods or special events.

VMT/emission pricing is a charge based on the annual vehicle miles traveled or a tax based upon the emission level of the automobile or a combination of both. State or local governments could collect the VMT tax according to the odometer readings taken at annual registration or during mandated inspection and maintenance checks. Similar to VMT pricing, fuel taxes increase the price to drive. Instead of a yearly collection, the user would pay at the gas pump. This strategy would influence drivers to use more fuel-efficient vehicles -that cost less per mile driven.

Low density in residential areas is a drawback for many transit systems that are either in place or proposed. Transit Friendly Development (TFD) is a relatively new idea that is moving from the conceptual stage to implementation. The developments move away from the traditional low density residence areas where nothing is accessible by foot or bicycle. In the proposed developments, all the residents can walk to the center of the "Pedestrian Pocket" where they can board a bus or other High Occupancy Vehicle (HOV) if necessary, although the objective of these communities is to eliminate the need to travel more than a couple of miles at most.

The TFD is more than just a housing development. Proposals and the centers being built call for all of the amenities: places to shop, libraries, schools, banks, post offices, theaters, etc. The places that are used by all are located at the center of the development, all within walking distance of the high density living areas; people have no use for cars. Narrow streets with limited speeds will allow user to use their cars, but it would be more efficient to walk or bicycle. The added exercise is invaluable for the people and pollution from the cars and time wasted by sitting in traffic is eliminated.

Travel between two or more centers or business districts is accomplished through the use of a bus or other transit mode. These vehicles would run more frequently and with more people on board thereby reducing the number of SOV's polluting the road.

Public acceptance of the nontraditional market/economic based TCMs (congestion pricing, increased fuel tax, VMT/emission tax, etc.) will be difficult. Three hurdles are readily apparent. First, human nature is traditionally against change -- pricing strategies are drastic change. These types of measures are putting a monetary value on an activity which currently is perceived as free. Something as basic as adding paid parking can create a strong public outcry. While public gaining acceptance is difficult, it can and has been accomplished in other cities in the U.S.

TRANSIT TECHNOLOGY COMPARISON

In order to consider a transit system or interfacing systems for a metropolitan area, planners must measure the travel and land use characteristics observed against the utility provided by the various forms of the technology. The many forms of transit technology in use around the world can be evaluated in three primary areas:

1. Technology type
2. Type of Service provided (short/long haul, number of stops, passenger capacity)
3. Right-of-Way, surface transport interaction

These three characteristics of a transit system define its utility, service level, and costs. Ultimately these characteristics determine how well the transit system will complete with the SOV.

To describe the area of the technology type of a transit system, the following aspects of the system can be evaluated:

1. The type of guidance - whether a transit vehicle is guided by a driver steering or the structure of the system. This structure includes rails or fixed cables.

2. Vehicle support - similar to the guidance, how is the vehicle supported structurally, including rubber tire, steel wheel on rail, cable, or future technologies like magnetic levitation.

3. Propulsion and power - Use of internal (battery) or external electrical sources or diesel, natural gas, or other combustible fuel source. Future technologies include linear induction motors.

4. System control - how each vehicle is regulated with respect to each other, such as vehicle spacing along the system or separated by direction or class of service (express/local).

The types of service provided correspond most closely with the demands and travel characteristics of the population. The type of service can also be classified into various levels:

1. Types of routes and trips - Regional transit provides longer trips at higher speeds with fewer stops. Transit within the city attempts to service as many locations as possible while still operating at speeds close to the SOV. Short haul systems provide service between high density locations in a highly traveled corridor and at a slower speed, such as a downtown mall shuttle.

2. Stopping schedule - The breakdown in this category is similar to that of the types of routes and trips, with regional service having fewer stops than the short haul service.

3. Time of Operation - Most transit systems operate on all-day service schedules. Service is cut back at late night hours and increased during rush hours to meet travel demand. Some special event services can be provided, such as stadium events.

The Right-of-Way (ROW) category of a transit system has the largest bearing on the capital costs and operations costs of a transit system. The ideal transit system has a dedicated ROW with no interaction with other travel modes. This allows speeds and schedules to be the most efficient, yet the cost of such a system is very high. Some systems such as buses and some light rail systems utilize surface streets and mix with automobiles. The cost of ROW is much less, but efficiency is reduced by involving the transit system in the congestion.

The costs of transit systems can vary greatly given the previously described characteristics. Not included in the previous descriptions is the yearly operations and maintenance (O&M) costs of a transit system. Bus systems have typically had the lowest O&M costs due to the simplicity of the system and the widespread technology use. In addition, most buses utilize the existing transportation infrastructure in place for automobiles, with special construction only necessary for bus pullouts or terminal areas. The construction of HOV lanes or bus only

lanes can bring the costs of providing high-speed bus routes up to the level of some fixed guideway system costs.

Fixed guideway systems (FGTs) describe a number of transit system technologies, including:

- Light Rail Transit (LRT)
- Heavy Rail Transit
- Commuter Rail Transit
- High Speed Rail Transit
- Automated Guideway Transit (AGT)
- Guided Busway (O-Bahn)
- Magnetic Levitation (Maglev)
- Cable Systems (Gondolas)
- Personalized Rapid Transit (PRT)
- CyberTran System

The LRT systems in use are generally designed to provide transit service all day, with increased service possible during peak hours. Many recent LRT installations have been incorporated into existing streets, with the LRTs interacting with automobiles and sometimes controlled by traffic signals. All LRTs are electrically powered, mostly by overhead wires so the street level activity is minimized. The costs of installing LRT can range from $8 million to $40 million per mile, with a fairly high capacity of 6,000 to 20,000 persons per hour.

Heavy rail systems are the most common in use in the U.S. and Canada. The electrically powered systems in wide use in the east coast require a third rail electrical source, so the system requires a separate ROW. These systems are best suited to high density areas that have people moving requirements of over 15,000 persons per hour. For comparison, most corridors in the Denver area require only 5,000 persons per hour movement.

Commuter rail systems usually utilize existing railroad tracks and corridors, and often share the tracks with other railroad operations. With the existing rails mostly in place, systems can be developed for less than $5 million per mile. High speeds (up to 79 mph) can be achieved with diesel powered commuter rail lines, and person capacity can range from 8,000 to 35,000 persons per hour. AT the high speeds, commuter rail is a good option for the Nampa to Boise route.

High speed rail is a technology used mostly for inter-city travel in France, Japan (Bullet Trains), and the northeast corridor of the U.S. The Technology focuses on making tilt-body trains that compensate for the sharper curves existing on many existing rail corridors. AGTs, O-Bahns, PRT, and Maglev systems are expensive technologies that have installations mostly limited to test sections in

various cities or airports. Examples include the PRT system in Morgantown, W.Va. at the University of West Virginia.

Cable systems such as gondolas are used mostly in recreation areas such as ski areas. A gondola has the advantage of easily traversing difficult terrain or a highly developed area with the impact limited to a support post every few hundred feet. Cable systems work well for transporting over short distances at slower speeds of 12-15 mph. Depending on the type of gondola, the capacity is up to 4,000 persons per hour in one direction. A disadvantage is that there is not really an opportunity for midpoint stops. The costs are relatively low for gondolas, around $5 million per mile.

CyberTran is a new concept in high-speed mass transit, which is being developed by Idaho National Engineering Laboratory (INEL). It utilizes computer-controlled, light-weight, low-occupancy vehicles that travel in elevated guideways at high speeds. The INEL is currently testing the new concept, and looking for various possible applications throughout the U.S. It has been proposed as a possible solution in the Treasure Valley, extending from the Nampa/Caldwell area into Boise to relieve some of the pressure on I-84 and other roadway facilities. Because the vehicles are so much lighter than previously used technologies, the INEL developers anticipate a much less expensive guideway system will be required. Further investigation of this technology as an application in the Boise area may be warranted.

An expanded bus system for Boise is currently under consideration, and so it would be difficult to estimate the costs involved at this time. Possible improvements such as new bus routes with additional transfer nodes, routes laid out on a grid pattern rather than radially, shorter headways, additional routes, more express regional services, extension of the transit mall or additional malls, or HOV or bus-only lanes would enhance the service and ultimately increase ridership. The transportation plan that is implemented should go a long way towards instituting a program or programs that encourage the use of a transit system and reduce the use of SOVs. Buses are the most flexible and cost effective means of serving moderate sized cities and remain an integral part of the transportation system as a city grows and develops a fixed guideway system, whatever that system may be.

1. United States Environmental Protection Agency and United States Department of Transportation, *Clean Air Through Transportation: Challenges in Meeting National Air Quality Standards*, August, 1993.

2. Ibid.

3. Pisarski, Alan E., *Travel Behavior Issues in the 90's, United Stated Department of Transportation*, Federal Highway Administration, Office of Highway Information Management, July, 1992.

4. Pisarski, Alan E., *Commuting in America: A National Report on Commuting Patterns and Trends*, Eno Foundation for Transportation, Inc., 1987.

BENCH/VALLEY
TRANSPORTATION
STUDY

APPENDIX J:
Transportation Demand Management

Prepared for

Ada County Highway District
Ada Planning Association

February 1995

Technical Memorandum

TRANSPORTATION DEMAND MANAGEMENT

As a part of
Bench/Valley Transportation Study

Prepared by

Centennial Engineering, Inc.

INTRODUCTION

Transportation demand management (TDM) is a set of strategies that attempts to reduce the demand on transportation system capacity by either removing the trips from the system, changing the character or mode of the trip, or by shifting the trip to a different time or route. TDM has no uniform application and must be specifically tailored to the needs of the community. TDM is appealing because it often requires little or no expenditure of capital.

The difficulty involved with TDM is trying to predict the change in the trip-making behavior of the driver. Each community has distinct socio-economic conditions, travel habits, alternate modes of transportation, existing transportation systems, and other factors that limit the ability to predict the change in the trip-making behavior. Because of these unknowns and their relationship with varying TDM combinations, this paper discusses TDM measures that may be appropriate for the Boise area. This discussion provides characteristics of those TDM measures that may be useful in the preparation of a TDM plan.

The objective of TDM is to change the trip-making behavior of the driver. There are several aspects of a trip that TDM may alter or eliminate. For each aspect of a trip, there is a particular TDM objective as shown in the following table.

Aspect of Trip	TDM Objective
Trip Generation	Eliminate trip entirely.
Trip Distribution	Shift trip from a more congested destination to one less congested.
Mode Choice	Shift trip from a lower occupancy mode of travel to a higher occupancy one.
Route Selection (spatial)	Shift trip from a more congested route to one less congested.
Route Selection (temporal)	Shift trip from a more congested time period to one less congested.

The degree of effectiveness of TDM is based on their ability to alter each aspect of the trip. The more aspects of the trip the TDM measures can alter, the more effective it is.

TDM is most effective when several or all aspects of the trip can be altered.

There are four categories of TDM measures: pricing management, alternative mode programs and incentives, parking management, and alternative work arrangements.

Listed below are some of the TDM measures that have been used successfully in other areas and may be useful in the Boise area. Some of the measures may fall under more than one category.

Pricing Strategies

- Congestion pricing
- Congested zone pricing
- Transit/rideshare use subsidies
- Tolls
- Increase in gasoline tax
- Vehicle Miles Traveled (VMT)/emissions tax
- Area licensing

Alternative Modes Programs and Incentives

- Carpooling/Vanpooling
  - Ridesharing programs
  - Commuter information programs
  - Guaranteed ride home program
- Preferential High Occupancy Vehicles (HOV) Treatments
  - Priority HOV lanes and freeway access ramps
  - Metered ramp/Queue by-pass
  - Park and ride lots
  - Preferential tolls and parking facilities
  - Signal priority
  - Transit malls and auto restricted zones
- Pedestrian and bicycle facilities and site improvements
- Transit incentives
  - Reduced transit fares
  - On-site transit pass sales
  - Direct money incentives for alternative transportation use
- Increased transit service
- Design features to facilitate transit access
- Lunch time shuttle service
- Transit pass subsidies

Parking Management

- Park and ride lots
- Neighborhood preferential parking
- Paid parking
- Preferential parking for HOVs

Alternative Work Arrangements

- Alternative work schedules
- Telecommuting/work-at-home options

Following is a discussion of the various TDM measures listed.

PRICING STRATEGIES

Pricing strategies are designed to change individual travel behavior by implementing economic incentives and disincentives. The strategy can be applied in a variety of ways including congestion pricing, congested zone pricing, transit/rideshare use subsidies, tolls, emission fare charges, increased gasoline tax, VMT emissions tax, and area licensing.

Congestion Pricing

Congestion pricing encourages mode switching, deflects travel demand from peak periods, and eliminates some trips completely. It accomplishes this by providing an economic disincentive for travelers in a specific area or roadway facility. The pricing structure is flexible so it can be adjusted by time of day, congestion level, type of vehicle, number of trips a vehicle takes, or demand. The revenue generated by congestion pricing can be used to support other TDM measures, improve the transportation system, or address associated social issues, such as the inequitable burden on low-income drivers.

Several techniques are available to collect fees and tolls depending upon the specific program. Many are automatic, allowing motorists to proceed unimpeded by toll booths.

Studies in the United States have shown that congestion pricing can reduce peak period traffic by 25% to 50%. Experience in Singapore has demonstrated a 75% reduction in peak congestion periods. In general, non-work trips are more affected by congestion pricing than work trips.[1]

Unlike other more common TDM strategies which focus exclusively on work trip reductions, congestion pricing could also include and influence non-work trips. This would likely require application of pricing requirements outside of the peak travel periods.

[1]Implementing Effective Travel Demand Management Measures, USDOT, Section II-B, Page 5-8 and 5-12.

Congestion pricing is commonly used in public utility and air travel pricing (referred to as "peak-load" pricing), but has rarely been used for road pricing. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) authorized five congestion pricing demonstration grants. As of January 1994, one of the five has been awarded to San Francisco.

Congested Zone Pricing

This variation of congestion pricing has been used in Singapore where travel is charged depending upon the zone that it is in. This is a flexible pricing structure that can be based on congestion in a particular zone at a particular time. Travel between zones is recorded and a fee is charged to the vehicle accordingly. Zone pricing would be expected to work best where congestion is heavy in a relatively limited and compact area, such as Manhattan, rather than over a broad region, such as Southern California.[2]

Transit/Rideshare Use Subsidies

These subsidies provide an incentive to use transit or other high-occupancy vehicles. Usually, the subsidies are fixed, but they can be flexible to allow higher subsidies during periods of congestion. One of the potential funding sources for these subsidies is revenue generated by a congestion pricing program. Typically, a 10% fare increase will result in a 3% to 4% ridership decrease.[3]

Tolls

Toll facilities typically collect tolls at a flat rate regardless of time of day, or congestion. The traditional purpose of the toll is to offset operating expenses rather than travel reduction. The tolls are often structured to maximize the total income. Tolls are usually collected manually, but automatic collection systems are becoming more popular.

In general, toll facilities tend to change route selection, but do not necessarily shift a trip from a more congested route to a less congested or from a more congested destination to a less congested one. Tolls may address TDM objectives as a byproduct, but are poor substitutes for other types of TDM pricing strategies. Congestion pricing can be much more effective in reducing congestion by charging fees on congested roads only.

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[2]Stuck in Traffic, Anthony Downs, 1992, Page 55

[3]Measurement of Transit Benefits, USDOT, June, 1993, Page 82

booths at the perimeter of the area or by spot checking within the area. Automatic Vehicle Identification (AVI) technology could also be used to track the entry of vehicles.

ALTERNATIVE MODES PROGRAMS AND INCENTIVES

Alternative modes of transportation obviously address the mode choice aspect of the trip. The programs involved aim to shift trips into a higher occupancy vehicle and in some cases, out of a vehicle all together (examples include improving bicycle and pedestrian facilities).

Carpool/Vanpool/Buspool

Ridesharing programs include such activities as carpooling, vanpooling and buspooling. Carpooling (2-5 persons) is usually done in a personal vehicle, while vanpooling (8-15 persons) generally occurs in any of three ways: company sponsored, third party or owner operated vehicle. The company sponsored program administers the vanpooling effort and owns or leases the van for the program. A third party program refers to a rideshare organization or van leasing company which offers and/or administers the vanpool program. Owner operated vanpool programs are the sole responsibility of the owner and driver of the van.

Buspool programs can be operated on four levels:

1. A regional level such as a Metropolitan Planning Organization (MPO) or regional transit agency.

2. A sub-regional level such as a local government (county or municipality).

3. An employer/company based level where ride matching is limited to the confines of the sponsoring company's employee base.

4. A residential level where private developers and condominium or homeowner associations provide the bus service.

The most successful of the rideshare programs are targeted toward high density, suburban employment areas with users who have trip ends in close proximity to one another. This works best for work related trip ends. Also, commutes of 15 to 20 miles of carpoolers and 20 miles or more for vanpools appear to be influential factors in improving ridership.

The success of rideshare programs depends on the existing market share of commuter trips and the average vehicle occupancy (AVO) of the area. A higher AVO rate suggests that there is already a greater use of high occupancy vehicles,

Tolls do have an advantage in that they are becoming very popular as a way to fund large transportation projects, both public and private. A 1988 nationwide study found that 66% of the public expressed a negative or neutral opinion regarding toll roads as a funding source. However, when asked if they would support a toll road if a system of automatic tolls were implemented, the acceptance rate was 85% indicating that the public has a high value on convenience, and is not opposed to a user-tax if properly administered.[4]

Increase in Gasoline Tax

Increasing the cost of travel will entice some people to reduce their amount of travel. Typically, it takes a large increase in the price of gasoline to significantly change travel behavior (a 100% increase in the price of gasoline is estimated to reduce auto use by 5% to 35%). Other travel behavior impacts would include a long-term change to higher mileage vehicles, reduction of the total number of discretionary trips, purchase of gasoline in locations outside of tax-affected area, and increased use of carpools and transit.

Vehicle Miles of Travel (VMT)/Emissions Tax

This type of tax is based on the annual vehicle miles traveled or on the emissions level of the automobile. This could be based on a yearly odometer reading combined with a periodic emissions reading as part of the vehicle registration process. This type of tax would theoretically provide a significant incentive to reduce travel by private vehicle and increase usage of transit. The effectiveness of this type of tax would depend largely on the amount of the tax, how it was administered, who it was applied to, and transportation options available such as transit.

A literature review of the travel reductions that this type of tax would create indicates that VMT would be reduced between 0.2% and 0.6% and trips would be reduced between 0.1% and 0.9%.[5]

Area Licensing

An area licensing scheme (ALS) could be implemented which would require the purchase of a permit to enter a controlled area. The more congested the area, the more expensive the permit. The permit may be valid only for designated time periods when congestion is lower. Enforcement of the ALS could be manned

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[4]Toll Roads in California, ITE Journal, June 1991, Pages 17-18

[5]Costs and Effectiveness of Transportation Control Measures (TCMs); A Review and Analysis of the Literature, National Association of Regional Councils, January, 1994.

and therefore, it will be more difficult to capture additional rideshare individuals. In conjunction with other transportation control measures (HOV facilities, preferential parking, guaranteed ride home programs, and others), area-wide rideshare programs and promotions may reduce work trip VMT by as much as 5%. The high end of this range is associated with aggressive campaigns for ridesharing and higher commuter populations. This includes all three types of rideshare: carpooling, vanpooling and buspooling. A 1986 comparative report performed for the Environmental Protection Agency concluded that the area-wide VMT reduction potential of ridesharing programs averaged 0.3% (with a range of 0.1% to 3.6%) of all work trips, based on national experience.[6]

Preferential HOV Treatments

There are many different elements and actions in successful preferential treatments to high occupancy vehicles. These elements include, but are not limited to:

- Priority HOV lanes and freeway access ramps
- Metered ramp /Queue by-pass
- Park and ride lots
- Preferential tolls and parking facilities
- Signal priority
- Transit malls and auto restricted zones

Priority HOV facilities can be implemented in four ways:

1. Exclusive HOV Facility, Separate Right-of-Way. A roadway or lane(s) developed in a separate right-of-way and designated for the exclusive use of high occupancy vehicles.

2. Exclusive HOV Facility, Freeway Right-of-Way. Roadways or lanes built within the freeway right-of-way that are physically separated from other freeway lanes and are designated for the exclusive use of high occupancy vehicles during at least a portion of the day.

3. Concurrent Flow Lane. A freeway lane (commonly the inside lane), not physically separated from the other general traffic lanes, and designated for the exclusive use of the high occupancy vehicle during portion of the day.

[6]Improved Air Quality in Maricopa and Pima Counties - Applicability of Transportation Measures, Cambridge Systems, Inc. for the U.S. Environmental Protection Agency, Region IX, November, 1986.

permits can be supplied only to the neighborhood residents, or some can be sold to commercial users.

Paid Parking

Paid parking plans are similar to neighborhood preferential parking plans, but the concept is applied to commercial, employer parking areas and downtown core areas as well. Parking permits may be issued based on a fee system, a residency system, an office space system, or some other system. Permits may be good for certain periods and not other periods. Permits may be combined with parking meters for short-term parking. The paid parking plan may include permit zones that have differing requirements depending upon proximity to downtown core, location, and timing of peak hour traffic.

Parking charges instituted as part of employer TDM programs have generally produced a 15% to 30% net trip reduction with trip reductions as high as 48%.[12]

Preferential Parking for HOVs

Encouraging HOV usage requires making the HOV trip more convenient. Providing preferential parking for HOVs improves the convenience of the HOV trip while making the non-HOV trip more inconvenient. Preferential parking for HOVs could include reserved close-in parking spots, free parking spots, reduced rate parking spots, easy access parking spots, or covered parking.

ALTERNATIVE WORK ARRANGEMENTS

The first and most effective TDM objective is to eliminate trips entirely. If the purpose of the trip can be accomplished at home, there may not be the need to conduct the trip. Similarly, many trips that are made from the office could be eliminated if the purpose of those trips could be accomplished in the office. In some cases, it may not be possible to eliminate trips entirely, but the timing of the trips could be changed to avoid peak traffic congestion hours. Alternative work arrangements are TDM measures that address these goals. These include alternative work schedules such as flextime and staggered work weeks, and telecommuting either at work or at home.

[12]Implementing Effective Travel Demand Management Measures, ITE, June, 1993, Section II-b, Pages 4-14

4. Contraflow Lane. A freeway lane (commonly the inside lane) located in the off-peak direction of travel designated for exclusive use by high occupancy vehicles (usually buses only or buses and vanpools) traveling in the peak direction during portions of the day. The lane is typically separated from the off-peak direction travel lanes by insertable plastic posts or pylons.

Queue by-passes give HOVs preferential access to a freeway or other facilities by allowing them to go around metered ramps or use separate metered ramps.

Park and ride lots can provide direct access to bus/transit routes or allow carpools and vanpools a location to consolidate vehicles. Park and ride lots provide an incentive for using transit or HOVs.

Preferential tolls and parking facilities may be provided for HOV treatments as an incentive for HOV travelers. For example, tolls may be reduced or eliminated for HOV vehicles on the way to work, and close in parking or less expensive parking may be provided for HOV vehicles upon getting to work. In Minneapolis, a free parking program was initiated for HOV users are part of a long-term roadway construction project. Results of the program showed that average vehicle occupancy rose from 2.05% to 2.43% during the course of the program representing a savings of 7 vehicle trips per 100 travelers.[7]

Similar to preferential metered ramps, signal priority may be given to HOV vehicles in HOV lanes. The priority may allow HOV vehicles to leave the intersection early, or may allow HOV vehicles the ability to make turning movements across general traffic lanes.

Closing off entire streets to automobiles or restricting automobile use is a realistic method of reducing travel in certain areas and increasing transit use. Generally, this type of treatment must be coordinated with other parking and transit improvements and is fairly expensive.

Heavy traffic congestion that produces significant travel delay is a condition which is conducive to an effective HOV facility. The most successful HOV facilities are usually located along a "radial" corridor into a metropolitan area with a large commuter population. In these areas, there is relatively little opportunity for parking. If parking is available, it is either expensive or reserved exclusively for HOVs. In general, NOV facilities should be combined with other transportation

[7]Evaluation of Travel Demand Management Measures to Relieve Congestion, USDOT, February, 1990, Page 61

control measures including new or improved transit services, support for ridesharing programs, and incentives and disincentives to reinforce the attractiveness of an HOV facility may reach as high as 10% in a typical freeway or separate right-of-way situation.

Pedestrian and Bicycle Facilities and Site Improvements

The development of bicycle and pedestrian facilities can encourage commuting by bicycle and by foot. These facilities can be separated, exclusive, or designated routes within the roadways. Additional measures that improve bicycle and pedestrian access include bicycle facilities at park and ride lots, improving pedestrian and bicycle access through development areas and office complexes, bicycle carriers on transit vehicles, and bicycle storage facilities at worksites. Bicycle commutes average between 4 and 6 miles in length implying a willingness to travel about 30 minutes one-way for a work trip. An average walk commute trip is between 1 and 1.5 miles, indicating a typical 20-minute walk one-way.[8] Bicycle and pedestrian facilities may be most effective for commuting when built between communities and employment areas that are close to each other.

Transit Incentives

A well implemented transit incentive moderately increases transit use. Various types of transit incentives include: reduced transit fares, on-site pass sales, direct money incentives for alternative transportation use, or special employer provided transit service. Typical transit incentive programs by employers reduce average SOV trips by 8% to 18%.[9]

Reduced transit fares can be provided by an employer or governmental agency. Transit agencies will often provide reduced group transit fares for employee groups and reduced fare transit passes to the individual user. Employers may opt to provide reduced fares at their cost to reduce the need for parking facilities or to document the employers commitment to reducing congestion.

On-site pass sales provide convenience to the user, reducing the time and effort needed to ride transit. Other conveniences that may be provided include transit schedule information or improved bus stop or transit stop facilities.

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[8]Implementing Effective Travel Demand Management Measures, Institute of Transportation Engineers (ITE), June 1993, Section II-A, Pages 4-9

[9]Implementing Effective Travel Demand Management Measures, USDOT 1993, Section II-B, Pages 3-21

- Maximize street geometrics for use by transit vehicles.
- Design and construct transit routes to handle the weight of buses or other transit vehicles.
- Control parking.

Office buildings and shopping centers should provide sufficient transit drop off zones or shelters, and walking distances from these zones or shelters should be minimized to be preferably less than the average walking distance from the middle of the parking lot.

In low-density areas, it may be best to promote non-traditional transit forms (such as dial-a-ride or vanpools) until densities start to increase or until development philosophies reverse. This is particularly relevant in the case of fixed-route transit facilities.

Lunch Time Shuttle Service

Many employees are reluctant to use transit because it removes their car from them during the day. They may need the car to do errands, go shopping, pick up/drop off kids to day care, entertain clients, or go out to lunch. By providing other forms of transportation for these items, employees willb e more likely to use transit. Lunch time shuttle service can work well when there are concentrated restaurant areas in proximity to an employment area and when there is convenient service between the employment area and the restaurant area.

Transit Pass Subsidies

This is really a pricing strategy that can be used by employers to encourage employees to use transit. Transit passes can be provided free of charge or at a reduced rate to employees to encourage transit use. This can be combined with charging for parking spaces to further enhance the transit use incentive.

PARKING MANAGEMENT

All automobile trips begin or end with a parked car. Managing the location, cost and availability of the parking can significantly affect the propensity of traveler's to use their cars for trips. Improving the convenience of parking can increase the likelihood that travelers will use that parking as a trip end, while making parking inconvenient will decrease the likelihood that traveler's will use that parking as a trip end. Parking management can address all of the TDM objectives listed earlier including the elimination of trips, shifting trips from more congested destinations to less congested destinations, shifting trips from lower occupancy modes to

higher occupancy modes, and shifting travel from more congested locations/time periods to less congested locations/time periods. Parking management options include: park and ride lots, neighborhood preferential parking, paid parking, and preferential parking for HOVs.

Park and Ride Lots

Providing park and ride lots at transit stations improve the likelihood that travelers will use the park and ride lot as an automobile trip end as opposed to their final destination. The more convenient the access and parking at the park and ride lot, and the less convenient the access and parking at their final destination, the more likely travelers will use the park and ride lot if the transit facility serves their final destination.

Convenience at park and ride lots must be considered in terms of adequate parking spaces, minimal walking distance between parking spaces and the transit station, security of the park and ride lot, pedestrian shelter at the transit station, access to the park and ride lot from the roadway system, and maintenance of the park and ride lot (pavement, trash pick-up, landscaping, etc.). Park and ride facilities usually must also contain an area for kiss and ride, bicycles, and other drop offs.

It is estimated that the maximum reasonable potential for regional daily reductions due to park and ride lots is 0.5% of VMT, 0.0% of trips, and 0.3% of emissions.[11] Note that park and ride lots reduce VMT, but have little or no effect on trips since commuters must still make a round-trip to the lot. Effectiveness could be improved by the use of paratransit feeder buses to serve the lots. Park and ride lots are usually an adjunct to HOV, transit, or carpooling programs and should be evaluated in conjunction with the program they support.

Neighborhood Preferential Parking

Neighborhoods that are near commercial areas are familiar with the parking demand that is generated within their neighborhoods when limited parking is available within the commercial areas. Commercial users park in the neighborhood either because of this limited parking supply in the commercial area, because of the cost of parking in the commercial area, or because it may be considered safer to parking in the neighborhood. Reducing or eliminating this parking supply to commercial users will make parking more difficult in the commercial area, causing a shift to more transit use, less automobile use, and changes in travel patterns. Reducing the parking supply in the neighborhood is usually accomplished by requiring permits to park in the neighborhood. These

[11] Costs and Effectiveness of Transportation Control Measures (TCMs): A Review and Analysis of the Literatures, National Association of Regional Councils, January, 1994

Alternative Work Schedules

There are many options to adjust a work schedule to reduce the amount of traffic during congested hours. These options include arriving at work earlier or later, leaving work earlier or later, working 4 ten-hour days, working 4 nine-hour days, and 1 four-hour day, working 5 days for 45 hours one week and 4 days for 35 hours the next week, and many others.

Considerations with alternative work schedules include an assessment of what the staffing needs are of the employer by time, how unions may react to a different schedule, and how clients are served with this type of schedule. Alternative work schedules may facilitate the setting up of carpools or vanpools by allowing employees to match work schedules.

Other impacts of alternative work schedules include the ability to reduce VMT and air pollution for compressed work week schedules and the ability of such programs to improve employee moral, reduce absenteeism and increase productivity. Experience has shown that between 2% (voluntary) and 8% (mandatory) of trips can be reduced, if 50% of employees are eligible.[13]

Telecommuting/work-at-home options

Technological advancements in communication and personalized office equipment have greatly increased the ability of many employees to work at home or at a remote office or "residential work center." While only certain employees and tasks are suited for the self-discipline of working away from the office, those employees that are able to take advantage of telecommuting can realize great savings in the number of commute trips and VMT.

Telecommuting may be appropriate for many government and professional works, but may not be appropriate for many service industries or manufacturing industries. Some employees may be able to use residential work centers which may be closer to their homes, but have additional office equipment not available at home.

Productivity gains are possible since workers gain leisure time from not commuting, but overall SOV reductions may be less than anticipated since

[13]Implementing Effective Travel Demand Measures, USDOT, Section III, Pages 3-80 to 3-83

telecommuting often attracts a high proportion of those who currently use HOV or transit for commuting. Estimates of average reduction in peak-period vehicle trips attributable to telecommuting are between 5% and 8%.[14]

COMBINING TDM MEASURES

Many congestion management programs combine two or more TDM measures to improve their effectiveness and achieve the desired results. There are many combinations of TDM measures available, but some thoughts should be taken to ensure the best combinations that improve rather than reduce the effectiveness. In general, there are four combination categories which have been defined.[15]

- Directly Additive - An example of this might be increased transit service and signal priority for HOV vehicles.

- Sequentially Additive - An example of this might be a transit pass subsidy and telecommuting. The effect of the first measure must be evaluated before the next measure is evaluated.

- Synergistic - These measures, when added together, actually produce a greater impact than the individual impacts added together. An example might be employee parking charges and transit pass subsidy. Both of these TDM measures provide economic incentive for employees to switch to transit.

- Conflicting - These measures actually work again each other. An example might be ridesharing and flexible work hours. Flexible work hours make it more difficult to organize carpool and vanpool type ridesharing.

EFFECTIVENESS OF TDM MEASURES

Estimating the impact on travel patterns for each of the major types of TDM strategies is very difficult and should be done with extreme caution. The following table is included to give a summary of the estimated potential regional daily reductions for the various TDM measures in terms of percent reductions for travel and emissions.

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[14]"Telecommuting in the United States," ITE Journal, December, 1992, Page 45.

[15]Predicting the Impact of Transportation Control Measures on Travel Behavior and Pollutant emissions, William R. London & Devorah A. Dagang, January, 1992, Page 18

Travel and Emissions Effectiveness:
Estimated Potential Regional Daily Reductions
(in percent)[a] (Based on literature review)[b,e]

TDM[c]	VMT	Trips	Emissions (Mobile-Source (HC)
Employer trip reduction	1.0%	0.8%	0.9%
Area-wide ridesharing	0.4	0.3	0.4
Transit improvements	1.0	0.8	0.9
HOV lanes	1.4	0.5	1.1
Park-and-ride lots	0.5	0	0.3
Bicycle/pedestrian facilities	d	d	d
Parking pricing			
work	3.0	2.5	2.8
non-work	4.2	5.4	4.6
Congestion pricing	5.0	3.8	8.2[c]
Compressed work week	0.5	0.7	0.7
Telecommuting	1.1	1.0	1.0
Land use planning	f	f	f
Signal timing	(d)	(d)	0.4[c]
Incident management	(0.1)	(0.1)	0.8[c]
Emissions/VMT tax	0.4	0.7	4.1[c]
Buy-backs of older cars	N/A	N/A	0.4[c]

Notes:
(a) Maximum reasonable potential based on current information; some of these estimates do not reflect actual experience, and all depend on the level of implementation and specific local assumptions (congestion pricing, for example, assumed a 15 cents per mile charge). Estimates are percentage changes from baseline travel and emissions. Estimates are rounded to the nearest tenth of a percent. Numbers in parentheses represent increases in VMT or trips.
(b) Estimates should be treated separately; in some cases, TDM impacts may be additive; in others, the impacts are likely redundant; and for some combinations, there may be synergy among TDMs. This analysis simply reports individual impacts from the literature review.
(c) See text for discussion of TDMs.
(d) Impact is less than 0.1 percent.
(e) Estimates not interpolated -- but drawn directly from literature.
(f) The best available study on land use planning (the LUTRAQ report) reports a long-term impact of 5.2 percent trip reduction (achieved by the year 2010) as the impact of land use planning and parking pricing (plus free work-trip transit). Material in the report indicates that the pricing measure accounts for a large proportion of the total impact, but does not allow for a clean separation of the effects. For that reason, no estimate is shown in this table.

Source: The Clean Air Project, NARC

BENCH/VALLEY
TRANSPORTATION
STUDY

APPENDIX K:
List of Ideas Submitted by the Public and Their Status

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Date: August 29, 1995

Prepared for: Group 2000

Prepared by: Centennial Engineering, Inc.

Subject: Bench / Valley Transportation Study
Historical Perspective of Alignment Alternatives

The following is a summary of the alignments that have been investigated in this study and their status just prior to the September 21, 1995 Public Hearing.

Eagle Road Extension to Proposed Highway 55: Not in scope of work for this project.(i.e does not effectively solve need for a new river crossing and is similar to Eagle route already proposed)

Cloverdale Road Extensions to Eagle Alternate:

1. Alignments on Section Line near the Bench are no longer under consideration due to impact on a Historical Building.
2. Far West and Middle Alignments are no longer under consideration due to environmental issues and access problems.
3. Eastern Alignment is no longer under consideration due to indirectness of route when compared to connection to Proposed Highway 55.

Cloverdale Road Extension to Proposed Highway 55: No longer under consideration because it fails to attract enough traffic to offset its cost.

Cloverdale Road Extension to Five Mile Road: *Still under consideration.*

Five Mile Road Extensions to Highway 55:

1. Eastern Alignment is no longer under consideration due to environmental issues.
2. *Middle Alignment is still under consideration with an at grade option for the intersection with Chinden Boulevard.*
3. *Western Alignment is still under consideration with an at grade option for the intersection with Chinden Boulevard.*
4. Neither bridge option is under consideration due to cost and neighborhood impacts.

Five Mile Road Extension to Chinden Boulevard: *Still under consideration as an initial stage to the ultimate river crossing.*

Five Mile Road Extension to Duncan Lane: No longer under consideration due to environmental issues and because it is an indirect route.

Maple Grove Road Extension to Five Mile Extension: *Still under consideration.*

Maple Grove Road Extension to Chinden Boulevard: *Still under consideration.*

Maple Grove Extension to Bogart Lane: No longer under consideration due to environmental issues, Right-of-Way impacts, and access problems.

Milwaukee Street Extension to Glenwood Street: No longer under consideration due to extreme grade, Right-of-Way impact, and Settler Canal conflicts.

Cole Road Extension to Glenwood Street:

1. Alignment along existing Cole Road and behind Fred Meyer is no longer under consideration due to structure cost and access problems.
2. *Western Alignment along Glenwood Street is still under consideration.*
3. *Alignment along existing Cole Road and Mountain View Drive is still under consideration.*
4. *Two-Way Couplet is still under consideration.*
5. One-Way Couplet is no longer under consideration due to operational issues.

Cole Road Extension to Chinden Boulevard: No longer under consideration due to extreme grade.

52nd Street Extension to Collister Drive: No longer under consideration due to environmental issues.

49th Street Extension to Wylie Lane: No longer under consideration due to environmental issues.

Murray Street Extension to Mountain View Drive: No longer under consideration due to extreme grade.

Ustick Road Extensions:

1. Extension to Collister Drive is no longer under consideration due to extreme grade and environmental issues.
2. Extension to 45th Street is no longer under consideration due to extreme grade.
3. Improvements to 44th Street connection are no longer under consideration due to the fact that they fail to improve the existing situation.

4. Extension along Mountain View Drive is no longer under consideration due to high structure costs.
5. Extension to Chinden Boulevard at Veterans Parkway is no longer under consideration because it fails to solve the overall congestion problems in the Curtis / Ustick area.
6. Extension to Curtis Road Extension is still under consideration.

43rd Street Extension to Lander Street: No longer under consideration due to extreme grade and proximity to Veterans Parkway.

Curtis Road Extension: *Still under consideration.*

36th Street/ 30th Street Extensions:

1. 36th Street Extension to State Street is no longer under consideration due to environmental impacts and because it fails to attract enough traffic to offset its cost.
2. 36th Street Extension to State Street with 30th Street Connection is no longer under consideration due to environmental impacts and because it fails to attract enough traffic to offset its cost.
3. 30th Street Extension to State Street with 36th Street Connection is no longer under consideration due to environmental impacts and because it fails to attract enough traffic to offset its cost.
4. 30th Street Extension to State Street at Rose Street is still under consideration as a project to be built as the surrounding area develops.

Adams Street Extensions:

1. Extension to Glenwood Street at Marigold Street is no longer under consideration because it fails to attract enough traffic to offset its cost.
2. Extension to 36th Street is still under consideration as a project to be built as the surrounding area redevelops.

I-84 Interchange at Cloverdale Road: No longer under consideration due to proximity to Eagle Road Interchange.

I-84 Interchange at Five Mile Road: *Many options for an Interchange are still under consideration including Diamond, Partial Cloverleaf, and Single-Point Urban configurations.*

I-184 Ramps at Emerald Street: No longer under consideration due to proximity to proposed Cole Road Ramp.

Non-Roadway Alternatives

Bus Service: *Recommending improved bus service. A study is currently underway by Boise Urban Stages to recommend an upgraded bus system.*

Park-n-Ride: *Park-n-Ride lots could be located at bus or van pool hub locations to encourage the use of these alternate travel modes to the final destinations.*

Light Rail: No longer under consideration due to small population.

Commuter Rail: No longer under consideration due to small population.

Bicycle Facilities: *Bike lanes are proposed for all alignment alternatives identified in the Ridge to Rivers Plan, but additional ideas include bike paths such as those on the Greenbelt, and bicycle storage at key destinations.*

Fixed Guide-way System:
A gondola system is no longer under consideration

TDM: *Recommendation of Transportation Demand Management (TDM) is still under consideration. TDM is a strategy that offers individuals and businesses the incentive to develop innovative options like telecommuting, flexible work schedules, and increased use of alternate modes of transportation.*

Prepared for

Ada County Highway District

June 1995

Technical Memorandum

TRANSPORTATION FUNDING IN ADA COUNTY

As a part of the

Bench/Valley Transportation Study

Prepared by

Centennial Engineering, Inc.

Introduction

Infrastructure funding in local government has become increasingly complex in the last twenty years. Public expectations of what infrastructure will deliver and the pressure on traditional funding sources is unprecedented. In Ada County, the problem is exacerbated by dramatic economic and population growth in the last five years.

Escalating property values have caused property taxes to increase substantially resulting in taxpayer demands for relief. As of February 1995 there were no less than seventeen bills in the Idaho House and Senate that would reduce, defer or exempt property taxes. At the same time the U.S. Congress is proposing measures to balance the budget that would surely reduce federal aid to local government. To maintain and improve the future transportation system in Ada County, innovative engineering and financing solutions must be carefully examined and implemented.

The purpose of this memorandum is to provide a general understanding of transportation funding in Ada County, identify additional funding options, and describe potential implementation issues.

Existing Funding Sources

Transportation facilities in Ada County are managed by several public agencies that receive funding from a variety of sources. Management of these facilities includes construction, maintenance, operations, engineering, right-of-way acquisition, and other miscellaneous activities. The majority of transportation facilities and services in Ada County are managed by the Idaho Transportation Department (ITD), the Ada County Highway District (ACHD), and Boise Urban Stages (BUS).

Idaho Transportation Department

The ITD is responsible for managing roadways on the National Highway System (NHS) and the State system including the interstate route, most urban and major rural arterials, and state highways. The ITD receives funding from the Federal Highway Administration (FHWA) and from the State Highway Distribution Account. Federal funding is authorized by the Intermodal Surface Transportation Efficiency Act (ISTEA) created by Congress in 1991. There are several broad funding programs that determine how the funding may be utilized. Federal funding to Idaho in 1994 was approximately $110 million allocated from the programs depicted in Chart 1.

The State Highway Distribution Account is generated from an assortment of fees and taxes levied in Idaho including gasoline taxes, vehicle registration fees, road user fees, and fines. In 1994, the State Highway Distribution Account amounted to approximately $204.5 million. These funds are distributed to State and local agencies as shown in Chart 2.

Chart 1 - ITD Federal Funding By Program

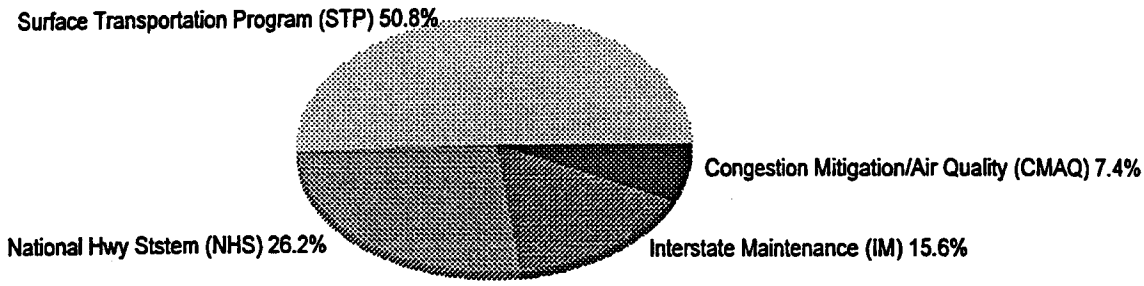
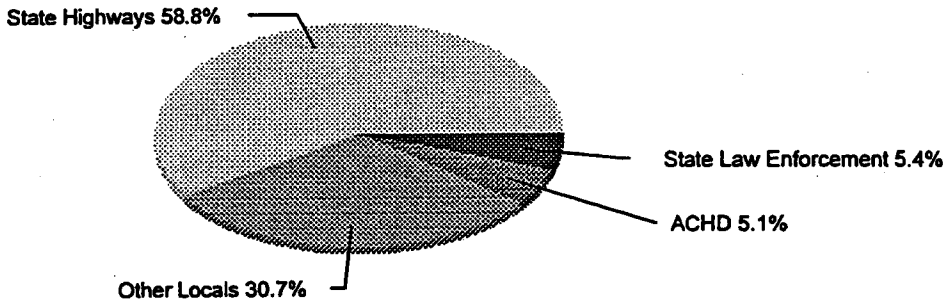


Chart 2 - State Highway Distribution Account



Ada County Highway District

The ACHD manages most of the streets and roads in Ada County including arterials, collectors and local roads. As indicated above, a portion of its funding is provided from the State Highway Distribution Account. In addition, it receives funding from an assortment of other fees and taxes. Total funding for ACHD in 1994 was approximately $32.6 million generated from the sources shown in Chart 3. Chart 4 depicts expenditures for that same year.

Chart 3 - ACHD Funding Sources

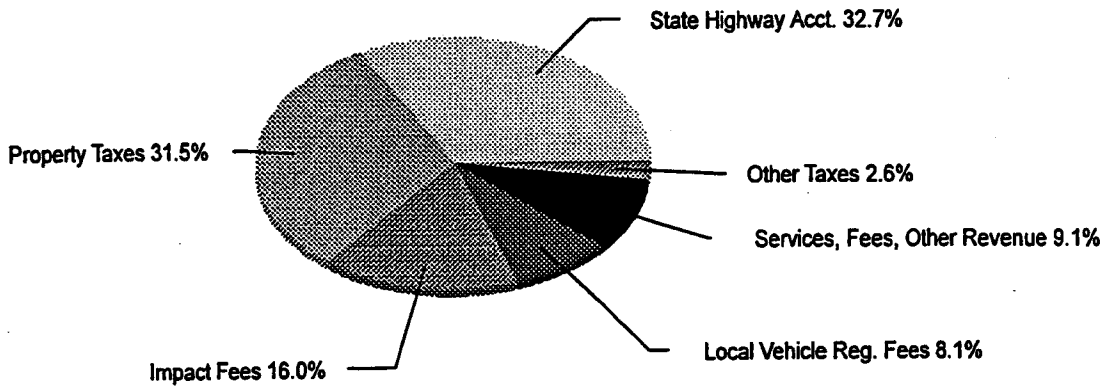
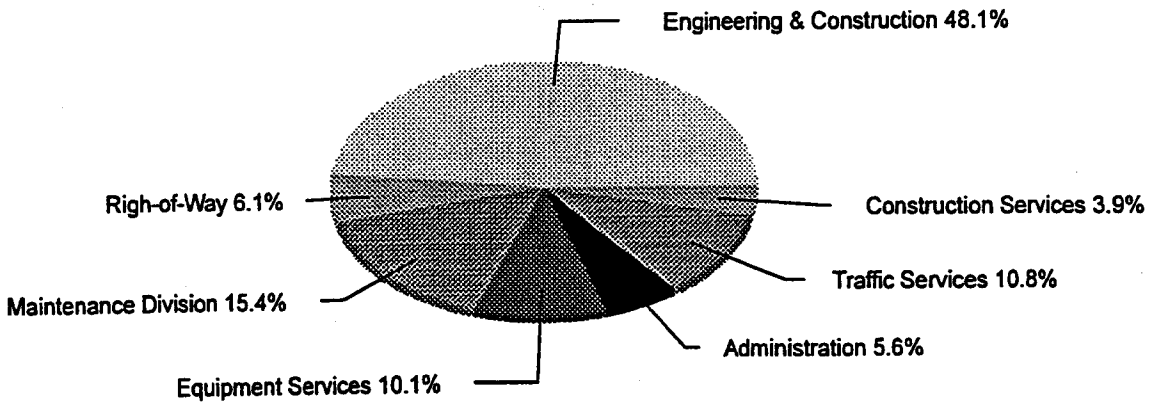


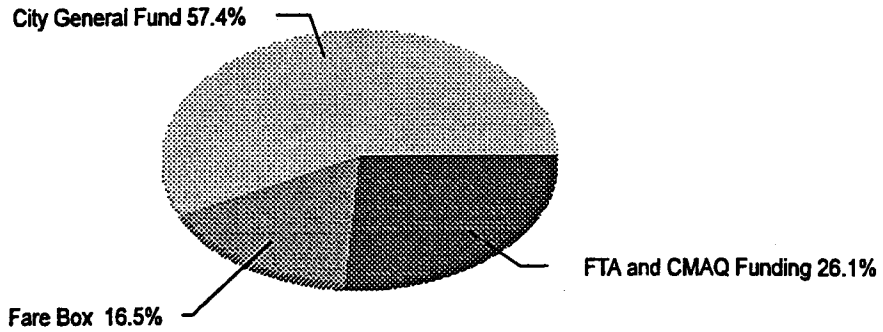
Chart 4 - ACHD 1994 Budget



Boise Urban Stages (BUS)

BUS is operated by the City of Boise and funded by a combination of City funds, federal grants, and fare box revenue. In 1994, the total BUS funding was approximately $3.26 million from the sources shown in Chart 5.

Chart 5 - 1994 BUS Funding



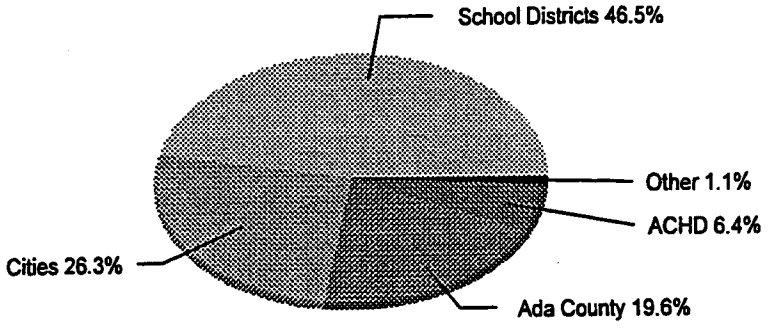
The City's budget provides BUS funding and some of these funds are matched by the federal government. Matching grants from the FTA are primarily used for operating expenses while CMAQ matching funds are used for capital expenditures such as buses. Because of the long-term nature of capital expenditures, budgets can vary widely from year to year. Capital expenditures were relatively low in 1994 to compensate for an expected 1995 expenditure of $768,000 for additional buses. The total estimated BUS budget for 1995 is $4.21 million.

Additional Funding Options

Property Taxes

Property tax is levied against the assessed value of property in Ada County. For businesses this includes real property such as land and fixed improvements and personal property such as office equipment and vehicles. Residential property tax excludes the value of personal property and household goods. In 1994, the total revenue generated from all property tax districts in Ada County was approximately $165 million and distributed as shown in Chart 6.

Chart 6 - Ada County Property Taxes



The ACHD is among thirty-seven taxing districts in Ada County. Each district has limited authority to levy taxes. Since the ACHD serves the entire county, it levies taxes on the entire assessed value of property which amounted to $8.93 billion in 1994. The Idaho Code limits their total levy to 0.284% of the assessed property value. To keep property taxes under control, the ACHD is currently only levying a 0.12% tax which is about 42% of the maximum authorized levy. The ACHD property tax revenue in 1994 was approximately $10.6 million.

Based on the 1994 assessed property value of $8.93 billion, an increase in the property tax rate of 0.12% would generate approximately $10 million in additional revenue annually.

($8.93 billion)(0.0012) = $10.7 million

Based on a typical home market value of $100,000 with an assessed value of $60,000, the average increase is $72 a year per household. This is approximately the same amount that is currently levied by ACHD.

A property tax increase would require no additional authority under the Idaho Code. However, property taxes are unpopular and the current trend is to lower them. This is attributed in part to the following:

- Taxes Unrealized Capital Gains - The tax places a disproportionate share of the burden on the property rich and cash poor. Often, this is the elderly who, because of their fixed income, have difficulty paying higher taxes caused by increased property values.

- Lump Sum Payments - Because the tax is collected in one or two large payments the tax is more visible and less palatable to the taxpayer.

- Tax Complexity - The public is often confused by the tax because of the large number of districts using a variety of assessed values and tax rates.

- Inequitable Assessments - Citizens argue that assessed property values do not always reflect market value relative to other properties. This typically occurs between assessments in an rapidly changing real estate market.

Because of its inherent stability, the property tax continues to play a major role in local government financing . However, given the current political pressure to reduce property taxes, it is unlikely that increases will occur easily.

Impact Fees

Impact fees are collected from builders and developers as a way for growth to "pay its own way". The ACHD currently collects impact fees for newly constructed residential and commercial developments. The fee for a single-family residence greater than 1500 sf is $837. In 1994 the ACHD collected $5.22 million in impact fees. To generate an additional $10 million annually, the current fee would nearly triple for all development categories:

$$((\$5.22 \text{ million} + \$10 \text{ million})/\$5.22 \text{ million}) = 292\%$$

For a typical new residence greater than 1500 sf the impact would increase to:

$$\$837 \times 292\% = \$2{,}440$$

Many believe that increasing impact fees simply increases the cost of new housing when the builder passes these costs onto the home buyer. However, it is difficult to simply pass these costs on because the price of a new home is influenced by the cost and availability of comparable used housing. It is more likely that impact fees will be covered by each of the parties involved with development including land owners, developers, design professionals, builders, and finally the home buyer as each negotiates with the other.

The tax is politically acceptable because most people perceive the tax as an equitable method for growth to pay for itself. Some issues to consider when expanding the use of the fee are:

- Fee Justification - Idaho law requires that impact fees must be proportional to the impacts caused by those paying the fees. Prior to implementing the ACHD fee ordinance, reasonable fees were established for each type of development. For example, the maximum fee that could be justified for a residence exceeding 1500 sf was $1475. However, for this same development category (residential≥1500 sf) ACHD currently collects only $837. An increase up to the maximum of $1475 would only require an amendment to the ordinance. A proposed increase greater than the maximum would be

difficult to implement.

- Limitations by Ordinance - Revenue from the fee must be used to directly benefit growth in specific benefit zones and cannot be used for maintenance; all of which limits spending flexibility.

- Cumulative Effect - As additional impact fee ordinances are adopted by other agencies, the cumulative affect may be unreasonable.

Bonds

A bond is a promissory note issued by local government to pay for construction, improvements, and repairs of public facilities. In exchange, the government agency agrees to pay interest for the life of the note and to repay the face value at a typical maturity of twenty years. Each highway district in the state is granted the authority under the Idaho constitution to issue negotiable coupon bonds. A coupon bond is one with interest coupons attached to it; coupons are detached by the holder as they become due, usually biannually, and presented for payment of interest.

The total amount of bonds any highway district can have issued and outstanding at any time cannot exceed 2% of the assessed value of property in the district. In 1994, the total assessed value of property in Ada County was $8.93 billion. Therefore, total bonding authority for the ACHD is:

$$(0.02)(\$8.93 \text{ billion})=\$179 \text{ million}$$

The constitution requires an election to authorize the sale of bonds and approval must be by a super majority. Because interest is paid on the money generated from the sale of bonds, the overall cost of system improvements will be greater than if financing was on a pay-as-you-go method.

Local Option Taxes

A local option tax utilizes existing taxing mechanisms within a defined benefit area to generate additional revenues for specific local needs. The local option tax has been used extensively in other states to help counties make up funding shortfalls. Taxes that could be increased locally include gasoline taxes, vehicle registration fees, and sales taxes. Typically, one of these taxes is increased only within the benefit area and the additional revenue generated is used solely for local improvements. The local option tax may reduce dependence on property taxes.

Currently, local governments in Idaho do not have the authority to create local option taxes. This authority must come from the state legislature which has failed to pass enabling legislation in the past. If legislation is passed, a taxing proposal must then be approved by a super majority of the voters in Ada County.

Gasoline Tax

Gasoline purchased in Idaho is taxed at a rate of approximately $0.39/gallon. Of this, $0.21 is retained by the State and $0.18 goes to the federal government. In 1994, the total tax collected and retained by the state amounted to $114,300,000. Because current tax collection methods do not segregate this revenue by county, the amount collected in Ada county must be estimated. Prorating the total based on population gives an estimated 1994 gasoline tax generated in Ada County of:

(223,335/1,065,885)($114,300,000)=$23.9 million

Approximately 30% of this amount is allocated back to Ada County from the State Highway Distribution Account. A potential source of additional funding would be an increased gas tax within Ada County. Assuming an increase of $0.09/gallon, the additional gas tax revenue generated annually in Ada County would amount to:

($23.9 million/$0.21/gallon)($0.09/gallon)=$10.3 million

The fuel tax is a benefit-based tax because those who pay, most directly benefit from roadway and transit improvements financed by the tax. In addition, it acts as a sumptory tax because it potentially discourages overuse of automobiles thus reducing the impacts on society. However, unless attractive transportation alternatives are available, a substantial reduction in automobile trips is unlikely. Their are several issues to consider when increasing the tax:

- Border City Effect - Because of the relatively short distance to neighboring counties and the likely tax increase, it is probable that some gasoline purchases will be diverted to other counties.

- Federal/State Tax - The tax is already heavily utilized by the state and federal government. This may cause some hesitation by the legislature to allow a local tax for fear that is may reduce their ability to increase the state share in the future.

- Regressive - The tax is regressive in that it takes a larger proportion of lower-income wages relative to those paid by wealthier taxpayers. The tax is especially regressive since unlike retail purchases which increase more closely with earnings, gasoline consumption is more uniform among the middle class and the wealthy.

Vehicle Registration Fees

Vehicle registration fees collected by the State are based on the age of the vehicle. The fee ranges from $36.48 for new vehicles to $16.08 for those vehicles 8 years and older. Of interest is the fact that over 50% of the vehicles registered in Idaho are more than 10 years old. Luxury

fees such as vanity plates are in addition to these basic fees. Unlike many other states, Idaho does not base any part of the fee on the value of the vehicle. In 1993, there were 220,968 registered vehicles in Ada County that generated a total of $4,772,579 in fees. Of the revenue generated in Ada County, approximately 30% is allocated back to Ada County from the State Highway Distribution Account.

The ACHD also assesses a local vehicle registration fee on each vehicle in Ada County. In 1994 this generated $2,640,412 all of which was allocated to ACHD. Assuming an average increase in registration fees of $46/vehicle, the additional revenue generated annually in Ada County would be:

(220,968 vehicles)($46)=$10.2 million

Similar to the fuel tax, the registration fee is a benefit based tax for transportation funding. However, the fees are almost exclusively paid by residents and therefore fail to capture revenue from non-residents using Ada County roadways. Because ACHD already collects a local fee, implementation of an increase would likely be more expedient than a new fee or tax.

Sales/Use Tax

A 5% tax is assessed by the State on all goods purchased or for use in Idaho. Idaho's total taxable sales for 1994 were $10.75 billion. Taxable sales are attributed to one of three business categories:

1. Local Businesses - located in only one county
2. Multiple County Businesses - located in two or more counties
3. Out-of-State Businesses - headquartered outside of Idaho

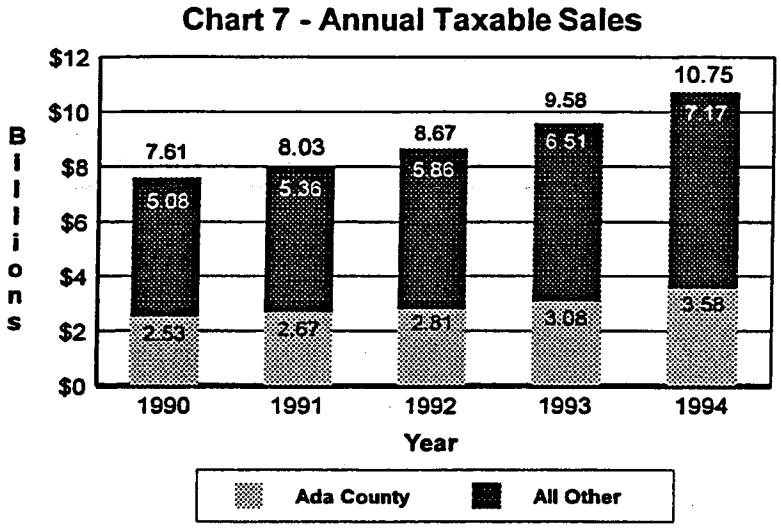
Local taxable sales are currently reported by county but, sales for multiple county and out-of-state businesses are not. Therefore, taxable sales attributable to Ada County must be estimated. Ada County's 1994 local sales were $2.39 billion compared to a state total of $7.19 billion in local business sales. Ada County's share for local business sales is:

$2.39/$7.19 billion = 33%

Applying this rate to the state's total taxable sales for 1994 results in an estimated taxable sales in Ada County of:

($10.75 billion)(33%) = $3.55 billion

Estimated taxable sales for the last five years in Ada County are shown in Chart 7.



Based on an increase to the sales/use tax of 0.30%, applied to the 1994 estimated sales in Ada County, the additional annual revenue would be:

($3.55 billion)(0.0030)=$10.7 million

Some of the benefits of the sales tax relative to other local option taxes include:

- Low Visibility - Because the tax is collected in small increments, compared to property tax for example, it is more palatable to taxpayers.

- Broader Base - The tax is paid by residents as well as many non-residents using county roadways. The county is home to 25% of the state's population yet, taxable sales represent a third of state sales.

- Stability - Sales tax revenue closely follows the economic cycle. During growth spurts this results in a significant influx of revenue when it's most needed. However, over dependence on the tax can result in shortfalls during an economic downturn.

Some potentially negative aspects of the sales tax include:

- Regressive - The tax is somewhat regressive in that it takes a larger proportion of lower-income wages compared to wealthier taxpayers. This is particularly true for basic living expenses such as food.

- Border City Effect - Various studies on the effect have estimated that for each 1% increase in the tax, taxable sales decreased by 3-6%. While some loss in sales can be expected, it will probably be insignificant if the tax increase is kept below 0.5%.

Conclusion

Central to the implementation of a tax increase is public support. The public must perceive transportation improvements not as only one of many "critical" issues, but as "the issue" important enough to increase taxes. While requiring a voter referendum may make it more difficult to increase or create taxes, it adds to the legitimacy of the tax and shifts political responsibility to the voting public.

It is incumbent upon the local planning agencies to provide sound information regarding the existing transportation needs and future demands. A proposal to increase taxes should provide very specific information regarding the need for such a tax and how it would be collected and spent. Some of the key issues that should be addressed include:

- Project descriptions and estimated costs
- The tax increase and the expected revenue
- The life of the tax
- How the money will be allocated to local agencies
- An analysis of the effects the tax would have on sales and other taxes.
- Will the additional tax create another public agency?
- Is there a cap on administration costs?
- Will improvements be made on a "pay as you go" basis or by the sale of bonds?

The following table summarizes each tax option and the increase necessary to generate $10 million annually in Ada County. The cost to the taxpayer is attributable to the tax increase only. It does not include potential indirect costs such as an increase in the price of goods and services in response to higher taxes.

Comparison of Revenue for Various Tax Increases

(To generate $10 million annually in Ada County)

Tax/Fee	Current Tax/Fee	Tax/Fee Increase	Assumed Tax/Fee	Typical Increase to Ada County Taxpayer
Property Tax	0.12%	0.12%	0.24%	$72/household/year[1]
Impact Fee	$837	$1603	$2440	$1603/new residence[2]
Gasoline Tax	$0.39/gal	$0.09/gal	$0.48/gal	$90/household/year[3]
Vehicle Reg. Fee	$32/yr (avg)	$46/yr	$78/year	$92/household/year[4]
Sales Tax	5%	0.3%	5.3%	$24-$48/household/year[5]

[1] Based on residential property with market value of $100,000 and assessed value of $60,000.
[2] For single-family dwelling greater than 1,500 sf. This is a typical example. Increase would apply to all development categories. See text for discussion of Fee Justification.
[3] Assumes 1,000 gallons of fuel consumed per household per year.
[4] Assumes two vehicles per household.
[5] Based on taxable purchases of between $8,000 and $16,000/year/household

STANDARD COMPUTATION SHEET

Description _____

Location _____ Sheet _____ of _____

Bench Valley

Starter Contract #1	$ 6,000	1/93
" " #2	$12,000	3/93
Contract	1,250,000	9/93
Change Order #1	199,560	4/95
Change Order #2	78,900	9/95
	$1,546,500	

Computed by _____ Date _____ Project No. _____

Checked by _____ Date _____ File or Book No. _____

Designed _____ Checked _____

CENTENNIAL ENGINEERING, INC.
P.O. DRAWER 1307
ARVADA, CO 80001

FEBRUARY 26, 1993
INVOICE NO. 01475
PROJECT NO. 01251.00

ADA COUNTY HIGHWAY DISTRICT
318 EAST 37TH
BOISE, ID 83714

ATTN: TERRY LITTLE

FOR: BENCH/VALLEY TRANSPORTATION CORRIDOR STUDY

PROFESSIONAL SERVICES FOR THE PERIOD ENDING FEBRUARY 11, 1993

	HOURS	RATE	AMOUNT
PROFESSIONAL PERSONNEL			
SR PROJ MANAGER			
BUTZIER, DAVID R	14.0	110.00	1,540.00
SR ENGINEER			
GUTCHER, NORMAN K.	1.5	100.00	150.00
SECRETARY			
MORALES, LINDA SUE	0.5	40.00	20.00
TOTALS	16.0		1,710.00
		TOTAL LABOR	1,710.00
SUB-CONSULTANTS			
SUBCONTRACTORS/CONSULT			
AP 49015 02/11 GROUP 2000		3,100.00	
TOTAL SUB-CONSULTANTS		3,100.00	3,100.00
PROFESSIONAL SERVICES TOTAL			4,810.00
REIMBURSABLE EXPENSES			
MAILING/FREIGHT CHARGES			
AP 14915 01/14 FEDERAL EXPRESS CORP		8.75	
REPRODUCTIONS			
JE 93019 01/28 PL XRX P/E 1/14/93		.50	
TOTAL REIMBURSABLES		9.25	9.25
		TOTAL THIS INVOICE	$ 4,819.25

BENCH/VALLEY TRANSPORTATION CORRIDOR STUDY
PROJECT NUMBER 70018.0
CITIZENS ADVISORY COMMITTEE MEETINGS

CENTENNIAL ENGINEERING, INC.
GROUP 2000
CAMBRIDGE SYSTEMATICS

CURRENT BUDGET	$8,000
AMOUNT SPENT THROUGH FEBRUARY 11, 1993	$4,819
AMOUNT REMAINING IN BUDGET	$3,181
ADDITIONAL BUDGET REQUEST	$12,000
TOTAL REMAINING BUDGET IF REQUEST IS APPROVED	$13,181

FEBRUARY 12, 1993 THRU MAY 1, 1993

	TOTAL HOURS	D.BUTZIER CEI	S.LEROY GROUP	C.THOMAS 2000	D.BAUMAN CEI	S.DECKER CSA	SUPPORT STAFF
I. CITIZEN'S ADVISORY COMMITTEE MEETINGS – SCOPING THE STUDY							
A. CITIZEN'S ADVISORY COMMITTEE MEETING #3							
1. Preparation and review of meeting minutes from meeting 2-4-93	5	3	2				
B. ESTABLISH COMMITTEE GOALS AND OBJECTIVES – MEETING #4							
1. Meeting to discuss upcoming agenda	2	1	1				
2. Preparation for upcoming meeting	4		2	2			
3. Meeting attendance and facilitation	8	2	2	2			
4. Preparation of the Meeting Minutes for distribution to Committee	4	2		1			1
5. Preparation of Mission Statement and Goals for CAC review	4	1		2			1
II. EDUCATIONAL PROCESS FOR THE CAC MEMBERS							
A. OVERVIEW OF LAND USE AND THE PROCESS – MEETING #5							
1. Meeting to discuss upcoming agenda	0						
2. Lining up special instructor	5	3	2				
3. Preparation of instructor for upcoming meeting	4	2	2				
4. Meeting attendance and facilitation	4	2	2				
5. Preparation of the Meeting Minutes for distribution to Committee	3	2					1
B. OPEN SPACE PLANNING AND THE ENVIRONMENT – MEETING #6							
1. Meeting to discuss upcoming agenda	0.5	0.5					
2. Lining up special instructor	2	1	1				
3. Preparation of instructor for upcoming meeting	2	1	1				
4. Preparation for meeting by the instructor	1					1	
5. Meeting attendance and facilitation	6	2	2	2		2	
6. Preparation of the Meeting Minutes for distribution to Committee	3	2					1
C. OVERVIEW OF CONDEMNATION–MITIGATION–R/W PROCESS – MEETING #7							
1. Meeting to discuss upcoming agenda	0						
2. Lining up special instructor	4	2	2				
3. Preparation of instructor for upcoming meeting	4	2	2				
4. Preparation for meeting by the instructor	0						
5. Meeting attendance and facilitation	4	2	2				
6. Preparation of the Meeting Minutes for distribution to Committee	3	2					1
D. OVERVIEW OF INTER–COMMUNITTEE TRAVEL (ALT MODES) – MEETING #8							
1. Meeting to discuss upcoming agenda	0.5	0.5					
2. Lining up special instructor	1	1					
3. Preparation of instructor for upcoming meeting	1	1					
4. Preparation for meeting by the instructor	2				2		
5. Meeting attendance and facilitation	6	2	2		2		
6. Preparation of the Meeting Minutes for distribution to Committee	4	2			1		1
E. OVERVIEW OF TRAFFIC MODELLING – MEETING #9							
1. Meeting to discuss upcoming agenda	1	1					
2. Lining up special instructor	1	1					
3. Preparation of instructor for upcoming meeting	1	1					
4. Preparation for meeting by the instructor	3	1				2	
5. Meeting attendance and facilitation	7	2	2	1		2	
6. Preparation of the Meeting Minutes for distribution to Committee	3	2					1
E. DISCUSSION OF THE VARIOUS METRO PLANS – MEETING #9							
1. Meeting to discuss upcoming agenda	0						
2. Lining up special instructor	0						
3. Preparation of instructor for upcoming meeting	0						
4. Preparation for meeting by the instructor	0						
5. Meeting attendance and facilitation	0						
6. Preparation of the Meeting Minutes for distribution to Committee	0						
III. BEGIN TO IDENTIFY THE STAKE HOLDERS IN THE COMMUNITY	7	2	5				
TOTAL HOURS ESTIMATED	110	49	32	10	5	7	7
HOURLY RATE		$110	$125	$100	$110	$80	$40
TOTAL ESTIMATED COST OF LABOR	$11,780	$5,390	$4,000	$1,000	$550	$560	280
DIRECTS							
REPRODUCTIONS	$0						
TRAVEL FOR OUT OF TOWN EXPERTS	$1,200				$500	$700	
REFRESHMENTS FOR MEETINGS AT $15/MTG	$75	$75					
VIDEO RENTAL EQUIPMENT	$126	$126					
TOTAL FOR DIRECT COSTS:	$1,401	$201	$0	$0	$500	$700	$0
TOTAL ESTIMATED LABOR AND DIRECTS:	$13,181	$5,591	$4,000	$1,000	$1,050	$1,260	$280

AGREEMENT TO PROVIDE DESIGN SERVICES
FOR THE BENCH VALLEY TRANSPORTATION STUDY
ACHD PROJECT NO. 70018

Centennial Engineering, Inc., 910 Main Street, Suite 250, Boise, Idaho 83702 hereby enters into this Agreement to perform the work required on the Bench Valley Transportation Study. The work required is for the purpose of completing the Bench Valley Transportation Study. Attachment A is the project Scope of Work.

This Agreement shall be in effect from the date of signing through the completion and acceptance of the work, anticipated to September 30, 1995.

Centennial Engineering, Inc. agrees to submit to Ada County Highway District proof of General Liability and Workers Compensation Insurance, listing ACHD as certificate holder, no later than ten (10) calendar days after signing this Agreement. Failure to provide proof of this insurance within the time specified shall void this Agreement.

The Ada County Highway District agrees to participate in this process for an amount not to exceed $1,249,996.83. Any costs over and above this amount shall be the total responsibility of Centennial Engineering, Inc.

Centennial Engineering, Inc. has read, understands and agrees to the requirements and stipulations set forth herein.

CENTENNIAL ENGINEERING, INC.

By: David R. Butzier

Date: 9-8-93

ADA COUNTY HIGHWAY DISTRICT

By: [illegible]

Date: 9-8-93

STATE OF IDAHO)
) ss.
COUNTY OF ADA)

On this 9th day of September, 1993, before me, a Notary Public in and for said State, personally appeared David R. Butzier, known or identified to me to be the — of the corporation that executed the within instrument or the person who executed the instrument on behalf of said corporation, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

Alice F. Sensel
Notary Public for the State of Idaho
Residing at Boise, Id.
My Commission Expires: 10/31/97

STATE OF IDAHO)
) ss.
COUNTY OF ADA)

On this 5th day of September, in the year 1993, before me a Notary Public in and for said State, personally appeared Glenn J. Rhodes, known to be to be the Vice-President of Ada County Highway District, Ada County Idaho, and acknowledged to me that they executed the foregoing instrument for and on behalf of Ada County Highway District, being duly authorized by its Board of Commissioners so to do.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

Alice F. Sensel
(SEAL) Notary Public for the State of Idaho
Residing at Boise, Idaho
My Commission Expires 10/31/97

BENCH/VALLEY TRANSPORTATION CORRIDOR STUDY

OUTLINE OF WORK TASKS
TOTAL TEAM HOURS
ESTIMATED PERSON-HOUR REQUIREMENTS

CENTENNIAL ENGINEERING
CAMBRIDGE SYSTEMATICS
GROUP 2000
SMITH AND ASSOCIATES

	TOTAL HOURS	PRIN. HOURS	PROJ.MGR HOURS	ENGR HOURS	DESIGN HOURS	CADD HOURS	WP HOURS
1.0 PUBLIC INVOLVEMENT							
1.1 Organization	0	0	0	0	0	0	0
1.2 The Public Involvement Process	0	0	0	0	0	0	0
1.2.1 Identify Private Sector Stakeholders	320	0	160	120	40	0	0
1.2.2 Identify Public/Agency Stakeholders	315	0	195	80	40	0	0
1.2.3 Focus Groups	302	0	202	10	90	0	0
1.2.4 Citizen's Advisory Group	940	0	420	220	300	0	0
1.2.5 Early Public Involvement Meeting	368	8	150	85	109	8	8
1.2.6 Relationships with Neighborhood Group	390	0	145	120	120	0	5
1.2.7 Building and Maintaining Relationships with Agencies	456	0	176	120	160	0	0
1.2.8 Formal Public Involvement Meetings	625	12	188	163	194	56	12
1.2.9 Formal Public Hearings	1270	24	414	396	316	86	34
1.2.10 Community Relations	390	0	160	110	120	0	0
1.2.11 Media Relations	390	0	160	110	120	0	0
1.3 Planning for Future Communications	0	0	0	0	0	0	0
TOTAL PERSON-HOURS - PUBLIC INVOLVEMENT	5766	44	2370	1534	1609	150	59

	TOTAL HOURS	PRIN. HOURS	PROJ.MGR HOURS	ENGR HOURS	DESIGN HOURS	CADD HOURS	WP HOURS
2.0 TECHNICAL ANALYSIS							
2.1 Data Collection	226	4	16	54	64	80	8
2.1.1 Current Data	120	0	0	20	20	80	0
2.1.2 New Data	192	8	48	16	32	80	8
Travel survey design and analysis	120	0	0	60	60	0	0
Land use site survey design and implementation	36	0	0	20	16	0	0
Identify future potential urban development patterns	36	0	0	20	16	0	0
Identify development opportunities and constraints	36	0	0	20	16	0	0
Review local comp plans, zoning ord., and land use regs	40	8	20	4	0	8	0
On-board transit survey analysis	100	4	16	8	24	40	8
Special trip generator survey design and analysis	100	4	16	8	24	40	8
Traffic cordon survey design and analysis	30	0	30	0	0	0	0
2.2 Land Use Analysis	128	0	8	40	80	0	0
2.2.1 Data Base Development	76	0	8	36	32	0	0
2.2.2 Site Analysis	248	0	8	110	130	0	0
2.2.3 Policy Identification	424	0	8	136	200	80	0
2.2.4 Policy Analysis - Geocoding	308	4	80	40	96	80	8
2.2.5 Land Use Alternatives Evaluation	40	0	40	0	0	0	0
2.3 Regional Travel Model Development	132	4	40	40	40	0	8
2.3.1 Model Design	512	4	120	40	40	300	8
2.3.2 Data Base Management System and GIS Interface	260	4	24	64	40	120	8
2.3.3 Zone/Network Development	904	8	164	240	164	320	8
2.3.4 Incremental Model Development	216	8	48	40	40	40	40
2.4 Model Documentation	276	8	64	92	80	20	12
2.5 Existing Highway Needs Analysis	162	8	32	58	32	24	8
2.6 TDM Strategies/Preferential Transportation Modes	0	0	0	0	0	0	0
2.7 Future Forecasting	156	4	40	40	24	40	8
2.7.1 Trip Table Development	328	4	44	88	144	40	8
2.7.2 2015 No Build and TSM Alternatives Network Analysis	770	16	70	164	120	360	40
2.7.3 Transportation Alternatives	200	8	72	80	40	0	0
2.8 Agency Conferences and Liaison							
TOTAL PERSON HOURS - TECHNICAL ANALYSIS	6176	108	1016	1538	1574	1752	188

BENCH/VALLEY TRANSPORTATION CORRIDOR STUDY

OUTLINE OF WORK TASKS
TOTAL TEAM HOURS
ESTIMATED PERSON-HOUR REQUIREMENTS

CENTENNIAL ENGINEERING
CAMBRIDGE SYSTEMATICS
GROUP 2000
SMITH AND ASSOCIATES

3.0 ALTERNATIVE IDENTIFICATION AND DEVELOPMENT	TOTAL HOURS	PRIN. HOURS	PROJ.MGR HOURS	ENGR HOURS	DESIGN HOURS	CADD HOURS	WP HOURS
3.1 Identify Corridor Alternatives	0	0	0	0	0	0	0
3.1.1 Inventory Existing Network	180	0	20	60	100	0	0
3.1.2 Data Collection	120	0	0	40	80	0	0
3.1.3 Mapping	46	0	2	20	0	24	0
3.1.4 Utility Identification	42	0	2	16	0	24	0
3.1.5 Property Ownerships	49	0	4	0	0	45	0
3.1.6 Environmental Concerns	161	0	24	82	28	27	0
3.2 Develop Alternative Alignments	0	0	0	0	0	0	0
3.2.1 Three Alternatives for each Corridor	270	18	36	45	81	90	0
3.2.2 Design Treatments within Sensitive Areas	304	12	27	61	76	128	0
3.2.3 Right of Way Requirements	181	0	16	56	64	45	0
3.2.4 Cost Estimates	121	0	16	45	40	0	20
3.3 Presentation of the Alternatives	292	8	40	84	68	92	0
3.4 Preferential Transportation Modes	0	0	0	0	0	0	0
3.4.1 Strategies for Developing Alternative Modes	140	40	40	40	0	0	20
3.4.2 Alternative Modes to be Considered	174	60	50	40	0	0	24
3.5 Right of Way Preservation Map	180	12	40	40	40	40	8
3.6 Long Range Plan Implementation	180	12	40	40	40	40	8
3.6.1 Transportation Improvement Plan (TIP)	28	4	12	12	0	0	0
3.6.2 Priorities for Improvements	80	4	18	40	0	18	0
3.6.3 Phasing Plan for Implementation	129	8	32	24	18	27	20
3.6.4 Approval of the Revised 2010 Transportation Plan	132	4	40	64	24	0	0
3.7 Agency Conferences and Liaison	184	20	60	52	6	6	40
TOTAL HOURS – ALTERNATIVE IDENTIFICATION AND DEVELOPMENT	2993	202	519	861	665	606	140
4.0 ENVIRONMENTAL REVIEW/ANALYSIS							
4.1 Preliminary Environmental Analysis	116	4	24	16	24	40	8
4.1.1 Environmental Inventory	110	0	10	40	20	40	0
4.1.2 Develop Constraint Maps	72	0	12	30	0	30	0
4.2 More Detailed Study of Identified Environmental Issues	28	0	28	0	0	0	0
4.2.1 Noise Analysis	216	0	0	16	0	200	0
4.2.2 Air Quality Analysis	136	0	0	16	0	120	0
4.2.3 Land Use Issues	100	0	0	50	30	20	0
4.2.4 Natural Features	98	0	0	50	0	48	0
4.2.5 Socio-economic/Community Facilities	72	0	0	40	32	0	0
4.2.6 Environmental Design and Historic Values	78	0	0	24	4	50	0
4.2.7 Hazardous Materials	54	0	0	24	0	30	0
4.3 Mitigation Recommendations	292	4	48	64	56	112	8
4.4 Selection of Preferred Corridor Alternatives	220	12	48	64	40	48	8
4.5 Agency Conferences and Liaison	108	0	12	48	24	24	0
TOTAL HOURS – ENVIRONMENTAL REVIEW/ANALYSIS	1700	20	182	482	230	762	24
5.0 REPORT PREPARATION	0	0	0	0	0	0	0
5.1 Agency Draft	284	12	50	94	80	24	24
5.2 Draft Executive Summary of the LRP Update	171	8	35	54	50	12	12
5.3 Final Executive Summary for the Revised Long Range Plan	176	12	36	48	56	12	12
TOTAL HOURS – REPORT PREPARATION	631	32	121	196	186	48	48

SUMMARY	TOTAL HOURS	PRIN. HOURS	PROJ.MGR HOURS	ENGR HOURS	DESIGN HOURS	CADD HOURS	WP HOURS
1.0 PUBLIC INVOLVEMENT	5766	44	2370	1534	1609	150	59
2.0 TECHNICAL ANALYSIS	6176	108	1016	1538	1574	1752	188
3.0 ALTERNATIVE IDENTIFICATION AND DEVELOPMENT	2993	202	519	861	665	606	140
4.0 ENVIRONMENTAL REVIEW AND ANALYSIS	1700	20	182	482	230	762	24
5.0 REPORT PREPARATION	631	32	121	196	186	48	48
TOTAL MAN-DAYS	17266	406	4208	4811	4264	3318	459

OUTLINE OF WORK TASKS
CENTENNIAL ENGINEERING
ESTIMATED PERSON-HOUR REQUIREMENTS

1.0 PUBLIC INVOLVEMENT	TOTAL HOURS	PRIN. HOURS	PROJ.MGR HOURS	ENGR HOURS	DESIGN HOURS	CADD HOURS	WP HOURS
1.1 Organization	0						
1.2 The Public Involvement Process	0						
1.2.1 Identify Private Sector Stakeholders	20		20				
1.2.2 Identify Public/Agency Stakeholders	20		20				
1.2.3 Focus Groups	40		40				
1.2.4 Citizen's Advisory Group	80		80				
1.2.5 Early Public Involvement Meeting	44		24	20			
1.2.6 Relationships with Neighborhood Group	45		40				5
1.2.7 Building and Maintaining Relationships with Agencies	24		24				
1.2.8 Formal Public Involvement Meetings	174	4	36	32	60	38	4
1.2.9 Formal Public Hearings	288	8	70	70	72	50	18
1.2.10 Community Relations	0						
1.2.11 Media Relations	0						
1.3 Planning for Future Communications	0						
TOTAL PERSON-HOURS - PUBLIC INVOLVEMENT	735	12	354	122	132	88	27

2.0 TECHNICAL ANALYSIS	TOTAL HOURS	PRIN. HOURS	PROJ.MGR HOURS	ENGR HOURS	DESIGN HOURS	CADD HOURS	WP HOURS
2.1 Data Collection							
2.1.1 Current Data	68			8	20	40	
2.1.2 New Data	120			20	20	80	
Travel survey design and analysis	28	4	24				
Land use site survey design and implementation	0						
Identify future potential urban development patterns	0						
Identify development opportunities and constraints	0						
Review local comp plans, zoning ord., and land use regs	0						
On-board transit survey analysis	12	4	8				
Special trip generator survey design and analysis	44				16	20	8
Traffic cordon survey design and analysis	44				16	20	8
2.2 Land Use Analysis	30		30				
2.2.1 Data Base Development	0						
2.2.2 Site Analysis	0						
2.2.3 Policy Identification	0						
2.2.4 Policy Analysis - Geocoding	88			8		80	
2.2.5 Land Use Alternatives Evaluation	0						
2.3 Regional Travel Model Development	40		40				
2.3.1 Model Design	0						
2.3.2 Data Base Management System and GIS Interface	0						
2.3.3 Zone/Network Development	164	4	8	48	24	80	
2.3.4 Incremental Model Development	0						
2.4 Model Documentation	8		8				
2.5 Existing Highway Needs Analysis	144	4	40	60	40		
2.6 TDM Strategies/Preferential Transportation Modes	134	4	24	50	32	24	
2.7 Future Forecasting	0						
2.7.1 Trip Table Development	0						
2.7.2 2015 No Build and TSM Alternatives Network Analysis	188		20	48	120		
2.7.3 Transportation Alternatives	294		30	64		180	20
2.8 Agency Conferences and Liaison	120	8	72	40			
TOTAL PERSON HOURS - TECHNICAL ANALYSIS	1526	28	304	346	288	524	36

OUTLINE OF WORK TASKS
CENTENNIAL ENGINEERING
ESTIMATED PERSON-HOUR REQUIREMENTS

3.0 ALTERNATIVE IDENTIFICATION AND DEVELOPMENT	TOTAL HOURS	PRIN. HOURS	PROJ.MGR HOURS	ENGR HOURS	DESIGN HOURS	CADD HOURS	WP HOURS
3.1 Identify Corridor Alternatives	0						
3.1.1 Inventory Existing Network	180		20	60	100		
3.1.2 Data Collection	120			40	80		
3.1.3 Mapping	46		2	20		24	
3.1.4 Utility Identification	42		2	16		24	
3.1.5 Property Ownerships	49		4			45	
3.1.6 Environmental Concerns	92		24	48	20		
3.2 Develop Alternative Alignments	0						
3.2.1 Three Alternatives for each Corridor	270	18	36	45	81	90	
3.2.2 Design Treatments within Sensitive Areas	228	12	27	45	72	72	
3.2.3 Right of Way Requirements	181		16	56	64	45	
3.2.4 Cost Estimates	121		16	45	40		20
3.3 Presentation of the Alternatives	256	8	40	72	56	80	
3.4 Preferential Transportation Modes	0						
3.4.1 Strategies for Developing Alternative Modes	140	40	40	40			20
3.4.2 Alternative Modes to be Considered	174	60	50	40			24
3.5 Right of Way Preservation Map	108	9	18	36		45	
3.6 Long Range Plan Implementation	0						
3.6.1 Transportation Improvement Plan (TIP)	28	4	12	12			
3.6.2 Priorities for Improvements	80	4	18	40		18	
3.6.3 Phasing Plan for Implementation	129	8	32	24	18	27	20
3.6.4 Approval of the Revised 2010 Transportation Plan	84	4	40	40			
3.7 Agency Conferences and Liaison	160	20	60	40			40
TOTAL HOURS – ALTERNATIVE IDENTIFICATION AND DEVELOPMENT	2488	187	457	719	531	470	124
4.0 ENVIRONMENTAL REVIEW/ANALYSIS							
4.1 Preliminary Environmental Analysis	0						
4.1.1 Environmental Inventory	10		10				
4.1.2 Develop Constraint Maps	12		12				
4.2 More Detailed Study of Identified Environmental Issues	28		28				
4.2.1 Noise Analysis	0						
4.2.2 Air Quality Analysis	0						
4.2.3 Land Use Issues	0						
4.2.4 Natural Features	0						
4.2.5 Socio-economic/Community Facilities	0						
4.2.6 Environmental Design and Historic Values	0						
4.2.7 Hazardous Materials	0						
4.3 Mitigation Recommendations	24		24				
4.4 Selection of Preferred Corridor Alternatives	72	8	24	40			
4.5 Agency Conferences and Liaison	12		12				
TOTAL HOURS – ENVIRONMENTAL REVIEW/ANALYSIS	158	8	110	40	0	0	0
5.0 REPORT PREPARATION	0						
5.1 Agency Draft	144	8	30	60	30		16
5.2 Draft Executive Summary of the LRP Update	47	4	15	20			8
5.3 Final Executive Summary for the Revised Long Range Plan	84	8	20	24	24		8
TOTAL HOURS – REPORT PREPARATION	275	20	65	104	54	0	32

OUTLINE OF WORK TASKS
CENTENNIAL ENGINEERING
ESTIMATED PERSON-HOUR REQUIREMENTS

SUMMARY	TOTAL HOURS	PRIN. HOURS	PROJ.MGR HOURS	ENGR HOURS	DESIGN HOURS	CADD HOURS	WP HOURS
1.0 PUBLIC INVOLVEMENT	735	12	354	122	132	88	27
2.0 TECHNICAL ANALYSIS	1526	28	304	346	288	524	36
3.0 ALTERNATIVE IDENTIFICATION AND DEVELOPMENT	2488	187	457	719	531	470	124
4.0 ENVIRONMENTAL REVIEW AND ANALYSIS	158	8	110	40	0	0	0
5.0 REPORT PREPARATION	275	20	65	104	54	0	32
TOTAL MAN-DAYS	5182	255	1290	1331	1005	1082	219

1. SALARY COST
A. SUMMARY ESTIMATED MAN-HOUR TIME & SALARY COSTS

1. PRINCIPAL	255	MAN-HOURS	$50.00	$12,750.00
2. PROJECT MANAGER	1290	MAN-HOURS	$39.00	$50,310.00
3. ENGINEER	1331	MAN-HOURS	$29.00	$38,599.00
4. DESIGNER	1005	MAN-HOURS	$21.00	$21,105.00
5. CADD OPERATOR	1082	MAN-HOURS	$17.00	$18,394.00
5. WORD PROCESSOR	219	MAN-HOURS	$13.00	$2,847.00

TOTAL SALARY COSTS.....= $144,005

B. PAYROLL BURDEN & FRINGE BENEFIT COSTS
1. DIRECT PAYROLL COSTS
2. PAYROLL BURDEN (144005 X 0.4359) $62,772

3. GENERAL OVERHEAD & DIRECT JOB COST $144,005 X 1.1485) $165,390

4. NET FEE
COMPUTED AT 15% OF ASSIGNED ENGINEERING COSTS
(.15) x (144005.00 + 62771.78 + 165389.74) $55,825

5. OUT-OF-POCKET COSTS
SUBCONSULTANTS

CAMBRIDGE SYSTEMATICS	$493,301.87
GROUP 2000	$320,224.31
SMITH AND ASSOCIATES	$154,350.00
SCIENTIC	$45,000.00
GEOGRAPHIC GENERAL INC.	$12,000.00
ON-BOARD TRANSIT SURVEY	$0.00
OTHER DIRECT COSTS	$47,150.00
TOTAL OUT-OF-POCKET COSTS	$1,072,026.18

SUMMARY OF COSTS

1. EMPLOYEE PAYROLL	$144,005.00
2. PAYROLL BURDEN & FRINGE BENEFITS	$62,771.78
3. GENERAL OVERHEAD & DIRECT JOB COSTS	$165,389.74
4. NET FEE	$55,824.98
5. OUT-OF-POCKET COSTS	$1,072,026.18
TOTAL	$1,500,017.68

CENTENNIAL ENGINEERING, INC.

BENCH/VALLEY TRANSPORTATION CORRIDOR STUDY

Breakdown for Directs

SCHEDULE:

August 1993 through August 1995
Assume duration of 25 months

TRAVEL/MILEAGE/PER DIEM:

Eight round trips Denver/Boise @ $500 ea . . . $	4,000.00
Per Diem: 20 days per trip @ $100/Day . . . . $	2,000.00

REPRODUCTIONS:

Bluelines $0.20/sq. ft. - 100 sheets/month x 25	$ 3,000.00
Copies $0.06/sheet - 100 sheets/month x 25 . .	$ 150.00
Report Reproduction - 225 copies @ $30 each .	$ 6,750.00

TELEPHONE:

Long Distance and fax @ $25 Month x 25 Months	$ 625.00

COMPUTER TIME:

CADD and Work Stations - $15.00/hour 2000 Hours x $15.00/hour	$30,000.00

POSTAGE AND FREIGHT CHARGES:

$25.00/Month x 25	$ 625.00
OTHER DIRECT COSTS	$47,150.00

ADDITIONAL SUBCONSULTANTS:

MAPPING CONVERSION AND GIS SUPPORT:

Scientic Inc. - GIS support	$45,000.00
Geographic General Inc. - Mapping Conversion	$12,000.00

ON-BOARD TRANSIT SURVEY:

Subconsultant	$ 0.00
TOTAL	$ 104,150

OUTLINE OF WORK TASKS
CAMBRIDGE SYSTEMATICS
ESTIMATED PERSON-HOUR REQUIREMENTS

1.0 PUBLIC INVOLVEMENT	TOTAL HOURS	PRIN. HOURS	SENIOR HOURS	MODELER HOURS	MIDDLE HOURS	JUNIOR HOURS	WP/GRAPH HOURS
1.1 Organization	0						
1.2 The Public Involvement Process	0						
1.2.1 Identify Private Sector Stakeholders	0						
1.2.2 Identify Public/Agency Stakeholders	0						
1.2.3 Focus Groups	0						
1.2.4 Citizen's Advisory Group	0						
1.2.5 Early Public Involvement Meeting	64	8	16		24	8	8
1.2.6 Relationships with Neighborhood Group	0						
1.2.7 Building and Maintaining Relationships with Agencies	0						
1.2.8 Formal Public Involvement Meetings	64	8	16		24	8	8
1.2.9 Formal Public Hearings	128	16	32		48	16	16
1.2.10 Community Relations	0						
1.2.11 Media Relations	0						
1.3 Planning for Future Communications	0						
TOTAL PERSON-HOURS - PUBLIC INVOLVEMENT	256	32	64	0	96	32	32

2.0 TECHNICAL ANALYSIS	TOTAL HOURS	PRIN. HOURS	SENIOR HOURS	MODELER HOURS	MIDDLE HOURS	JUNIOR HOURS	WP/GRAPH HOURS
2.1 Data Collection							
2.1.1 Current Data	104	4	16	16	20	40	8
2.1.2 New Data	0						
Travel survey design and analysis	148	4	24	8	24	80	8
Land use site survey design and implementation	0						
Identify future potential urban development patterns	0						
Identify development opportunities and constraints	0						
Review local comp plans, zoning ord., and land use regs	0						
On-board transit survey analysis	28	4	12	4		8	
Special trip generator survey design and analysis	56	4	16	8	8	20	
Traffic cordon survey design and analysis	56	4	16	8	8	20	
2.2 Land Use Analysis	0						
2.2.1 Data Base Development	8		8				
2.2.2 Site Analysis	8		8				
2.2.3 Policy Identification	8		8				
2.2.4 Policy Analysis - Geocoding	8		8				
2.2.5 Land Use Alternatives Evaluation	188	4	80		16	80	8
2.3 Regional Travel Model Development	0						
2.3.1 Model Design	132	4	40	40	40		8
2.3.2 Data Base Management System and GIS Interface	512	4	120	40	40	300	8
2.3.3 Zone/Network Development	96		16	16	16	40	8
2.3.4 Incremental Model Development	904	8	164	240	164	320	8
2.4 Model Documentation	208	8	40	40	40	40	40
2.5 Existing Highway Needs Analysis	132	4	24	32	40	20	12
2.6 TDM Strategies/Preferential Transportation Modes	28	4	8	8			8
2.7 Future Forecasting	0						
2.7.1 Trip Table Development	156	4	40	40	24	40	8
2.7.2 2015 No Build and TSM Alternatives Network Analysis	140	4	24	40	24	40	8
2.7.3 Transportation Alternatives	476	16	40	100	120	180	20
2.8 Agency Conferences and Liaison	0						
TOTAL PERSON HOURS - TECHNICAL ANALYSIS	3396	80	712	640	584	1228	152

OUTLINE OF WORK TASKS
CAMBRIDGE SYSTEMATICS
ESTIMATED PERSON-HOUR REQUIREMENTS

3.0 ALTERNATIVE IDENTIFICATION AND DEVELOPMENT	TOTAL HOURS	PRIN. HOURS	SENIOR HOURS	MODELER HOURS	MIDDLE HOURS	JUNIOR HOURS	WP/GRAPH HOURS
3.1 Identify Corridor Alternatives	0						
3.1.1 Inventory Existing Network	0						
3.1.2 Data Collection	0						
3.1.3 Mapping	0						
3.1.4 Utility Identification	0						
3.1.5 Property Ownerships	0						
3.1.6 Environmental Concerns	0						
3.2 Develop Alternative Alignments	0						
3.2.1 Three Alternatives for each Corridor	0						
3.2.2 Design Treatments within Sensitive Areas	0						
3.2.3 Right of Way Requirements	0						
3.2.4 Cost Estimates	0						
3.3 Presentation of the Alternatives	0						
3.4 Preferential Transportation Modes	0						
3.4.1 Strategies for Developing Alternative Modes	0						
3.4.2 Alternative Modes to be Considered	0						
3.5 Right of Way Preservation Map	0						
3.6 Long Range Plan Impementation	180	12	40	40	40	40	8
3.6.1 Transportation Improvement Plan (TIP)	0						
3.6.2 Priorities for Improvements	0						
3.6.3 Phasing Plan for Implementation	0						
3.6.4 Approval of the Revised 2010 Transportation Plan	0						
3.7 Agency Conferences and Liaison	0						
TOTAL HOURS – ALTERNATIVE IDENTIFICATION AND DEVELOPMENT	180	12	40	40	40	40	8
4.0 ENVIRONMENTAL REVIEW/ANALYSIS							
4.1 Preliminary Environmental Analysis	116	4	24	16	24	40	8
4.1.1 Environmental Inventory	0						
4.1.2 Develop Constraint Maps	0						
4.2 More Detailed Study of Identified Environmental Issues	0						
4.2.1 Noise Analysis	0						
4.2.2 Air Quality Analysis	0						
4.2.3 Land Use Issues	0						
4.2.4 Natural Features	0	—					
4.2.5 Socio-economic/Community Facilities	0						
4.2.6 Environmental Design and Historic Values	0						
4.2.7 Hazardous Materials	0						
4.3 Mitigation Recommendations	124	4	24	16	32	40	8
4.4 Selection of Preferred Corridor Alternatives	116	4	24	8	32	40	8
4.5 Agency Conferences and Liaison	0						
TOTAL HOURS – ENVIRONMENTAL REVIEW/ANALYSIS	356	12	72	40	88	120	24
5.0 REPORT PREPARATION	0						
5.1 Agency Draft	60	4	20	4	20	4	8
5.2 Draft Executive Summary of the LRP Update	56	4	20	4	20	4	4
5.3 Final Executive Summary for the Revised Long Range Plan	44	4	16	4	12	4	4
TOTAL HOURS – REPORT PREPARATION	160	12	56	12	52	12	16

OUTLINE OF WORK TASKS
CAMBRIDGE SYSTEMATICS
ESTIMATED PERSON-HOUR REQUIREMENTS

SUMMARY	TOTAL HOURS	PRIN. HOURS	SENOIR HOURS	MODELER HOURS	MIDDLE HOURS	JUNIOR HOURS	WP/GRAPH HOURS
1.0 PUBLIC INVOLVEMENT	256	32	64	0	96	32	32
2.0 TECHNICAL ANALYSIS	3396	80	712	640	584	1228	152
3.0 ALTERNATIVE IDENTIFICATION AND DEVELOPMENT	180	12	40	40	40	40	8
4.0 ENVIRONMENTAL REVIEW AND ANALYSIS	356	12	72	40	88	120	24
5.0 REPORT PREPARATION	160	12	56	12	52	12	16
TOTAL MAN-DAYS	4348	148	944	732	860	1432	232

1. SALARY COST
A. SUMMARY ESTIMATED MAN-HOUR TIME & SALARY COSTS

1. PRINCIPAL	148	MAN-HOURS	$49.00	$7,252.00
2. SENIOR ASSOCIATE	944	MAN-HOURS	$36.00	$33,984.00
3. MODELER	732	MAN-HOURS	$33.00	$24,156.00
4. MIDDLE ASSOCIATE	860	MAN-HOURS	$28.00	$24,080.00
5. JUNOIR STAFF	1432	MAN-HOURS	$16.00	$22,912.00
5. WORD PROC./GRAPHICS	232	MAN-HOURS	$15.00	$3,480.00

TOTAL SALARY COSTS.....= $115,864

B. PAYROLL BURDEN & FRINGE BENEFIT COSTS & GENERAL OVERHEAD
1. DIRECT PAYROLL COSTS
2. OVERHEAD RATE(115864 X 1.40) $162,210

2. GENERAL & ADMINISTRATIVE (ITEMS 1,2 & 4 , $332,474 X 0.05) $16,624

3. NET FEE
COMPUTED AT 15% OF ASSIGNED ENGINEERING COSTS
(.15) x (115864.00 + 162209.60 + 16623.68) $44,205

4. OUT-OF-POCKET COSTS
A. SUBCONSULTANTS
SUB TO CONDUCT TRAVEL SURVEY $100,000

B. OTHER DIRECT COSTS

Telphone/Fax	$3,600
Postage/Shipping	$3,600
Graphics	$3,600
Computer @ $7/hr	$20,000
Word Processing @ $7/hr	$5,000
Travel: 9 Boston/Boise Round Trips @ $100	$9,000
8 Berkeley/Boise Round Trips @ $700	$5,600
Per Diem @ $100/Day (40 days)	$4,000
TOTAL OTHER DIRECT COSTS	$54,400

TOTAL OUT-OF-POCKET COSTS $154,400.00

SUMMARY OF COSTS

1. EMPLOYEE PAYROLL	$115,864.00
2. PAYROLL BURDEN & FRINGE BENEFITS	$162,209.60
3. GENERAL OVERHEAD & DIRECT JOB COSTS	$16,623.68
4. NET FEE	$44,204.59
5. OUT-OF-POCKET COSTS	$154,400.00
TOTAL	$493,301.87

OUTLINE OF WORK TASKS
GROUP 2000
ESTIMATED PERSON-HOUR REQUIREMENTS

1.0 PUBLIC INVOLVEMENT	TOTAL HOURS	PRIN. HOURS	PROJ.MGR HOURS	PROF PR STAFF HOURS	WP/GRAPH HOURS
1.1 Organization	0				
1.2 The Public Involvement Process	0				
1.2.1 Identify Private Sector Stakeholders	300		140	120	40
1.2.2 Identify Public/Agency Stakeholders	295		175	80	40
1.2.3 Focus Groups	242		162	0	80
1.2.4 Citizen's Advisory Group	860		340	220	300
1.2.5 Early Public Involvement Meeting	250		110	60	80
1.2.6 Relationships with Neighborhood Group	345		105	120	120
1.2.7 Building and Maintaining Relationships with Agencies	432		152	120	160
1.2.8 Formal Public Involvement Meetings	311		136	95	80
1.2.9 Formal Public Hearings	762		312	290	160
1.2.10 Community Relations	390		160	110	120
1.2.11 Media Relations	390		160	110	120
1.3 Planning for Future Communications	0				
TOTAL PERSON-HOURS - PUBLIC INVOLVEMENT	4577	0	1952	1325	1300

2.0 TECHNICAL ANALYSIS	TOTAL HOURS	PRIN. HOURS	PROJ.MGR HOURS	PROF PR STAFF HOURS	WP/GRAPH HOURS
2.1 Data Collection	0				
2.1.1 Current Data	0				
2.1.2 New Data	0				
Travel survey design and analysis	0				
Land use site survey design and implementation	0				
Identify future potential urban development patterns	0				
Identify development opportunities and constraints	0				
Review local comp plans, zoning ord., and land use regs	0				
On-board transit survey design and analysis	0				
Special trip generator survey design and analysis	0				
Traffic cordon survey design and analysis	0				
2.2 Land Use Analysis	0				
2.2.1 Data Base Development	0				
2.2.2 Site Analysis	0				
2.2.3 Policy Identification	0				
2.2.4 Policy Analysis - Geocoding	0	—			
2.2.5 Land Use Alternatives Evaluation	0				
2.3 Regional Travel Model Development	0				
2.3.1 Model Design	0				
2.3.2 Data Base Management System and GIS Interface	0				
2.3.3 Zone/Network Development	0				
2.3.4 Incremental Model Development	0				
2.4 Model Documentation	0				
2.5 Existing Highway Needs Analysis	0				
2.6 TDM Strategies/Preferential Transportation Modes	0				
2.7 Future Forecasting	0				
2.7.1 Trip Table Development	0				
2.7.2 2015 No Build and TSM Alternatives Network Analysis	0				
2.7.3 Transportation Alternatives	0				
2.8 Agency Conferences and Liaison	0				
TOTAL PERSON HOURS - TECHNICAL ANALYSIS	0	0	0	0	0

OUTLINE OF WORK TASKS
GROUP 2000
ESTIMATED PERSON-HOUR REQUIREMENTS

SUMMARY	TOTAL HOURS	PRIN. HOURS	PROJ.MGR HOURS	PROF PR STAFF HOURS	WP/GRAPH HOURS
1.0 PUBLIC INVOLVEMENT	4577	0	1952	1325	1300
2.0 TECHNICAL ANALYSIS	0	0	0	0	0
3.0 ALTERNATIVE IDENTIFICATION AND DEVELOPMENT	0	0	0	0	0
4.0 ENVIRONMENTAL REVIEW AND ANALYSIS	0	0	0	0	0
5.0 REPORT PREPARATION	0	0	0	0	0
TOTAL MAN-DAYS	4577	0	1952	1325	1300

1. SALARY COST
A. SUMMARY ESTIMATED MAN-HOUR TIME & SALARY COSTS

1. PRINCIPAL	0	MAN-HOURS	N/A	$0.00
2. PROJECT MANAGER	1952	MAN-HOURS	$50.00	$97,600.00
3. PROF. PUBLIC RELATIONS	1325	MAN-HOURS	$25.00	$33,125.00
4. WORD PROCESSING	1300	MAN-HOURS	$15.00	$19,500.00

TOTAL SALARY COSTS..... = $150,225

B. PAYROLL BURDEN & FRINGE BENEFIT COSTS
1. DIRECT PAYROLL COSTS
2. PAYROLL BURDEN ($150,225 X 0.30) $45,068

3. GENERAL OVERHEAD & DIRECT JOB COST $150,225 X 0.05) $7,511

4. NET FEE
COMPUTED AT 15% OF ASSIGNED ENGINEERING COSTS
(.15) x (150225.00 + 45067.50 + 7511.25) $30,421

5. OUT-OF-POCKET COSTS
SEE ATTACHED DETAIL OF DIRECTS
TOTAL OUT-OF-POCKET COSTS $87,000.00

SUMMARY OF COSTS

1. EMPLOYEE PAYROLL	$150,225.00
2. PAYROLL BURDEN & FRINGE BENEFITS	$45,067.50
3. GENERAL OVERHEAD & DIRECT JOB COSTS	$7,511.25
4. NET FEE	$30,420.56
5. OUT-OF-POCKET COSTS	$87,000.00
TOTAL	$320,224.31

5. Out-of-Pocket Costs

1.2.3	Focus Groups Videotaping, report services.	$10,000.00
1.2.4	Citizen Advisory Committee 25 meetings: videotape services, transportation (if needed), meeting reports.	$12,500.00
1.2.5	Early Public Involvement Meeting 2 meetings: Displays, meeting videotaping, artwork. (Mass mailing, if appropriate, to 36,000 households will cost an additional $6,000. Not included in cost estimates.)	$5,110.00
1.2.6	Establishment of neighborhood groups 15 meetings: (3 mass mailings, if needed, to 36,000 households each, at $6,000 per mailing. Not included in cost estimates.)	$14,000.00
1.2.7	Building and Maintaining Relationships with Contracting Agency Videotaping, meeting report, 4 rehearsals.	$2,880.00
1.2.8	Formal Public Involvement Meetings Display, 5 to 8 minute preliminary project video production, videotaping and report. (Mass mailing, if appropriate, to 36,000 households will cost an additional $6,000. Not included in cost estimates.)	$10,160.00
1.2.9	Formal Public Hearings 7 Hearings: Display, 5 to 8 minute preliminary project video production, videotaping and report, training manual and final Bench Valley display. (Mass mailing, if appropriate, to 36,000 households will cost an additional $6,000. Not included in cost estimates.)	$22,650.00
1.2.11	Community Relations Develop data base for mailings and personal contacts; development of information and media kit; speaker's bureau support (speech writing, etc.); display for duration of project.	$9,700.00
Total Out-of-Pocket Costs		$87,000.00

OUTLINE OF WORK TASKS
SMITH AND ASSOCIATES
ESTIMATED PERSON-HOUR REQUIREMENTS

1.0 PUBLIC INVOLVEMENT	TOTAL HOURS	PRIN. HOURS	PROJ.MGR HOURS	EJ SMITH HOURS	DALE ROSEBROCK HOURS	RESOURCE SPECIALIST HOURS	WP/GRAPH HOURS
1.1 Organization	0						
1.2 The Public Involvement Process	0						
1.2.1 Identify Private Sector Stakeholders	0						
1.2.2 Identify Public/Agency Stakeholders	0						
1.2.3 Focus Groups	20			10	10		
1.2.4 Citizen's Advisory Group	0						
1.2.5 Early Public Involvement Meeting	10			5	5		
1.2.6 Relationships with Neighborhood Group	0						
1.2.7 Building and Maintaining Relationships with Agencies	0						
1.2.8 Formal Public Involvement Meetings	76			36	30	10	
1.2.9 Formal Public Hearings	92			36	36	20	
1.2.10 Community Relations	0						
1.2.11 Media Relations	0						
1.3 Planning for Future Communications	0						
TOTAL PERSON-HOURS - PUBLIC INVOLVEMENT	198	0	0	87	81	30	0

2.0 TECHNICAL ANALYSIS	TOTAL HOURS	PRIN. HOURS	PROJ.MGR HOURS	EJ SMITH HOURS	DALE ROSEBROCK HOURS	RESOURCE SPECIALIST HOURS	WP/GRAPH HOURS
2.1 Data Collection							
2.1.1 Current Data	54			30	24		
2.1.2 New Data	0						
Travel survey design and analysis	16			8	8		
Land use site survey design and implementation	120			60	60		
Identify future potential urban development patterns	36			20	16		
Identify development opportunities and constraints	36			20	16		
Review local comp plans, zoning ord., and land use regs	36			20	16		
On-board transit survey design and analysis	0						
Special trip generator survey design and analysis	0						
Traffic cordon survey design and analysis	0						
2.2 Land Use Analysis	0						
2.2.1 Data Base Development	120			40	80		
2.2.2 Site Analysis	68			36	32		
2.2.3 Policy Identification	240			110	130		
2.2.4 Policy Analysis - Geocoding	328			128	200		
2.2.5 Land Use Alternatives Evaluation	120			40	80		
2.3 Regional Travel Model Development	0						
2.3.1 Model Design	0						
2.3.2 Data Base Management System and GIS Interface	0						
2.3.3 Zone/Network Development	0						
2.3.4 Incremental Model Development	0						
2.4 Model Documentation	0						
2.5 Existing Highway Needs Analysis	0						
2.6 TDM Strategies/Preferential Transportation Modes	0						
2.7 Future Forecasting	0						
2.7.1 Trip Table Development	0						
2.7.2 2015 No Build and TSM Alternatives Network Analysis	0						
2.7.3 Transportation Alternatives	0						
2.8 Agency Conferences and Liaison	80			40	40		
TOTAL PERSON HOURS - TECHNICAL ANALYSIS	1254	0	0	552	702	0	0

OUTLINE OF WORK TASKS
SMITH AND ASSOCIATES
ESTIMATED PERSON-HOUR REQUIREMENTS

3.0 ALTERNATIVE IDENTIFICATION AND DEVELOPMENT	TOTAL HOURS	PRIN. HOURS	PROJ.MGR HOURS	EJ SMITH HOURS	DALE ROSEBROCK HOURS	RESOURCE SPECIALIST HOURS	WP/GRAPH HOURS
3.1 Identify Corridor Alternatives	0						
3.1.1 Inventory Existing Network	0						
3.1.2 Data Collection	0						
3.1.3 Mapping	0						
3.1.4 Utility Identification	0						
3.1.5 Property Ownerships	0						
3.1.6 Environmental Concerns	69			34	8	27	
3.2 Develop Alternative Alignments	0						
3.2.1 Three Alternatives for each Corridor	0						
3.2.2 Design Treatments within Sensitive Areas	76			16	4	56	
3.2.3 Right of Way Requirements	0						
3.2.4 Cost Estimates	0						
3.3 Presentation of the Alternatives	36			12	12	12	
3.4 Preferential Transportation Modes	0						
3.4.1 Strategies for Developing Alternative Modes	0						
3.4.2 Alternative Modes to be Considered	0						
3.5 Right of Way Preservation Map	0						
3.6 Long Range Plan Impementation	0						
3.6.1 Transportation Improvement Plan (TIP)	0						
3.6.2 Priorities for Improvements	0						
3.6.3 Phasing Plan for Implementation	0						
3.6.4 Approval of the Revised 2010 Transportation Plan	48			24	24		
3.7 Agency Conferences and Liaison	24			12	6	6	
TOTAL HOURS – ALTERNATIVE IDENTIFICATION AND DEVELOPMENT	253	0	0	98	54	101	0
4.0 ENVIRONMENTAL REVIEW/ANALYSIS							
4.1 Preliminary Environmental Analysis	0						
4.1.1 Environmental Inventory	100			40	20	40	
4.1.2 Develop Constraint Maps	60			30		30	
4.2 More Detailed Study of Identified Environmental Issues	0						
4.2.1 Noise Analysis	216			16		200	
4.2.2 Air Quality Analysis	136			16		120	
4.2.3 Land Use Issues	100			50	30	20	
4.2.4 Natural Features	98			50		48	
4.2.5 Socio-economic/Community Facilities	72	—		40	32		
4.2.6 Environmental Design and Historic Values	78			24	4	50	
4.2.7 Hazardous Materials	54			24		30	
4.3 Mitigation Recommendations	144			48	24	72	
4.4 Selection of Preferred Corridor Alternatives	32			16	8	8	
4.5 Agency Conferences and Liaison	96			48	24	24	
TOTAL HOURS – ENVIRONMENTAL REVIEW/ANALYSIS	1186	0	0	402	142	642	0
5.0 REPORT PREPARATION	0						
5.1 Agency Draft	80			30	30	20	
5.2 Draft Executive Summary of the LRP Update	68			30	30	8	
5.3 Final Executive Summary for the Revised Long Range Plan	48			20	20	8	
TOTAL HOURS – REPORT PREPARATION	196	0	0	80	80	36	0

OUTLINE OF WORK TASKS
SMITH AND ASSOCIATES
ESTIMATED PERSON-HOUR REQUIREMENTS

SUMMARY	TOTAL HOURS	PRIN. HOURS	PROJ.MGR HOURS	EJ SMITH	DALE ROSEBROCK	RESOURCE SPECIALIST	WP/GRAPH HOURS
1.0 PUBLIC INVOLVEMENT	198	0	0	87	81	30	0
2.0 TECHNICAL ANALYSIS	1254	0	0	552	702	0	0
3.0 ALTERNATIVE IDENTIFICATION AND DEVELOPMENT	253	0	0	98	54	101	0
4.0 ENVIRONMENTAL REVIEW AND ANALYSIS	1186	0	0	402	142	642	0
5.0 REPORT PREPARATION	196	0	0	80	80	36	0
TOTAL MAN-DAYS	3087	0	0	1219	1059	809	0

1. SALARY COST
A. SUMMARY ESTIMATED MAN-HOUR TIME & SALARY COSTS

1. PRINCIPAL	0	MAN-HOURS	N/A	$0.00
2. PROJECT MANAGER	0	MAN-HOURS	N/A	$0.00
3. E. J. SMITH	1219	MAN-HOURS	$50.00	$60,950.00
4. DALE ROSEBROCK	1059	MAN-HOURS	$50.00	$52,950.00
5. RESOURCE SPECIALIST	809	MAN-HOURS	$50.00	$40,450.00
5. WORD PROC./GRAPHICS	0	MAN-HOURS	N/A	$0.00

TOTAL SALARY COSTS.....= $154,350

B. PAYROLL BURDEN & FRINGE BENEFIT COSTS
1. DIRECT PAYROLL COSTS
2. PAYROLL BURDEN (154350 X N/A) $0

2. GENERAL OVERHEAD & DIRECT JOB C $154,350 X N/A_) $0

3. NET FEE
INCLUDED IN HOURLY RATE ABOVE
(N/A) x (154350.00 + 0.00 + 0.00) $0

4. OUT-OF-POCKET COSTS

INCLUDED IN HOURLY RATE ABOVE $0.00

TOTAL OUT-OF-POCKET COSTS $0.00

SUMMARY OF COSTS

1. EMPLOYEE PAYROLL	$154,350.00
2. PAYROLL BURDEN & FRINGE BENEFITS	$0.00
3. GENERAL OVERHEAD & DIRECT JOB COSTS	$0.00
4. NET FEE	$0.00
5. OUT-OF-POCKET COSTS	$0.00
TOTAL	$154,350.00

BENCH/VALLEY TRANSPORTATION CORRIDOR STUDY
LIST OF ASSUMPTIONS USED IN PREPARING COST ESTIMATE
THE CENTENNIAL TEAM

1. The corridors to be studied involve nine extensions off the West Bench to either Chinden Blvd. or to State Street, with consideration for a logical connection on to Hill Road.

2. The nine corridors amount to approximately 58,000 feet, or 11 miles of roadway, for which conceptual alignments or improvements will be developed.

3. The plan and profile sheets developed at 1" = 100' will result in approximately 90 sheets for the nine corridors being considered.

4. The plan sheets not required for corridors that are found to be unfeasible and don't require development of plan and profile sheets, will be used on another corridor.

5. Preliminary plan sheets will not be required for all existing substandard roadway sections. They will be developed only for roadway sections classified as collector or arterial, and requiring more than minor widening. It is anticipated that they will involve an additional 50 plan sheets.

6. The existing GIS mapping developed from the 1987 Ortho Photos will be accurate enough for this planning level effort. The 50 foot grid that has X, Y, and Z coordinates will be used to develop the three dimensional mapping necessary along the Bench and the River. Because of the nature of the terrain in remainder of the planning area, three dimensional mapping will not be necessary.

7. The Provisional population and employment numbers developed by the Demographics Advisory Committee will be acceptable data for use in place of the CTPP data.

8. The on-board transit survey information collected by APA will be sufficient enough to provide the necessary data.

9. APA staff has already begun developing the TRANPLAN model, and that effort will not have to be redone.

10. APA staff will implement the special trip generator survey.

11. The vacant land survey will be a component of the City's comprehensive plan currently being updated by Scientech Inc., and will be acceptable information for this study by late Summer 1993.

12. The County GIS information will be made available for use on this project at no cost to the Project Team.

JAMES E. BRUCE, President
SHERRY R. HUBER, Vice President
SUSAN S. EASTLAKE, Secretary

Date: **September 11, 1995**

To: **ACHD Commission**

From: **Terry Little. Traffic Services Manager**

Subject: **Bench/Valley Study - Change Order No. 2**

Facts and Findings: Attached is Centennial Engineering's request for a change order for the Bench/Valley Transportation Study. The change order requests an additional $78,862.20. The key elements of the change order are summarized as follows:

- The West Valley Neighborhood Association has an ongoing concern with the draft Plan and have requested that additional alternatives be considered. A total of six extra alternatives were developed. This required extensive engineering and planning evaluation efforts which were not originally budgeted.
- The Manorwood Neighborhood has a similar concern with the draft Plan and have also asked for a two-way couplet alternative. This required engineering and planning evaluation efforts which were not originally budgeted. Given the level of local interest in this alternative, staff will require additional displays for viewing at the September public hearing.
- The "interim constrained" three-lane alternative for Curtis Road required was not included as part of the draft Plan and the needed engineering and planning evaluation efforts were not originally budgeted.
- There were additional project meetings and administration required as part of the new alternatives and the extended project period.
- There were additional citizen advisory committee and project team meetings as part of the ongoing project as well as the resolution of the additional route alternatives.
- There is additional public involvement with citizens requesting specific design details or other information about the various corridors.
- The public officials briefings were made necessary by the activities of one neighborhood representative. These briefings were never envisioned and were

MK CENTENNIAL
CENTENNIAL ENGINEERING, INC.

910 MAIN STREET, SUITE 250
BOISE, IDAHO 83702 - 5732

TEL: 208-386-6036
FAX: 208-386-6050

August 11, 1995

Mr. Terry Little
Traffic Services Manager
Ada County Highway District
318 East 37th Street
Boise, Idaho 83714

Regarding: **Bench/Valley Transportation Study**
Request for Change Order No. 2

Dear Mr. Little:

Transmitted herewith is our request for Change Order No. 2 in the amount of **$78,862.20** covering out of scope work on the subject project. The accompanying documents include a discussion of the justification for the change order, the scope of work covered by the change order and the estimated cost of the additional work.

If there are any further questions regarding this issue, please contact either Norm Gutcher or myself at 386-6036.

Sincerely,

David R. Butzier

David R. Butzier, P. E.
Project Manager

Enclosure:

cc: DRB w/Encl.
NKG w/Encl.
File w/Encl.

BVG0186.ltr

SCOPE OF WORK:

The public involvement process which has been an on-going element of the project, has asked for evaluation and testing of 9 additional combinations of alternatives resulting in a two month extension of the schedule. This increase in scope of work has impacted a number of project tasks, increasing the work for the Centennial team as outlined below:

Task 1 - Project Administration and Meetings (Centennial Phase Code 02)

Project administration includes a multitude of activities necessary to the organization, scheduling and control of staff and resources. This process continues throughout the duration of the study effort. The increase in alternatives to be addressed brings increased staff requirements in order to produce the necessary materials within the time frame required. It has significantly increased the amount of material generated that must be documented, copied, distributed and filed.

Project meetings with ACHD, APA, ITD, the Technical Advisory Committee, and members of the project team increased substantially, also as a result of the increased number of alternatives to be addressed.

The increased effort for this task is expected to require and additional 174 person-hours of labor to complete the project. (Project Manager - 80 Hrs.; Project Engineer - 60 Hrs.; Engineer - 14 Hrs.; Clerical - 20 Hrs.)

Task 2 - Alternatives Analysis (Centennial Phase Code 34)

As discussed in the Justification above, a number of additional combinations of links, 9 combinations in all, have been identified. Each of the links in these new alternatives requires the development of alignment, grade, typical sections, cost estimates and the exhibits to show this information. The right-of-way and environmental impacts are also evaluated. Each combination has been tested in the model to develop the vehicle miles, and vehicle hours traveled, average speeds and the regional air quality implications of the various systems represented by each combination of links. In addition a number of model runs have been done to test the two most favorable combinations to determine the incremental impacts on the overall system as each link in implemented. In addition, Centennial has been asked to provide additional detail regarding mitigation measures that may be used in each of the various corridors.

In addition to the additional links and combinations of links requested, the public has asked for data showing what improvement will be provided on the existing street system. They want information presented showing the major projects currently in the five year program for ACHD and ITD. They also want information presented showing the improvements, including cost estimates, to the existing system that will be needed, outside of the current program, in order to allow the projects identified by the study process to work as planned. These "existing system improvements" would include modifications to the I-184/Curtis Road Interchange, widening of Chinden, State and Glenwood to 6 or 7 lanes, and the widening of other street to three or five lanes.

Centennial has been asked to increase the level of effort expended in addressing the impact of alternative modes of transportation and travel demand management and how the number of vehicle trips can be lowered by these measures. The increased level of effort exceeds the level anticipated in the original scope of work. The additional effort focusses on development of more detailed presentation materials showing park-and-ride lots, bicycle facilities, BUS system improvement and the impact of a regional transportation system.

Clearwater Research

Due to the additional alternatives and materials being presented at the public hearing it appears necessary to have a questionnaire as part of the public comment form. We anticipate using Clearwater Research to develop the questionnaire and to summarize and analyze the comments received during the public hearing . It is estimated that this effort will cost $5,000.

Centennial Engineering requests a change order in the amount of $78,862.20 to cover the out of scope work discussed above. The supporting person-hour table and cost calculations are attached.

BVG0186.col

JAMES E. BRUCE, President
SHERRY R. HUBER, Vice President
SUSAN S. EASTLAKE, Secretary

April 13, 1995

To: ACHD Commissioners

From: Terry Little, Traffic Services Manager

Subject: Budget Change Order for the Bench/Valley Transportation Study

FACTS AND FINDINGS:

Attached is a proposed budget change order for the Bench/Valley Transportation Study. The original proposed budget for the Bench/Valley Transportation Study was estimated at $1,500,000. The selected consultant's original proposed budget was $1,500,018. Staff and the selected consultant accepted that it was difficult to develop a firm scope-of-work for a three year planning study. Through the contract development and budget negotiation process, ACHD staff and the selected consultant negotiated a revised scope-of-work and a reduced project budget at approximately $1,250,000. Because of the many unknowns encountered in a planning study, staff envisioned changes to the project scope could require the $250,000 later in the Study. Later has come. The increase in work has occurred continuously throughout the course of the Study due to extensive public involvement resulting in increasing concerns and alternatives. There has been no logical place to quantify this increase and reflect it in a formal change in scope until this last round of public meetings.

The consultant has developed and submitted a proposed budget increase of $229,559. Traffic Services staff have reviewed the original project contract and the submitted change order request. Staff recommends approving a budget adjustment of $199,559. With this submittal, the total project budget is anticipated to be $1,449,559.

The submitted change order is based upon an expanded work effort for the prime consultant and four of the project sub-consultants. A summary of the change order request is provided below. A copy of the change order request is attached.

- **Clearwater Research's** request is really due to the success of the public meetings. There were many more responses that anyone assumed; as a result, Centennial Engineering had to employ Clearwater to help analyze all the data. This increase is really due to ACHD's extreme responsiveness to public input. Staff supports the change order request due to the increase in the number of route alternatives.

The consultant will have to adjust future invoices and progress reports to identify the extra cost items and expand your project summaries to identify the new budget items. This approach will maintain a controlled project budget and staff can tie the rate of payment to the submission of future project deliverables. Staff reminds the Commission that the project's deadline is fast approaching and that the results of this project are critical to ACHD's five year work program.

ALTERNATIVES: There are four possible alternatives.

A) Accept the change order as proposed by the consultant,
B) Accept the change order as revised by ACHD staff,
C) Revise the change order in another fashion, or
D) Reject any version of the change order.

RECOMMENDATIONS: Staff recommends accepting the $199,559 change order as revised by ACHD staff (Alternative B).

FISCAL IMPACTS: Increase proposed total project budget to approximately $1,450,000. With this change order, the proposed remains approximately $50,000 below the original project budget estimate of $1.5 million. The change order would all be above the $500,000 budgeted in FY95; consequently, the additional ($199,559) is proposed in the mid-year budget.

POLICY IMPLICATIONS: None

SIGNATURE OF STAFF SUBMITTING:

_____

BENCH/ VALLEY TRANSPORTATION STUDY

ACHD PROJECT No. 70018
CHANGE ORDER No. 1

JUSTIFICATION AND SCOPE OF WORK

JUSTIFICATION:

The Bench/ Valley Transportation Study, as originally defined, covered a 33 square mile section of Boise, Idaho and included creation of a totally new transportation model for northern Ada County. Within the 33 square mile study area, the focus was to be on new and/or improved north/south access from the bench area down to the Boise River valley and across the river. The approach to the project has been unique in that public involvement has been sought and obtained at a level far beyond any previously anticipated level and that increased public involvement has generated many more alternatives to be evaluated than was anticipated, either by ACHD or Centennial.

The original scope of work for the project anticipated the analysis of seven (7) corridors to improve access from the west bench area to and across the Boise River. Provision was made for analyzing up to three (3) alternatives within each of these corridors for a total of 21 alternatives to be addressed, with not more than 12 to 14 of these being carried through detailed plans. The corridors originally anticipated included:

- Cloverdale Road
- 5 - Mile Road
- Maple Grove
- Cole Road/ Glenwood connection
- Ustick Road
- Curtis Road
- Orchard/ 36th

As a result of the high level of community involvement throughout the study process the project team has been requested to examine many more corridors and/ or facilities and to examine many more alternatives within some of the corridors. The corridors and/ or facilities including the number of alternates examined are as follows:

Corridor/Facility	Number of Alternatives
Original Corridors	
• Orchard/ 36th	3
• Curtis Road	8
• Ustick Road	4
• Cole/ Glenwood	5
• Maple Grove	2
• 5 - Mile Road	7
• Cloverdale Road	9
Subtotal	38

Task 2 - Alternatives Analysis (Centennial Phase Code 34)

As shown in the Justification above, the number of alternatives examined far exceeded the number of alternatives originally anticipated. The level of effort required for this work has increased by approximately 154%. Of the 54 alternatives examined, 24 of them did not require preparation of concept level plans, but were deemed to be not feasible due to grades, severe environmental impacts, severe property impacts and/or various other reasons. The remaining 30 alternatives have been pursued through development of concept level plans, with right-of-way impacts, environmental impacts and estimated construction, right-of-way and utility relocation costs. The concept design effort has eliminated another 10 alternatives leaving 20 alternatives to be presented and carried through actual concept level plan preparation. This entire exercise was further impacted by the level of detail and accuracy of the base mapping provided available. Not only was it necessary to work with the base mapping for all of the 54 alternatives examined, the mapping, as provided, required a significant effort to resolve apparent inaccuracies and to digitize existing features such as buildings. Refinement of the mapping provided so that it would serve the project needs involved a considerable effort on the part of Centennial and a subconsultant, Scientech. It is expected that this additional engineering effort will require 1552 person-hours by the time the project is complete. (Project Manager - 68 Hrs.; Project Engineer 210 Hrs.; Engineer - 860 Hrs.; Technician/ Drafter - 400 Hrs.; Clerical - 14 Hrs.)

Task 3 - Public Involvement (Centennial Phase Code 36)

The public involvement effort for the Bench/ Valley project has been quite extensive. The multitude of alternatives that have been brought forth through the process, is a direct result of the high level of effective communication with the public throughout the study process. The high level of public interest has been a direct result of the number of presentations to community groups and the high level of media coverage achieved. The level of activity in this area has been and will continue to be more intense than originally planned. This increase in activity was in response to input received through the "Stakeholder Interview and Focus Group" processes. These activities showed that it would be necessary to use the more intense level of effort to get the word out to the public if meaningful public input was to be realized. The additional effort required by Centennial in support of this activity will be 66 person-hours through project completion. (Project Manager - 34 Hrs.; Project Engineer - 14 Hrs.; Engineer - 8 Hrs.; Technician/ Drafter - 8 Hrs.; Clerical - 2 Hrs.)

Task 4 - CAC/ Neighborhood Meetings (Centennial Phase Code 37)

Citizens Advisory Committee (CAC) meetings were planned to occur at an average of once a month. As the project has developed CAC meetings have occurred almost every month with two and three meetings in one month on occasion. The additional meetings have been at the request of the CAC and/ or ACHD and are beyond the level of activity planned in the original scope of work. There have been at least 4 CAC meetings beyond the anticipated number. In addition the number of neighborhood meetings has grown by at least 3 meetings in recognition of the amount of material to be presented. The August, 1994 series of meeting was scoped as 6 meetings and a total of 9 were held. This effort has required additional staff time to prepare materials and displays for the meetings as well as to attend the meetings. This additional effort will require 84 person-hours to complete. (Project Manger - 10 Hrs.; Project Engineer - 12 Hrs.; Engineer - 30 Hrs.; Technician/ Drafter - 20 Hrs. - Clerical - 12 Hrs.)

2. The holdup for incremental model development related to the period of time it took for Cambridge Systematics to obtain geo-coded Household Travel Survey information. For example, the datasets for the household travel survey were obtained from the survey firm in May of 1994. Geo-coded information was not provided to Cambridge Systematics until October, 1994.

3. Traffic volumes for base year trip table calibration were provided to Cambridge Systematics in raw format, e.g., hundreds of count sheets with no summary information. Cambridge states they were under the impression that this information was already summarized and ready for use which was no the case. Cambridge states that they also conducted extensive analysis to smooth and factor traffic data for the daily, morning, and afternoon hours.

4. Operating system issues and new versions of software have created unanticipated problems with the development of GRDS. For example, DOS and OS/2 TRANPLAN highway network building are not compatible with one another and cause translation problems using the DOS based Arc/Info system.

Cambridge has requested an additional $35,000 to cover this additional level of effort. Centennial supports an increase in budget for Cambridge of $5,000. This amount is intended for additional time and travel for Cambridge to travel to Boise for a second training session focused on the GIS interface features of the model.

Scientech, Inc.

Scientech has provided GIS and graphics support on an as needed basis throughout the project. The amount of work necessary to smooth the available mapping and digitize buildings and other features to create the base mapping necessary for the alternatives analysis and the number of displays needed to properly reflect total number of alternatives that were analyzed and presented during the August, 1994 neighborhood meetings is such that an increase in budget is requested for this work. We are requesting an additional $19,000 to cover the additional costs associated with Scientech's extra work.

Clearwater Research

Clearwater Research has been added to the project team due to the magnitude of input received during the March 2, 1995 public meeting. Over 750 people participated in that meeting, with over 500 providing written testimony. That volume of testimony was such that additional resources were required to organize and analyze the material in a timely manner. The decision was made to utilize Clearwater Research for that data analysis. It is expected that they will also be involved in the analysis of input received during the final public hearing in July. It is expected that an additional $10,000 will be needed to cover the cost of using Clearwater for these purposes.

Centennial Engineering requests a change order in the amount of $199,558.92 to cover the out of scope work discussed above. The supporting person-hour table and cost calculations are attached.