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A STATEMENT BY DEPUTY UNDER SECRETARY ROBERT H. CLEMENT - U.S. DEPARTMENT OF TRANSPORTATION TO THE URBAN AFFAIRS SUBCOMMITTEE OF THE JOINT ECONOMIC COMMITTEE OF THE CONGRESS AT 10:00 A.M. ON MONDAY, MAY 13, 1974.

Mr. Chairman and members of the Subcommittee, I am pleased to be here today to relate some of the Department of Transportation's views on improving the effectiveness of urban transportation expenditures, with special reference to analyses which we have had performed on the San Francisco Bay Area Rapid Transit (BART) System under our BART Impact Program.

I am here as the Department's spokesman today because the BART Impact Program is the one single research effort in the Department that Secretary Brinegar has reserved for administration in his own immediate office. We feel that this effort, because of its comprehensiveness, may well hold a key to fundamental improvements in our nation's transportation and community planning and development capabilities.

While we have many years of experience in measuring and quantifying the impact of regional highway systems, such is not the case regarding rapid transit. This is so because we haven't built any new regional rapid transit systems in this country in 50 years - save the BART System which, as you know, is not quite finished. Former Secretary Volpe recognized the need therefore to take advantage of the partial opening of the BART System in 1972 to begin the important and painstaking process of measuring rapid transit impacts, so that future proposals for such systems might profit from a more quantitative cost and benefit analysis. Secretary Brinegar concurs in that view.

I have with me today, Mr. Richard Bouchard, Director of our Office of Transportation Planning Assistance, who serves as Technical Director of this program. I likewise have Mr. Alan Siegel of the Department of Housing and Urban Development, who are partners with us in this effort. Finally,

I have Mr. Jerome Premo, Acting Associate Administrator for Capital Assistance in our Urban Mass Transportation Administration, who, as the man who reviews transit construction applications for the Department, has a very special interest in the program. The special interest by UMTA was covered in hearings before this subcommittee last week by Administrator Herringer.

### INTRODUCTION

I want to make two principal points at the outset:

1. The BART Impact Program is not an investigation of the BART System and its management. Rather, it is a detailed research effort, designed primarily to: a) quantify the impacts of a new and large scale areawide rapid transit system; and b) to analyze these impacts as a basis for improving planning and decision-making capability of the transportation and community development practitioners across the nation and the world. We are using the BART area, simply because it is the only area in the U.S. to build an areawide rapid transit system in the past 50 years, and because it is representative of the technology under consideration for development in other urban areas. We plan to extend these research efforts in the Washington area and in other areas that might proceed with the implementation of such new technology systems.
2. The impact assessment program is in its very early stages. While I have some preliminary results to discuss with you today, I would first caution that these results do not as yet reflect an exhaustive analysis of impacts and causal factors. Secondly, as you know, the key link in the system, the Trans-bay tube, is not as yet open to service. Accordingly, the preliminary results may or may not be representative of the fully operational system.

### THE BART IMPACT PROGRAM

With this as a preface, let me briefly describe the BART Impact Program for you. The inauguration of BART operations brings to fruition a process of planning and construction that occupied more than a decade, and opens an important new era in urban transportation for the Bay Area and for the nation.

For many years, as cities and suburbs have struggled with limited success to accommodate a rising tide of automotive traffic and to sustain a steadily declining transit industry, rapid transit has been viewed by many people as an essential ingredient in the metropolitan transportation system of the future. A modern rapid transit system - fast and comfortable, with frequent service and moderate fares - can attract travelers from their autos in a way that neither the old-style subways nor the typical bus operation of today can do, so the argument has gone. The hoped-for results generally include reduced traffic congestion and air pollution, rejuvenated downtown business districts, opportunities for structuring urban growth, expansion of the job opportunities available to workers, and many other benefits. This line of reasoning has been persuasive in several metropolitan areas, which have begun or are seriously considering rapid transit systems.

But rapid transit has also had its doubters. They argue generally that such a system can reach only a small fraction of the homes in a metropolitan area, and few of the jobs outside the downtown office centers. They have pointed to the very high costs of building such a system and providing it with the automatic equipment that permits greatly reduced operating costs. Such arguments have carried the day in several cities whose public officials or voters have rejected rapid transit proposals.

Now BART offers an opportunity to end the era of claims and doubts by providing a "test bed" for a comprehensive evaluation of rapid transit on the basis of actual experience. The hard facts that will come to light in the next few years, as BART goes into full-scale operation and its ridership builds up, will permit an accurate appraisal of the benefits of rapid transit and an objective weighing of those benefits against the associated costs.

Such a careful evaluation of the impacts of BART requires comprehensive planning, for many of the positive and negative changes produced by the system will not be easy to detect against the background of continuing and complex changes in the Bay Area. Casual observers may be tempted to attribute to BART some things that would have happened anyway. Reports of benefits must be weighed against the equally important computations of the costs, both monetary and nonmonetary, of achieving those benefits. Some people may gain from the presence of BART in a very obvious way, while other people may actually lose in a way that goes unnoticed. There is a need for a thorough identification and measurement of the impacts of the new rapid transit system, an objective evaluation of its benefits and costs, and an accounting of the manner in which they are distributed over the entire population.

BART is also of great interest to other metropolitan areas across the country that are considering investments in improved transportation, and to the Federal Government, which is providing financial aid for local transportation improvements, urban development, and environmental protection in urban areas throughout the nation. Thus, to guide future decisions, both in the Bay Area and across the nation, there is an acute need for accurate information on the consequences of the BART and similar investments.

We in the Department of Transportation and our sister participating agencies are committed to fulfilling this need, partially through the BART Impact Program.

DOT and others began planning for a thorough assessment of BART impacts as construction of the first lines of the system neared completion in 1972. This resulted in the formal establishment in mid-1972 of the BART Impact Program that had been informally initiated in late 1971.

The three overall objectives of the program are stated in the first slide as three incisive WHAT, WHY, and HOW questions. The WHAT question is a challenge to identify and quantitatively measure what the impacts of the system have been on travel conditions, economic activity, land use and urban development, public policy, environmental quality, and other aspects of life in the Bay Area.

The WHY question seeks to determine the reasons why these impacts occur and why the anticipated impacts did not occur or occurred in a different way than anticipated.

The HOW question addresses one of the issues raised by your subcommittee, applicability to other cities. We call this transferability and are continuously seeking to determine how the BART-derived knowledge can best benefit other metropolitan areas in the nation. We need to know how it might influence Federal and local policies, guidelines and procedures and, specifically, how it might be utilized in improving rapid transit systems, including BART, throughout the country and the world.

On the second slide, the six specific major impact areas that we are investigating are identified. Together, these areas of investigation encompass the many facets of life in the Bay Area. As I'll explain more fully later on, our research approach includes the formulation of in-depth WHAT, WHY, and HOW questions in each area, the establishment of hypotheses to test the answers, and the gathering of appropriate data to provide the basis for quantitatively and qualitatively evaluating the hypothesized impacts during each phase of our comprehensive five-year program.

We recognized at the start that the program phases must be keyed to the various stages of construction and operation of the BART System. Accordingly, we defined three time phases for our impact program: (1) The Pre-BART Phase preceding September 1972, when service began on the first BART line; (2) the Transitional Phase covering the time between September 1972 and the time when reliable, seven-day 20-hour per day operation of the full BART System is achieved; and (3) the Operational Phase following the advent of full service operations. We have completed the Pre-BART Phase and are now in the Transitional Phase. Before describing our early observations, I'd like to describe briefly our accomplishments in the Pre-BART Phase, our current activities in the Transitional Phase, and our plans for the Operational Phase.

1. Pre-BART Phase - The principle activities during this phase were the collection of important perishable data on pre-BART conditions (mainly travel behavior, environment, and land use) and on the development of the basic program design. Data collection took place during 1972. The pre-BART data have been edited and compiled for subsequent comparison with data to be collected during the subsequent phases. The data are also being analyzed to produce useful information on pre-BART conditions for use by the BART impact assessment team and other interested researchers and policy-makers.
2. Transitional Phase - Some additional data are being collected during the transitional phase to provide early evidence of BART's impacts, especially its effects on travel behavior and the environment. We felt it was essential to proceed without delay to measure the initial impacts of the partially operative system. Doing so provides for the first of a series of impact assessments which, collectively, will establish impact trends over time and permit us to validate and revalidate the answers to our basic WHAT, WHY, and HOW questions. We recognize, of course, that the initial impact assessment data will not be a fair reflection of the capabilities of a fully operative system. Accordingly, we will make the necessary allowances in our interpretation of the data.

Work during the Transitional Phase is also being devoted to updating and refining the existing preliminary Program Design document into a multi-year Strategic Plan. For this fiscal year, and every subsequent year, a detailed Operations Plan will be developed detailing the work planned for the year. Last year, we were able to lay out a relatively detailed

research design in two of the major impact areas - (1) Transportation System and Travel Behavior, and (2) Environment. Consequently, we were able to bring contractors on board to further refine our research approach, to lay out a work plan and schedule, and to proceed with the planned data collection and analysis.

In the four other major impact areas (Land Use and Urban Development, Economics and Finance, Institutions and Life Styles, and Public Policy), our last year's work indicated a need for further detailing of the research design; hence we are presently developing a detailed research design in each of these four areas.

During this Transitional Phase we are also working closely with the Bay Area Rapid Transit District (BARTD) to ensure that the necessary data about BART operations, ridership, and other aspects of the System are preserved and made available for use in assessing BART impacts. A liaison position in the District's staff is being funded by the BART Impact Program to ensure that this need is met without distracting the staff from their duties or imposing an additional financial burden on the District.

3. Operational Phase - Plans for the Operational Phase call for activation of assessments in the remaining four impact areas by the award of contracts to qualified organizations, and the collection of data in each of the major impact areas, at a time when the BART System has been in full operation long enough for ridership to respond to its availability.

As these data are analyzed and interpreted, reports on the findings will be disseminated to interested public officials and technicians across the country. The main conclusions will be published in popular form for the mass media and concerned citizens. The results of all of the individual studies will be synthesized in a final report that will provide an objective evaluation of the full spectrum of BART's benefits and costs, and an appraisal of the way in which elements of this spectrum are distributed among population groups, geographic areas, and economic sectors.

I am pleased to report that the BART Impact Program has received great interest, technical and financial support, and day-by-day participation by a number of Federal agencies. Within DOT, my office, UMTA, FHWA, and various other offices within OST, including the Transportation Systems Center (TSC) in Boston, have actively participated in the program. HUD's Office of Policy Development and Research has technically guided and financially supported the research in many areas, particularly the Land Use and Urban Development, Environment, and Public Policy areas. The NSF has funded complementary research efforts by grants to University researchers, who are working in close cooperation with us and whose projects we regard as integral parts of our research plan. The NSF will be a major sponsor of the future Economics and Finance and Institutions and Life Styles efforts. The EPA has closely followed the ongoing work and has agreed to participate more directly in the Environment area and to support several of the other areas.

The State of California's Department of Transportation (CALTRANS) has actively participated in our pre-BART data collection efforts, beginning in the spring of 1972 with the collection of data on traffic volumes and vehicle occupancy along routes within BART corridors. They will continue to provide similar data collection support during the remainder of the program.

The overall organizational structure for managing the program is shown in Slide 3. I serve as the chairman of the program's Policy Committee. Other members of the Committee are, as shown, representatives of the sponsor organizations at the Assistant Secretary level. The purpose of the Committee is to review program progress and to provide overall policy direction.

To take advantage of the collective knowledge of nationally recognized experts in the many technical fields inherent in the program, we have asked the National Academy of Engineering (NAE), to form a BART Impact Program Advisory Committee. This committee meets approximately three times each year and has provided us with valuable advice on the scope and direction of the program, on technical specifics of individual impact areas, and on other management and technical aspects of the program.

The Federal sponsors agreed that an optimum location for the Federal Program Office is within DOT's focal point for transportation planning assistance, the Office of Transportation Planning Assistance. This Office is responsible for the overall daily management and technical direction

of the program. It is supported by a small full time technical staff from TSC and by the Federal Technical Advisory Committee (FTAC) which includes technical representatives of the various sponsoring agencies. The FTAC serves as a strong technical coordinating and review mechanism among sponsors on all aspects of the program.

The program sponsors have worked closely with the regional transportation planning agency, the Metropolitan Transportation Commission (MTC), to design and plan the implementation of this program. MTC was selected to be the prime contractor responsible for the program's on-site management. For this purpose, MTC has developed a technical staff who are working with the Federal agencies to select sub-contractors, to ensure the quality of their work and to integrate the products into a total program.

The fourth slide illustrates the BART System and the time at which each of its five prime segments either was or will be opened for service. Note that:

- . The Fremont Line was opened in September 1972
- . The Richmond Line was opened in January 1973
- . The Concord Line was opened in May 1973
- . The West Bay Line was opened in November 1973; and that the
- . Transbay Line is scheduled to be opened in September 1974

After all lines are operational, 20-hour-a-day service will begin probably in November 1974 and weekend service will start in January 1975. This schedule of openings and the hours of service provided have had some ramifications on the BART Impact Program as I alluded to a moment ago. Despite this, we have been able to collect and analyze the data required to get a sound and accurate picture of the region, its inhabitants and their travel patterns prior to the provision of BART service. Pending the opening of the Transbay line, we have been collecting and analyzing initial impact assessment data in the areas surrounding the opened facilities. The main "after" data collection and analysis activities will begin once the Transbay line is opened, as I have said previously.

#### PRELIMINARY IMPACTS OF THE BART SYSTEM

With this background and my cautionary statements in mind, I would now like to discuss what has been learned to date on the impacts of the BART System. For purposes of organization I am dividing my comments into the six major impact areas mentioned earlier. In each case, I shall attempt to highlight the particular items to which you referred when you invited us to testify here today -- namely:

- 1) Cost data, service and performance characteristics and information on ridership.
- 2) Socio-economic characteristics of present and potential users.
- 3) Anticipated diversion of auto users.
- 4) And, impact on land use patterns.

I might emphasize again that San Francisco, and most other metropolitan areas in the country, are in a constant state of change caused by a wide variety of reasons, ranging from public policy to private market forces. It becomes a very difficult technical problem, then, to determine the exact role that the BART system has played in the change in the Bay Area. We recognize this and have taken steps to minimize the uncertainty in this area. We are doing so by the careful use of data from control subareas in the region and by a program of comparing BART impacts to observed impacts of similar systems in other nations of the world.

At this point in time we are getting two general types of "early results." The first type is from our work in the Pre-BART Phase and the current Transitional Phase. From our home interview and work place surveys, our acquisition of "hard data" such as traffic counts and data on economic activity, and our continued acquisition and analysis of impact-related data, we are able to identify changes and effects that appear to have been caused, at least in part, by the development and operation of BART. It is premature however to label these results as "BART impacts," because they were obtained within the context of a partially operating system that is awaiting the opening of its critical line - the Transbay line. Moreover, the presently operating links are only in their "start up" period. The East Bay links were opened in late 1972 through early 1973 and the San Francisco to Daly City link opened just last November. From the point of view of our long term research design, we view these early results as important clues to the magnitudes of potential impacts. In statistical parlance, we formulate these as hypotheses to be tested as part of our formal scientifically rigorous impact assessment program. Because of this, we refer to these early results as "to-be-tested impacts." I ask you to keep this in mind.

The second general type of early results are those that have been emerging from sources other than our program. These sources stretch back to the early planning days of BART and include published material in both the technical and nontechnical literature plus the firsthand observations

of planners, transit operators, public officials, researchers, transit users, newspaper and magazine reporters, interested citizens, and many others. Indeed, as part of our program, we have reviewed about 100 technical and planning reports and approximately 4,500 newspaper and periodical articles. Collectively, they represent an extremely wide diversity of anticipated and actual impacts, arguments as to the magnitude of impacts, how good or bad they are, and who ultimately might reap benefits from and bear the burdens of BART. Thus, these too are merely clues as to BART impacts, again placing them among the to-be-tested impacts.

With the opening of the Transbay line about six months away and adding some time for the system to settle down, we estimate that we are about a year away from being able to properly evaluate both types of to-be-tested impacts. Nevertheless, let me review some preliminary findings to date.

1. The Transportation System and Travel Behavior Study - This is the first of the two impact areas we have underway this year. It is a 15-month initial assessment project with two primary goals. First, it will identify and fully document the total Bay Area transportation system. This overall system includes BART, local feeder transit service, and the related highway system. We need to have an accurate account of the physical and performance characteristics of the overall system as a first step in the identification and measurement of the BART impacts.

The second goal of the project is to develop the necessary scientifically sound impact measurement tools and then apply them to the various impact hypotheses that we and others have formulated.

Ideally, I would like to be able today to show you a complete analysis of the profile of the total transportation system and its users in the San Francisco Bay Area, both before and after the opening of BART. However, this is not possible as I've previously pointed out; while we have the complete picture "before" BART, we have only partial information "after" BART. Nevertheless there are some interesting observations to be made at this point about the characteristics of the systems, as they affect to the users. I'm referring of course to the time and cost of such usage.

A comparison in this regard in the Fremont and Concord corridors is shown in Slide 5. Here, the travel time and fares for typical trips from Hayward to Oakland and from Walnut Creek to San Francisco are examined. Note that before the opening of BART's Concord line, the peak-hour trip took 58 minutes and cost \$1.56 to make by automobile (including tools and parking costs) and it took 71 minutes and cost \$1.19 to make by the bus system. In lieu of the Transbay line's opening, express bus service has been dovetailed with present BART service. As shown in the slide, this combined "BART and bus" mode takes 56 minutes and costs \$1.29. Since neither the highway system nor the bus system has been radically changed since BART opened, the above-referenced times and costs have remained about the same. Using current projections for travel time and fares for the Transbay line, this same trip can be made on a fully operational BART, including getting through the departure and destination stations, in about 43 minutes at a cost of \$1.24. The time savings here are likely to be attractive to most travelers. The fares for all three transit modes are in the same ballpark, all roughly 25 cents less than that for the auto.

The lower table in Slide 5 gives similar data for Hayward to Oakland trips along the Fremont corridor. The "BART and bus" mode is not required since BART serves both cities. The typical choice of mode of travel here is probably determined by each traveler's value judgments regarding travel time and fare. If he does not mind the time investment, he might opt for the bus because of the fare savings. The choice between his auto and BART will probably not be decided by the 20 cent fare saving offered by BART. More likely, he will weigh the relative inconveniences of making the trip by each mode. For example, if he uses his automobile to get to the Hayward station, he might elect to use his car for the entire trip. Alternately, since parking at the Hayward BART station may be relatively more convenient than at his Oakland destination, he might opt for BART.

The travel time and fare statistics for the other corridors served by BART are relatively consistent with those presented in Slide 5. Over time, it is our assessment that the BART system figures will remain about the same, but the travel times for highway and bus modes will increase because of increased congestion. This assessment, of course, will be another one of our to-be-tested impacts.

On the travel behavior side, some interesting observations on the shift of travelers to BART have been made, as shown in Slide 6. The upper table in the slide presents the results of an analysis conducted by CALTRANS in support of the

BART Impact Program. In the Concord line corridor, it was estimated that before the opening of BART, 79 percent of the trips were by auto and the remaining 21 percent were by bus. Since the opening of BART, these percentages have shifted as follows: 75% by auto, 15% by bus, and 10% by BART. This shift away from auto and bus is expected to be more pronounced when BART becomes fully operational.

As regards this shift at the present time, a recent survey conducted by BARTD indicates, as shown in the lower portion of Slide 6, that over 50% of those riding BART previously drove their autos while over 30% previously rode the bus. Another 13% represented new trips. Similar observations have been made in other corridors in the area. Indeed, it has been determined that the proportion of BART riders who have been lured from their autos is considerably higher than projections made in the planning stage, which had been regarded by some observers as optimistic projections.

We expect that once the Transbay line is open that the full regional story may well be more significant, particularly in regard to auto diversion. We believe this is likely because the time and cost savings for San Francisco bound East Bay riders are more significant for this trip than for trips solely within the East Bay area.

There are other indications as well, that BART is having an effect on travel behavior. On Slide 7, we have shown some "before" and "after" traffic volume figures for two selected parallel freeway routes. Past experience has shown that vehicular traffic on these routes has gone up about 3% per year over the past 10 years. The results presented in Slide 7 suggest that the tide has been stemmed in the peak periods while, in the off-peak periods, the parallel freeways have seen pleasing reductions in the rate of increase of vehicular traffic. As I've noted earlier, these changes should not be "tagged" as BART impacts; rather, they become one of the to-be-tested impacts that will be examined as part of our program.

Before I leave the subject of transportation, let me briefly describe the profile of current BART ridership. The data presented in Slide 8 was derived from a BARTD survey of

BART riders who reside in the Alameda and Contra Costa counties. BARTD also surveyed the residential neighborhoods from which the BART riders originated, thus providing the two profiles shown in the slide. The BART riders are seen to be concentrated in the 18-34 age group, nearly equally divided by sex, predominantly white (76%), only 10.4 percent do not own an auto, and 93.5 percent have at least a high school education. Compared to their neighbors, they are less transit dependent, have completed more formal education, and are slightly younger. As the program progresses, we will be refining these and similar transportation-related figures, comparing them with the pertinent costs, further pinpointing the transportation effects of BART.

2. Environment is the second impact area on which we have recently initiated a major impact assessment project. It is also a 15-month initial assessment effort to identify and measure the effects of BART and BART-induced travel changes on neighborhood environment quality (noise levels, visual and other environment qualities) and on the regional environment (notably air pollution). Of prime importance are the effects of these impacts on people, including the various socio-economic groups, who live near or adjacent to the system. It is equally important to determine their perceptions, attitudes, and behavioral responses to these impacts. Early observations are more difficult to make in the environment area than in the preceding area, primarily because they normally require a much longer time to make themselves known.

We have, however, some early clues to environmental impacts. One is the positive environment impact associated with the linear parks under portions of the elevated structures. While it is difficult to show this impact, except visually, it is nevertheless a real one. Beneath the elevated structure of BART through El Cerrito there was constructed a 2.7 mile linear park, which is now being utilized by the young and old alike for pleasure and recreation. The beauty and usefulness of this park, and others like it on the system have also sparked both neighborhood and home improvement projects in the area. Some idea of this is shown in several of the photos on the collage.

In the area of train noise, we have done some preliminary work. Our surveys indicate that noise initially was and continues to be irritable to persons living directly on the line, particularly when they are not inside their homes. Also, the level of irritability is about the same as that associated with a typical diesel truck.

Since energy consumption is closely related to the quality of the environment, we have prepared Slide 9 to illustrate and compare the relative BTU expenditure rates for each mode of travel. It is clear that shifts from autos to either transit buses or BART will benefit both the environment and conserve our disappearing energy resources. Once BART becomes fully operational, it is anticipated that its energy consumption rate will decrease significantly as patronage continues to rise.

3. Land Use and Urban Development is the first of the four remaining impact areas for which we are developing study designs in preparation for full scale impact assessments. The focus of the study design and the full scale project in this area is to identify and measure the impacts on the distribution of population, activities, and buildings within the metropolitan area and on the character of urban development and its design.

And while we have not completed our study design as yet, let me share with you several of the claimed BART impacts that have been published in the Bay Area press.

- (1) Through 1971, the values of new commercial construction started in the 10 years since BART construction was announced in downtown San Francisco had exceeded \$1 billion;
- (2) all of the large new buildings are located within five minutes of a transit station;
- (3) Oakland has launched a \$165 million city center adjacent to its downtown station;
- (4) to date, there is not much evidence of BART-induced increased real estate values near non-downtown stations; and

- (5) few suburban stations are causing significant changes in development patterns or real estate values, except where strong zoning measures have been advanced in dynamic communities.

I've presented these to illustrate their role in our program. Each provides a clue to a potential BART impact. Our approach is to challenge such observations and, where further analysis appears fruitful, to place them in the category of to-be-tested impacts of the BART system. I might add that the collage contains some photographs that illustrate some of the physical change in land development near the BART system.

4. Public Policy is the second of the four impact areas in which a study design project is underway. The project's objectives are to examine both the Federal and local impacts on public policy and, where indicated, relate them to other BART impact areas. Investigation of the local public policy effects of BART and its bond issues and taxes will focus on the policies of governments functioning in the Bay Area, including policies relating to transportation, urban development, and public finance.

Two interesting comparisons in this area have been noted. First, many communities with BART service have been stimulated to make BART-related policies and plans but few have made explicit decisions reflecting community desires about development around BART stations. By way of contrast, communities without BART service have been stimulated to conduct assessments of the most desirable policy inter-relationships between potential extensions of BART service and their presently contemplated community growth plans.

5. Institutions and Life Styles is the third impact area for which a study design is presently underway in preparation for the full scale assessment project. The objective of the project is to assess the impacts of BART on social institutions, patterns of social behavior, and the quality of life, with special attention to specific population groups. The assessment process for this impact area is also one of bringing

together or integrating the observed impacts in the other five areas into a total impact on the institutions and life styles of the residents in the various neighborhoods of the Bay Area.

Early observations have noted that BART has provided a focus about which neighborhood groups have been able to coalesce in the formation of political and social communities. Moreover, because of the new vistas in mobility that it offers, BART may accelerate the shift of middle class residents from the central city. On the negative side, increasing land values near the developed BART station areas may force the poor to move away. However, it is much too early to confidently predict the impacts in this area.

6. Economics and Finance is the fourth study-design-then-full scale-assessment project. Here, the project investigates impacts of the BART system - and the bond issues and taxes that financed it - on the regional economy and on specific economic sectors, including the impacts on employment, productivity, and income levels.

We have just begun the study design work and have very little to add to the economic and financial activity presented to you today by the BARTD representatives. Our expectations are that BART will continue to stimulate the regional economy and will continue to increase its productivity. As before, such conjectures will be formally translated into to-be-tested impacts and appropriate data acquisition and analysis techniques used to measure the actual impact.

Lest you feel that all of the impacts from BART might be positive, given that this is the general nature of my preliminary report today, let me hasten to add that I have said precious little about costs, damages, those left unserved, etc., and have not reported on regionwide impacts by and large. This is because this information is not yet available. Only when it is, will the full impact story be known.

CLOSING STATEMENT

In closing, let me briefly touch on two areas we believe the Impact Program has identified that need additional attention if we are to improve the effectiveness of urban transportation expenditures.

The first area concerns the integration of rapid transit services with other transportation services in an urban area. Our studies in the Bay Area and elsewhere have indicated that such integration must begin with feeder bus service and parking facilities easily accessible to an area's freeway system. We are continuing to stress the importance of this matter in our planning grant programs and we find agreement with the concept among State and local officials and transportation experts. The main problem is who provides the service and what are the economic consequences. Our Unified Transportation Assistance Program (UTAP), now before committees of the Congress for consideration, would, of course, help integrate different types of transportation investments under a single program structure so as to encourage States and localities to interrelate the planning and operations of different modes of transportation.

The second area concerns the integration of land development actions with those of the rapid transit system. We have seen in the BART Program, and in others as well, that the more active a community is in promoting sound land development around a transit station, or a transit line, the more rational that development is and also that it contributes to the usage of the transit system. While many have been preaching this from a philosophical point of view for some time, we frankly have been less than successful in achieving significant local action. And as you know, land development decisions have been traditionally a function of local government. To help alleviate the situation, where local officials desire to take positive action, we are continuing to broaden our planning assistance programs to permit detailed studies of land development potentials of transportation system improvements.

This concludes my formal presentation this morning. I thank the committee for their kind attention and I am available to respond to questions and/or comments.

# OBJECTIVES OF THE BART IMPACT PROGRAM

- WHAT ARE THE IMPACTS OF BART ON VARIOUS ASPECTS OF LIFE IN THE BAY AREA?
- WHY DO THESE IMPACTS OCCUR?
- HOW CAN THE NATION OBTAIN THE FULLEST POSSIBLE BENEFITS FROM THE BART EXPERIENCE?