FTA

ENHANCED PLANNING REVIEW

OF THE

TRANSPORTATION PLANNING PROCESS

IN THE

SAN FRANCISCO BAY METROPOLITAN AREA

July 1996

PROJECT STAFF
Terrence F. Smith

William Lyons, Project Manager

Lisa Klein

ACKNOWLEDGMENTS

This report is the twelfth in a series of Enhanced Planning Reviews

(EPRs) of major metropolitan areas produced for the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) by the Volpe National Transportation Systems Center (Volpe Center), Research and Special Programs Administration, U.S. Department of Transportation. An earlier series of nine independent planning reviews of major metropolitan areas was published by the Volpe Center for the FHWA and FTA in 1994.

William Lyons is the Volpe Center Project Manager for the EPRs. Terrence F. Smith was the lead author and analyst for this report. Other contributors included Lisa Klein, Center for Transportation Studies, Massachusetts Institute of Technology.

Overall guidance for the EPRs, including production of this report, was provided by the Program Manager, Deborah Burns, and Sam Zimmerman, Director, both from the Office of Planning Operations, FTA; and Sheldon Edner and Barna Juhasz, Chief, both from the Metropolitan Planning Division, FHWA.

The federal review team--consisting of staff from FTA Headquarters and Region IX Offices; FHWA Headquarters, Region 9, the California

Division; and the Volpe Center--participated in all aspects of the EPR, including reviewing drafts of this report.

A draft of the Overview Report was provided to the Metropolitan Transportation Commission (MTC), Caltrans, and other participating major transportation agencies in the metropolitan area for review and comment. The Final Report adds background information for the observations and recommendations in the Overview Report and is written for public distribution. The assistance of local agency staff throughout the EPR is gratefully acknowledged. The Final Report, which was not reviewed in its entirety by the local agencies, is the responsibility of the federal agencies. Participating federal review team members are listed in the Introduction and state, regional, and local staff are listed in Appendix B.

Copies of the other reports can be requested from the USDOT/Volpe Center by fax (617) 494- 3260 or by E-mail at: vanderwild@volpe2.dot.gov.

Table of Contents

List of Appendices

Glossary of Acronyms and Abbreviations

AC Transit	Alameda County Transit
ABAG	Association of Bay Area Governments
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
CARB	California Air Resources Board
CEC	California Energy Commission
CHP	California Highway Patrol
CTC	California Transportation Commission
CalTrain	State of California State Railway Agency
Caltrans	State of California Department of Transportation
CO	Carbon Monoxide
CAAA	Clean Air Act Amendments of 1990
CAC	Citizens Advisory Committee
CBD	Central Business District
CAP	Clean Air Plan
CFR	Code of Federal Regulations

CMA	Congestion Management Agency
CMAQ	Congestion Management and Air Quality
CMP	Congestion Management Plan
CMS	Congestion Management System
EIR	Environmental Impact Review
EPR	Enhanced Planning Review
FCR	Federal Congestion Relief
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FY	Fiscal Year
HOV	High Occupancy Vehicle
HPMS	Highway Performance Monitoring System
INET	Integrated Transportation Network Builder
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
JPB	Joint Powers Board
LRT	Light Rail Transit
MIS	Major Investment Study
MPO	Metropolitan Planning Organization
MTC	Metropolitan Transportation Commission
MTS	Metropolitan Transportation System

MOU	Memorandum of Understanding
MINUTP	Software package used by MTC for development of the regional highway and transit network
Muni	San Francisco Municipal Railway
NHS	National Highway System
O&M	Operation and Maintenance
OWP	Overall Work Program
PMS	Pavement Management System
RTP	Regional Transportation Plan
RFP	Request for Proposals
RTCC	Regional Transit Coordinating Council
SamTrans	Sam Mateo Transit Agency
SRTP	Short-Range Transit Plan/Short-Range Transportation Plan
SIP	State Implementation Plan
STP	Surface Transportation Program
TCM	Transportation Control Measure
TSM	Transportation System Management
TIP	Transportation Improvement Program
USC	United States Code
USDOT	United States Department of Transportation
UMTA	Urban Mass Transit Administration (FTA's predecessor

	agency)
UNET	Transit network builder developed by UMTA
UTPS	Urban Transportation Planning System
Volpe Center	John A. Volpe Transportation Systems Center, Research and Special Programs Administration, US Department of Transportation

Executive Summary

The Federal Transit Administration (FTA) and Federal Highway Administration (FHWA) have initiated a series of joint Enhanced Planning Reviews (EPRs) to assess the impact of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) on the planning processes conducted by the transportation agencies serving metropolitan areas. The EPRs are also intended to determine the effects of planning on transportation investment processes. The information collected in the EPRs is intended to be of assistance to individual metropolitan areas in their continuing efforts to improve transportation planning practice, and to federal agencies in

formulating policy and identifying technical assistance needs among agencies engaged in metropolitan planning.

The EPR for the San Francisco Bay metropolitan area included a federal site visit from October 30 to November 3, 1995. At the conclusion of the site visit, the federal review team presented preliminary observations and recommendations to the local agencies taking part in the review. The team then formulated several additional observations as a result of the further review of documents and notes. These observations were incorporated into a draft Overview Report which was distributed for review and comment to the Metropolitan Planning Organization (MPO) and other local participants in the EPR. The Overview Report formed the basis for this Final Report, which describes the EPR in greater depth and is intended for public distribution.

The following is the summary conclusion and a complete set of the observations and recommendations presented in the Overview Report. The sections where the observations and recommendations are discussed in context are noted in parentheses.

The federal team identified several areas where the MPO and the

participating agencies in the local transportation planning process have successfully implemented comprehensive and coordinated planning practices consistent with ISTEA. In particular, these include the following areas:

- Establishment of effective partnerships, including the Bay Area Partnership, to guide the regional transportation planning process.

- Rigorous financial planning and analysis.

- Development of Transportation Improvement Program (TIP) selection criteria based on a variety of performance measures, including performance measures based on users' concerns.

- Focusing the transportation planning process on effective management of the transportation system.

- Bringing the freight transport industry into the regional transportation planning process.

- Assuring consistency between the region's transportation plans and programs and those developed by transit operators and Congestion Management Agencies (CMAs).

Conversely, the federal team identified specific areas that could be addressed to improve the transportation planning process in the San Francisco Bay Area. These include:

- Looking beyond the programming focus of the current regional transportation plan.

- Completion of Track-Two, which would help the region identify new funding sources for future improvements to the transportation system.

- More consistency in assumptions and data used in the various forecasting and modeling processes being undertaken in the region.

- Strengthening integration of transportation and land use modeling and planning.

- Clarifying roles and responsibilities in the Major Investment Study (MIS) process and establishing a framework for reaching consensus among participating agencies.

A. Organization and Management of the Planning Process

1. *Broad Participation*: Broad regional participation in the planning process is reflected in the involvement of a large number of diverse constituencies in the process. These combined efforts help the region to identify and discuss regional issues and work toward consensus. (III.)

2. *Results of Coordination*: Positive results of coordination are demonstrated at important points throughout the metropolitan planning process. Examples of this coordination are the consistency of the major financial and operational assumptions in the Short-Range Transit Plans (SRTPs) developed by the transit operators and of the developed by the CMAs with the Regional Transportation Plan (RTP). Through these efforts, participants in the regional transportation planning process demonstrate significant progress in reaching the ISTEA goals for a coordinated process with a focus on collaboration and system-wide performance. (III. A.)

B. Development of the Plan, Transportation Improvement Program, and Overall Work Program

1. *Strategic Role of the Regional Transportation Plan*: The current RTP represents significant progress toward incorporation of many elements envisioned in ISTEA. Future updates of the RTP should build on this foundation and expand from the present programming focus to a long-range strategic emphasis. Given the careful financial assumptions used in the development of the 1994 RTP, it is particularly important that the participants in the regional transportation planning process begin to identify new sources of funds. (IV. A.)

2. *Track-Two Planning Process*: The region is encouraged to complete its Track-Two planning process. This process could be combined with the financially constrained RTP to present long-term alternatives in terms of costs, revenues, and system performance. Future RTP updates should incorporate information from the Track-Two process. (IV. A.)

3. *Application of Selection Criteria*: Development of project selection criteria agreed upon by all participants in the regional transportation planning process, based on system performance, is a significant move towards the multi-modal transportation planning and selection process envisioned by ISTEA. (IV. B.)

4. *Links between SRTPs and the Regional Planning Process*: Development of comprehensive SRTPs, as required by MTC, provide a strong foundation for short-term transit planning. The SRTPs, coupled with financial constraint requirements, provide a strong link between each transit operator's planning process and the regional transportation planning process. Integrating long-range plans developed by CMAs and transit operators will further strengthen the regional transportation process. (IV. B.)

C. Financial Planning and Financial Constraints

1. *Rigorous Financial Planning*: The regional transportation planning process has made progress in developing financial plans based on careful and consistent assumptions and rigorous analysis. These plans provide a sound foundation for coordinated regional transportation planning. (V. A.)

2. *Track-Two and New Financial Resources*: The Track-Two process should build on the strong foundation for financial planning and help participants in the regional transportation planning process, policy-makers, and citizens understand what affect new funding sources can have on the transportation system. (V. A.)

D. Major Investment Studies

1. *Major Investment Study Guidelines*: The Partnership has developed formal guidelines for conducting Major Investment Studies (MISs). The MTC should consider formally adopting the MIS guidelines developed by the Partnership. These guidelines could be enhanced by clarifying roles and responsibilities and establishing a framework for reaching consensus among participating agencies. Specific attention should be given to how the MIS procedures apply to "pipeline" projects. According to MTC staff, this has largely been accomplished through the Partnership initiated screening process and outstanding issues are being addressed on a case-by- case basis. (V. B.)

E. Congestion Management System and Other ISTEA Management Systems

1. *Focus on System Management*: The region has made progress in understanding its transportation system and is encouraged to continue to develop tools and procedures to better understand and manage the existing system. Designation of the Metropolitan Transportation System (MTS) is a good first step in this evolving process. (V. C.)

2. *Innovative Performance Measures*: Continued identification and application of performance measures based on users' concerns are encouraged. This is an innovative aspect of the transportation planning process in this region. These measures should continue to be refined and expanded, and new opportunities for applying them to the transportation planning and decision-making processes should be identified. (V. C.)

F. Public Involvement Process

1. *Improvements to the Public Participation Process*: The MTC has made great strides in providing information to the public about the regional transportation planning process. Further efforts, such as translating the Citizens Guide into Spanish, Chinese, and other

languages of major ethnic communities in the region would improve this process. Evaluation procedures will help identify strengths and weaknesses in the public involvement process and provide information that could be used to develop methods that build on successful efforts. (V. E.)

2. *Expand Public Access to the Partnership*: The regional planning process should continue to identify opportunities to improve public participation in and access to activities of the Partnership. Considering the important role played by the Partnership, increased opportunity for public involvement would enhance public understanding of and input into the regional transportation planning process and help accomplish the ISTEA goal of proactive public participation. (V. E.)

G. Integration of Strategic Transportation Planning

1. *Freight Planning*: The regional transportation planning process has identified the importance of goods movement in the region. This has been demonstrated by the active participation of the Freight Advisory Council in all facets of the regional planning process, including the development of TIP project selection criteria. (VI. B.)

H. Travel Demand Modeling and Forecasting

1. *Consistency of Regional Models*: Agencies responsible for collecting data and forecasting and modeling should use the recommendations of the Modeling Coordination Subcommittee as a basis for working together more effectively. Other models should be consistent with the regional model. This will strengthen the regional planning process and enhance coordination and cooperation. This should lead to greater consistency of data and assumptions used in developing inputs to models and forecasts and in the results of these models and forecasts. MTC and ABAG should consider ways to strengthen integration of transportation and land use modeling and planning. For example, ABAG should provide timely forecasts to MTC for the planning period MTC uses for the RTP. (VII.)

2. *Validation of Travel Demand Forecasts*: The region should identify procedures to validate model results including collecting data to support validation on a disaggregate basis by geography, by mode, and by trip type. The agencies involved with travel demand forecasts should work together to resolve important questions about the reliability of HPMS as a source of data for validation. (VII.)

3. *Simplified Versions of Models*: The review team encourages the development, initiated by MTC and coordinated with potential users, of a simplified and user friendly version of the regional model which could be used by the counties. (VII.)

4. *Peer Review of Model Enhancements*: MTC has benefited from past peer reviews of its modeling process. The review team encourages MTC to bring experts from outside the region to review the enhancements of the regional model along with the simplified version of the model. (VII.)

I. Introduction

The Intermodal Surface Transportation Efficiency Act (ISTEA) significantly changed the law governing metropolitan transportation planning. In response to the changes introduced by ISTEA, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) issued revised planning regulations on October 28, 1993, setting

new requirements for the transportation planning processes. The requirements are presented in 23 CFR Part 450 and 49 CFR Part 613, Statewide and Metropolitan Planning Final Rule. The Clean Air Act Amendments of 1990 (CAAA) also imposed rigorous new transportation planning requirements in metropolitan areas, particularly those that are designated nonattainment or maintenance areas for air quality.

In support of the implementation of the revised regulations, FHWA and FTA jointly established a schedule of Enhanced Planning Reviews (EPRs). The EPRs are intended to determine the impact of planning on transportation investment processes. The EPRs also provide a technical assessment of the transportation planning and programming processes, including consideration of the six focal points identified by the FHWA and FTA Administrators for certification. The six focal points are: Financial Constraint and Financial Planning, Major Investment Studies, Congestion Management Systems, the Planning Process and Links to the Conformity Requirements of the Clean Air Act Amendments of 1990, the Public Involvement Process, and the ISTEA Fifteen Planning Factors. Of equal importance, EPRs will provide a forum for dialogue and the exchange of information on perspectives and concerns related to ISTEA between FTA and FHWA headquarters and field

staff, and state and local officials responsible for metropolitan area transportation planning.

Additionally, EPRs will provide information for future long-term federal policy making, including possible legislative and regulatory changes; identify national issues and trends; and document national case studies of best professional practice. This information will also be used to help identify how future federal technical assistance programs can best assist MPOs and other planning agencies in carrying out the requirements of ISTEA. Finally, EPRs are intended to support progress toward meeting ISTEA requirements.

The EPR has four parts: a review of planning documents, a site visit to the area, a summary draft Overview Report, and the issuance of this Final Report. At the conclusion of the site visit, the federal agency participants in the EPR presented preliminary observations and recommendations to the local agencies taking part in the review. The team then formulated several additional observations as a result of the further review of documents and notes. These observations were incorporated into a draft Overview Report distributed to the Metropolitan Planning Organization and other local participants in the EPR for review and comment. The Overview Report formed the basis for

this Final Report, which describes the EPR in greater depth and is intended for public distribution.

This report presents the results of an EPR conducted jointly by FHWA and FTA in the San Francisco Bay metropolitan area. This report considers the regional transportation planning process as it existed at the time of the site visit as well as future trends. The review team acknowledges that this is an evolving process.

A federal review team consisting of FHWA and FTA headquarters and regional staff, FHWA division staff, and US DOT/Volpe Center staff conducted the site visit on October 30 to November 3, 1996. The federal team consisted of:

Federal Highways Administration

Ervin Poka, Jr., Region 9

Bob O'Loughlin Region 9

Karen Schmidt, Region 9

Steve Guhin, California Division

Spencer Stevens, California Division

Federal Transit Administration

Ron Fisher, Office of Planning

Robert Hom, Region IX

Bill Powell, Region IX

Donna Turchie, Region IX

Jerry Wiggins, Region IX

US Environmental Protection Agency

Mark Brucker, Region 9

Volpe Center

William Lyons, Project Manager

Terrence F. Smith

Research assistance was provided by Lisa Klein of the Massachusetts Institute of Technology.

Local participants in the site visit included staff of the Metropolitan Transportation Commission (MTC), the MPO serving the San Francisco Bay metropolitan area; Caltrans, the State of California's Department of Transportation; the Association of Bay Area Governments (ABAG); the California Air Resources Board (CARB); Bay Area Rapid

Transit (BART); Contra Costa Transit Authority; Golden Gate Transit; Livermore/Amador Transit Authority; Sam Mateo County Transit District (SamTrans); San Francisco Municipal Railway (Muni); the Alameda County Congestion Management Authority (CMA); Contra County CMA; San Francisco County Transit Authority; the City of Vallejo; RIDES; and the University of California (Berkeley). A list of local participants is provided at the end of this report.

A list of MPO members, participants in the EPR site visit, and the agenda for the site visit are provided in Appendices A, B, and C of this report. A list of the documents reviewed as part of the EPR is provided in Appendix D.

II. The San Francisco Bay Metropolitan Area

The 7,719 square mile San Francisco Bay Metropolitan Area includes nine California counties: San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Solano, Napa, Sonoma, and Marin. The region includes a mix of large cities, including San Francisco, Oakland, and

San Jose, small to medium size cities, and rural areas. The region is a maintenance area for Ozone and a moderate nonattainment area for Carbon Monoxide (CO).

A. Projections and Forecasts

In 1990 the region had a population of approximately 6 million, which makes is the fifth largest metropolitan area in the nation. Population is expected to continue to grow, but at a slower rate than in the past 10 years. The population is forecast to be 7.5 million in 2010.

Employment is expected to grow at 1.4% per year, which is slower than the region had experienced in the past. The region expects to have nearly 4 million jobs by 2010. By that year, job growth is expected to out-pace growth in employed residents. Work trips account for approximately 25% of all travel. Census data show that 68% of workers drive alone to work, 13% carpool or vanpool, 10% use public transit, 4% work at home, and the remainder walk or bicycle to work.

In 1990, 72.6 percent of Bay Area workers lived and worked in the same county. Primary growth in commute trips is expected to occur in

inter-county trips. "In-commuting," especially from the Central Valley, is increasing. The San Joaquin County to Alameda County commute is the fastest growing of all Bay Area commutes. As such, the concept of using "Gateway Management" to regulate the flow of traffic entering the already congested Bay Area transportation network is an important issue in this region.

Commercial vehicle trips are projected to increase by nearly 44%. Trucks carry the majority of freight through the region, with 85% of truck trips being intra-regional. Regional peak trucking hours are 10 AM to 3 PM. Waterborne cargo is expected to triple by 2020 to 43 million metric tons.

Decentralized development is expected to continue. Current local land use policies show that 52% of the total acreage available for future development is located in the North Bay counties (Marin, Napa, Solano, and Sonoma). Much of the remaining land available for development is in the eastern portions of Alameda and Contra Costa counties. These are, geographically, the "fringe areas" of the region.

B. Regional Transportation System

The regional transportation systems consists of 19,400 miles of road network, of which 1,400 miles are state highways and 18,000 are local streets and roads. The road network also includes eight major bridges and 100 miles of High Occupancy Vehicle (HOV) lanes. Two major recreational bicycle/pedestrian trails, the Bay Trail and the Ridge Trail Link, link all nine counties. When complete, this system will encompass nearly 800 miles.

The region is served by nearly two dozen transit operators with more than 4,000 vehicles covering 7,000 miles of transit routes including 331 miles of rail. The region has two commuter rail systems, the Bay Area Rapid Transit (BART) heavy rail system and CalTrain. Light rail transit systems operate in San Francisco and San Jose. Five major bus operators serve the region; AC Transit, San Francisco Muni, Santa Clara County Transit District, Golden Gate Transit, and SamTrans. The region is also served by six ferry routes linking Marin County, Solano County, and Alameda County to San Francisco.

The region has five commercial airports and six public-use seaports. The seaports handled 12.8 million metric tons of dry cargo in 1992. Intermodal freight movements are facilitated by railroad access to the

Ports of Oakland and San Francisco.

In 1988, the region passed Resolution 1876, which constitutes a regional commitment to expand several of the regions rail systems. Resolution 1876 is a $3.5 Billion funding agreement covering the following extensions: BART to San Francisco Airport, West Pittsburg, Bay Point, Dublin/Pleasanton and Warm Springs; Santa Clara Light Rail Transit (LRT) Tasman corridor extension; CalTrain to downtown San Francisco; Muni's Embarcadero line, Turnback and extension to Sixth Street. Resolution 1876 projects have been treated in the RTP as prior regional commitments which will be honored and are included in the RTP Baseline, even though some projects will require significant re-scoping to comply with the existing funding commitments.

III. Organization and Management of the Planning Process

The Metropolitan Transportation Commission (MTC) is the MPO for the nine-county San Francisco Bay metropolitan area. The MTC was created by the California legislature in 1970 to plan the transportation

system in the San Francisco Bay area. The structure of the MPO, which includes representatives of county and local governments, reflects the cooperative relationships encouraged by good planning practices and ISTEA. MTC is responsible for long-range transportation planning, studies of specific travel routes, allocating transportation funds, representing the region's interests to state and federal government, and managing the region's transportation system.

A characteristic that may be unique to the regional transportation planning process in the San Francisco Bay Area is that the MTC is authorized under state law to be the designated recipient of a major percentage of the federal and state transit and highway funds available to the area. This provides a unique opportunity for the MPO to lead the regional transportation planning process. Processes and procedures developed by the MTC are used to coordinate transportation planning activities at the local and transit operator level with regional activities.

A. Metropolitan Planning Organization Designation and Membership

The regional transportation planning process in the San Francisco Bay Area offers a number of opportunities for participation by elected

officials, transportation agencies, organizations, and citizens. The MTC is composed of nineteen commissioners. Fourteen voting members are appointed by local elected officials. In the most populated counties (Alameda, Contra Costa, San Francisco, San Mateo, and Santa Clara) two commissioners are appointed, one by the countys council of mayors and city council members, and one by the county board of supervisors. Most commissioners are local elected officials. In less populous counties, the board of supervisors select the commissioner from a list of up to three candidates nominated by the countys council of mayors and council members. All commissioners serve four-year terms. Other voting members represent the Association of Bay Area Governments (ABAG) and the San Francisco Bay Conservation and Development Commission. Non-voting members represent the State of California's Business, Transportation, and Development Agency and the US Department of Transportation (DOT) and the US Department of Housing and Urban Development (HUD).

Participation by implementing transportation agencies, including major transit operators, occurs through the Bay Area Partnership, which is designed to provide a forum for the chief administrative officers of these agencies to meet regularly and discuss issues of common concern in an informal setting. MTC provided the impetus for convening this

group as a way to broaden participation of implementing transportation agencies in the regional transportation planning process and provides the principal staff support. Additional assistance is provided by staff from other agencies. Advisory committees to the MTC provide opportunities for the involvement of business, community, labor, and environmental organizations, academics, transit users, the freight community, elderly, minority and disabled citizens, and the general public.

The MTC has five standing committees that make recommendations to the full Commission. These are Administration and Oversight, Executive, Grant Review and Allocation, Legislation and Public Affairs, and Work Program. Each committee is supported by a number of advisory committees. MTC organizes staffing into five sections which are directly involved in the planning process, research, or implementation. The sections are Finance, Transit Coordination and Assistance, Legislation and Public Affairs, Planning, and Advanced Systems. Staff members from the transit coordination section and staff members responsible for county coordination, provide the modeling section with project definition information necessary for travel demand forecasting.

B. The Bay Area Partnership

MTC has initiated the formation of the Bay Area Partnership to assist in regional planning and priority by promoting inter-agency communication and cooperation. The Partnership is composed of the top managers of 31 Bay Area transportation and environmental agencies. Regional agencies participating in the partnership include: ABAG; BAAQMD; MTC; and RIDES for Bay Area Commuters. State and federal participants include: California Air Resources Board (CARB); California Energy Commission (CEC); California Highway Patrol (CHP); California Transportation Commission (CTC); Caltrans; FHWA; and FTA. The County Congestion Management Agencies (CMA) from each county and all of the regions' transit agencies are members of the partnership, as are Buchanan Field airport and the Port of Oakland.

The Partnership has three committees: the Plans and Programs Committee; the Legislative Committee; and the System Operations and Management Committee. The Partnership is involved in many of MTCs planning activities including: the development of multi-modal scoring criteria for use in ranking TIP projects; selecting an RTP investment strategy; and development of a Metropolitan Transportation System

(MTS) management system. It has been the major vehicle for getting transit operators, the State, County Congestion Management Agencies, and the MPO to cooperate in development of the Plan and TIP. MTC views the partnership as a primary way to promote the kind of inter-agency coordination and cooperation required by ISTEA.

C. Institutional Relationships

MTC, ABAG, and Caltrans have a Memorandum of Understanding (MOU) through which they agree to share land use and transportation forecasts. For example, ABAG supplies MTC with land use projections for use in forecasting travel demand in the Regional Transportation Plan (RTP) and, in turn, MTC provides transportation forecasts to ABAG for use in their next cycle of land use projections. The current MOU was last amended in 1986 and is in the process of being updated.

MTC, ABAG, and Bay Area Air Quality Management District (BAAQMD) also have an MOU in which they agree to work together to prepare and update air quality plans to meet federal requirements. The current MOU was signed in October, 1992. An MTC resolution establishing the Regional Transit Coordinating Council (RTCC) for transit service coordination, financial planning, and regulatory activities and for the conduct of

short-range transit planning serves as the current agreement between MTC and transit operators.

ABAGs demographic and land use projections are used for travel forecasts by local planning organizations, MTC, and Caltrans. Coordination of regional data has become especially important with the establishment of County Congestion Management Agencies (CMAs), which also must perform travel forecasts.

CMAs came into existence as a result of state legislation and voters approval of Prop 111 in 1990. The CMAs take the responsibility of preparing and implementing county level transportation plans, called Congestion Management Plans (CMPs). State law requires that the county plans serve as the basis for the RTP, in addition to which the MPO must address regional issues not addressed by the CMPs. State law requires the CMPs to establish levels of service standards for roadways, set transit service standards, develop trip-reduction and travel demand management programs, perform land use impact analyses, formulate capital improvement programs, and monitor conformity to the county CMP.

In 1994 and 1995 MTC and other transportation planning agencies in the region (including the CMAs) participated in a study on coordinating the modeling processes and data used throughout the region. The study made recommendations on strategies for maintaining regional data and assuring model consistency.

Observations

1. *Broad Participation*: Broad regional participation in the planning process is reflected in the involvement of a large number of diverse constituencies in the process. These combined efforts help the region to identify and discuss regional issues and work toward consensus.

2. *Results of Coordination*: The positive results of coordination are demonstrated at important points throughout the metropolitan planning process. Examples of this coordination are the consistency of the major financial and operational assumptions in the Short-Range Transit Plans (SRTPs) developed by the transit operators and of the plans developed by the CMAs with the RTP. Through these efforts, participants in the regional transportation planning process demonstrate significant progress in reaching the ISTEA goals for a

coordinated process with a focus on collaboration and system-wide performance.

IV. Development of the Plan, Transportation Improvement Program, and Overall Work Program

The development of the Regional Transportation Plan (RTP), Transportation Improvement Program (TIP), Overall Work Program (OWP) and other products of the planning process is done through MTC's committees. The Bay Area Partnership is also an active participant in this process, as are advisory councils established by the MTC to provide input into the planning process. These processes also include opportunities for public input through community meetings and other outreach activities. Technical information is provided by MTC's staff, and by staff from local and state government and transit operators.

A. Regional Transportation Plan

The current RTP, adopted in June, 1994, was developed as a financially constrained plan identifying regional priorities. The RTP, developed as part of a two-track process, represents Track-One. What MTC staff describe as a maintenance update of the RTP is to be completed in 1996.

The Two-Track planning process used to develop the 1994 RTP was designed to program forecasted funds in Track-One. Track-Two is described in the 1994 RTP as an advocacy document to argue for new transportation funding and mobility strategies. According to MTC staff, time and staff constraints led to the postponement of the Track-Two process in 1994, with plans to return to it after the RTP was adopted in 1994. Preliminary actions have been taken to develop Track-Two, but this process will not be completed before the end of 1996.

Development of the 1994 RTP began with identification by MTC staff of three alternative policy options for the Draft Capital Investment Plan. These options were:

Option 1a: A planning effort based on addressing prior commitments and local plans.

Option 1b: A planning effort based on system maintenance and operations management.

Option 1c: A planning effort based on coordinating transportation and land use.

After much public scrutiny of these options and meetings with staff and local officials, a consensus emerged that these three strategies were complementary and that all were necessary in some degree. The strategic direction reflected in the 1994 RTP combines elements of each of these options. A focus of the adopted strategy was on identifying how to best program forecasted future funds to ensure that sufficient funds will be available to operate and maintain the existing transportation system, fund projects that had been approved for implementation prior to adoption of the 1994 RTP, and develop new projects to meet regional transportation needs, and objectives.

Financial projections were based on careful assumptions about future funding, constrained by an understanding of the limits imposed by the political process. MTC's financial analysis did not assume funding at levels beyond those available in the past and assumed that some fund sources, such as demonstration funds, would not continue beyond

already identified limits. Maintenance, operation, and committed projects account for 75% of funds forecasted over the period covered in the 1994 RTP. Any proposed new projects will compete for funds from the remaining 25% of forecasted funds. The 1994 RTP includes programmed projects and "place-holders" for other projects which will be identified through corridor and MIS studies.

Track-Two is continuing to be developed with input from the Bay Area Partnership and will be influenced by some on-going and planned corridor studies. The process will identify and address major funding shortages, such as for operating funds. It is being designed to help policy-makers and the public understand how new investments would enhance the region's transportation system, what the full costs of these investments would be, and to identify alternative sources of funds for these investments. While the Track-Two planning process will not be completed prior to the 1996 update of the RTP, information from this process will, according to staff, be used in future updates of the RTP.

In developing the 1994 RTP, MTC took five steps to ensure that all interested parties were able to participate throughout the process. The first step was to convene five community forums to evaluate

reactions to the three proposed investment strategies. The second step included direct presentations to other transportation agencies and policy boards prior to the development of the selected strategy. The third step consisted of consultation with the Partnership and MTC's special advisory committees. The fourth step was a set of ten community forums to address reactions to the Draft Plan. The fifth step was the public comment period and two public hearings which generated further comments on the Draft RTP.

The RTP reflects system level issues in its focus on the Metropolitan Transportation System (MTS). A major focus of the Plan is the maintenance, operations, and management of the MTS. The MTS is the regional multi-modal system including highways; arterial roads; rail, bus, and ferry transit; freight facilities such as seaports, airports, freight rail and trucking routes, and intermodal and intra-modal transfer points. (The MTS is described in more detail in Section V. C.) Corridor level and project level concerns, unless they are prior commitments, are given limited attention due to forecasted limits on available funds for new projects. The RTP identifies five corridors which may require MIS.

In the discussion of the RTP implementation strategy, the RTP suggests

three actions which focus primarily on initiating dialog to help address land use considerations: use the Environmental Impact Review (EIR) comment process to inform local jurisdictions about impacts of local plans on the MTS; use the RTP EIR results to analyze the implication of proposed transportation investment strategies on local land use plans; work with the county CMAs to refine land use impact elements of their Congestion Management Programs.

The 1996 RTP is described as a maintenance update of the 1994 RTP and will reflect changes that have occurred since adoption of the 1994 RTP. The process will begin with a budget that is based on careful assumptions about available funds and financial needs. No major changes in the assumptions, goals, or objectives that guided development of the 1994 RTP are planned for the 1996 RTP update.

B. Transportation Improvement Program

Decisions on short-term regional transportation investments and strategies are identified in the metropolitan Transportation Improvement Program (TIP). Participants in the regional transportation planning process have collectively developed criteria,

based on regional goals and objectives and federal requirements, that are used for selecting projects for inclusion on the TIP. These criteria are reflected in the scoring procedures used to compare and evaluate competing proposed projects. The criteria and scoring procedures are developed by the MTC with input from the Partnership and from MTC's advisory councils. The MTC has developed a TIP monitoring process to track implementation of projects included in the TIP. Identifying projects that are delayed and addressing the factors that delay their scheduled completion is of particular interest.

MTC has what may be a unique responsibility, compared to other MPOs around the country, for project funding, particularly transit funding. The MTC is the designated recipient of several sources of transit funds, including FTA Section 5307 and Section 5309 formula funds and state funds designated for transit. Transit operators receive a large amount of their funding through the MTC process. MTC is also the recipient of highway and flexible funds, such as regional Surface Transportation Program (STP) funds, regional Congestion Management and Air Quality (CMAQ) funds, and funds designated as Federal Congestion Relief (FCR) funds by the State. FCR funds include National Highway System (NHS) and State STP and CMAQ funds designated for the region by the State and some state gas tax money. A portion of the total

regional STP funds, called STP Guarantee (STP-G) funds, are distributed to CMAs according to their relative population shares.

TIP project screening and scoring criteria are reviewed and revised annually to incorporate changes in regulation, changes in regional policies and priorities, and changes resulting from new information. For example, to improve the inter-relationships between roads and transit, scoring criteria have been established for road projects that benefit transit, such as by improving transit accessibility. Information provided by the Freight Advisory Council is being used to incorporate criteria that measure productivity improvements resulting from freight projects.

Participants in the regional transportation planning process may self-score projects prior to submitting them to MTC. Local sponsors typically score all proposed projects to determine whether they will be competitive for discretionary funds or STP-G funds. The scoring process helps to inform TIP decisions about how to use other available state and federal funds for transit. The scoring process encourages project sponsors to identify the most appropriate funding source when submitting a project for inclusion on the TIP. All projects using regional STP funds must meet the same criteria as other projects

included on the TIP.

Each transit operator submits a Five-Year Plan and Budget to the MTC as part of the TIP development process. The MTC analyzes the Five-Year Plan and Budget to determine whether adequate funds have been identified and are available to operate and maintain the system as planned and to complete capital projects (or phases of projects) included in the Five-Year Plan and Budget. The Plans and Budgets must also reflect decisions and policies identified in Short- Range Transit Plans (SRTP) that are developed by the region's transit operators. The Five-Year Plans and Budgets, once approved by the MTC, are incorporated into the transit element of the TIP. A unique aspect to the MTC process is that all federal and state transit funds are programmed through this process.

The region's transit operators develop SRTPs using their own information and information provided by MTC. The SRTPs are financially constrained and identify current and short-range (ten-year) operation and maintenance funding requirements and planned changes in transit services. These short-term transit planning needs can then be reflected in the TIP by programming funds to address

short-range maintenance, operation, and service needs of each transit operator. Several transit operators and CMAs are considering developing long-range plans which will be developed in coordination with regional long-range planning efforts.

C. Overall Work Program

The Overall Work Program (OWP) includes programs for ABAG, MTC, and Caltrans activities in the region. In addition, the OWP contains an ABAG Prospectus and an MTC Prospectus which describe each organizations structure and primary regional planning responsibilities. The MTC Prospectus reviews new planning requirements under ISTEA and "Proposed Bay Area Response" to these requirements. Multi-agency projects are also described and each agencys responsibility is identified. The OWP includes work item project descriptions for all projects and lists all planning projects funded with FTA, FHWA, and STP planning funds. Work items for ABAG and MTC cover air quality planning and implementation. The MOUs governing air quality planning are described in the OWP.

Observations

1. *Strategic Role of the Regional Transportation Plan*: The current RTP represents significant progress toward incorporation of many elements envisioned in ISTEA. Future updates of the RTP should build on this foundation and expand from the present programming focus to a long-range strategic emphasis. Given the careful financial assumptions used in the development of the 1994 RTP, it is particularly important that the participants in the regional transportation planning process begin to identify new sources of funds.

2. *Track-Two Planning Process*: The region is encouraged to complete its Track-Two planning process. This process could be combined with the financially constrained RTP to present long-term alternatives in terms of costs, revenues, and system performance. Future RTP updates should incorporate information from the Track-Two process.

3. *Application of Selection Criteria*: Development of project selection criteria agreed upon by all participants in the regional transportation planning process, based on system performance, is a significant move towards the multi-modal transportation planning and selection process envisioned by ISTEA.

4. *Links between SRTPs and the Regional Planning Process*:

Development of comprehensive SRTPs, as required by MTC, provide a strong foundation for short-term transit planning. The SRTPs, coupled with financial constraint requirements, provide a strong link between each transit operator's planning process and the regional transportation planning process. Integrating long-range plans developed by CMAs and transit operators will further strengthen the regional transportation process.

V. FHWA and FTA Administrators' Focal Points

The FHWA and FTA Administrators have identified six focal points for the certification reviews being conducted in major metropolitan areas. One objective of the Enhanced Planning Reviews is to gather information which will serve as a prelude to the certification review. For that reason, these focal points are reviewed as part of the Enhanced Planning Review. These focal points are:

1. Financial Planning and Financial Constraints

2. Major Investment Studies

3. Congestion Management Systems and Other ISTEA Management Systems

4. Air Quality and Conformity

5. Public Involvement Process

6. ISTEA Fifteen Factors

The following sections describe how the regional transportation planning process is addressing each of the focal points.

A. Financial Planning and Financial Constraints

The current RTP was developed based on a rigorous estimate of future availability of funds and estimates of costs to operate the current transportation system and complete projects approved through the regional planning process. This provides a baseline for future planning and identifies funding shortfalls, particularly among transit operators, that will require policy choices. Potential choices, identified by the region's transit operators, include: cutting services; increasing fares and other pricing strategies, and changing

the structure of the management of components of the transportation system.

The financial process used in the development of the RTP started with an estimate of the funds which are "reasonably available" over the twenty-year planning period. Key assumptions governing this estimation were:

- An annual inflation rate of 5%;
- Forecasted revenues and project costs in inflated year-of- expenditure dollars;
- State funding consistent with the 1994 State Transportation Improvement Program;
- Federal ISTEA funding equal to authorized funding levels with ISTEA apportionment factors held constant;
- Revenues from gas taxes projected to grow at half the rate of inflation (5%) beyond the current ISTEA authorization period;
- Transit operator fare structures keyed to inflation;
- Air quality attainment assumed by 1997, so no CMAQ funding is assumed available in 1998 and beyond;
- Projected revenues assumed to equal projected costs for toll bridge Operation and Maintenance (O&M), certain state highway maintenance and operations programs, and non-pavement

maintenance and improvements to local streets and roads.

Cost of the baseline program described in the RTP began with those costs associated with maintaining, managing, and operating the existing system and the costs of projects for which prior commitments exist. Available revenues were matched to baseline costs under a set of principles which used the key assumptions noted above as well as the following:

- Local funds were assigned for the pavement and maintenance needs of local streets and roads;
- For transit, priority was given to funding existing transit services for their asset replacement and rehabilitation programs before funding service expansions;
- MTC resolution 1876 extension corridors with regional financial commitments were given priority, and existing funding commitments were maintained, even when significant project scope modifications were anticipated;
- Operating and capital costs were assigned to the counties for which the service was provided.

At the end of this process, MTC identified the funding shortfall or

surplus for baseline programs by county. The regional total of funds dedicated in the Baseline accounted for $70 billion of the estimated $74 billion of transportation funds expected to flow to the Bay Area over the next 20 years, leaving $4 billion for new investments.

The RTP pursued an investment strategy which allocates the remaining $4 billion in discretionary funds (largely STP, CMAQ, and TSM funds). Approximately 30% of the discretionary funds were used to fund shortfalls in the Baseline. In the end, all counties had some margin of new investment opportunities through the flexible funds. Approximately 30% went to transit upgrades or extensions, and 11% went to operational strategies and improvements. The remaining funds went to new highway improvements including HOV lands and interchange improvements.

Financial Planning is an ongoing process. The region is developing or has developed a number of tools to manage assets and track funds. These tools, such as the Pavement Management System (PMS) and the TIP monitoring system, allow the region to assess its current financial situation and estimate future needs. Track-Two will look at various future transportation systems and funding scenarios based on their

likelihood of occurring and identify several alternative transportation systems, including a base case that is derived from the current RTP. This will help policy makers and the public understand the effects various levels of new funds can have on the transportation system.

Observations

1. *Rigorous Financial Planning*: The regional transportation planning process has made progress in developing financial plans based on careful and consistent assumptions and rigorous analysis. These plans provide a sound foundation for coordinated regional transportation planning.

2. *Track-Two and New Financial Resources*: The Track-Two process should build on the strong foundation for financial planning and help participants in the regional transportation planning process, policy-makers, and citizens understand what affect new funding sources can have on the transportation system.

B. Major Investment Studies

The Bay Area Partnership has provided leadership in identifying projects that may require Major Investment Studies (MIS) and in developing procedures to be used in the region. A process for identifying and evaluating major regional investments was adopted by the Partnership in May, 1995. The MIS guidelines state that the MISs will form the basis for the investment decisions which subsequently appear in the RTP and the TIP. To allow for conformity and financial analysis, MIS guidelines permit an assumed project design and scope to be included in the RTP. The 1994 RTP includes such assumptions, and these items are noted as concepts for which major corridor studies are pending. The MIS guidelines further provide that if the outcome of an MIS differs significantly in scope and concept from those assumed in the RTP, the RTP will either have to be amended or the new scope and concept will be included in the next update of the RTP.

The development of MIS guidelines started with a review of "pipeline" projects, that is, projects that had been included on RTPs and TIPs adopted prior to the issuance of the Final Rules for Statewide and Metropolitan Planning Regulations. The Partnership, with assistance from MTC staff, screened these pipeline projects, using criteria developed by the Partnership and reflecting federal law and regulation, to determine whether they did or did not require an MIS.

The result of this process was that, while determinations were made on a number of projects, several pipeline projects will require further analysis to determine whether an MIS is required.

A potential sponsor of a major transportation investment may initiate the MIS process by calling a meeting with, at a minimum, representatives of MTC, affected operators, Caltrans District 4, FHWA, FTA, and the CMAs for all affected counties. If the need for an MIS is confirmed, additional parties including resource agencies, environmental agencies, and affected jurisdictions must also be involved to determine roles and responsibilities, the scope of the MIS, how the public will be involved, data requirements, and evaluation measures. ABAGs regional land use projections must be used as a starting point for land use analysis, but the parties above may decide to explore changes in local land use policies.

As part of the development of the 1994 RTP, a screening process was initiated through the Partnership to identify projects that would not require a MIS. This process determined that the following types of projects would not require a MIS: Projects that had completed all environmental studies required by State and Federal regulations;

projects that were not going to use Federal funds; projects that would have no significant effect on capacity, travel flows, level of service, or mode share at the corridor or sub-area level; projects that were not a part of a larger project which would have a significant impact in any of these areas; and projects for which a reasonable number of multi-modal alternatives had been analyzed in past studies which found the project type was preferred. All other projects might require a MIS.

The measures of project efficiency and cost effectiveness are left up to the interested parties to decide. However, the MIS guidelines indicate that the following principles should be considered in determining these measures:

- Measures should be determined early in the process;
- Performance should be considered in terms of work, non-work, and freight trips;
- Measures should include cost-effectiveness, financial feasibility, and equity;
- Performance measures should allow assessment of alternatives independent of mode;
- Multiple measures should be used;

- Measures of advantages and disadvantages to local communities should be used.

The MIS procedural guidelines support a specific program of public involvement to be developed for each MIS study developed by those parties participating in the study. The MIS guidelines require that the public involvement program be consistent with the process used "for all significant regional planning activities" as required by the ISTEA Statewide and Metropolitan Planning Rule. General goals consistent with MTCs adopted public involvement process must be included.

Observations

1. *Major Investment Study Guidelines*: The Partnership has developed formal guidelines for conducting MISs. The MTC should consider formally adopting the MIS guidelines developed by the Partnership. These guidelines could be enhanced by clarifying roles and responsibilities and establishing a framework for reaching consensus among participating agencies. Specific attention should be given to how the MIS procedures apply to "pipeline" projects. According to MTC staff, this has largely been accomplished through the

Partnership initiated screening process and outstanding issues are being addressed on a case-by-case basis.

C. Congestion Management System and Other ISTEA Management Systems

Managing its existing transportation system is the major goal of the partners in the regional transportation process. An important first step in this process was the identification of transportation facilities and services that are crucial to the mobility needs of the region. These facilities and services define the San Francisco Bay Area Metropolitan Transportation System (MTS). Six principles guided the development of the MTS. These are:

- The MTS must function as a multimodal, integrated system and address both passenger and freight mobility needs.
- Decisions to maintain and enhance the MTS must seek to balance mobility with environmental, equity, and economic objectives.
- The MTS is designed to serve interregional trips and all other trips within the region to major activity centers.
- Maintenance, rehabilitation, and safety of the existing system

must be assured.

- Operating and maintenance decisions must be integrated with capital improvement decisions.
- Flexible funding is essential to developing and maintaining a system that achieves the above principles.

The MTS is made up of four components:

- MTS Arterial Streets and Highway System.
- MTS Transit System: Rail, Bus, and Ferry.
- MTS Freight Transport System: Seaports, Airports, Freight Rail, Trucking.
- MTS Transfer Point System.

The first three components are self-explanatory. The fourth ties these components together. The MTS Transfer Point System provides for significant intermodal transfers of passengers and freight between components of the MTS, including air, ship, and inter-city passenger rail. It also provides for high-volume passenger transfers between or within transit systems of the MTS.

While the MTS is a major component of the regional transportation

planning, management and investment decision-making process in the San Francisco Bay Area, it is not the only effort to manage the transportation system. MTC's asset management activities include the Pavement Management System (PMS) and the Transit Operator Capital Asset Replacement Model. MTC's focus on operational strategies is demonstrated by the Freeway Service Patrol, Freeway Call Box Program, Translink fare collection system, and participation in Intelligent Transportation System (ITS) deployment.

In developing performance measures, the participants in the regional transportation planning process found that engineering measures were not providing sufficient information to understand how the transportation system actually performs. To address this issue, a broad range of performance measures, including those that focus on user concerns, have been developed. These measures are integrated into the regional transportation planning process and have been established to help guide regional transportation planning and decision making. The purposes of the CMS are closely associated with those of the MTS. They are both important components of the overall management strategy identified as being under development in the 1994 RTP. This strategy will be guided by and will synthesize information from the CMS and other ISTEA management systems as well as corridor studies. Management strategies are also linked to MTS improvement strategies and directly to the development of the RTP. State law requires counties to develop county-wide Congestion Management Plans (CMPs). The RTP notes that these CMPs will form the basis for the CMS. No formal CMS or MTS Management System existed at the writing of the 1994 RTP or 1995 TIP. The RTP states that information gathered through CMS and MTS Management Systems will be used as future input to the RTP. **Observations** 1. *Focus on System Management*: The region has made progress in understanding its transportation system and is encouraged to continue to develop tools and procedures to better understand and manage the existing system. Designation of the MTS is a good first step in this evolving process. 2. *Innovative Performance Measures*: Continued identification and application of performance measures based on users' concerns are encouraged. This is an innovative aspect of the transportation planning process in this region. These measures should continue to be refined and expanded, and new opportunities for applying them to the transportation planning and decision-making processes should be identified. **D. Air Quality and Conformity** The San Francisco Bay Metropolitan Area is designated, as of, April 1995, as an Ozone maintenance area. It had previously been designated as a moderate non-attainment area for Ozone. The region is currently designated as a moderate non-attainment area for CO. A request and maintenance plan have been submitted to the appropriate agencies for re-designation as a maintenance area for CO. The Bay Area is subject to a number of clean air plans: Federal air quality requirements are addressed through the current State Implementation Plan (SIP). Stricter state air quality requirements are addressed through the Bay Area 1991 Clean Air Plan (CAP). Both plans contain Transportation Control Measures (TCMs) for the region. The CAP was adopted by Bay Area Air Quality Management District (BAAQMD), ABAG, and MTC who share responsibility for implementation. MTC, ABAG, and the BAAQMD jointly develop and implement regional air quality plans. The three agencies have a current Memorandum of Understanding (MOU) for preparing air quality plans which meet state and federal requirements as specified by the 1982 Bay Area Air Quality Plan and the Clean Air Act Amendments of 1990. MTC performs air quality conformity analyses for the TIP and RTP as entire programs. However, project sponsors may be responsible for

performing CO assessments as part of the project review. Both the TIP and the RTP address air quality through conformity analysis and through status reports on TCM implementation. The Bay Area is subject to some 28 TCMs, which MTC, ABAG, and BAAQMD share responsibility for implementing. Approximately eight of these TCMs have been fully implemented or achieved. To show conformity, the TIP must provide for timely implementation of TCMs and identify any major obstacles to implementation. The RTP must similarly show timely implementation of the TCMs to show conformity. Projects under consideration for inclusion in the TIP are scored according to the probable improvement in air quality over the life cycle of the project. **E. Public Involvement Process** The MTC has developed a number of processes to inform and involve a variety of interests in the regional transportation planning process. It has developed a Citizens Guide that provides information about the regional transportation planning process in lay-persons' terms and has developed a newsletter and other documents that provide information to the public. Direct public input into the decision-making process occurs through public meetings, forums, and advisory groups. MTC adopted a Public Involvement Process (PIP) in January 1994. Adoption occurred following a 45-day review period. The MTC has established several advisory groups to provide various constituencies with opportunities for involvement in the regional transportation planning process. These include the Elderly and Disabled Advisory Committee, the Minority Citizens Advisory Committee, and the Freight Advisory Council. A new and broadly based group, called the MTC Advisory Council, was established in 1995. It includes representatives from academia, business, community, environmental and labor organizations, the freight industry, transportation users, minority, elderly and disabled citizens, and the general public. The MTC has developed a number of methods to receive comments from citizens who participate in the regional transportation planning process or receive information from the MTC. These include a tear-out requesting comments and suggestions that is included in the Citizens' Guide, surveys of readers of MTC's Transactions newsletter, surveys on the effectiveness of outreach activities of citizens attending meetings convened as part of the RTP development process, and tracking of media coverage of MTC activities. MTC is currently looking at other methods for evaluating outreach activities, such as the use of advisory groups to review proposed outreach plans. As a forum for key decision makers, the Bay Area Partnership provides major input into the regional transportation planning process. Public involvement consists of providing public notice of Partnership meetings and ensuring that all the activities of Partnership committees and subcommittees are open to the public. **Observations** 1. *Improvements to the Public Participation Process*: The MTC has made great strides in providing information to the public about the regional transportation planning process. Further efforts, such as translating the Citizens Guide into Spanish, Chinese, and other languages of major ethnic communities in the region would improve this process. Evaluation procedures will help identify strengths and weaknesses in the public involvement process and provide information that could be used to develop methods that build on successful efforts. 2. *Expand Public Access to the Partnership*: The regional planning process should continue to identify opportunities to improve public participation in and access to activities of the Partnership. Considering the important role played by the Partnership, increased opportunity for public involvement would enhance public understanding of and input into the regional transportation planning process and help accomplish the ISTEA goal of proactive public participation. **F. Fifteen Factors** Through its focus on maintaining, rehabilitating, managing and operating the existing MTS, the RTP addresses many of the ISTEA Fifteen Factors including: system preservation, connectivity, management systems, transit improvements, and transit safety. Transit related factors are specifically addressed through the operators Short-Range Transit Plans (SRTPs). In addition, the definition of the MTS addresses some of the factors, such as connectivity. Intermodal access is addressed through the inclusion of transfer points in the MTS. Other factors specifically considered as part of the regional transportation planning process in this region include land use, impact on the environment, life-cycle costs, and economic effect of transportation planning decisions. Land use is considered through the use of ABAG data. The PMS and the Transit Capital Replacement Model consider life-cycle costs. All significant projects are subject to an air quality conformity analysis, as well as an Environmental Impact Review (EIR) process that addresses economic effect as well as environmental impacts. A summary description of how the planning process considered, analyzed, and reflected the ISTEA Fifteen Factors in the planning process products is included in the 1994 RTP. In addition to the RTP, other products of the planning process reflect consideration and analysis of the Fifteen Factors. The TIP project screening process requires that every project address at least one of the factors, and specific factors are integrated into scoring criteria used when making regional transportation investment decisions. These are specifically included in the Transit Capital Priorities Scoring Criteria and the Multi-Modal

Scoring Criteria. ABAG's land use forecast is a starting point for all MISs. **VI. Integration of Strategic Transportation Planning**

One of the major goals of ISTEA is to support the integration of strategic planning across transportation modes in metropolitan areas. A goal of the planning process in the San Francisco Bay metropolitan area is to improve management of the existing transportation system. In combination, these goals require integration of planning processes between modal operators and from mode to mode. This region has taken specific actions to improve the integration of transit planning across transit operators and has worked to better integrate freight transportation planning into the broader transportation planning process.

A. Transit Planning

Transit operators participate in the regional transportation planning process through their membership in the Partnership. Each transit operator is responsible for developing Short Range Transit Plans (SRTPs) which describe service and financial plans and capital improvement programs. The SRTP provides input for the Plan and TIP development process. Projects must be included in a transit agency's SRTP to be considered for inclusion in the TIP. The SRTP also serves

as an input into the development of capital and operational MTS improvement strategies which are inputs into the RTP.

SRTPs are ten-year plans developed under guidelines established by the MTC. SRTP service plans must be financially constrained in accordance with the MTC's regional financial forecast and other identifiable sources. This stipulation was developed as a response to ISTEA requirements for financially constrained Plans and TIPs.

B. Intermodal, Freight, and Port Planning

Participants in the regional transportation planning process have identified freight transportation as a major issue and are in the process of improving freight planning capabilities. To better address this issue, the MTC established the Freight Advisory Council in 1992 to obtain advice on freight issues and help identify and implement effective strategies to improve freight mobility in the Bay Area. The Council has enhanced the region's planning process by providing a direct source of information on freight transportation issues. For example, the Council developed forty suggestions for improving freight mobility.

The Partnership provides a forum for highway, transit, and ports to address regional transportation issues. To improve intermodal planning, the MTC recently hired a consultant to develop intermodal performance measures designed to track how efficiently and effectively the region's transportation system is serving residents and shippers. The report on this first stage of performance measure development identifies seven key mobility objectives and performance measures which apply to freight and passenger movement.

Representatives from the Freight Advisory Council sit on the MTC Advisory Council. The flow of information is two-way--from the freight representatives to the planners on freight concerns and from the planners to the freight representatives on regional concerns, including ISTEA expectations. This helps the MTC understand how its policy decisions can affect the freight industry and helps the freight industry understand how its interests relate to other transportation interests in the region. The freight industry, through the Freight Advisory Council and the MTC Advisory Council, and the Port of Oakland, as a member of the Bay Area Partnership, have assisted the MTC in its efforts to develop multimodal TIP project selection criteria.

Observations

1. *Freight Planning*: The regional transportation planning process has identified the importance of goods movement in the region. This has been demonstrated by the active participation of the Freight Advisory Council in all facets of the regional planning process, including the development of TIP project selection criteria.

VII. Travel Demand Forecasting

MTC is in the process of updating the travel demand forecasting process by re-estimating trip generation, trip distribution, and mode choice models. As part of this process, MTC is moving from Urban Transportation Planning System (UTPS) software to a micro-computer based software package called MINUTP for use in developing the regional highway and transit network. This has allowed MTC to expand the zonal system from 700 zones to 1100 zones. This process also involved re-coding the entire transit network since the change to MINUTP involved a change from UNET, the transit network building

system it had been using. UNET did not relate transit speeds in the model to highway speeds. The new system, called INET, integrates the transit network system and allows for this relationship. The UTPS system was used for the 1994 RTP and the 1995 TIP.

The existing Trip Generation Models are linear equations that estimate the work-trip generation rate independently for primary and secondary workers as a linear function of income, household size, and employment density in the workplace zone. External and through trips are added in an "off -model" fashion. Data sources are not identified in documentation provided. The existing Trip Distribution models are logit models for the home-based work trips and gravity for the other trip purposes. Existing mode choice models are logit models. The work trips mode choice model is a multinomial logit with choice sets transit, drive alone, shared ride two, and shared ride three or more passengers. The non-work mode choice models are binomial logit models.

MTC uses an incremental assignment process. MTC typically forecasts for the AM peak period and the midday period. Future year speeds and travel conditions are supplied to ABAG for use in projecting the next

series of demographic forecasts.

The model has the following elements:

- Model inputs include demographic, economic and land use data supplied by ABAG, zonal levels of service including parking costs, "terminal times," and transportation network levels of service including travel times and costs.

- Households in each zone are then stratified into households with workers and households without workers. Auto ownership is modeled separately for working and non-working households: auto ownership for working households is a multinomial logic model which considers ownership of one, two, or three or more cars. Auto ownership for non-working households is a binomial logit model.

- Trip generation is stratified by trip purposes: home-based work trips, home-based shop trips, home-based social/recreational trips, and non-home-based trips. In the updated models, MTC will also use trip generation techniques to model home-based school trips, which are currently handled

in an "off-model" fashion. Work trips are generated for both primary and secondary workers, where the primary worker is defined as the head-of-household as reported in survey data.

- Trip Distribution currently employs a logit model for home-based work trips and gravity models for home-based shop, home-based social/recreational, and non-home based trips.

- Mode Choice is also stratified according to work and non-work trips. Mode choice for work trips uses a multinomial logit model which considers transit, drive alone, shared-ride two, and shared-ride-three-or-more passengers. Primary and secondary worker characteristics are also considered. Non-work mode choice models are binomial logit models concerning transit or auto. The current work mode choice model separates walk and drive access to transit, so that the two access modes do not compete. This has been noted in peer reviews as problematic, since both access modes are possible for most system users.

- MTC uses an incremental highway assignment process which assigns trips to a peak period of one hour. MTC has been

exploring the possibility of modeling peak hour spreading to a two-to three-hour period.

In 1992, MTC convened a peer review panel to evaluate its modeling process. The panel made a number of recommendations to improve the forecasting process. These included:

- MTC could simplify the overall structure of the forecasting process. The number of choice models make the process very complex, and replacement of some choice models would make the process easier to understand.

- MTC should explore ways of modeling the effects of peak spreading on the highway system.

- MTC should use software which integrates transit speeds in mixed traffic with highway speeds.

- The MTC model should recognize that most travelers who can walk to transit can also drive to transit.

- MTC should employ weights in transit path building to ensure consistency between path- building and mode choice analysis.

- MTC should consider using the path-builder only to identify the best path of a given class (bus, BART, commuter rail, LRT, etc.) and employ a path-choice model to allocate trips among these competing paths.

- MTC should represent walk and drive access to transit as competing choices.

- MTC should consider stratifying the trip distribution process by a socio-economic variable (income or auto-ownership).

- MTC should evaluate the difficulties experienced by the distribution models in developing projected travel patterns consistent with land use projections.

- MTC should carefully evaluate the implications of projected increases in real household incomes.

- The review also acknowledged that MTC's modeling

responsibilities might be better served by the addition of one or two staff positions.

The peer review helped MTC to develop a Strategic Plan for modeling activities. This plan, developed in 1992, describes a number of actions to improve the modeling process. These include:

- In moving to MINUTP, the highway and transit network coding has been reviewed (and in the case of transit, completely redone). In general the networks have been improved.

- Changes to trip generation will include the addition of models for home-based-school trips which used to be added in a post-model process. MTC may consider special generators by travel analysis zone in their new models. Alternative market segmentation may be explored (current segmentation is for primary and secondary workers).

- No major changes to the trip distribution model.

- Potential mode choice model changes include a nested home-based work model which will first make a choice between

transit and auto, secondarily make a choice between drive alone and carpool, and thirdly choose between shared ride two and shared ride three or more passengers. The current model chooses from all four options in one step.

- Traffic assignment changes will include potential revisions of the speed/capacity delay curves and the possibility of modeling peak spreading.

In 1994 MTC and other transportation planning agencies formed a Modeling Coordination Subcommittee in the region (including the CMAs) to study how to improve coordination of modeling processes and data used throughout the region. The Subcommittee's report made recommendations on strategies for maintaining regional data and assuring model consistency. One result of this process is that the MTC is developing a simplified version of the regional model to be used by Congestion Management Agencies and other participants in the regional transportation planning process.

Planned changes to the regional forecasting and modeling process include running the model from a PC platform, developing new sets of

mode choice models, and updating data. The new model will include bicycle and pedestrian trips and will use new data collected from a household survey completed in 1990. Additional data will be collected in a household survey scheduled for completion in 1996.

MTC is one of a number of organizations that collects transportation, economic, and land use data and does forecasting and modeling in the region. ABAG collects regional economic and land use data and produces employment, population, land use, and other forecasts. Caltrans collects transportation data through its Highway Performance Monitoring System (HPMS). Coordinating these different forecasting and modeling processes, particularly reaching agreement on assumptions and using data from other sources to validate model results, is a challenge in the region. For example, ABAG forecasts for a twenty-year period relative to the most recent decennial census. This period does not always conform to the period covered in the RTP. ABAG does provide longer range forecasts when requested to do so by MTC. The MTC does not use the HPMS data, which has led to discrepancies between HPMS and the MTC model results.

Observations

1. *Consistency of Regional Models*: Agencies responsible for collecting data and forecasting and modeling should use the recommendations of the Modeling Coordination Subcommittee as a basis for working together more effectively. Other models should be consistent with the regional model. This will strengthen the regional planning process and enhance coordination and cooperation. This should lead to greater consistency of data and assumptions used in developing inputs to models and forecasts and in the results of these models and forecasts. MTC and ABAG should consider ways to strengthen integration of transportation and land use modeling and planning. For example, ABAG should provide timely forecasts to MTC for the planning period MTC uses for the RTP.

2. *Validation of Travel Demand Forecasts*: The region should identify procedures to validate model results including collecting data to support validation on a disaggregate basis by geography, by mode, and by trip type. The agencies involved with travel demand forecasts should work together to resolve important questions about the reliability of HPMS as a source of data for validation.

3. *Simplified Versions of Models*: The review team encourages the development, initiated by MTC and coordinated with potential users, of

a simplified and user friendly version of the regional model which could be used by the counties.

4. *Peer Review of Model Enhancements*: MTC has benefited from past peer reviews of its modeling process. The review team encourages MTC to bring experts from outside the region to review the enhancements of the regional model along with the simplified version of the model.

VIII. Meeting with Representatives of the General Public and Local Elected Officials

The review team met with members of MTC's advisory groups to receive public input on the planning process. The meeting was part of the review of the public involvement process and was held at MTC on November 2, 1996. Members of the Advisory Council, the Minority Citizens Advisory Committee, the Elderly and Disabled Advisory Committee, and the Freight Advisory Council participated in this

meeting. They all were satisfied with the role they play in the regional transportation planning process. A member of the Minority Citizens Advisory Council noted that, while the Council was not a policy body, it did serve as "the eyes and ears of those who can't come to the MTC." A representative of the Elderly and Disabled Advisory Committee identified its role as maintaining services for elderly and disabled citizens and helping to address operational issues. An example provided was accessibility of call boxes installed as part of the region's incident management system.

A member of the Emeryville City Council, who sits on the Alameda County CMA, provided an elected official's perspective on the regional transportation planning process. This meeting was held at MTC on November 1, 1996. She identified resources as the major issue facing both her CMA and the MTC. She noted that the CMA is good at identifying county needs, and that the MTC is good at identifying regional needs. The value she sees in the MTC process is that it provides a forum for regional needs to be identified and for CMAs to work cooperatively to identify ways to address these regional needs. This provides a parallel context for CMAs to address county needs.

She believes the process would be improved if there was less duplication of effort. She specifically identified separate processes

needed to meet state and federal environmental regulations.

Conclusion

As reflected in the observations throughout this overview, the federal team identified several areas where the MPO and the participating agencies in the local transportation planning process have successfully implemented comprehensive and coordinated planning practices consistent with ISTEA. In particular, these include the following areas:

- Establishment of effective partnerships, including the Bay Area Partnership, to guide the regional transportation planning process.

- Rigorous financial planning and analysis.

- Development of TIP selection criteria based on a variety of performance measures, including performance measures based on

users' concerns.

- Focusing the transportation planning process on effective management of the transportation system.

- Bringing the freight transport industry into the regional transportation planning process.

- Assuring consistency between the region's transportation plans and programs and those developed by transit operators and CMAs.

Conversely, the federal team identified specific areas that could be addressed to improve the transportation planning process in the San Francisco Bay Area. These include:

- Looking beyond the programming focus of the current regional transportation plan.

- Completion of Track-Two, which would help the region identify new funding sources for future improvements to the

transportation system.

- More consistency in assumptions and data used in the various forecasting and modeling processes being undertaken in the region.

- Strengthening integration of transportation and land use modeling and planning.

- Clarifying roles and responsibilities in the MIS process and establishing a framework for reaching consensus among participating agencies.

Significant progress has been made in the regional transportation planning process in the San Francisco Bay Area. This is an evolving process and more is expected, both by local partners and the Federal government, in the future.

Appendix A.

Membership and Voting, Metropolitan Transportation Commission

Representative of	Board Members	Votes
Association of Bay Area Governments	1	1
Alameda County	1	1
Cites of Alameda County	1	1
Contra Costa County	1	1
Cities of Contra Costa County	1	1
Marin County and Cities	1	1
Napa County	1	1
San Francisco Bay Conservation and Development Commission	1	1
San Francisco County	1	1
San Francisco Mayor's Appointee	1	1
San Mateo County	1	1
Cities of San Mateo County	1	1
Santa Clara County	1	1
Cities of Santa Clara County	1	1
Solano County and Cities	1	1
Sonoma County and Cities	1	1

State of California Business,		
Transportation, and Housing Agency	1	0
U.S. Department of Housing and		
Urban Development	1	0
U.S. Department of Transportation	1	0
Total	19	16

Notes: The region has no provision for weighted voting. Transit agencies participate through the Regional Transit Coordinating Committee and the Bay Area Partnership.

Appendix B.

Participants in the San Francisco Bay Area EPR

Metropolitan Transportation Commission

Lawrence Dahms, Executive Director

William Hein, Deputy Director

Chris Brittle

Jennifer Cheng

Chi Amy Chow

Joseph DaCunha

Ann Flemer

Karen Frick

Jeff Georgevich

Steve Heminger

Al Huerby

Brenda Kahn

Valerie Knepper

Richard Lou

Keith Mattson

Therese McMillan

Jay Miyazaki

Reginald Nugent

Chuck Purvis

David Tannehill

MTC Advisory Committees/Councils

Elderly and Disabled Advisory Committee

August Lonzo

Miriam Gholikely

Minority Citizen Advisory Committee

Miriam Gholikely, Chair

Freight Advisory Council

Steve Gregory, Port of Oakland

Stan Randolph, California Trucking Association

Advisory Council

Russell Hancock, Bay Area Council

David Jones and Associates David Jones, MTC Consultant ***Association of Bay Area Governments*** Eugene L. Leong ***Caltrans*** Gary F. Adams Jack Allen J. Steven Borroun Bruce Couchman Nancy Knofler Rebecca Shaffer Victor R. Zeuzem ***California Air Resources Board*** Eric Simon ***Transit Operators*** *BART* Mimi Bauer *Contra Costa Transportation Authority* Paul Maxwell Martin Engelmann *Golden Gate Transit* Alan Zahradnik *Livermore/Amador Valley Transit Authority* Vic Sood *SamTrans/JPB-CalTrain* Ian McAvoy *San Francisco Municipal Railway* Jim Nelson ***Local Government*** *Alameda County CMA* Nora Davis, CMA Vice Chair, Member of the Emeryville City Council Jean Hart Dennis Fay *Contra County CMA* John Ponte *San Francisco County Transportation Authority* Brigid Hynes-Cherin *City of Vallejo* Pamela Belchamber ***RIDES*** John Hirten

University of California-Berkeley *Political Science Department* Judy Gruber *Institute for Urban and Regional Development* Kazuya Kauamanta Ray LaRaja **Appendix C. Agenda for Enhanced Planning Review Site Visit FHWA/FTA Enhanced Planning Review of the San Francisco Bay Area October 31 to November 3, 1995 Tuesday, October 31, 1995** Location: Third Floor Conference Room MTC-MetroCenter 101 Eighth Street Oakland, CA 9:00 - 9:15 Introductions--Objectives of the Enhanced Planning Review Bob Hom, FTA Region IX Erv Poka, FHWA Region 9 Ron Fisher, FTA Headquarters 9:15 - 9:30 Overview of the Enhanced Planning Review William Lyons *Format for all sessions*--Brief Volpe Center update and overview of local approach to topic by regional agencies followed by discussion with Federal Team. All local agencies are encouraged to participate throughout the review. 9:30 - 10:00 Regional Transportation Issues (Trends--Economic,

Demographic, etc.) Discussion Leader Bob Hom Local Participants MTC lead - Lawrence Dahms ABAG, Partnership Steering Committee, Transit Operators 10:00 - 11:00 Organization of the Planning Process Focus: Institutional Relationships, e.g., the Bay Area Partnership and the Association of Bay Area Governments Discussion Leader Spencer Stevens Local Participants MTC lead - Bill Hein ABAG, Partnership Steering Committee, Transit Operators 11:00 Break 11:00 - 12:00 Regional Transportation Plan Development Process Discussion Leader Steve Guhin Local Participants MTC lead - Chris Brittle Congestion Management Agencies (CMAs), Caltrans, Transit Operators 12:00 - 1:00 Lunch 1:00 - 1:45 Corridor Studies and Major Investment Studies Discussion Leader Bob O'Loughlin Local Participants MTC lead - Chris Brittle, CMAs, Caltrans, Transit Operators 1:45 - 3:00 TIP Development Process Focus: Project Selection, Multimodal Priority Setting, and TIP Amendments Discussion Leader Spencer Stevens Local Participants MTC lead - Therese McMillan CMAs, Caltrans, Transit Operators 3:00 - 3:15 Break **CONCURRENT SESSIONS** 3:15 - 5:00 Intermodal Planning Focus: Integration and coordination of air, rail, and marine freight movement and air, rail, and highway movement of people. Discussion Leader Erv Poka Local Participants MTC lead - Keith Mattson Port of Oakland, Freight Advisory Council 3:15 - 5:00 Travel Demand Forecasting Discussion Leader Ron Fisher Local Participants MTC lead - Chuck Purvis ABAG, Santa Clara, Contra Costa CMA **Wednesday, November 1, 1995** 8:30 - 9:00 Summary Report of Travel Demand Forecasting Discussion Leader Ron Fisher Local Participants MTC lead - Chuck Purvis ABAG, Caltrans 9:00 - 10:15 Air Quality and Conformity Discussion Leader Bob O'Loughlin Local Participants MTC lead - David Tannehill Caltrans, BAAQMD, CARB 10:15 - 10:30 Break 10:30 - 12:00 Integration of Long-Range and Strategic Transportation Planning Focus: Regional Integration of Planning Processes and Integration of Strategic Transit Planning Discussion Leader Jerome Wiggins Local Participants MTC lead - Ann Flemer Transit Operators 12:00 - 1:00 Lunch 1:00 - 2:30 Financial Planning and Financial Constraint Discussion Leader Bob Hom Local Participants MTC lead - Therese McMillan 3:00 - 5:00 Opportunity for general public or elected officials to meet with the review team. Discussion Leader Bob Hom/Erv Poka Local Participants MTC lead - Chris Brittle CMAs and elected officials **Thursday, November 2, 1995** 9:00 - 10:00 Management of the Transportation System Focus: Congestion Pricing and Management Systems Discussion Leader Spencer Stevens Local Participants MTC lead - Bill Hein Consultant 10:15 - 12:00 Public Involvement Process Discussion Leader Donna Turchie Local Participants MTC lead - Steve Heminger Minority Citizens Advisory Committee; Citizens Advisory Committee; Alameda CMA; Elderly and Disabled Advisory Committee 12:00 - 1:00 Lunch 1:00 - 2:00 Open Session May include topics already discussed or additional topics such as the ISTEA Fifteen Factors. 2:00 - 4:30 Federal team meets to discuss close-out observations. **Friday, November 3, 1995** 8:30 - 10:00 Federal Team Presentation of Preliminary Findings and MPO Staff Response **Appendix D. List of Documents Received and Reviewed**

Federal Transit Administration (FTA), *Letter from Robert E. Hom,*

Director, Office of Program Development to Lawrence D. Dahms, MTC

Executive Director, RE: MTC's 1996-200 Draft Overall Work Program,

March 15, 1995.

Jones, David, *The Altamont Corridor Study: The First Sketch of an*

Agenda for Planning-An Issue Paper, May, 1994.

Metropolitan Transportation Commission (MTC), *1994 Regional Transportation Plan for the San Francisco Bay Area*, June, 1994.

MTC, *1994 Regional Transportation Plan for the San Francisco Bay Area, Appendices*, June 22, 1994.

MTC, *1995 Programming: Applications for Surface Transportation Funds; MTC Resolution No. 2835*, September 27, 1995.

MTC, *1995 Programming: Applications for Surface Transportation Funds; MTC Resolution No. 2835*, Memorandum from the Deputy Executive Director to the Work Program Committee, September 8, 1995.

MTC, *1996 Regional Transportation Plan Development*, Memorandum from the Executive Director to the Work Program Committee, July 14, 1995.

MTC, *1996-2000 Overall Work Program for the San Francisco Bay Area*, Final, May, 1995.

MTC, *Citizens' Guide to the Metropolitan Transportation Commission*, May, 1995.

MTC, *Conformity Group Task Force Meeting Announcement, Monday, March 13, 1995*, Memorandum, February 23, 1995.

MTC, *FTA Program of Projects in the Nine-County San Francisco Bay Area, FY 1994-95*, January 25, 1995.

MTC, *Freight Planning at MTC*, Memorandum from Chris Brittle to Keith Matson describing MTC Freight Planning activities. Includes attachments. October 9, 1995.

MTC, *Letter to FY 1995 Program of Projects Recipient from William F. Hein, Deputy Executive Director*, February 3, 1995.

MTC, *Letter to Steve Guhin, Chief, Planning and Research FHWA Region 9, California Division from Lawrence Dahms, Executive Director, regarding screening of 1994 RTP-listed projects by their applicability to the Federal regulations on Major Investment Study procedures*, February 3, 1995.

MTC, *Letter to Stewart F. Taylor, FTA from Sara MacKusick, OWP Coordinator*, May 19, 1995.

MTC, *Project level CO Guidance, Memorandum from David Tannehill to the Conformity Task Force*, September 21, 1995.

MTC, *I-80 Corridor Study-Phase 2- Request for Proposals (RFP)*, (Undated).

MTC, *MTC Training Course on Discreet Choice Models*, Memorandum from Chuck Purvis, MTC to Chris Fleet, FHWA Planning Support Branch, et al. September 8, 1995.

MTC, *Meeting Notice, January 30, 1995*, Includes attachments. January 31, 1995.

MTC, *North Bay Corridor Study*, Meeting Agenda and Statement of Principles for the North Bay Corridor Study, September 29, 1995.

MTC, *MTC Planning Assessment, Peninsula Corridor Joint Powers Board - Cal Train, FY 1995-1996*, (Undated).

MTC, *RFP: Altamont Corridor Study*, (Undated).

MTC, *Research Design and Strategic Plan; Bay Area Regional Database/Transportation Demand Models and Travel Forecasting*, May, 1992.

MTC, *Transactions*, September, 1995.

MTC, *Transportation Improvement Program (TIP) for the Nine-County San Francisco Bay Area, 1995 Volume 1; Introduction/Transit Element*, October 5, 1994.

MTC, *Transportation Improvement Program (TIP) for the Nine-County San Francisco Bay Area*, 1995 Volume 2; Highway Element, October 5, 1994. MTC, *Transportation Improvement Program (TIP) for the Nine-County San Francisco Bay Area, 1995 Volume 3; Part A-ISTEA Flexible Funds: The Surface Transportation Program and the Congestion Mitigation and Air Quality Program; Part B-Air Quality Assessment*, October 5, 1994. Mutlitrans, *Traffic Impact Study; San Francisco Bay Area Seaport Plan*, prepared for MTC, September, 1995. Parsons, Brinckerhoff, Quade and Douglas, Inc. and Associated Consultants, *A Review of the Travel Forecasting Process Maintained by the Metropolitan Transportation Commission for the San Francisco Bay Area*, Prepared for the MTC and UMTA, December, 1992. Peninsula Corridor Joint Powers Board, *Cal Train Short-Range Transit Plan, FY 1995/1996 to FY 2004/2005, Building the Future*, September, 1995 San Francisco Bay Area Rapid Transit District (BART), *Bay Area Rapid Transit District, 1995 Planning Assessment*, June 20, 1995. San Francisco Bay Area Rapid Transit District (BART), *Capital Improvement Program, July 1995 Through June 2005, FY 1996 - FY 2005*, September 14, 1995. San Francisco Bay Area Rapid Transit District (BART), *Short-Range Transit Plan, July 1995 Through June 2005, Fiscal Years 1996 - 2005*, September 14, 1995. San Francisco Municipal Railway (Muni), *Capital Improvement Program, 1995-2004, DRAFT*, July 1, 1995. San Francisco Municipal Railway (Muni), *Planning Assessment, San Francisco Municipal Railway (Muni), FY 1995-1996*, (Undated).