

The Major Investment Study as a
Planning and Policy Tool

by

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ABSTRACT

This thesis considers the Major Investment Study (MIS) requirement, which was established as part of the Federal urban transportation planning process in 1993 to set standards for the investigation of large-scale transportation investments. We first assesses the degree to which the MIS requirement is a useful tool for Federal policy. In pursuing this investigation, the current Federal policy context is established, the major features and intent of the MIS requirement are identified, and factors which affect the degree to which MIS can achieve its intent are explored. Second, by considering the application of MIS to the expansion of Tren Urbano in San Juan, Puerto Rico, we investigate the opportunities and concerns which MIS may present for local planning. Recommendations are offered both for improving the requirement as a Federal policy tool and for guiding the MISs in the Tren Urbano extension corridors.

Our analysis finds that the MIS requirement was designed to support three Federal policy principles: increasing local input, introducing non-transportation concerns, and giving fair consideration to transit. The requirement's emphases on collaboration among agencies and the use of broad goals and objectives are particularly useful in promoting these principles. Our analysis also identifies a number of factors which limit the effectiveness of the requirement. Some such factors should be addressed through modifications to the requirement. These include: reconciling the MIS process with NEPA; reconciling MIS with fiscal constraint; and addressing "political reality" projects. Other complicating factors result from broader tensions in the planning process and include: tensions between Federal programs and local decision-making, and persistency of modalism and modal bias. Though the flexibility of the requirement generates substantial short term uncertainty, it should probably not be altered until the longer-run impacts are clear.

Our analysis of the San Juan case suggests undertaking pre-MIS analysis followed by a series of MISs to perform system and extension planning for Tren Urbano. The opportunities offered by MIS include: emphasizing non-traditional goals which have local relevance such as improving accessibility and land use planning; and inviting a broad range of institutions to participate. The primary concerns in this application are: negotiating with FTA; asserting locally determined evaluation criteria over discretionary funding criteria; determining the number and timing of the studies; and designing a means of integrating MIS with NEPA.

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1. Introduction

The Major Investment Study (MIS) requirement was established in 1993 to set standards for the investigation of transportation investments which are either high-cost or high-impact. The requirement is part of the Federal urban transportation planning process and establishes a cooperative, locally driven process for considering highway and transit alternatives at the corridor level.

Since its inception in 1962, the Federal transportation planning process has evolved from one directed toward planning the U.S. Interstate Highway System to one addressing varied urban transportation needs. To meet these needs, Congress and the modal administrations of US DOT have modified planning requirements over the past three decades with the intention of increasing local input to the planning process to complement State and Federal influence, opening the planning process to consider related, non-transportation concerns (such as environmental, economic and social issues), and encouraging the process to consider transit in a fair manner. These efforts have also recognized the reality of increasingly constrained funding sources for transportation. More than any previous legislation, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) embraced these trends in Federal policy. As one of several regulatory requirements developed under ISTEA, the principles of the MIS requirement are closely linked with this policy context.

1.1 Research Objectives

The research presented here has two primary objectives. The first is to assess the degree to which the MIS requirement is indeed a useful tool for Federal policy given the policy context established by ISTEA. This portion of the research seeks to understand how the MIS requirement was designed to support Federal policy as articulated in ISTEA and identify the factors which either enable or inhibit it from doing so. Where possible, we hope to recommend changes to improve the requirement and to highlight more general tensions in the planning process which impact the effectiveness of the MIS process.

The second objective of this research is to understand some of the major opportunities and concerns the MIS process presents for local planning efforts. Specifically, we consider the application of the MIS process to possible extensions for Tren Urbano, a new mass transit system under development in San Juan, Puerto Rico. This should allow us to explore the usefulness of the MIS process as a local planning tool as well as allow us to identify specific opportunities and concerns which the San Juan region may face when it undertakes MIS in the Tren Urbano extension corridors. Through this analysis we hope to recommend approaches which will allow San Juan to get the most out of the MIS process and to avoid, or at least anticipate, some of the pitfalls.

1.2 Motivation for Research

Several factors motivate this research and contribute to its timeliness. Established in 1993, the MIS requirement is relatively new. Though the newness of the requirement suggests it may be too early to assess many of its impacts, it should still be possible to identify some potential benefits and drawbacks of the requirement. The newness of the requirement also suggests that its understanding and implementation at both the Federal and local levels may still be malleable, and hence may be influenced by recommendations made here. Opportunities for influencing the MIS process are increased by the fact that the requirement is quite flexible and will be defined to a large extent at the local level and through practice and enforcement by the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA).

Some reflection on the requirement may be valuable as Congress prepares to reauthorize the Surface Transportation Act in the fall of 1997. Though the MIS requirement is established in FTA and FHWA regulations and not in ISTEA legislation, suggestions for modifying the MIS requirement have been presented in Congressional hearings and in the reauthorization policy statements of various interest groups. Furthermore, we expect FTA and FHWA to issue revised regulations governing the planning process after reauthorization; to this end, the agencies have been engaged in joint efforts to evaluate the ISTEA planning requirements including MIS. This analysis will at the very least provide some context for understanding these discussions and may in fact contribute to them.

Beyond the question of reauthorization, MIS can be seen as one in a series of Federal policy efforts to improve the planning process by promoting certain principles. By identifying factors which make MIS useful, we may also identify more general mechanisms for promoting these policy principles. Similarly, by identifying factors which limit the effectiveness of MIS, we may be able to stimulate discussion on some of the fundamental tensions in the planning process so that they may be addressed.

The case study of San Juan is also quite timely. The major planning efforts associated with the first phase of Tren Urbano are largely complete, and construction is underway. This suggests the region can begin to turn its attention to the planning of future phases, a need deferred until now in favor of implementing Phase 1. The Tren Urbano system is important regionally because it is the centerpiece of a recent shift in local transportation policy which aims to increase access to urban centers by providing high-quality transit services, thereby slowing the growth of road congestion and, hopefully, reversing urban decline. Though there is an existing system concept for Tren Urbano, none of the proposed extensions have been fully defined, and they thus require a good deal of basic planning. The MIS process, which is new to San Juan, will be the vehicle for much of this planning. This research will identify key opportunities and concerns in preparation for undertaking MISs in the proposed extension corridors.

1.3 Research Methodology

Because this thesis has two principle objectives, there are two major components to the research presented here. The first is a general analysis which focuses on the ability of the MIS requirement to advance Federal policy objectives. The second component of the research considers the application of MIS to the study of Tren Urbano extension corridors in San Juan, Puerto Rico. Figure 1 illustrates the steps involved in each part of the research as well as the relationship between the two parts of the research. Each step is described in greater detail below.

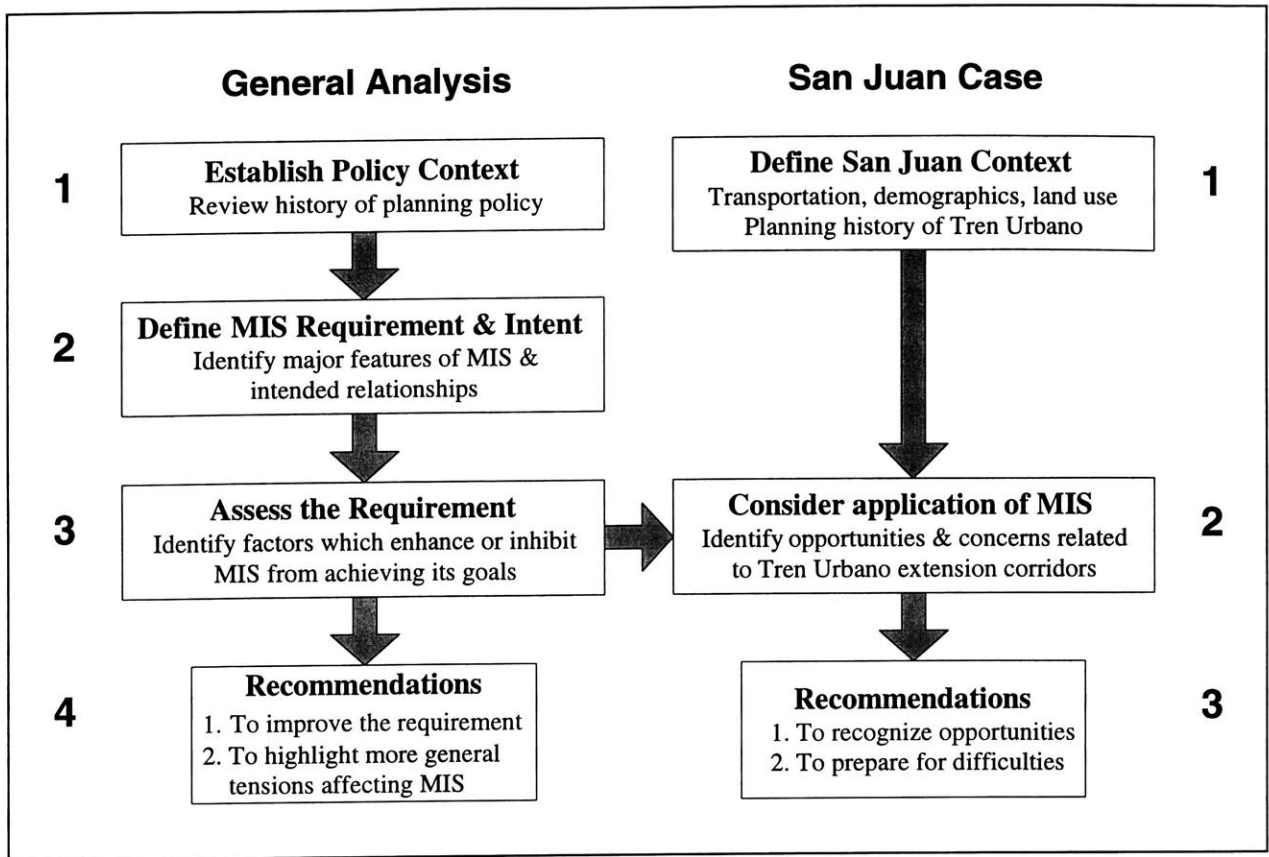


Figure 1: Research Methodology

Part I: The General Analysis

The general analysis consists of four steps designed to assess the degree to which the MIS requirement can be an effective tool for Federal policy and to recommend ways to strengthen the requirement.

- 1. Establish the current policy context under ISTEA.** This step began with a review of the history of Federal transportation planning policy starting with the initiation of the Federally required planning process in 1962. The review was conducted in order to identify trends which help explain the significance of recent changes in Federal policy, such as those embodied in ISTEA. These trends were taken to indicate policy principles which form the current policy context under ISTEA and inform recent regulations, such as the MIS requirement.

2. Define the major elements of the MIS requirement and its intentions. Using the current policy context identified in Step 1, an understanding of the “intent” of the MIS requirement was developed. The regulations and official guidance were consulted to ascertain key definitions and major features of the requirement which are intended to link the MIS requirement with policy principles articulated by ISTEA. As a means of developing a full understanding of FTA and FHWA intentions for the requirement, we compared the MIS process with the previous corridor planning processes for highway and transit. Finally, we examined the proposed relationships between the MIS requirement and related statutory and regulatory planning processes, the broader urban transportation planning process and the environmental review process.

3. Assess the degree to which the requirement is able to achieve its intentions. The purpose of this step was to identify the factors which either promote or hinder MIS from achieving its intentions and, subsequently, to make some general assessments of the strengths and weaknesses of the requirement. The factors under consideration either were based on the requirement itself or exist largely independently of the requirement, for example, as a result of other ISTEA planning requirements or traditional Federal and local practices. This step consisted of three sub-steps:

- We considered each of the major features of the requirement to assess the ability of MIS to use them as mechanisms for promoting Federal policy goals.
- We considered those factors which complicate the relationships between the MIS process and the broader planning and environmental review processes. This sub-step in the analysis is significant since, for the MIS process to be useful, it must fit into the related regulatory and statutory processes.
- We identified a range of challenges facing local planners in implementing the MIS requirement, because the efficacy of the requirement will also depend on its implementation at the local level. These challenges were developed based on findings from the first two sub-steps as well as observations of those who have participated in MISs in practice.

Practitioners' comments provided source material for much of the analysis in each of the sub-steps. Some of these comments were taken from conference proceedings and congressional testimony, while others were gathered through personal communication with practitioners.

- 4. Develop recommendations.** Recommendations for areas of the requirement which merit refinement were based on the findings in Step 3. Where factors with negative impacts could be addressed through changes in the MIS regulations or through additional guidance, we recommended appropriate modifications. We also considered tensions which require resolution outside the MIS requirement but which nonetheless will inhibit the effectiveness of the MIS process and present difficulties in other aspects of the planning process.

Part II: The San Juan Case

The analysis of the San Juan case consisted of three primary steps designed to identify the major opportunities and challenges facing the San Juan region in applying MIS to the Tren Urbano extension corridors.

- 1. Establish the planning context in the San Juan region.** This step involved reviewing the current transportation, demographic, and land use characteristics of the San Juan Region. Additional efforts were made to understand institutional aspects of the local transportation planning process. The planning histories of Tren Urbano and other infrastructure projects in the extension corridors were also reviewed, with particular attention to the current status of planning efforts for the proposed extensions. Sources of information for this step included planning documents for the Tren Urbano project, the regional Long Range Plan, and discussions with local planners and consultants working in the region.
- 2. Identify opportunities and concerns which may arise in applying MIS to the Tren Urbano extension corridors.** As illustrated in Figure 1, this portion of the analysis drew from the findings in Step 3 of the general analysis as well as the background information developed in Step 1 of the case analysis. The relative strengths identified in Step 3 of the general analysis formed a starting point for thinking about opportunities in the application of MIS. Similarly, the local challenges identified in this step provided a basis for thinking about

the challenges which will be most salient in San Juan under the given circumstances. This analysis was conducted on two levels:

- General opportunities and concerns which arise from the overall context in San Juan and the characteristics of the MIS requirement identified in previous analysis.
- Specific opportunities and concerns which may arise in undertaking MIS for each of the proposed extension corridors.

3. Develop recommendations for applying MIS to study Tren Urbano extension corridors.

Recommendations were developed based on the opportunities and concerns identified in Step 2 of the case analysis and the recommendations developed for the general analysis. These recommendations are intended to help San Juan to design and execute the MISs for the proposed extension corridors, to take advantage of potential opportunities, and to avoid potential pitfalls.

1.4 Thesis Contents

In this chapter we have presented the research objectives, the motivation for research, and the methodology. Chapters 2, 3, and 4 form the bulk of the general analysis described above, while Chapter 5 focuses on the San Juan case analysis.

Chapter 2 provides a brief summary of the history of Federal policy in urban transportation planning culminating with a discussion of the policy context established by ISTEA. In Chapter 3, we define the MIS requirement and its intentions; this chapter illustrates how MIS is designed to fit into the current policy context and to relate to other planning and project development processes, namely the broader planning process and the environmental review process.

Chapter 4 identifies those factors which enhance or detract from the ability of MIS to support the principles of Federal policy. This chapter also describes a number of local challenges, either arising from tensions in Federal policy or complexities of local implementation. Chapter 4 closes with a summary of findings and some recommendations to strengthen the MIS process.

The San Juan case study is presented in Chapter 5. The analysis first identifies general opportunities and concerns associated with applying the MIS process to study Tren Urbano extension corridors. It continues by considering in greater depth those opportunities and issues which are particularly salient in specific extension corridors. This chapter, too, closes with a summary of findings and recommendations intended to inform the design of MISs for the proposed expansion corridors.

Finally, we present our concluding remarks in Chapter 6. These address linkages between the general and case analyses as well as the topic of reauthorization.

2. Federal Policy in Urban Transportation Planning¹

The urban transportation planning process was initially established in conjunction with the U.S. Interstate Highway program. For this reason, and due to the federal nature of the U.S. government, the planning process began as a highway-oriented process and was directed at the States. Over the years Federal planning policy has exhibited four trends in following from this starting point. Federal policy reflects attempts to balance the planning process by:

1. Increasing local input and shifting greater authority to the metropolitan level;
2. Incorporating related environmental and other (non-transportation) concerns into the process;
3. Giving greater importance to transit;
4. Recognizing that transportation is increasingly constrained by fiscal limits.

The passage of the Intermodal Surface Transportation Efficiency Act of 1991 is the most recent effort to incorporate these principles in Federal policy. This chapter provides a brief history of Federal transportation policy with particular attention these principles.

The modern urban transportation planning process has its roots in the Federal Aid Highway Act of 1962 which provided the first major funding for the national Interstate program. The Act established a regional transportation planning process as a condition for receiving Federal funding assistance for highway construction and authorized exclusive planning funds for this activity. With a 90% Federal share, all states pursued the Interstate program and the planning process was quickly and widely adopted.² Because the planning process was originally a mechanism for developing the national Interstate program, it developed in a manner which was oriented toward highway planning and for which the States assumed responsibility.

In response to the Highway Act, the Bureau of Public Roads (the precursor to the Federal Highway Administration) issued the first set of Federal transportation planning regulations and established the “3C process.” The regulations required the planning process to be a continuous

¹ Most of the material for this section was drawn from Edward Weiner, *Urban Transportation Planning in the United States: An Historical Overview*, Revised Edition. Washington DC: US DOT, November 1992.

² Weiner.

and comprehensive one, conducted cooperatively by State and local governments to coordinate transportation investments and consider impacts on future development. Thus the planning regulations acknowledged the importance of local input as well as non-transportation concerns; however, these two principles did not develop much beyond the level of a Federal policy statement since the Act and regulations lacked specific mechanisms for implementing them.

At approximately the same time, Federal interest in *urban transportation* was first declared in the Housing Act of 1961 which provided funding for urban transportation planning in order to facilitate comprehensive planning for urban development. At this time, urban planning was beginning to be widely employed to facilitate orderly and deliberate urban growth. Transportation was seen to be a key factor in shaping cities and thus was included in these efforts. Eventually, the two programs merged. However, because the Interstate program carried the larger funding incentive, by offering 90% Federal aid for highway construction, it became the dominant model for transportation planning.

Since the 1960s, the 3C process has been adjusted slightly in response to concerns raised at the local level. The regulations became more specific in requiring the consideration of social, economic, and environmental concerns. They also outlined procedures for public hearings as a mechanism for voicing these concerns and for increasing the level of local input. In 1969, for example, Federal Highway Administration (FHWA) planning regulations instituted a “2-hearing process” to replace the previously required single public hearing which was held after much of the project planning had been completed. The 2-hearing process introduced an earlier hearing to allow the public to comment on questions of the need for and location of highway projects and thus to increase the level and significance of local input. Also in this period, the Federal government expressed its first interest in urban mass transit and linked mass transit funding assistance with the 3C process.

The first major change in the urban transportation planning process was initiated outside transportation policy with the passage of the National Environmental Policy Act (NEPA) in 1969. NEPA was the first comprehensive expression of a national interest in protecting the environment. NEPA and its interpretive regulations created an independent process of analysis

and public review for all public decisions. The NEPA review process paralleled the existing transportation planning process.³ EPA and DOT worked together to develop the initial regulations governing the application of NEPA to transportation projects, and they have since struggled, sometimes independently, to integrate the two processes in a meaningful way.

The planning process had previously made efforts to incorporate non-transportation concerns, particularly those broadly contained under environmental impacts. Section 4(f) of the Department of Transportation Act of 1966 was established to protect parks, recreation areas, and wildlife preserves from being used by transportation projects except when there is no other “prudent and feasible” alternative. This section further required that all reasonable actions be taken to minimize harm to these protected areas. Section 4(f) remains relatively unchanged in current statute; however, it was only with the public process established in NEPA that laws such as 4(f) became so effective.

NEPA’s most notable impacts on the transportation planning process are the following:

1. It affirmed the use of a rationalist framework for assessing transportation investments;
2. It established environmental concerns as legitimate, indeed necessary, considerations in the transportation planning process;
3. With its companion statutes, the Environmental Quality Act and Clean Air Act Amendments of 1970, NEPA established a central role for the Federal government, including transportation agencies, in making decisions which protect the environment;⁴
4. It established an open process which became a strong mechanism for the public to influence transportation projects.

To be sure, much of the power of public participation under NEPA was developed through judicial interpretation of the statute. Nonetheless, the NEPA process of making information available for public comment became a powerful tool for introducing local concerns as well as non-transportation concerns.

³ Weiner.

Federal policy in the 1970s exhibited increasing commitment to transit and interest in creating a more level playing field for transit. Though Federal funding assistance for transit was available as early as 1964 and the Urban Mass Transit Administration (UMTA)⁵ was established in 1968, the first major expression of Federal interest in transit occurred in 1970 with the Urban Mass Transit Assistance Act. This Act provided the first long term commitment of Federal funds for capital funding assistance for transit. In 1973, Congress continued this trend by allowing some Federal-aid highway funds to be used for transit capital expenditures and introducing transit operating subsidies. In this period there was also a growing policy interest in multimodalism as a means of promoting fair consideration of transit alternatives. In 1977, Secretary of Transportation William T. Coleman stated that diversity and intermodal competition were essential to an effective transportation system and that the role of the Federal government was therefore to promote equality and competition among modes, to minimize government distortions, and to enable the modes to realize their natural advantages.⁶

In fact, the enlarged Federal transit program had some mixed and unintended results. Because applications for Federal capital assistance rapidly outgrew available funding, UMTA established project evaluation criteria to prioritize transit projects applying for discretionary funding assistance. The primary criteria for a project applying for Section 3 “New Starts” funding were that the project had undergone an analysis of reasonable alternatives including multimodal and low-cost alternatives, and that they be “cost-effective” as measured in cost per new rider. Eventually, FTA’s responsibility for evaluating and ranking projects applying for Section 3 funds was incorporated into statute, and the alternatives analysis requirement was linked with the NEPA environmental review process, even though the alternatives analysis criteria emphasized economics over environmental concerns. This drove the transit and highway processes even further apart functionally. The alternatives analysis process marked the first effort to evaluate systematically cost-related trade-offs involved in capital intensive transportation investments; the highway project development process remained shaped primarily by the NEPA process because most highway funding was (and continues to be) provided through formula funding, over which

⁴ Weiner.

⁵ UMTA was the precursor to what today is the Federal Transit Administration (FTA).

⁶ In Weiner.

the Federal government has little project-specific decision-making authority. Because of the pull of Federal funding assistance, these criteria were functionally absorbed into the local transit planning process despite the fact they were issued to govern Federal – rather than local – decision-making.

Policy trends in the 1970s also reflect a gradual shift of decision-making authority in urban transportation matters to metropolitan and local governments and away from the States. There was continued direction to consider social, economic, and environmental factors, but the NEPA process remained the primary mechanism for doing so. This period also saw an increased emphasis on financial limitations and a growing interest in promoting low-cost, short term transportation solutions.

Planning regulations issued in 1975 exhibit these trends and introduce many of the features we recognize as pillars of the urban transportation planning process. They were the first regulations issued jointly by FHWA and UMTA as an effort to bring the two independent statutory planning processes closer together functionally. To this end, the regulations required joint designation of a Metropolitan Planning Organization (MPO) which nominally replaced the State as the jurisdiction responsible for carrying out the local planning process and coordinating among the modes. In fact, the States retained the majority of fiscal authority, which severely limited the effectiveness of the MPOs and continues to do so even today. To ensure the MPO and State were adhering to the required process, the regulations established a joint annual certification process by UMTA and FHWA and made receipt of Federal funding assistance contingent on certification. The regulations required a regional Long Range Plan (Plan or LRP) and Transportation Improvement Program (TIP). The Plan would set forth the region's long term goals and investment strategy. In recognition of financial limitations, the Plan was required to consider low-cost and management alternatives. The TIP would advance both highway and transit projects from long range planning to programming. Finally, the regulations continued to emphasize the consideration of social, economic, and environmental concerns. With the 1975 regulations it is also possible to identify a trend where increasing emphasis is placed on the products and the quality of the processes used to develop them, rather than on the specific procedures employed. This trend represents an acknowledgment at the Federal level that it is

impossible to draft a single set of procedures which apply equally well to the range of urban areas in the nation.

Reaction to the planning regulations varied. States, who lost some decision-making power with the designation of MPOs, objected to the requirements. Local governments were somewhat more supportive due to their increased roles in planning and programming. There was concern at all levels that the process was too demanding and required too many specific elements.⁷ No immediate changes to the requirements were made in response to these reactions on the basis that the process was new and complex, and would require time for adjustment.

During the 1980s, in response to criticism that the Federal government had become too involved in local affairs, there was a noticeable trend toward decentralization in many policy areas. Due to this atmosphere, there were few significant changes in Federal transportation planning policy during this period. Those changes which did occur, were focused primarily on reducing the Federal role in local processes. For example, in 1987 FHWA and UMTA issued revised joint regulations requiring the States to develop public participation procedures providing for early and continued public involvement in the planning process. These regulations contrasted with previous ones which had specified details such as the content of public notices and procedures for hearings.⁸

By the early 1990s, however, there was renewed public interest in Federal direction. The Clean Air Act Amendments of 1990 significantly strengthened earlier air quality legislation and solidified air quality as an area of critical concern in Federal transportation policy and the planning process. The Clean Air Act of 1970 had created the Environmental Protection Agency (EPA) with the authority to set air quality standards and require State Implementation Plans (SIPs) for achieving those standards. While measures related to transportation were one set of actions employed in the SIP, there was often no direct relation with the regional transportation planning process. The Clean Air Act Amendments of 1977, strengthened the links between air quality regulations and transportation planning, but it was not until the amendments in 1990 that

⁷ Weiner.

⁸ Weiner.

this was solidified. In 1990, the amendments established stricter air quality standards and required State departments of transportation and MPOs to determine conformity of specific projects as well as for Plans and TIPs. Finally, the sanctions, which were newly triggered by the failure of a state to implement its SIP, included the withholding of Federal transportation funds.

The most recent major shift in planning policy occurred with the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). ISTEA is recognized as ushering in a new era of Federal Transportation policy not because the ideas are completely new, but because it responded to a new sense of urgency about the challenges facing transportation and placed new emphasis on previously recognized principles. By acknowledging the completion of the U.S. Interstate system, ISTEA was also the first surface transportation bill of the post-Interstate era. The policy context established by ISTEA rests on a number of principles which are embraced by the statute and reflected in the associated planning regulations:

1. An increase in local input through increased local (metropolitan) decision-making authority;
2. The incorporation of non-transportation goals and objectives;
3. Encouragement of multimodal planning;
4. Responding to the reality of limited financial resources;

5. Transitioning from an era of construction to one of system-management.

Increasing local input – ISTEA increases the importance of local input primarily by allowing greater local decision-making authority through the MPO. Over the years there has been a growing recognition of the importance of a metropolitan role, versus a State or Federal role, in urban transportation planning in order to respond better to local interests. ISTEA introduces mechanisms designed to enhance metropolitan decision-making authority including expanded roles for MPOs in long range planning and the allocation of some Federal funding directly to the MPOs. In addition, with ISTEA the majority of Federal funds have become “flexible” meaning they can be readily transferred from one mode to another to carry out local plans. In this way,

modal priorities need not be set at the Federal level. It is possible to view this increased flexibility as offered in exchange for more rigorous local and State planning processes.

Yet, after a decade of decentralization, there was a also feeling that strong Federal direction was required to guarantee the quality of the local process. In return for this expanded responsibility ISTEA also introduces a number of required elements which are to be developed in detail at the local level but are designed to strengthen the local process and implement the remaining Federal policy goals. These include many elements identified below including: a more extensive public involvement process, the six management systems, financially constrained Plans and TIPs, the 15 Planning Factors, and Major Investment Studies. Additionally, FHWA and FTA again became jointly responsible for certifying that the local planning process conforms with Federal requirements, and the sanction for not conforming is the withholding of Federal funds.

In the context of increased local authority and the promotion of non-transportation goals and objectives (see below), ISTEA also encourages cooperation among agencies in the planning process. Cooperation is required in long range planning and project planning among actors such as State departments of transportation, MPOs, transit agencies, local elected officials, environmental agencies, air quality agencies, and business communities.

Incorporating non-transportation goals and objectives into the transportation planning process – ISTEA promotes this principle by stressing the legitimacy of incorporating factors such as land use, economics, environmental concerns, and energy into elements of the planning process. The statute requires States to set aside a portion of Federal funds for transportation enhancement projects. The planning regulations established the 15 Planning Factors which must be considered through the planning process and which reflect a variety of non-traditional transportation and non-transportation issues. ISTEA also places renewed emphasis on air quality by requiring that the Plan and TIP conform to State air quality plans and by establishing the Congestion Mitigation and Air Quality Improvement to fund projects addressing air quality issues in non-attainment areas.

Reducing the disadvantages faced by transit by encouraging multimodal planning – ISTEA attempts to level the playing field for transit with flexible funding, which allows most highway funds to be used for transit capital projects, and by setting the Federal share for transit capital projects equal to that for National Highway System projects. ISTEA's emphasis on a more collaborative process is designed, in part, to increase the visibility of transit at the regional and State levels. Furthermore, as explored in this thesis, the Major Investment Study process was introduced as a multimodal planning tool in regulations following ISTEA.

Responding to the reality of limited financial resources – The primary mechanism for addressing this issue is the fiscal constraint requirement. The planning regulations require that regional Plans and TIPs set forth a program of projects that can be implemented with funds reasonably expected to be available over the planning horizon. The Major Investment Study is also positioned as a more rigorous tool for making local investment decisions in the context of limited resources.

Making a transition from a building orientation to a system-management orientation – ISTEA places strong emphasis on transportation system management. The consideration of system management is encouraged through the 15 Factors and in the MIS process. Additionally, the planning regulations originally required the States to develop six management systems: highway pavement, bridge, highway safety, congestion, public transportation facilities and equipment, and intermodal systems. Of these the congestion management system was most important for urban transportation planning, in part because it subjects highway and transit to the same process, thereby setting the stage for trading-off between the two.

Reactions to the ISTEA policy and current planning regulations frame the debate over what should happen to the planning process in the reauthorization of ISTEA in 1997. In general, there has been an ebbing in support for such strong Federal interest in urban transportation. Indeed, Federal credibility is strongly related to the provision of adequate funding; though ISTEA authorized large increases in Federal transportation spending, annual appropriations have consistently remained below authorized levels. In addition, there have been a range of reactions to the existing planning process. MPOs have welcomed their new authority, but many have been

overwhelmed by the number of required elements, the latitude permitted in designing them, and the technical capabilities required to execute them. States have generally resisted the new process, which greatly reduces their influence while simultaneously increasing the number of tasks they have to undertake, particularly with the newly required statewide planning process. In response, FTA and FHWA have backed off on some of the requirements, for example, by making five of six required management systems optional. In the end though, many would say that under ISTEA there have been significant strides in local influence, cooperation among agencies, sensitivity to the public, consideration of non-transportation factors (particularly environmental factors), and fiscal rigor.

3. Understanding the Major Investment Study (MIS) Requirement

This chapter describes the intent of the MIS requirement by considering its major features, the context in which it currently exists, and that from which it evolved. The history of Federal transportation planning policy has shown ISTEA to be the latest and most sweeping in a series of efforts to strengthen the planning process by embracing four principles: increasing local input; broadening considerations beyond transportation concerns; giving equal consideration to transit; and recognizing the fiscal limitations which characterize the current planning context. As a planning requirement emanating out of ISTEA, MIS also seeks to further these principles. In particular, the MIS requirement employs a number of features designed to promote the first three principles. The requirement may also be seen to implement the fourth principle insofar as the MIS process is intended to enable more informed decision-making, which is of increasing importance when resources are scarce.

Section 3.1 presents formal definitions needed to understand MIS. Section 3.2 explains the major features of the requirement. Because the process must be integrated with other requirements, Section 3.3 summarizes the intended relationships of MIS with the metropolitan transportation planning and environmental review processes. Section 3.4 reviews the evolution of the MIS process from the two previous corridor planning processes required for highway and transit. Finally, it should be noted that the discussion in this chapter focuses on the *intent* of the requirement rather than on its accomplishments. The degree to which the requirement actually advances the policy principles will be discussed in the following chapter.

3.1 Definitions

The MIS requirement establishes a process to investigate alternatives for addressing a current or potential transportation problem at a corridor or subarea scale when the solution is likely to be “high-cost” or “high-impact.” The requirement was formally established in the Final Rule on Metropolitan Planning issued jointly by FTA and FHWA in October, 1993.⁹ As a planning

⁹ United States, “23 CFR §450.318: Metropolitan Transportation Planning Process: Major Metropolitan Transportation Investments,” *Federal Register*, Vol. 58, No. 207, October 29, 1993.

regulation, the MIS requirement is not statutory; rather, it was developed by the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) to implement the transportation policy articulated by Congress in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) in a manner consistent with the National Environmental Policy Act (NEPA) and the Clean Air Act (CAA).

A major investment is defined in the Final Rule as:

a high-type highway or transit improvement of substantial cost that is expected to have a significant effect on capacity, traffic, level of service or mode share at the transportation corridor or sub-area scale.¹⁰

Corridor and subarea refer to a geographic area defined by common mobility needs. The definition of a major investment is based not strictly on cost but also on impact: improvements which are important to regional travel or which add significant capacity are generally considered major investments even if they are not among the largest investments in the region. Thus, new transportation facilities and significant additions to existing highway or transit facilities, such as new highway lanes or transit right-of-way, are considered major investments.¹¹ A substantial increase in fixed-guideway transit service is also considered a major investment. In contrast, operational improvements, small-scale rehabilitation, and transit routing and scheduling are not considered to be major investments.

The basic structure of an MIS process is shown in Figure 2. Once the need for an MIS has been established, the MIS begins with the initiation and design of the study. This step can be subdivided into several tasks which are not shown in Figure 2: refining the problem statement, determining the roles and responsibilities of participants including the public, establishing goals and objectives, and deciding on the range of alternatives to be considered and the level of detail. MIS guidance requires that this step be undertaken in a collaborative fashion with participation by the major potential stakeholders in the study. The next major step is the identification and development of alternatives for study. In practice this step involves preliminary suggestions by

¹⁰ United States, "23 CFR §450.318."

¹¹ FHWA and FTA, *MIS Desk Reference: National Transit Institute Training Program for Major Investment Studies*, Washington DC: US DOT, February 15, 1996.

study participants and the public, followed by screening and refinement to arrive at the final set of alternatives for study. The bulk of the study process involves the analysis, further refinement, and evaluation of various alternatives for addressing the stated problem. The ultimate goal of the MIS study process is the selection of a locally preferred alternative to address the given transportation problem in terms of design concept and scope.

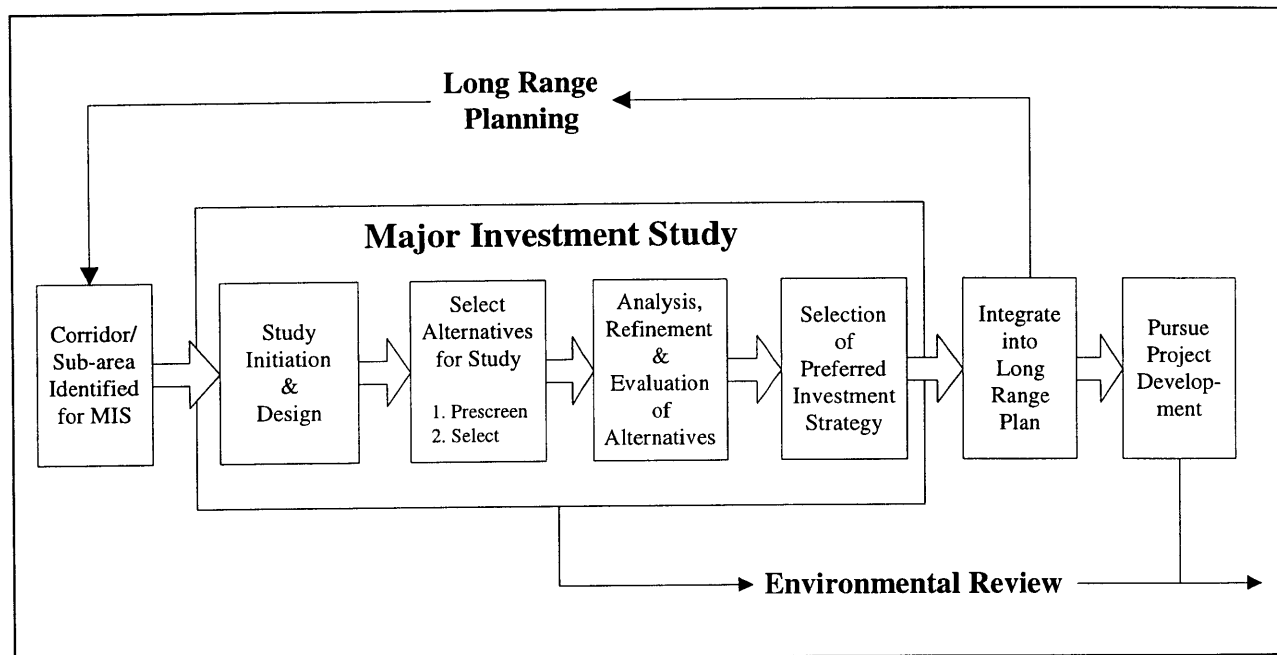


Figure 2: Outline of the MIS Process

Design concept and scope are formally defined in the Clean Air Act Amendments. The MIS requirement stipulates that the preferred alternative be defined at this level so that it may be integrated into a conforming Long Range Plan, as required by the CAAA and ISTEA. This means that, at a minimum, the definition of the preferred alternative should include the facility type for the chosen mode and any design aspects which could affect regional emissions by way of vehicle- or person-carrying capacity.¹²

¹² Examples of decisions on mode include: freeway, expressway, reserved right-of-way rail or bus. Examples of decisions on design aspects which could affect regional emissions include: number of lanes or tracks; length of the facility; signalization; or provisions for high-occupancy-vehicle operations. The requirement defines design concept and scope according to the definitions in EPA's Conformity Regulation pursuant to the Clean Air Act Amendments. FHWA and FTA, *MIS Desk Reference*.

A financial analysis is also required in the MIS process. It must cover estimates both of project costs and of the region's financial capacity to fund the project given existing commitments and available resources and reasonable assumptions about new sources of revenues. Consideration of costs should account for and estimate direct and indirect costs of alternatives.¹³

3.2 Major Features of MIS

It is possible to identify features of the MIS requirement which are employed to further three of the major trends in Federal planning policy identified in Chapter 2. The five major features of MIS are: cooperation among agencies and public participation, incorporation of broad goals and objectives, multimodal planning, local decision-making, and flexibility. Each of these features has a strong basis in ISTEA. In combination, these features support the policy principles of increasing local input, including non-transportation concerns, and promoting equal consideration of transit, as summarized in Figure 3.

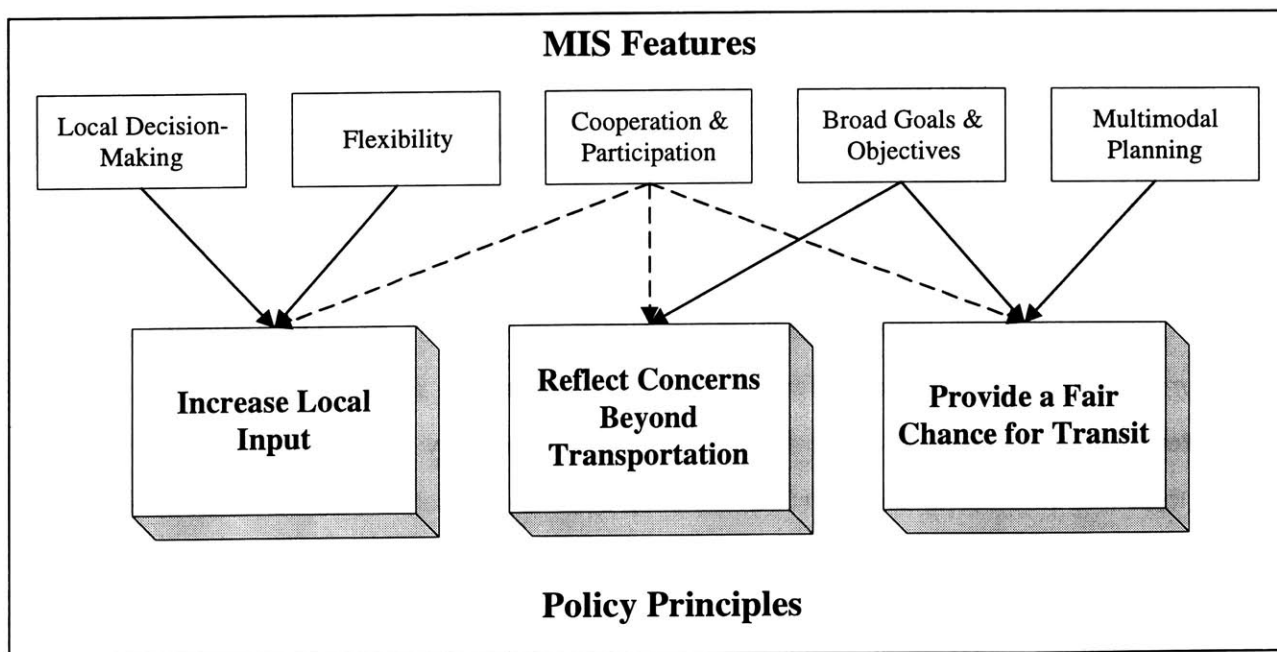


Figure 3: Relationship of Major Features of MIS to Principles

It is also worth mentioning that the MIS requirement as a whole represents an effort to provide a better decision-making tool in an environment characterized by limited finances. In this way, the

¹³ Parsons Brinkerhoff. "Major Investment Studies: Questions and Answers," Washington DC: US DOT, September

requirement also reflects the fourth policy trend identified in Chapter 2. The five features discussed below are intended not only to reflect Federal policy objectives, but also to improve the process by which regions develop and evaluate large-scale transportation investments.

3.2.1 Collaboration and Participation

The MIS requirement emphasizes inter-agency collaboration and public participation in an effort to promote the two principles of increasing local input and broadening goals and objectives beyond transportation concerns. The requirement establishes a basis for collaboration among agencies from the start by requiring that a broad range of jurisdictional agencies participate in determining the need for an MIS and designing the study process:

When any of the implementing agencies or the MPO wish to initiate a major investment study, a meeting will be convened to determine the extent of the analyses and agency roles in a cooperative process which involves the MPO, the State department of transportation, environmental, resource, and permit agencies, local officials, the FHWA and the FTA and where appropriate community development agencies, major governmental housing bodies, and such other related agencies as may be impacted by the proposed scope of analysis.¹⁴

The requirement further requires ample opportunity for public participation by citizens, particularly in the definition of alternatives to be studied, the development of evaluation criteria, and the selection of the preferred alternative.

The emphasis in MIS on both agency collaboration and public participation is consistent with other elements of ISTEA. For example, ISTEA requires cooperation in developing Plans and TIPs, among local agencies at the metropolitan level as well as between local institutions and the State. ISTEA also requires a “proactive public involvement process.” Previous regulations have also required collaboration in the planning process. Yet, the process has not met expectations in practice because the agencies have tended to focus on their own specific missions. The MIS process perhaps represents a new mechanism for collaboration by encouraging agency input early in project development. As such, it is a logical step from NEPA which provided a mechanism for agency involvement primarily in the review of the DEIS but not in the earlier stages of planning.

1994.

With the emphasis in MIS on agency involvement in the study process, both agency cooperation and public participation are presented as important mechanisms for incorporating non-transportation concerns and increasing local input.

3.2.2 Broadening Goals and Objectives

The MIS requirement is an effort to open the study process to the consideration of a broad range of goals and objectives which reflect concerns beyond transportation. The requirement encourages consideration of factors such as “social, economic and environmental effects; safety; operating efficiencies; land use and economic development; financing; and energy consumption” as well as mobility impacts.¹⁵ The use of non-traditional criteria may also help transit to compete better in the planning process. Additionally, the requirement seeks to increase local input by legitimizing the consideration of local and State goals in addition to national goals.

The NEPA process requires analysis of social, economic, and environmental impacts, but in practice environmental issues have been dominant. MIS, which is more flexible about the range of factors which may be considered, seems to be a fresh attempt to broaden the criteria which are considered. ISTEA is similarly supportive of incorporating broad goals and objectives by including such factors as land use and social and economic concerns among the 15 Planning Factors and by placing renewed emphasis on environmental concerns, particularly air quality.

3.2.3 Multimodal Planning

The MIS requirement and associated guidance employ the concept of multimodalism in an effort to create a more level playing field for transit. Because the previous corridor planning process required for transit was significantly more onerous than that for highways, the single corridor planning process for highway and transit is a primary means of promoting multimodal planning and reducing the disadvantages faced by transit. The collaborative process required for MIS also aims to promote multimodal planning by encouraging highway and transit agencies to work together in the same study. Ultimately, MIS endeavors to facilitate the consideration of

¹⁴ United States, “23 CFR §450.318.”

¹⁵ United States, “23 CFR §450.318.”

multimodal alternatives and the comparison of different modal alternatives to address the same problem. In particular, the MIS guidance calls for consideration of “all reasonable alternatives” to address the identified transportation need, including highway, transit, and multimodal alternatives, as well as demand and system management alternatives, and operational and technological alternatives.

As a single joint process for highway and transit, the MIS requirement parallels others measures taken in ISTEA to equalize consideration of highway and transit alternatives. For example, ISTEA also equalized the Federal funding share for transit capital projects and National Highway System projects. Furthermore, by making most Federal funding flexible, ISTEA diminished the traditional difference in the level of Federal funding available to each mode.

3.2.4 Local (Metropolitan) Level Decision-making

In an effort to increase local input to the planning process, the MIS requirement turns more decision-making authority to the local or metropolitan level through the MPOs. Although the definition of MIS as part of the ongoing planning process establishes MIS as a condition for Federal funding assistance, the content and process of an MIS are meant to guide local and metropolitan decision makers in the selection of a locally preferred alternative. Federal funding decisions may eventually be based on some of the analysis results in the MIS but the study itself is not positioned as a basis for Federal decision-making. The guidance indicates that the primary Federal role “is expected to be one of providing guidance, technical assistance, and training.”¹⁶ In practice, it may be difficult to establish such clear lines between Federal and local decision-making processes, as will be discussed in the following chapter.

3.2.5 Flexibility

Flexibility is a second feature of the MIS requirement designed to increase local input in the process. FHWA and FTA have intentionally minimized the prescriptive content in the requirement so as to create an environment where state, metropolitan, and local decision makers

¹⁶ Parsons Brinkerhoff.

are able to develop necessary tools without an “intrusive Federal presence.”¹⁷ The requirement seeks to realize this “no one size fits all” concept by relying on principles rather than on detailed instructions.¹⁸ The criteria by which transportation projects are judged to require MIS provides a good example of this flexibility. The Rule indicates that projects of “substantial” cost or having “significant” impacts are considered major investments for the purpose of the requirement, but sets no threshold values, recognizing that these criteria should reflect regional characteristics.

The emphases of MIS on flexibility and local decision-making, especially at the metropolitan level, are consistent with the trend in Federal policy whereby increased local input both in designing the study process (through flexibility) and in the ultimate outcome (local decision-making), is offered in exchange for a more rigorous process which will advance other Federal goals. For example, with MIS the local decision-making process is required to take measures to incorporate broad goals and objectives and to give consideration to transit alternatives, demand management, and system management alternatives where appropriate. It is also possible to see the entire MIS process as requiring more rigor in exchange for the increase in local authority which occurs with flexible funding. In other words, ISTEA may allow the decision on whether to spend Federal money on large-scale highway or transit projects to be made at the metropolitan level, but in exchange, the projects must have been evaluated through the fairly rigorous MIS process.

3.3 Relationship with Other Processes

In order for the MIS process to be a useful policy tool for promoting the three principles of increased local input, incorporation of non-transportation concerns, and equal opportunity for transit, the requirement must be practical from the point of view of local planners. This implies that it must be integrated with the other required processes governing transportation planning. In particular, the requirement must be integrated with the metropolitan transportation planning process as required by ISTEA and the environmental review process as required by NEPA.

¹⁷ Sheldon M. Edner in “Conference on Major Investment Studies in Transportation (MIS),” *Transportation Research Circular*, No 463. June 1996.

¹⁸ The principles required in the MIS process include but are not limited to the three policy principles of increased local input, including considerations beyond transportation, and providing transit with an equal chance.

3.3.1 The Metropolitan Transportation Planning Process

With MIS, the corridor planning process became an integral step in the broader Metropolitan Transportation Planning Process. The broader planning process ranges from long range planning to the selection and development of specific projects in preparation for implementation. MIS is positioned as an intermediate step between regional planning and detailed project planning. Though the details of integrating MIS into local planning processes are largely left to the local level, there is substantial guidance regarding the relationship of MIS to the primary products of the planning process, the Long Range Plan (Plan) and Transportation Improvement Program (TIP).

Long range planning is an ongoing activity which involves setting regional goals, identifying existing and future transportation problems, analyzing and prioritizing strategies for addressing those problems, and identifying available financial resources and alternative funding strategies. The product of this strategic planning process is a regional Long Range Plan which lays out a set of transportation projects and strategies over a 20 year period and which, under ISTEA, must be financially constrained and conform with regional air quality standards. Once a project has been included in an adopted Long Range Plan, it may be advanced to more detailed stages of development and environmental review. As the date for scheduled implementation nears and project funding becomes available, the project typically advances to the region's TIP and preliminary engineering and the environmental review process are initiated. The TIP is a shorter range document, generally covering a three to five year period, which sets forth a program of transportation projects scheduled for implementation and identifies costs and sources of funding.

As suggested by Figure 2 and Figure 4, MIS is intended to be an intermediate step between strategic regional planning and detailed project development and thus to link the two. The scale of the study follows from this characteristic and dictates expectations for analysis as well as the outcome of the study. Regional planning involves system-level analysis, wherein regional needs and strategies are analyzed at a relatively coarse level of detail. In contrast, project level planning typically involves detailed, data-intensive analysis for purposes of either preliminary engineering or environmental assessment. MIS introduces a third level of analysis, "conceptual engineering," for corridor planning which aims to address the questions of design concept and scope.

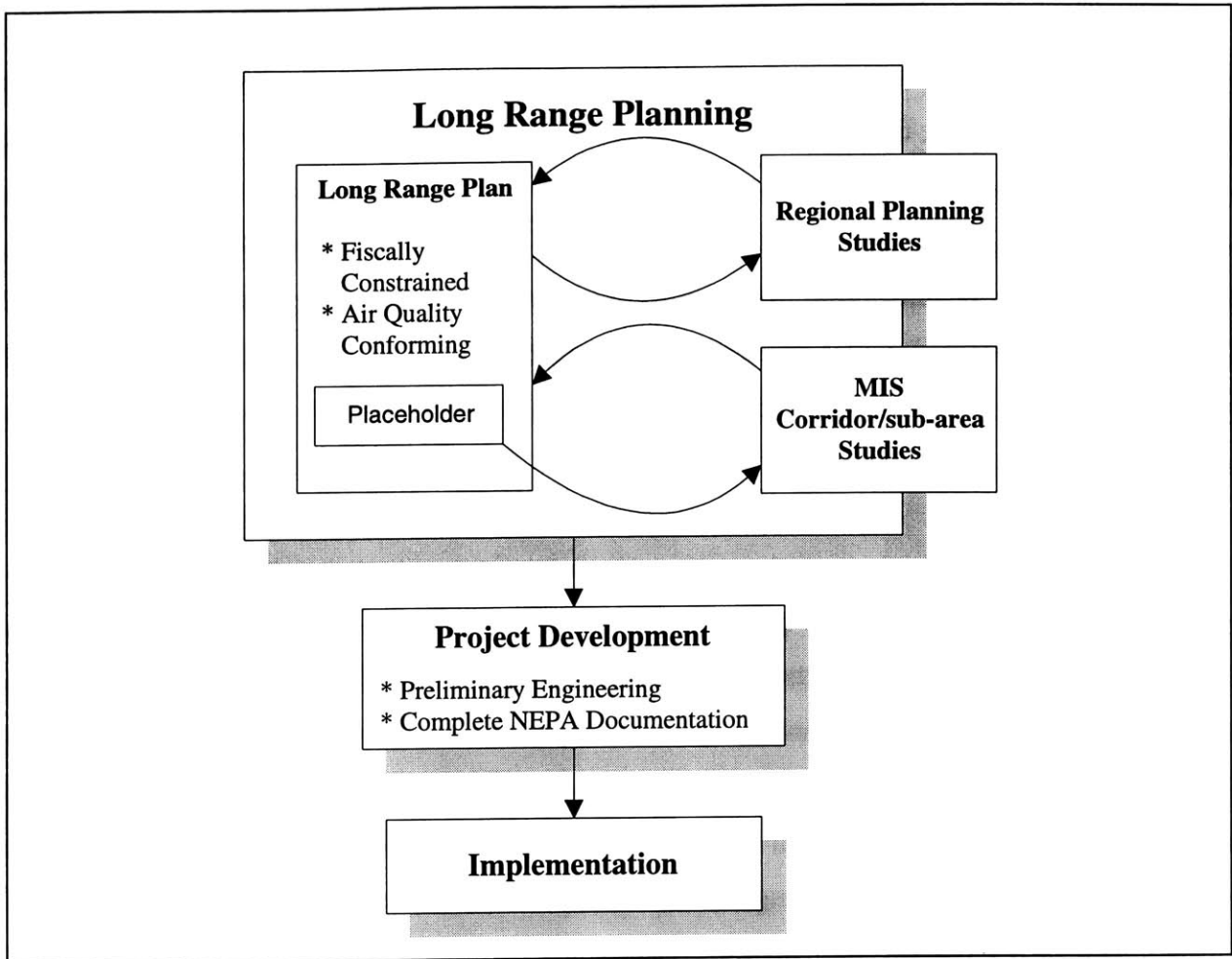


Figure 4: MIS and the Metropolitan Planning Process

In previous corridor planning processes, decisions of design concept and scope were generally made during project development or environmental review. The resulting analysis was usually conducted in great detail, possibly greater than necessary, and for a small number of alternatives. By addressing these questions at an earlier stage in the process, MIS aims for analysis of a broader number of alternatives at a lower level of detail, and proposes this as a more appropriate methodology. The guidance requires a level of detail sufficient to evaluate differences among alternatives. The precise level of detail for the analysis and definition of the preferred alternative is not specified, but is to be determined cooperatively in the study definition process. In practice, definition of alternatives at least at the design concept and scope level is likely to be necessary for effective evaluation. Furthermore, this level of definition establishes a baseline so that the

preferred alternative can be integrated into the region's Long Range Plan, which must be fiscally constrained and conform to local air quality standards as required under the Clean Air Act.

Upon completion of an MIS the selected alternative must be integrated into the Plan and, eventually, the TIP. The financial element of MIS is necessary to reconcile the preferred alternative with the fiscally constrained Plan. Technically, a project does not need to be included in an approved Plan prior to the initiation of an MIS. However, planning regulations state that while an MIS is in process, the Plan should indicate that the corridor is under study.¹⁹ These requirements can be met through regular updates of the Plan as required under ISTEA.

The technical details of the relationship between MIS and the Plan and TIP are somewhat complicated by the ISTEA requirements that these documents be financially constrained and meet air quality conformity requirements. Amending a Long Range Plan can consume considerable resources, and there is great incentive to avoid having to do so. For this reason, the MIS requirement allows the use of "placeholders" with assumptions about design concept, scope and cost in the Plan prior to completion of the MIS.²⁰ The placeholders reduce the likelihood of having to perform the air quality conformity and financial analyses anew when the preferred alternative is finally included in the Plan.

3.3.2 The Environmental Review Process (NEPA)

The MIS requirement offers two options for integrating the MIS process with the environmental review process required under NEPA. Both options are designed to streamline the environmental review process. At a minimum MIS requires the consideration of environmental factors earlier in the decision-making process by making them important in the evaluation of alternatives. In an effort to achieve even greater integration, the requirement offers a second option to undertake jointly the MIS and environmental review processes required under NEPA. However, despite efforts to streamline the environmental review process, the relationship between MIS and NEPA remains one of the most troubling aspects of the requirement.

¹⁹ United States, "23 CFR §450.322: Metropolitan Transportation Planning Process: Transportation plan." Statewide Planning; Metropolitan Planning; Rule, *Federal Register*, Vol. 58, No. 207, October 29, 1993.

²⁰ Parsons Brinkerhoff.

Under NEPA legislation, project implementation cannot begin until the likely environmental, social, and economic impacts of the project have been documented and presented for public commentary. Typically this is done in two steps. First, a Draft Environmental Impact Statement (DEIS) is completed to document the environmental concerns, impacts, and mitigation measures associated with the preferred project and certain alternatives. This document is distributed for public review and comment, after which a Final Environmental Impact Statement (FEIS) is issued, containing the original material plus responses to any comments submitted during the review process. Completion of the environmental review process and permission to initiate final engineering is signified by the issuance of a Record of Decision (ROD).

In practice, FTA and FHWA have required different processes for environmental review. The highway process has adhered more or less to the minimum requirements for NEPA review in terms of the number and breadth of alternatives; because the DEIS has been undertaken at the same time as project development, DEISs for highway projects have generally examined just a few alternatives but at a great level of detail. In contrast, in the transit process, the Alternatives Analysis served the purpose of the DEIS. As discussed in Section 3.4, the Alternatives Analysis focused on analyzing a large number and broad range of alternatives at a lesser level of detail.

The two options for linking MIS with the environmental review process are shown in Figure 5. Option 1 represents the minimum requirement: it focuses on the early consideration and documentation of environmental factors as a means of identifying major environmental issues and reducing the probability that design issues will have to be revisited later and in greater detail during the environmental review process.²¹ With this option, the MIS and EIS are undertaken in sequence. The conceptual level environmental analysis undertaken in the MIS serves as input to an EIS where a relatively limited number of alternatives is considered. In comparison, Option 2 aims for more direct integration by allowing the DEIS to be prepared jointly with the MIS. Option 2 is more similar to the previous transit model discussed below. Though there are differences in the timing, both options preserve the requirement that the preferred alternative be included in an approved Plan and TIP prior to completion of the environmental review process. Both options are designed to allow elimination of some alternatives before initiating the highly

detailed analysis required in the final NEPA environmental review process. As such, the MIS process is intended to better allocate resources and to facilitate a faster, less onerous, and less costly environmental review process.

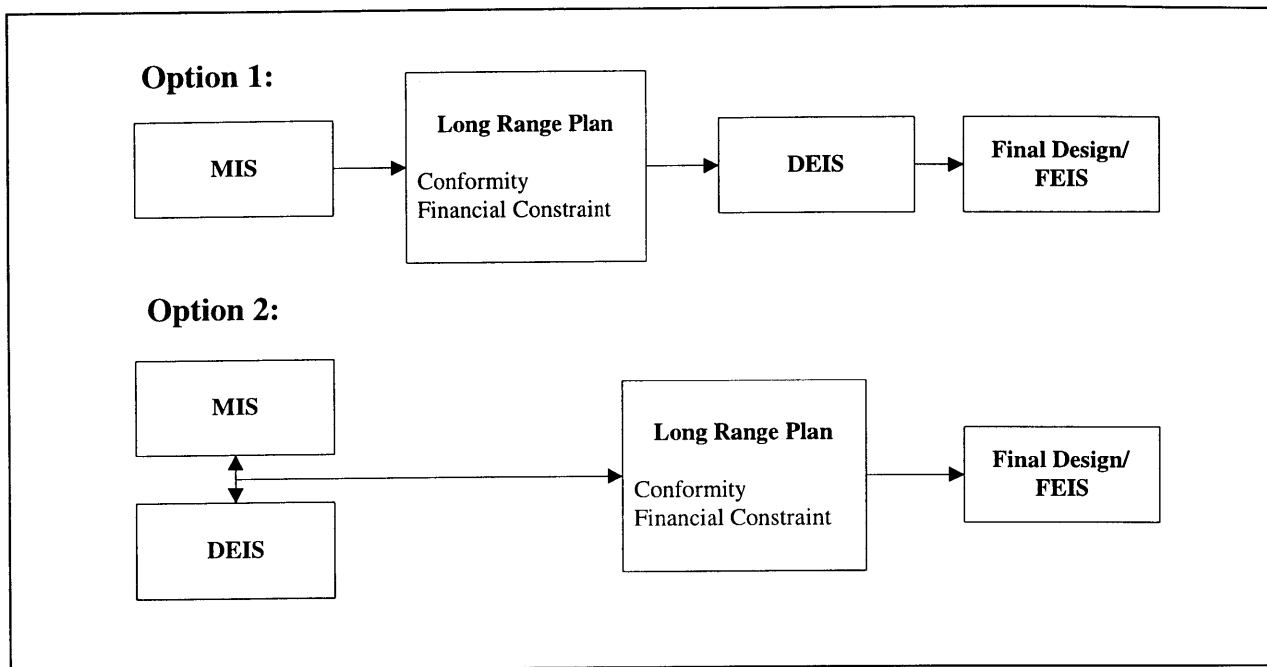


Figure 5: Options for Integrating MIS with the Environmental Review Process²²

It is worthwhile to distinguish further the MIS process from the EIS process because many of the major differences between the two highlight the features of the MIS requirement and the way they advance the policy trends of increased local input, incorporation of broad goals and objectives, and leveling the playing field for transit. These difference are summarized in Table 1.

First, the EIS process tends to be project driven in the sense that the primary purpose is to identify and address the impacts of a project; this approach is particularly evident in the highway process. In contrast, the MIS process tends to be problem driven, encouraging consideration of a broad range of alternatives in response to a well thought-out problem statement. Second, the EIS process, required under NEPA, is a legally established Federal responsibility whereas the MIS is a local responsibility. Third, to some degree, the EIS process assumes a confluence between local

²¹ Parsons Brinkerhoff.

²² FHWA and FTA, *MIS Desk Reference*.

concerns and non-transportation concerns and, in practice, relies largely on public involvement to incorporate both sets of concerns; this is probably a simplification since institutions at various levels of government have specific missions which overlap with or are impacted by transportation projects. The MIS requirement attempts to correct for this simplification by including a strong role for various agencies in the corridor planning stage. Fourth, both processes have a strong emphasis on environmental considerations, and to some degree social and economic concerns, but the MIS process aims to be more open to other non-transportation concerns. Fifth, the FTA and FHWA developed separate EIS processes whereas the MIS process is a single process for considering highway, transit, and multimodal alternatives. Finally, it is likely that not all transportation projects which require an EIS will require an MIS because the EIS process is triggered by micro-impacts (such as water quality impacts and impacts on historic buildings) whereas the MIS process is triggered by magnitude of investment and macro-impacts (such as air quality impacts and mobility impacts).

EIS process (as practiced)	MIS process
<ul style="list-style-type: none"> • Project driven 	<ul style="list-style-type: none"> • Problem driven
<ul style="list-style-type: none"> • Federal agency leads (with local partner) 	<ul style="list-style-type: none"> • Local agency leads; no Federal sign-off
<ul style="list-style-type: none"> • Emphasis on public involvement to incorporate local and non-transportation concerns 	<ul style="list-style-type: none"> • Emphasis on both agency cooperation and public participation to incorporate local and non-transportation concerns
<ul style="list-style-type: none"> • Emphasis on transportation and environmental concerns 	<ul style="list-style-type: none"> • Emphasis on transportation and environmental concerns (because NEPA still effective) • Open to almost any set of non-transportation concerns
<ul style="list-style-type: none"> • Separate processes for highway and transit 	<ul style="list-style-type: none"> • Single process for highway and transit
<ul style="list-style-type: none"> • Triggered by micro-impacts (e.g. water quality, historic and recreational resources) 	<ul style="list-style-type: none"> • Triggered by magnitude of investment and macro-impacts (e.g. air quality, mobility)

Table 1: Comparison of the EIS process and the MIS process

Despite the well-intentioned efforts to streamline the environmental review process, MPOs, State DOTs, and implementing agencies remain unconvinced of the effectiveness of these options. The

primary concern seems to be related to the legal implications of eliminating alternatives outside the traditional EIS process.

3.4 Evolution from Previous Corridor Planning Processes

MIS differs fundamentally from previous corridor planning processes in that it is a joint process for local decision-making, identical for highway, transit, and multimodal projects. Figure 6 shows that the previous processes for developing and selecting transit and highway projects were significantly different. Of these, the process previously required for transit, Alternatives Analysis (AA) most closely resembles that instituted with the MIS requirement.²³

The joint process is, in part, a response to the mandate in ISTEA that FTA conform its corridor planning and major investment decision process to that of FHWA.²⁴ It also greatly increases the potential for multimodal planning, as called for in ISTEA, by allowing the comparison of highway, transit, and multimodal solutions in a single, joint process and by establishing a multi-jurisdictional study framework.

3.4.1 Transit

The previous transit planning process was instituted in FTA policy in the 1970s, and in the 1980s it became a statutory criteria for transit projects applying for discretionary Federal funding. This process, Alternatives Analysis (AA) was undertaken jointly with the DEIS and required consideration of a range of alternatives, including low cost alternatives and various transit modes. AA resulted in the selection of a preferred alternative, which was then advanced for further development in preliminary engineering. Following preliminary engineering, an FEIS was undertaken, and project implementation followed the issuance of a Record of Decision.

²³ Clinton S. Bench, John Collura and John R. Mullin, "From Tollbooths to Turnstiles: The Major Transportation Investment Studies Requirement: a Massachusetts Perspective" Preprint. 76th Annual Transportation Research Board Meeting, January 1997.

²⁴ Response to Comment in United States, "23 CFR §450.318."

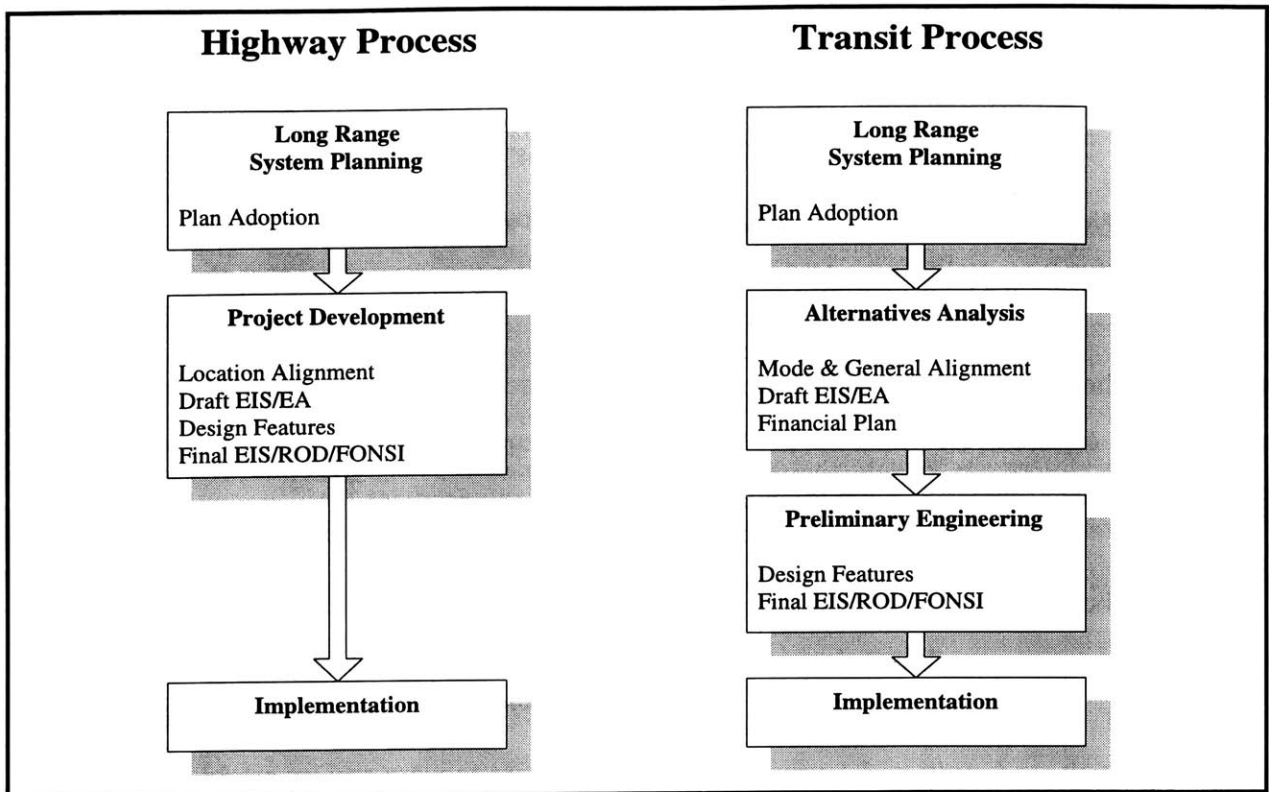


Figure 6: Previous Corridor Planning Processes²⁵

Significantly, the Alternatives Analysis process was required only for those projects seeking funding in the form of New Starts (Section 3) discretionary grants. The justification for AA was to allow FTA to make recommendations on Federal funding priorities based on a comparison among projects applying for funds. Since the early 1970s the New Starts program has been the primary source of funding for major transit investments, especially new fixed guideway systems and extensions.²⁶ Thus, AA was effectively required for all major transit investments, and FTA issued policy guidance on AA. However, AA was not part of the Federally required local planning process.

The Alternatives Analysis process was similar to MIS insofar as it was to be conducted at the corridor or sub-area level and required thorough consideration of a range of alternatives including low-cost alternatives, measures of costs, benefits, and impacts, as well as a financial

²⁵ FHWA and FTA, *MIS Desk Reference*.

²⁶ United States, "Section 5309 (Section 3(j)) FTA New Starts Criteria." *Federal Register*, December 19, 1996.

plan.²⁷ However, in developing the MIS requirement, FTA and FHWA tried to address a number of key criticisms of AA.²⁸

- AA was notoriously bureaucratic, requiring FTA (at that time the Urban Mass Transit Administration) to sign-off on as many as thirty deliverables. For example, before the study process could begin, the Secretary of DOT had to certify that all reasonable alternatives had been pre-screened. AA also required a large number of interim reports.
- It is claimed that AA guidance was intended to be flexible but was often interpreted rigidly by local planning staff and UMTA staff.
- It was extremely difficult to integrate the AA process with the FHWA process to consider multimodal projects or to compare highway and transit projects in the same process.
- Because it evolved from a need to prioritize projects for Federal funding, AA over-emphasized measures of cost and cost-effectiveness and obscured other local considerations in evaluating alternatives.

MIS seems to stand in sharp contrast to AA in several respects discussed in detail above. MIS dispenses with interim reports and Federal sign-offs, and the guidance strongly emphasizes the flexible nature of the requirement. Additionally, MIS provides a single, joint process for highway, transit, and multimodal projects. MIS also suggests using a significantly broader set of evaluation criteria to reflect a range of local social, economic, and environmental concerns.

3.4.2 Highway

In contrast to the previous transit planning process, the traditional highway corridor planning practice was relatively direct. Environmental review, project development, and preliminary engineering were essentially rolled into one step, with much less emphasis on the evaluation of alternatives. Following the identification of the need for a large-scale project in the long range

²⁷ FHWA and FTA, *MIS Desk Reference*.

²⁸ "Planning Practice for Major Transit Investments," *Research Results Digest*, Digest 7, 1989.

planning process, project development was initiated to define the location, alignment, and design features. The environmental review process was initiated during project development so that environmental review and detailed project development were undertaken together, resulting in analysis of a limited number of alternatives at a high level of detail.²⁹ This is the major difference between the previous highway and transit processes. As with AA, project implementation followed the issuance of an ROD.

Thus, while there are similarities between MIS and AA, it is clear that the MIS process represents a sizable transition from the previous transit and highway processes. Compared with the previous highway process, MIS may indeed seem highly prescriptive, collaborative, and time consuming. However, compared with Alternatives Analysis of the previous transit process, MIS should seem streamlined.

3.5 Summary

In summary, the MIS requirement employs five major features in an effort to promote policy principles which strengthen the local planning process. The requirement requires collaboration among agencies and public participation in pursuit of the principles of increasing local input and broadening the range of considerations beyond transportation. The requirement also encourages inclusion of a broad range of goals and objectives and supports multimodal planning in an effort to reduce the disadvantages faced by transit in local planning efforts. MIS emphasizes local decision-making and flexibility in support of increased local input to the planning process and also in the ultimate outcome.

The MIS process should not be viewed in a vacuum. For the MIS process to be useful in achieving these policy principles it must also be well integrated with the other required process. To this end, the requirement and guidance need to establish a clear relationship for MIS with the Long Range Plan and the environmental review process.

²⁹ FHWA and FTA, *MIS Desk Reference*.

4. Evaluating the MIS Requirement

We have described MIS as the latest in a series of Federal policy tools aimed at improving the planning process by promoting three principles: increasing local input; incorporating non-transportation concerns; and reducing the disadvantages faced by transit. We now seek to assess the degree to which MIS is successful in furthering these three policy principles. In doing so, we again consider the major features of the MIS requirement and its relationships with other processes to examine the factors which either cause them to be effective or limit them.

Sections 4.1 and 4.2 focus on evaluating the MIS requirement as a tool for Federal policy. Section 4.1 considers each of the five major features of MIS and the degree to which they further the three policy principles. Section 4.2 considers factors which complicate the relationship between MIS and the planning and environmental processes. Section 4.3 identifies a number of local planning challenges regions will face in implementing MIS; this sets the stage for a more in depth analysis of MIS as a planning tool in the next chapter. Finally, Section 4.4 presents a summary of the analysis and recommendations.

The judgments made in this analysis do not necessarily reflect the impacts of MIS in any given region or application. For example, by stating that the MIS requirement effectively promotes collaborative planning, we do not mean to suggest that MIS will result in cooperative planning studies in every region. Similarly, by stating that MIS is not effectively integrated with the NEPA process, we do not preclude the possibility that some studies have been able to securely link the two. The assessments made here are intended as generalizations.

4.1 Features of MIS

We begin the evaluation by considering the degree to which the major features of the MIS requirement support the policy principles of increasing local input, incorporating non-transportation concerns, and reducing the disadvantages faced by transit. For each feature, we identify factors which make it effective and “tensions” which seem to limit its effectiveness. Tensions may arise from aspects of the MIS requirement itself or may stem from other facets of the Federal planning process. Secondarily, they may be short run tensions, which are likely to

resolve themselves through additional experience with the requirement, or long run tensions, which are likely to require significant changes either to the MIS requirement or to other processes.

The analysis shows that the features of participation and collaboration, and broadening goals and objectives are the strongest and provide the most support for the principles of increasing local input and incorporating non-transportation concerns. With its emphasis on multimodalism, the requirement also makes significant advances in decreasing the disadvantages faced by transit; however a number of tensions in the Federal transportation arena will limit the degree to which MIS can be effective. The emphasis on local decision-making has the potential to be effective, but may be less so in the short run due to lack of clarity about Federal interests. There are also some basic tensions between Federal programs and local decision-making which are highlighted with MIS. Finally, the flexible nature of the requirement, while clearly allowing increased local input may have short and long run costs which make it problematic.

4.1.1 Collaboration and Participation

The emphasis in MIS on collaboration and participation has the potential to improve consideration of both local and non-transportation concerns in the planning process, and therefore it seems likely to be one of the strongest features of the MIS requirement. In this regard, the emphasis on collaboration is more notable since it represents a greater change from the NEPA study process, which had already come to rely heavily on public participation to provide both kinds of input.

Encouraging broad agency participation in MIS adds an important mechanism for introducing local and non-transportation concerns into the planning process. Agency and institution input differs from public input because these organizations are vested with specific missions. To the extent possible, integrating their concerns early will add an important dimension to the planning process and allow it to respond to a more complete range of local and non-transportation concerns.

MIS creates incentives for diverse agencies to participate by establishing a legitimate role for them from the start of the study process. By stipulating that the agencies participate in the study design process, MIS may give them a chance to shape the study itself and ensure themselves a role throughout the process. MIS creates further incentives for the participation of affected, non-transportation agencies by legitimizing the use of a broad array of local goals and in the study. In this way, the features of collaboration and the incorporation of broad goals and objectives support each other. Similarly, the explicit multimodal nature of MIS can encourage participation by both transit and highway interests in a given study.

One difficulty with the cooperative process is the mismatch between the level of information considered in MIS and the focused missions of the agencies one would like to involve. This mismatch is well documented for environmental permitting agencies, which have been reluctant to participate in MIS because the level of detail is too broad for them to make official determinations.³⁰ However, from the point of view of the study process, these agencies could offer important insights into environmental concerns by identifying potential concerns even at low levels of detail. In the case of environmental concerns, it is probably desirable to have some Federal resolution of this mismatch because of the legal issues associated with NEPA as discussed below in Section 4.2.2. It is possible that mismatches may arise in other areas as well, though in these cases they are more likely to be short term tensions that can be worked out in the local process.

Apart from the difficulty associated with environmental permitting agencies, evidence suggests the collaborative model for MIS has been successful in some regions in generating broad participation spanning different levels of government and areas of responsibility. For example, the Woodrow Wilson Bridge Corridor Study was led by a 14-member multi-jurisdictional Coordination Committee representing the Federal government, three states, two counties, and a local municipality. The Miami East-West Corridor Study was overseen by technical and policy committees representing FDOT, the transit and commuter rail operators, the MPO, the port and

³⁰ Neil J. Pederson, in "Major Investment Studies." Taped Proceedings of the 76th Annual Transportation Research Board Meeting. Wednesday, January 12-16, 1997 and in "Conference on Major Investment Studies in Transportation (MIS)."

airport authorities, the City of Miami, FHWA and the U.S. Coast Guard. Representatives of the cruise ship industry participated actively in another study in Miami, the Intermodal Corridor Study.

There is less discussion about whether such broad participation has actually resulted in increased local input or consideration of non-transportation concerns. However, it seems likely that the potential exists. It is important to recognize that while participation and cooperation do not guarantee the introduction of broader goals and objectives, it can facilitate it.

There is also confidence among professionals that MIS can enhance citizen input into the planning process. Even with the potential for more effective agency involvement, public participation is still an important means of introducing community concerns which may be both transportation and non-transportation based. MIS is intended to be an even more open process than EIS in that it requires public review of the early decision on design concept and scope. Public participation in MIS is likely strengthened by overall increased emphasis on public participation in ISTEA.

The level of detail in MIS may make it a useful tool for engaging the public in the planning and project development processes, though this is not entirely clear. Traditionally, citizens have been deterred from participating in long range planning by the level of abstraction and the lack of project definition. Citizen participation is often motivated by a sense of threat.³¹ As such, the NEPA process, in which projects are already well-defined and potential threats are often highly visible, has been an important opportunity for the public to exercise its voice. However, at this level, major conceptual decisions have already been made and the analysis is highly technical and aimed at field experts. MIS may offer a happy medium which responds nicely to public interests. The Dallas region has made MIS a central piece in its public involvement process for this reason.³² At the same time, the MIS process may present a challenge for public participation if the level of detail remains too conceptual. By focusing on questions of design concept and scope,

³¹ Alan Altshuler, James P. Womac and John R. Pucher. *The Urban Transportation System: Politics and Policy Innovation*. Cambridge: The MIT Press, 1979.

³² FHWA, FTA, and the Volpe National Transportation Systems Center. *Enhanced Planning Review of the Dallas-Ft. Worth Metropolitan Area*. Washington DC: US DOT, June 1996.

the MIS may not address many of the details which are important to neighboring communities. For example, by not identifying a precise alignment, the project may seem threatening to all of the households in the community because none know for certain that they will not be impacted.

Although the collaborative and participatory emphasis of MIS does seem to be an effective means of allowing greater local input and introducing non-transportation goals, it also introduces greater challenges at the local level. The most significant of these is the difficulty of managing a highly participatory, consensus-building process. To be sure, it is particularly important to establish broad levels of commitment for large-scale projects which represent significant investments of local and Federal resources and where there are multiple aspects which can generate opposition. However, managing such a process requires extensive commitments of time and dedication and will exist in tension with more facile, less participatory decision-making processes.

4.1.2 Broadening Goals and Objectives

The emphasis in MIS on including broad goals and objectives does allow the possibility of considering a range of non-transportation as well as local concerns. By legitimizing a broad range of concerns and local (metropolitan) decision-making, MIS may allow the emphasis of non-traditional factors based on local priorities. It may further be possible to integrate such concerns into project evaluation criteria in a manner which increases their impact on the ultimate decision. It is not unusual for local transportation policy to reflect non-transportation goals and objectives such as maximizing accessibility or equity, supporting land use planning, or preventing the decline of urban areas. Federal transportation policy also incorporates non-transportation goals, especially environmental concerns. Even though policy goals such as these have been in place at the Federal and local levels, it has been difficult to use them as critical decision-making criteria on a project by project basis because FTA and FHWA have traditionally emphasized economic criteria (cost-effectiveness) or mobility criteria (level of service or vehicle miles traveled). This was especially true of Alternatives Analysis for which the cost-effectiveness measure used to prioritize projects at the Federal level effectively dominated other local criteria. However, it is worthwhile to observe that the primary contribution of MIS is that it allows the *opportunity* to

incorporate broad goals and objectives; it is unlikely that MIS can force this to occur in areas where there is not already some interest in doing so.

The primary means of introducing broad goals and objectives, including non-transportation concerns, in the MIS process will be through the participation of diverse agencies and the public. As discussed in the previous section, the two features are mutually reinforcing. In some cases, FTA's recent modifications to New Starts funding criteria may also support the consideration of broader goals and objectives in MIS. Whereas a project previously had to be shown to be "cost effective," it now must be shown to be "justified based on a comprehensive review of its mobility improvements, environmental benefits, cost-effectiveness, and operating efficiencies."³³ Thus, to the extent that locally determined criteria do not embrace non-transportation concerns, the Federal criteria may broaden the range of factors taken into consideration to include environmental concerns. Specifically, air quality and supportive land uses are two measures used in the new criteria.

At the same time, in cases where there is local interest in using broad criteria, FTA's New Starts criteria may be limiting. Though the new criteria are certainly more diverse than those used previously, they are not reflective of the possible range of useful non-transportation criteria. Federal criteria must apply to all regions so that projects can be compared. For this reason, it is difficult to establish highly specific criteria. Thus if these Federal criteria dominate others, it may result in less broad criteria than might otherwise be employed. This would be particularly discouraging for transit, since transit projects may benefit most from the use of non-traditional criteria.

The use of non-traditional, non-transportation evaluation criteria also may face some technical limitations which could hinder the incorporation of non-transportation concerns in MISs. For example, while MIS offers an opportunity to link land use and transportation planning, research in this area has not yet established widely accepted measures or methods of analysis. Similarly, the links between economic development and infrastructure development are not well understood. It will be difficult to establish rigorous methodologies and quantitative measures for

goals such as these, so the fit into the rationalist decision-making framework may be uneasy. This is probably a short run concern which requires more research, possibly drawing from other disciplines such as economic development.

4.1.3 Multimodal Planning

The MIS requirement removes some important barriers to the equal consideration of transit and may also encourage multimodal planning. As such, MIS represents a step in the right direction. However, the MIS process will still likely be affected by differential treatment of highway and transit at both Federal and local levels which continues independent of the MIS process itself. Areas of concern include: discretionary transit funding, differences in agency culture and resources at FTA and FHWA, and local modal biases.

Two mechanisms allow the MIS requirement to equalize consideration of highway and transit alternatives. First, in conjunction with flexible funding the MIS requirement reduces the disadvantages faced by transit by instituting a single, joint process for highways, transit, and multimodal alternatives. By standardizing the planning process, the MIS requirement reduces the perception of a policy bias against transit.³⁴ Second, the emphasis in MIS on multimodalism, multi-jurisdictional cooperation, and broader goals and objectives likely strengthens the ability of MIS to promote fair consideration of transit. The principle of cooperation may also facilitate consideration of service to regional ports, airports and commuter rail.

At the same time that the MIS requirement makes significant advances in reducing the disadvantages faced by transit by instituting a single study requirement, modal differences at the Federal and local level may negatively influence the MIS process. Though discretionary funding ultimately helps to promote equal consideration of transit by making Federal funding assistance available, its importance for transit may inhibit MIS from promoting fairer consideration of transit projects relative to highway projects. The need for Federal prioritization of transit projects

³³ United States, "Section 5309 (Section 3(j)) FTA New Starts Criteria."

³⁴ Lawrence D. Dahms in "Conference on Major Investment Studies in Transportation (MIS)."

seeking discretionary Section 3 New Starts funding may cause Federal decision-making criteria to dominate local criteria, goals, and objectives in the MIS analysis.³⁵

Despite the single, joint process, differences in FTA and FHWA culture may generate very different guidance for the MIS process. After all, the previous, independent corridor planning processes for transit and highway evolved in response to the same NEPA legislation; FHWA developed and promoted a minimalist process which emphasized meeting requirements over “problem solving” while FTA developed a complex, process-oriented approach considered to be substantially more challenging.³⁶ Since agency culture is slow to change, it would not be surprising to find similar differences between FTA and FHWA in guiding MIS efforts. The single, joint process will provide some stability, but there are plenty of opportunities for the two agencies to make different interpretations and to administer the MIS process differently. Furthermore, the majority of guidance on MIS will be issued from FTA and FHWA field offices, where agency culture may be slower to change.

The role of FTA and FHWA field offices in executing the Federal responsibilities in MIS may pose another problem for multimodal planning insofar as MIS may become a low priority for field offices facing limited resources. Since FTA and FHWA act as sponsors for EIS but may have no such responsibility in MIS, the latter is likely to receive less attention when a choice must be made.³⁷ For example, the local field office of FTA did not participate in the Maryland U.S. 301 MIS, even though one alternative under consideration involved light rail. The problem resolves itself when MIS is undertaken jointly with EIS due to FTA and FHWA’s responsibilities in EIS. The lower priority given to MIS is likely to impact transit more than highway since FTA faces tighter constraints than FHWA. As a result, transit alternatives may receive less careful oversight, and there is a greater risk that FTA will fail to communicate concerns about alternatives or methods. This problem could be amplified for projects seeking discretionary transit funding for which the importance of Federal interests in the study outcome is explicit.

³⁵ The implications of discretionary transit funding on MIS are discussed further in Section 4.1.4.

³⁶ As recent as 1992 or 1993 (when the MIS requirement was in development), multimodal planning efforts for a system of exclusive bus lanes sponsored by the Port Authority of Allegheny County encountered similar differences in agency approaches. Allen D. Biehler, Verbal communication. April 2, 1997.

³⁷ Yet, if MIS and DEIS are undertaken jointly there may be a strong Federal role in the MIS.

Finally, local modal bias may affect the MIS process by complicating the question of study leadership. In general, the emphasis in MIS on a cooperative and inclusive process should facilitate fairer consideration of transit. However, the requirement and guidance do not thoroughly address the question of leadership. In cases where it is appropriate to consider transit, highway, and multimodal alternatives, it will generally be difficult to select a modal implementing agency as a study leader. For this reason, and because the MIS must be coordinated with the Long Range Plan and TIP, the MPO is often the most appropriate agency for leading the study. However, the MPO may not be as modally unbiased as it seems, and thus, MPO leadership does not necessarily guarantee unbiased planning. Transit interests have historically been underrepresented on MPO boards, and this does not appear to have changed substantially with ISTEA.³⁸ In contrast, highway interests usually have greater representation on MPO boards through state Departments of Transportation and, to some degree, through local elected officials who often have highway responsibilities which are not commonly acknowledged. The latter point is interesting since the inclusion of local elected officials is viewed as a means of incorporating geographically diverse local interests.³⁹

4.1.4 Local (Metropolitan) Decision-making

Current Federal policy seems to offer greater local decision-making authority concentrated at the metropolitan level, and hence greater local input, in exchange for undertaking a more rigorous process. MIS, which clearly evolves out of this context, attempts to ease the tension between Federal and local decision-making by declaring itself to be a local decision-making tool in which Federal interest is limited to overseeing the planning process. Yet, in practice MIS does not clearly resolve the underlying tensions between Federal interests in the study process and in the outcome.

³⁸ Currently, a handful of MPO boards include transit agencies as voting members while several others allow transit agencies non-voting representation. The bulk of MPO boards contain no transit agency representatives. While ISTEA does not prescribe MPO membership, it is clear that the legislation posits adequate representation of all interests in metropolitan transportation as necessary for successful implementation. Representation of transit interests has been a frequent subject of contention, and it arose frequently during FTA and FHWA's joint Enhanced Planning Reviews. Regions where transit operators have voting representation on the MPO board include Boston, Chicago, Cleveland, St. Louis, New York City, Washington DC, New Orleans, Miami and Southeastern Wisconsin, among others. In regions such as Philadelphia and Southeast Michigan transit operators have non-voting membership.

³⁹ Frederick P. Salvucci, Verbal communication. March 5, 1997.

First, MIS offers little guarantee that FTA and FHWA will not use their procedural oversight roles to exercise influence over the study outcome. Since there is no Federal sign-off on MIS, local jurisdictions will have only informal indications of Federal satisfaction with the process. There is a high level of general uncertainty regarding Federal expectations and roles in MIS resulting from the high degree of flexibility in the requirement. At least in the short run, this flexibility seems to aggravate the level of uncertainty about Federal interests in the MIS process. The actual level of conflict will be established through further experience and enforcement activities.

The fear that FTA and FHWA will exercise undue influence on the process probably will not be a critical tension in practice, at least not for highway planning. This assessment is based on precedent set by the EIS process. Even for projects which are funded from formula funds, there is potential for FTA or FHWA to influence the project outcome through the EIS process, for which the Federal agencies act as sponsors. In practice, FHWA has not often used the EIS to influence local decision-making. FTA and FHWA are defined to be partners in the MIS process and do not have sign-off authority as they do in EIS; this suggests FHWA is even less likely to influence the outcome of the MIS process. With FTA, the question probably boils down to the importance of discretionary funding; FTA's influence was indeed felt in the joint AA/DIES through the importance of Federal evaluation criteria.

Because the Federal government plays a strong role in funding, there is a broader tension between Federal programs and local decision-making. In MIS the tension is particularly evident with discretionary funding. Section 3 New Starts funding remains an important source of capital funds for large-scale transit projects such as those studied in MIS. As a result of historical shortfalls, Federal statute requires that the Department of Transportation submit annually to Congress a prioritized list of investment recommendations for the New Starts program. Thus FTA plays an important role in evaluating, comparing, and ranking projects selected through the MIS process. The revised New Starts funding criteria attempt to establish a distinction between analysis and criteria used for local decision-making and those used for Federal decision-

making.⁴⁰ However, the fact that MIS analysis may eventually be used to determine Federal investment priorities could place pressures on the local study process to discern any Federal interests in the outcome; this conflicts with the local decision-making authority promised by the MIS requirement. Because the critical decision of Federal funding assistance affects local project viability, it is not difficult to imagine that Federal investment criteria will dominate local interests in the MIS process.

The resulting lack of clarity about Federal decision-making roles is of concern because it may compromise the credibility of the local MIS process. It is of further concern because it may have a differential effect on transit and highway projects. Although it constitutes a relatively small percentage of capital funding, discretionary New Starts funding tends to be concentrated in a few areas and on a relatively small number of very large-scale projects, often rail.⁴¹ This suggests that Federal decision-making responsibilities with respect to New Starts funding could substantially impact those MIS processes considering the largest transit investments.

The Federal government also plays a role in establishing highway priorities.⁴² One recent example is the designation of the National Highway System (NHS) by Congress in 1995. The Secretary of Transportation is required to submit to Congress proposals for additions or changes to the system, and there is a limit on the total mileage for the system; such additions are expected to be minor since most of the system has already been built. Yet, FHWA will have de facto decision-making and prioritization responsibilities for any new highway projects not already designated for inclusion. This creates some ambiguity about Federal and local roles on the highway side, though it is perhaps less significant than that for transit because ISTEA provided additional sources of funding for highways not included in the NHS.

⁴⁰ United States, "Section 5309 (Section 3(j)) FTA New Starts Criteria."

⁴¹ New Starts authorizations compose approximately 16% of all capital transit funds authorized over seven years in ISTEA. These authorizations constitute approximately 6% of total authorizations for the CMAQ, STP, NHS, Interstate Substitute, and transit capital and operation programs.

⁴² Highway demonstration projects are another example where the Federal government exercises influence outside the local planning process. Like New Starts transit projects, demonstration project originate at the local level but are approved for special funding by Congress; unlike New Starts transit projects, highway demonstration projects are not reviewed by FHWA.

Much of the uncertainty about the scope of Federal interest in MIS could be resolved through further implementation and Federal enforcement activities. If FTA and FHWA consistently limit themselves to advising on procedural issues and accept the outcomes of local study processes, then precedent may be strong enough to resolve the tension and MIS will not be seriously weakened in the long run. However, the tension between national programs and local decision-making is a long run consideration which is especially troublesome in the case of discretionary transit funding. The question remains whether, once we have recognized this tension, any relief is possible.

4.1.5 Flexibility

A good deal of attention has been given to the flexible nature of the MIS requirement. In official guidance the flexible nature of MIS has been promoted as an unambiguous benefit, and many practitioners have suggested that it is a positive aspect of MIS. There is no question that the statement of the MIS requirement is highly flexible and that this can increase local input by allowing the process to be crafted to meet local needs. The high degree of flexibility in MIS has the potential to be a strength but there are also some drawbacks. Costs of the high level of flexibility include unclear expectations, the potential for inconsistent administration and enforcement, local limits for accepting flexibility, and reduced opportunities to leverage the promotional principles. An additional cost of such a high degree of flexibility may be the lack of resolution between MIS and NEPA, which is discussed in Section 3.3.2.

One indication that the high level of flexibility in MIS is problematic is that even among practitioners there is not a clear understanding of the MIS process and of Federal expectations. Sheldon Edner, a key figure in the development of MIS guidance and training materials, has admitted “[the concept of Major Investment Studies] is not easy to explain.”⁴³ We have seen that MIS draws on good planning practices and themes in the history of Federal policy, so the difficulty in explaining MIS should not be due to the underlying concepts; it must be that Federal expectations have not been clearly expressed. The uncertainty may be amplified by the lack of a Federal sign-off on MIS which may leave study sponsors unsure as to whether or not they have

⁴³ “Conference on Major Investment Studies in Transportation (MIS).”

met Federal expectations and whether the process is strong enough to withstand criticism by project opponents.⁴⁴ Furthermore, if it is difficult to explain MIS to planners who are steeped in the language of Federal requirements and project planning, it could be very difficult to explain MIS to the politicians and citizens invited to participate. This may make it difficult to sustain participation of diverse agencies and citizens over a long period of time, as may be necessary with MIS.

At the Federal level, reliance on field office staff to enforce the MIS requirement complicates the issue of flexibility. Recent experience indicates local dissatisfaction with the performance of FTA and FHWA field offices. Practitioners complain that field office staff remain tied to old paradigms and administer the requirement in an overly prescriptive manner.⁴⁵ Field office administration also raises the potential for multiple, inconsistent interpretations of the requirement which can complicate the efforts of local jurisdictions to understand Federal expectations.

We must also consider how much flexibility local jurisdictions are willing to accept. Two factors set practical limits on the desirable level of flexibility. Local jurisdictions may be unwilling to accept a greater level of flexibility than that to which they are accustomed. The number and tone of requests for clarification of Federal expectations of MIS suggest this may be an existing tension for MIS. In this case, local jurisdictions may request constant clarification and guidance, creating an unanticipated administrative challenge for FTA and FHWA. By failing to convey clear Federal expectations, extensive flexibility may also weaken the ability of local planners to use the planning regulations as leverage to introduce better planning practices.⁴⁶ For example, if there is uncertainty about what is meant by a “broad range of alternatives,” it may be difficult to insist on changes to current practices.

⁴⁴ Dahms in “Conference on Major Investment Studies in Transportation (MIS).”

⁴⁵ Shirley J. Ybarra, Deputy Secretary of Transportation for the Commonwealth of Virginia, Congressional Testimony to the House Surface Transportation Subcommittee on the Reauthorization of ISTEA. September 26, 1996 and numerous speakers in “Conference on Major Investment Studies in Transportation (MIS).”

⁴⁶ Of course, too much prescription also eliminates the potential to leverage desirable principles.

Gauging the optimal degree of flexibility is a particularly difficult policy problem because it will be difficult to determine who is “at fault.” i.e., whether the statement of the requirement is too flexible or the local interpretation is too narrow. Furthermore, it is difficult to judge at what point too much flexibility shifts from a short run concern to a long run concern. Several practitioners have declared the MIS requirement to be adequately flexible if not “universally understood.”⁴⁷ This explanation suggests that we simply need more time to grow accustomed to the degree of flexibility in MIS or that additional, non-binding Federal guidance should be issued. If, indeed, we only need more time to grow accustomed to the flexibility in MIS, it would be a mistake to take any measures now to reduce the level of flexibility; while reducing the flexibility of the requirement may reduce uncertainty in the short run, many benefits of flexibility would be lost in the long run because it is virtually impossible to make a requirement more flexible over time. Alternatively, the issues raised here could continue to impact the MIS process for a considerable time. Inconsistent Federal interpretation and enforcement and reduced potential for leverage are the two best candidates for issues which could reduce the overall effectiveness of the MIS process over the long run.

4.2 Relationships with Other Processes

Because the MIS process must fit into the existing planning context, the effectiveness of MIS will be critically affected by the interactions of MIS with the planning and environmental review processes. In considering these interactions it is possible to identify a number of tensions which complicate these relationships and may ultimately limit the degree to which MIS can be a useful policy tool.

4.2.1 The Planning Process

The relationship of MIS to the planning process is complicated by a number of tensions which, though largely external to MIS, nonetheless impact the process. The factors discussed below include: the response of MIS to “political-reality” projects versus projects evolving out of the planning process; the disincentives created by the combination of fiscal constraint and MIS to the planning of large-scale projects; and the need to avoid redundancy in the planning process.

⁴⁷ “Conference on Major Investment Studies in Transportation (MIS).”

The Planning Model versus the Political Reality Model

MIS, like the rest of the planning process, is based on a rationalist model of strategic analysis and decision-making which supposes that projects evolve out of clearly defined problem statements linked primarily to transportation problems. Yet, in reality, transportation projects are often conceptualized in response to a range of factors such as economic development and a desire to shape development or urban self-image rather than well-studied transportation needs. These projects are also subject to the planning process and will be subject to MIS, but the fit is often uncomfortable because such projects are not based on the required assumptions.

There are two reasons not to ignore the political reality model. First, it reflects a real phenomenon which has impacts even if it is not acknowledged by the process. Second, the two models are complementary, and both may be necessary in some measure to provide a good transportation system. The political reality model may be an important vehicle for planning large-scale projects because they often require leadership and vision to get off the ground.

From both the Federal and local perspectives, the MIS process could be truly useful for testing and evaluating such political reality projects in order to gauge public support and scan for unanticipated costs and alternative solutions. The emphasis of analysis in such a case should be different from a problem-centered, open approach where no single concept has a “political” advantage. If a local official has leadership, vision, and momentum, he or she may want to focus on making sure the project is good and that obvious alternatives have not been overlooked, rather than on considering every possible alternative approach. Crafting MIS to address political reality projects requires careful thought. If the process cannot be used to answer the useful questions for political reality projects, it may be undertaken solely to meet the requirement and to disguise the existence of a predetermined solution. To prevent the MIS process from becoming a game, it is necessary that it acknowledge the second model of project development. In some cases the questions to be asked will be problem-centered; in others they will be more a reality-check for a

given concept.⁴⁸ This is a delicate distinction, because one wants to facilitate good (justified) political projects while protecting against bad (unjustified) ones.

It is likely that the MIS requirement is sufficiently flexible to allow MIS to address the needs of political reality projects. Nonetheless, the requirement will be stronger if this can be made explicit. First, it is not clear that FTA and FHWA field staff will recognize the legitimacy of this approach unless it is explicit: since the planning process as a whole is designed to obscure political reality projects, why should MIS be any different? Second, a local study sponsor may be discouraged from using MIS in this way because it may face local opposition even when there is fairly broad support for a project. In particular, public interest groups and project opponents will likely insist that the study consider all alternatives. The first group may be acting on principle and the second in self-interest, but together they can probably hinder effective use of the MIS as a “reality-check.” Federal direction could help to overcome this.

MIS, Large-scale Projects, and Fiscal Constraint

Even as we begin to focus on managing, rather than building, our nation’s transportation network, some large-scale projects will still be justified. Though current Federal policy emphasizes system management over construction, there will be continued need for some carefully considered large-scale projects. Projections show that demand for travel will continue to grow due to factors such as increasing immigration, participation of women in the workforce, welfare to work programs, and increased demand among youth, low-income groups, and the elderly.⁴⁹ While operational and demand management strategies offer some relief and are important aspects of system management, they are unlikely to meet the entire growth in demand. Additional large-scale projects may be either transit or highway, but some major additions to capacity will likely be necessary. It is therefore very important that MIS not create a disincentive to plan such projects. The primary cause for concern is the interaction of MIS with the fiscal constraint requirement established in ISTEA. Fiscal constraint already magnifies the local disadvantage faced by large-scale projects, and MIS may further aggravate it.

⁴⁸ Salvucci, Verbal communication. February 28, 1997.

⁴⁹ Bureau of Transportation Statistics, *Transportation Statistics Annual Report 1995*. Washington DC: US DOT, 1995.

One can argue that the Federal government has a special interest in facilitating and establishing planning standards for large-scale projects.⁵⁰ Several factors disadvantage large-scale capital at the local or metropolitan level: they are high risk, high profile projects involving long time lines and significant uncertainty; they often require a disproportional share of regional resources; aside from job generation, their major benefits are temporally separated from investment; and they may have diverse and substantial negative impacts thus generating a large number of opportunities for opposition. Therefore, it may be difficult for large-scale projects to compete against smaller projects, social services, and other local responsibilities for local funds. These factors also suggest that large-scale projects should be subject to high standards of planning practice to properly assess the need for improvements and potential negative impacts.

Much of the tension arising from the interaction between fiscal constraint and MIS relates fundamentally to how fiscal constraint is interpreted and implemented. The risks and opportunity costs of planning large-scale projects increase under the fiscal constraint requirement. This ISTEA requirement dramatically changed the way regions perform long range planning. Rather than a “wish list” of projects, Plans must now contain 20 years worth of projects which can be funded with the resources expected to be available in that period. While fiscal constraint has added important discipline to long range planning, this may come at some cost, as Tilly Chang found in her masters thesis.⁵¹ With respect to MIS, her most significant finding was that, if interpreted narrowly, the requirement has the potential to disadvantage large-scale projects in the planning process. To counter these effects, she suggests that ideally a Long Range Plan would contain an unconstrained or “vision” component as well as a constrained component. The constrained track would be governed by reasonable expectations of available funds while the vision track would contain projects which would be pursued if additional funds were to become available or which could be “traded for” projects in the constrained track. While the two-track

⁵⁰ It should be acknowledged that the Federal government may have mixed incentives for encouraging the planning of large-scale projects. In fact, if requests for Federal funding assistance exceed available funds, the government may want to slow the rate at which projects apply for assistance either to protect itself from having to make politically difficult choices about which projects to fund (as with discretionary funding sources) or to disguise the degree to which current national funding levels are insufficient to meet future transportation needs.

⁵¹ D. Tilly Chang, *Analysis of Financial Planning Requirements in Transportation Planning*. Thesis submitted for a Master of Science in Transportation, Massachusetts Institute of Technology, June 1995.

approach has been validated by some of the Federal guidance on fiscal constraint, it has not been clearly embraced by FTA and FHWA.⁵²

To address fiscal constraint, the MIS regulations allow the use of placeholders in the Long Range Plan. Placeholders reduce the likelihood of having to amend the Plan upon completion of the MIS, thereby avoiding having to make difficult tradeoffs and reopen debates about project priority when integrating the preferred alternative into the Plan. If placeholders have not been used, then integrating the outcome of an MIS requires either dropping some projects already included in the plan or identifying entirely new “reasonably expected” sources of funding. The second scenario is often unlikely and the first is politically highly difficult.

Thus, as long as the Plan must be constrained, placeholders will play an important role in integrating MIS with the Plan. Yet, by using placeholders to avoid having to make difficult trade-offs, one may be undercutting the principle goal of long range planning: how can a region make effective trade-offs in a fiscally constrained environment before some of the options are clearly defined? The use of placeholders could be read by some as evidence of a predetermined solution, and this may be a correct reading in some cases. Making a second round of trade-offs in the Plan may be exactly what is needed to link effectively MIS to long range planning.⁵³ Additionally, the use of placeholders may also discourage the planning of large-scale projects for some of the reasons listed above. In particular, it may be difficult to set aside a large chunk of regional resources for a project which is as yet undefined and therefore has unidentified stakeholders and unknown – but probably large – risks. It is worth noting that the “2-track” approach would likely simplify the relationship between fiscal constraint and MIS by reducing the importance of the placeholders. This results from the ability to integrate the projects resulting from MIS into the unconstrained track if necessary.

Another consideration in linking MIS with fiscal constraint is the question of when fiscal constraint should become active. It is easy to see that placeholders could be used to constrain the alternatives considered in the MIS itself. In this scenario an MIS would consider interim,

⁵² A series of FTA and FHWA planning reviews found only a handful of regions using this two-track approach, but in some reviews, the approach was promoted.

affordable solutions based on funding availability in the Plan.⁵⁴ At first glance this may seem to be a benefit by generating more “realistic” projects and hence more “efficient” planning. Upon further investigation, however, it is clear that this can cause planning to be “incremental” rather than “visionary.” An incremental approach allows alternatives to be limited by those financial scenarios readily visible here and now whereas a visionary approach would develop alternatives based on a vision and then focus on how to get there, for example by working on methods for increasing revenues or shifting priorities. There is a third alternative for integrating the outcome of an MIS into a Long Range Plan with or without placeholders. Large, capital-intensive projects resulting from MIS may be broken into multiple phases for incorporation into the Long Range Plan. This approach is used by some regions, for example Dallas.⁵⁵ The use of phasing may be a pragmatic approach both to the fiscal constraint requirement and to budgetary realities. It can also allow a more visionary approach to planning since it permits one to conduct the MIS without being limited by fiscal constraint during the study process.

Finally, the relationship of MIS to fiscal constraint poses an additional paradox. As currently understood, fiscal constraint requires that project funding be identified in order to complete an MIS and integrate the preferred alternative into the Plan. At the same time, securing funding often requires that a project be well-studied and/or included in the Plan. For example, state legislatures often authorize funding only if there is reasonable certainty the project will be built relatively soon; in practice this may require completion of MIS or environmental review.⁵⁶ Federal discretionary transit funding poses a similar contradiction: Section 3 funds cannot be allocated until the project is included in an approved, fiscally constrained Plan; yet integrating the result of an MIS into the Plan may require assuming that Section 3 funds will be received.

Air Quality Conformity

Because air quality conformity is equivalent to having an emissions budget, it raises similar issues as fiscal constraint. Placeholders are also used for the purpose of conformity analysis, where they have the same advantages and disadvantages as with fiscal constraint. Placeholders

⁵³ Donald J. Emerson in “Conference on Major Investment Studies in Transportation (MIS).”

⁵⁴ “Conference on Major Investment Studies in Transportation (MIS).”

⁵⁵ Dan Lammers in “Conference on Major Investment Studies in Transportation (MIS).”

⁵⁶ Pederson in “Conference on Major Investment Studies in Transportation (MIS).”

help avoid having to repeat complicated and time-consuming analysis or having to make difficult trade-offs among projects. Using placeholders for conformity may actually present greater difficulty for large-scale highway projects, since placeholders for such projects may require a fair portion of the regional emissions budget. This is analogous to having to set aside a large portion of regional funding for an uncertain project. The question of when conformity should be invoked is also relevant: do we wish to limit the alternatives we consider to that which is allowable under the current Plan? Or do we wish to consider all alternatives and allow ourselves to make trade-offs later? One factor which further complicates the relationship of MIS with air quality conformity is the technical limitation of the methodology. Many consider the methods currently available for plan and project conformity analysis to be inaccurate, and there may be a large degree of uncertainty associated with swapping projects and placeholders based on air quality impacts.

Avoiding Redundancy

Because MIS combines corridor planning and the evaluation of large-scale investments, it is positioned to overlap with long range planning and project development. Figure 7 illustrates these relationships. There should be a need for the intermediate level of analysis promised by MIS for considering a broad range of alternatives, identifying critical environmental, social, or economic concerns associated with specific projects, and soliciting public input and response. It may be desirable to use the process to study in greater detail the types of conceptual project definitions included in the Long Range Plan. Alternatively, or perhaps conjointly, it may be desirable to use MIS to make the first of several levels of decisions in project development. However, if MIS is to add value to the planning process, it must allow analysis and decision-making which is not already adequately addressed in the existing processes.

Some practitioners have stated that MIS must be redundant with either long range planning or environmental review.⁵⁷ Indeed, on a practical level it is tempting to squeeze the MIS process either to the level of the traditional EIS or to that of long range planning. Several pressures exist to bring MIS analysis to a level of detail consistent with the traditional EIS: it is a level of analysis which has become familiar for local planning agencies, FTA, and FHWA; resource and

permitting agencies have shown reluctance to participate in analyses conducted at broader detail; there continues to be great uncertainty about the relationship of MIS to NEPA, and the safest thing to do is to err on the side of consistency with the NEPA statute.

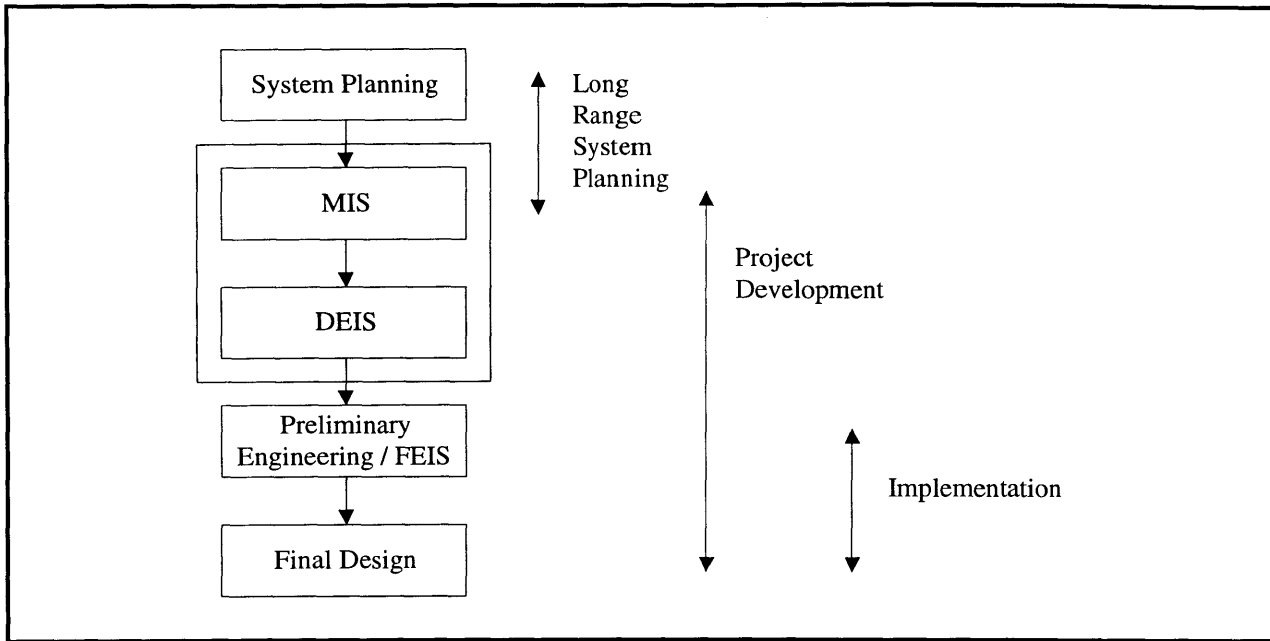


Figure 7: Overlap of MIS with Long Range Planning and Project Development

The question remains whether or not there is legal space between long range planning and the traditional EIS. If it is truly not possible legally and effectively to scan and discard alternatives outside the *traditional* EIS process, then the MIS process will probably be forced to overlap extensively with one of the current processes. Certainly, if MIS is limited to highly conceptual analysis it may add little value to the kind of analysis which must already be done to define projects for inclusion in the Long Range Plan. Likewise, if MIS comes to coincide with EIS it will add little value beyond the current EIS process. This relationship is discussed further below.

4.2.2 The Environmental Review Process

One of the more troubling aspects of the MIS requirement involves the relationship between the MIS and NEPA processes. Nearly every forum for public commentary on MIS has revealed skepticism about the legal validity of the relationships proposed in the regulations. Numerous

⁵⁷ Ybarra.

practitioners have called for FTA and FHWA to establish a legal basis for the relationship.⁵⁸ The relationship between MIS and NEPA also deserve attention in the area of right-of-way reservation.

The most critical question is whether it is legitimate under NEPA statute to eliminate certain alternatives from consideration outside the NEPA process and within the MIS process. Larry Dahms of the Metropolitan Transportation Commission summarizes the problem as follows:

The problems come up when the MIS is done prior to entering into a formal NEPA process. One implied benefit of the MIS is that you can narrow all the alternatives without all the hassles of an Environmental Review Statement. However the subsequent scoping that has to be done as part of the EIS process could very well reintroduce alternatives that were previously discarded by the MIS. Thus, there is some debate as to whether an MIS achieves anything. Perhaps doing an MIS as part of the EIS is the only way to go. That is the central question that still needs to be answered at the Federal level.⁵⁹

The difficulty of eliminating alternatives outside the NEPA process really has two elements. First, the environmental resource and permitting agencies which must sign-off on analysis have been hesitant to do so based on the less detailed analysis of MIS. These agencies may require that alternatives eliminated in the MIS be reintroduced in the EIS. Second, even if these agencies do not insist that alternatives be reintroduced – perhaps even if the agencies agree to sign-off on the analysis based on the MIS – there is concern that the NEPA process may be vulnerable to legal challenge. It is possible that the sign-off by the resource agencies is sufficient to establish justification for eliminating the alternatives, assuming the required analysis was adequate. However, NEPA has been used very effectively to challenge projects, and many implementation agencies are unwilling to risk the threat of the challenge. FTA and FHWA, which would share responsibility in a legal challenge, have not directly addressed this issue.

The debate about whether alternatives can be eliminated outside the EIS process has focused on whether MIS Option 1 is legitimate. In Option 1 the MIS process is temporally separated from

⁵⁸ See, for example, William W. Millar and Dahms in “Conference on Major Investment Studies in Transportation (MIS)” and Marc V. Shaw, Congressional Testimony to the House Surface Transportation Subcommittee on the Reauthorization of ISTEA. June 18, 1996.

⁵⁹ In “Conference on Major Investment Studies in Transportation (MIS).”

the EIS, and thus clearly lies outside it. Indeed, Option 1 is probably too risky and should be eliminated. However, even in the context of Option 2, there may be a need for clarification. The concern with Option 2 is that in practice the MIS analysis will merge with the DEIS analysis to produce a process which is very similar to the old AA/DEIS in terms of the level of detail considered. If this occurs, much of the value of the MIS process could be lost; the appeal of MIS is based on balancing the large number of participants and large number of alternatives for consideration with a lower level of detail. By trying to answer MIS-type questions using the EIS model, one may force the process to become very lengthy, which will likely increase costs while reducing participation. In an effort to address this problem, the regulations state clearly that MIS Option 2 should be conducted at the same level of detail as Option 1. However, in practice, the level of detail in MIS seems to be higher than is desirable.⁶⁰

In order to address this problem with Option 2, we must ask if it is possible to conduct MIS within the NEPA process while preserving the MIS portion as a means of scanning alternatives at a broad level of detail for “fatal flaws.”⁶¹ For example, perhaps the traditional two-stage DEIS/FEIS process can be modified to become a three-stage MIS/DEIS/FEIS process, all of which occurs under the canopy of NEPA. In this analysis, we will call this arrangement, shown in Figure 8, “Option 1.5”: scoping would occur prior to the MIS and alternatives would be developed at a very general level of detail; the MIS, which could be considered a “Draft DEIS,” would be undertaken to consider fatal flaws and to narrow the field of alternatives which would then be developed to 30% design in preparation for the DEIS; the FEIS would follow the DEIS, as in current practice. Following the MIS/Draft DEIS the preferred alternative would be integrated into the Long Range Plan, as is currently required in the MIS process. The MIS/Draft DEIS would continue to stress collaboration among agencies and public participation throughout the process; however large-scale public outreach and review would occur at two points, after the MIS/Draft DEIS and upon completion of the DEIS.⁶²

⁶⁰ Emerson in “Conference on Major Investment Studies in Transportation (MIS).”

⁶¹ Salvucci deserves the credit for articulating and developing this possible relationship between the MIS and EIS processes.

⁶² This is reminiscent of the 2-hearing process described in Chapter 2, but this concept would place more emphasis on public involvement throughout the entire study process as well as at these two points of major public review.

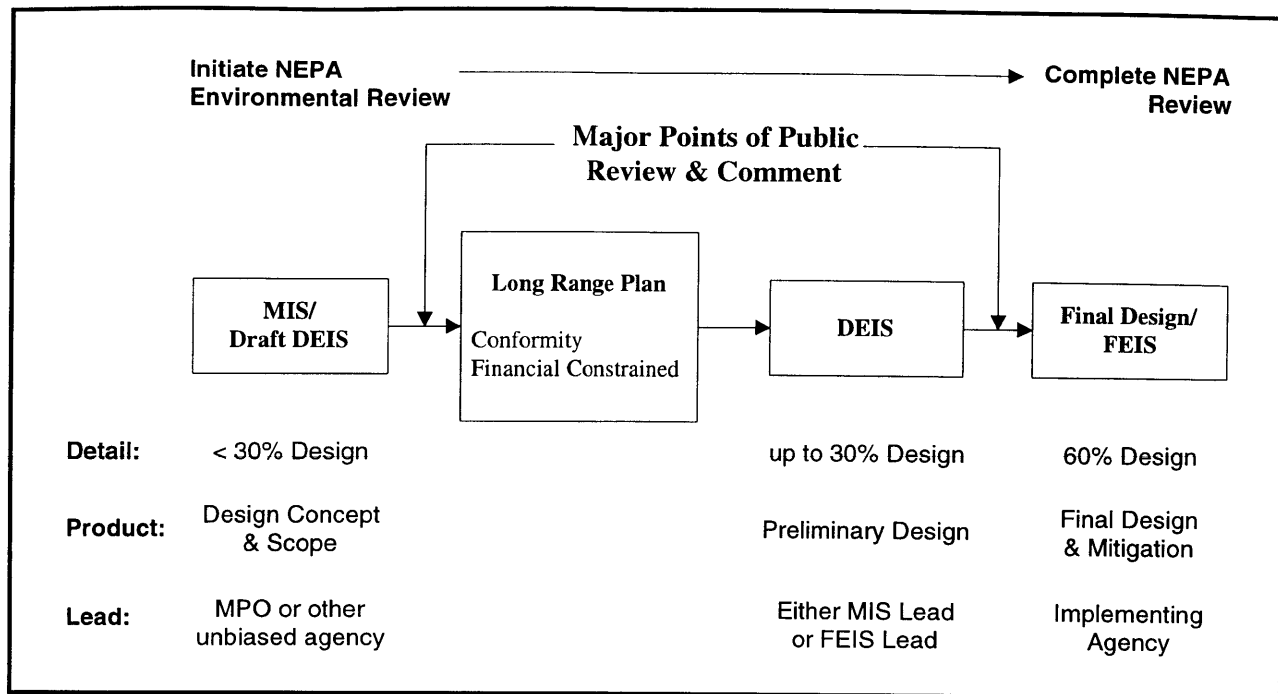


Figure 8: Option 1.5 for Integrating MIS with the Environmental Review Process

Because the purpose of the MIS portion is to consider a broad range of alternatives and, ideally, to make multimodal trade-offs, it is usually not appropriate for an implementing agency to take the lead in this stage. Depending on the range of alternatives under consideration in the DEIS stage, either the “unbiased” agency or the appropriate implementing agency should take the lead. By the FEIS and final stages of the study process, however, the implementing agency should assume primary responsibility for the project development process and its documentation. By this stage, it should be clear which agency will own and operate the preferred alternative. It is appropriate in the FEIS to address detailed aspects of design such as those which can affect operations, and this will require the commitment and technical expertise of the appropriate implementing agency. Additionally, the FEIS will include mitigation measures for which the implementing agency will assume the primary responsibility. It is thus critical that the implementing agency feel committed to the measures which are developed.

The current regulations are flexible enough to accommodate this model but they do not seem to be strong enough to bring it about on a wide scale. The regulations would be stronger if they were more specific about the boundaries between MIS and EIS and, if they more clearly addressed study leadership. In particular, if this model or a similar model is to be followed, the

regulations should be specific about what kinds of questions can be considered in MIS and what kinds in EIS. For example, a fatal flaw analysis could be useful for identifying factors such as the need for Section 4(f) clearance for “using” public parks, recreation areas, or natural preserves in which it must be shown there is no “prudent and feasible alternative.”⁶³ Yet some determinations, such as water quality and archeological impacts, require detailed analysis, and should not be considered prior to 30% design.⁶⁴ Furthermore, a basis for participation in the MIS stage by the appropriate environmental resource and permitting agencies must be established at the Federal level, possibly through environmental policy.

Finally, MIS and NEPA should be reconciled in the area of right-of-way reservation. The focus of the MIS process on questions of design concept and scope make it an appropriate tool for deciding to reserve right-of-way for future transportation improvements. MIS should be an important mechanism of determining likely right-of-way needs well in advance, which is one of the basic tenants of good planning practice. However, under the current FTA and FHWA regulations, an EIS is required in order to use Federal funds to purchase right-of-way. Now that the MIS process is in place, the regulations should be modified to make completion of an MIS sufficient to justify the use of Federal funds for right-of-way purchase and reservation.⁶⁵

4.3 Local Challenges

The purpose of this section is to summarize some of the major challenges facing regions in implementing MIS. The discussion so far has concentrated on those major strengths and weaknesses of MIS which have significant policy implications. Nonetheless, in designing MIS guidelines or a particular study process, the bulk of local attention will probably fall to addressing local challenges such as those listed below.⁶⁶ These planning concerns are significant because MIS must be a useful local planning tool if it is to be useful tool for Federal policy.

⁶³ Salvucci, Verbal communication. April 2, 1997.

⁶⁴ Pederson in “Conference on Major Investment Studies in Transportation (MIS).”

⁶⁵ Pederson in “Major Investment Studies.” Taped Proceedings of the 76th Annual Transportation Research Board Meeting.

⁶⁶ The majority of issues discussed here are drawn from “Conference on Major Investment Studies in Transportation (MIS).” Those which are drawn from other sources are duly noted.

There are several sources of local challenges. As explored in previous sections, there are a number of aspects in MIS which may require resolution at the policy level. Until this occurs, however, these problems will have to be addressed at the local level. MIS represents a new process which requires rethinking standard approaches. Additionally, the flexibility of MIS implies that details of study design and execution must be locally determined which may require difficult decisions. The local challenges can be divided into those related to establishing roles and responsibilities of study participants, those related to study design, and those that are technical.

4.3.1 Establishing Roles and Responsibilities of Participants

- **Study leadership** – Choosing an effective leader for an MIS is critical to the integrity of the process. This is so not only because of the potential for modal bias or the perception of bias but also because the ability to sustain a lengthy, participatory process will require a widely accepted leader.
- **Managing consultants** – Consultants will be an important source of experience and technical knowledge for MIS. A strong dependence on consultants will also require public agencies to make extra efforts to manage the studies effectively. Unlike most regional agencies, consulting firms have worked on a large number of MISs in diverse geographical regions and have quickly developed expertise. Though the experience of consultants should inform individual MISs, it is critical that sponsoring agencies also understand the process so they can effectively direct the consultants.
- **Engaging desired participants** – Even though MIS provides incentives to include a broad range of participants, local jurisdictions may find it a challenge to do so.
 - Political cycles are shorter than study timelines; this may create a disincentive for participation either because the study will not be completed during a given term or because a newly elected official will have to step into a pre-existing process which has been influenced by his or her predecessor.
 - Practice to date has shown that resource and permitting agencies are reluctant to participate due to the lack of detail in MIS. This challenge has policy implications as well as practical implications; however, until satisfactory measures are taken at the policy

level, local jurisdictions must find a way to engage these agencies in order to scan effectively for environmental concerns. One possible approach is to develop memoranda of agreement outlining study-specific roles and responsibilities.

- Preexisting working relationships will naturally affect the degree to which inter-jurisdictional agencies are willing to work together on the same study. With luck, the MIS process can establish new precedents for cooperation; however, preexisting barriers must first be overcome.
- **Engaging the public** – Even if MIS has some natural advantages for engaging citizens, managing an effective public participation process remains one of the most significant local challenges throughout the planning process. Study sponsors must be prepared to use non-traditional means to engage the public (perhaps focus groups, small community meetings, or cable television). Furthermore, if public participation is to be meaningful, study sponsors will have to learn to communicate large amounts of technical information to the public.

4.3.2 Study Design

- **Delineating study boundaries** – The boundaries of the study must be established at the very beginning of the process in order to delineate which concerns fall within the study and which fall outside it. Important boundaries include geographical limits, the range of alternatives to be considered, and the scope of economic and social impacts to be considered. Of course, if compelling evidence arises during the study that the boundaries have been set too narrowly, they should be expanded. Establishing clear boundaries is essential to creating a manageable process and addressing relevant concerns.
- **Defining decision-making points** – It will be a challenge to establish decision points in a manner which not only encourages participation and reaps the benefits of broad input but also allows the process to move along from one stage to the next. For example, one must at some point stop accepting additional alternatives for consideration. Experience with MIS in Miami illustrated that it can be difficult to control this participatory process, particularly when study participants do not enter the process with clear objectives.⁶⁷

⁶⁷ Mirna Valdez in “Major Investment Studies.” Taped Proceedings of the 76th Annual Transportation Research Board Meeting.

- **Defining study closure and measures of success** – Because there is no Federal sign-off on MIS, it is up to study participants to define the end of the study and to set criteria by which to judge the degree of success.
- **Timing the study** – Experience to date has shown that timing of the study is critical. The study must be undertaken when there is consensus on the need for a study among the participants and when there is a reasonable likelihood of being able to take action based on the results of the study. The latter consideration results from the highly public and participatory nature of the process. At the same time, understanding the potential for action may require the kind of information generated by MIS analysis. Juggling these two pressures will be difficult.

4.3.3 Technical Challenges

- **Developing and employing non-traditional evaluation criteria** – There is limited experience with multimodal and non-transportation evaluation criteria. For example, few regions have thought about or reached consensus on how to evaluate and compare multimodal, highway, and transit projects. To effect multimodal planning, regions must set aside traditional performance measures such as cost per new rider and intersection level of service, and must develop alternative multimodal measures. This requires that local stakeholders agree on which measures will be used in an MIS. Though some regions are beginning to use measures such as travel time savings and environmental and land use impacts, this transition remains a challenge.⁶⁸ Similar challenges inhibit the adoption of non-transportation project evaluation goals such as economic development, accessibility, and changes in land use. In the last case, the technical limitations of measuring these objectives may present an even greater challenge which further complicates the problem of reaching agreement on which measures to use.⁶⁹
- **Relating MIS to NEPA** – Until this relationship is resolved at the policy level, local jurisdictions will have to judge how best to relate the two processes. At this point, this

⁶⁸ Emerson in “Conference on Major Investment Studies in Transportation (MIS).”

⁶⁹ This is not as much of a problem for multimodal project evaluation criteria, for which DOT has offered guidance. A key factor is that the relationships between transportation and the other impacted systems (the environment, economic development, and land use) either are topics of hot debate or are poorly understood. These difficulties are discussed in more detail in Section 4.1.2.

probably may require linking the MIS process to the EIS process, similar to Option 1.5 presented above.

- **Relating MIS to the Long Range Plan** – Until there is additional direction at the policy level, the two issues of pressing local concern will be fiscal constraint and air quality conformity. Determining whether and how to use placeholders presents issues such as whether assumptions of design concept and scope indicate predetermined solutions and to what extent they constrain long range planning. Regions will also have to determine to what extent the MIS process itself should be fiscally constrained by limiting the alternatives under study. Air quality analysis presents similar questions.
- **Consistency among multiple, simultaneous MIS** – Coordination among independent, contemporaneous MIS is particularly important when there may be interaction among the corridors under study. It will be important to understand how alternatives considered in one study may affect those under consideration in the other. Furthermore, it may be appropriate to consider using consistent guidelines in structuring the study as well as in developing study goals and objectives and evaluation procedures.
- **Determining trigger criteria or thresholds for major investments** – Because no criteria are established at the Federal level, local jurisdictions are left to determine what constitutes a major investment. This either can be approached in a case by case fashion or may be established in local MIS procedures.

The development of regional MIS procedures can be a useful mechanism for addressing these challenges. Several regions have pursued this, although it is not required by the regulations.⁷⁰ Usually, regional procedures are developed through a cooperative process involving the MPO, local implementing agencies and the State DOT. Given the difficulties experienced in trying to involve environmental agencies in the MIS process, it would be valuable to try to include them in developing general procedures. Developing regional procedures has several advantages: They require local agencies to begin thinking about what the MIS requirement is and how to apply it outside the context of a specific study; perhaps this way some of the difficult questions such as

⁷⁰ The FTA/FHWA joint planning reviews found that the following regions have developed MIS procedures: Northern New Jersey, New York City, Honolulu, San Francisco, Seattle, Dallas, and Cleveland. The reviews

developing non-traditional evaluation criteria can be addressed in a general fashion. They provide a local frame of reference and therefore probably promote some consistency in the local MIS process; this may aid in local understanding of the process.

4.4 Summary and Recommendations

The emphases in MIS on collaboration among agencies and the use of broad goals and objectives have the potential to further the three policy goals of increasing local input, incorporating non-transportation concerns, and equalizing the consideration of transit. MIS also offers improved mechanisms for integrating both local and non-transportation concerns into the planning process and makes significant strides in reducing the disadvantages faced by transit. Still a number of tensions remain in the planning process to limit the benefits which MIS can achieve in these respects.

It should be emphasized that the accomplishment of MIS is that, through these features, the process provides additional opportunities to increase local input, incorporate non-transportation concerns, or equalize consideration of transit. The MIS requirement, like most of ISTEA, probably will not greatly change practices in regions where there is no established interest in these principles, but it does offer greater opportunities to leverage them where there is a critical level of interest and some additional justification is necessary. There may be several explanations for this: it may result partly from the combination of flexibility and local decision-making authority and the unequal information available to Federal enforcement agencies under these circumstances; it may reflect the slow rate at which institutional culture changes in both local agencies and in FTA and FHWA regional offices; finally, it may result from the hesitancy with which FTA and FHWA have used the punitive enforcement tools available to them. For example, FTA and FHWA have not used the certification process to its full extent.

It appears that the requirement's emphases on local decision-making and flexibility may be less effective in the short run. The high degree of flexibility in MIS contributes to a general sense of uncertainty about Federal expectations and Federal decision-making responsibilities, which can

generally praised these efforts and recommended that other areas, such as Salt Lake City and Miami, undertake

reduce the overall effectiveness of the requirement until reliable precedents have been established. It is likely that FTA and FHWA can offer some relief to this short run tension by more clearly articulating their expectations. It is also true that the relationships of MIS with the long range planning and environmental review process are complicated by a number of tensions that may reduce the overall usefulness of the requirement.

Recommendations

Analysis of the MIS requirement shows that there are a number of issues which require resolution at the Federal level. Some of the factors identified above suggest making changes to the MIS requirement. Several of the factors call attention to tensions which, existing outside the MIS process, nevertheless may merit further thought or, occasionally, action. For these issues, impacts on the MIS process, may provide a starting point for discussion of the more fundamental issues. Finally, some aspects of MIS probably should not be changed now, but should be monitored for the future.

Changes to the MIS requirement are merited:

- The question of how MIS relates to NEPA and the environmental review process is probably the most serious tension facing MIS at this time because it has immediate consequences at the local level. Three aspects of this relationship need to be addressed in concert:
 - How can the MIS and EIS processes be structured to eliminate any legal conflicts?
 - What degree of specificity is required in the regulations to reduce uncertainty about legal conflicts and thus make MIS more useful at the local level? The answer is almost certainly a greater degree of specificity than that which currently exists.
 - How can we involve environmental resource and permitting agencies in the MIS process where analysis occurs at a lesser level of detail than that to which they are accustomed? In the short run, it may be wise for transportation agencies to draft MOUs with the environmental agencies to outline roles and responsibilities for individual studies. In the long run, it may be appropriate to designate specific roles for these agencies through environmental regulations as well as in the MIS regulations.

“Option 1.5” is one model for beginning to solidify this relationship. In this 3-step model, the EIS process is initiated prior to starting the MIS. The first step in the entire process is an MIS which is used to develop a large number of alternatives, scan for “fatal flaws,” and develop a general sense of impacts. The second step is a traditional-style DEIS which is followed eventually by an FEIS. The goal of Option 1.5 is to bring the MIS into the NEPA process, by linking it with the EIS while also preserving the broad level of detail as well as the collaborative and participatory nature of MIS.

- Completion of an MIS should be sufficient to allow the use of Federal funding to purchase right-of-way for reservation.
- The regulations should perhaps be more specific regarding MIS and fiscal constraint: the use of placeholders should not become an excuse for failing to revisit strategic planning decisions; and the alternatives considered in MIS should not be limited by the fiscal constraints established in the Plan.
- As it currently stands, MIS does less than it could to address the question of “political reality” projects. This is consistent with the entire framework of the urban transportation planning process. It may be useful for FTA and FHWA to establish some guidelines for when and how it may be legitimate to use the MIS process to consider such projects.

External tensions which impact MIS and merit independent attention:

- There is a general tension between Federal programs and the increasing emphasis on local (metropolitan) decision-making. This tension is particularly evident and perplexing in the case of discretionary transit funding which, though intended to help transit, both poses conflicts with local decision-making authority and requires differential and frequently disadvantageous treatment of transit.
- There is a high degree of continuing modal bias or, at least, differential treatment of highway and transit, which tends to place transit at a disadvantage. The joint MIS process will not be meaningful as long as local modal bias and differences in agency culture create an environment which is ill-prepared to think about the trade-offs between highway, transit, and multimodal alternatives.

- The relationship of MIS with fiscal constraint may have unintended, negative consequences for the planning of large-scale projects. FTA and FHWA should consider officially endorsing the 2-track method.
- The degree to which the impacts of the requirement will depend on interpretation and enforcement by FTA and FHWA field offices may present a problem from a Federal standpoint. Not only do FTA and FHWA have different agency cultures which may push the process in different directions for transit and highway alternatives but there may also be substantial regional variation. This is a real cost of flexibility from a policy standpoint. At the local level, it accentuates the level of uncertainty.

Other actions:

- The local challenges in MIS arise because the process is rigorous and new, in addition to the fact that some tensions still must be resolved at the policy level. Every effort should be made to share local experiences with MIS in order to assist regions in meeting the range of local challenges associated with the process. FTA and FHWA could provide in-depth case studies addressing specific issues as well as a clearinghouse for information about implementing MIS.⁷¹
- FTA and FHWA should promote research to establish useful multimodal evaluation criteria and further our understanding of the relationships between transportation and economic development and land use.

Wait and see:

- Uncertainty about Federal interests is caused by the large degree of flexibility. This suggests that interpretation and enforcement of the requirement will play a strong role in determining how many of the factors identified in the analysis will play out in the end.
- Probably no general action should be taken to reduce the level of flexibility in MIS because it is so difficult to judge the optimal level of flexibility in the short run, and in the long run, a

⁷¹ This recommendation also appears in “Conference on Major Investment Studies in Transportation (MIS).”

higher degree of flexibility will probably be advantageous. However, procedures for relating MIS to NEPA and fiscal constraint provide two exceptions:

- It may still be worthwhile to issue additional, non-regulatory guidance to reduce the level of uncertainty about Federal expectations and strengthen the potential for local leverage of policy principles through MIS. Additionally, strong leadership from FTA and FHWA headquarters should be employed to help standardize interpretation and enforcement efforts among regions and FTA and FHWA field offices.
- There is likely to be a high correlation between those areas willing to leverage the principles in MIS and those which will do better with flexibility. In this case, some regions may do very well with flexibility, while a large number of areas struggle for extended periods. This suggests the benefits of flexibility may be unequally distributed.

5. MIS in the Context of Tren Urbano

Until now, this work has concentrated on evaluating the MIS requirement as a tool for Federal policy. With this chapter, we turn our attention to applying MIS at the local planning level because, ultimately, MIS must be useful as a local planning tool if it is to be a useful tool for Federal policy. This chapter considers the application of the MIS process in San Juan, Puerto Rico where the construction of Tren Urbano, a new mass transit system, is just underway.

The analysis in this chapter serves dual purposes. First, we wish to develop a sense of how the MIS requirement may be useful as a planning tool at the local level. Because it is difficult to develop this understanding in a general sense, we have chosen the specific context of the Tren Urbano extension corridors. Second, we aim to provide information which can help guide the design and execution of MISs in this context. Hence, this chapter explores the opportunities and concerns which may arise in applying MIS in the Tren Urbano extension corridors and offers recommendations for addressing them. To these ends, Chapter 4 has set the stage for the analysis in this chapter through its discussions of the strengths, tensions, and local challenges which are associated with the MIS process.

Section 5.1 presents background information on the San Juan region and the current and future phases of Tren Urbano. Section 5.2 discusses general opportunities and concerns which arise when thinking about using MIS in the context of Tren Urbano expansion. In Sections 5.3 and 5.4 we take a closer look at applying the MIS process to particular extension corridors. Finally, we summarize the analysis and our recommendations in Section 5.5.

5.1 Background

5.1.1 The San Juan Region

The San Juan Metropolitan Area (SJMA) is the capital region and the primary economic center of Puerto Rico. Located on the north coast of Puerto Rico, the San Juan Metropolitan Area has historically been characterized by dense, concentrated development and more recently by increasing suburbanization. Within the thirteen municipalities in the region, population and jobs are further concentrated in the three municipalities of San Juan, Bayamón, and Carolina. Most of

the region's major employment and activity centers are located along a single, continuous, high density "spine" which runs north and south through the municipality of San Juan. This spine, shown in Figure 9, has traditionally been the focus of the region's transportation system and is also the focus of the first phase of Tren Urbano.

Rapid economic growth and the dominance of suburban-style development since the 1960s has also been accompanied by a transition to an auto-dependent transportation system which is characterized by high levels of congestion. Increasing income levels have contributed to a rise in auto ownership and usage which have combined with dense development and poor road connectivity to create severe congestion in the urban centers and on major highways and arterials. Projected growth in population and employment suggest congestion will continue to worsen, particularly in San Juan, Bayamón, and Carolina where much of the future growth is expected to occur.⁷²

Increasing auto dependency and road congestion have contributed to the deterioration of the region's transit system. The existing regional transit network consists primarily of two bus systems and an extensive público system. Bus services provided by the Metropolitan Bus Authority (Spanish Acronym AMA), the primary transit operator, are typically characterized as infrequent, indirect, and unreliable. In late 1991, contracted bus service, called Metrobus, was introduced to improve transit service. Metrobus service has since expanded, and today includes high frequency bus routes in the high density corridors which will be served eventually by Phase 1 of Tren Urbano.⁷³ Privately owned, jitney-style services called públicos provide other significant transit service in the region, carrying approximately 65% of daily transit trips.⁷⁴ Público service is oriented to work trips with very limited service in the evenings and weekends. The públicos are regulated by the Public Services Commission which sets routes and fares but

⁷² Barton-Aschman Associates, Inc. *San Juan Regional Transportation Plan*, March 1993.

⁷³ Route 1, between Río Piedras and Old San Juan, is contracted to a private operating company and uses exclusive, contra-flow bus lanes. Route 2, between Bayamón Center and Hato Rey, is operated by AMA under an independent contract.

⁷⁴ FTA and Puerto Rico Highway and Transportation Authority (PRHTA), *Final Environmental Impact Statement, Tren Urbano, San Juan Metropolitan Area*. Puerto Rico: PRHTA, November 1995.

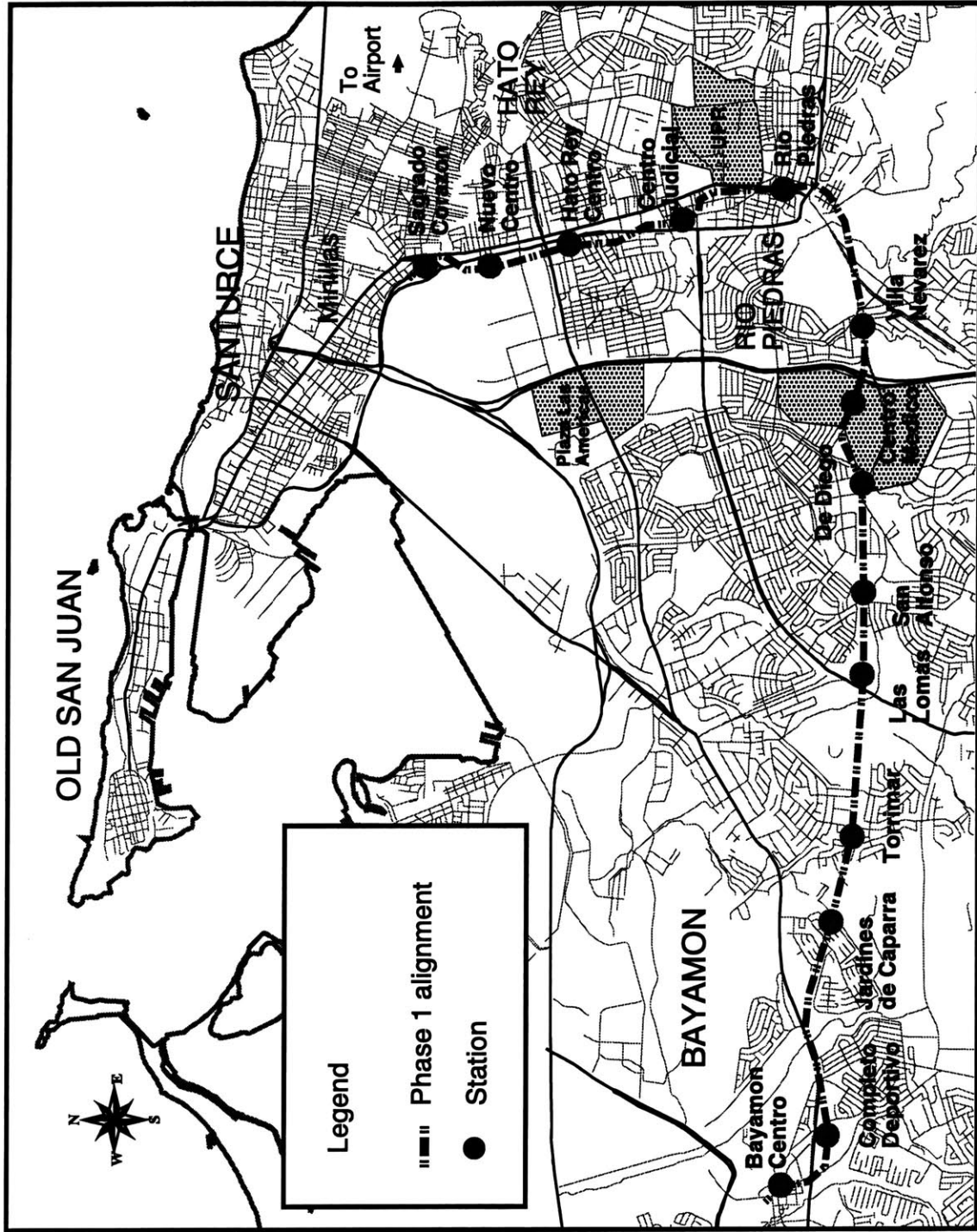


Figure 9: Phase 1 of Tren Urbano

not hours of service. These poor levels of transit service severely limit the mobility and accessibility of transit-dependent populations.

Recent transportation policy has embraced revitalization of the region's transit system as a means of slowing the growth of auto congestion, averting decline of the urban centers, and increasing the mobility of low-income groups.⁷⁵ Like many metropolitan areas in the U.S., San Juan has determined that expansion of roadway capacity in urban centers is not sustainable. To date, concern at the policy level has centered on the decline of the urban centers and the economic impacts of road congestion. It is believed that if unmitigated, future levels of auto congestion could amplify current trends in which new urban growth occurring on the fringes diverts resources away from the urban core. It is felt that this could cause economic hardship and hasten the decline of the urban centers.

The current Long Range Plan, dating from 1993, contains a policy statement that transit improvements will be the primary means of improving access to the urban core. To this end, work has been ongoing since 1993 on the Comprehensive Service Plan which aims to integrate and improve bus and público service based on high frequency trunk lines, feeder lines, and intra- and inter-modal transfers.⁷⁶ Additional transit planning efforts involve restructuring bus and público routes to provide feeder service to Phase 1 of Tren Urbano which is the centerpiece of this program tying improved transit service to the economic health of the urban centers.

5.1.2 The History of Tren Urbano

Expectations for Tren Urbano are multifaceted and quite high. As a centerpiece of the plan to improve access to the urban core and mitigate auto-congestion, Tren Urbano is expected to help stem the economic decline of urban centers in San Juan. It is hoped that the heavy reliance of Tren Urbano on feeder transit services will provide an impetus to improve overall service quality and improve the public image of transit on the island. Additionally, there is hope that by building

⁷⁵ It is estimated that 23% of families in the five largest municipalities do not own a car due to income constraints. Given the relatively low quality of the available transit services, this may reduce access to jobs, education, and services. (In FTA and PRHTA, *Final Environmental Impact Statement, Tren Urbano, San Juan Metropolitan Area.*)

⁷⁶ The Comprehensive Service Plan was developed for Puerto Rico Highway and Transit Authority by a consulting firm, Multisystems, Inc. A first stage of the Plan has been completed and is in the early stages of implementation.

transit planning and operation expertise, Puerto Rico may develop knowledge and skills which may be exported to other countries in Latin America.

The use of a high capacity rail system in the high density residential and commercial areas of the San Juan region has been the focus of planning studies over a span of nearly 30 years. The first mention of a regional rail system appeared in the 1967 Long Range Transportation Plan. In 1969, the region undertook an Alternatives Analysis to study a single 24 kilometer rail line running from Bayamón to Río Piedras and then serving the high density spine in San Juan. Though plans for regional rail were put aside for a few years, this segment, called the Bayamón Crescent, eventually reappeared in the region's 1981 Long Range Transportation Plan and was again included in the three-phase light rail system proposed in the 1993 Long Range Transportation Plan. The current system proposal has evolved from the 1993 concept into a four-phase regional heavy rail system.

5.1.2.1 Phase 1

The first phase of Tren Urbano is currently under construction. Phase 1 is based on the Bayamón Crescent included in the 1981 Plan and runs from Bayamón in the west through Río Piedras, to Santurce in the north. (See Figure 9.) This segment was chosen as Phase 1 for several reasons. First, ridership is expected to be high since most of the region's population is concentrated to the west of San Juan toward Bayamón. Second, much of Phase 1 between Bayamón and San Juan is planned in the existing, unused right-of-way originally reserved for the 65th Infantry Highway; therefore the segment could be implemented relatively quickly and inexpensively. Third, planning and implementation of the segment could be (and in fact was) further accelerated because it was already included in the region's long range transportation plan and had been extensively studied.⁷⁷ In order to expedite the project, Phase 1 is being implemented as a Design-Build-Operate turnkey project. The Final Environmental Impact Statement for Phase 1 was completed in 1995. In 1996 the systems and operations contract and the first of several construction contracts were issued, and initial construction began.

As currently planned, the Phase 1 system will serve 14 stations over 16.9 kilometers beginning in 2001. Trains will offer service over extended hours and at high frequencies, representing a vast improvement over current levels of transit service in the region. The system will rely heavily on transfers with feeder and distribution services. Thus basic improvements in the existing transit system, such as those exhibited by Metrobus and planned in the Comprehensive Service Plan, are fundamental to the success of the rail system.

Capital costs for Phase 1 are estimated to be about \$1.2 billion of which FTA has agreed to provide approximately one-third. Of the remaining two-thirds, approximately one-third will come from flexible US DOT formula funds and one-third from Puerto Rico Highway and Transportation Authority (PRHTA) revenues which include fuel taxes, tolls, and vehicle registration fees.

5.1.2.2 Future Phases of Tren Urbano

Now that the planning for Phase 1 is essentially complete and implementation under contract, attention is turning to the rest of the Tren Urbano system. The current system concept presented in the EIS and shown in Figure 10 is referred to as the “sideways H.” The proposed system consists of the Phase 1 Bayamón Crescent, a second phase extension to Carolina, and third and fourth phase extensions to Old San Juan in a northwest corridor and to the Luis Muñoz Marin International Airport in a northeast corridor. Preliminary projections suggest that the combined cost for the three future extensions will be approximately \$2 billion.⁷⁸ The current system concept was developed in 1994 based on the concept included in the 1993 Long Range Plan. The system proposed in the 1993 Plan consisted of the Phase 1 Bayamón Crescent, a second phase to Carolina, and a third phase to Caguas in the South. The Caguas extension was eliminated in 1994 due to low ridership projections. At this time the northern extensions to the Airport and Old San Juan were added but without extensive study or public discussion.

⁷⁷ Because an Alternatives Analysis had been completed for the Bayamón Crescent in 1969 and has consistently appeared in regional Plans, FTA allowed Phase 1 to proceed with the DEIS without another Alternatives Analysis. When the Notice to Proceed with the DEIS was issued in February 1993, the MIS requirement was not yet effective, so no MIS would have been required.

⁷⁸ Allen D. Biehler, Director of Planning, GMAEC. “Memorandum on the Proposed Adjustment to 1997-98 Tren Urbano Work Program.” March 12, 1997.

Carolina is the only currently proposed extension which has been studied in any detail. The Carolina extension was included in the original 1967 proposal and then again in the 1993 Long Range Plan. The extension is currently envisioned as an elevated structure running mostly in the PR-3 right-of-way. This extension is proposed as a second phase because, similar to the Bayamón extension, it has reasonably high ridership projections and is better developed than the other extensions.

In contrast to the Carolina extension, the extensions to Old San Juan and the Airport have not been rigorously studied or subjected to public scrutiny.⁷⁹ Old San Juan is an attractive terminus for the system because it is the cultural heart of Puerto Rico and a major destination for recreational trips by tourists and residents alike. In addition, this historic area has narrow streets which are easily congested and not well suited for auto traffic; so the concept of serving this area by rail transit is quite appealing. By serving the Airport, Tren Urbano can hope to capture some of the business travel market, work trips, and possibly some tourist trips.

There has also been great interest in pursuing immediately a very short extension to Minillas from the current terminus of Phase 1 at Sagrado Corazón. Minillas, which lies less than two kilometers north of the Sagrado Corazón station on the way to Old San Juan, is an important government and commercial center. The extension to Minillas is estimated to cost between \$250 and \$350 million.⁸⁰ This segment was not originally included in Phase 1 because doing so would have delayed the environmental review process, and completing this process in an expeditious manner was viewed as critical to the success of the project.⁸¹ Indeed, there may be both ridership and political justification for extending Phase 1 to Minillas as the first step in system expansion.

⁷⁹ Though the sideways H was presented in the DEIS and FEIS for Phase 1, little space was devoted to the system as a whole. Not surprisingly, public commentary focused primarily on Phase 1 and not on the broader system. It is still unclear to what extent the public views Tren Urbano as a system beyond Phase 1.

⁸⁰ Biehler, "Memorandum on the Proposed Adjustment to 1997-98 Tren Urbano Work Program."

⁸¹ The project sponsors and the governor at the time, Rafael Pedro Roselló, wanted to advance the project to an "irreversible" stage so that even if Governor Roselló was not reelected in 1996, the project still had a good chance of being built. As it happened, the governor was reelected for a second four year term.

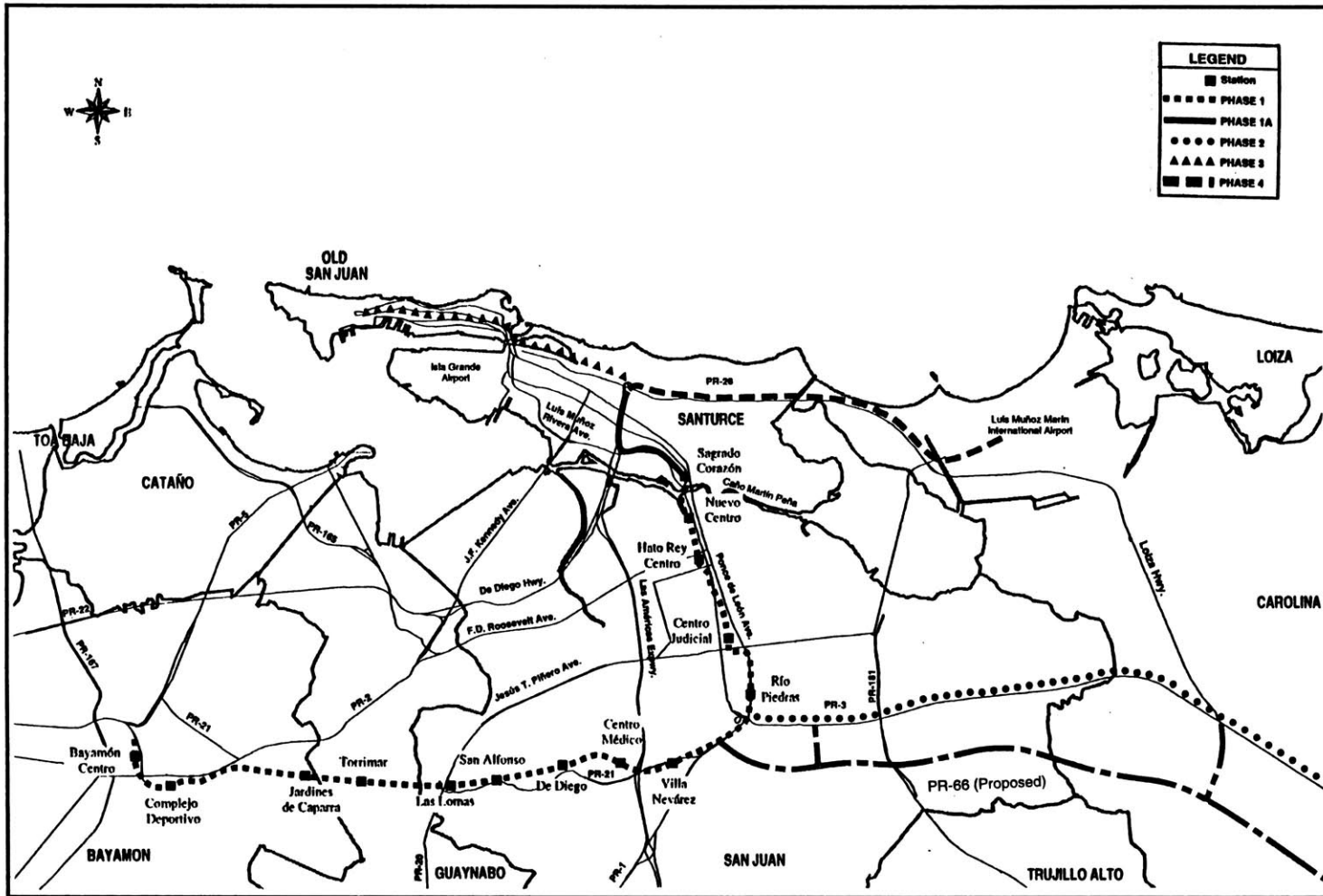


Figure 10: The Tren Urbano System Concept ⁸²

⁸² FTA and Puerto Rico Highway and Transportation Authority (PRHTA), *Final Environmental Impact Statement, Tren Urbano, San Juan Metropolitan Area*.

Based on the argument that service to Minillas has been included in previous studies, San Juan is hoping to receive approval from FTA to treat the extension to Minillas as Phase 1A and to proceed with a Supplemental EIS (SEIS) rather than a full-fledged MIS and environmental review process. Minillas is also significant from a system perspective because it is the place where the alignment may branch to the Airport and Old San Juan extensions. Thus, technical decisions about the Minillas extension, such as elevation and alignment, may determine the possible future connections for the two northern extensions.

5.2 General Opportunities and Concerns for MIS in the Tren Urbano Context

As explored in Chapter 4, the MIS requirement offers opportunities to strengthen local planning and, at the same time, introduces new complexities. This section examines these issues for the application of MIS to the Tren Urbano extension corridors. Our focus in this section is on the opportunities and complications which apply to all the proposed corridors or which may impact the relationships among the MISs for multiple corridors. In Sections 5.3 and 5.4 we will consider in more detail specific opportunities and concerns which arise in applying MIS to the Carolina, Airport, and Old San Juan extension corridors.

5.2.1 Issues which Simplify

Two issues which usually complicate the MIS process simplify in the San Juan case. The first is a question of institutional organization and cooperation. The second is related to air quality conformity.

The transportation planning and implementing agencies in Puerto Rico are centralized under the Secretary of Transportation. The Secretary heads the Department of Transportation and Public Works (DTOP) which in turn has authority over the Puerto Rico Highway and Transportation Authority (PRHTA) and the Metropolitan Bus Authority (Spanish acronym AMA). Over the years the DTOP and PRHTA have become entwined so that in many ways they operate as a single entity. Indeed, DTOP has delegated many of its transit planning responsibilities to PRHTA: PRHTA handles the Metrobus contracts and will own Tren Urbano and is directing the associated planning efforts. PRHTA also acts as the Metropolitan Planning Organization for the

San Juan region. Ultimately, the Secretary directs (primarily through PRHTA) almost all transportation planning efforts including the planning and construction of roads and highways, the development of regional transportation plans, and the implementation of the mass transportation policy.⁸³

The multimodal nature of PRHTA positions it favorably as a lead agency for the MISs. To the extent that the Secretary's policy can constrain competition within PRHTA between highway and transit interests, especially Tren Urbano, this centralized structure may alleviate the usual difficulties in getting implementing agencies to communicate with each other. Similarly, the breadth of PRHTA's responsibility for planning and implementation may establish continuity among long range planning, the MISs, and later project development in the DEIS and FEIS.

Additionally, because the SJMA is an attainment area for all the National Ambient Air Quality Standards, San Juan need not worry about how MIS relates to air quality conformity. As an attainment area, San Juan's Long Range Plan and TIP are not required to meet EPA conformity standards. This fact removes one complication of integrating MIS with the Plan.⁸⁴

5.2.2 Opportunities

MIS presents several opportunities in the case of the Tren Urbano extension corridors: planning opportunities; leveraging the MIS principles of participatory planning and employing broad goals and objectives; and reserving the option to pursue Federal funding assistance. Of these, the leverage opportunities are most directly related to the policy strengths of the MIS requirement discussed in Chapter 4.

5.2.2.1 Planning Opportunities

To date almost no analysis has been conducted in support of Tren Urbano system planning or basic planning of the future extensions. System level analysis is needed to double check the

⁸³ Carlos A. Colón. "Tren Urbano – An Experience in Value Creation," Presented at UPR/MIT Tren Urbano Program. January 8, 1997.

⁸⁴ San Juan would lose this advantage if CO₂ standards were to be established, as is currently being considered by the Clinton Administration. However this is not an immediate concern as it would be some time before any such regulations were drafted and become effective.

currently proposed extension corridors, to scan for corridors which may have been overlooked, and to make preliminary decisions about extension priority. Basic extension planning is required for all three extensions: the Airport and Old San Juan extensions have not been included in any published studies except the Phase 1 EIS documents, and while Carolina was included in the 1967 and 1993 Long Range Plans, the extension still lacks the kind of corridor planning necessary to develop the project further. The MISs may also provide an opportunity to rework highway plans for corridors which overlap with the proposed Tren Urbano extensions; this may be the case in the Carolina/PR-3 corridor, as discussed below.

The MIS process offers opportunities to perform analysis to support both activities. The Tren Urbano office is currently undertaking some pre-MIS analysis activities associated with the Minillas SEIS and designed to inform system planning questions. By informing system planning, the pre-MIS analysis can be an important tool for designing a set of MISs to address basic extension planning. The pre-MIS activities should also provide important input to the Long Range Plan update which is due to occur in the near future. There is some chance that the update will be initiated this summer; more likely, it will be initiated between the pre-MIS and the first of the MISs. By allowing the updated Plan to reflect the results of the pre-MIS analysis, this timing would provide a sound, consistent background for the MISs.

A model for relating the pre-MIS, SEIS, Plan update, and the MISs is shown in Figure 11 and described in more detail below.

Pre-MIS: Informing System Planning and MIS Design⁸⁵

Pre-MIS activities offer the chance to gather information about the proposed extension corridors and make system planning decisions which can help guide the design of a set of MISs as well as the Long Range Plan update. Issues to address in the pre-MIS analysis include: extension priorities, including Minillas; additional corridors which may deserve consideration for rail service; and the range of technologies to consider in the MISs.

⁸⁵ For a more complete discussion of the factors likely to influence system planning (or phasing) options see Cathal Ridge, *A Study of Rail Transit System Phasing and Expansion Decisions*. Thesis submitted for a Master of Science in Transportation, Massachusetts Institute of Technology, May 1996.

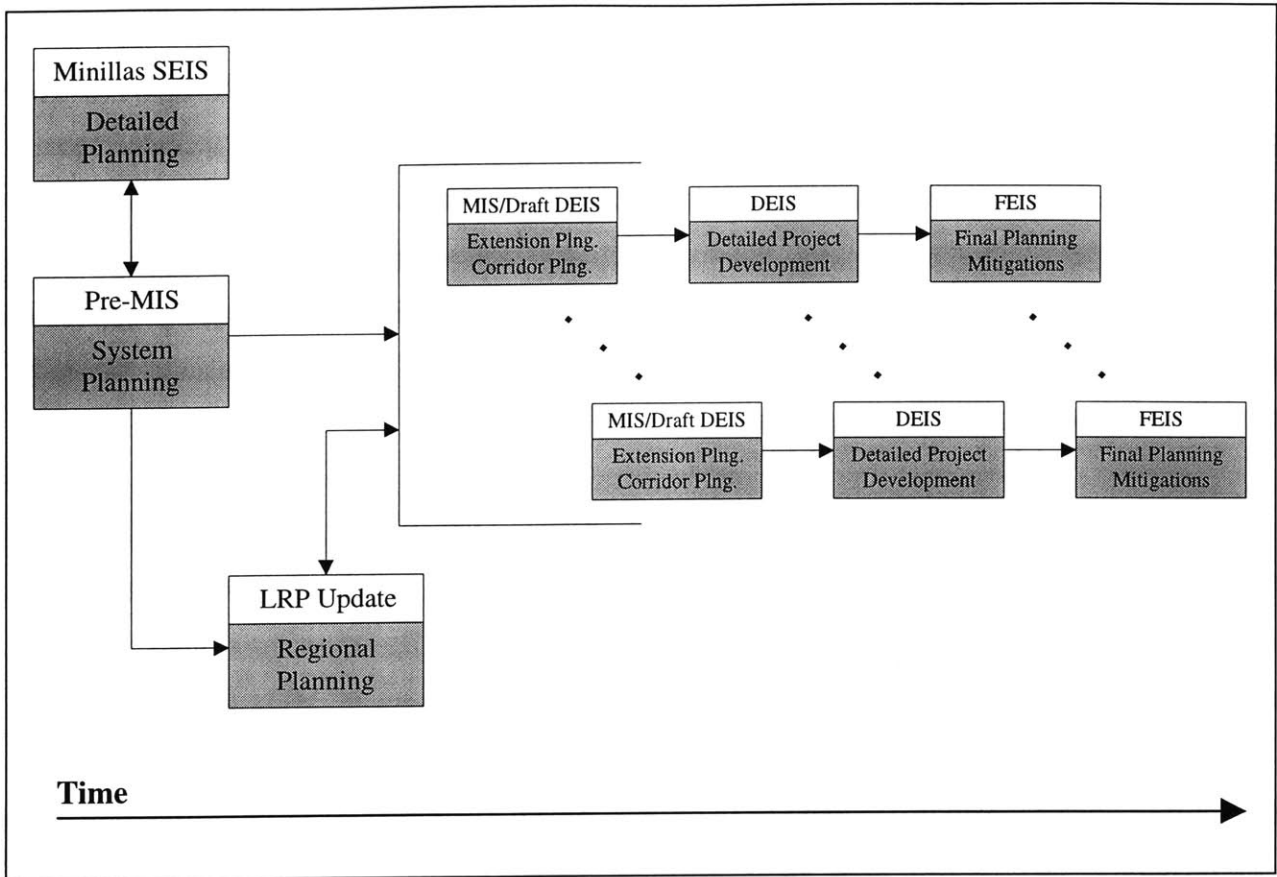


Figure 11: Relationship Among Pre-MIS, MIS, and Plan Update

The concept of pre-MIS analysis is useful because it allows planners to gather and process information in a forum which is not highly public. The intent is not to hide information, as most of it will eventually become public during the MISs; rather, the less public pre-MIS analysis may facilitate more effective management of the MISs by directing attention to the most viable alternatives in the MISs themselves. The pre-MIS analysis can also be useful for addressing system planning issues which span multiple corridors and thus do not fit neatly into the MIS framework. In the case of San Juan, the pre-MIS activities should be used to inform the Plan update.

A critical system planning question which needs to be answered before starting any of the MISs is how the Minillas extension affects more general system expansion plans: should the Minillas extension be pursued prior to the Carolina extension? The answer to this question is probably yes. The current thought is that FTA's offer to complete an SEIS for the Minillas extension

represents an extraordinary opportunity to advance this segment of the system. Since the shelf-life of the SEIS is five years, there is little to lose by starting it now, while the other options are explored. Furthermore, the SEIS process would take several months whereas an MIS for any of the full extension corridors, including Carolina, would probably take 1.5 to 2 years.⁸⁶ This suggests that while it may be possible to secure Federal funding assistance for the Minillas segment in the upcoming reauthorization of ISTEA, this could not be done for any of the other proposed extensions.⁸⁷ The Tren Urbano office has responded to the Minillas opportunity by starting work on the Minillas extension concurrent with preliminary investigations of the Carolina extension. This is a sensible approach which will allow a comparison of the Minillas extension with a minimal operable segment in the Carolina corridor in case decision-makers wish to double check whether Minillas is a reasonable next step.

Decisions about the Minillas extension also have technical implications for the Airport and Old San Juan extensions. For this reason, pre-MIS work and the SEIS will be combined with preliminary analysis of these two extensions as well as the Carolina extension. At a minimum, the pre-MIS analysis can inform the extension priority debate and thus determine the appropriate order for undertaking the MISs.

Additionally, before starting extension planning for the three currently proposed corridors, it is worthwhile to consider whether there are other corridors which deserve serious consideration for rail service. Three corridors immediately come to mind:

- It is possible that the Carolina extension should follow PR-26 (the Loíza Expressway) north from Carolina to the Airport and then link up with what has been proposed as the Airport extension rather than running along PR-3 into San Juan. (See Figure 10.) This corridor is not intuitively as attractive as PR-3, but it deserves at least a preliminary scan since it may serve trips between Carolina and the Airport while possibly lengthening only slightly the running time between Carolina and Minillas.

⁸⁶ Biehler, "Memorandum on the Proposed Adjustment to 1997-98 Tren Urbano Work Program."

⁸⁷ Salvucci, Verbal communication, May 13, 1997.

- The current system concept does not serve Plaza Las Americas and the adjacent sports stadium. Plaza Las Americas is a major shopping mall and development site and is an important regional destination. Plaza Las Americas is located less than one mile to the west of the Hato Rey Centro Station, making it a difficult location to serve from the Phase 1 alignment. (See Figure 9.) The most interesting possibility for serving this area involves running a parallel line in the Plaza Las Americas corridor south from the Phase 1 alignment in Santurce. Such a line might stop at Plaza Las Americas or might continue directly south to Centro Médico.⁸⁸
- It may also be desirable to revisit the decision not to serve Caguas. This line was eliminated in 1994 due to low ridership projections and was replaced by the Airport and Old San Juan extensions. At the time, the newly proposed extensions had not been modeled or studied in any detail. It may be worthwhile to bring all three proposals to a common stage of development in the pre-MIS in order to make a better comparison.

Finally, the pre-MIS activities can provide a forum for deciding whether San Juan should consider light-rail alternatives in the MISs for lower-demand corridors. Light rail technology is often a sensible, lower-cost alternative for serving corridors where transit demand is higher than can be accommodated by traditional bus service but not high enough to merit investment in heavy rail. However, it may not be advantageous to introduce light rail technology for the proposed extensions in the San Juan case. Since Phase 1 will be a heavy rail system, introducing a second technology will complicate system operations and maintenance. Additionally, light rail technologies have the greatest cost advantages when they can be built at grade: if the proposed extensions are likely to require a good deal of grade separated track, it is not clear that the capital cost savings will outweigh the complications associated with adding a new technology.⁸⁹ Finally, due to the complications of introducing the new technology, it makes no sense to do so unless there is a possibility that light rail can be used for either a long extension or for more than one extension. The pre-MIS analysis, which will include scanning all the reasonable extension corridors and the associated right-of-way requirements, may allow San Juan either to exclude

⁸⁸ Shelly Fialkoff, General Management Architecture and Engineering Consultant. Verbal communication. April 2, 1997

⁸⁹ Salvucci, Verbal communication, May 13, 1997.

light rail alternatives from the MISs, or to decide that they are reasonable alternatives if feasible in multiple corridors.

The MIS requirement may, in fact, be flexible enough to conduct a set of tiered MISs. We could start with an “umbrella” MIS considering the entire extension area and follow with individual corridor MISs. The umbrella MIS could be useful to consider system goals and objectives and to address the concerns we have categorized as pre-MIS issues. If conducted as an umbrella MIS, the pre-MIS analysis might provide enough of a basis to expedite MISs for the individual corridors. But the concept of tiered MISs may heighten some of the complexities associated with MIS, and it is not clear that this is a good model. For example, what are the implications of considering all the extension corridors in the highly public forum of the MIS? This could create public expectation before there is enough information to understand the basic possibilities and limits posed by technical, political, and financial factors. It may also be difficult to sustain broad participation through the various levels of studies.

MIS: Basic Extension Planning

The actual MISs themselves offer the opportunity to undertake basic planning required to evaluate the proposed extensions and the other opportunities in these corridors. Because there has been limited analysis of the three proposed extensions, MIS offers an opportunity to develop viable alternatives for rail and transit service. The planning opportunities associated with the MIS process underline the usefulness of a corridor planning tool in which analysis is conducted as an intermediate level of detail, greater than that in long range planning and less than that in the traditional EIS process. Whereas the pre-MIS activities would not be highly public, the MISs themselves would involve extensive public participation.

Examples of some of the basic planning questions to be answered in MIS are:

- What are reliable projections of ridership, capital costs, and major impacts (especially land requirements)? Is a given extension justified?
- Are there multimodal opportunities in the corridor which have not been given due consideration? MIS is an appropriate forum for considering whether to modify

highway extension plans in the Tren Urbano extension corridors. (e.g. exclusive bus lanes, roadway improvement plans that might be altered due to the rail extensions)

- Should a given extension be developed in minimum operable segments or as a single project?
- What is the appropriate terminus for each proposed extension and where should stations be considered?
- How can the extensions connect physically and operationally with Phase 1?
- What interim steps can be taken in each corridor prior to initiating rail service to make people in a corridor more receptive to the high-quality transit service which will arrive eventually with Tren Urbano? Also, what interim services will help make a phasing strategy more acceptable politically?

Following the recommendations in the previous chapter, the MISs may be conducted following “Option 1.5.” The MIS could serve as a “Draft DEIS” and be followed by more detailed project planning in the DEIS and FEIS. PRHTA, as the planning and implementing agency, is the natural agency to lead the studies.

5.2.2.2 Leveraging MIS Principles

Chapter 4 illustrated the strength of MIS in promoting the incorporation of non-transportation goals and objectives and local input through the MIS features of a participatory and cooperative process and broadened goals and objectives. The MIS process offers San Juan an opportunity to leverage these principles to create a stronger local planning process for considering the Tren Urbano extension corridors.

PRHTA could invite diverse local institutions and non-transportation agencies to participate in the MISs for the Tren Urbano extension corridors with the promise that their institutional interests will be considered valid input to the planning process. Furthermore, the agencies may know that the MIS regulation establishes a basis for their participation. A major benefit which we expect to accrue as a result of broad agency participation is the ability to generate robust, preferred alternatives for each extension corridor. A robust alternative would be one which is

widely supported and has already been tested against the range of transportation, non-transportation, and local concerns which may eventually arise. The San Juan planning context is highly political, and the ability to develop robust alternatives may be enhanced if agencies which participate in MIS feel both that they are insiders in the planning process and that their concerns have informed the process. By creating broad support for the extensions early in the planning phases, one hopes to avoid running into unforeseen roadblocks at later stages.

Because the major transportation planning and implementation agencies fall under the Secretary of Transportation, the issue in San Juan is not so much whether all the transportation agencies participate in the process, but rather what other agencies and institutions may become involved. In particular, MIS offers an opportunity to invite the Planning Board to participate in the study. This may be advantageous because the Board has fairly centralized control over land use planning and could direct efforts to reserve right-of-way or otherwise shape land uses to anticipate the rail extensions. Phase 1 was included in the Planning Board's regional land use plans for many years prior to the EIS process, and it is argued that land uses along the 65th Infantry right-of-way evolved in expectation of the rail service.

Additionally, by promising consideration of local and non-transportation goals, it may be possible to encourage the mayors of the four municipalities served by the proposed system to participate actively in the MISs. This may make it possible to anticipate and address their individual concerns in a way which reduces the need for public displays of political power at later stages of the planning process when it could erode support for the preferred alternative. For example, in a written statement submitted at the public hearing on the DEIS, the Mayor of San Juan stated that though the municipality of San Juan supported Tren Urbano in concept, ultimately its support would be conditional on the incorporation of land-use related impacts. In particular, the Mayor asked that the project goals be revised to include impacts on the value of urban land as well as urban development goals such as densification and rehabilitation along the

corridor.⁹⁰ In the end, these goals were incorporated into the project evaluation for the FEIS, but this is an ad hoc manner of addressing such concerns.

It may also be useful, as intended by the requirement, to involve environmental resource and permitting agencies in identifying major environmental impacts likely to be associated with any of the extensions. Though some impacts are difficult to assess without detailed study, some potential impacts may be evident even at a gross level of detail. San Juan will likely experience the same obstacles encountered elsewhere in trying to involve the necessary agencies: resource and permitting agencies have been reluctant to make any determinations or to participate in a study conducted at such a low level of detail. The approach suggested in Chapter 4 and used in other regions is to draft MOUs among the lead agency, FTA/FHWA, and the resource and permitting agencies to delineate roles and responsibilities.⁹¹

In addition to creating incentives for participation by diverse agencies, the potential to employ broad goals and objectives offered by MIS may provide an opportunity to prioritize non-transportation goals and objectives for improvements in the Tren Urbano extension corridors. Goals which may be of particular interest in San Juan include increasing accessibility and promoting desirable land use patterns. Both are consistent with FTA's Livable Communities Initiative, and both arose in comments on the DEIS and appeared subsequently in the FEIS. Accessibility is a natural measure to employ in San Juan since declining accessibility to the urban core has been cited as a reason for the deterioration of these areas. Accessibility could also be a useful measure for addressing the concerns of low income groups which have low rates of auto ownership. The desirability of land use changes as a goal is discussed in the analysis of the Carolina corridor in Section 5.3.1.

5.2.2.3 Federal Funding

An MIS is required for any project which *may* seek Federal funding. From San Juan's perspective, the advantage of using 100% local funding is that the project is then not subject to

⁹⁰ "Report of the Mayor of San Juan Hon. Hector Luis Acevedo at the Public Hearing on the Draft Environmental Impact Statement of the Tren Urbano, Thursday, April 27, 1995." WS-1-1 in FTA and PRHTA, *Final Environmental Impact Statement*.

the MIS requirement or to the Federal environmental review process. However, for several reasons it is advisable that San Juan undertake the MIS process to reserve the option to seek Federal funds. First, it is probably not feasible to fund all the proposed extensions or other major corridor improvements using only local funds. Second, reserving the option of seeking Federal funds for all the extensions will increase the range of alternatives which may be considered. Relying solely on local funds may force the region either to spread the extensions out over a long period of time or to consider lower-quality, lower-cost alternatives than might otherwise be desirable. While some of the proposed extensions may merit lower-cost alternatives, it will be difficult to make this determination prior to extensive study such as in MIS.

Finally, the history of Phase 1 illustrates the potential appeal of seeking discretionary Federal funding assistance. PRHTA was initially considering a lower-cost, at-grade light rail system for Phase 1 when consultants advised that a grade-separated, rapid transit system would perform very well according to Federal discretionary funding criteria. In the end, the higher-quality, higher-cost system achieved a cost-effectiveness rating nearly twice as high as the threshold established by FTA.⁹² Similar circumstances may apply to other extensions, particularly Carolina which has reasonably high ridership projections. Discretionary Federal funding will probably have growing appeal for future phases as the full financial impact of Phase 1, including the operating deficit, becomes apparent and political pressures mount to disperse local and Federal formula funds throughout the region and, indeed, the entire island.

At the same time, care should be taken so that the possibility of seeking discretionary funding does not limit the use of broad goals and objectives in the MIS process. As discussed in the previous chapter, if the MIS is undertaken with the understanding that discretionary New Starts Funding will be sought, it is possible that locally determined goals and evaluation criteria may be pushed aside. This would be a mistake for two reasons: first, excluding locally relevant goals and objectives not included among FTA's criteria may reduce incentives for diverse agencies to participate in the MISs; second, some non-transportation goals and objectives, such as land use

⁹¹ This approach was used in the MD 301 Corridor Study.

⁹² FTA and PRHTA, *Final Environmental Impact Statement*.

and accessibility, may be very useful to San Juan and, in fact, may be more meaningful than the FTA criteria.

5.2.3 Concerns

In the previous Chapter we outlined a number of local challenges associated with the MIS process. They were divided into three categories: establishing the roles and responsibilities of participants, study design, and technical challenges. We use the same framework here for considering the major concerns which may arise in applying MIS to the Tren Urbano extensions corridors. Though most of the challenges from Chapter 4 are applicable in this case, we discuss below only those which are particularly salient in this context.

5.2.3.1 Establishing Roles and Responsibilities of Participants

- Public participation in the MISs will be a critical element in generating broad based support for the extensions. There is a sense that transportation institutions in the San Juan area have historically lacked interest in public participation and that the public has not responded by insisting on a role.⁹³ DTOP took an active approach to public involvement in Phase 1 by conducting a series of neighborhood meetings at which the Secretary himself presided. Overall, this was a very successful means of addressing public concerns and the resulting level of public support was quite satisfactory. This model of extensive, personal outreach may be a good one for the upcoming MISs.
- Because the most serious alternatives under consideration in the Tren Urbano extension corridors will involve transit, FTA will be a major player in the MIS process. Though negotiating with FTA was also necessary with AA/DEIS, it will be even more important with MIS due to the high level of uncertainty about Federal expectations associated with the requirement's flexibility. At the same time, because San Juan may eventually want to pursue discretionary funding, FTA will have a direct interest in the study outcome; this is likely to complicate the negotiations. Viewing the interaction with FTA as a negotiation also complicates the question of what role FTA will play in the study process. Nonetheless, it is

⁹³ It is worth observing, however, that public opposition has delayed several highway projects in the region, most notably PR-66, discussed in the section on Carolina.

clearly to San Juan's advantage to keep FTA informed and to consult the regional office for clarification of expectations.

- To generate broad public and political support for the preferred alternative, it will be important to make the study relevant to as much of the metropolitan area as possible. At full build-out, the currently proposed system will serve just four of the thirteen municipalities in the San Juan region. As the impact of Phase 1 on regional transportation finances becomes apparent, there is an increasing likelihood that the mayors of the nine unserved municipalities may choose to exercise their influence. In the interest of making these mayors feel that they are insiders in the planning of the future extensions, the MPO Policy Board probably should be invited to participate.⁹⁴

5.2.3.2 Study Design

- A variation on the challenge of delineating study boundaries is that of negotiating a boundary between system planning for Tren Urbano and corridor planning. The MISs for the future extensions must lie somewhere between the case where the exclusive goal is expanding the rail system and the case where we pretend there is no existing political investment in expanding rail service, especially in the Carolina corridor. Though the public perspective is not evident, the MIS process is already closely associated with the rail extensions from an institutional point of view since the MISs will be conducted by the same consultants working on Phase 1 planning and design. Furthermore, it appears that the timing of MIS will be driven largely by political, financial, and technical issues related to the rail proposals. To make the process valuable, San Juan must be willing to accept the possibility that heavy rail extensions may not be the best immediate options in some of the proposed corridors because of regional priorities or the long lead times which may be required for planning and funding.
- A number of factors should influence decisions on the timing of the MISs. The first question is whether to stage them or to conduct them simultaneously. The advantages of simultaneous MISs include: a greater chance of consistency in data and assumptions; consistency among participants and thus among goals and concerns influencing the studies; and facilitation of comparisons among the corridors for integration into regional planning efforts.

On the other hand, the disadvantages of simultaneous studies are also significant. The coordination of simultaneous studies, while beneficial, is quite challenging, and it will be difficult to ask participants to dedicate time to three studies at once since MIS asks for extensive involvement. Additionally, limits on financial and construction capacity will require staging the extensions, but the highly public nature of the MIS process may create public expectations which makes this difficult. Furthermore, the shelf-life of MIS is unclear since its usefulness is based on consensus rather than on a Federal sign-off. These disadvantages suggest that, beyond the decision of whether or not to stage the MISs, more precise determination of when to initiate the studies will involve complex factors. There is a clear conflict between the need for information and the political repercussions of the open MIS process.

- The number of MISs which should be used to study the proposed extension is also a significant question. Barring the idea of a tiered MIS, it is probably not possible to consider all the extension corridors in a single MIS. If the currently proposed Carolina alignment is preferred over the serving Carolina via the Airport, the Carolina corridor should almost certainly be considered separately from the northern extensions, since it is a corridor with different travel characteristics and has a significantly different planning history.⁹⁵ The critical questions are whether the extensions to the Airport and to Old San Juan should be studied in a single MIS or in two and whether new corridors which may deserve consideration (such as Plaza Las Americas or Carolina via the Airport) should be treated individually or combined with some of the existing proposals.

5.2.3.3 Technical Challenges

- Until further direction is given at the Federal level for integrating MIS and NEPA, PRHTA and the other study participants will have to determine the best means of integrating the two processes. Following the argument in Section 4.2.2, we suggest that San Juan pursue “Option 1.5” by initiating the MIS and EIS process together and undertaking the MIS as a “draft

⁹⁴ Mayors of the 13 municipalities in the SJMA are ex officio members of the MPO Policy Board.

⁹⁵ If Carolina were to be served via the Airport, this recommendation does not necessarily hold.

DEIS.”⁹⁶ The MIS analysis would be conducted at a low level of detail, and the results would be documented and submitted for extensive public review prior to starting the DEIS. Once a first cut has been taken through the MIS process, a more traditional DEIS and FEIS would be conducted.

- Because of the lack of transit planning expertise in the San Juan region, consultants have played a very important role in the planning and implementation of Phase 1 of Tren Urbano. The same group of consultants will perform the MIS for the Tren Urbano extension corridors. Concurrent with these MISs, other consulting teams will be working on bus and público route restructuring, and various highway projects. It is possible that another consultant will conduct the Plan update. A number of factors might drive the timing of the Plan update; however, it seems likely that it will occur between the pre-MIS/SEIS analysis and the MISs themselves. This sequential timing may simplify the coordination of the MIS efforts with the Plan update. Nonetheless, PRHTA should act as a common link among all these activities and should also ensure they are consistent with the Secretary’s policy.

5.3 The Carolina Corridor

The Carolina extension is currently envisioned as the second phase of Tren Urbano. The proposed extension corridor runs in the median of PR-3 from Phase 1 in Río Piedras approximately 13 kilometers to Carolina Centro. The corridor is interesting in this analysis primarily because of the opportunities it presents to conduct multimodal, multi-jurisdictional planning using the MIS process.⁹⁷

5.3.1 Opportunities

The two most interesting opportunities in the Carolina corridor concern the relationship between the new, planned highway PR-66 and the proposed Tren Urbano extension. PR-66 is an unbuilt highway which has been in regional highway plans for decades. The highway has been planned to relieve traffic on PR-3 and improve access to the developing resort area in the northeast of the

⁹⁶ The process referred to here as Option 1.5 was developed largely by Fred Salvucci and described to me in various conversations.

island. PR-66 is planned to run several kilometers to the south of PR-3 between PR-1 in San Juan and Río Grande to the east. PRHTA has expressed strong interest in building the section of PR-66 east of Canóvanas as a privately financed toll road. The western segment of PR-66 runs between Canóvanas and PR-1 in San Juan and includes the length of the proposed Carolina extension corridor. (See Figure 10.) This segment has been delayed indefinitely because of its impacts on a large swath of undeveloped greenspace including and adjacent to Jardín Botánico, an agricultural experimentation area and public access garden owned by the University of Puerto Rico.

The first question is whether the MIS in the Carolina corridor can provide an opportunity to resolve the controversy over the Jardín Botánico area. The second question is whether there are other opportunities to combine the highway and rail extension plans in the area to the east of Jardín Botánico.

5.3.1.1 The Jardín Botánico Area

The Jardín Botánico area, shown in Figure 12, is bounded to the east by Degeteau Street (PR-181), to the south by the proposed PR-66 alignment, to the west by PR-1, and to the north by PR-3. In addition to the PR-66 extension and the Carolina extension, this area may also be impacted by the Army Corps of Engineer's plans to channel the Río Piedras. The confluence of these three projects create an opportunity to undertake a truly multimodal, multi-jurisdictional MIS to answer the question of how these three projects can be integrated into the existing space without sacrificing the largest remaining undeveloped greenspace in the metropolitan region.

Originally, the PR-66 extension was planned to cut directly through Jardín Botánico. The University has strongly opposed any extension which would impact the gardens, and emotions

⁹⁷ Observe that the focus in this section is on the currently proposed extension even though we suggested earlier that the pre-MIS analysis should consider whether it makes sense to serve Carolina in conjunction with the Airport extension rather than the PR-3 alignment.

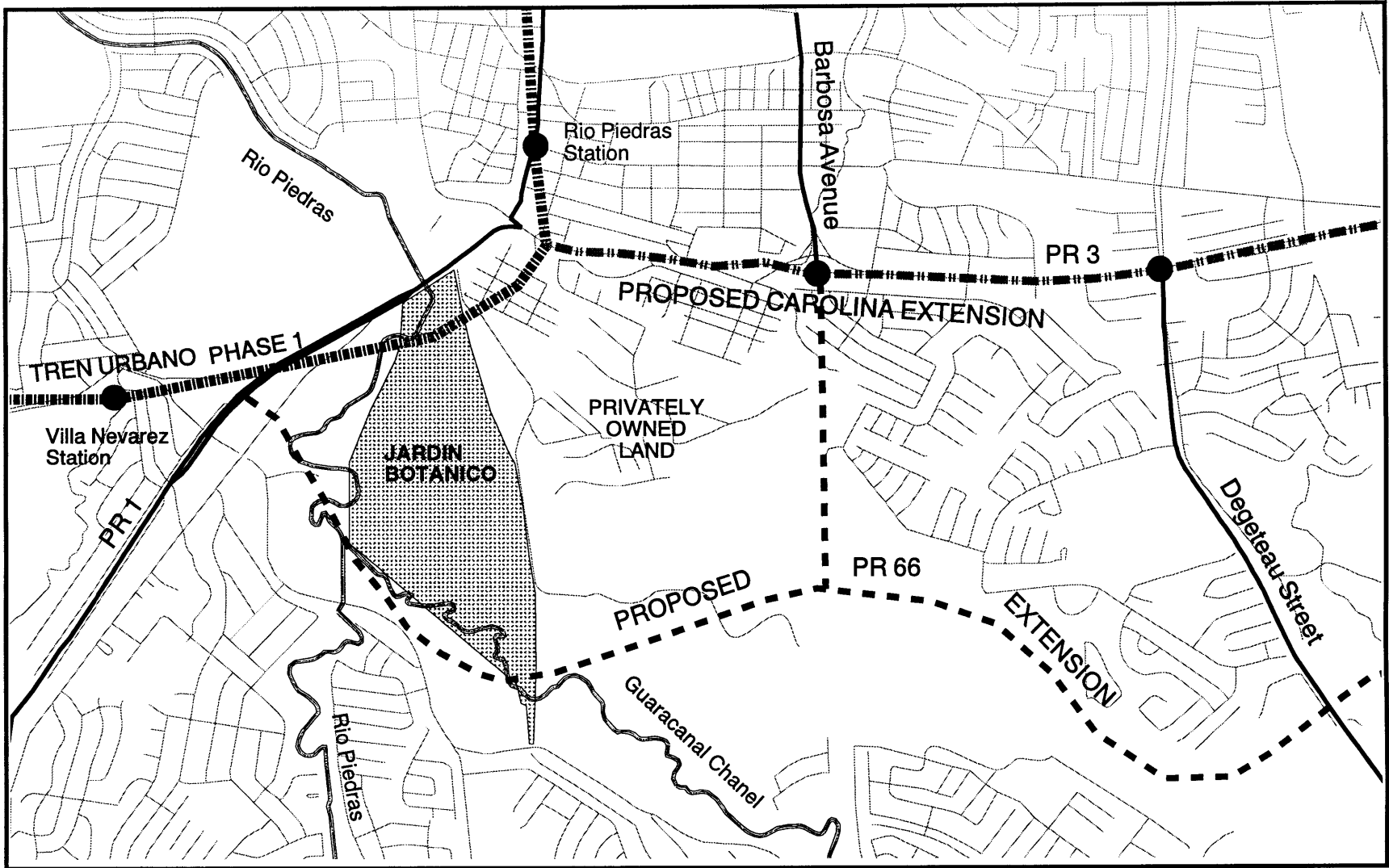


Figure 12: Jardin Botánico Area in the Carolina Extension Corridor

over the issue have run so high that the Puerto Rico legislature passed a law prohibiting any highway project from using the Jardín Botánico land. In response to this law, the route has been recently redesigned. The current proposal runs south of Jardín Botánico but it still has minor impacts on Jardín Botánico and an adjacent area composed of small parcels of largely undeveloped, privately-owned land.

Another project which appears to impact Jardín Botánico and the surrounding area is the planned channeling of the Río Piedras. The U.S. Army Corps of Engineers is planning a major flood control project in the Puerto Nuevo drainage basin in SJMA in preparation for a hundred year flood. The Río Piedras is part of this water system and flows just to the west and south of Jardín Botánico through undeveloped and industrial land. The channeling plan proposes concrete walls to widen, deepen, and straighten the existing channel in this area. In addition, a 6.5 acre concrete, trapezoidal debris basin is planned at the base of the Guaracanal Channel which would impact the southern edge of the undeveloped land.⁹⁸ The channeling plan may also impact existing and planned transportation infrastructure in the area such as PR-66. Some opposition to this project has surfaced.

The question has been raised whether the Carolina extension could absorb some of the demand anticipated for the PR-66 extension so that the road extension could be redesigned as a scenic parkway skirting Jardín Botánico.⁹⁹ One preliminary concept which could be studied in the MIS is to build the PR-66 extension as a major freeway between Carolina and Degeteau Street; at this point the traffic from the east could be split so that some portion is directed up Degeteau to PR-3 and Tren Urbano and the rest continues on a low volume, scenic parkway which eventually ends at PR-1.¹⁰⁰ The planned connector between PR-66 and PR-3 at Barbosa Avenue is another possible transition point. Alternatively, PR-66 could simply end at one of these points, sending all the traffic to PR-3 and the Tren Urbano extension. In order for the Tren Urbano extension to absorb some of the trips headed toward San Juan, the Carolina extension would need to provide a

⁹⁸ U.S. Army Corps of Engineers. "General Design Memorandum, Río Puerto Nuevo, Puerto Rico," December 1990.

⁹⁹ The concept of the scenic parkway was developed by Alexander de Armas and José Silvestre as part of a plan to redesign the major infrastructure projects planned around Jardín Botánico in a manner which preserves this urban greenspace. Alexander de Armas and José Silvestre, "Parque Urbano de San Juan," Presentation to the MIT/UPR Tren Urbano Research Group, San Juan, Puerto Rico. January 1997.

major intermodal station at Degeteau or Barbosa with adequate parking and bus transfer facilities.¹⁰¹ Both Barbosa and Degeteau are located to the east of the undeveloped land, so this concept would significantly reduce the encroachment of the road improvements on the Jardín Botánico area. If the PR-66 extension does run all the way to PR-1, it may also interact with the Villa Nevarez station in Phase 1, which presents another opportunity for multimodal planning in the MIS.

5.3.1.2 Multimodal Opportunities East of Degeteau

The construction of PR-66 in the area between Degeteau and Carolina Centro may present a second opportunity to consider in the MIS. The opening of PR-66 will relieve traffic on PR-3, at least in the short run. This may free some capacity on PR-3 to PRHTA to convert an existing lane in each direction to an exclusive bus lane for express bus services between Carolina (or points further east) and Río Piedras.¹⁰² This suggests several alternatives for consideration in the MIS:

- Express bus service in reserved lanes on PR-3 may be considered as a long term alternative to the rail extension. However, if excess capacity is created by the opening of PR-66, it is likely to be only temporary, so it is not clear this would be a good long term solution.
- If PR-66 were to open prior to the rail extension, the express bus alternatives on PR-3 could be considered as an interim solution. The express bus service may be used provide additional transit capacity in the corridor and to strengthen transit demand in preparation for the rail service. As such, this may be considered a phasing strategy for the Carolina rail extension if the funding schedule delays the extensions or forces staged implementation.

¹⁰⁰ Salvucci. Verbal communication. May 14, 1997.

¹⁰¹ The students who developed the parkway concept were investigating relocating the Villa Nevarez station in the Phase 1 alignment so that it could be a multimodal transfer station for park and ride passengers arriving on PR-66. However, the timing of the PR-66 and Carolina extensions favors the intermodal station at Degeteau; furthermore, in order to reduce the capacity of the PR-66 extension to that of a parkway, one would probably have to attract a large number of vehicles to alternate routes east of the transition.

¹⁰² Salvucci, Verbal communication. May 14, 1997.

- The section of PR-66 east of Carolina, which is planned as a toll road, could be used similarly to reduce congestion of PR-3 and introduce express bus service to feed the Carolina extension.

5.3.1.3 Concept for Approaching the MIS

With its emphasis on inclusion of local and non-transportation objectives, multimodal planning, and cooperation among agencies, the MIS process offers a tool for considering the multimodal phasing alternatives in the area east of Degeteau and also for reconciling the competing interests in the Jardín Botánico area.

The interaction between PR-66 and the Tren Urbano extension throughout the corridor suggests there is the potential for a multimodal approach. The parkway concept discussed above involves modifications to the highly contested PR-66 extension which are likely to both strengthen the Tren Urbano extension proposal and alleviate the political problem posed by the proximity of the roadway to the Jardín Botánico area. Similarly, the express bus alternatives suggest that the PR-66 and Tren Urbano extension may support each other.

The multimodal potential in this corridor is particularly interesting because the highway alternatives are already constrained by the legal protection of Jardín Botánico. This may make highway interests more willing than usual to consider a multimodal solution. The constraint on highway alternatives in this area also reduces the risks for transit interests. From a policy perspective, one of the challenges for the Tren Urbano extensions is to preserve the political ground gained by transit with Phase 1.

The variety of interests in the Jardín Botánico area presents a complex problem with strong environmental and land use as well as transportation elements. The PR-66 debate is already framed by the argument that the preservation of Jardín Botánico is critical because it is the last large swath of greenspace in the metropolitan area. The problem then extends naturally to ask if and how the Río Piedras channeling project could be planned to reduce negative impacts on Jardín Botánico and the surrounding areas as well as how it may interact with the various alternatives for the extension of PR-66.

Interest in preserving Jardín Botánico may also create an opportunity to consider using land use policies to shape development in the corridor. For example, one could encourage high density infill in the existing neighborhoods adjacent to PR-3 and the proposed Carolina extension while discouraging suburban-style development of the privately owned lands east of Jardín Botánico. Similarly, one could use land use policy to guide the redevelopment of the industrial areas south of Jardín Botánico.

While there is reason to believe there may be popular support for introducing such land use policies, the level of institutional commitment is not clear. Traditionally, neither greenspace preservation nor land use planning has figured prominently in transportation planning in San Juan. By legitimizing the use of non-transportation goals, MIS provides a better opportunity to leverage this approach than before. The Puerto Rico Planning Board could certainly influence land uses adjacent to the Jardín Botánico through its centralized planning and review capacities;¹⁰³ it might also be able to arrange the purchase and preservation of the land as an impact mitigation.¹⁰⁴ Yet, it is not clear that the Planning Board would support this action. The pattern of extensive suburbanization in the SJMA suggests it has not generally used this authority to manage development in a manner which protects greenspace. Cooperation of the Planning Board could affect the degree to which land use objectives can be pursued in the context of the MIS.

The mayors may also play a role in making land use considerations important in the study process. In fact, San Juan has applied for permission to develop its own land use plans, subject to the approval of the Planning Board.¹⁰⁵ In any case, the local interest in land use planning is suggested by the comments of the Mayor of San Juan at the public hearing on the DEIS.

¹⁰³ La Ley Municipios Autónomos, passed in 1991 allowed municipalities to apply for the right to assume responsibility for land use planning. However, the Planning Board has the authority to approve the local land use plans, and it still exercises rather centralized control.

¹⁰⁴ ISTEPA Enhancements may be a funding source for this, assuming that San Juan can convince FTA and FHWA that the MIS provide sufficient justification to use Federal funds for this purpose. This is, of course, one of the policy tensions in MIS.

¹⁰⁵ As of May 1996 Bayamón was the only municipality in the SJMA which had been granted land use planning rights under La Ley Municipios Autónomos. But San Juan and Guaynabo had both applied.

The broad range of concerns in the Carolina corridor offers the opportunity to use participatory planning and the introduction of broad goals and objectives in a mutually supportive manner. The Carolina MIS could be an opportunity to invite a wide range of institutions to participate in a cooperative study focused on reconciling competing interests and evaluating multimodal alternatives. Table 2 shows a list of participants which may be appropriate to include based on their interests in the Jardín Botánico area and the express bus alternatives.

Level of Govt.	Jurisdiction	Agency/Institution	Related Interest
Federal	Environmental	Army Corps of Engineers	Flood control
State	Transportation	PRHTA: Highways	PR-66 extension (providing adequate capacity to accommodate demand)
		PRHTA: Tren Urbano	Carolina Extension (max. Ridership)
		PRHTA: Bus contract authority	Express bus alternatives
	Environmental	Department of Natural Resources	Responsible for providing local land for the channeling project
	Land Use Policy	Puerto Rico Planning Board	Centralized land use planning
	Land Owner	University of Puerto Rico	Protection of Jardín Botánico (minimize visual impacts of road construction and flood control projects)
Local	Various	Mayor of San Juan	Represent interests of municipality Local land use planning
		Mayor of Carolina	Carolina Extension & express bus alts.
		Mayors of Trujillo Alto and Canóvanas	Served by PR-66 east of Carolina and by express bus alternatives
Regional	Transportation	MPO Policy Board	Regional transportation plans & programs
Private	Land Owner	Other Private Land Owners	Mixed but most will want to protect land from impacts of road construction (primarily west of Jardín Botánico)

Table 2: Agencies and Institutions with Interests in the Carolina Corridor¹⁰⁶

The participants represent all levels of government as well as transportation and non-transportation interests. In the Jardín Botánico area, the Army Corps of Engineers and PRHTA's Tren Urbano and highway interests are critical participants as the sponsors of the three infrastructure projects. In addition, the University and the private land owners are major stakeholders, and the University, in particular, is quite powerful. The Puerto Rico Department of Natural Resources is the local entity responsible for providing whatever land is needed for the channeling project. As discussed above, it may or may not be desirable to engage the Planning

Board; however, they clearly have an interest in the issues on the table. The MPO should be involved so that the study remains consistent with the regional plans under development and as a means of keeping the rest of the region engaged in the Tren Urbano project. The mayors of the affected municipalities are important representatives of local concerns including impacts and transportation services.

The role of the University of Puerto Rico in this study provides an interesting opportunity for technology transfer. The parkway concept to address the conflict between the PR-66 extensions and the Jardín Botánico area was originally developed by two architecture students at the University under the technology transfer element in the Tren Urbano program. This program (of which this thesis is a part) involves a joint research program between the University of Puerto Rico and the Massachusetts Institute of Technology to develop local expertise in the planning and operation of urban rail. In the interests of furthering this program, it would be possible to have students and faculty at the University generate urban design plans for consideration in the MIS.

We have identified PRHTA rather than AMA as the entity which would assume responsibility for the express bus service alternatives. This is based on the fact that the most successful bus services currently offered in the San Juan region are those which are run under contract to PRHTA. These contract services provide one model for thinking about the express bus alternatives. Though the rail alternative would also require restructuring of the existing AMA and público services in the corridor, this issue may be too detailed to address in the MIS.

5.3.2 Other Considerations and Concerns

The scenario presented above focuses on only two facets of the Carolina extension corridor. Two other factors to consider are the politics of the Carolina extension and the role of the público drivers in the study process.

¹⁰⁶ This table focuses on interests related to the Jardín Botánico area and the express bus alternatives and does not include environmental agencies with more general interests in the corridor. For example, it would also be appropriate to include the Department of Environmental Quality.

The politics of the Carolina extension have already been alluded to. Unlike the Airport and Old San Juan extensions, the Carolina extension has been talked about for decades and has appeared in regional Long Range Plans. The Carolina extension probably has not achieved the same level of public awareness as Phase 1 had achieved prior to 1993. For example, in contrast to Phase 1, Carolina does not appear in the Planning Board's regional land use plans, and there are no claims that land uses in the corridor have anticipated the construction of the rail line. Even so, there may be significant public expectation that Carolina will be the first priority for rail service after Phase 1. In terms of the MIS process, this simply means that the local political factors could be significant, particularly if the Minillas extension is pursued first. This is one reason the express bus alternatives are attractive as an interim strategy.

A final political consideration which could impact the MIS process in the Carolina corridor involves the público drivers, since Carolina to San Juan is one of their larger markets. The público drivers have been largely unsupportive of efforts to restructure the Bayamón público routes to feed Phase 1. If the restructuring plan generates hostility among the drivers, they could become a political obstacle during the MIS process. It is also unclear how the drivers would react to the express bus alternatives. Metrobus II, which runs between Bayamón and Río Piedras, has not been well received by them because it detracts ridership from their services in that market. However, some of the express bus alternatives should consider allowing públicos to use the express bus lanes on PR-3; this may address some of the drivers' concerns.

The público drivers fall somewhere between institutional interests and the general public, so it is difficult to know how the MIS process should incorporate them. Because they form loose associations based on routes, there is no official representative with the authority to make decisions on behalf of the group. Furthermore, they are not used to interacting at the agency level. Yet, their political power is significant, and they are believed to have strong informal ties to the AMA drivers union.¹⁰⁷

¹⁰⁷ Maria Amador, Multisystems, Inc. Presentation to the MIT Tren Urbano Research Group. March 3, 1997.

5.4 The Old San Juan – Minillas – Airport Corridor(s)¹⁰⁸

The Old San Juan and Airport corridors have been proposed for Phase 3 and 4 Tren Urbano extensions. The Old San Juan corridor extends along Ponce de Leon Avenue from Minillas to the outskirts of Old San Juan, the historic section and cultural heart of San Juan and, in some ways, of all of Puerto Rico. The Airport corridor also starts at Minillas but follows PR-26 east approximately 6 kilometers to the edge of the Luis Muñoz Marín International Airport. Because these alternatives were introduced in 1994 without much analysis, the pre-MIS analysis will be very important in determining whether these extensions and this order make sense. Following this, the pre-MIS analysis will also help determine how to conduct the MISs. For the sake of this analysis, we assume that the pre-MIS analysis will indicate that these corridors merit study, and we note the opportunities and concerns which may arise.

5.4.1 Opportunities

Most of the opportunities posed by the Old San Juan – Minillas – Airport corridors are consistent with the general analysis above. These extensions, which have been developed only in the most conceptual sense, require basic planning which could be executed through the MIS process. Right-of-way reservation is an important opportunity associated with undertaking MIS in these corridors. Additionally, it is possible to identify some specific opportunities for leveraging the requirement's emphases on multimodal planning and the use of broad goals and objectives.

A significant portion of the pre-MIS and MIS activities will involve basic planning. At the present time, no reliable estimates of ridership or cost have been developed for these corridors. It is unlikely that these corridors have the same ridership potential as the Carolina corridor since the market area is limited by geographic constraints and regional residential patterns. Thus, if it is determined in the pre-MIS activities that it is worthwhile to consider light rail technologies, these corridors are the best candidates. On the other hand, the right-of-way constraints suggest that it may be difficult to provide exclusive bus lanes in these corridors; when compared to the Carolina

¹⁰⁸ The terminology here is unwieldy because one of the central questions to be addressed is whether the two extensions represent two corridors or a single corridor for the purposes of MIS. For simplicity, we have chosen to refer to these as two corridors except in the discussion which focuses explicitly on this issue.

corridor and the potential express bus alternatives on PR-3, this may indicate that the northern corridors should be a higher priority than Carolina.

Similarly, the right-of-way requirements for the two proposed extensions have been reviewed in only a preliminary fashion. One of the advantages of the basic planning which would occur through the MIS process is the opportunity to identify and reserve right-of-way for future corridor improvements. As in the Carolina corridor, this suggests that it may be beneficial to include the Planning Board in the MIS process; the Planning Board may aid both in the purchase of right-of-way and in implementing zoning regulations in anticipation of the upgraded transit services.¹⁰⁹ However, if San Juan would need to use Federal funds to acquire right-of-way, this benefit of MIS would be contingent on Federal action to recognize MIS as sufficient justification to use Federal funding for this purpose.

Finally, with its combination of emphases on collaboration among agencies, incorporation of broad goals and objectives, and multimodal planning, the MIS process may also provide a forum for considering interesting combinations of transit and auto-based strategies. For example, one could consider an alternative which combines enhanced transit service with parking restrictions in Old San Juan. This combination possibly could be used to strengthen the position of transit in addition to reducing the presence of autos in the narrow streets. The cooperative process may provide a foundation for involving the municipality of San Juan which could facilitate the development of such alternatives. Additionally, the potential to use quality-of-life criteria for project evaluation in the MIS process could also strengthen such a proposal.¹¹⁰ Another possible multimodal alternative for consideration in the two corridors is the expansion of the exclusive bus lane network which already exists between Old San Juan and Río Piedras.

¹⁰⁹ It is possible that the Planning Board would prefer to address these issues following the MISs and would resist participating directly in them.

¹¹⁰ There are obvious obstacles to introducing this type of alternative: one, it may be difficult to quantify the benefits of restricting parking, even in terms of changes in transit mode; two, parking policies, while very promising, are extremely difficult to implement.

5.4.2 Concerns

The analysis of general concerns is also largely applicable to the Old San Juan – Minillas – Airport corridors, and will not be repeated here, except to emphasize those points which are of the greatest concern. The most evident concerns in applying MIS to these corridors are: whether they should be treated as two corridors or as a single corridor; the timing of the MIS(s); and the fact that neither corridor is included in the existing Long Range Plan.

The question of whether to treat the Old San Juan – Minillas – Airport corridors in a single MIS or in two is an important issue which should be addressed largely through pre-MIS activities. Financial and political considerations may make it desirable to conduct two separate studies. For example, by studying the corridors separately, one gains the advantage of having two smaller projects for which the MISs can be staged. This can reduce the degree to which public expectation of rail service or concerns about financial capacity become political factors which influence the study process.

If other corridors are found to merit serious consideration for rail service, this could also influence the question of how many MISs to undertake. In particular, the alternative for serving Carolina via the Airport suggests that the Airport extension could be considered as part of a larger corridor and may be a more immediate priority. Additionally, one possibility for serving the Plaza Las Americas corridor is by extending the Airport extension to the southwest of Minillas along the Plaza Las Americas Expressway. If this corridor has the potential for service, it may be possible to study the Airport – Minillas – Plaza Las Americas corridor in a single study and to consider the Old San Juan corridor separately.

Finally, travel patterns should be considered when defining the study area as one or two corridors. It is difficult to believe that a large percentage of trips will occur between origins and destinations in the Airport and Old San Juan branches. It has been suggested that the link between the Airport and the cruise ship facilities in Old San Juan is interesting because a large number of cruise ship passengers fly to San Juan in order to take the leisure cruises, and after all, tourism is a significant industry in Puerto Rico.¹¹¹ However, it is also true that cruise ship

¹¹¹ Ridge.

passengers are likely to have a lot of luggage which will tend to discourage them from using even high-quality rail transit between the Airport and the cruise ships. Thus, while the link is conceptually pleasing, it may not be that useful in practice. Furthermore, due to regional geography, we would expect the majority of trips destined for either corridor to originate from the southern portion of the region and hence, if by rail, from the previous phases rather than from the other of the northern corridors. Even if the travel patterns are sufficiently different to require consideration of two separate corridors, it would still be possible to conduct two independent studies simultaneously and gain some of the advantages associated with the single study.

The issue of timing the studies is closely related to that of the number of studies. There are really two concerns related to timing the studies: first, whether either (or both) of the two northern corridors should be studied at the same time as the Carolina corridor; and second, whether the Airport and Old San Juan corridors should be studied at the same time, assuming two separate MISs. The advantages and disadvantages of simultaneous versus staged studies are discussed in Section 5.2.3.2 above. In general, practitioners seem to advise waiting to initiate the MIS process until there is a reasonable chance of implementing the possible outcomes.¹¹² This suggests prioritizing the Carolina extension, which has stronger political factors and is also likely to have higher ridership than either of the northern extensions. As long as there is enough information to make a decision, it will probably be favorable to prioritize one of the northern extensions over the other, because finances are likely to be a constraint. However, the opportunity to reserve right-of-way would imply there are benefits to undertaking MIS earlier rather than later, as long as right-of-way acquisition can be pursued following the MIS.

There may also be ways to overcome the problem of creating expectations by undertaking the open MIS process prematurely. For example, even if the Airport and Old San Juan corridors were studied in a single MIS, it might be possible to consider alternatives which include phased service. Such an alternative might involve prioritizing one rail extension and, at the same time, upgrading bus service in the other extension corridor with the plan of implementing rail service in that corridor at a later date. As a phasing strategy this concept is not new; however,

¹¹² “Conference on Major Investment Studies in Transportation (MIS).

considering this multimodal, time-dependent strategy as a single alternative may be new and may be the sort of creative option MIS can encourage.

One of the interesting aspects of applying MIS to the Old San Juan – Minillas – Airport corridors is the fact that no major improvements in these corridors are included in the current Long Range Plan. The proposed Tren Urbano extensions were introduced in 1994 after the current Plan, which dates from 1993, had been adopted. This raises two issues: first, introducing the two extensions into the fiscally constrained Plan may require difficult trade-offs; second, depending on the timing of the MIS and the Plan update, this may complicate negotiations with FTA or FHWA.

Because the Plan update is likely to occur either concurrent with pre-MIS activities or subsequent to them, the update offers an opportunity to integrate the projects resulting from the pre-MIS analysis into the Plan. In fact, while the current Plan does mention the Carolina extension, it allocates no funding for any of the proposed Tren Urbano extensions. Unless San Juan adopts a 2-track method for fiscal constraint, it will probably be necessary to drop some projects from the current Plan in order to include placeholders in the Plan update for improvements in all three corridors. This is likely to be a politically contentious process, particularly as the financial impacts of Phase 1, Minillas, and the Carolina extension (if it is prioritized over the northern extensions) become clear. Furthermore, the use of placeholders may generate a perception that there are predetermined solutions to the MISs which, in the case of San Juan, may be especially damaging politically. Aside from these issues, using placeholders would be practical in the short run because it would reduce the likelihood of having to amend the Plan when the preferred alternatives have been identified through the MISs. At the same time, the previous chapter illustrates that by avoiding the need to make trade-offs later, the use of placeholders may violate a basic premise of regional planning: it may be useful to revisit planning priorities as new alternatives arise. San Juan might want to consider employing the 2-track method of fiscal constraint, as presented briefly in Chapter 4. The question of how to handle fiscal constraint in the Long Range Plan is indeed beyond the scope of this research; however, the 2-track method does provide more flexibility for integrating into the Plan major transportation projects such as those considered in MIS.

Depending on the precise timing of the MISs and the Plan update, a conflict could arise due to the fact that neither the Airport or Old San Juan extensions are included in the existing Plan. If all the MISs were conducted simultaneously or if it were determined that the Carolina extension should approach San Juan via the Airport, San Juan might find it desirable to initiate MIS before completing the Plan update. However, neither scenario is very likely. The regulations do not strictly require that a corridor be identified as needing an MIS in the Long Range Plan before the study process is initiated. Furthermore, FTA and FHWA have no official say in when to initiate an MIS. Nonetheless, the emphasis in the MIS requirement on linking the two processes is quite strong. In addition, MIS guidance emphasizes a “problem centered approach,” which suggests FTA or FHWA might insist on some evidence of a need for improvement before giving its unofficial blessing to the MIS process. Of course, if the Plan update is completed before the MISs are initiated and the proposed extensions are included, this will not be cause for concern.

5.5 Summary and Recommendations

This chapter has identified a number of specific opportunities and challenges which San Juan should consider as it begins to think about undertaking MISs for the proposed Tren Urbano extension corridors. While crafting a study process which is prepared to accept the determination that some of the corridors do not merit heavy rail service consistent with Phase 1, San Juan should also be careful not to cede the ground that transit has gained since 1993 as a result of both policy shifts and astute planning by those who pushed Phase 1 to the implementation stage in just three years. The need to achieve this balance establishes a foundation for many of the recommendations offered below.

Opportunities:

1. The Minillas SEIS offers an opportunity to conduct pre-MIS analysis which should be used to inform system planning and to design a set of MISs to study the potential Tren Urbano extension corridors and highway options. Pre-MIS analysis should also inform the Long Range Plan update so that the Plan provides a consistent background for the MISs themselves.

2. San Juan should plan on using the MIS process to study all three extension corridors in order to preserve the option of Federal funding assistance, specifically noting the potential benefits of applying for discretionary funds.
3. San Juan should use the MIS process to leverage principles which are likely to improve the local planning process and provide opportunities to develop creative solutions to complex problems:
 - San Juan should take the initiative to emphasize non-traditional goals and objectives such as accessibility, land use changes, and livable communities which are relevant to local concerns as indicated by planning history of Phase 1. Land use issues are particularly relevant for the purposes of right-of-way reservation in the northern corridors and in the Jardín Botánico area in the Carolina corridor.
 - Special consideration should be given to including institutions such as the Puerto Rico Planning Board, the mayors of the impacted municipalities, and the MPO Policy Board in the study processes.
4. The Carolina corridor offers an interesting application of the principles promoted by MIS. In particular, the interaction with PR-66 raises opportunities for multimodal planning throughout the corridor and, with the channeling project, raises complex environmental issues in the Jardín Botánico area. This is an opportunity not only to solve a difficult problem, but also to undertake a process which could be a model for other regions.
 - The variety of explicit interests in this corridor can encourage a participatory and collaborative study process, as will be necessary to resolve the complex issues.

Challenges:

The MIS process also presents several challenges. Some of these result primarily from the nature of studying large-scale investments in the San Juan region. However, some concerns are certainly more acute under the MIS process. The following challenges identified in the analysis are duly noted:

1. Negotiations with FTA will be more complicated than usual due to the high level of flexibility in the requirement and the associated uncertainties about FTA's expectations of MIS. The significance of the negotiations will be even greater than usual due the possibility that San Juan will pursue discretionary funding for future phases of Tren Urbano.
2. While taking measures to position itself favorably for discretionary funding assistance in the future, San Juan should be wary of letting FTA's New Starts criteria discourage the use of other non-transportation and locally determined evaluation criteria. Efforts to balance FTA's concerns with locally determined criteria will make negotiations with FTA even more important.
3. Meeting some elements of the requirement could prove challenging, even if there is incentive to try to do so.
 - The public participation element will require extensive efforts, perhaps similar to those undertaken with Phase 1.
 - Though we have identified a number of agencies which should be included in the MISs, the participation may still present challenges. For example, the Planning Board and the público drivers both present difficulties, though for different reasons.
 - Additionally, the highly public and cooperative nature of the MIS process may present a conflict with the need for information useful in shaping the study process. In some cases, the study process may create expectations which conflict with other political and financial limitations. The pre-MIS analysis may be used to address these issues.
4. Decisions on the timing and number of studies are important to study success and may affect the kinds of alternatives which can be considered, particularly for the northern corridors. These decisions should be informed by technical details such as preliminary ridership projections, trip making patterns, and potential operational strategies. However, political and financial factors will also play a big role since the MIS process is an open one. Most likely, the Carolina MIS should be prioritized and the other two corridors should be considered for later study. It is difficult to determine at this stage whether to consider these as a single corridor and, if not, whether to stage the two MISs or conduct them simultaneously. A

determination of the potential for rail service in the Plaza Las Americas corridor is one factor which may help inform this decision.

5. Integrating MIS with NEPA remains a challenge. Barring conflicting recommendations by FTA and FHWA, an “Option 1.5” approach is recommended. This process would involve a three step EIS process in which the first step was conducted as an MIS, but under the aegis of the EIS process. It would be used to conduct “fatal flaw” analysis and to inform a second, more detailed DEIS analysis, followed by an FEIS. PRHTA should assume the lead for all three stages.
6. San Juan should consider employing a 2-track method for fiscal constraint as a means of positioning the Plan to respond better to the major infrastructure projects likely to be planned over the next several decades. This approach would reduce some of the political risks of using project placeholders for the extension corridors and would allow a second round of regional prioritization.

6. Concluding Remarks

In this thesis, we have considered the MIS requirement both as a Federal policy tool and as a local planning tool. We have identified the strengths of the requirement and factors which may limit its effectiveness as a Federal policy tool and have offered recommendations to refine the MIS requirement by addressing some of these factors. We have also recognized a number of local challenges associated with implementing MIS as a planning tool. But because these issues are difficult to grasp in the abstract, we have used the San Juan case to identify opportunities and concerns for applying the MIS requirement in the specific context of the Tren Urbano extensions. Finally, we have developed recommendations to help San Juan design the upcoming MISs so they will be most useful.

6.1 Summary of Findings: Linking the General and San Juan Case Analyses

It is tempting to view the policy and planning contexts as two sides of a coin; however, it may be more appropriate to think about the links between the two contexts. It is clear that for MIS to be a useful tool for Federal policy, it must also have value from the perspective of the local planning process. The process must be implemented in good faith at the local level in order to achieve the desired policy results. While it is difficult to make strong generalizations based on a single case, the San Juan case does illustrate linkages between the policy and planning sides of the MIS process by showing that the local planning opportunities offered by MIS are directly related to those areas where the requirement shows the most promise as a policy tool. Similarly, the San Juan case illustrates that many of the policy concerns have impacts at the planning level.

Our overall assessment of the MIS requirement suggests it employs useful mechanisms for increasing local input to the planning process, opening the planning process to consider non-transportation concerns, and to some degree, reducing the disadvantages faced by transit in the local planning process. As borne out by the general analysis and the San Juan case analysis, the most useful aspects of MIS seem to be its emphasis on collaboration among agencies and its legitimization of the use of broad goals and objectives in evaluating alternatives. The San Juan case provides one example of the opportunities offered by MIS to leverage these concepts to address complex planning issues which arise in the Tren Urbano extension corridors. The San

Juan case also illustrates that the MIS process and associated pre-MIS analysis, can be an opportunity to undertake necessary planning efforts.

It is also true that a number of factors complicate the MIS requirement from a policy perspective. In many cases, the MIS process highlights more general tensions in the planning process, which may hinder MIS from promoting the desired policy principles. Such tensions arise from the following factors: continued modalism at the Federal and local levels; reluctance to address the political reality model of project development; conflicts between Federal interests and local decision-making, particularly as posed by discretionary transit funding; the overall uncertainty generated by MIS's flexibility; and uncertainty about the impacts of the fiscal constraint requirement on large-scale projects. In addition, the most problematic tension generated by the MIS requirement itself results from potential redundancies and conflicts between MIS and NEPA processes. The San Juan analysis shows how several of these policy issues generate concerns at the local level and may ultimately reduce the overall value of the MIS process. These policy issues translate to the following planning concerns in the San Juan case:

- The challenge of balancing the desirability of performing well by Section 3 discretionary funding criteria with the potential planning benefits of employing various locally determined and non-transportation evaluation criteria;
- The complexity of using MIS placeholders in the Long Range Plan – placeholders offer practical benefits but which may also present political difficulties, for example by signaling a predetermined decision;
- The importance of negotiating with FTA through the MIS process in order to determine its expectations for the MIS process;
- The need to reconcile MIS with NEPA in a manner which preserves the benefits of MIS as a tool either for scanning a large number of alternatives or for identifying fatal flaws.

In sum, while the MIS requirement clearly has some useful features, it also raises a number of concerns which need to be addressed. Many of these concerns can be addressed though

modifications to the MIS requirement while leaving the basic structure intact. These findings are borne out by the types of recommendations offered in the San Juan case analysis.

6.2 A Note on Reauthorization

We would be remiss if we did not address the question of what might happen to the MIS requirement in the process of reauthorization. ISTEA expires on September 30, 1997. MIS is not likely to be among the primary topics considered in the reauthorization process, because it is originally based in regulations rather than statute and is more detailed than is characteristic of the legislation issued by Congress. Additionally, early indications suggest the general climate is one which accepts the basic principles and planning process established by ISTEA; at the very least the climate favors delaying those debates in order to tackle the more pressing issues related first to overall funding levels and, second, to the allocation of funding. Overall, however, the current tone of the reauthorization debates seems to be one of fighting to maintain the ground won with ISTEA rather than pushing for stronger legislation. Finally, because Federal transportation energies are focused on reauthorization, FTA and FHWA are unlikely to address changes to the regulations until after the process is complete.

Nonetheless, the reauthorization debates are providing a platform for various interests to present suggestions for modifying the MIS process. It is clear that MIS is firmly grounded in the basic principles of ISTEA. Those who do not fully support the principles of ISTEA, including an open, public process, greater local and regional decision-making authority, and shared responsibilities among agencies, are likely to urge that MIS be drastically scaled back or eliminated. However, as mentioned above, they are not likely to be an influential voice in the overall debate. On the other hand, those who basically support the ISTEA principles, will tend to support the spirit of MIS. They may suggest minor changes which leave the basic requirement intact, not unlike the changes suggested by this research. The top priority is likely to be resolution of the relationship between NEPA and MIS. A secondary priority may be clarifying and standardizing the threshold criteria for MIS in a manner which exempts more projects than under current practice.

It is likely FHWA and FTA evaluation efforts will provide a more important forum for shaping changes to the MIS process. There are a number of sources of information to inform an evaluation of the effectiveness of MIS as a planning and policy tool, including MIS training sessions, conferences, and the joint Enhanced Planning Reviews. The two agencies have also engaged in efforts to address specific concerns, such as the relationship between MIS and NEPA. It is our hope that this research can somehow contribute to these efforts, at the very least, by adding to the discussion of issues which should be considered.

6.3 Areas for Further Research

The research presented here suggests a number of areas for further study. Chapter 4 identifies discretionary funding and fiscal constraint as two areas which generate tensions exogenous to the MIS process but nonetheless affecting it. As the planning process places increased emphasis on local decision-making, it may be worthwhile to think about how the current model for discretionary funding could be modified to reduce conflicts. The 2-track approach to fiscal constraint is one method of addressing the tensions in that area, but this idea has not yet caught on at the Federal level; perhaps there are other methods which would work as well.

Though considering the application in the San Juan case has allowed us to make substantive recommendations about using MIS to study the Tren Urbano extension corridors, it is of limited value for developing a broader understanding of MIS for local planning. However, because of the links between the planning and policy aspects of MIS, this perspective remains quite valuable in evaluating the overall usefulness of MIS. This evaluation must be approached in some degree before FTA and FHWA, or Congress, can make appropriate changes to the requirement. It will be difficult to develop an aggregate sense of the usefulness of MIS as a planning tool because metropolitan areas differ so widely, and even within a single area, applications of MIS may vary greatly. One way to approach this question would be to select a limited number of representative case studies and undertake an in-depth analysis of how the MIS process unfolded. Since the details of institutional relationships and methodological debates are rarely well documented, this approach would require interviewing a number of key participants in each MIS.

7. List of Acronyms

AA	Alternatives Analysis
AMA	Autoridad Metropolitana de Autobuses (Same as MBA)
ACT	Autoridad de Carreteras y Transportacion (same as PRHTA)
MBA	Metropolitan Bus Authority
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
DOT	Department of Transportation
DEIS	Draft Environmental Impact Statement
DTOP	Departamento de Transportacion y Obras Públicas (Department of Transportation and Public Works)
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FTA	Federal Transit Administration
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
LRP	Long Range Transportation Plan
MBA	Metropolitan Bus Authority (Same as AMA)
MIS	Major Investment Study
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
NEPA	National Environmental Policy Act
NHS	National Highway System
Plan	Long Range Transportation Plan
PRHTA	Puerto Rico Highway and Transit Authority
PSC	Public Services Commission
ROD	Record of Decision

SIP	State Implementation Plan
SJMA	San Juan Metropolitan Area
TIP	Transportation Improvement Program
TU	Tren Urbano
UMTA	Urban Mass Transit Administration (became FTA in 1991)
US DOT	United States Department of Transportation

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