

**Analysis of Financial Planning Requirements  
in Transportation Planning**

by

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B.A., Economics  
U.C. Berkeley, 1992

Submitted to the Department of Urban Studies and Regional Planning  
in Partial Fulfillment of the Requirements of the Degree of

**MASTER OF SCIENCE IN TRANSPORTATION**

at the  
Massachusetts Institute of Technology  
August, 1995

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## Acknowledgment

In the five years that I have actively pursued my interest in transportation issues, I have been fortunate to benefit from the advice, guidance and support of many outstanding individuals.

First, I would like to acknowledge the loving support of my family, who believed in me and encouraged me as I embarked on a career path unfamiliar to them.

Next, I am indebted to my mentors in academia. Many, many thanks go to Fred Salvucci, for his inspiring example of what it is to be committed to one's community in general, and one's chosen field in particular. My deepest gratitude and admiration also go to Professor Elizabeth Deakin, who has become a friend as well as role model since the days she first taught and advised me at U.C. Berkeley. Finally, my appreciation goes to Professors Ralph Gakenheimer and Nigel Wilson for their insights and assistance at many an important juncture during my time at M.I.T.

In my professional development, I have also been fortunate to know and work with Sam Zimmerman and Donald Emerson of the Federal Transit Administration, all the special people at the Metropolitan Transportation Commission, my friends at the Santa Clara County Transportation Agency and Volpe National Transportation Systems Center, and David Black and Charles Norris at TAMS Consultants in Boston.

And finally, I would be nowhere at all without my friends, the "family one makes for one's self". Special thanks go to those who not only put up with but aided immeasurably my "thesis-ing" effort: roommates Mary Park and Kathy Huang, office-mate Prodyutt Dutt, transportation "stars" Jeff Sriver and Bill Cowart (with whom I share the distinction of being the oldest M.S.T. goat!), friends extraordinaire Mimi Murase, Jimmy (Pointers and Arrays) Lam, Tracy Liu, and last, but Most, Victor Charles Beauchamp.

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**Abstract**

The Intermodal Surface Transportation Efficiency Act of 1991 identifies important new responsibilities for Metropolitan Planning Organizations (MPOs) in the transportation planning process, including the development of financial plans to accompany long-range transportation plans (LRPs) and Transportation Improvement Programs (TIPs). Joint FHWA and FTA planning regulations governing the requirement of financial constraint were promulgated in October, 1993. In addition, EPA Conformity Regulations documenting the relationship of the financial constraint requirement to Conformity requirements were handed down in November, 1993. At this, the half-way point of the ISTEA legislation, this thesis analyzes the financial planning requirements as contained in ISTEA, from their historical antecedents to the status of present-day implementation activities across MPOs.

Following a review of the mandate for the financial constraint requirement, a history of public budgeting and financial requirements in U.S. transportation planning is documented in Chapter 2. Several salient issues are identified, a central one being the concern that the requirement may actually do more harm than good, by focusing attention on the limited investment capacity of urban areas. As a remedy to this, Chapter 1 suggests that ISTEA may have been remiss in not adopting the teleetic view of financial planning by requiring both constrained and unconstrained (vision) plans to be developed by MPOs. These plans could inform national transportation policy by documenting the cost-to-complete the re-capitalization, management and expansion of the nation's urban transportation systems.

Chapter 3 conceives a framework for viewing the impact of the financial constraint requirement based upon four stages of transportation planning: System Planning, Program Development, Project Development and Implementation. The roles and responsibilities of various stakeholders in implementing financial planning requirements are identified, including those of MPOs, States, US DOT, the US Congress and transit operators. Techniques for performing analysis and strengthening institutional capacity are suggested.

Chapter 4 examines the experience of three MPOs in their first attempts at implementing the financial constraint requirement. The Philadelphia, Salt Lake City and Seattle regions exhibit varying approaches to and capacities for conducting financial planning. Their experiences provide valuable lessons on best practices and common pitfalls in implementation.

Chapter 5 presents findings for consideration of the financial constraint requirement as we approach re-authorization of ISTEA in 1997.

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## **Chapter 1.0 Introduction**

### **1.1 Research Statement**

How should transportation projects, from the most nondescript to the most high-profile get evaluated, planned and ultimately delivered? In drafting the Intermodal Surface Transportation Efficiency Act of 1991, Congress first and foremost believed that planners should plan within their budgets, to the extent that these can be estimated over a 20 year horizon. Prior to ISTEA, some plans were fantastically unconstrained, with everything thrown in but the proverbial kitchen sink. This type of planning was not very useful in guiding choices when the gap between the 20-year long-range plan and the three- to five-year Transportation Improvement Program needed to be bridged. Project evaluation and prioritization was not a strongpoint of many Metropolitan Planning Organizations, the entities charged with long- and short- range transportation planning in urban areas, where political considerations often obscured technical factors in decision-making. Furthermore, in some states, state (or highway) interests maintained heavy control over the project selection process as a result of the fact that metropolitan plans and programs must be incorporated into state documents and approved by governors before federal funds may be disbursed.

While this approval process remains under ISTEA, the regulations now give primary responsibility of developing plans and programs to metropolitan regions who must work in consultation or in cooperation with states, depending on the pot of money to be programmed. Congress granted MPOs new powers, but required MPOs to perform major new financial planning activities in exchange. The Intermodal Surface Transportation Efficiency Act of 1991 identifies important new responsibilities for Metropolitan Planning Organizations (MPOs) in the transportation planning process. A major requirement in ISTEA states that metropolitan Long Range Plans and Transportation Improvement Programs, the long and short range priority plans in a given region, must be financially constrained. Generally speaking, this means that planned



expenditures of a region over a set period of time must not exceed revenues which can be reasonably expected to be available to that region over the same period of time. The financial constraint provisions of ISTEA are not entirely new. However, administered in concert with Environmental Protection Agency regulations regarding the Conformity of transportation plans and programs to air quality plans, the financial constraint requirement imposes significant new challenges and present historic new opportunities to reform transportation planning.

At this, the halfway point of the legislative period covered by ISTEA, and one and half years since the regulations governing financial constraint were first promulgated, it is appropriate to assess the normative and positive impacts of the financial constraint requirement on the transportation planning process. This thesis analyzes the financial constraint requirement in transportation planning. How is the regulation being implemented? What is the effect of financial constraint on transportation planning processes and products? What is the value added of the requirement? What are the costs of the requirement? These issues are of interest to the transportation planning community at-large, including practitioners, policy-makers and the public. In particular, they will be of interest to the Department of Transportation and US Congress, as these bodies begin to contemplate the re-authorization of ISTEA, which expires in FY 1997.

## **1.2 Scope**

The scope of this thesis is largely determined by the scope of the regulations governing financial constraint. This thesis considers the history and philosophical merits of financial constraint, as well as the legislative background and intent of the requirement, as documented in the October 1993 Metropolitan and Statewide Planning Regulations and the accompanying November 1993 EPA Conformity Regulations. In the interest of brevity, analysis of compliance with the regulations will focus on the requirement as practiced at the metropolitan level by MPOs, and not the States. The reason for this is to control the scope of the thesis topic and because the activities at the MPO level are a

microcosm of inter-governmental relations which - by examining MPO plans and processes - can be a proxy for/indicative of the general health of the planning process in the state as a whole.

Pursuant to this distinction, the scope of this thesis can be stratified in two ways. The first is by stakeholder group, e.g. Federal (Congressional and regulatory), Practitioner (State DOTs, MPOs, transit operators and other project sponsors), and the Public. For these groups, this thesis investigates the appropriate roles, responsibilities and levels of effort by each of the stake-holders in meeting the requirements of financial constraint. A review of available and suggested transportation and financial planning techniques is also included. The second stratification is of the metropolitan planning process itself. Two “snapshot” stages of planning are the Systems Planning stage and Programming stage, represented by the Long-Range Plan and Transportation Improvement Program, respectively. An examination of the products of the planning process further suggests two additional stages of the planning process which should be considered. These are the pre-planning stage, which refers to the genesis of projects, and the implementation stage of transportation planning in which projects and programs are actually delivered.

In addition, as they are important and germane to the discussion of financial constraint, this thesis also considers the topics of state-level planning requirements, metropolitan planning requirements other than financial constraint, and/or other financial provisions of ISTEA, such as flexible funding, as they relate to the financial planning requirements of ISTEA.

### **1.3 Methodology**

As the history of the primary legislation, the ISTEA of 1991 is recent, the literature on the topic of financial constraint is sparse. This thesis therefore relies heavily on case studies of MPOs. The sources of the case studies are the author’s own work experience at the Metropolitan Transportation Commission and one year of research with the Volpe

National Transportation Systems Center, in which Enhanced Planning Reviews were carried out in several urban areas. MPO products, such as the Long Range Plan and the TIP, provide the primary data for analysis. These documents are supplemented with literature, interviews and Congressional testimony as appropriate.

#### **1.4 Review of Chapters**

This thesis discusses the impact of fiscal constraint in transportation planning in four chapters. Chapter two presents the legislative history and intent of the requirement, as well as an historical account of financial planning in federal programs and transportation planning in particular. Upon establishing a context for the requirement, chapter three presents the actual requirements and considers the impact of the requirement - in terms of the objectives, techniques and major challenges of the requirement - using the four stages of transportation planning as a framework. After flushing out the relationship of financial constraint with each step of the transportation planning process, chapter four presents a snapshot of three MPOs and their approaches to implementing the financial constraint requirement in each of the major transportation planning areas. Finally, chapter five presents summary findings and recommendations for improving the implementation of financial planning requirements.

## **Chapter 2.0 Background and Context**

The purpose of this chapter is to provide background and context for viewing the financial constraint requirements in transportation planning. The chapter begins with a review of the primary pieces of legislation mandating financial constraint, the Intermodal Surface Transportation Efficiency Act of 1991 and the Clean Air Act Amendments of 1990. Next, the chapter presents an historical survey of public budgeting. This account sheds light on the evolution of financial planning in transportation planning and the potential for financial constraint to succeed as envisioned in ISTEA. Together, these perspectives set the stage for the presentation of the actual requirements of the regulations governing financial constraint, and consideration of a framework to identify the impact of the requirement on various stages of the transportation planning process in Chapter 3.

### **2.1 The Mandate for Financial Constraint**

The mandate for financial constraint derives from at least three sources: the Intermodal Surface Transportation Efficiency Act (1991), the Clean Air Act Amendments (1990) and other policy directives from the Executive branch. We begin with a look at ISTEA.

**2.1.1 Intermodal Surface Transportation Efficiency Act of 1991.** The primary legislative mandate to financially constrain transportation plans and programs appears in two parts within the section on Metropolitan Planning in ISTEA. The first component of financial constraint is the requirement of financial plans for both the Long-Range Plan (LRP) and the Transportation Improvement Program (TIP). The second component of financial constraint is the requirement that priority consideration be given to system priority needs in the development of these newly required financial plans.

**Financial Plans.** Identical paragraphs under provisions for the Long-Range Plan and Transportation Improvement Program state that each document must, at a minimum:

Include a financial plan that demonstrates how the [LRP/TIP] can be implemented, indicates resources from public and private sources that are reasonably expected to be made available to carry out the plan, and recommends any innovative financing techniques to finance needed projects and programs, including value capture, tolls and congestion pricing.<sup>1</sup>

**Primary Purpose: Reform.** The main purpose of requiring financial plans to accompany LRPs and TIPs is to target and reform the transportation planning process. An excerpt from the metropolitan and statewide planning regulations governing financial constraint lends insight into the legislative intent of the requirement:

It is very clear from the [conference] report language that the Congress included the requirements for financial plans for both transportation plans and the TIPs because of concerns with pre-ISTEA “wish list” transportation plans and TIPs.<sup>2</sup>

Transportation “wish lists” refer to the consistent and gross over-programming of LRPs and TIPs. As products of the transportation planning process, these documents indicate the lack of a substantive planning process in transportation planning and are considered harmful for three reasons. First, the absence of increasing plan refinement at successive stages of the transportation planning process reflects poor project selection processes, undermining the purpose of planning exercises. In addition, deficiencies in project definition, including those in financial planning, cause costly delays at the time of project implementation. Finally, public trust and confidence in the planning process is eroded as a result of these effects. As Murray notes:

With unrealistic [or non-existent] financial assumptions, the overall community vision used to develop the TIP is breached. ... Rather than a program of projects, the TIP [or Plan] is a pool of projects from which to choose; not a self-contained investment program sufficient to implement certain regional goals.<sup>3</sup>

At a minimum, these twin problems - poor project selection processes and project delays - were considered evidence of inefficiencies in the planning process. In the worst case, their

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<sup>1</sup>ISTEA, Sec. 134, Subparts (g)(2)(B) and (h)(2)(B), 105 Stat. 1958-1959.

<sup>2</sup>FHWA/FTA, 23 CFR Part 450 Statewide Planning; Metropolitan Planning, Rule, Federal Register, Vol. 58, No 207, October 28, 1993, p. 58059.

<sup>3</sup>David Murray, “Financial Constraint of the Transportation Improvement Program”, in STPP, ISTEA Planner’s Workbook, ed. Margaret Franko, Washington, D.C., October, 1994, p. 62.

effects compromise public trust. ISTEA targets these undesirable outcomes of “wish list” planning by strengthening project development and implementation activities.

**Plan Development.** Financial plans allow regions to take an objective and detailed look at available resources and expected costs when designing that bundle of strategies which best meets community needs and desires. This examination reveals the extent to which currently available resources will be adequate or inadequate to cover the necessary or desired level of investment. Financial plans identify and quantify resource scarcity. Assuming scarcity is found, the resulting opportunity cost of resources then serves as the mechanism by which plan refinement occurs. By forcing decisionmakers to consider financial realities as they evaluate alternatives, develop priorities and make investment decisions in the transportation planning process, ISTEA financial plans attempt to strengthen, or “give teeth” to the plan development process.

**Implementation.** In addition to improving plan development, ISTEA also intends for financial plans to improve the implementation of those projects as articulated in LRPs and TIPs. In the latter stages of planning, financial plans are expected to act as management tools to minimize delays and contribute to the overall deliverability of the region’s priority investments. In these ways, ISTEA financial planning requirements seek to strengthen and reinforce the transportation planning process from the earliest stages of system planning on through to the actual delivery or implementation of projects.

**Secondary Purpose: System Preservation.** The second component of financial constraint is the identification of system preservation needs as a priority consideration in financial plans. ISTEA states that transportation plans must:

Assess capital investment and other measures necessary to ensure the preservation of the existing metropolitan transportation system, including requirements for operational improvements, resurfacing, restoration and rehabilitation of existing and future major roadways, as well as operations, maintenance, modernization, and rehabilitation of existing and future transit facilities.<sup>4</sup>

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<sup>4</sup>ISTEA, p. 105 Stat. 1958.

The purpose of assigning priority to system preservation needs in financial plans is twofold: to further emphasize good planning practice through resource management, and to promote the idea of system management, a function which will be increasingly necessary in the post-Interstate era.

**Resource/Asset Management.** In conjunction with the mandate for Management Systems, ISTEA's financial constraint requirements emphasize the need for greater efficiency in the transportation planning process. Whereas financial plans discipline the planning process from a theoretical basis, the requirement of system preservation fortifies the notion of efficiency in a more tangible way: by focusing attention on responsible management of the existing asset base. This component of financial planning embraces the view that the use of sound investment principles should not end with the construction of facilities and the purchase of plant and equipment. Efficient operation, maintenance and preservation of assets are all necessary in order to maximize total system benefits.

**System Management.** Finally, the emphasis on system management brings the purpose behind financial constraint - to strengthen the planning process - full circle by closing the loop in the planning cycle. Financial constraint contributes to ISTEA's overall emphasis on system efficiency by acknowledging the increasingly important role of system management in future planning activities. Viewed in this way, financial constraint fights two transportation policy "wars". The first is a war left over from pre-ISTEA times: the promotion of good planning practice. The second war heralds the dawn of a new era in transportation planning. ISTEA financial constraint exhorts decision-makers to think critically and creatively about the next generation of transportation projects and programs. ISTEA challenges regions to recognize that they can no longer build their way out of congestion problems, and must look instead for ways to better "manage what they've got".

Through the requirement of financial plans and the priority consideration of system preservation, ISTEA attempts to establish comprehensive financial planning as a core activity within the practice of transportation planning. In conjunction with other ISTEA planning requirements including Public Involvement, Management Systems, and Major Investment Studies these new financial planning requirements are intended to strengthen the planning process, ensure more timely delivery of plans and programs, focus resources upon system preservation, and re-direct attention to new system management challenges.

**2.1.2 Clean Air Act Amendments of 1990.** EPA regulations governing the Conformity requirements of the Clean Air Act Amendments of 1990 strengthen the primary legal mandate for financial constraint as articulated by ISTEA. Transportation Conformity refers to the consistency of transportation plans and programs to air quality plans as presented in State Implementation Plans or SIPs. The SIP is an air quality management plan which contains rules and regulations for air pollution sources under State control and a demonstration that the State will attain the national ambient air quality standards (NAAQS) by the dates set forth in the Clean Air Act.

As a pollution control strategy, Transportation Conformity is based on statutory language in the CAAA 1990, which has antecedents in the CAAA of 1977. Section 176:

Limitations on Federal Assistance states that:

“no department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve, any activity which does not conform to a(n) (state) implementation plan after it has been approved or promulgated under Section 110. The assurance of conformity to such an implementation plan shall be an affirmative responsibility of the head of such department, agency, or instrumentality.”<sup>5</sup>

In particular, a finding of Conformity means that transportation activity in a region will not

- cause any new violations of the National Ambient Air Quality

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<sup>5</sup>Sarah Siewick, "Conformity", in *STPP, ISTEA Planner's Workbook*, ed. Margaret Franko, Washington, D.C., October, 1994, p. 80.



- cause any worsening of existing violations, by demonstrating that the “build” scenario provides more emissions reduction than the “no-build” scenario.
- delay the region’s effort to attain NAAQS in a timely manner. (Transportation plans and programs must provide priority funding for transportation Control measures identified in the SIP in a timely manner.)

These underlying concepts of Conformity have been in place for over two decades. Over time, however, it became apparent that projects were being implemented at an uneven rate; highway projects were being completed faster than transit projects. The reasons behind this phenomenon range from the lack of a dedicated revenue source for transit to the presence of institutional factors which were more favorable to highway projects. A major purpose of linking transportation plans and air quality plans through financial constraint therefore, was to address the general implementation bias against transit projects. Financial planning requirements for plans and TIPs were sought to demonstrate sufficient resources to deliver all projects for which environmental benefits were being claimed.<sup>6</sup>

Final EPA Conformity regulations were promulgated in November 1993. With respect to financial constraint, the regulations state that:

EPA believes these ISTEA requirements will adequately ensure that the transportation activities analyzed for conformity can realistically be built, and therefore is proposing that plans and TIPs comply with the ISTEA requirements.<sup>7</sup>

In this way, the CAAA strengthened the implementation purposes of the financial planning requirements in ISTEA. Conversely, financial constraint requirement lends a tangible measure of enforcement to the air quality planning process such that TCMs and other projects that may be beneficial to air quality are not continually postponed due to lack of funding or funding commitment. Acknowledging these perspectives in an article on air quality Conformity, Siewick writes that “[financial constraint] is potentially a powerful

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<sup>6</sup>Ed Weiner, Office of the Secretary, U.S. DOT, personal conversation, 4/24.

<sup>7</sup>EPA, 40 CFR Part 51 “Criteria and Procedures for Determining Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Funded or Approved Under Title 23 U.S.C. or the Federal Transit Act”, Federal Register, Vol. 58, No.6, January 11, Section VI Part C.

tool in reinforcing the linkages between air quality attainment plans and transportation plans and will require a high degree of discipline and willingness to make investment trade-offs on the part of local, regional, and state transportation professionals and policy-makers.”<sup>8</sup>

Theoretically, this suggests that Conformity determinations for plans and TIPs depend upon affirmative findings of financial constraint. It remains to be seen whether financial constraint will be enforced to this standard, and if so, by which regulatory agency, DOT or EPA. In addition, it remains to be seen how regulations in either the CAAA or ISTEA will fare in the new Republican Congress. In any case, it is important to recognize that the legislative mandate for financial constraint derives primarily from ISTEA; the CAAA only further strengthens one component of the ISTEA directive: the emphasis on plan and program implementation.

**2.1.3 Other Policy Directives.** In addition to the legislative mandate to perform financial planning as contained in ISTEA and the CAAA, additional policy directive emanates from the executive branch through Executive Orders and U.S. DOT policies. Executive Order 12893, “Principles for Federal Infrastructure Investments” instructs executive departments with infrastructure responsibilities to observe the following principles:<sup>9</sup>

- *systematic analysis of expected benefits and costs;*
- *efficient management of infrastructure*, including the promotion of market-based mechanisms for managing infrastructure;
- *private sector participation in infrastructures investment;* and
- encouragement of more effective state and local programs (*emphasis added*).

In addition, pre-ISTEA DOT financial planning policies provide an historical mandate for financial planning. These resided primarily in the Federal Transit Administration. They are presented later in this chapter.

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<sup>8</sup>Siewick, p. 85.

<sup>9</sup>National Transit Institute , Financial Planning and Programming for MPOs, U.S. DOT/Rutgers University, August, 1994, p. 1-4.

As intended by ISTEA, the CAAA and other policies, the requirement of financial constraint has several purposes. Through financial planning, the goal of financial constraint is to strengthen the transportation planning process by 1) promoting more responsible and efficient system planning and resource management, 2) to ensure the deliverability of projects forwarded in transportation and air quality plans, and 3) to encourage broader thinking on ways to manage the existing system and consider future initiatives.

**A note on terminology.** We digress momentarily to note that it is at once interesting and unfortunate that the financial planning requirements in ISTEA have come to be known collectively as “financial *constraint*”. Unfortunate because, in our attempt to evaluate the merits of this requirement, the pejorative connotations of the word “constraint” may bias the perception of these requirements prematurely. Accounting for this potential bias is made all the more important at the start of our evaluation because the overriding debate surrounding the financial constraint requirement focuses on the potential for financial constraint *to in fact constrain itself*. We introduce the reader to this central debate by way of an example which also serves to provide context for viewing the requirement.

A major concern regarding financial constraint in the transportation community is that the requirement itself is misdirected. Arguably, transportation and other urban needs generally far exceed the level of resources currently available to them. By drawing attention inward to scrutinize these investments, rather than focusing outward on the larger debate at the national level, the fear is that financial constraint may *further* constrain or harm the position of transportation interests relative to other interests. Indeed the financial stakes of these issues dwarf those of financial constraint by orders-of-magnitude. Any crippling effect that the requirement has on transportation interests in this arena would be a perverse and unintended outcome of the requirement. This paper strongly takes the position that transportation and other urban needs are critical to our national interest and deserve continued national attention and support. However, the evaluation of financial

constraint's influence on this area of advocacy should not be confused with the greater issue of inadequate financial resources for transportation and other urban uses in general. Indeed, the topics are intimately related and their relationship is complex; we analyze these presently. However, it is important here to account for any tendency toward bias at this early stage of our analysis.

As in any policy evaluation, this thesis investigates the possibility that the financial constraint requirement could do more harm than good to transportation interests. The preceding presentation of the financial planning requirements of ISTEA demonstrates that there would be no loss of accuracy to discuss the requirements of "financial planning" and "financial constraint" synonymously. In order to address the potential for bias, therefore, these terms will be used interchangeably for the remainder of this paper to the extent that their use facilitates the impartial evaluation of the requirement.

**Whither Financial Constraint?** ISTEA and other sources provided the purposes of financial constraint, while the metropolitan planning regulations interpreting and implementing them were promulgated in October, 1993. At this time, regions all across the country are in various stages of delivering the first planning products to be developed under the new planning regulations. One purpose to this thesis is to evaluate the first ginger steps which have been taken in the area of financial planning, from regulatory, practitioners' and general public perspectives. We begin our analysis by establishing the objective function of transportation planning from the perspective of the public interest. Let us optimize the continuous delivery of the "best" mix of transportation projects for a given region, where "best" is a little black box, self-defined by the region in question. Questions which help to focus our analysis are: How is the continuous delivery of the "best" mix of projects helped or hindered by linking planning and budgeting through financial planning requirements? Does financial constraint effectively turn plans into budgets? What is a plan? a financial plan? a budget? Can distinctions be made regarding each of these products, their methodologies and/or processes to better understand the potential for financial constraint? Tackling these questions is critical to the demonstration

or rejection of the key arguments for financial constraint, and to the identification of measures needed to support its intended purposes. To begin these tasks, we review the history of public budgeting in government in general and the history of financial planning in transportation in particular. In this way, we gain an appreciation for the ways in which financial constraint is consistent and descendent from that history.

## **2.2 Plans, Financial Plans and Budgets**

What is the difference between the financial plans mandated by ISTEA and public agency budgets as we know them? Larry Dahms, Executive Director of the Metropolitan Transportation Commission, often refers to the agency's long-range plan, the Regional Transportation Plan, as a "20-year transportation budget". Others are not so comfortable viewing the plan as a budget and in fact find the two ideas radically different from one another. In what ways and to what extent should plans be budgets and vice versa? On this question, the extensive history and literature on public budgeting prove instructive. We begin with a discussion about the generic features of budgets.

### **2.2.1 The Idea of Budgets.**

*Budgets are not merely affairs of arithmetic, but in a thousand ways go to the root of prosperity for individuals, the relation of classes and the strength of kingdoms.*  
- Gladstone<sup>10</sup>

For these and many other reasons, budgeting has always been one of, if not the most important and complex functions of government. Difficulties lay both in the technical and political aspects of budget preparation. To begin to understand the purposes and problems in budgeting it is useful to adopt a working definition of budgets.

**Definition.** Lynch provides an excellent working definition of a budget:

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<sup>10</sup>Albert C. Hyde, Government Budgeting: Theory, Process, and Politics, Brooks/Cole Publishing Company, Pacific Grove, CA, 1992,p. 1.

[A] “budget” is a *plan* for the accomplishment of *programs* related to *objectives* and *goals* within a definite *time* period, including an estimate of *resources required*, together with an estimate of the *resources available*, usually compared with one or more *past periods* and showing *future requirements*.<sup>11</sup>

This definition is preferred over others because it links budgets with goals and objectives, where others do not.<sup>12</sup> Arguably, this distinction may be the difference between budgets and financial plans, as we shall see later. All decision-making environments can be inherently characterized by normative considerations. Microeconomics recognizes this reality about the decision-making environment through the assumptions of 1) scarcity, 2) discrete choices, and 3) *ordinal preferences*. As a decision-making process, budgeting is a highly value-laden process, and for that reason, it is always a political process. A working definition should reflect this reality.

**Purpose.** Budgets serve a variety of purposes. Duncombe offers a relatively comprehensive and pragmatic view of the main purposes of budgeting:

...the budget system [is] a means of balancing revenues and expenditures.  
...the budget process [is] a semi-judicial process....  
The main purpose of the budget system is accountability.  
The most important single reason for a budget system is control.  
The executive budget document should be an instrument of ... policy.  
Budgeting is public relations.  
A budget is an instrument of good management.  
A budget is really a work plan with a dollar sign attached.  
The budget is an instrument of planning.  
Budgeting is the art of cutting the most fat from an agency request with the least squawking.<sup>13</sup>

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<sup>11</sup>Thomas D. Lynch, Public Budgeting in America, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1979,p.5.

<sup>12</sup>Interestingly, Congressional appropriations activities in the House of Representatives take place in the Ways and Means Committee. Ostensibly, this committee’s name refers to the ways and means to achieve policy goals.

<sup>13</sup>Sydney Duncombe in Lynch, p. 3.

While these ideas illustrate the range of purposes budgets serve, they can be narrowed down to four commonly accepted general approaches to budgeting. Budgeting may be viewed 1) as a political instrument, 2) as a tool to exercise control and accountability, 3) in light of its management function and 4) as a means of planning. As a “top-down” political instrument, the budget reflects implementation of policy through the allocation of scarce resources. Alternatively, budgets may be used as “bottom-up” political instruments to reflect actual needs and to serve as advocacy documents. Control refers to society’s implicit contract with budget-makers, which trades the political power of budgets for the assignment of accountability in the administration of public funds. The management function stresses use of the budget or budget process as a means to evaluate and monitor performance and therefore act as a tool for extracting increased operational efficiency. Finally, the planning orientation of budgets suggests that budget processes can be used to systematically evaluate alternative means to achieve stated goals, and through the use of decision-making tools and processes, iteratively re-set means and ends in a continuous manner. Shick provides a table of the control, management and planning orientations of budgets and stratifies these by their many characteristics (see Table 2.1).

**Table 2.1 Basic Differences Between Budget Orientations<sup>14</sup>**

<i>Characteristic</i>	<i>Control</i>	<i>Management</i>	<i>Planning</i>
Personnel Skill	Accounting	Administration	Economics
Information Focus	Objects	Activities	Purposes
Key Budget Stage (central)	Execution	Preparation	Pre-Preparation
Breadth of Measurement	Discrete	Discrete/Activities	Comprehensive
Role of Budget Agency	Fiduciary	Efficiency	Policy
Decision-Flow	Upward- Aggregative	Upward- Aggregative	Downward- Disaggregative
Type of Choice	Incremental	Incremental	Teletic
Control Responsibility	Central	Operating	Operating
Management Responsibility	Dispersed	Central	Supervisory
Planning Responsibility	Dispersed	Dispersed	Central
Appropriations Link	Direct	Direct	Crosswalk

<sup>14</sup>Allen Schick, “The Road to PPB: The Stages of Budget Reform”, in Hyde, p. 47.

As Schick shows, the purposes of and characteristics of budgeting are myriad and complex. For this reason, many more factors are likely to frustrate the budget process than help it. For example, political gridlock can result at many points in the budget process for any reason from parochialism to lack of good technical information. Taken to the extreme, the control function can result in net losses in efficiency, through excessive oversight and/or orientation to detail. The management function commonly breaks down in that evaluation and monitoring are either not performed or are not carried out meaningfully. Finally, the planning function requires a fair amount centralization, resources and skills, in order to be carried out effectively.

The planning function of budgets is our main area of interest, and so we look to the history of this orientation of budgeting. In particular, four of Schick's budget characteristics may be viewed as prisms through which we can perform analysis during our investigation. Breadth (and Depth) of Measurement refers to trade-offs between comprehensiveness and ease of use of processes and methods, and serves as a good measure of the burden of calculation or transaction costs. Role of Budget Agency refers to the institutional orientation of agencies, and will aid us by capturing the varying stakeholder perspectives in planning and budgeting. Decision-Flow refers to the many dimensions of decision processes in budgeting (i.e. bottom-up vs top-down flows, open vs. closed, centralized vs. decentralized). And finally Type of Choice presents an opportunity to discuss the appropriateness of those decision tools and models that are available for use in decision-making process.

**2.2.2 Planning-Programming-Budgeting.** Our interest in the planning function of budgets leads us to identify the rise of the planning function in government budgeting, which occurred during the Johnson administration in the mid-1960's.<sup>15</sup> Led by Robert McNamara and the Department of Defense, the movement to institutionalize planning tools and processes in the budget process resulted in the Planning-Programming-Budgeting (PPB) system for federal budgeting. PPB utilized analysis, data and statistics in

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<sup>15</sup>For a more thorough discussion, see Chapter two of Lynch, pp. 19-43.



the budgeting process as a means to link long-term plans and policies with near term budget activities. This innovation toward planning activities represents a significant change in public budgeting in America.<sup>16</sup> While the control and orientation roles of budgeting still existed in PPB, “PPB is predicated on the primacy of the planning function.... [and would] delegate *primary* managerial and control responsibilities to the supervisory and operating levels respectively.”

David Novick, generally credited as the originator of the concepts in PPB, presents a ten-point description of the major features of program budgeting (see Figure 2.1).

**Figure 2.1 What Program Budgeting Is<sup>17</sup>**

1. Definition of objectives in as specific terms as possible.
2. Determination of programs and alternatives to achieve objectives.
3. Identification of issues to be resolved in development of programs.
4. Annual cycle with subdivisions for planning, programming and budgeting, with sufficient time for analysis and decision-making.
5. Continuous re-examination of results in relation to costs and expectations.
6. Recognition of issues which require more time than was anticipated so that they can be set apart from the current period and addressed subsequently.
7. Analysis of programs in terms of probable outcomes and their direct and indirect costs.
8. Development of analytical tools for measuring costs and benefits.
9. Development each year of a multi-year program and financial plan.
10. Adaptation of existing accounting and statistical reporting systems to provide inputs into planning and programming as well as continuing information on resources used in and actions taken to implement programs.

The primary purpose of program budgeting was to provide federal government officials with a formal, systematic method to improve decisions concerning the allocation of resources at

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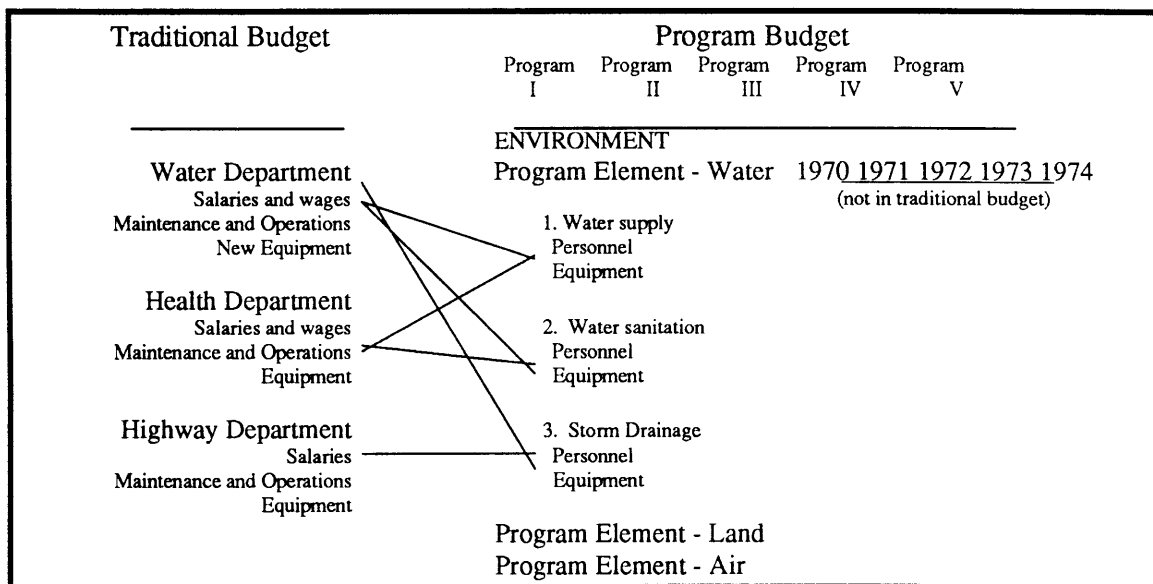
<sup>16</sup>The planning movement was preceded by two other budget reform movements: Control and Management. Control was the focus in during the Depression era, while the management-orientation reached its zenith during the New Deal years. Following PPB, modern budgeting continued to experiment with reforms such as Management-by-Objective (MBO) in the mid-70's and Zero-Base Budgeting (ZBO) in the late 70's. See Schick, “The Road to PPB: Stages of Budget Reform” in Hyde for a more complete discussion of these movements.

<sup>17</sup>David Novick , “What Program Budgeting Is and Is Not”, in Hyde, p. 342-343. List is slightly edited for length.

the federal level of government. Program budgeting differed from traditional budgeting in at least three ways: structure, use of analysis and for its recursive features.

**Structure.** Structurally, program budgeting rejected traditional budgets formats in which costs were assembled by type of input, or line item, by administrative or organizational unit.

**Figure 2.2: Traditional Line Item Budget vs. Program Budget<sup>18</sup>**



Instead, once goals, plans and programs were chosen, PPB organized costs or budgeted, by *programs*. This allowed an orientation to output rather than input, and a consistent assessment of the effectiveness of investments within and among programs (see Figure 2.2). This information was then used to provide information for the subsequent budget cycle.

**Analysis.** Emphasis on analysis was the second defining feature of the system. In part, the rise of PPB can be attributed to developments in the rational model of decision-making. Conversely, the power of analysis embodied by the tools of the rational model made it eminently superior to other methods of decision-making as a means to support

<sup>18</sup>Novick, "What Program Budgeting Is and Is Not", in Hyde, p. 343.

planning activities in budgeting. The rational model promotes the development of a complete set of goals, alternatives, and analyses in support of choosing the alternative(s) with the highest net benefit. These tools were developed by welfare economists in the 1930's and operations researchers and systems analysts in the 1950's.<sup>19</sup> Welfare economics developed micro-economics concepts of utility and choice, and notions of overall measures of welfare and efficiency. Operations researchers likewise sought and developed tools of optimization. And finally, systems analysts tackled the more global class of problems for which the objectives are either not known, interconnected, or are subject to change.<sup>20</sup> These disciplines developed analysis tools such as marginal utility analysis, cost-benefit studies, cost-effectiveness analyses, sensitivity analysis, pay-off matrix, present values and other techniques which were later applied to the evaluation of alternatives and the goals they were meant to serve.<sup>21</sup> It is important to note the argument that the quest to measure social utility and apply these tools to resource allocation, is inherently impeded by the presence of intangibles not easily accounted for by available methods.<sup>22</sup> This view concludes that welfare economics fails to contribute directly to the budget process. Others however, note that welfare economics contributes to the budget rule that "expenditure proposals should be considered in the light of the objectives they are intended to further, and in general final expenditure decisions should not be made until all claims on the budget can be considered."<sup>23</sup> In addition, where sufficient data were lacking or quantitative analyses was inappropriate, program budgeting called for analytic approaches or qualitative measures to capture these effects where possible.<sup>24</sup>

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<sup>19</sup>For a complete account of these developments see Schick, pp. 55-60.

<sup>20</sup>Aaron Wildavsky, *Budgeting: A Comparative Theory of Budgetary Processes*, Little, Brown and Company, Boston, Massachusetts, 1975, p. 320-321. Note: the process of choosing and modifying both means and ends hearkens the evolution of the exalted concept of total efficiency to a new concept of mixed-efficiency. This notion acknowledges that total optimization is an ephemeral concept and instead emphasizes the dynamic optimization of continuous processes.

<sup>21</sup>As we will note later, these disciplines also spawned *predictive* analytic methodologies which were also adopted by transportation planning.

<sup>22</sup>V.O. Key in "The Lack of a Budgetary Theory", Hyde pp. 22-26.

<sup>23</sup>Arthur Smithies, *The Budgetary Process in the United States* (New York: 1955) p. 16.

<sup>24</sup>Clearly however, the adoption of the rational model represents a choice over other models of decision-making. We explore these comparative models of decision-making and decision-processes presently.

**Recursion.** The third feature of the program budget was the recognition of the future budget implications of present decisions. This feature was instituted by calling for multi-year programs and financial plans, in addition to developing the current year budget. In addition, the program budget structured information and reporting systems so that outputs, or statistics, of these systems could be re-used in the planning or programming steps of the process. These innovations cannot be underestimated. By bridging the functions of planning, programming and budgeting temporally, and developing the recursive features of planning, program budgeting provided a comprehensive, continuing and coordinated framework for decision-making within an organization. An early description of the Transportation Improvement Program demonstrates this feature of the program budget:

[the] T[ransportation] I[mprovement P[rogram] provides continuity between the transportation planning process, the transportation plan and the projects included in the annual ... element. As such, the TIP provides a framework in which to place, in perspective, those projects which are proposed for implementation with the policies and strategies of the area described in the transportation plan (not necessarily discrete projects).<sup>25</sup>

Together, the program budget concepts of program structure, analysis and recursion reached far beyond the scope of traditional budgeting.

**The Convergence of Planning and Budgeting in PPB.** We comment upon the role that micro-economic and other decision-making tools played in the rise of planning-oriented budgeting. Yet the explanation of the convergence of these two dissimilar activities would be incomplete without a discussion of the impact that Keynesian macro-economic principles had on the use of fiscal policy to advance social goals and objectives. Intuitively, it is not surprising why planning and budgeting might not have been linked in this way before, and even since, the Keynesian revolution. Mosher notes that “budgeting and planning are apposite, if not opposite. In extreme form, the one means saving; the other,

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<sup>25</sup>Department of Transportation, FHWA/UMTA, “Urban Transportation Planning; Final Rule”, Federal Register, Vol. 48, No. 127, June 30, 1983

spending.”<sup>26</sup> In addition, there were philosophical barriers to the use of planning in public budgeting activities. As Schick writes, “The national government [had] been reluctant to embrace central planning of any sort because of identification with socialist management of the economy.”<sup>27</sup>

With origins in the underemployment era of the Great Depression, however, Keynesian economics uncovered the macro-economic potential of government expenditures on the general economy, and with this, the interest in federal budget processes as a means of carrying out policy.<sup>28</sup> At a time when the marginal cost of labor is arguably low to nil, and in search of a mechanism to deliver large-scale, employment generating public works projects into the economy, government officials eventually looked to planning approaches and their aforementioned tools. There are several reasons why the planning function was attractive to budgeters as this interest took hold. We have already identified the availability of rational model tools to perform alternatives analyses and statistics to measure outputs. In addition, as Schick points out, planning is future-oriented, strives for comprehensiveness and is means-oriented.<sup>29</sup> For these reasons, the planning-orientation of budgeting was considered a useful approach to employ in the comparison of the large, discrete and expensive types of projects that were the first to be advanced during the New Deal and after World War II. These public works projects included water projects, defense projects, and, through the Federal-Aid Highway Act of 1956, the National System of Interstate and Defense Highways.<sup>30</sup> As we shall show presently, this common characteristic - lumpiness - of transportation projects and defense projects allows for interesting comparisons between the evolution and relative successes of financial planning requirements in DOD and at DOT. For now we conclude our presentation of what constitutes PPB and begin to evaluate its historical experience in various areas of public budgeting.

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<sup>26</sup>Frederick C. Mosher, Program Budgeting: Theory and Practice, (Chicago: 1954), p. 48.

<sup>27</sup>Schick, “The Road to PPB: The Stages of Budget Reform”, in Hyde p. 57.

<sup>28</sup>Ibid, p. 55.

<sup>29</sup>Ibid, p. 57.

<sup>30</sup>Ed Weiner, Urban Transportation Planning in the United States: An Historical Overview, USDOT, Revised Edition, November 1992, p. 34.

**The Fate of PPB.** Though adopted widely throughout government and by the planning profession, the rational model and the PPB movement generally were not considered successful in the 1970's. In fact, detractors scorned the system as being idealistic, overly intellectual and fraught with burdensome exercises. Operationally, PPB had a tendency to centralize government and had a reputation for being impossible to implement as conceived, that is, objectively. Using examples from case histories of the use of PPB in Congress and at the Department of Agriculture, Wildavsky identifies three main obstacles to PPB: the difficulty of creating the new program categories, the political challenge of internal as well as external buy-in to these, and the problem of overlapping or indiscreet costs associated with different programs or alternatives.<sup>31</sup> (As we shall see later in our analysis of the transportation experience, the design of program structure, presence (or absence) of institutional factors and the multiple objectives of transportation policy all have had major effects on the administration and implementation of financial planning and budgeting requirements.)

Unsurprisingly, the one area in which PPB was considered a modest success was at the Department of Defense, where PPB enjoyed its genesis. Though budgeting at DOD still relied heavily on incrementalism, (the approach ostensibly supplanted by the rational model), there PPB did result in the use of analytic methods and statistics to inform decisionmaking.<sup>32</sup> Wildavsky identifies the confluence of five factors to explain this apparent success: 1) highly talented RAND Corporation analysts were employed in the early years of PPB at DOD, 2) the benefit of a common terminology and use of analytical approaches, 3) leadership (i.e. Secretary McNamara) committed to and aggressive about PPB, 4) the pre-existence of planning functions within the department, and 5) the predisposition of the types of choices to be made (i.e. alternative weapons systems, the siting of military bases) to PPB methods of analysis. Despite the demonstration of modest success at DOD, however, critics generally agreed that PPB had limited influence on the

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<sup>31</sup>see Wildavsky Chapter 15 and pp. 344-345.

<sup>32</sup>Ibid, p. 345, p. 355.

major resource allocation decisions in domestic agencies of the federal government. The inadequacy of the rational model to account for political externalities and its analytic intractability were the most popular reasons for this assessment.

**Inadequacies of the Rational Model.** Here we consider the issues of political considerations and intractability. These were considered significant enough to doom PPB as a movement, but are they insurmountable? The success of PPB at DOD already suggests they are not, though other problems specific to PPB such as program structure, institutional factors and the multiplicity of objectives may be. At this time, we devote our attention to investigating the more global problems of the rational model.

**Political Externalities.** It is not surprising that political considerations often dominated technical considerations where PPB was attempted. After all PPB was instituted in federal agencies responsible for major public programs. In addition, Diesing argues that “political rationality is the fundamental kind of reason,” and that “the political problem is always basic and prior to the others.”<sup>33</sup> Indeed, program budgeting and the rational model do not explicitly account for the political cost and benefit of a given alternative - a major deficiency in light of the political purposes of budgets. Programs which administer major projects with large macro-economic effects such as defense or transportation projects are especially susceptible to this type of political intervention. In fact, these investments involve so close a mixture of political and economic considerations that it is often not possible to disentangle them.<sup>34</sup>

As an example, development of the federal Interstate Highway program was rife with political considerations, i.e. the economic development of certain “backward” regions, facilitating the movement of defense supplies, and meeting the needs of key public

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<sup>33</sup>Paul Diesing in Wildavsky, pp. 330 and 333.

<sup>34</sup>Indeed, based in the rational model, financial constraint, is just the latest from a long line of tools whose utility is questioned on the basis of this argument. Consider the cost-effectiveness index in transit planning. There, the political process is the forum in which non-technical issues are considered and often win out over technical ones. Decision-making under financial constraint is susceptible to the same types of developments.

officials. Though cost-benefit analysis might have shed light on certain areas of decision-making, Meyer concludes that “given the complexity of the political and economic decisions involved, and the emphasis on designing a geographically consistent system, it probably would be difficult to improve on the congressional process as a means of developing such a program in an orderly and systematic way.”<sup>35</sup>

It is important to note, however, that even in the administration of the Federal Interstate Program, sophisticated mechanisms of financial planning were employed to manage federal disbursements in an efficient and effective way. As a means of estimating total costs for the system, and in order to determine the best way to apportion funds for this large, 20-year plus program to states with dissimilar stakes in the system equitably, Congress asked each state to estimate the total costs required to build its portion of the system. In this way, apportionments could be based upon each state’s “Cost-to-Complete” its portion of the total system. States were responsible for spending down their apportionments with an incentive redistribution program in place to direct funds to the states which could utilize them fastest. In this way, the national interest or “vision” (the Interstate Program) was served (delivered) by an effective and efficient means to allocate and manage program funds. Some features of transportation financing mechanisms changed as the Program neared completion, whereas others were retained. For example, the federal obligation ceilings and redistribution programs continue to play a role in managing federal disbursements. However, as state interests become more in line with federal interests with respect to use of the Interstate System, this generated interest in revisiting states’ donor/recipient statuses relative to their contribution to the Highway Trust Fund. As a result, ISTEA supplemented states’ Minimum Allocation with three new provisions which increase to 90% of contributions the guaranteed amount that states receive back from the Highway Trust Fund.

There are important lessons to be learned from the history of the federal Interstate Program. Arguably, the national interest remains the same: the economic health, safety

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<sup>35</sup>J. R. Meyer “Transportation in the Program Budget” in Wildavsky, p.327/



and quality of life of our urban areas is of paramount importance. However, the emphasis of this interest has evolved from a more centralized single-purpose program to a much more complex decentralized goal of intermodal system management. In the absence of a clear objective such as the building of the Interstate, Congress must rely upon regions to decide for themselves how best to maintain the maturing systems, and to usher in the next era of transportation investments. In this way, financial constraint may be viewed as the post-Interstate attempt at a “Cost-to-Complete” exercise, aimed this time at MPOs instead of States. In contrast to the top-down orientation of the Interstate Program, the national vision is instead comprised of the collection of bottom-up local, state, regional and national needs and visions as expressed in constrained and unconstrained transportation plans and programs. Viewed in this way, financial planning serves a potentially major federal purpose - to facilitate the collective development of the national “vision” or post-Interstate “national interest”. As this view relies upon financial planning to support unconstrained as well as constrained plans in order to develop a complete assessment of needs, this is one purpose which ISTEA may not have fully recognized or anticipated. The legislation does not require “vision plans” to accompany financially constrained plans and programs. We return to this subject later in this chapter.

Clearly political externalities will continue to manifest themselves in decision-making at all levels of government. The Congressional model - an extreme example of politics in decision-making - is an appropriate system for delivering major national programs; yet even decision-making at this level benefits from financial planning, especially in the implementation stages of program delivery. At best, political considerations ensure geographic equity and possibly, social equity through the re-distributive effects of qualifying projects. This is a net benefit where there exists a great enough need for projects such that it is safe to assume most satisfy threshold criteria, though not all projects are equally deserving of funding based on their merits. Moreover, though important, it is not clear that merit should be the only criterion by which to judge projects. For example, if the FTA cost-effectiveness criterion were the only criterion applied to transit projects across the board, arguably the majority of projects would be funded in the

Northeast, where systems are old and extensive, and needs are greatest. Clearly, however, the disadvantage of a system decision-making based purely on political considerations is the obfuscation of policy signals to observers of the process. Without being balanced by financial considerations this can result in skewed decision-making at lower levels of government. We return to this topic and an example in transit planning later in this chapter.

**Intractability.** More troubling than the argument of politics as a reason to reject PPB-like exercises is the contention that no one knows how to do program budgeting, and in fact, that it is impossible to do (and still achieve net benefits from the exercise). One critic noted facetiously that program budgeting is “like the simultaneous equation of governmental intervention in society.”<sup>36</sup> If one can solve that equation, one has solved the problems of the world! Surely, a more sagacious view can be taken. We look to a generalized model of decision-making to see if this is indeed the case.

**2.2.3 Toward a Generalized Theory of Decision-Making.** A generalized theory of decision-making helps us to evaluate the general strong-points and deficiencies of the rational model. Here we introduce a comparative analysis of various decision-models and processes which sheds light on our evaluation of the rational model.

**Alternative Models.** Recall that the rational model of decision-making was adopted by PPB because its tools could be applied to the Type(s) of Choice(s) that were prominent at that time. Other decision-making models were likewise and continue to be useful in planning and budgeting decision-making. These often are used to complement or supplement rational model tools in resource allocation decisions and include the incremental model, satisficing model and problem-solving model.<sup>37</sup> In the incremental model, public policy evolves through iterations of incremental appeals to improve a base condition. Appeals are met with either accommodation or rejection. This model is

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<sup>36</sup>Wildavsky, p. 364.

<sup>37</sup>Lynch, p. 22-23.

inherently reactive and conservative, and can be found at higher, more political levels of decision-making, i.e. in Congress. The satisficing model is based on developing criteria to meet goals and objectives and searching for the first available alternative to satisfy them. In this case, the necessary equals the sufficient. The primary features of this model are its screening characteristics and avoidance of opportunity costs of more lengthy or exhaustive searches. Finally, the problem-solving model is notable because it begins not with goals and objectives, but rather with the perception that a problem exists. This type of needs-based decision-making typifies “bottom-up” planning. The utility of each of these models or some combination of them depends upon the Type of Choice which needs to be made and the “stakeholder” who is making the choice. This consideration hints at the importance of Federalism in public planning and budgeting processes which we consider in more detail later.

**Alternative Processes.** Like the models they employ, decision-making processes differ in important ways as well. Two important dimensions by which decision-making processes may be characterized are their level of centralization and their transparency to other decision-makers or the general public. Loosely, we consider these as proxy measures of transaction costs and politics, respectively. For the sake of brevity, we choose to compare and contrast the extreme combinations of these for illustrative purposes. These are the highly centralized, relatively closed and the group-oriented, more open processes of decision-making. In general, the advantages of the closed and centralized decision-making process are a greater chance of consensus and lower transaction costs, and the opportunity to abandon partisan views and reach compromise faster where differences of opinion do exist. The main disadvantage to this process is the heavy reliance upon well-intentioned and even-handed participants, or conversely, the potential for the abuse of power. The more open and group-oriented process is most attractive for the high level of vigilance it affords. However, it suffers for its intractability both in terms of transaction costs and the potential for hold-outs. In addition, where there exists a weak or unassuming public, as in the Machiavellian case of the closed/centralized process, the open/group-oriented process is likewise susceptible to a “tyranny of the majority”. It is important to contrast these

decision-making processes as we consider the implications of a single set of policies or regulations which must be applied to a diverse set of decision-making environments. Decision-making environments are diverse for any number of historical or cultural reasons. Recognizing this, we make no a priori judgments regarding either decision-making process. It is simply sufficient to note that regardless of the decision-making process which exists, defensible analysis will not hurt and can generally only improve the decision-making process, raising the level of debate and resulting in more informed and therefore “better” decisions.

**Defensible Analysis.** It is true that the questions in budgeting and financial planning are demanding. They are not impossible to solve, but they may be impossible to solve without analysis. Analysis is a necessary and powerful in tool planning and budgeting. As Quade points out: “The use of analysis can provide some of the knowledge needed, ... serve as a substitute for experience, and most importantly, ... can work to sharpen intuition.”<sup>38</sup> As we shall see in Chapter 3, the fruits of intuition pay off when “expert judgment” can be used in forecasting and other planning exercises. However, we would be remiss to sing the praises of analysis without considering the “costs” of good analysis. Most would agree upon the value of analysis, the question is at what point does the burden of analysis outweigh the benefits? To address this question, we consider the concept of “defensible” analysis. “Defensible” analysis refers to maintaining the quality of analysis independent of the resources which were devoted to it. Any level of effort, from the back-of-the-envelope calculations to the most sophisticated model output, should involve defensible and informed assumptions and methodology. In this way, the marginal burden of calculation is always balanced against the marginal benefit of performing the analysis. The amount and accuracy standards for the analysis should not be pre-determined, but marginally justified. In the closed, centralized model of decision-making, technicians with expertise in analysis should make the determination of assumptions and methodologies. Where buy-off of more parties is needed, this is facilitated to the extent that ultimate

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<sup>38</sup>Quade, “Analysis for Military Decisions, ed., p.12., in Wildavsky, p. 324.

decision-makers take part in the earliest determinations of 'reasonable' assumptions and methods for analysis. In this way, only analysis which will be useful is performed.

Our evaluation of the major problems of the rational model shows that there is no reason why defensible analysis cannot be used to inform decisionmaking, regardless of the institutional characteristics of the decision-making body. Defensible analyses add value to the decision-making process, regardless of the political nature of the decisions in question, and should be employed in public policy decisions. It is incumbent upon planners to continuously develop and improve the methods and processes of planning so that all stakeholders have access to information upon which to base important resource allocation decisions.

We have seen how planning and budgeting came to be linked in PPB and where it enjoyed successes and failure. Our analysis of the experience at the DOD and elsewhere suggests that the PPB system can yield important lessons as we evaluate the financial planning requirements of ISTEA. We look to the history of planning and budgeting at DOT for traces of this important link.

**2.2.4 PPB and the Rational Model in Transportation.** Despite their grim fate in other areas of government, vestiges of the PPB movement and the rational model persist in various forms today, including in the administration of transportation programs. It is not surprising that elements of PPB survived in transportation, and in fact it may be considered somewhat natural that they did. One major reason for this is that, like defense projects, transportation projects lend themselves to analysis and evaluation. Transportation engineering has its disciplinary roots in civil engineering, and transportation planning has evolved as the most quantitative of the urban planning disciplines. Analysis permeates myriad aspects of the practice. In fact, the current transportation planning process owes a large debt both to the tools of the rational model, and the framework created by the PPB system. The traditional four-step demand modeling process - trip generation, distribution, mode-choice and trip assignment - gains

its predictive capability from the rigor and robustness with which economic (utility, equilibrium), statistical (probabilistic discrete choice and continuous choice models) and operations research (shortest path) methods are applied. These models, continuously improved and calibrated to simulate existing conditions and the trip-making effects of new projects, can be useful in the evaluation and comparison of alternative transportation investments. It is important to note, however, that these models have their limitations, most notably a deficiency in accounting for the accessibility benefits of transportation investments. Today, planners continue to research transportation /land use relationships and attempt to incorporate these into the next generation of transportation planning models. In addition, as relationships between travel behavior and emissions are identified, air quality modeling has also come into use. While also challenged for its accuracy, air quality modeling has been validated by the courts in some judicial tests.<sup>39</sup>

Though never formally declared in the DOT, the influence of PPB-like processes in the administration of the federal transportation program is readily apparent. Program structure had evolved since the inception of the Federal-Aid highway system in 1921.<sup>40</sup> Continuous analysis is promoted through the 3-C process for transportation planning and requirements for systems analysis, alternatives analysis and project selection phases of program and project development, (though only recently on both the highway and transit sides). Transit also has been aggressive in the area of financial planning requirements and evaluation measures such as cost-effectiveness indices. Finally, in the area of reporting statistics and multi-year planning, long-range transportation plans and multi-year TIPs to implement them have been federal requirements since 1962 and 1974 respectively.<sup>41</sup> Recursive planning has also been re-enforced recently with the requirement of the six state Management Systems under ISTEA.

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<sup>39</sup>see *Sierra Club vs. MTC*, 1986.

<sup>40</sup>Weiner, p. 10. Evolution of program structure continues to this day.

<sup>41</sup>Weiner, p. 41. Federal Highway Administration and Urban Mass Transportation Administration: "Transportation Improvement Program", *Federal Register*, vol. 39, no. 21, November 8, 1974.

Within this PPB-like planning environment, financial planning was considered important, but was instituted unevenly. For example, while TIPs were long required to include “realistic estimates of total costs and revenues for the program period,” long-range plans were not held to the same standard until recently under financial constraint.<sup>42</sup> In addition, a proposed joint planning rule in 1981 first introduced some of the financial constraint concepts found in ISTEA, but the subsequent 1983 rule stripped most of this language away.<sup>43</sup> Finally, with respect to the modal programs, then-UMTA was markedly more aggressive in pursuing financial planning requirements than FHWA.<sup>44</sup> In 1984, UMTA’s Major Capital Investment Policy emphasized financial analysis as an integral part of the project development process. In order to obtain federal funds for new starts, be they fixed guideway extensions, bus service expansions or large-scale rail modernization projects, operators were required to demonstrate adequate financial capacity to maintain and operate existing services while implementing the proposed project.<sup>45</sup> Section 3 New Start Criteria also include quantitative criterion such as the cost-effectiveness index and qualitative measures such as an approximation of land-development potential.<sup>46</sup> Projects which failed to meet the \$6 cost-per-new-rider had to secure greater local commitment to remain competitive. In contrast, the highway program did not impose additional federal requirements beyond the EIS; and states made their own decisions regarding the use of federal highway funds.<sup>47</sup>

Though applied only at the project development stage previously, these FTA financial planning and policy concepts are at the core of the new ISTEA requirement of financial

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<sup>42</sup>FHWA/UMTA, 1974.

<sup>43</sup>Rich Steinmann, Office of Budget and Policy, Federal Transit Administration, conversation, April 24, 1995.

<sup>44</sup>Arguably, this is because the level of funds for highway projects far exceeded that of transit projects.

<sup>45</sup>Later, in 1987, these concepts were codified in FTA’s Financial Capacity Circular (FTA C 7008.1) which outlined the elements of financial capacity analysis: an assessment of financial condition and together with an assessment of financial capability. Financial capacity was to be demonstrated through the ability to pay for the cost of acquiring the transit equipment or facility, the cost of operating the equipment over its useful life, and the cost of re-capitalizing the assets as needed.

<sup>46</sup>FTA Office of Policy, draft “Revised Measures for Assessing Major Investments”, 1994.

<sup>47</sup>U.S. GAO, Transportation Infrastructure: Urban Transportation Planning Can Better Address Modal Trade-Offs, Washington, D.C. p. 23.

constraint for transportation plans and programs. For the first time, the long-range transportation plan must now act as a multi-modal budget as well as a vision document. TIPs are also to be constrained, by year, over the entire program horizon. These new planning requirements are significant and are presented in greater detail later in Chapter 3. At this point, we look back to the examples provided by PPB and the experience at DOD to shed light on why the transportation experience differed from the defense experience as it did. Understanding where similarities and differences exist helps us to analyze the potential for financial planning to succeed as envisioned by ISTEA.

**DOD, DOT and PPB.** As we have seen, features of PPB were attempted but unevenly instituted at DOT. In order to better understand the challenge of linking planning and budgeting functions in transportation then and today, we return to our discussion of the main problems Wildavsky identified in the administration of PPB throughout government. Recall that these main problems were program structure, internal and external buy-in to program structure, and the multiplicity of objectives assigned to any one policy. Recall also why PPB succeeded at the Department of Defense. First, program structure at DOD was simplified - one-level, compared to other multi-level agencies. Next, strong leadership at the top helped to combat any dissent at DOD. Third, the divide between political and policy decisions was the smallest to reconcile at DOD. As we have seen, transportation share some characteristics with defense projects, most notably, in their 'lumpiness'. However, unlike defense projects, transportation projects serve a multiplicity of social objectives, including safety, congestion management, socio-economic considerations and most recently environmental. We have already shown how the Clean Air Act Amendment influenced the requirement for financial planning in ISTEA. While this difference is significant to note, it is not the most important reason why financial planning and programming policies at DOT did not take hold as they did at DOD. The primary reason for the lengthier evolution of these policies in the administration of transportation programs is that the program structure in transportation is extensive while it is singular at the Department of Defense. As we have already seen in our generalized theory of decision-making, the consideration of different institutional frameworks and stakeholders



is central to the potential for rational models to overcome inherent hurdles and improve decision-making. We embark on our final area of analysis - federalism in transportation planning, finance and budgeting - in order to fully understand the partial implementation of financial planning requirements at DOT and to provide context for our analysis of ISTEA financial constraint.

**2.2.5 Federalism: the Missing Link between the Experience at DOD and DOT.** Our comparison of PPB in DOD and DOT and discussions of decision-making models and the processes which employ them suggest the importance of federalism to the understanding of financial constraint. Federalism refers to distinctions in government purposes, roles and priorities which may be attributed to the respective levels of the national government. Two aspects of federalism are discussed here. First, we explain the importance of federalism in the program structure of federal transportation finance. This discussion illustrates the increased complexity in program structure which is introduced by many levels of government, and the implications of these for the implementation of financial constraint. Next we present the concept of federalism in budgeting. This discussion provides context to consider different stakeholder interests in the implementation of financial planning requirements in transportation.

**Federalism in Program Structure.** As in defense, the federal interest in transportation increased dramatically with the New Deal era public works programs. Unlike defense projects, interstate commerce notwithstanding, the primary benefits of transportation projects are not national, but local.<sup>48</sup> For this reason, as we noted earlier, there was a need to distribute the roles and responsibilities for transportation planning among various levels of government, and especially to involve state governments. In relation to other levels of government, the federal role was heavily financial for two reasons. First, its redistribution power dwarfed state and local resources. In addition, with local entities responsible for the planning of projects, the federal role expanded in order to ensure that the planning of

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<sup>48</sup> Arguably, the economic well-being of urban areas is in the national interest.

transportation projects (which involve long lead times) would not be compromised by typically shorter local political cycles.

Once the federal involvement in transportation finance was established, various options were available for how programs should be administered and designed. One option was to begin with no constraints. The block grant concept embodies this view and is popular with states' rights advocates. Block grants were tried during the Nixon administration, but generally failed. One reason for the failure of block grants is the tendency of recipients to view these grants as "free money". With such large disjoints between the government entity which raises the money and the entity which spends it, there is little incentive for control and accountability. Program categories were therefore needed. In transportation, the "free money" problem led to the creation of the programmatic distinction between capital funds (which provide incentive to pursue long-range planning at the local level), and operating and local match funds (necessary requirements at the local level to temper enthusiasm for the "free" capital funds). As we shall see, later, this has important implications for multi-modal planning and funding, especially for transit.

**'Lumpiness' Considered.** In addition to the distinction between capital and operating funds, there was also a need to further divide capital funds into those larger amounts necessary for start-up costs and smaller amounts for re-capitalization needs. In transit these programs are the Section 3 New Start capital program and Section 9 capital and operating programs. Here, we encounter yet another implication of the "lumpiness" of transportation projects. The preservation of mechanisms to deliver worthy transit and other large-scale transportation projects, (the new ISTEA era of operational and management planning orientations notwithstanding), is an important consideration in evaluating financial constraint. These mechanisms are needed to ensure that financial planning exercises do not adversely affect the competitiveness of large, chunky transportation projects (which will need to be phased or otherwise made "programmable") relative to smaller, more well-defined projects. Oftentimes, these larger regional projects are already "hard sells", since their benefits extend beyond the immediate range of their

impacts. Financial constraint should not further bias their consideration. Chapters 3 and 4 will survey the ways in which various MPOs can and do deal with this challenging problem.

A third category which was deemed necessary was the urbanized/non-urbanized program category. Traditionally major urban areas have tangled with rural areas over their fair share of state and federal resources. For historical reasons, there existed a perceived need to guard against the potential for underinvestment in our nation's cities.<sup>49</sup> At same time, rural resources were usually insufficient to provide for maintaining the facilities needed to provide them with access. The urbanized/non-urbanized categorization of state funds were meant to addresses these problems and exist still today.

Beyond these categories, other modal and equity categories were set up, and these multiplied to an intractable number over time. Just as block grants had their disadvantages, so too does the presence of too many categories make for an unwieldy and undesirable program structure. ISTEA was an attempt to reach compromise on program structure. It reformed the program structure to be more simple, and promoted flexibility as a compromise between the two extremes of block grants and several smaller programs. Some argue that ISTEA's programs represent little new in content or flexibility.<sup>50</sup> Indeed, flexibility existed in the highway programs previous to passage of ISTEA. However, ISTEA did increase the total flexibility of federal funding for use between modes. This *potentially* alleviates some of the pressures associated with decision-making under financial constraint. This potential will depend to a large extent upon the strength of state-MPO relationships.

To show why this is so, we return to provide background for the state/urbanized program category. The amount of ISTEA funds which is distributed to MPOs and States

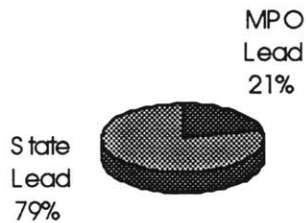
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<sup>49</sup>For example, agricultural interests dominated urban interests in many states, resulting in several state capitals being located outside the major urbanized areas.

<sup>50</sup>see Neal Denno, "ISTEA's Innovative Funding: Something Old, New and Borrowed", Transportation Quarterly, Eno Foundation, Landsdowne, VA, Vol. 48, No.3, Summer, 1994, p. 275.

respectively has implications for the implementation of financial planning requirements in ISTEA. Figure 2.3 compares the proportion of ISTEA Title I funds which pass through states with the proportion over which MPOs have project selection control.

**Figure 2.3: Distribution of ISTEA Title I Authorizations<sup>51</sup>**



As Figure 2.3 shows, while MPOs bear the primary responsibility to plan and program under financial constraint, states control the allocation of almost 80% of the funding under ISTEA. State transportation plans are not required to be financially constrained, and may be policy plans instead. State TIPs must be financially constrained, but must incorporate regional TIPs in full. As we showed above, for both policy and logistical reasons, the MPO is the appropriate governmental entity to carry out the bulk of the financial planning requirements of ISTEA. Nonetheless, for largely historical reasons (which may be due for review), most of the funds available through ISTEA is controlled by State DOTs.

Although states may choose to spend these funds in MPO jurisdictions, MPOs have no direct authority over the expenditure of Interstate Maintenance, National Highway System Bridge, Safety, most Surface Transportation Program funds, Emergency Relief funds and demonstration projects.<sup>52</sup> In order for MPOs to carry out their financial planning responsibilities, therefore, states must provide estimates of revenues and expenditures over the next 20 years. This relationship does not necessarily imply that MPOs are impeded in carrying out their important planning functions. However, as we shall show in Chapter 3 and 4, for provisions in ISTEA which were meant to help ease the difficulties of financial

<sup>51</sup>Surface Transportation Planning Project, *ISTEA: Year Three*, January, 1994, p. 5.

<sup>52</sup>*ibid.*

constraint (i.e. increased funding levels and flexibility) to work, MPOs will need the full cooperation and support of their state partners, a tall order in many places still.

**Federalism in Budgeting.** Federalism in budgeting refers to the functions, roles and priorities of agencies in different levels of government with respect to the budget process. In order to understand budgeting at the metropolitan or regional level, it is important to understand the functions and priorities of agencies at different levels of government, i.e. Federal, state and local.

At the Federal departmental level, emphasis is generally placed more highly on the expenditure rather than revenue aspects of budgeting. At least two reasons account for this phenomenon. First, as we have seen, the federal government uses fiscal policy to achieve macro-economic effects on the economy. Congress and the Executive Branch look to the federal departments to carry out this economic stimulus function. In addition, federal departments are responsible for carrying out national policies and for ensuring the proper use of program funds. In transportation for example, expenditures which support policy objectives such as improving safety, air quality or congestion levels concern the transportation official far more than how revenues should be raised. This is so in part because, at the federal level, transportation already enjoys a dedicated revenue source in the Highway Trust Fund. There are important reasons behind the establishment of the Highway Trust Fund as the primary funding mechanism for federal expenditures in transportation, as we shall explore in Chapter 3. In addition, tax policy generally originates from outside of the federal departmental agency, in Congress or in other divisions of the Executive Branch.<sup>53</sup>

Unlike federal government, state and local governments are more concerned with both sides of the equation: revenues and expenditures. There are two reasons for this. First, although states and locals engage in capital financing (bonding) - in theory no different

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<sup>53</sup>While this is so, it is worthy to note that nothing explicitly prevents the federal department from engaging in tax policy research.

than deficit financing - they do not enjoy the luxury of printing money. That is, the effects of federal fiscal policy may be tempered through monetary policy, whereas those of state and local policy may not. Distinctions regarding the financing options available to agencies at various levels of governments are important to point out again due to the 'lumpiness' of traditional transportation projects, causing them to require large, up-front commitments of capital.

Another important explanation for the difference in attention to revenues and costs as government approaches the local level is the fact that local governments and entities, i.e. transit agencies, are closest to the actual provision of services. In fact, in contrast to federal budgeting, local government budget processes can be characterized as being revenue driven for this very reason. This results from localities' reliance on revenue sources which are either a) relatively inelastic, i.e. state/federal formulas, b) politically sensitive (property, business taxes), or c) economically constrained, as in the case of sales taxes which are difficult to raise beyond the rate of inflation. The effect of this is that "rather than using the budget process for purposes of steering, ... budgeting becomes largely a maintenance activity."<sup>54</sup> The local transit agency provides a good example of this effect. As we saw in the preceding discussion of federal program categories, operating funds primarily are a local responsibility. As a result, transit operators grapple with cost *and* revenue issues on a continuing basis. In addition, it is generally more difficult for transit to take advantage of capital funds as well, since local matching funds are often restricted for use in highway projects only.

While the transit example is the most extreme, many other transportation agencies at the state, regional and local levels of government are also experiencing declining tax bases and increases in competing needs. New transportation revenue sources and the potential to link these more directly with the user will be the major challenge to all levels of government in the coming era. In this regard, it will be important for the transportation community on an individual agency basis, and as a whole to demonstrate financially

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<sup>54</sup>Ibid.

responsible practices within their existing taxing or spending authority. In this way, all levels of government can better position themselves to argue for new revenue instruments at the local levels and/or potential to shifts of resources to transportation and other urban uses at the national level.

The distinctions in budgeting among the various levels of government are an important final step in establishing a context for our discussion of financial constraint. They illustrate why and how federal transportation finance “pinches” the lowest levels of government more so than the highest levels, and in so doing, demonstrate the challenge to regional governments - themselves diverse in their make-up - in carrying out financial planning requirements with their many different partners. Though awesome, the responsibilities assigned to MPOs are appropriately placed at the regional level. MPOs are the proper policy forum to address “spill-over problems” such as congestion and air quality. At the same time, however, they must reconcile lofty, ivory-tower, top-down planning objectives and methods with practical, bottom-up needs and realities. This challenge is significant, for inferior or superior decision-making at any one level of government can greatly frustrate or enhance the entire planning process, and the timely delivery of projects and programs. Knowledge about the history, tools, processes and characteristics of transportation funding and institutions can aid MPOs in their task. Having presented these at length, we now return to the controversial issues we presented at the start of this section.

### **2.3 Plans, Financial Plans and Budgets Re-Considered**

Clearly, financial constraint is a complex and important area of transportation policy in ISTEA. While TIP financial planning requirements have met with some resistance, the requirement to financially constrain long-range plans has been far more controversial. This is because, as a near term programming document, the TIP is far closer in concept to a budget than the 20-year plan. Recall that the central complaint among transportation planners and officials regarding the financial constraint requirement: the perception that the “budgetization” of the long-range plan limits the ability of planners to think creatively

and pro-actively about the future, adversely affecting the “vision-setting” process. An added concern is that transit project planning, already modally disadvantaged historically, will be further harmed disproportionately as planning is scaled back in the new “constrained” environment. This concern is the dual to the argument presented at the start of this paper, in which advocates of transportation interests are fearful that transportation will be handicapped relative to other federal interests as a result of financial planning requirements. This concern boils down to the belief that the management and control functions of budgets undermine their political and vision-planning purposes; this concern is by no means new or unique to the transportation planning process.

“A budget is a plan, but not all plans are budgets” writes Kenneth Howard, in a seminal discussion of state planning and budgeting.<sup>55</sup> Indeed, despite the convergence of planning and budgeting during PPB, the apposite nature of plans and budgets remains. To begin to evaluate the concerns regarding the linking of planning and budgeting, we consider the scenario of unconstrained visioning in the planning process. Vision-setting in planning is only useful if the end result is a narrower set of options to consider at the next stage of planning than existed at the start of the exercise. After all, a plan which begins with a wide range of options and does nothing to refine them has not achieved its stated objective. We have already remarked upon the ill-effects of “wish-list” planning.

In addition, if we review the requirements of ISTEA we see that ISTEA calls for the development of a financial plan to *support* the long-range plan of policies and investments, not to precede it. Used in this way, the financial plan is not likely to dominate the planning process, but rather can act as an effective instrument to facilitate trade-off analysis and prioritization where needed and to identify new means of funding after all calls on available funding are in. Financial planning may be defined as:

...the determination and balancing of all relevant sources of anticipated revenue and expenses over a set period of time with provisions for use of

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<sup>55</sup>Howard, “Planning and Budgeting: Who’s on First”, in Hyde, p. 349.



debt to finance certain expenses and for assignment of revenue to service such debt.<sup>56</sup>

Note that this definition makes no reference to goals and objectives as the definition of budgets did. This is because financial planning is a value-neutral exercise. It is the very objectivity of the financial plan, as a statement of the financial condition and capacity of the region, which makes it an attractive tool to both identify resource scarcity and to identify alternative strategies to fund regional needs and desires. In this way, the financial planning exercise supports both the constrained and the unconstrained parts of the planning process. This is the teletic view of financial constraint, and is the key to the dilemma of the plans vs. budgets controversy.

**2.3.1 Teletic View.** In the teletic approach, planners ask “Where do we want to go”, and then employ financial planning techniques to answer “What do we do to get there?” as opposed to the incremental view which simply states “This is where we are” and then asks “where do we go from here?”<sup>57</sup> *The assurance that financial constraint does not do more harm than good turns on the ability of stakeholders to view and implement the requirement in this way.* Chapter 3 discusses ways to perform financial planning teletically through the cost estimation and programming processes.

**2.3.2 ISTEA (Re-)Considered.** Clearly the financial constraint requirements are a key component of the ambitious re-orientation of national policy which is envisioned in ISTEA. ISTEA’s financial planning requirements put new pressures upon MPOs and their partners as they endeavor to make plans and TIPs more realistic and to focus their attention upon system management. Ostensibly, Congress and the planning regulations provided comprehensive package of “aid” to MPOs in anticipation of the difficulties which they and their partners would face in achieving the goals of ISTEA financial constraint including: increased planning and program funds, flexibility in funding and decision-making, and planning requirements in Public Involvement, Management Systems and

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<sup>56</sup>National Transit Institute, Unit 1-2.

<sup>57</sup>Schick, p. 58.

Major Investment Studies. Materially, each of these provisions contributes to the view of financial constraint as a constructive element of long-range planning. Yet, the over-riding fear among transportation (and transit) advocates remains: the potential for opponents of change to take the destructive view of financial constraint, either by ignoring the regulation and maintaining the status quo, or worse, by using the present reality of scarce resources to stem nascent intermodal planning efforts. In short, although nothing specific to financial plans or ISTEA dictates it, financial planning requirements bring with them the potential to constrain vision-setting as a means of planning and advocacy.

As a part of our analysis of the ISTEA mandate for financial constraint, it is worthwhile to consider this argument seriously. Indeed, while nothing in ISTEA prohibits the teleetic approach to financial planning, neither is there anything within the legislation to support this view of financial planning. ISTEA emphasizes the formulation of financially constrained long-range plans yet it is silent on the subject of financially realistic but *unconstrained* long-range plans. ISTEA and the planning regulations may have been remiss by not being more pro-active about vision-setting in long-range planning. In particular, the legislation does not require unconstrained (vision) components of long-range transportation plans. Though sorely needed, the view of financial constraint solely as a mechanism for plan refinement and delivery is an incomplete and potentially damaging one without explicit support for the vision component of long-range planning.

Congress itself acknowledged the need for financial planning exercises to support planning exercises which begin with a full review of transportation needs and desires. In fact, describing the strategic planning that is intended to lead transportation planning in the 1990's, the House Public Works and Transportation Committee report on ISTEA encourages strategic vision-planning and demonstrates how financial planning can support this exercise:

The planning begins with a clear understanding of infrastructure needs and the options available to respond to them. Needed is an improved understanding of what must be done, what can be done within the limits of available resources, and a prioritization of needed infrastructure projects. Levels of revenue available should also be identified, along with the

consideration of contingencies in the event of revenue short falls. The result will be improved public and private sector investment choices and wise utilization of tax dollars.<sup>58</sup>

Clearly, what Congress articulates here is the need to begin with a visioning exercise. From that exercise, the questions “Where do we want to go?” and “How do we get there?” may then be asked. Again, this is the teleitic view of planning. Recall that this view begins with a visioning exercise and then looks to see what is the financial capacity of the region to achieve the regional vision in addition to what can be done to enhance or augment that capacity. While ISTEA clearly addresses the documentation of the financially constrained long-range plan, the link of financial plans to the remainder of the long-range plan should be strengthened.

There are at least two reasons to encourage regions to initiate long-range transportation planning activities with unconstrained needs identification and vision-setting. First, as we noted above, the national policy focus on system management represents a new era in terms of the “national interest” in transportation. Arguably, the new roles which federal, state, MPO and local transportation entities assume in this era will dramatically influence the success or failure of the transition. In the same way that states were enlisted to demonstrate the “Cost-to-Complete” the Interstate System, so have MPOs and their partners be called upon to document the needs which must be met in order to meet the new federal mandate. The modern exercise far exceeds the traditional one in complexity and difficulty, if only because the goal of system management is so much less tangible than a map of interstate highways. In this regard, not only does the focus shift to MPOs and their partners to document costs and manage the delivery of projects, so does the orientation of the national interest evolve from a pre-defined top-down directive to a relatively undefined bottom-up initiative. Through financial planning, Congress remands major transportation planning responsibilities to MPOs and exhorts them to engage in honest and realistic transportation planning in return. At the same time, however,

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<sup>58</sup>Committee on Public Works and Transportation, U.S. House of Representatives, ISTEA 1991, Rept. 102-171, Part I, p. 13.

Congress should acknowledge the help it needs in defining the post-Interstate “national interest” and should give MPOs the opportunity - in concert with their partners and the public - to inform the national “vision-setting” process through the development of constrained *and unconstrained* transportation plans and programs, as long as these plans reflect valid needs. In this way, together, these plans constitute the “Cost-to-Complete” the national vision in the post-Interstate era. They also provide an indication of regions’ abilities to meet those needs through currently available revenues.

In addition to serving this federal purpose, vision-planning engages stakeholders and community members into the transportation planning process and is the archetypal example of strategies to promote buy-in. Ultimately, this end is as important, if not more so, than impressing Congress. The public is the ultimate judge of whether needs assessment, program delivery and transportation finance has been carried out responsibly. It is incumbent upon transportation planners to carry out financially realistic long- and short-range transportation planning with the input of the communities they serve. This strategy enhances the effectiveness of using the plan and plan development process as an educational and advocacy vehicle. With the support of their communities, transportation officials can more effectively lobby for increased financial support at the local, state and federal levels of government, in addition to seeking the involvement of private interests.

The San Diego Association of Governments (SANDAG) presents an example of the education and advocacy potential of conducting financial planning in conjunction with long-range transportation planning.<sup>59</sup> Even before passage of ISTEA, (see 1984, 1986 and 1990 Regional Transportation Plans), SANDAG used the long-range planning process as the mechanism for identifying funding shortfalls and recommending actions to obtain the revenues needed to implement the projects and programs recommended in the plan. As a result of this strategy, SANDAG was successful in establishing a one-half percent

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<sup>59</sup>Craig H. Scott, “Multimodal Financial Planning from a Regional Perspective: A Guide for Decision-Making,” in Transportation Research Record No. 1305, TRB/National Research Council, Washington, D.C. pp. 42-49.

local transportation sales tax program and continues to seek other new revenues sources as well. The major factors planners cite in evaluating their success are 1) broad involvement of the public and local elected officials, and 2) the establishment of a high degree of credibility in the forecasts and analyses which SANDAG performs. Clearly, the San Diego experience indicates that the long-range financial plan can be used as an effective strategy to establish new revenue sources for needs identified in the long-range plan.

## **2.4 The Proof is in the Pudding**

The passage of a regional sales tax measure offers some evidence of the benefits of financial planning. How else can we measure the effectiveness of financial innovations and requirements? Historically, the impact of strategies such as PPB on “bottom line” decision-making has been difficult to gauge. Apart from the Department of Defense, PPB was not found to have much of an impact on decision-making. However, it is clear that transportation planning has opted to retain elements of the movement in the administration of federal transportation programs. Still, it is difficult to assess the transportation example, due to the modal bias in the application of financial planning requirements at DOT. Moreover, where it was instituted, it remains unclear whether UMTA’s financial policies affected decision-making at the metropolitan or local level.<sup>60</sup> Both of these considerations are further exacerbated by the practice of Congressional earmarking of transportation legislation.

In the case of highways, one GAO study reports that ISTEA included 539 demonstration projects with an accompanying authorization of \$6.2 billion.<sup>61</sup> This amount is over five times higher than the \$1.3 billion included for 152 highway demo projects in the 1987 re-authorization act. Demonstration projects have been criticized on several fronts. First, for

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<sup>60</sup>Steinman, April 24, 1995.

<sup>61</sup>U.S. GAO, “Surface Transportation: Funding Limitations and Barriers to Cross-Modal Decision-Making”, Testimony before the Subcommittee on Transportation, Committee on Appropriations, United States Senate, GAO: T.RCED-93-25, March, 1993, pp. 5-7.

a variety of reasons, they are often authorized at lower levels than are needed to complete the projects. A 1991 GAO study of 66 projects in 8 states found that the cost to complete projects frequently exceeds authorized levels.<sup>62</sup> For example, across all projects reviewed, Federal funding and the state match comprised only 37% of total anticipated project costs, with States scrambling for other federal, state and local funds to meet the shortfall. In addition, a majority of the projects reviewed did not appear on state or regional transportation plans before they were authorized. As a result, projects are not well developed and have slow rates of obligation. The GAO found in 1991 that only 36% of funding authorized for demonstration projects four years earlier had been obligated, and in fact that 22 of the 66 projects reviewed had not obligated any of their \$92 million in authorized funding. Unlike other federal-aid program funds, if not obligated, the budget authority for demonstration projects is lost forever, and is not redistributed. This is especially undesirable since the exemption of demonstration projects from obligation limitations lowers the annual obligation ceiling for all other federal-aid highway programs.

In the case of transit, as explained previously, the FTA Section 3 Discretionary “New Start” program, like the Interstate Program for highway building, was designed to combat potential for unfriendly local political cycles to harm long-term vision and planning. In addition, by creating a mechanism (category) for large projects to be funded, this ensures that large projects do not artificially hurt smaller ones and vice versa where they are equally desirable or deserving of federal funding. This purpose is undermined, however, when lawmakers circumvent FTA recommendations (based on policy criteria including cost-effectiveness) by earmarking legislation. Arguably, there is a much greater backlog of transit projects than highway, given the historical orientation of the federal-aid highway programs. This increases the likelihood that earmarked transit projects meet planning criteria and are worthy of funding. However, there have been severe consequences as a result of ignoring financial planning principles. The most disturbing of these is the incidence of existing local transit service cutbacks, (usually at the expense of inner-city bus

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<sup>62</sup>ibid, p. 6 from U.S. GAO, Highway Demonstration Projects: Improved Selection and Funding Controls Are Needed, (GAO/RCED-91-146) May, 1991.

service), in order to operate urban rail systems which primarily serve suburban commuter constituencies. Not only is the practice of earmarking harmful for the “perverse incentives” it introduces into local decision-making process, it additionally tends to divide an already weak and underfunded transit industry first by pitting operators’ political talents against one another and secondly by compromising true system planning by polarizing bus and rail transit interests. Finally, it is worth noting that while highway and other projects are also susceptible to Congressional earmarking, those projects have historically enjoyed much higher levels of federal funding, and therefore less direct competition with one another and fewer of the negative effects of earmarking.

Today, bottom line improvements in decision-making - project mixes and their operation, maintenance and preservation - continues to be a challenge to measure as practitioners struggle to re-invent planning process around the 15 factors, MISs, public involvement, ISTEA management systems, and financial constraint in a meaningful way. Chapter 3 attempts to contribute to the implementation of financial planning by developing a framework to view the influence of financial planning on decision-making at each stage in the transportation planning process. In addition, Chapter 3 will show how it is possible to institute processes and methods to address the challenges facing MPOs in carrying out their new financial planning responsibilities.

## **2.5 Summary**

In order to examine the major issues in financial constraint, this chapter began with an historical overview of public budgeting and financial planning in transportation planning. Program budgeting was identified as a useful model against which the linking of transportation planning and budgeting activities in ISTEA could be compared. Major successes and obstacles to program budgeting were explored and analyzed in a generalized theory of decision-making and Federalism in transportation planning and budgeting. Our analysis uncovered several challenges to implementing financial constraint as envisioned by ISTEA. These include the presence of political influences in decision-making, analytic

intractability of planning and financial planning exercises, the importance of State/MPO relationships, the special case of transit, the problem of transportation 'lumpiness' and the feared subordination of vision-setting to management and control purposes of transportation plans and programs. While the challenges are many and great, there are indications, that they are not insurmountable. In particular, strong leadership, mutual respect and processes to account for diverse institutional structures, i.e. the joint design and use of defensible analyses, and teleitic view of plans and budgets, in conjunction with a strong public involvement process may together overcome the challenges facing MPOs and their partners. If achieved, the transportation community could then harness the potential energy of financial constraint by demonstrating efficiency in the use of existing resources and advocating for increased funding for transportation needs at the local and/or national levels through the use of teletically developed, long-range financial planning.

In the past, implementation of financial planning policies at the DOT was limited and uneven. With the promulgation of the 1992 joint metropolitan and statewide planning regulations requiring financial constraint, management systems and Major Investment Studies, however, *systems and financial analyses are now more comprehensively instituted in transportation planning than ever before.* The grand experiment has begun, though it took twenty-some years of prior art and a kick-start by environmental and air quality groups to fully commence.

As implementation takes place, an important question to ask now is how best to evaluate the impact and effectiveness of the regulation? While it is impossible to control for the simultaneous effect of the many other planning requirements introduced in ISTEA, Chapter 3 presents the actual requirements of financial constraint, suggests methods and processes to facilitate their implementation, considers the influence of financial constraint on decision-making at various stages of the transportation planning process, and suggests ways to measure its impact.



## **Chapter 3.0 A Framework to Consider Financial Constraint**

Chapter 2 provided the purposes, background and context for financial constraint. This chapter presents the actual requirements of the regulations governing this ISTEA requirement and offers a framework for viewing the influence of financial constraint on the processes and products of transportation planning. Based on four general stages of transportation planning - System Planning, Program Development, Project Development and Implementation - the framework facilitates a discussion of costs, benefits, methodologies and measures of effectiveness associated with the financial constraint requirement. We begin with a look at the actual requirements of financial constraint.

### **3.1 Overview of Financial Constraint in Planning and Programming**

A few million here, a few million there, and after a while you're talking about some real money.

- Senator Everett Dirksen<sup>63</sup>

As discussed in the previous section, in the past, transportation planning did not generally observe the conventions of financial planning beyond (transit) project planning. Before passage of ISTEA, at the MPO level, with the exception of the Annual Element of the TIP (the first year of the multi-year program), projects were included in metropolitan plans and TIPs without consideration of revenue availability. Plans and TIPs were "wish lists" rather than products of a planning process that includes financial analysis and decision-making concerning alternative visions or investment trade-offs.

Before ISTEA, no outside discipline existed to moderate projections of available resources. Projections were sometimes more political than prudent. Then, as now, pressures existed to include as many projects as possible in the [Plan and] TIP, regardless of cost. Without the discipline of a Financial Constraint regulation it was difficult to resist including any project that had some chance, however slight, of being funded. In the end,

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<sup>63</sup>Murray, "Financial Constraint of the Transportation Improvement Program", STPP ISTEA Planner's Workbook, p.61.

[this method of planning] compromises the integrity of the entire [Plan or] program.<sup>64</sup>

Referring to Transportation Improvement Programs, Murray's comments are equally relevant as applied to the development of the Transportation Plan. In the past, planning left financial considerations to the latter parts of the project development and planning process. As a result, projects typically experienced costly delays in implementation, resulting in missed opportunities to spend available federal transportation dollars. As Senator Dirksen's comment suggests, cumulatively, these delays were not insignificant. At a minimum, they signaled the presence of major inefficiencies in the transportation planning process. Furthermore, delays do nothing to advance the justification for new revenues with respect to public sentiment. The new planning requirements such as the Major Investment Studies, Management Systems and Financial Constraint in ISTEA and the CAAA target greater efficiency in planning and implementation. Through financial planning, the requirement of financial constraint provides further opportunities for MPOs and their partners to improve the planning process. This is achieved by developing realistic plans and programs, focusing on their delivery, re-orienting attention toward operating, maintaining and preserving these investments, and finally, identifying new means to achieve needed and desired levels of investment.

**3.1.1 The Requirements.** The October 28, 1993 metropolitan planning regulations implement the ISTEA requirement of financial constraint. 23 CFR 450.322 Metropolitan transportation planning process: Transportation plan, Subpart b(11) states that the transportation plan must:

Include a financial plan that demonstrates the consistency of proposed transportation investments with already available and projected sources of revenue. The financial plan shall compare the estimated revenue from existing and proposed funding sources that can reasonably be expected to be available for transportation uses, and the estimated costs of constructing, maintaining and operating the total (existing plus planned) transportation system over the period of the plan.<sup>65</sup>

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<sup>64</sup>ibid, pg. 62.

<sup>65</sup>FHWA and FTA, Metropolitan Planning Rule, Federal Register, p. 58075.

Furthermore, the regulations state that:

1. the estimated revenue by existing revenue source available for transportation shall be determined and any shortfalls identified. Proposed new revenues and/or revenue sources to cover shortfalls must also be identified, along with strategies ensuring their availability;
2. existing and proposed revenues shall cover all forecasted capital, operating and maintenance costs over at least a 20 year horizon;
3. all cost and revenue projections shall be based on the data reflecting the existing situation and historical trends;
4. the plan must be updated every three years in non-attainment areas and every five years in attainment areas; and
5. plans in nonattainment and maintenance areas must demonstrate financial strategies required to implement projects necessary to attain air quality compliance.

With regard to TIP financial planning requirements, 23 CFR 450.324 subpart e states that

The TIP shall be financially constrained by year and include a financial plan that demonstrates which projects can be implemented using current revenue sources and which projects are to be implemented using proposed revenue sources (while the existing transportation system is being adequately operated and maintained).

In addition:

1. the TIP financial plan shall be developed by the MPO in cooperation with the State and transit operator, who must provide MPOs with estimates of available Federal and State funds;
2. the TIP must be updated every two years, with the development cycle compatible with the STIP cycle;<sup>66</sup>
3. only projects for which construction and operating funds can reasonably be expected to be available may be included. In the case of new funding sources, strategies for ensuring their availability shall be identified.
4. the TIPs must cover three years, with funds being available or committed for the first two years for projects in a non-attainment or maintenance area.

These are the financial planning requirements for metropolitan plans and programs. It has been just a year and a half since the regulations were promulgated, and the first plans and programs which reflect them are just becoming available for review. Comments received during rule-making and initial indications suggest that the following issues are worthy of more detailed discussion. These issues are salient either for the controversy which

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<sup>66</sup>Note: STIPs are also required to be financially constrained by year, per the regulation.

surrounds them or for the central role they play in implementation of the financial constraint requirement:

**Priority.** As we noted in our review of ISTEA in Chapter 2, the regulations are clear about the priority consideration of existing system operating, maintenance and recapitalization costs:

Priority should be given to the maintenance and operation of the existing system including capital replacement. A credible cost estimate and replacement schedule must support this assessment.<sup>67</sup>

Furthermore, consistent with direction of the Clean Air Act Amendments, in nonattainment areas, priority is also assigned to the implementation of TCM's. Beyond these priorities, the MPO, in cooperation with the State and transit operator, is left to develop the regional vision and the programs to implement this vision, with due consideration given to the 15 planning factors identified by ISTEA.

**Comprehensiveness.** The regulations are also explicit regarding the need to document all system costs, including those necessary to build, operate, maintain and re-capitalize the existing and planned transportation system. Where new sources are proposed, strategies necessary to ensure the availability of funds must be clearly stated.

**Accuracy.** Revenues and costs are to be estimated with the aid of those closest to the source of information, i.e. States and transit and other operators. This suggests the importance of MPOs' relationships with their partners. Forecasting should be based upon historical and presently identifiable trends. The interpretation of this aspect of the regulations is important to the teleitic view of the financial planning requirements in that historical funding trends may not accurately reflect actual needs. We expand upon this topic later in the discussion of cost-estimation methods. This distinction notwithstanding, the regulations acknowledge that it is "difficult to concretely forecast [20-year revenues]

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<sup>67</sup>FHWA/FTA, p. 58060. Note: State asset-based management systems should assist in providing these cost and replacement schedule estimates.

in detail” and state that technical assistance on forecasting funds and utilizing alternative revenue sources will be provided.<sup>68</sup> At this writing, formal D.O.T. technical guidance on financial constraint is not yet available although information is available through the National Transit Institute course, “Financial Planning and Programming for MPOs”.

**Timeliness.** The STIP and TIP development cycles should be coordinated. The MPO should coordinate planning cycles with its partners so that all information is made available to the MPO in a timely manner.

**Flexibility.** The regulations adopt an approach of flexibility over proscription. In general, the regulations consider the “inherent diversity of metropolitan areas” by allowing regions to develop their own processes and methods for meeting the financial planning requirements.<sup>69</sup> In particular, as one Congressional report notes,

The process is designed to achieve the goals and objectives of the Federal surface transportation program and other important Federal programs, recognizes the central role that the states play in administering the Federal program, recognizes the special needs and expertise of urbanized areas, and is designed to be flexible enough to accommodate the different needs and circumstances that exist among the states.<sup>70</sup>

As we showed in Chapter 2, flexibility is an essential feature of any regulation which would impose requirements on institutions as diverse as MPOs and their partner agencies. ISTEA affords regions and their partners increased flexibility as they consider issues of plan priorities and criteria, project selection, phasing and scheduling, and the use of flexible funds.<sup>71</sup> In return, regions must give priority to system preservation and management, include the public in decision-making and are expressly prohibited from suballocating STP and FTA Section 9 funds, unless such activity is absolutely necessary.

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<sup>68</sup>FHWA/FTA, Section 450.322 Metropolitan Planning Process: Transportation Plan, p. 58058.

<sup>69</sup>FHWA/FTA, Metropolitan Planning Rule, Section 450.316, p. 58054.

<sup>70</sup>U.S. House of Representatives, Report of the Committee on Public Works and Transportation, To accompany H.R. 2950, ISTEA 1991, Report 102-171, Part I, p. 25.

<sup>71</sup>FHWA/FTA, Section 450.222 Project Selection, p. 58049.

Procedures which predetermine by percentages or formulas funding to individual jurisdictions or modes

are inconsistent with the legislative provisions that require MPOs in cooperation with the State and transit operators to develop a prioritized and financially constrained TIP and shall not be used unless they can be clearly shown to be based on considerations required to be addressed as part of the planning process.<sup>72</sup>

Although the spirit of this provision is consistent with promoting true intermodal transportation planning, it will be difficult to enforce. As we have seen, even in the federal transportation program, it was necessary to create “categories” to address equity and other concerns. As regions carry out their new financial planning responsibilities, it is not clear why they should not employ similar conventions as necessary. In fact, it may be shown that “ISTEA-ization” of transportation finance at the state level better equips some MPOs and their partners to meet the challenges of ISTEA.<sup>73</sup> We explore this issue further in the discussion of programming techniques below.

**Cooperation.** Again, as we saw in Chapter 2, cooperation among operators, the state and the MPO is critical to the success of planning and programming under the financial constraint requirement. In addition, ISTEA challenges MPOs to broaden access to decision-making by inviting private, environmental and socio-economic interests to the table. In many areas, the introduction of these new players will alter the traditional or existing balance of power.<sup>74</sup>

Recognizing past and existing friction between MPOs and states in the development of plans and programs in particular, the DOT revised the joint planning regulations to more clearly indicate that metropolitan TIPs must be included in the STIP without modification, either directly or by reference.<sup>75</sup> Project selection responsibilities for different Federal

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<sup>72</sup>FHWA/FTA, Section 450.324, TIP: General, p. 58077.

<sup>73</sup>As we shall see, the California state legislature has passed a measure which reconciled state and ISTEA funding rules to facilitate integrated multimodal transportation planning.

<sup>74</sup>U.S. GAO, “Transportation Infrastructure: Major Program Revisions Present Challenges”, Testimony before the Interim Committees on Transportation, Oregon State Legislature, September 1992, p. 8.

<sup>75</sup>FHWA/FTA, Section 450.216: STIP, p. 58047.

funds sources are also outlined. These provisions, along with extra planning funds, were intended to give greater authority to the MPO in determining regional priorities. However, there are indications that events at earlier stages can undermine the intent of these provisions. In particular, concerns were raised during rulemaking regarding the development of the fund estimate. Commentors raised the potential for States to alter estimates of funds to an area, as a result of disagreement over projects included in the TIP. FHWA and FTA, responding to this concern could do no more than to denounce this practice:

Through the cooperative TIP development process and the joint approval requirement, disagreements over which projects to include in the TIP and their priority should be resolved. While we would hope that through negotiations a mutually acceptable decision ... would be reached, it is recognized that this may not always be the case. Where agreement cannot be reached ... the statutory provisions do not prohibit a State from using the Federal funds [other than STP urbanized] in some other part of the State.<sup>76</sup>

This suggests the possible need for formal agreements to solidify estimates in advance of program development or the direct pass-through to MPOs of a greater percentage of federal funds.

**“Reasonably Available”.** Predictably, planners quickly honed in on the interpretation of this phrase during rulemaking. According to the Senate report on ISTEA, reasonably anticipated sources of funding include “historical” funding levels, “existing” bonding authority, and “existing” state and local tax revenues which would be available within the timeframe of the plan or TIP.<sup>77</sup> In response to concerns about such a strict interpretation of the regulation, the final rule concedes that “some flexibility beyond available funding is necessary for effective planning.” This view acknowledges 1) the need to allow States flexibility to manage obligation authority, 2) the legislative directive to encourage use of innovative funding sources, 3) the need to allow other project implementors to manage their own revenue sources cost-effectively, 4) the Congressional directive to permit

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<sup>76</sup>FHWA/FTA, Section 450.324, p. 58061.

<sup>77</sup>Senate Report 102-71, P. 30 in STPP Guidelines, p.28.

utilization of Federal authorization levels as a basis for forecasting available revenues, and 5) some natural project “slippage”.<sup>78</sup> At the same time, however, the regulations note that “Congress indicated a need for a more constrained approach to programming than has historically existed and that plans should have a financing strategy associated with them.”<sup>79</sup>

The final word was a compromise allowing the assumption of proposed new or increased revenues, where these revenues are accompanied by strategies for ensuring their availability. A plan for securing the new funds should provide information on how support of the public, elected officials, business community or other interests will be obtained. The regulations include examples of acceptable and unacceptable assumptions regarding the availability of new revenues.<sup>80</sup> The final interpretation of “reasonably available revenues” will consist of the enforcement and compliance activities as they take place.

**3.1.2 Framework to Consider Financial Constraint.** In order to consider the full impact of financial constraint on the planning process - including where value is added or costs are imposed on the process - it is useful to examine the influence of the requirement on the various stages of planning. As defined in this thesis, these are: System Planning, Project Development, Programming and Implementation. The System Planning and Programming stages refer to the processes and activities surrounding Long Range Plan and TIP (products at the MPO level) development respectively.

In addition to these two main stages, two additional stages of transportation planning which are worthy of our attention are the Project Development and Implementation stages of transportation planning. States or operators generally take the lead in these stages of planning. Though not directly in the purview of the MPO, Project Development and Implementation are important to the discussion of financial constraint since they affect or are affected by the way in which the requirement is implemented at the regional level.

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<sup>78</sup>FHWA/FTA, Question 2: Reasonably Available Funding Sources, p. 58043 and *ibid.*

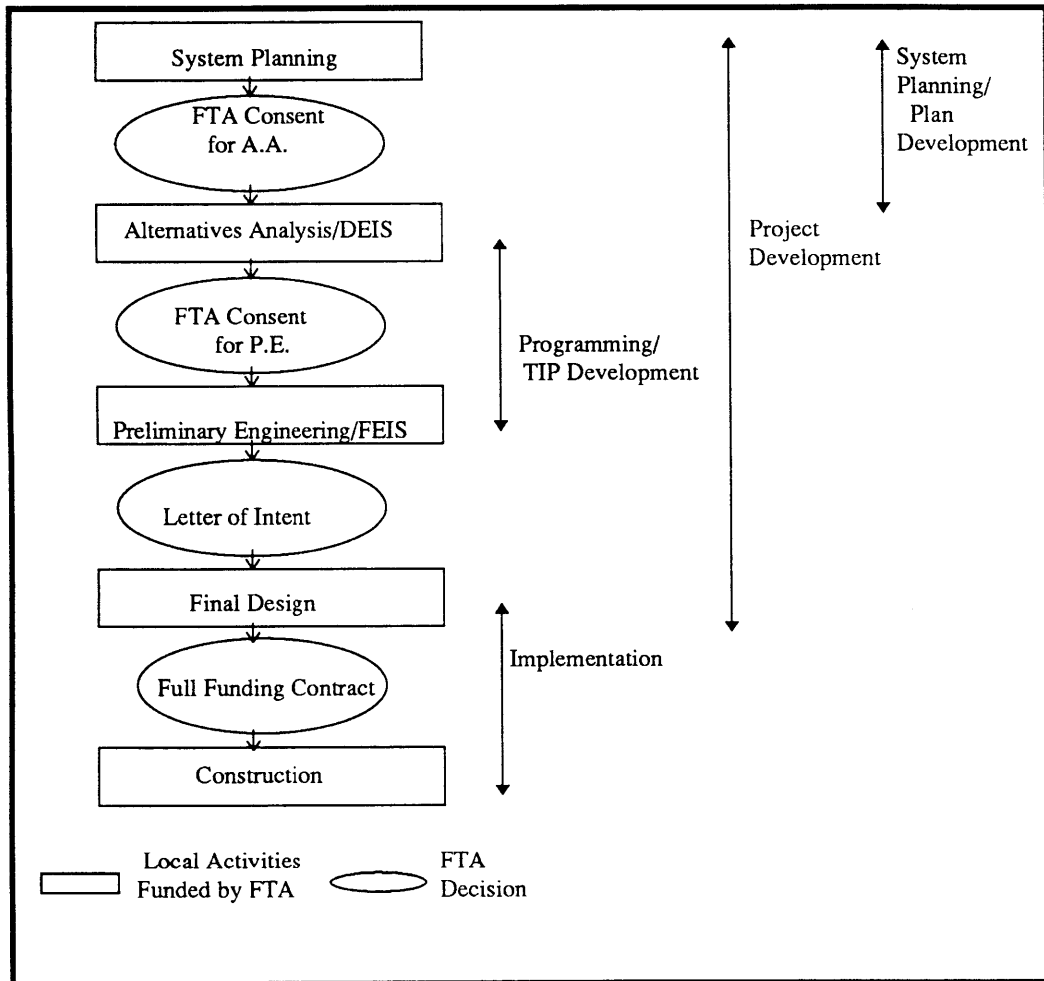
<sup>79</sup>*ibid.*

<sup>80</sup>FHWA/FTA, p.58060.



Figure 3.1 illustrates the relationship between the framework as conceived, and the traditional FTA project development process, after which the joint planning regulations were patterned. In addition to preliminary feasibility studies usually undertaken with local planning funds (not shown in FTA process), Project Development includes steps

**Figure 3.1: Framework for Viewing Financial Constraint as Compared to FTA Project Development Process for Major Transit Investments<sup>81</sup>**



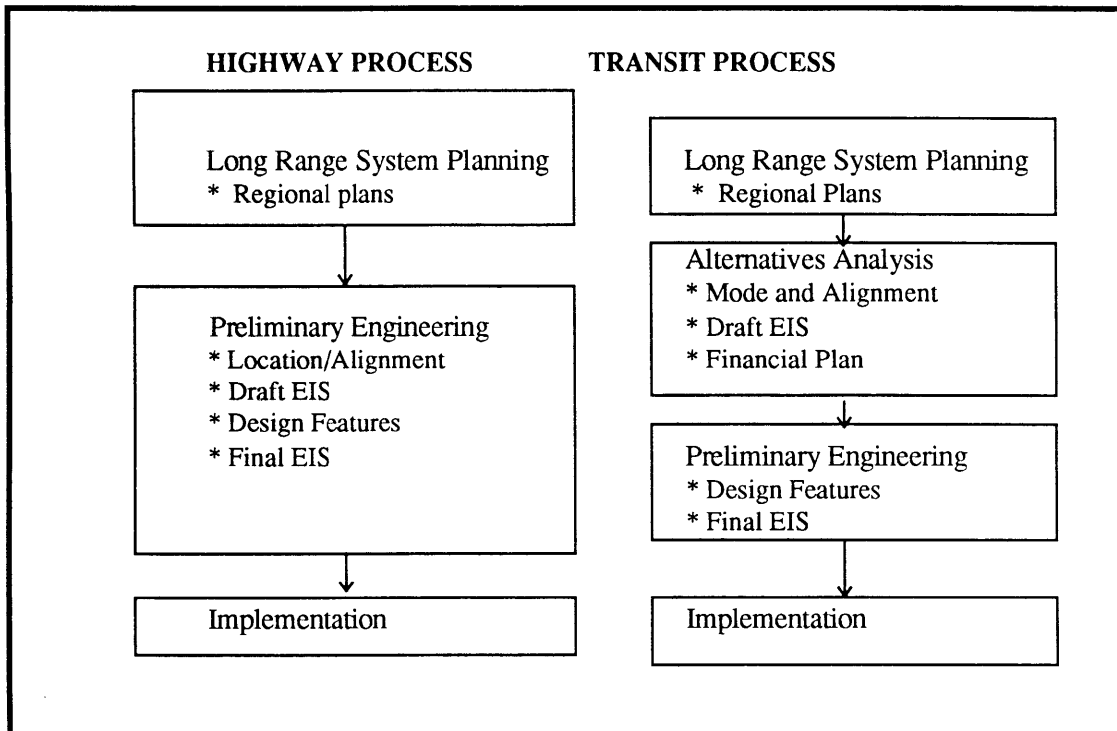
2, 3 and 4 in the diagram. As shown in the diagram, System Planning and Project Development are closely linked. System Planning considers the broad objectives for system development and generates potential projects for development. At the same time, System Planning also utilizes that pool of projects generated from other planning

<sup>81</sup>US.DOT/FTA, Brochure, "Project Development Process for Major Transit Investments".

exercises. In this way, system planning is conducted dynamically with project development. The programming stage generally follows System Planning and occurs somewhere in the project development stage, depending upon the programming criteria used. Most programming criteria dictate that a fair amount of Project Development be completed, including environmental analyses and permitting before projects may be considered for inclusion in the TIP. Finally, Implementation may not occur until a project has been included in the TIP and funds have been obligated for construction.

Previous to ISTEA, the highway and transit project development processes differed substantially, not the least of which in their financial planning requirements.

**Figure 3.2: Pre-ISTEA Planning Process<sup>82</sup>**

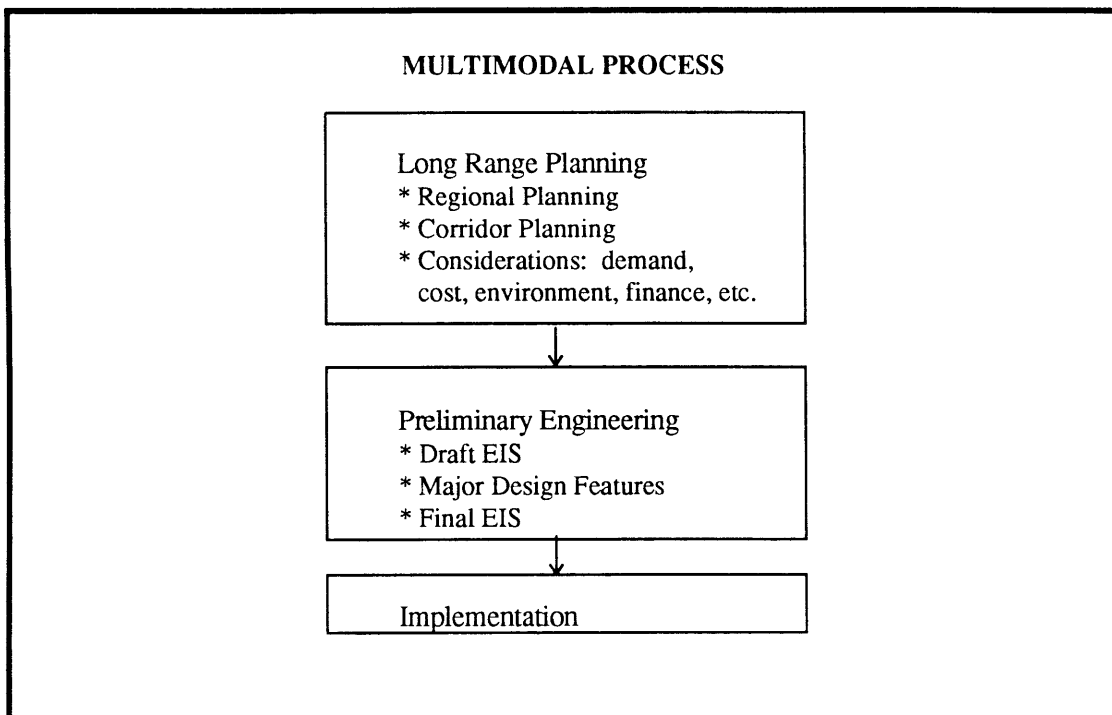


As noted in Chapter 2, transit projects were subject to much more rigorous financial analyses as a part of project justification and funding procedures. Figures 3.2 and 3.3 demonstrate the separate transit and highway processes before ISTEA and the combined

<sup>82</sup>APTA Summary Outline of FHWA/FTA Rule on Metropolitan and State Transportation Planning and Programming.

process as a result of ISTEA, respectively. Previous to ISTEA, except for some compatibility at the Plan and TIP stages and flexibility in the Interstate Substitution program, highway projects and transit projects had separate planning and funding processes. Notwithstanding funding constraints which remain,<sup>83</sup> ISTEA expanded funding flexibility across modes, and instituted a common multimodal planning process which includes financial planning and corridor studies. With the introduction of flexible funding and the MIS requirement, ISTEA begins to address modal bias in the planning

**Figure 3.3: Post-ISTEA Planning Process**



process identified earlier in Chapter 2. In addition to contributing to greater parity in multi-modal transportation planning, the influence of financial constraint is apparent at each stage in the transportation planning process. We begin with a look at Systems Planning.

<sup>83</sup>The degree to which federal funds can be leveraged for transit continues to be constrained by the availability of operating and matching capital funds at the state and local levels, as we see later in Chapter 3.

### 3.2 Long Range System Planning

Several of the benefits, costs and issues associated with financial constraint at the System Planning stage are present at the Programming stage of transportation planning as well. This section will therefore focus on these shared issues in addition to issues specific to System Planning. The section on Programming will present the impacts of financial constraint that are unique to that stage of the planning process.

Long range system planning can be characterized in terms of the *process* of vision planning and the product of this exercise: the Transportation Plan. The Transportation Plan is a product of the continuous, cooperative, and comprehensive transportation planning process required of all urban areas with a population of over 50,000. The Transportation Plan, also known as the Long-Range Plan (LRP) is a 20-year, intermodal plan, which describes the policies, strategies and facilities that the region will want or need to make more efficient use of the existing transportation system and to meet future travel demands. As a planning document, the plan should begin with goals and objectives, proceed with an assessment of needs, and then identify, evaluate and prioritize alternatives to best meet regional goals and objectives. In conjunction with their partners and the public, MPOs must also consider the 15 factors identified in ISTEA, the integration of Management Systems, Major Investment Studies, and strategies to improve regional air quality.

As discussed in Chapter 2 and earlier in this chapter, the purpose of financial constraint at this stage of the planning process is to strengthen the planning process in general and to enhance the efficiency of the planning process in particular. Another potential purpose of financial planning, not articulated by ISTEA, is the use of regional long-range plans at the federal level to inform the Congress of the “cost-to-complete” the vision of ISTEA. We begin an examination of the major issues related to system planning in detail here, starting with a look at the primary benefits of the financial planning exercise.

### 3.2.1 Benefits

**Choices.** A primary benefit intended of the financial constraint requirement is its role in promoting the development of alternatives and the examination of trade-offs among regional priorities once vision planning has been performed. Theoretically, this is the essence of planning and should take place regardless of financial constraint. However, the introduction of scarcity increases the opportunity cost of each investment choice, making all choices increasingly deserving of scrutiny.

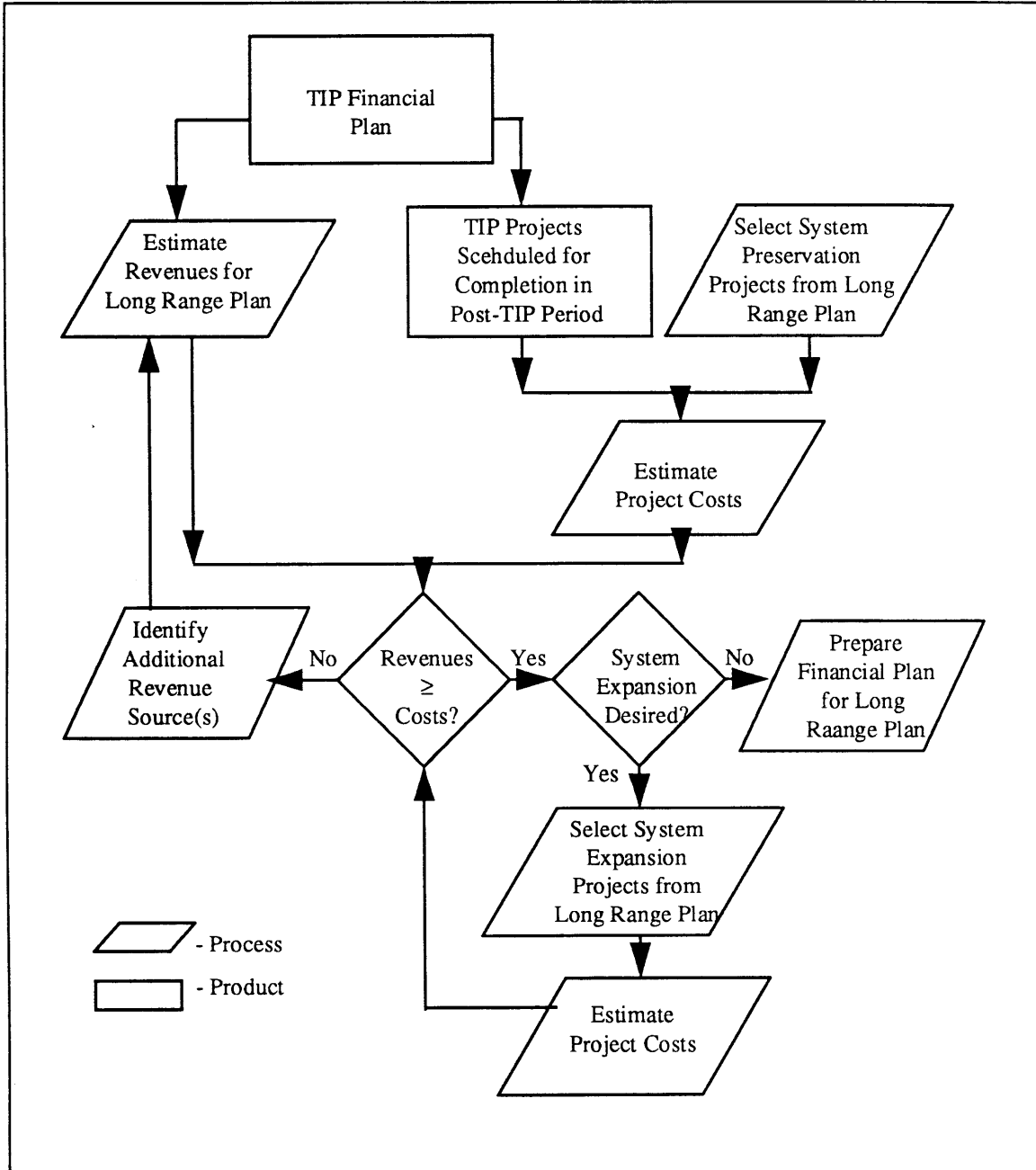
With all stakeholders at the table and participating fully in the decision-making process, the result of conducting long range transportation planning with financial planning can be a more refined statement of regional objectives and priorities than ever before. Where a balance of interests does not exist, however, there is increased potential for financial constraint to be used destructively. As mentioned above, therefore, a major pre-requisite for financial constraint to work as intended is the fashioning of a cooperative institutional structure for decision-making which enjoys the consensus of the public, the MPO and its partners. As noted in Chapter 2, this structure should be designed to involve decision-makers or their representatives in the earliest stages of the financial planning and long-range planning processes, in order to avoid controversy over analyses once they are performed. Through the use of consensus-oriented approaches, mutually agreed-upon defensible analyses can play an important role in decision-making, despite the presence of seemingly overwhelming political and technical obstacles.

**Efficiency.** The efficiency of the planning process is enhanced through financial constraint and financial planning in several ways: First, as a result of the consideration of alternatives and prioritization of needs, the financial planning process concentrates resources on the actual implementation of the identified priorities, instead of squandering them upon a “wish list” of projects, which, without priority ordering, serves no discernible purpose in guiding future transportation investments. As products, the Plan and TIP represent

successive steps in the planning process and must articulate *with increasing clarity* regional policies and priorities.

The second way in which financial planning promotes efficiency is to ensure that ongoing existing system operating, maintenance and re-capitalization needs will be met before other investments are considered (see Figure 3.4).

**Figure 3.4: Financial Planning Process for Long Range Plan<sup>84</sup>**



<sup>84</sup>NTI/DOT, Financial Planning and Programming for MPOs, p. 1-12.

committed projects from the current TIP. Only after these costs are considered and met, should system expansion plans be considered. When all “available”, “committed” and “reasonably available” revenues have been identified and “spent”, the result is a fiscally constrained Long-Range Plan.

**Highlighting New Strategies.** Another way in which financial planning promotes efficiency in transportation planning is by highlighting the most cost-effective strategies for addressing regional transportation problems such as congestion, air pollution and safety. These may include regulatory, market-based or capacity-enhancing strategies ranging from a review of performance/planning criteria for capacity-enhancing projects to operations-oriented demand and supply management strategies. In conjunction with the Management System, MIS and public involvement planning requirements, financial planning encourages a more critical look at options to more cost-effectively manage the existing transportation system.

**Teletic Approach.** Figure 3.4 also illustrates an important process in the teletic approach to long-range planning. Recall from Chapter 2 that the teletic approach to system planning begins with the question “Where are we going?” and then asks “How do we get there from here?” with respect to regional transportation investments. Adopted en masse, this approach would yield transportation plans which amount to a national set of regional “visions”. These would include cost estimates to achieve the needed investments and documentation of regions’ abilities to cover their costs. On the revenue forecasting side, an important part of the teletic approach to financial constraint is a feedback loop for identifying additional available revenues where system expansion or other costs exceed the revenues estimated in the original fund estimate (see Figure 3.4). This loop acknowledges the possibility that initial fund estimates overlooked project-specific revenue options such as fees, debt-financing or privatization. Similarly, teletic cost estimation should be based upon needed rather than historical costs. We expand upon these topics later in this section.

**Linking Regional Planning.** Finally, financial planning affords regions the opportunity to link regional planning activities through financial planning. Developing regional consensus on the assumptions and methods used in the financial plans for the LRP and the TIP is no small feat. Yet once achieved, this result confers significant benefits on the MPO and its partners. Figure 3.5 illustrates this through a more detailed picture of the financial planning process.

At the heart of the process are the activities of regional financial policy and program planning. This process is characterized by the confluence of several agencies' policies, products and interests, requiring strong institutional relationships in order to carry out the financial planning process. Once policies and assumptions have been set, revenue forecasts, cost estimations and sensitivity analyses can be performed. These tasks are difficult; negotiations on methods and assumptions are often fraught with policy and technical hardspots. Once consensus is achieved however, participants are rewarded with significant planning economies of scale. Agreement regarding expectable capital and operating costs, fare policies, grant receipts, growth and inflation greatly strengthens the links between and within planning entities. For example, a Public Transit Management System which represents regional agreement on such things as the life cycle of a bus, will be useful for comparisons at the regional level (where several operators may vie for system preservation funds) as well as for capital and maintenance planning at the operating agency itself.

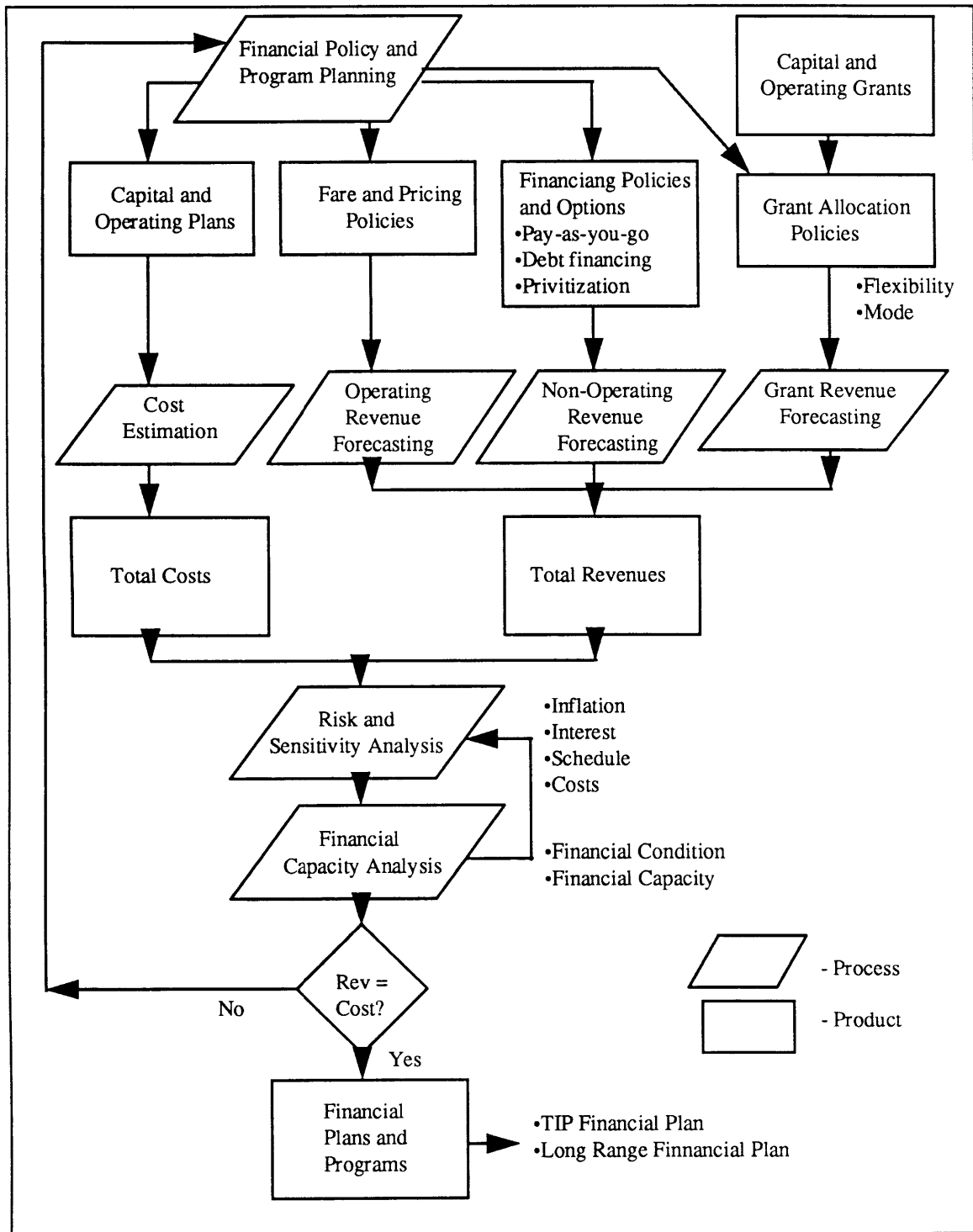
A further example of linking regional planning is when financial planning at the MPO has positive "trickle down" effects on the long-range planning efforts of its constituent agencies. This effect is taking place in the San Francisco Bay Area where the long-range planning efforts at the Alameda County Congestion Management Agency and Santa Clara County Transportation Agency include financial planning components and assumptions which are consistent with those contained in the MPOs Regional Transportation Plan.<sup>85</sup>

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<sup>85</sup>This effect is taking place currently at Santa Clara County Transportation Agency, per interview with Chris Wornum, Cambridge Systematics, January, 1995.



**Figure 3.5**  
**Financial Planning Process in Metropolitan Transportation Planning**<sup>86</sup>



<sup>86</sup>ibid, p. 1-8.

**Education and Advocacy.** Financial constraint further strengthens long-range planning by creating educational and advocacy opportunities throughout the plan development process. Financial planning has been said to lend a “sense of proportion and purpose” to the planning process.<sup>87</sup> Used in this way financial constraint is a vehicle to educate decision-makers, the public and the MPOs public agency partners about the financial condition and capacity of the region. In addition, presented together with an unconstrained plan showing needs and investment proposals beyond the region’s current financial capacity, the financially constrained long-range plan can act as an advocacy document on behalf of the region, such as was achieved in San Diego, CA. In this way, as both an educational and advocacy document, the financial plan can be used to a) demonstrate where costs are not (and should be) fully allocated, b) identify revenue shortfalls in the attainment of needed or desired investment levels and c) serve as a springboard for legislative or other actions to remedy a) and b).

In summary, in conjunction with Management Systems, Public Involvement, and MIS planning requirements, the major objective of financial constraint in long-range planning is to strengthen the planning process through 1) the identification of trade-offs and priorities, giving teeth to the Plan development process, 2) increased efficiencies in planning as resources are dedicated to implementing plans and programs, 3) the emphasis on system management (including taking care of existing system needs first), 4) planning economies of scale afforded to the MPO and its partners and 5) the educational and advocacy benefits of the constrained (and unconstrained) Long-Range Plans.

**3.2.2 The Costs and their Remedies.** Financial constraint cannot be determined to add value to the planning process without addressing the costs associated with its implementation. Many of the major issues associated with financial planning at the System Planning stage were identified in Chapter 2. To re-cap these, the major objections to financial constraint are: 1) that it inhibits the vision process, to the potential detriment of transit projects in particular, 2) is technically burdensome, and 3) ignores political realities.

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<sup>87</sup>Murray, p. 62.

In addition, an issue from the regulatory perspective important to the assessment of the regulation in light of these issues is the determination of what constitutes a “good faith effort”. In other words, how should the requirement of financial constraint be enforced? Which components of the requirement deserve priority consideration in enforcement? When do total enforcement costs outweigh other benefits? We examine each of these issues in turn.

**The Anti-Visioning Argument.** Recall from Chapter 2 that a major objection to the financial constraint requirement is the assertion that financial constraint inhibits the “visioning” process. Some planners additionally fear that transit projects, already historically disadvantaged relative to highway projects, will not fare well under the new “constrained” planning environment. We examine the concerns related to transit later in our discussion of the Project Development stage of planning. Chapter 2 considered the anti-visioning argument and found that indeed ISTEA may have been remiss in calling for financially unconstrained vision-planning, thereby failing to encourage the teleetic approach to transportation planning. If true, as evidenced by the first few rounds of long-range plans across MPOs, this oversight would be a major missed opportunity for the long-range vision plans to cummulatively inform the development of a national vision for transportation policy and funding needs at the federal level.

Ideally, MPOs operationalize the teleetic approach to long-range transportation planning by developing the financial plan in two parts, constrained and unconstrained. Moreover, in developing these, planners need not adopt the incremental status-quo approach. Instead, the teleetic approach to financial planning employs pro-active analysis techniques on both the revenue and the cost sides of the constrained plan. The unconstrained plans list the remaining projects that are needed or desired, and may also be prioritized to show which plans would go forward as certain resources become available. In this way, the plans themselves are at once realistic and forward-looking documents of advocacy. They can be used educate and lobby decisionmakers and the public regarding future actions that will be necessary to achieve the regional vision.

As we identified in Chapter 2 and will see again in Chapter 4, for reasons ranging from the technical to the institutional, MPOs are experiencing varying degrees of success in implementing the requirement as envisioned by ISTEA. Given the diversity among regions, in terms of their transportation problems and institutional capacity, it is not unreasonable to expect that MPOs will need time to adjust to the new planning rules. Thus far, we presented the intended benefits of financial constraint and showed how the teleetic view of the requirement, in conjunction with mutually-developed defensible analyses, can combat the technical and political pitfalls associated with financial constraint.

**3.2.3 Features of ISTEA to Support Planning Activities.** In fashioning the financial constraint requirement, Congress too anticipated how difficult implementation of the requirement would likely be. In order to ease the technical and political burdens, it included three provisons in ISTEA to facilitate the implementation of the financial constraint requirement. The first remedy was increased fungibility of federal funds. The second was a promise of more program and planning funds to carry out the newly mandated planning responsibilities of MPOs. And third, technical assistance was to be made available through FHWA and FTA guidance and training. As we shall see, several issues - some of which erode the effectiveness of these remedies - signify that, like MPOs with their partners, Congress may need to exercise patience with MPOs as they endeavor to implement the financial planning requirements of ISTEA.

**Flexible Funds.** The Government Accounting Office estimates that over half of the \$155 billion in ISTEA is available for flexible use.<sup>88</sup> The flexible funding provisions in ISTEA associated with STP, NHS and certain other fund categories were patterned after previous flexibility within the federal Interstate Substitution Program and California's Propositions 108 and 111, which established Flexible Congestion Relief (FCR) funds and county-level Congestion Management Programs.<sup>89</sup> With fewer barriers limiting the availability of

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<sup>88</sup> STPP, ISTEA Year Three, p. 6.

<sup>89</sup> Alameda County Congestion Management Agency, Congestion Management Program, Executive Summary, June 27, 1991, p. i.

funding for certain modes, i.e. transit, many argue that states and regions are now better able to fund the mix of projects which best meets regional needs. While the amount of federal funds flexed to transit is increasing, (approximately \$600 million in FY 1994, as compared with \$469 million in FY 1993 and \$301.5 million in FY 1992), the trend toward funding more intermodal project mixes is generally a slow one.<sup>90</sup> The STPP study on state expenditures of federal funds found that states are favoring traditional programs and that few states have taken advantage of the flexible funding provisions of ISTEA. In FY 1992, however, only three states - Maine, Vermont and Massachusetts transferred NHS funds to the STP; in FY 1993 these three entities were Vermont, New Hampshire and the Virgin Islands. Table 3.1 shows the nationwide obligation rates for the NHS, STP and CMAQ programs in Fys 1992, 1993 and 1994.

**Table 3.1: Nationwide ISTEA Program Obligation Rates, FYs 1992-1994<sup>91</sup>**

ISTEA Program	FY 1992	FY 1993	FY 1994
NHS	94%	88%	81%
STP	70%	61%	63%
CMAQ	42%	42%	48%

It is important to note that just examining obligation rates by program and the number of states transferring funds between programs may not yield an accurate assessment of implementation activities. These rates may mask the use of highway funds for non-traditional programs within programs such as the NHS. Research has not shown this to be true however. STPP found that no NHS funds were used for transit purposes in NHS corridors. The CMAQ program represented 62% of all highway program transfers to transit in the first two years of ISTEA, with transfers of funds in FY 1993 increasing 69% over those transferred to transit in FY 1992. STP funds have also been increasingly used

<sup>90</sup>Statement of Jane F. Garvey, before the House Public Works and Transportation Committee, Subcommittee on Investigations and Oversight, Hearing on ISTEA Flexibility and Planning Provisions, October 6, 1994., p.2. See Appendix A for draft FTA figures on Flexible funding Transfers to FTA and Obligations.

<sup>91</sup>STPP, State Expenditures of Federal Surface Transportation Funds: Do They Reflect the New Directions?, December 8, 1993, Introduction. FY1994 figures are draft figures, per Felicia Young, STPP.

to fund transit, with STP funds accounting for 8% and 31% of all transfers to transit in FYs 1992 and 1993 respectively.<sup>92</sup> Indeed, expectations for flexible funding to relieve the decision-making challenges of ISTEA and for better decision-making to be reflected in actual project mixes should be tempered by the following caveats to this important provision.

As we saw in Chapter 2, flexibility is not a new concept in transportation funding and should not be expected to necessarily change decision-making patterns and project mixes right away, if at all, in some states.<sup>93</sup> The reasons for this are several. First, many states' transportation laws still are not complementary to the flexible funding provisions in ISTEA. Problems with inflexible local matching dollars and the (in)availability of local operating funds persist in the post-ISTEA environment. These account for some part of the uneven use of flexible funding provisions across states. As one FHWA points out, most legislatures are on a biennial schedule and are just now assessing these issues for the first time since passage of ISTEA.<sup>94</sup>

Additionally, regions and states who do elect to take advantage of flexible funds must first wait for existing pipeline of pre-ISTEA projects to be delivered. Meanwhile, it is important to create a similar backlog of multi-modal projects at both the state and local levels. In order to do this, however, regions must develop the institutional and technical capacity for administering the new programs and for performing multi-modal trade-off analyses.<sup>95</sup> For example, Michigan DOT, while supportive of fiscal constraint for both TIPs and Long-range plans, believes there is a need to supplement current *policy*-based decisions with suitable technical mechanisms to make trade-off decisions between different

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<sup>92</sup>Ibid.

<sup>93</sup>Denno, p. 275.

<sup>94</sup>Garvey, p. 14.

<sup>95</sup>GAO, "Transportation Infrastructure: Urban Transportation Planning Can Better Address Modal Trade-Offs".

types of projects.<sup>96</sup> Similarly, the GAO has called on DOT to develop criteria and related measures for comparing highway and mass transit projects.<sup>97</sup>

Finally, with new mixes of projects in plans and programs, states should, but may not, respond to changes in local decision-making over time as represented by obligation rates of different federal fund categories. A major reason for this is the sizable backlog of unfunded highway needs which exists in many states.<sup>98</sup> FHWA estimates the current cost to retire the existing backlog of highway pavement deficiencies and feasible capacity deficiencies to be approximately \$212 billion. In addition, over 100,000 bridges are deemed structurally deficient requiring \$78 billion for these projects alone.<sup>99</sup> This situation causes many states to balk at flexing their highway dollars toward non-traditional projects. Missouri DOT, for example, refused to obligate Enhancement funds unless Congress provides 100% obligation authority for all of ISTEA.<sup>100</sup> We turn to the important issue of federal funding presently.

**States Considered.** Several of the factors mentioned above suggest that the potential for ISTEA flexible funding provisions to alleviate pressures associated with decision-making under financial constraint still rests very much with the states. ISTEA changes the state-MPO relationship, mandating more direct project selection and enhanced overall planning roles for MPOs. The abilities of states to adapt to these changes will influence how post-ISTEA decision-making translates into actual delivered projects.

As we saw in Chapter 2, and in the comments received during rulemaking, the State-MPO relationship is key to the smooth and equitable administration of federal funds. States

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<sup>96</sup>Louis Lambert, Deputy Director of the Bureau of Transportation Planning, Michigan DOT, Testimony before the U.S. House of Representatives, Committee on Public Works and Transportation, Subcommittee on Investigations and Oversight, October 6, 1994, p. 7-8.

<sup>97</sup>GAO, Transportation Infrastructure: Urban Transportation Planning Can Better Address Modal Trade-Offs, p. 13.

<sup>98</sup>STPP, State Expenditures of Federal Surface Transportation Funds: Do they reflect the new directions?, p. .

<sup>99</sup>Garvey, p. 4-5.

<sup>100</sup>STPP, State Expenditures, Introduction.

control over 80% of federal funds, including flexible funds, and are also responsible for approving and incorporating regional TIPs into STIPs. Therefore, although ISTEA intends to grant MPOs greater authority in decision-making, states continue to have major programming responsibilities as well as potentially significant roles in metropolitan resource allocation decisions. If state roles are not well defined and incorporated early in the regional plan development process, state/MPO conflicts regarding the fund estimate and project selection can easily frustrate the plan or program development process. Ideally, ISTEA envisions a more parallel and collaborative state and regional planning process than existed previously. It requires states to work cooperatively with MPOs at the regional level, and for controversial issues to be resolved before regional TIPs are included in STIPs.

Initial indications suggest that state-MPO relationships vary considerably. In hearings on ISTEA planning and flexible funding provisions in 1993, the Committee on Public Works and Transportation noted that:

While some states were accepting the changes and developing the planning processes necessary to implement them, others were resisting the new provisions of ISTEA and were trying to continue spending federal money on highways the same way they always had.<sup>101</sup>

There are any number of reasons for the uneven implementation of ISTEA provisions. Diversity of history, institutions and system characteristics account for many of these. In surveying the experiences of localities in utilizing flexible funding provisions of ISTEA, the Surface Transportation Policy Project found that, in some cases, the differences manifested themselves attitudinally. STPP notes that “the clearest winners under ISTEA have been those willing to make new alliances and actively participate in transportation planning.”<sup>102</sup> In addition, some states, such as California, New York, Massachusetts, and Washington, D.C. gained experience in multi-modal planning through use of multimodal Federal-Aid Urban System Funds and transfer provisions of the Interstate substitution

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<sup>101</sup>Committee on Public Works and Transportation, Subcommittee on Investigations and Oversight, “Hearing on ISTEA Planning and Flexible Funding Provisions,” October 6, 1994, p.1.

<sup>102</sup>STPP, ISTEA: Year Three, p. 2.



program (see Appendix B for Obligation Levels for Highway and Mass Transit Projects, FYs 1976-1991).<sup>103</sup>

Indeed, a culture of institutional cooperation and determination - in short leadership - will be key to the successful implementation of ISTEA. State officials and representatives also share this view. A 1993 survey of Secretaries of DOTs (Survey I response rate: 43 states or 86%) and regional directors at state DOTs (Survey II response rate: 48 states or 96%) informs our understanding of a critical aspect of ISTEA's challenge to states, their decision-making and implementation processes<sup>104</sup>:

**Table 3.2: Questions Posed to DOT Secretaries and Regional Directors Regarding State Decision-Making Practices**

1. With respect to source (budget) allocation, is the process of decision-making in your state DOT centralized, decentralized, combination and/or other?
2. In your opinion, is the process of decision-making in your SDOT smooth and logical?
3. Is there any room for improvement in the decision-making process?
4. Does the organizational structure of your state DOT support/complement the department's decision-making process?
5. Please indicate the number of upper management positions in SDOT that are political appointees.
6. How does the change in the top-level DOT administrators (political appointees) affect the decision process?
7. How does the change of top-level DOT administrators affect the implementation of decisions?
8. How can the decision process and implementation be improved under the changing management environment.

In evaluations of the responses to questions 1 through 4, 6 and 7, researchers found statistically significant degrees of consistency between the views of secretaries of DOTs and regional directors. Table 3.3 presents the results of the surveys. Respondents in both categories surveyed generally believed decision-making in their organizations to be smooth and logical; yet they also believed that there was room for improvement in terms of process and institutional structure.

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<sup>103</sup>GAO, Urban Transportation Planning Can Better Address Modal Trade-Offs, Appendix II.1 and II.2.

<sup>104</sup>Hulsey, et.al. "On the Response Consistency of Questionnaire Surveys of State Department of Transportation Management," Transportation Research Record, No. 1395, TRB/National Research Council, National Academy Press, Washington, D.C., 1993, pp. 163-167.

**Table 3.3: Responses and Results of Tests of Significance for DOT Survey Questions<sup>105</sup>**

Question No.	Category			Significance <sup>106</sup>
	1: yes/very much	2. to some extent	3. no	
Q1: Survey I	17	26	0	H <sub>0</sub> : reject
Survey II	28	16	3	
Q2: Survey I	22	21	0	H <sub>0</sub> : accept
Survey II	28	18	2	
Q3: Survey I	23	19	1	H <sub>0</sub> : accept
Survey II	27	19	1	
Q4: Survey I	28	14	1	H <sub>0</sub> : accept
Survey II	37	10	1	
Q6: Survey I	10	27	6	H <sub>0</sub> : accept
Survey II	6	32	6	
Q7: Survey I	4	27	10	H <sub>0</sub> : accept
Survey II	3	33	8	

In addition, changes in top-level administrators are perceived to have some effect on decision-making and implementation activities. The consistency of responses extended to the responses to question 8: “How can the decision process and implementation be improved under the changing management environment”. These are indicated below:

**Table 3.4: Recommendations for Improved Decision-Making and Implementation at the State Level**

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| <ul style="list-style-type: none"> <li>• Top-level positions should be civil service or under executive contract.</li> <li>• Multiyear project commitments should be exempt from changes except for some predefined reasons.</li> <li>• There should be well-documented information systems that would not have to be resold to each new administration.</li> <li>• Transition would be smoother if only transportation officials were appointed.</li> <li>• There needs to be good communication of objectives to all involved employees. There should be no hidden agendas.</li> <li>• The basis for decisions should be documented and should be based on clearly stated objectives.</li> <li>• The establishment of a long-term plan, supported by detail and a “need justification,” may be the best hedge against impulse or political expedients.</li> <li>• An unified management information system should be established.</li> </ul> |
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<sup>105</sup>Combination of two tables in original study.

<sup>106</sup>Significance is determined using Chi-square tests of correlation. H<sub>0</sub>= depending on the hierarchical level of the management decision maker responding to a questionnaire survey, no significant degree of variation in responses may be expected.

Recall the argument forwarded in the generalized theory of decisionmaking presented in Chapter 2. We stated that rational processes and defensible analysis aids decision-making regardless of the institutional make-up of the decision-making body. From their responses to question 8, it is clear that officials and staff directors in most DOTs believed this to be true as well. They call for greater rationality in resource allocation decision-making processes and better analytical and management tools to support state decision-making and implementation processes, independent of the level of centralization of decision-making in the state in question.

Looking closer at the recommended actions, it is possible to differentiate among them. While developing meaningful and functional management systems is challenging in itself, a more fundamental and important issue for states is the re-evaluation and orientation of their mission, which ISTEA urges. Intermodal system management, a much more difficult and complex objective than designing and building the Interstate Highway System, is the new charge of the day. Like MPOs and their other partners, state DOTs will need time and assistance as they redefine their missions and re-organizing activities and resources to support resource-allocation decision-making in this new environment. As Deputy FHWA Administrator Jane Garvey noted, these changes will require “substantial changes in culture, policy, and programmatic actions, as well as administrative and legislative action by State DOTs, governors and legislatures.”<sup>107</sup>

**Increased Funding.** As discussed above, the multi-modal decision-making and financial planning required under ISTEA inspired its flexible fund provisions. Flexible funding was intended to help ease tensions within and among institutions. In order for flexible funding to work as intended, however, increased funding to support the new planning activities and non-traditional programs must accompany the new flexibility. This is especially true of regions whose technical and insitutional multi-modal decision-making capacity is immature. Newly flexible dollars with less or the same amount of funds can result in

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<sup>107</sup>Garvey, p. 13-14.

gridlock rather than eased tensions. With a bigger funding pie, however, there is greater assurance that everyone will get a slice.

In ISTEA, Congress increased authorizations for both transportation planning activities and actual programs. In anticipation of the charge of “unfunded mandate” from MPOs and other planning agencies which would have to carry out substantially increased transportation and air quality planning responsibilities as a result of ISTEA, Congress more than doubled the planning set-aside for MPOs and increased the large planning and research set-aside available to the states.<sup>108</sup> A second area of increased federal funding was in program funding, both in existing programs and with the creation of new ones. An example of this is the CMAQ program, an entirely new Federal program administered by the states which helps non-attainment regions achieve national standards of air quality as mandated by the CAAA. Increased program funds both support mandates contained in ISTEA and the CAAA and aid regions as they implement ISTEA by tempering conflicts that can result from competing interests for newly flexible funds.

ISTEA authorizes an unprecedented \$155 billion over 6 years for transportation investments. Annually, the authorization for transportation spending grows from \$23 billion in FY 1992 to about \$26 billion in FYs 1993 through 1996, and jumps to \$28 billion in FY 1997. Authorized levels of funding translate into on-the-street projects as a result of the federal appropriations and obligations process. The major criticisms of federal funding falls in these areas, as obligation ceilings - the amount up to which funds may be committed - generally fall short of authorized levels. Actual federal authorizations, obligation authority, and outlays for the major highway trust fund programs, many of them flexible, appear in Tables 3.5 and 3.6.

In the federal process, several actions may erode the funding contained within an authorizing piece of legislation. This process is complex and confusing. We elaborate on this process in the section on Program/Project Implementation. Here it is important to

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<sup>108</sup>STPP, ISTEA: Year Three, p. 6.

note that although the Highway Trust Fund operates under contract authority - which permits obligations of funds directly from the authorizing act - Congress controls the rate of obligation through the Appropriations Act.

**Table 3.5: ISTEA Authorizations (all figures in billions)<sup>109</sup>**

Account	Federal Fiscal Year							
	1990	1991	1992	1993	1994	1995	1996	1997
Highway Trust Fund								
Highway Account			17.8	20.9	20.9	20.8	20.8	20.8
Transit Account			1.9	2.9	2.9	2.9	2.8	4.8
<b>Trust Fund (subtotal)</b>			<b>19.7</b>	<b>23.8</b>	<b>23.9</b>	<b>23.7</b>	<b>23.6</b>	<b>25.6</b>
General Fund			3.1	2.5	2.2	2.3	2.4	2.5
<b>Total Authorizations*</b>		17.9**	22.8	26.2	26.2	26	26	28.1

\* Figures may not add up due to rounding.

\*\*source: Highway Users Federation and the Automotive Safety Foundation.

**Table 3.6: Highway Trust Fund Budget Authority, Obligation Limitations and Outlays (all figures in billions)<sup>110</sup>**

Congressional Action	Federal Fiscal Year							
	1990	1991	1992	1993	1994	1995	1996	1997
FHWA Budget Authority	15.2	14.6	18.3	21.2	22.3	21.5		
(HTF: Contract Authority)								
Obligation Limitation, Bonus, and Exempt***	13.9	16.3	17.8	17.4	20.7	19.7		
(Appropriations Bill)								
Outlays								
Highway Account	14.4	14.7	15.5	16.6	19			
Transit Account	0.9	1.1	1.3	1.9	3.4			
<b>Total Outlays</b>	<b>15.3</b>	<b>15.8</b>	<b>16.8</b>	<b>18.5</b>	<b>22.4</b>			

\*Source: Highway Users Federation and the Automotive Safety Foundation, The Intermodal Surface Transportation Efficiency Act of 1991: A Summary, insert.

\*\*Substitutes Primary System funding for NHS, Secondary and Urban System funding for STP, for comparison purposes.

\*\*\*Sum of Obligation Limitation, Bonus Limitation, and Exempt Obligations.

Obligation authority may exceed budget authority where unused obligation authority is carried forward from past years. Outlays are also not temporally consistent with obligations since they reflect obligation activities of past years.

<sup>109</sup> FHWA, Financing Federal-Aid Highways, Appendix B. (See Appendix B for full Table.)

<sup>110</sup> U.S. DOT, FHWA, "Limitations, Obligations and Trust Fund Balances", fax transmittal from Bruce Swinford, FHWA.

The numbers in Figure 3.6 show that the critics have a case; the decreasing levels of budget authority, obligation ceiling and outlays do lag authorized levels, sometimes by several billion dollars.<sup>111</sup> Yet, it is also true that there has been a notable upward trend in the amount of money available to transportation projects during the ISTEA period. Indeed, federal obligation authority increased 42% in real dollars from 1990-1994.<sup>112</sup> This raises an issue which is important to financial planning. Where the federal funding process is known to all familiar with transportation finance, what is the effect of allowing regions to assume authorized levels of funding in their 20-year revenue forecasts, when actual figures almost certainly warrant downward adjustments of these levels? While many believe the assumption is harmless and perhaps even beneficial to the delivery of projects, some reject the practice as inefficient and potentially damaging to the timely delivery of projects. We expand upon this point later in our discussion of overprogramming.

Clearly, a major responsibility in implementing ISTEA rests with the Congress. As one GAO official noted: "One of ISTEA's key challenges will be to find the budgetary resources to support the act's \$155 billion authorization through fiscal year 1997." At the same time, regions must continue demonstrate the need which exists for federal funding of transportation and show that the new funding which is available is being expended efficiently and effectively. These tasks can be most effectively communicated through the long-range transportation plan and accompanying financial plan. Although it is less than accurate, unfortunately, the uncertainty regarding annual funding levels makes it difficult to assume anything less than authorized levels of funding and extrapolations of these - the current policy under the planning regulations.

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<sup>111</sup>The difference between obligation limitations and authorized levels is the more important of these, since outlays generally reflect past obligation activities and will increase in future years to reflect ISTEA-funded projects.

<sup>112</sup>STPP, State Expenditures of Federal Surface Transportation Funds: Do They Reflect the New Directions?, Introduction.

**Technical Assistance.** Ever the pragmatist, MIT lecturer Fred Salvucci is fond of noting that “the enemy of the possible is the perfect”. However, he also acknowledges that one “can’t make better what one cannot measure.” Somewhere in between those two positions lays just the right level of analysis for conducting financial planning so that it informs the development of TIPs and Plans without imposing a prohibitive analytical burden on the process. Generally, the right level of analysis to employ for each region should be determined by consensus.

Far from being impossible to carry out, the technical responsibilities of financial constraint are themselves not as difficult as the actual decisionmaking which follows. A fair amount of assistance is available to MPOs in performing these new duties. Consistent with its traditional role of providing technical assistance to its constituents, FHWA and FTA have sponsored financial planning workshops<sup>113</sup> which are available at low to no cost to planners around the country. In addition to providing concise lessons on financial planning with useful examples and exercises, the NTI workshop on “Financial Planning and Programming for MPOs” also offers a listing of software, contacts, publications, courses and other resources that can aid in the learning process. In addition, at this writing, federal guidance on financial constraint was under development at FTA and FHWA. Finally, an excellent non-federal source of information is available to planners through other resources such as STPP’s ISTEA Planner’s Workbook. The following section offers a brief discussion of the major steps of financial planning in which the MPO should engage toward the development of financially constrained plans and programs.

The core activities of financial planning are: Revenue Forecasting, Cost Estimation, Risk Assessment, Capacity Assessment, Plan Preparation and Plan Implementation.<sup>114</sup> While each of these planning duties may be performed at varying levels of sophistication it is

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<sup>113</sup>see GFOA/APTA/FTA Project Number DC-26-6019, “Flexible and Innovative Funding: Making ISTEA Work for You” and NTI/DOT course “Financial Planning and Programming for Metropolitan Planning Organizations”.

<sup>114</sup>Much of the discussion in this section is paraphrased from NTI, “Financial Planning and Programming for MPOs”.

important for the analyst to possess a rudimentary to good understanding of the related concepts of interest rates, inflation, the time value of money (present value of money) and cash flow analysis. These are especially useful if debt will be used to finance needed improvements over the planning horizon.

**Revenue Forecasts.** Revenue forecasting begins with development of the fund estimate. The following categories of revenues are often included in revenue forecasts. Category descriptions and the common method of forecasting each fund source are noted in parentheses:

- Grants (federal, state, and local government funds, trend analysis+inflation)
- Transit fares (function of policy, elasticities and ridership, demand modeling)
- Dedicated taxes and user fees such as motor fuel taxes, registration fees, sales taxes and tolls (function of VMT, fuel efficiency, vehicle ownership, tax rates and toll structures)
- Other revenues such as lease of transit properties, benefit sharing, concessions or advertising revenues (function of contract/agreement, expert judgment on real estate)

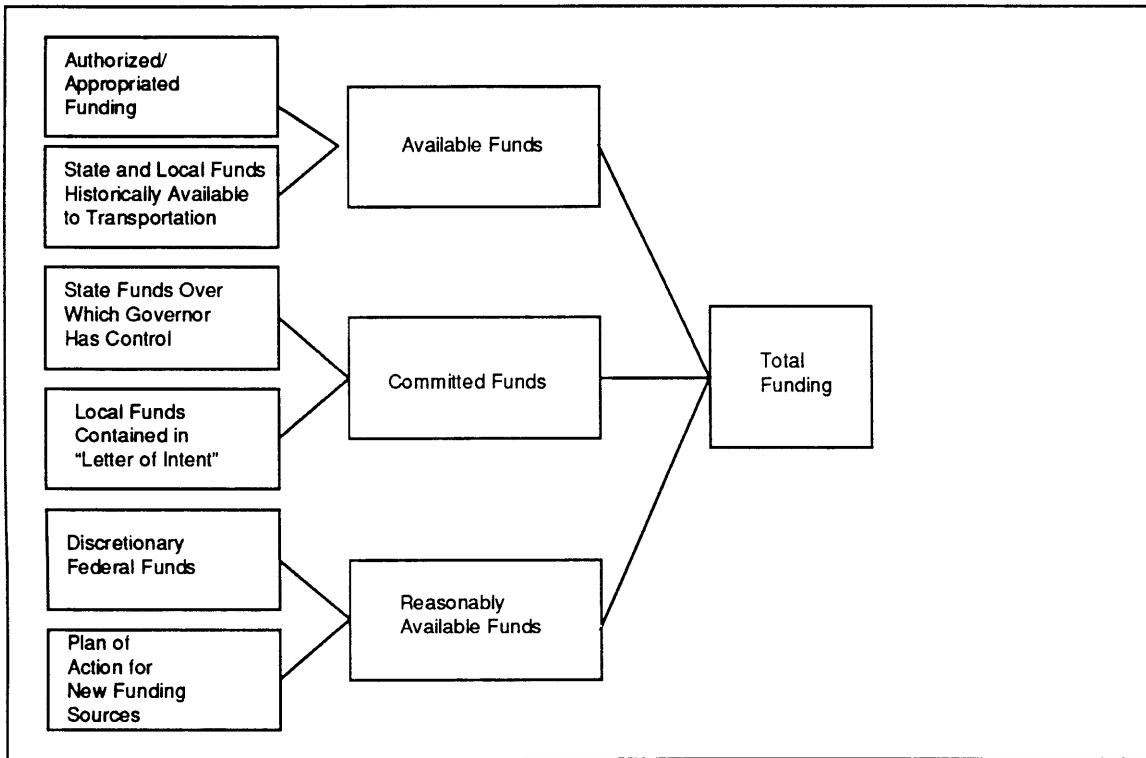
Figure 3.6 presents one possible classification of these funds for inclusion in TIP and Long Range Plan financial plans. Recall that years 1 and 2 of the TIP in nonattainment and maintenance areas, regions must use “available” and “committed” fund sources. For periods beyond these years, and for the long-range plan, funding must be “reasonably available”. This means that new funding sources are permitted where it can be demonstrated how these funds would likely be obtained. As we noted above the revenue “loop” element of the revenue estimation process is critical to the teleitic view of planning.

Issues of coordination and timing are critical to developing the fund estimate. MPOs must rely on their partners to provide information about fund sources and their likely growth rates. The state/MPO relationship is especially important to the development of the fund estimate. Where fund sources expire before the plan horizon or contributions to the



region are discretionary (i.e. State) additional coordination and negotiation between the MPO and its partners may be necessary. Ideally, MPOs, states and other agencies adopt complementary planning cycles, facilitating a more efficient fund estimate process.

**Figure 3.6: Classification of Funding Sources for TIP and Long Range Plan<sup>115</sup>**



Forecasting, especially revenue forecasting, is a major activity which takes place at the MPO level. There are four types of forecasting techniques: expert judgment, trend analysis (functional form dependent upon time only), component forecasts (desegregates variables, i.e. input-output analysis), and statistical methods (regression analysis). Each technique has pros and cons and the best one to choose depends upon a) the availability of resources, including time, funds, and data, and b) the characteristics of the variable being forecast. Appendix C provides a table of available methods and an assessment of their pros and cons. The extent of specification, measurement and calibration error depends on the 'goodness of fit' between the variable and the method chosen to forecast it. As in any

<sup>115</sup>NTI, Unit 3-14.

kind of estimation, evaluative checks to see how past forecasts predicted actual trends are recommended. Additionally, it is important that the forecast process is overseen by a review committee consisting of representatives of the MPO and its partners, including State and Federal officials. To the extent that policymakers and decisionmakers are involved in the initial consensus on assumptions and methodology, there will be less pressure to “bend” the analyses in one direction or another once the results are posted. The review committee should then subject the forecast to a “reasonableness check” once the forecast has been completed. At that point, it is appropriate to also present any sensitivity analysis which has been performed, including analyses of non-quantitative variables such as political susceptibility.

**Cost Estimation.** There are two types of cost estimation which are relevant in financial planning at the MPO level. The first type of cost estimation - which the MPO employs in developing long range plans - is system-level cost estimation. The second type of cost estimation - which generally becomes more relevant as implementation nears, is project-level cost estimation. Project-level cost estimation is usually performed by the implementing agency or project sponsor, i.e. transit operator or DOT. Generically, these can be broken down into initial costs (i.e. planning studies, preliminary design), capital costs (i.e. row, construction, equipment, facilities), and operations and maintenance costs. Here, we focus on system-level cost estimation, since it is the activity more closely associated with the MPO.

In system-level cost estimation, the basic units of cost estimation are more coarse, such as miles of roadway or track constructed or maintained and number of vehicles purchased, instead of finer units such as cubic feet of fill or tons of asphalt required. In some areas, capital system-level costs are estimated at the county or operator level in Capital Improvement Programs. In others, the MPO performs this function itself. Existing and incremental operating and maintenance cost estimates are usually based on units of existing capital and the amount of new capital being purchased. Usually, these estimates are provided by city departments of transportation and transit operators.

Fundamental to the preceding exercise is the determination of whether future costs will be estimated based on historical trends or actual needs. If historical trends indeed reflect needs, the choice of a cost estimation approach is simple: the trend approach suffices. If, as often is the case with O&M costs, historical trends represent incremental increases and underinvestment, the estimator may choose to project costs based on the necessary expenditures to achieve established or desired service levels. In this approach, the cost estimate acts much like an advocacy budget. Recall the central debate regarding the potential for financial constraint to do more harm than good regarding transportation's financial interests. For budgets to be teleetic instead of incremental, they must ask "Where do we want to go?" and "How do we get there from here?" instead of simply saying "This is where we are" and "Where do we go from here?" *This distinction is the major factor in viewing financial constraint as promoting transportation interests instead of as a requirement which undermines it.* In taking the teleetic view, it is important to base cost estimates on needed or desired levels of investment, either before or after, but always independent of revenue estimates.

Since O&M cost estimation can be more sophisticated than capital cost estimation, additional approaches may also be useful to supplement the trend and advocacy budget approach. These include the cost allocation approach, where all O&M costs are assigned to one of three factors (vehicle hours, miles and peak vehicles) and the Temporal Variation approach, where costs are assigned according to time of use, i.e. by peak or base periods.

**A Word on Management Systems and Life-Cycle Costs.** Along with the requirement of financial constraint, ISTEA mandated six Management Systems to be administered by States and MPOs. These include three asset-based systems and three performance-based systems. Although the asset-base systems, i.e. PTMS, BMS and PMS lend themselves to cost estimation exercises more directly, the CMS, IMS and SMS can be used to categorize program expenditures, and therefore act as inputs into the cost-estimation process. To the

extent possible, all cost-estimation methodologies, should approximate as closely as possible true life-cycle costs. Life cycle costing is the “economic assessment of all significant costs of ownership of an asset over its economic life, expressed in equivalent dollars.”<sup>116</sup> This approach to costing requires information on the purchase price and useful life of the asset, the annual O&M costs of the asset, and an interest rate to calculate the equivalent uniform annual cost (EUAC) of the asset.

**Risk Assessment.** A quick note on risk assessment is important to our discussion of financial planning and the financial constraint requirement, since an original objective of the requirement was to combat the risks, i.e. costly delays, found in the implementation of projects. Risk is defined as the potential for monetary loss resulting from uncertainty about costs, revenues and schedules for implementation associated with a project. Uncertainty is generally attributable to 1) errors in forecasting, 2) insufficient information about the future or 3) failure to consider all factors. The management of risk involves three steps a) risk identification, b) risk measurement and c) risk allocation.<sup>117</sup> As we shall see later, the risks associated with project delays may be analyzed in this way and remedies applied at the Program Development Stage of the planning process.

**Financial Capacity Assessment.** The analysis of financial capacity determines whether the existing revenue base is sufficient to meet existing system operating and preservation needs. For transit operators in particular, financial capacity to meet local match requirements is a major determinant of the extent to which transit can take advantage of ISTEA’s flexible funding provisions. Figure 3.7 provides some examples of the range of financial capacity which exists at various transit agencies.

Regardless of the agency in question, where shortfalls exist, alternative financing should be explored. Three possible approaches are ‘pay-as-you-go’, borrowing and privatization. In ‘pay-as-you-go’ approaches, i.e. sales tax or other user-fee funded programs there is a

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<sup>116</sup>NTI, Unit 6-17.

<sup>117</sup>NTI, Unit 9-2 and 9-11.

significant cost advantage to avoiding debt service and other transaction costs. However, these revenue sources must be accompanied by documentation demonstrating and ensuring their availability. Debt financing, or borrowing options include: vendor financing, vendor leasing, or bonding. Privatization brings the possibilities of benefit-sharing arrangements (joint development), contracting out, and public/private financing and ownership arrangements. If none of these options prove satisfactory, the shortfalls must result in reductions in service and the capital cost requirements associated with decreased service. In the absence of agreements regarding priorities, generally the “shared pain” approach among the region’s agencies is the best way to mete out the burden of limited resources.

**Figure 3.7: Financial Capacity of Transit Agencies<sup>118</sup>**

<b>CATEGORIES OF FINANCIAL CAPACITY</b>		
<b>Substantial Financial Capacity</b>	<b>Some Financial Capacity</b>	<b>Limited (No) Financial Capacity</b>
<b>CHARACTERISTICS OF CATEGORIES</b>		
Broad-based local option tax; beginning to build system; limited debt service	Dedicated funding; existing system creates debt burden; cash flow bonded	Limited (if any) dedicated funding; rely on appropriations
<b>TRANSIT AGENCY EXAMPLES</b>		
Agencies in Texas, Denver, Los Angeles	Atlanta, Portland, San Francisco (BART)	Detroit, Many small- to medium- sized operations

The primary instrument of financial capacity analysis is cash flow analysis. Cash flow analysis may be performed using a simple spreadsheet program. The spreadsheet should be organized in a manner as to allow direct increment by increment (i.e. every 5 years in a 20-year Plan) or year by year (i.e. for TIPs) comparisons of sources of funds and uses as shown in Figure 3.8. Note that the sensitivity factors of inflation and discount rate can be altered to test different scenarios and assumptions. All dollar amounts should be shown in constant dollars.

<sup>118</sup>GFAO/FTA, “Making ISTEA Work for You”.

**Figure 3.8: Sample Spreadsheet for Cash Flow Analysis<sup>119</sup>**

	Starting Balance	Year 1	Year 2	Year 3
<b>Sources of Funds:</b>				
•	Federal			
•	State			
•	Local			
•	Private/Other			
<b>Uses of Funds:</b>				
•	PTMS			
•	PMS			
•	BMS			
•	CMS			
•	IMS			
•	SMS			
<b>Sensitivity Factors:</b>				
•	Inflation			
•	Discount Rate			
<b>Net Cash Flow:</b>				

In a more sophisticated PC-based application, Hillard presents a model for forecasting transportation program cash flow for Florida DOT.<sup>120</sup> Hillard acknowledges the difficulty of performing financial management, noting that few government agencies practice full cash flow management. Yet, the benefits of the model, including the production of reports for tracking and monitoring, and resource planning which can result in one or more years of a transportation product without an increase in taxes, outweigh the costs and risks associated with forecasting future cash flows. Examples from the FDOT model are included in Appendix D.

**Plan Development.** The development of Plans and TIPs should be performed in parallel with the financial planning activities described thus far. This element of the process involves comparing and prioritizing alternatives to include in the final documents. At the Systems Planning or Long-Range Plan development stage, regional policies should be reflected in comparisons of alternative levels and types of investments. At the Program Development Stage this exercise is oftentimes more detailed than at the plan level, (i.e. air quality benefits are often targeted), three types of criteria, screening (recall the satisficing

<sup>119</sup>Modified version of example found in NTI, Unit 10-9.

<sup>120</sup>W. M. Hillard, "Financial Dynamics: A Model for Forecasting Transportation Program Cash Flow", Transportation Research Record No. 1305, TRB, National Research Council, Washington, D.C., 1991.

model of decision-making), scoring (the rational model) and programming can be useful in this process. We discuss program development in the next section. Plan Development is the topic we tackle here.

Traditionally, long-range plans were organized modally. The ISTEA Management Systems provide a useful alternative framework for plan development. Management Systems can help planners to assess the region's financial condition and capacity of the region; this information is then useful to set the context for vision-setting and the alternatives to be undertaken with the public. Here is the MPOs best opportunity to engage in meaningful and innovative public involvement techniques including focus group and educational activities. Planners should make a special effort to understand and explain fundamental concepts particular to a region, such as the difference between manifestation problems - i.e. congestion, safety, poor air quality, transit reliability - and root problems - i.e. inadequate transportation resources to address needed improvements, the effects of sprawl on travel behavior, vehicle mix (SOV vs. goods movement) and the use of non-renewable resources.<sup>121</sup>

Plan development includes integrating the final desired investment package with available resources. Broadly, this is referred to as transportation "programming". Cash flow analysis should be performed on expansion expenditures as it was for existing system needs earlier. Identified resources will either be adequate or inadequate to cover expenses. Again, where shortfalls exist, planners should investigate alternative financing options. The availability of certain revenues or financing options potentially constrains the types of projects which can be pursued. If this is the case, it will cause some conflict in carrying out the priority of investments determined in the planning process. Wise programming strategy links projects with fund sources in a way that fully leverages federal fund flexibility.

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<sup>121</sup>Dimitriou in Prodyutt Dutt, "ISTEA: Some Perspectives on Whether It Will Necessarily Lead to Better Transportation Planning", May 7, 1994.

As we alluded to in Chapter 2, another common programming challenge for regions is the chronic problem of the ‘lumpy’ transportation project. Clearly, planning for and programming large regional projects, which can quickly drain regional resources, can be more difficult in an environment of financial constraint. Strategies for dealing with this problem range from phasing projects into smaller segments or minimum operable segments as recommended by FTA and FHWA<sup>122</sup> (i.e. San Francisco Bay Area Long-Range Plan) to apportioning a set amount of funds for larger vs. smaller projects (Seattle Long-Range Plan) to simply declaring such projects priority one and planning around them (i.e. Boston’s Central Artery/Tunnel project). These considerations highlight the difficulty of integrating expenditures with resources, and explain why the preparation of the financial plan is usually a highly complex, negotiation-oriented and iterative process. Again, the presence of a well-functioning committee system and regional agreements on priorities are major advantages in this process. Finally, when all ‘reasonably available’ revenue sources have been exhausted, the Financial Plan is complete.

**2.2.4 What Constitutes a Good Faith Effort?** The slew of technical and institutional issues associated with assembling a financially constrained long-range plan makes for a challenging task. The attributes most prized by planners charged with this task are technical proficiency and political dexterity. Similarly, the assessment of compliance is challenging to regulators, who must balance their roles as technical advisors on financial constraint and enforcers of the regulation. The greatest benefit to the process, therefore, is a commitment by all parties to a style of planning which fosters a team effort among partners. By giving attention to process, regional partners including the MPO, State, operators, air quality departments, localities, citizens and federal representatives engage in debate and forge consensus at each step of the planning process. In this way, a win-win-win situation can be had for all parties involved. Enforcement costs are kept from being prohibitively high and strengthened institutional relationships ultimately benefit professionals and the public through the timely delivery of plans and programs.

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<sup>122</sup>see FTA/FHWA guidance “Obligation Authority and Fund Transfers Between Agencies”, May, 1993.



In the event of an imbalance in the planning process, either as a result of structural, historical or cultural differences, it may be determined that a good faith effort has not been given in a region. This will become evident over time as first and subsequent planning efforts are completed across the nation. Analysis of the plans forwarded in the ISTEA planning period will indicate where and how DOT, EPA and Congress may need to target their enforcement activities strategically. Here it will be incumbent on federal agencies to be in close communication with their field representatives - who in turn bear the majority of the burden of finessing the partner/enforcer role of the federal government. If the planning processes or product of a region are perceived to be consistently deficient, ultimately, as servant of the public interest, the federal government has a solid and defensible responsibility to enforce the tenets of the financial constraint planning requirements, especially those which target the preservation of the existing transportation system.

**2.2.5 Summary.** In this section, we have seen how financial planning occurs in the System Planning stage of transportation planning. The introduction of financial constraint confers both benefits and costs on the process, although a net benefit can be achieved if institutional relationships support the process at key points in decisionmaking. The State/MPO relationship is an important focus in implementation of financial planning requirements. Congress must continue to monitor these relationships, and the effectiveness of aids included in ISTEA which were meant to facilitate implementation of new planning requirements.

The techniques of financial planning are not overly difficult or complex. The regulations allow flexibility on the actual methods and processes used by MPOs. Federal authorities should act as guides and assistants to their MPO partners, and only enforce the regulation where major deficiencies exist. Generally, tests of successful implementation of financial constraint in the System Planning stage of transportation planning are:

- was a teleitic approach adopted for revenue projection? cost estimation?
- was a regional vision articulated?
- alternatives considered?

- choices made which will guide future investment decisions in the TIP?
- is the plan technically constrained?
- does the plan enjoy consensus?
- how does the plan a strategic plan for future decision-making?
- how does the plan guide the next step, programming activities?

The answers to these questions gives an indication as to the extent that the objectives of financial planning at the systems planning stage of transportation planning have been met. Ideally, upon completion of systems planning, the investment alternatives available to the region have been refined to some degree which helps to guide project selection in the programming stage of transportation planning. The next section discusses the role of financial constraint in the programming stage.

### **3.3 Program Development**

Nowhere is the strength of institutional relationships more critical to the planning process than at the Program Development stage of transportation planning, where TIP development occurs. In this stage, regions to begin with an unconstrained pool of projects and prioritize them into an expectable three to five year program which is financially constrained by year. While there are common elements to each method, there are several ways to perform the prioritization and programming process in satisfaction of the financial constraint requirement.

**3.3.1 Traditional Programming.** One approach which is simple and in practice still at many MPOs, relies upon counties or modal agencies to forward a constrained list of projects from their capital improvement programs. Screening criteria may be used, but scoring criteria are not necessarily applied. The MPO then “staples” these together to make up the TIP. The programming process proceeds from there. The political process and expert judgment of the individual operating agency or local government are considered sufficient for project selection. MPOs argue that local entities and modal agencies know best how to prioritize needs, and that equity and technical issues are best addressed in this way.

The advantage of this type of planning is that it maximizes the benefits of professional judgment and political conflict is less likely as choices are relegated to the more homogenous operating agencies. The problem with this type of planning, however, is that it does not forward the goals of regional multi-modal transportation planning at a time when urban problems are increasingly regional in nature. Individual agencies cannot be expected to target regional mobility and air quality problems. Moreover, in the absence of a strong regional interest in the project selection process, support may be lacking for larger projects whose benefits are regional and impacts are local.

One factor which explains the difference among regional programming practices is that MPOs are often artificially constrained in their multi-modal transportation planning and programming practices. As noted above, in many states, system planning and programming criteria are limited a priori by state laws or practices pertaining to the pass through of federal funds or the flexibility of state and local matching fund sources.

**3.3.2 Alternative Programming Method.** An alternative process to the stapling exercise was first conceived by planners at the Metropolitan Transportation Commission in Oakland, CA. A multi-agency screening, scoring and programming criteria process is used to develop the transportation program. This method has been emulated in a number of major urban regions. We explore the MTC case in this section as a means to introduce the elements of the programming process; Chapter 4 presents the processes used by several other regions.

While MTC has long been a leader in regional transportation planning, the MPO has been especially innovative in the area of fund programming. Several factors combined to explain the MPOs leadership. First, the state of California had a jump start on multi-modal planning with passage of proposition 108 and 111 in 1989. This legislation created county level Congestion Management Agencies and a Flexible Congestion Relief state transportation gas-tax fund that could be used for highways, local roads and fixed guideway transportation. As a result, statewide guidelines for fund programming allowed planners to experiment with multi-modal planning. The legislation also tied transportation project funding decisions to a wider set of considerations than traditional level-of-service standards. These included measurable traffic congestion relief, land use decisions and their impact on local and regional transportation systems, and the implementation of transportation measures to help meet air quality goals. Finally, legislation known as the Transportation Blueprint (AB471) included a long-range state transportation plan and financial plan, provided for continuing planning through CMAs and regional agencies and identified statewide rail and highway corridor priorities. The CMAs and regional agencies play important roles in the transportation planning process in California. Any project in

the State TIP must have originated in a county Congestion Management Plan. At the regional level, MPOs must consider CMPs in the development of the Regional TIP, although it is not bound to accept the local priorities.

Another piece of legislation, drafted with MTC input, California Senate Bill 1435 was passed in the fall of 1992. This legislation reconciled existing state transportation law with federal apportionment formulas contained in ISTEA for the STP and CMAQ programs. A compromise between state, regional and local interests, urban and rural interests, and between transit and highway interests, the bill was considered necessary “[I]n order that federal highway funds can be apportioned, in a timely manner, to local governments pursuant to newly enacted federal laws....”<sup>123</sup> The legislation enacted the following provisions<sup>124</sup>:

1. provided for the preparation of the State Transportation Plan, and accompanying financial plan. Plans to be based upon regional plans, which are in turn based upon county CMA plans.
2. provided for the Transportation System Management Program to be coordinated with the regional STP funds and the CMAQ program funds, thus providing for a local match opportunity with state funds.
3. provided for the distribution of regional STP funds to MPOs on a population basis, as provided in ISTEA. Without this exemption, this local program would be subject to north/south split and county minimum requirements as well as programming in the State TIP by the California Transportation Commission.
4. provided for a county minimum for each county geographic area by requiring amounts equal to 90-91 FAU and FAS apportionments to be apportioned to each county geographic area. Funds are to be apportioned among all transportation providers on a fair and equitable basis. This is not a guarantee for any jurisdiction or mode, nor does it usurp MPO project selection authority.
5. provides for re-apportionment of unused obligation authority within the state and for exchange of FAS replacement funds for state funds.<sup>125</sup>

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<sup>123</sup>Sen. Quentin Kopp, California Legislature, SB1435, Chapter 1177, p. 90/500., Approved by Governor September 29, 1992.

<sup>124</sup>MTC, Memorandum to CALCOG Directors, CMAs and Transit Operator Coordinating Council, dated April 29, 1992.

<sup>125</sup>Capacity enhancing projects funded with state funds are still subject to air quality analysis.

6. provides for allocation of CMAQ funds within the state based on the formula included in ISTEA: weighted non-attainment area population.

AB1435 sought to “ISTEA-ize” state transportation planning and programming practices in an attempt to take full advantage of the new legislation. Clearly, however, it mimicked elements of the sub-allocation practice found in ISTEA in a fashion which just avoids being in violation of the prohibition against sub-allocation formulas by jurisdiction or mode that is included in the planning regulations. As we noted in Chapter 2, program structure was clearly necessary and useful in the Federal-Aid Highway program. It is not clear why program structure which addresses equity issues cannot perform the same function at the non-Federal level as well. The California legislature has adopted such a provision. As we shall see in the MTC case, this apportionment system has strengthened the planning process by giving clear roles and responsibilities to the respective planning bodies in the state.

In addition to the legislative history, there is also a legal history which helps to explain MTC’s ISTEA implementation focus. In 1986, the MTC was sued under the Federal Clean Air Act by the Sierra Club and Citizens for Better Environment. That litigation lasted three years and significantly affected the planning and conformity practices of the MPO, bringing air quality issues to the forefront of transportation planning and programming activities. As part of its implementation activities, in 1992, the MTC helped itself by creating a coalition of the region’s transportation leadership called the Bay Area Partnership. In so doing, MTC’s purpose was to a) educate the region’s leadership and help them to educate their policy boards and constituencies on ISTEA, and b) establish a forum and committee system to oversee and discuss regional planning issues. This group was committed to implementing ISTEA and generating a new set of projects to meet the region’s transportation and air quality needs; “leveling the playing field” through new institutions, education and new processes were important steps in that endeavor.

In California, therefore, the voters who passed Propositions 108 and 111, the state (SB1435) and the MPO and its partners affirmed the concept of regional planning as a decision-making process for selection of appropriate transportation projects. Together, these positive elements allowed transportation planning in the state and the Bay Area to “assure the greatest possible local control over decisions without without sacrificing regional coordination”.<sup>126</sup> In this way, the region was well positioned to implement ISTEA.

The MTC method for both plan and TIP development begins by retaining the role of operating agencies and local planning entities through the Congestion Management Agencies. These agencies forward candidate projects to the CMAs, which ensure that projects meet screening criteria (i.e. project development criteria and consistency with LRP). In turn, CMAs forward candidate projects to be considered for funding in some dollar amount within a bid target whose sum with other CMAs exceeds the final bid target. In this way equity considerations and expert opinion continue to play a role in the process without the process terminating at the local level.

Working with the screened pool of projects, planners then apply mutually developed, mode-neutral, scoring criteria to the candidate projects and “let the chips fall where they may”. MTC’s project scoring system was developed by a multi-modal task force which was assembled soon after passage of ISTEA. Right off, the task force divided into “equity” and “technical” sub-committees. For the equity committee, a major factor in the buy-in necessary to achieve full-participation was geographical equity. This was solved by the up-front designation of “guaranteed” funding and regional “discretionary” funding. In this system, fifty percent of STP funds and all of CMAQ funds were deemed discretionary, subject to the evaluation criteria which the task force would develop together. The remaining fifty percent of STP funds would be passed through directly to the county Congestion Management Agencies for their programming, with rules against programming

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<sup>126</sup>Jake Pearce and Lisa Wormser, STPP, Case Study “Bay Area Partnership Pays Off: Financing Transportation to Reflect Regional Consensus”.

practices based upon modal or jurisdictional breakdown at the local level. Functional (replacement vs. expansion) and modal equity were addressed directly in the scoring criteria development process, although they were also indirectly addressed through the guarantee/discretionary programming innovation. For example, once the scoring system - which favored well-rounded projects - was developed, counties could strategically guarantee their high priority but less competitive projects, such as roadway rehabilitation or reconstruction projects while advancing more competitive projects for discretionary funding. Additionally, over time, counties were quick to learn to “bundle” the less competitive projects with elements that yielded “points” in the scoring system, such as combining roadway projects with bike lanes and signalization projects. As one Bay Area official noted, “This was of course, a positive and welcome incentive and effect. These counties effectively boosted their overall chances of winning discretionary funding, strategically.”<sup>127</sup>

Clearly, the evaluation process can hinge on the successful development of evaluation criteria. These criteria and their application methods can be developed which are simple, moderate or complex in sophistication. While criteria are difficult to agree upon and will vary by region both in their design and application, most regions choose to include some measures of contributions to congestion management, system preservation, expansion, air quality improvement, land-use connection, cost-effectiveness and safety.

Other important things to keep in mind are to include a the range of interests in the development process which will be affected by its adoption. To the extent that stakeholders are involved at the start of the process, the opportunities for objections to results will be minimized in the end. Finally, it is important for every programming process to include an appeals process in order to address valid concerns of participants.

The Salt Lake City MPO, the Wasatch Front Regional Council, chooses to use a simple method based on the minimum required 15 factors and subjective screening of all projects.

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<sup>127</sup>Comments of Brigid Hynes-Cherin, Executive Director for San Francisco County Transportation Authority, TRB Annual Meeting Session 195, January, 1995.



The MPO staff apply these criteria and a committee system reviews the product of the planning process.

An example of a moderately sophisticated methodology was developed by the North Central Texas MPO. NCTCOG added six local/regional factors to the 15 ISTEA factors for a total of 21 initial factors to be considered. Next, technical, policy and community groups were asked to rate the importance of all factors with the sum of all scores equalling 100. Following this, the factors were reduced in number to 13, and then again to four. The four detailed factors with point-breakdowns for sub-factors were then used to rank the region's CMAQ, STP, Sections 9 and 3 and Enhancement projects.

Finally, some regions adopt more complex processes. MPOs which are examples of these include the San Francisco Bay Area's MTC, Philadelphia's DVRPC and Seattle's Puget Sound Regional Council. Some, including Falbel, have criticized the "over-quantification" and logistic complication of scoring models.<sup>128</sup> What may be more important, however, is that processes and criteria be developed jointly by the interests which will be affected by them. If, as is the case in the Bay Area, transportation planning institutions are varied and many, the process which results may very well reflect the complexity of the region.

As noted above, the MTC scoring criteria were developed by a subcommittee of a multi-modal and multi-agency task force. The scoring subcommittee approached its work by dividing out screening, scoring/prioritization and programming criteria. The screening criteria were based upon state and federal laws. Planners had much more experience in designing the screening criteria as a result of implementing other state and federal program requirements.

The scoring criteria and point assignments were based upon four scoring principles: 1) tie the solution to the problem, 2) use measures which cut across modes, 3) performance-

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<sup>128</sup>Stephen Falbel, "Allocating Flexible Funds from ISTEA: A Project Selection Process for the Boston Metropolitan Region", Policy Analysis Exercise, Harvard University, April 13, 1993, p.30.

based standards in 1) notwithstanding, anticipate data availability from the Management Systems, and 4) rely upon and strengthen existing plans and programs.<sup>129</sup> The scoring criteria resulted in four broad and weighted categories and sub-categories with quantitative and qualitative assessments within each sub-category (see MTC scoring criteria worksheet in Appendix C). The scoring criteria were used to advance regional policies in interesting ways. For example, the category “Maintain and Sustain the Existing System” penalized projects if they were beyond the replacement or rehabilitation schedule that would have been dictated by proper life-cycle management. In addition, as noted above, more well-rounded projects began to be generated in response to the design of the scoring criteria.

At the conclusion of the ranking process the priority list of projects is either challenged by project sponsors through a four step appeals process or is ready for programming. The programming principles developed by MTC addressed the equity concerns raised by its Equity Subcommittee, and additionally established programming rules regarding STP and CMAQ program eligibility guidelines, the value of local contributions, how to allocate funds to multi-jurisdictional projects and the incorporation of estimates of project cost-effectiveness.<sup>130</sup>

MTC staff and their partners have continued to revise and improve the evaluation process and criteria. In addition, the MPO has been aggressively educating new players on implementation processes and monitoring projects on behalf of the region, as we will see in the next section. The combined leadership of the agency and its state, local and federal partners is evident in its ability to deliver a mix of projects which satisfies most interests at the table (1/3 highway, 1/3 transit, 1/3 other)<sup>131</sup>. Over the past two programming cycles, MTC has scored 344 projects and programmed \$442 million (out of approximately twice

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<sup>129</sup>Developed by consultant to the MTC, Professor Elizabeth Deakin.

<sup>130</sup>Cost effectiveness was intentionally excluded from the scoring criteria for its volatility. The MPO continues to struggle with operationalizing this concept in the scoring and programming criteria.

<sup>131</sup>Note: “other” includes signalization, bicycle and port projects and projects such as at-grade rail crossings which were categorized as transit projects).

that amount in requests) and has obligated 95% of its share of obligation authority. These statistics are a credit to the regional, local and state planning entities who helped to design and implement a planning process which takes full advantage of ISTEA program funds and flexibility.

Ironically, as a result of state budget actions, the state of California experienced a four billion dollar deficit and handed down a zero dollar transportation fund estimate for the 1995 Fiscal Year. Emergency actions, such as floating short term bonds, were taken in the latter part of the last legislative session to avert work stoppage on several high profile highway projects. The true test of the MTC process will be how regional priorities will be affected in the 1994 Regional Transportation Plan update, in which revenue estimates will be further curtailed and in the development of the next regional TIP. In addition, as a result of political pressures, a sizable work load in seismic retrofitting, and a successful lawsuit by state engineers opposed to contracting activities, the state Department of Transportation itself has been somewhat an embattled and weakened agency, at a time when the agency is looking to reform its mission and orientation. The coming planning cycle will truly test the multi-modal priority setting and decision-making capacity of the Bay Area transportation planning institutions.

### **3.3.3 Summary**

The pressures caused by the requirement of financial planning can peak at the programming stage of transportation planning. Priorities must be identified at this stage of the process and trade-offs must be made. In addition to being fair and tractable, the alternative programming process conceived by MTC planners can be an effective instrument of regional policy and project delivery. A major theme in the MTC process is attention to processes which facilitate buy-in by stake-holders. When stakeholders have played a role in developing evaluation criteria and processes, and a commitment is made to strengthen and honor past and present decision-making, opportunities for conflicts or political intervention can be minimized. In addition, supportive state laws drafted in the

spirit of ISTEA - such as a flexible state transportation matching fund and allocation formulas - can empower regions without violating ISTEA's philosophical commitment to true multi-modal planning. As we shall see in the next chapter, MTC and other MPOs have been relatively successful in achieving an acceptable mix of projects using this method of priority-setting.

In addition to enhancing the TIP as a priority-setting and programming document, the financial constraint requirement also suggests a role for the TIP as a program management document. The metropolitan planning regulations encourage states and regions to use STIPs and TIPs as management tools so that project sponsors, operating agencies and States and MPOs can track project implementation and identify and target recurring causes of project delivery delay. In this way, financial constraint manifestly alters the scope of TIPs and TIP processes to act both as a vehicle for program development and a tool for program management.

Following conformity assessments and approval, TIPs must be incorporated without modification into State TIPs or STIPs. It is important to note that this provision in the planning regulations was intended to prevent the State from undermining agreements reached at the regional level.<sup>132</sup> In the next section, we discuss these types of implementation activities, and the concepts of obligation authority and project selection, two areas over which the MPO must keep close tabs on state actions in order that projects are implemented in a timely fashion. The next section discusses the Implementation stage of transportation planning and elaborates upon this idea in detail.

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<sup>132</sup>GFOA/FTA Workbook, "Making the Flexible Funding Provisions in ISTEA Work for You", p. 3.

### 3.4 Implementation

The Implementation stage of the transportation planning process refers to the stage of planning that projects enter once they have been programmed in an approved TIP. In order to discuss how projects get implemented in this stage of the process, and how the implementation of financial constraint at the metropolitan level can affect this process, it is important to discuss two important and closely linked concepts, obligation authority and project selection. We introduced these topics briefly above in the sections on System Planning and in Transportation Programming; here a more detailed explanation of these topics begins with a discussion on the distribution process for federal funds.

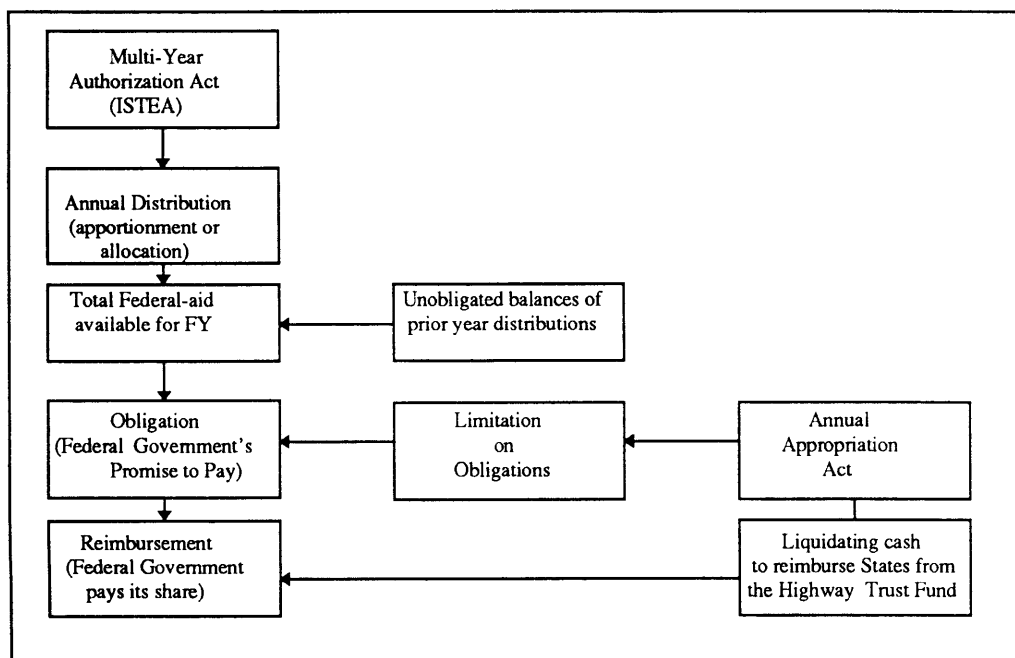
**3.4.1 Fund Distribution.** This section presents a brief explanation about how federal funds are distributed to projects, from the authorization of expenditures to the payment of funds from the Highway Trust Fund.<sup>133</sup> As an accumulation of federal Acts, the ISTEA does three things: 1) establishes authority to start or change programs, 2) contains special requests (i.e. studies), and 3) authorizes funding for categories of federal assistance. Appendix B presents ISTEA authorizations over fiscal years 1992-1997. Authorized levels represent the upper limit on program funding. There are two types of authority to commit funds associated with authorized funding. The first is Budget Authority, under which programs may only start after an Appropriations Act. Most programs in the Federal-Aid Highway Program, (including transit programs) operate under Contract Authority, in which funds are apportioned to the different programs independent of the Appropriations Act and are made available for obligation on the first day of the federal Fiscal Year (October 1). Obligations are commitments of spending that will require payment either immediately or in the future. The rationale behind freeing transportation funding from the annual appropriations process is that: 1) the source of funds, i.e. the Highway Trust Fund is a dedicated and therefore relatively reliable tax and 2) this benefits long-range planning by reducing the potential for funding anomalies to occur. The

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<sup>133</sup>This discussion relies on information presented in the FHWA publication, "Financing Federal Aid Highways".

appropriations act is still necessary to liquidate or pay the obligations, although this action usually lags the obligations by several periods, since the Federal-Aid Highway program is a reimbursable program. Figure 3.9 illustrates this fund distribution process.

**Figure 3.9: Federal-Aid Highway Fund Distribution Process**<sup>134</sup>

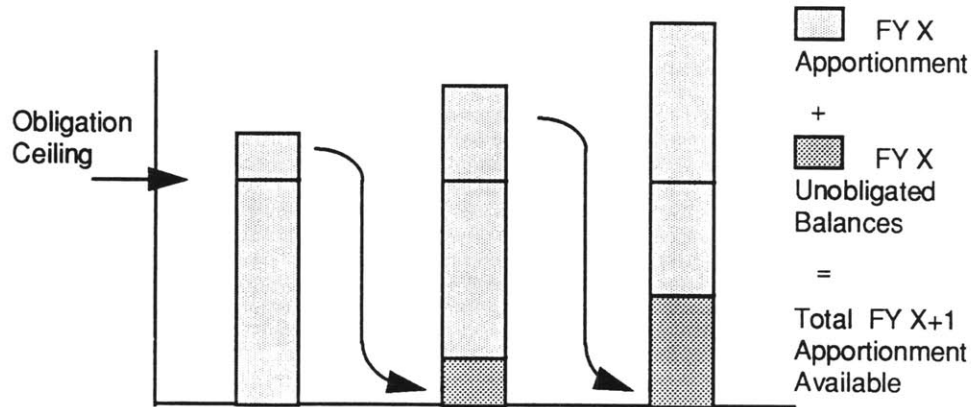


**3.4.2 Obligation Authority.** In order to control the infusion of dollars into the economy, Congress places a ceiling on the total obligations that can be incurred in a given year. This is referred to as Obligation Authority, an Obligation Limitation or an Obligation Ceiling. Under Obligation Authority, any unobligated balances over and above the ceiling carry over to the next year and are combined with the next year's apportionment to sum to that year's Total Apportionments Available. Any unused Obligation Authority is lost and cannot be carried over into the next fiscal year. As Figure 3.10 shows, although unobligated balances carry forward, those funds are harder and harder to spend down. Recall that this is one reason why many transportation officials object to the setting of obligation ceilings below authorized levels of funding. State control over obligation authority is important to understand because obligation authority is not applied to each

<sup>134</sup>source: *ibid.*

individual program. Therefore, states can choose to obligate any mix of funds that best fit their needs, within the obligation ceiling.

**Figure 3.10: Apportionments, Obligation Authority and Unobligated Balances**<sup>135</sup>



In addition, a fund source which is continually passed up can lapse altogether if not obligated within a certain time frame, usually 4 years. Furthermore, while unobligated balances carry over, unused obligation authority does not. In fact, a redistribution occurs on August 1 of each year to redistribute the obligation authority of states who were unable to obligate to those who are able to obligate more than their ceiling. There is therefore great imperative for states to “spend down” their obligation authority in a given year.

In order to “spend down” funds efficiently, therefore, many states and MPOs (who administer STP-urbanized funds) adopt a criterion of “project readiness” for project selection.

**3.4.3 Project Selection.** Project selection refers to the process which determines the order in which projects come up for obligation. Project selection must occur from an approved TIP, where regulations allow the TIP to be programmed up to authorized levels of funding, and the entire first year is designated as an “agreed to list of projects” for project selection. If authorized levels of funding materialized, project selection would not theoretically be a problem. However, as we have seen, obligation ceilings fall significantly below authorized levels on a consistent basis. The project selection criterion which make

<sup>135</sup>GFOA and FTA workbook: “Flexible and Innovative Funding: Making ISTEA Work for You”.

the most sense to invoke at this point is that of project readiness. In order to most efficiently spend down funds, projects which are ready for construction are obligated on a first-come, first-served basis. However, TIPs allow all of year 1 to be considered priority 1, resulting in the absence of a detailed priority list which can be referenced. The critical questions therefore become: a) which program funds will the state chose to “spend down” first? and b) within those programs, how do we choose among projects which are simultaneously construction-ready? With respect to the latter, it has been suggested by some that project selection processes could be improved if programmed projects were either batched in some way or prioritized beyond the present practice.

The dilemma posed by the former dilemma suggests a need to carefully monitor fund management by State DOTs. In the early cycles of ISTEA funding, highway projects and other “pipeline” projects which were “ready to go” dominated the project selection process.<sup>136</sup> Over time, however, the project mix in the pipeline may change in response to regional goals and objectives, and an increase in the obligation rates of the flexible fund categories, i.e. STP and CMAQ can be expected. *Consistently low rates of obligation for flexible fund categories and higher ones for highway categories would be a signal of systematic bias in the project selection process, and could be remedied by requiring states to obligate some minimum amount of each major fund category.*<sup>137</sup> It is therefore very important for all parties to monitor obligation authority so that 1) all available authority is used up, and 2) program funds do not lapse, especially fungible ones such as STP and CMAQ.<sup>138</sup> Toward this end, some states chose to distribute or “pass through” obligation authority to regions, and thereby create the same incentive to “spend down funds” at the regional level.

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<sup>136</sup>STPP, ISTEA: Year Three, p. 3.

<sup>137</sup>It is true that several FHWA programs may provide for transit and other multi-modal projects such as HOV and park and ride projects and TDM strategies. There is no way to ascertain the project mix of funds expended except for detailed state-by-state analysis of obligations.

<sup>138</sup>Note: obligation rates by fund category are not always an accurate indication of use of flexible funds since many “highway” funds are themselves flexible.



MPOs' project implementation responsibilities are also important and can be described as twofold.<sup>139</sup> First, in order to maximize project-readiness among TIP projects MPOs should devise a system to track projects in the TIP. A quick analysis of risk borrowed from our earlier discussion shows why.

- **Risk Identification:** projects slated to go forward fail to meet their obligation dates for whatever reason (i.e. problems with local match, cost-overruns, securing permits).
- **Risk Measurement:** The opportunity cost of the slated project is the next best project to go forward.
- **Risk Allocation:** Shift risk the risk to the project sponsor by pulling the eligibility of the project to go forward if not construction-ready by a some date in advance of the obligation deadline, and substituting a project from year 2 or 3 of the TIP.

As a follow on to risk analysis, the MPO should also look for common problems among projects so that these can be targeted for special attention. If reviews determine that delays occurred for reasons beyond the project sponsor's control, (i.e. unforeseen cost or environmental issues) policies can be set which distinguish between acceptable and unacceptable project delays. An additional role for the MPO is to monitor state project selection and obligation rates so that projects that are ready for construction in the region are not subject to unfair delays for any reason. Finally, similar to the state process, MPOs that succeed in obligating their full share of obligation authority should be rewarded by being permitted to obligate any remaining unused authority of other regions or the state.

**3.4.4 Monitoring.** As reported in the section on Programming, the MTC is generally regarded a model MPO in the area of programming and implementation. The MTC has succeeded in maintaining an obligation rate of approximately 95% for its projects over the past two programming cycles. A goal identified early in the process, the MPO and its partners were committed to maintaining a high obligation rate by aggressively conducting risk analysis and developing policies aimed at ensuring a high success rate for delivering

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<sup>139</sup>Some of the MPO tasks described here are modeled after actual program monitoring activities taking place at MTC.

the region's projects. First, project screening criteria required county planning agencies to forward only projects which could be delivered on time. Once programmed, project sponsors were asked in in spring whether they would be able to obligate funds by the September 30 deadline. Twenty sponsors expected to miss the deadline and applied for extensions. A committee then analyzed the various applications and determined which would be granted extensions. Through this process, implementation issues surfaced which the region could address through the planning process. If extensions were not granted to projects, their funding theoretically passed to the next eligible project based on score. However, since the previous TIP was inherently overprogrammed (with authorized levels of funding assumed), funding instead went to first cycle projects still awaiting funding. Finally, an appeals process was designed and performed well at the close of the process. Planners at the MTC are implementing a computer project tracking system to facilitate this process in future programming cycles.

The TIP provides a perfect vehicle for the MPO to carry out these its implementation responsibilities. Indeed, the planning regulations stress the importance of treating the TIP and STIP as an overall program management tool and suggest the inclusion project status information in addition to information on TIP development processes and criteria in TIP documents. Through the use of the STIP/TIP in this way,

Programming is no longer just assembling a list of projects that may be able to proceed; it is now a process for comprehensively managing project advancement in relation to other transportation and transportation related activities that impact transportation system performance.<sup>140</sup>

Again, good planning practice dictates that these implementation activities should take place at the MPO independent of a financial constraint requirement. And again, the financial constraint requirement often demonstrates a state of resource scarcity, heightening the importance of following through beyond the Plan and TIP development stage. Effective monitoring and evaluation can target common and rectifiable implementation problems and by doing so may yield significant program delivery benefits.

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<sup>140</sup>FHWA/FTA, Metropolitan Planning Rule, STIP, p. 58048.

**3.4.5 A Word on Overprogramming.** One of the justifications stated in the planning regulations for allowing MPOs to program TIPs up to authorized levels is to provide for a natural and expected amount of project “slippage”. The rationale is that overprogramming serves as a hedge against an inadequate pool of projects. However, as Murray argues, the regulations also allow for projects in years 2 and 3 to be advanced to year 1 without a TIP amendment if there is consensus in the region to do so. This would effectively eliminate the need for overprogramming, and the associated artificial “expectations” built into the obligation process.<sup>141</sup>

### **3.4.6 Summary**

The federal fund distribution process is a complicated but important process to understand for all involved in project delivery. It illustrates the importance of the long-standing dominant criterion favored for project selection: that of project readiness. The obligation of available funds provides one indication about the efficiency with which transportation dollars are expended. State obligation activities should be monitored for trends which would indicate the necessity for proportional obligational authority to ensure the proper and unbiased implementation of ISTEA. In addition, strange anomalies in the process, such counting of highway funds flexed to transit against a state’s obligation limitation at the time of transfer<sup>142</sup>, (as opposed to at the time of construction as for highway funds), should be reconsidered and removed.

MPO’s responsibilities in financial planning and management in transportation extend to the implementation stage of transportation planning. MPOs play important education, coordination, management, monitoring and roles which can improve the delivery of regional projects in a timely manner. The TIP is the best vehicle through which the MPO can educate project sponsors and the public about implementation activities and manage

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<sup>141</sup>Murray, p. 76.

<sup>142</sup>U.S. DOT, FTA, Draft ISTEA Flexible Funding Opportunities for Transportation Investments FY 1995, “Fund Administration and Obligation Limitation”.

the implementation process. Through an organized, detailed and accessible TIP, the MPOs can track the status of projects and relate other important State, regional and local implementation information.

The monitoring and coordination functions are important so that the region's projects are in the best position to obligate funds as they are available and/or take advantage of new obligation authority in the event of a redistribution opportunity. This requires pro-active communication with project sponsors and state officials, and an effective committee system to determine policies related to implementation activities in a timely manner. Together, these efforts can yield significant benefits to projects in the current TIP as well as provide valuable experience which benefit future projects. While these roles are not spelled out in federal regulations, clearly the public is best served by an MPO which is informed and pro-active about project and program implementation mechanisms.

Implementation activities described in this section, and especially the criterion of project readiness, beget questions regarding the development of that pool of projects which results from system planning and are evaluated and ranked at the programming stage of transportation planning. The next section, project development, explores the fundamental question of how projects get the "green light" to begin feasibility analysis, and the impacts of financial planning requirements on that project generation process.

### 3.5 Project Development

As we demonstrated in the discussion of System Planning, Program Development and Project Implementation, the quality of the program which the MPO ultimately implements depends upon the pool of projects which is advanced at each preceding stage of the planning process. This begs the question: How does financial constraint affect the determination of which projects get planned?

Critics of financial constraint maintain that the grim scenarios uncovered by financial planning could result in the scaling back of planning activities, and fear that transit projects will be disproportionately penalized in the process. Noting the positive attributes of the financial constraint requirement in general, Dutt does point out the potential harm to transit projects as a consideration which warrants attention. He presents a Boston case study to illustrate this reasoning:

One of the reasons why Boston was able to achieve a high level of transfer [of highway funds to transit projects] was because of the existence of large numbers of transit projects that were already planned under the State-mandated Program for Mass Transportation (PMT). Such projects were planned even though the sources of financing them were not at all clear at that time. If the fiscal constraint results in the number of projects under planning stage being reduced, this can have adverse effects on the number of projects in the pre-programming pipeline and thus the effectiveness of transportation planning.<sup>143</sup>

**3.5.1 Transit Considered.** These reservations are not completely unfounded. As we have seen, financial constraint and financial planning do focus attention on the fiscal realities of a region and of transit's financial capacity in general. Usually, the picture which is painted is not very rosy. However, a closer look at this argument reveals that it is weak at best. It is less accurate to fault financial planning requirements for this possibility than to attribute it to more root (and by now, well-documented) problems such as the lack of local capital matching funds or declining operating funds for transit, problems which long pre-existed

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<sup>143</sup> Dutt, "ISTEA: Some Perspectives on Whether It Will Necessarily Lead to Better Transportation Planning", May 7, 1994. Note the acknowledgment of the financial constraint link between system planning and project development.

financial constraint. Though financial planning can bring grim local financial realities to light, the requirement brought with it an increase, and not a decrease in planning funds. All else equal, given that financial constraint does not a priori preclude or even discourage planning for the future, there should not be a deleterious effect on the planning of transit projects as a result of financial constraint.

The possibility that the financial constraint requirement can be harmful to transit is ironic. As discussed earlier, partial impetus to include the requirement in the first place derived from a desire to ensure that transit projects a) are not held to a higher financial planning standard than highway projects and b) get implemented at the same rate as other projects in approved Plans and TIPs, as well as a from history of strengthening financial planning in transit as a means achieve benefits such as reducing lending costs and avoiding overcapacity. It is early yet to evaluate the harmful effects of the requirement on transit planning; no evidence has surfaced that transit projects are harmed disproportionately to highway projects when planning efforts take financial constraint into consideration. In fact, as noted above, some transit agencies and planning bodies have opted to incorporate financial planning into their long-range planning. In any case, the quest to help implement transit projects currently on the books must not result in a shrinking of the pool of construction-ready transit projects in future planning cycles. This would be a perverse and unintended outcome of the regulation.

**3.5.2 MPO Structure.** Arguably, a more telling and important area to monitor, with respect to transit's future under financial constraint, is the presence of transit interests at the table as an equal partner in the planning process. The ability of transit to hold its own in these negotiations will be key as financial constraint forces a closer examination of regional priorities and trade-offs. Indeed, in the San Francisco Bay Area, this has been an issue, since many of the MPO's planning efforts rely upon county Congestion Management Agencies whose boards may or may not include transit interests. (No transit operator participates on the MPO's policy board.) The regional rapid transit system,

BART, must as a result appeal to the three county agencies which represent the BART district whenever there is a planning issue to resolve.

Congress recognized the importance of the structural representation of transit interests to the implementation of ISTEA and solicited testimony from the planning community on the composition of MPO Boards, with special interest in new members added since passage of ISTEA. The Chair of the Committee conducting the hearing, Rep. Norm Mineta, stated that the Congress “want[s] to know whether the structure of the MPOs is suited to the role they must play of fairly representing all the people in a metropolitan area and developing transportation plans that serve their interests.”<sup>144</sup> Testimony on this topic showed that transit representation on MPO policy boards varies significantly by MPO and has changed in only a handful of MPOs since passage of ISTEA. Some MPOs include transit interests as official voting members (Southeastern Wisconsin MPO, unchanged since ISTEA), others include transit as non-voting members (Philadelphia MPO, Southeast Michigan MPO, following ISTEA) and still others exclude transit from their boards altogether, (MTC). While MPO structure and voting rights can only give one indication of actual institutional relationships, APTA nonetheless believed that funding flexibility worked better for transit interests, where transit has a voting seat on the planning board.<sup>145</sup> Furthermore, presumably pointing out that some transit properties generate a fair amount of revenues themselves, one transit official suggested that federal guidance on MPO voting membership “promote the idea that sources of *non-Federal* funding matter in deciding on voting composition (emphasis added).”<sup>146</sup> ISTEA chose not to be prescriptive in many areas, including MPO structure. But, like the issue of public involvement, there may justification to intervene in this area if MPOs and states continue to demonstrate widely

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<sup>144</sup>Rep. Norm Mineta, House Committee on Public Works and Transportation Subcommittee on Investigations and Oversight, October 6, 1994.

<sup>145</sup>APTA, House Committee on Public Works and Transportation Subcommittee on Investigations and Oversight, October 6, 1994.

<sup>146</sup>Alfred H. Harf, New Jersey Transit Assistant Executive Director of Planning, Testimony before the House Public Works and transportation Committee’s Subcommittee on Investigations and Oversight, October 6, 1994.

divergent processes and products which suggest an imbalance of interests or dominance of the status quo.

MPO structure can be an important proxy for MPO performance in a number of ISTEA implementation activities which affect project development. This is because MPOs can perform important functions to promote true intermodal project planning in the new environment of financial planning and constraint. First and foremost, MPOs must educate all stakeholders, including veterans and novices, of the financial requirements and funding opportunities available to them, especially of the eligibility requirements for the major ISTEA programs. MPOs wishing to play more pro-active roles in developing projects which historically suffer from inadequate local match or funding support, can also partner with operators and project sponsors to remedy this phenomenon. Projects which have shown some potential include transit and HOV projects which may offer station-area development or tolling opportunities which can generate “new” and/or “own source” funding.<sup>147</sup> Next, a major service the MPO can provide is helping to resolve the technical issue of how to plan and phase large, regional projects so as to conform them to the time horizon and year-by-year financial constraints of the TIP. MPOs and their partners must jointly develop policies and aid project sponsors to ensure that these special projects do not harm and are not harmed by smaller projects seeking funding in the region. In order to support project development, MPOs can also lead their regions in developing Major Investment Study policies and guidelines. Regions should create agreements regarding how need for an MIS is to be determined, and what the proper roles and responsibilities should be for the various stakeholders in the process, (i.e. regulatory, permitting, MPO and project sponsor). Finally, MPOs and their regional planning counterparts should develop a work program which researches system needs and identifies solutions to the transportation, air quality and development problems which are most pressing in their regions. The MPOs role in promoting and strengthening project development through long-range planning efforts therefore begins at the research level and continues through the MIS and TIP processes.

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<sup>147</sup>GFOA and FTA workbook: “Flexible and Innovative Funding: Making ISTEA Work for You”.



**3.5.3 Federal Responsibilities.** The U.S. DOT, through the FTA can also play a leadership role by reforming transit grant processes and once again promoting long-range planning in the transit industry. Deputy Administrator of the FTA, Grace Crunican recently stated that efforts are underway to streamline FTA grant processes which are currently approximately 90 days as compared to the two-day response period which sponsors can expect from FHWA.

Even more fundamentally, FTA acknowledges the need to “get transit agencies out of the scheduling business and into the planning business.”<sup>148</sup> In the past, federal transit policy has shifted from emphasizing long-range planning to short-range planning. With ISTEA, there is some policy direction to unify and strengthen long-range transportation planning efforts for all modes. It may not be necessary to view the important activities of scheduling and planning as mutually exclusive; yet it is very important for federal policies to once again support transit research and long-range planning efforts in our urban areas.

**3.5.4 Operators’ Roles.** Finally, transit operators have the most challenging task of all. With one eye on the provision of services, they must participate aggressively in the local and regional planning arenas. In order to be competitive for flexible funds, the transit agency must develop an understanding of the institutional environment and planning process which takes a project from concept to implementation. This will involve activities as disparate as helping to develop regional consensus on criteria, providing better data to “justify” projects, building a constituency through marketing and public involvement, tracking MPO and state obligation activities for opportunities to forward eligible transit projects, and of course, lobbying for new and increased funding for the operation of their services. Recall, that for many transit operators, the promise of ISTEA programs depends in large part upon their own financial condition and capacity to provide the local match for federal funds.

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<sup>148</sup>Grace Crunican in 1994 AASHTO Washington Briefing Summary Report.

### **3.5.5 Summary**

Financial conditions and financial planning requirements affect project development in fundamental ways. We have seen, through the System Planning, Programming and Implementation stages of project development, how each successive stage relies upon the previous stage to generate or forward the “best” projects for implementation. It becomes increasingly clear, therefore, that there exists a critical “starting point” at which all modes should enjoy equal opportunities. However, as we have also seen up to this point, in the past, many factors combined to challenge the equal opportunity of projects to be considered for development. These included the strong federal interest in highway building, lack of a clear and powerful constituency for transit, and ignorance of the environmental impact of single-occupant auto use and highway-led urban sprawl.

ISTEA provides new opportunities for federal, state, regional and local entities to truly “level the playing field”. This includes a range of provisions to support project development, from flexible funding to MIS directives. The intent is to empower regions to better plan and manage their transportation systems, at a time when challenges are great and resources are shrinking.

In chapter 4 we take a look at how regions are approaching these new challenges, especially with respect to their new financial planning duties. The case studies we present provide an indication of best practices and common hardspots in implementing the requirement, and suggest lessons to be learned for federal, state, regional and local planners in their ongoing efforts.

## Chapter 4.0 Case Studies

Objective “D”: Transportation Planning Decision-Making and Funding -

Combine the best features of professional expertise with a proactive citizen and private sector involvement process to institute a transportation decision-making procedure that includes all interested groups; and heightens the knowledge of the public as to the availability of financial resources and the true long- and short-term costs of available transportation options.

-Dade County MPO, FY 1995 Unified  
Planning Work Program for Transportation

The foregoing objective captures the essence of the MPO role in carrying out the financial planning requirements of ISTEA. MPOs must engage in rigorous financial planning and strategic decision-making to implement the financial constraint requirement as intended. They should work cooperatively with State DOTs, transit operators and other interested parties to develop realistic and constrained estimates of costs and revenues, while keeping the public informed and involved on the development of the regional vision and investment plan.

Recall our framework from Chapter 3. This provided a means to view the requirement, and its influence on the various stages of transportation planning at the metropolitan level. We presented the fulfillment of the requirement both in terms of processes and strict tests of the requirement. Arguably, at this early stage of the implementation of the financial planning requirement, we are more concerned with the former than the latter. This is because the planning regulations included important built-in flexibility for regions to develop their own approaches to financial planning. Not only does this requirement make sense for application to such a diverse group of organizations as MPOs, but it promotes buy-in of stakeholders and the strengthening of transportation planning as well.

In this chapter, we review three case study regions: the Philadelphia, Salt Lake City and Seattle metropolitan regions to round out our investigation of the financial planning

requirement of ISTEA. The primary vehicle for our review are the products of the planning process, the TIP and the long-range transportation plan. These sources are complemented by testimony, interviews and other writings where appropriate. For each case study, we will identify planning issues such as the ones we introduced in Chapters 2 or 3, which are particularly relevant in the region, or for which the region's approach is particularly strong or weak. We will not attempt to present all planning issues in every case study profile. We begin with a look at the experience of the Philadelphia MPO and its partners.

#### **4.1 Delaware Valley Regional Planning Commission, (Philadelphia MPO)<sup>149</sup>**

The Delaware Valley Regional Planning Commission, (DVRPC), is the federally-designated MPO for the nine county, bi-state Delaware Valley region. DVRPC is the MPO for the Philadelphia metropolitan region, which is institutionally notable for its location within two states, Pennsylvania and New Jersey, and two FTA regions (regions II and III). The MPO Board consists of 18 voting members representing the Commonwealth of Pennsylvania, State of New Jersey, and their respective cities and counties. Transit operators and numerous state and federal agencies are also designated members but do not have voting status.

The Transportation Plan and TIP reviewed were adopted in 1993 and 1994 respectively. At the time of the review, DVRPC was preparing updates to both documents.

**Transportation Improvement Program.** The TIP lists all transit, highway, bridge, bicycle, pedestrian and multimodal projects in the Delaware region for which federal

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<sup>149</sup>The sources for this case study include:

1. DVRPC, Transportation Improvement Program, FY1995-98, Adopted July 1994.
2. DVRPC, Year 2015 Transportation Plan for the Delaware Valley Region, September, 1993, (Amended December, 1993).
3. Discussions with Volpe National Transportation Systems Center staff who participated in Philadelphia Enhanced Planning Review, (June, 1995).
4. U.S. House of Representatives, Committee on Public Works and Transportation, Sub-Committee on Investigations and Oversight, Public Hearing on ISTEA Planning and Flexibility, October 27, 1994.

funding is expected in the period FY 1995 to 1998 (FY1995-1999 for NJ highway and NJ Transit projects) as well a financial plan which outlines the sources of funds to implement the program. The TIP programs approximately \$3.5 billion in improvements for the four years FY 1995-98, with an additional \$104.5 million programmed for New Jersey highways and transit for FY 1999. While, the TIP project selection process is relatively strong, as will be described below, the actual TIP is overprogrammed by as much as \$500 million, and cannot technically be considered financially constrained.

The TIP document articulates the TIP development process, including a description of the roles of agencies responsible for project planning, scheduling and implementation.

DVRPC believes that the best results are achieved through negotiation among many interests. For this reason, the planning process in the region exhibits a "bottom-up" approach. In Pennsylvania, municipal planners and engineers generate project lists that are reviewed at the county level. Citizens participate in task forces to review these projects. Though basically similar in NJ, the process there also includes a project solicitation by the state agencies, authorities and commissions from elected officials, although the TIP states that this process is being reviewed in the context of ISTEA and is subject to change.

Next, DVRPC's Regional Transportation Committee reviews and prioritizes all project submissions, and makes recommendations to the DVRPC Board. The programming process used by the MPO includes a Project Ranking and Selection Process which was developed by the DVRPC Regional Transportation committee. The process includes seven steps:

- Step 1 Preliminary Screening: projects must meet criteria on sponsorship, ISTEA requirements, consistency with plans, definition, cost-estimation, deliverability, and for NJ projects, project readiness (i.e. preliminary engineering and environmental clearances have been obtained).
- Step 2 Initial Project Scoring: Project scoring is performed jointly by sponsors, DVRPC and state transportation agencies. In NJ, counties then review, revise and approve the scores. The process incorporates ISTEA and other planning

requirements, e.g. the use of pavement management and bridge sufficiency ratings.

Project scoring is based on seven goals with the following weights:

<u>Weight</u>	<u>Regional Goal</u>
20	Preserve and Modernize Existing System
15	Improve Safety and Security
15	Mitigate Congestion
10	Protect and Improve the Environment
15	Support Economic Activity
15	Improve Mobility of People and Goods
10	Support Land Use Plans and Goals

Scores are assigned based on the assessment of whether projects exhibit high, medium or low impacts in the criteria areas.

**Step 3 Challenge Round:** The RTC conducts a 3-day challenge round in which initial project scores may be challenged as long as they are seconded by another member of the RTC. After a score defense, a vote is taken, with a simple majority needed to carry the vote.

**Step 4 Financial Plan:** Preparation of the financial plan occurs simultaneously with the scoring process. Programming targets for federal funds are negotiated with state and federal agencies and are used to establish financial constraints.

**Step 5 Project Selection:** Projects to be included in the TIP are selected based on funding availability, project score, and other selection criteria including federal mandates, earmarks, contractual obligations, clean air requirements, prior commitments, regional equity, and modal equity.

**Step 6 Funds Flexing:** The Pennsylvania Caucus of the Board approved flexing \$100 million (80% highway funds) to SEPTA for fiscal year 1995. The TIP represents use of CMAQ funds for transit as an example of flexing.

**Step 7** The DVRPC Board makes the final determination on the form and content of the TIP.

The TIP Financial Plan is developed by DVRPC with input from member governments, transit operators, the state DOTs and the federal agencies. On the revenue side, the plan forecasts the availability of federal funding while assuming that matching funds will be made available as they have been in the past. The states provide federal matching funds

and 100 percent financing for selected projects on the state highway systems. Local counties, municipalities and private developers or toll authorities, as well as transit operators may also participate in providing matching funds for federal or state aid. For example, Pennsylvania's Act 26, a dedicated funding source for transit capital needs requires a 1/30th project cost match from localities. Regional shares of state funds are an estimate of the region's "fair share", based on the region's contribution to the state in terms of population, income, taxes generated, and vehicle miles traveled. Since many in the region believe that the region contributes more to the state than it has received back, this share exceeds historical trends in the region. Projects are then programmed up to the level of forecasted revenues.

There were no significant delays in the planned implementation of any "major" projects listed in the TIP. DVRPC is working with DOTs and transit operators to develop project tracking and reporting procedures.

**Regional Transportation Plan.** The Year 2015 Transportation Plan, the current long-range transportation plan, is the first long-range plan prepared since ISTEA and CAAA, and provides good background on the requirements of both pieces of legislation. A disclaimer notes that this version is the first effort toward meeting ISTEA planning requirements and that it "should not be viewed as the full measure of long range planning to be conducted by DVRPC within the context of ISTEA language."

The DVRPC has included a comparison of alternative visions in past planning exercises. In 1989, the MPO participated in the National Strategic Transportation Planning Study (NSTPS) which laid out three alternative investment scenarios: No Build, Minimum Investment and Moderate Investment strategies. These showed the incremental costs and benefits of varying levels of transportation investment in the region. The 2015 Plan did not consider alternative growth and development scenarios, although land use/transportation considerations underlie the Regional Development Strategy, which guided development of the Plan. A new and updated long range plan is currently being developed for the year

2020. In the new plan, the regional transportation policy will be re-considered along with different scenarios for growth and development. In addition, the new effort includes constrained and unconstrained scenarios, although only the unconstrained scenarios will be included in the final 2020 Plan.

The Plan reports that the 2015 Plan development methodology was driven by federal rules on the public participation process, consideration of needs of all modes, determination of financial limitations and the assessment of air quality benefits. The Year 2010 Regional Development Strategy (RDS), adopted by DVRPC in 1989, was employed as a guiding vision for transportation-land use planning. In addition, several long -range documents were consulted for their applicability to the Year 2015 Plan, including, state plans, Toll Authority plans, transit operator plans, and county Master plans. The FY 1994-99 TIP was also a major input into the Program of Projects as were Enhancement projects which were programmed by the States. Finally, the Plan working group - a subcommittee of the MPO committee overseeing development of the Plan - developed broad "macro categories" of investment to give the plan structure and organization. As a result, the Plan provides general funding guidance for future improvements in terms of preferred funding levels for general performance categories, and not individual projects. *Individual projects are not recommended beyond the TIP horizon.*

Specifically, the Plan consists of goals, performance categories, program of projects and policy directives. A list of 10 regional goals guided the design of the Performance Categories - 9 groupings of projects and funding levels to implement stated goals:

- Freight Movement Initiatives;
- Network Reconstruction and Maintenance;
- **Non-SOV Capacity Increase;**
- Passenger Intermodal Facilities;
- Isolated Safety Improvements;
- **SOV Capacity Increase;**
- Traffic Flow Improvements;
- Transportation Enhancements and Amenities;
- Travel Demand Management.



The Program of Projects represents actions toward implementing stated goals and is comprised of programmed projects in the TIP, Toll Authorities' capital programs and state rail plans. The Program lists all projects in excess of \$10 million and all bicycle and/or pedestrian Safety projects as well as all Enhancement and Amenities regardless of cost.<sup>150</sup>

Policy Directives further define actions to implement Plan goals. The first of these is a list of corridor and subarea studies in excess of \$10 million which, together with the management systems and planning conducted by other agencies for the region, are intended to generate future projects. Policy direction is also reflected in the planned increased or decreased shares of funding for each category over the plan timeframe. Percentages and ranges are used instead of actual dollar amounts to reflect the uncertainty associated with predicting future levels of funding that will be available. The Plan notes that over the planning horizon, actual projects may distort these levels at the time of their implementation. Therefore, the funding levels recommended in the plan should not be viewed as a funding constraint on the TIP or other planning documents but rather as a general preferred distribution of future funds. Finally, a Transportation Improvement Matrix is included to provide guidance for future decision-making relative to DVRPC adopted Regional Development Strategy preferred growth scenario.

Involvement of stakeholders and interested parties (transportation agencies and local governments) is facilitated through DVRPC's committee structure. Several committees had oversight roles in Plan development, including the Regional Transportation Committee Plans and Programs Task Force (RTC Committee). Periodic meetings and scheduled briefings with this body were supplemented with a smaller working group comprised of the state DOTs, city of Philadelphia, Montgomery County, Chester County, New Jersey's statewide plan development representatives, SEPTA and freight community reps. In addition, the Public Participation Steering Committee is used to ensure that all reasonable methods for soliciting and incorporating public input were explored and to

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<sup>150</sup>Enhancement projects are identified by local officials, but are evaluated and listed at the State levels in both PA and NJ. Lists are then programmed in the TIP and then categorically included in the Year 2015 Plan's Program of Projects.

develop public ownership of and support for findings. The primary vehicle for direct ongoing public participation is the Regional Citizens Committee whose responsibilities are to review and comment on DVRPC policies and plans. Finally, throughout the development of the Plan, DVRPC staff met with the Long Range Planning subcommittee of the region's Goods Movement Task Force to incorporate the needs and views of the freight community.

**Financial Planning and Financial Constraints.** The Plan and TIP state that they are each financially constrained per the conditions outlined in the Transportation Financial Planning Project. The Transportation Financial Planning Project identifies resources that could be available to the region from public and private sources to carry out the 2020 Plan and Transportation Improvement Program. DVRPC negotiates with NJDOT, PADOT, SEPTA, NJ Transit, DRPA, FTA, and FHWA to define a funding scenario for the next TIP period and develops a financial plan for the next TIP, and a financial plan for Transportation Plan.

The financial element of the Plan claims that estimated revenue from known and projected sources of revenue sufficiently cover the estimated costs of constructing, maintaining and operating the total transportation system over the 22 years of the plan. However, as the plan offers no details beyond the TIP horizon, and because it does not document existing system costs explicitly, this is not demonstrated by the information provided in the financial element. As was the case with the TIP, therefore, it cannot be said that the transportation Plan is technically financially constrained.

**Funding sources.** On the federal level, the same level of NHS funds is assumed to be available as are available under the remaining Interstate Construction funds. FRA funds are not accounted for in anticipated revenue sources.

State funds provide much of the 20% match required for most federal programs and provide capital and operating assistance to both highway and transit projects. New Jersey

utilizes a provision in ISTEA which allows the state to take certain credits for toll revenues invested in the system by its toll authorities, thereby offsetting the required 20% match for federal projects. This is known as the “Soft Match” provision.

In Pennsylvania, Act 26 was passed in 1991 to provide a dedicated funding source, the Public Transportation Assistance Fund (PTAF) for transit. Act 26 taxes on tires, motor vehicle leases and rentals and utility companies generate approx. \$141 million/year for the fund. SEPTA receives approx. 70% of these funds, and is allowed to spend up to 30% of the funds for asset maintenance (operating costs). The Pennsylvania Motor License Fund provides for highway and bridge improvements, design, maintenance and purchase of rights-of-way as well as highway patrol operations. The Fund generates approx. \$1.5 billion/year.

In New Jersey, the New Jersey Transportation Trust Fund provides state funds for highway and transit projects. It is funded by the Motor Fuel Tax, Toll Authority Contract Payments, and Other Vehicle Fees and Taxes. The obligation limit on the Trust Fund was recently raised by the legislature to \$565 million/year. General appropriations provide operating assistance to transit on an annual basis.

Other - These include a number of toll authorities whose revenues are used to maintain and operate their respective facilities. In addition local governments maintain their own road systems, and some governments own transit vehicles or property. These funds derive from local taxes and are not accounted for in the DVRPC finance plan. Finally, governments in both states have the right to charge development or impact fees for transportation improvements. Future sources of private revenues may include: congestion pricing, parking pricing, toll districts, development of unused rights-of-way and other strategies.

**Projected Revenues.** Projections are divided into four 6-year periods. The estimates are based on the assumption that federal and state funding sources will continue to be

available, at the authorized levels, adjusted for inflation. DVRPC would like to establish funding benchmarks for each of the federal funding programs in order to develop its financial plan and constrain its TIP, but NJDOT has been reluctant to negotiate such benchmarks to date.<sup>151</sup> The total amount of funding estimated to be available to the region over the Plan timeframe is \$18.5 billion.

**Projected Costs.** Cost estimates for the Program of Projects (TIP, state rail plans and toll authority business plans) total \$5.2 billion. This leaves \$13.4 billion for which expenditure is unaccounted. Whereas the Plan includes several corridor or area studies to be conducted, the it does not recommend individual projects or costs associated with any projects. Instead, the plan articulates target ranges of increases or decreases in spending for the nine performance categories over the timespan of the long-range plan. Presumably, this remaining financial capacity will be claimed by existing preservation and operating costs, and by project development costs as corridor studies and MISs are completed.

**Observations.** A first indication of the planning environment in the DVRPC region is given by the “attitude” of the region as divulged in its planning documents and public involvement process. In this regard, both the TIP and the Plan are very accessible documents to the layperson. The Plan provides good background on the spirit and requirements of ISTEA and the CAAA. In addition, there is evidence of a strong committee structure (a diagram would be helpful) that provides additional access to the Plan development process. Together, these indicate commitment to an evolving process and, it is hoped, increased buy-in from the stakeholders in the region.

Whereas, the MPO is relatively strong on process, it is not as aggressive in developing the concept of the transportation budget, in terms of an independent assessment of needs, costs and available resources. While DVRPC has succeeded in developing a project selection process which reflects ISTEA principles, the TIP remains overprogrammed by

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<sup>151</sup>US House of Representatives, DVRPC testimony.

approximately half a billion dollars. Some entities such as NJDOT, believe that TIPs should be allowed to be modestly overprogrammed in order for them to serve as effective planning tools. It is true that the region has not experienced implementation problems with TCMs or other projects in past TIPs (two TCMs from the 1982 Pennsylvania SIP remain to be implemented) and is moving toward developing a project monitoring capacity. However, the region is a “severe” ozone non-attainment area and a portion of the region is a “moderate” carbon monoxide non-attainment area. Future TIP updates might demonstrate more rigorous financial planning as part of its conformity activities.

More troubling than the overprogrammed TIP is the lack of program and financial definition of the 2015 Transportation Plan. Worse yet, there are no signs that of improvement evident in the 2020 Plan update. The 2015 Plan is not much more than a glorified TIP; the TIP accounts for \$4.8 million of the total \$5.2 million in the Program of Projects, which itself seems "stapled" from state documents. Since many corridor and subarea plans are to be conducted, the Plan is not project-specific with respect to the remaining \$13.4 billion in the fund estimate. There are two harms which can result from so little definition in the Plan: 1) long-term planning is compromised and 2) the existing system is not well cared for or managed.

With respect to existing long-range planning efforts, the SEPTA has recently committed itself to long-range planning, especially in the area of improving suburban mobility. However, SEPTA’s new vision does not appear to be addressed by projects in the TIP, 12-Year state capital plan or the long-range plan. Moreover, as a pool from which future projects will be generated, the majority of projects in 2015 Plan’s subarea/corridor studies is highway capacity increasing. There is no indication of how this pool of potential projects will eventually fulfill the non-SOV capacity increasing project targets as outlined in the funding goals - the “vision” for the region. In fact, the plan explicitly denies these target funding categories as financial constraints on the TIP process.

This bodes ill for multi-modal planning and growth management initiatives. While SOV-capacity increasing projects will have to emerge from a CMS process, there is no other policy guidance in the Plan which will likely address this deficiency. Ostensibly a guide for future investment based on regional goals, the nine macro-performance categories cover the entire range of projects so that, in actuality, any project could conceivably be found to be consistent with Plan. In addition there is no explicit link between the transportation/land use Transportation Improvement Matrix and any criteria for inclusion of future projects in the Plan. These realities suggest that it will ultimately fall to the CMS and MIS process to determine the next generation of projects in the DVRPC region. If these effort fail, then many of the strategic planning opportunities will have been missed in this region, and the project selection process for the TIP will again be the engine running the regional planning process. In order to truly plan for the future, the MPO must improve its effectiveness in combining a regional vision with the “bottom-up” process that it has historically overseen.

Furthermore, at a minimum, the MPO must include existing and known system costs in its long-range plan. Operating costs for transit are included in the Program of Projects but are not estimated for future years. Neither are highway or transit maintenance or capital costs forecast as they might be though a PTMS or PMS. In fact, local funds and expenditures are not accounted for at all in the fund estimate of the Plan. Clearly, these all suggest a lack of priority given to the existing system. The lack of documentation of existing system costs is a major oversight of the Plan and directly fails to meet the financial planning requirements of ISTEA. The consequence of poor financial planning of the existing system is the continued short-term struggle to scrap together the resources to maintain and operate an already old and needy transportation system.

The DVRPC has performed poorly in its first attempt at financial planning and transportation planning under financial constraint. Yet, there is reason to believe that the region’s performance will improve with time. In addition to overseeing a well-functioning committee system, DVRPC has initiated several new task forces to advance the regional

agenda. New Jersey also formed a Transportation Executive Council for transportation agencies throughout the state. What the region needs most, now, is time and assistance in working together. In very candid testimony at Congressional hearings on ISTEA, NJDOT admitted that shared responsibilities between the State and MPOs are not yet fully understood nor fully practiced, and that both sides are slowly and often painfully learning their respective roles. The federal representatives to the region should remain active in the planning activities of the region; in particular, they have a clear responsibility to enforce the financial planning provisions of ISTEA.

Although recognition exists among the region's policy makers and planners that financial planning must become an integral part of the regional transportation planning process, it is not clear how this recognition is being translated in the long-range planning arena. To do this, the MPO must 1) identify projects beyond the timeframe of the TIP, 2) estimate the level of financial need for the existing system and any new additions, and 3) reconcile regional policies with any shortfalls which may be identified.

Institutional cooperation is being learned by all parties in the region, but progress is slow and at times, still hampered by structural characteristics of the system. For example, while DVRPC has strengthened its monitoring role to help locally initiated projects proceed in the project development stages and as they compete in the TIP process, both NJ Transit and DVRPC report that reliance on the state matching program has allowed states greater control of project selection within the DVRPC region, weakening the ISTEA provision which assigns this responsibility to MPOs. In addition, the bi-state, multi-federal region status of the DVRPC region creates added complexity in any transportation planning effort. As noted in testimony, DVRPC complained that FTA Region II denied a request to use CMAQ funds programmed in the TIP for a full MIS/DEIS and instead limited the grant to only MIS work on an important Region III transportation initiative in South New Jersey. A final example of both of these problems is embodied in the flexible fund allocation process in the DVRPC region.

Based on indications from both states, the Plan assumes flexing of Bridge funds to STP or NHS projects and highway funds to SEPTA and NJ Transit. DVRPC reports that the two states in its region approach flexing differently. However, "neither has shown any interest in flexing funds to transit from the NHS or Bridge programs, though in fact both states have transferred funds out of Bridge into the statewide STP program." DVRPC states that flexing decisions are made directly between the transit operator and state, except for Enhancements and the Urban Allocated share of STP. In addition, it notes that New Jersey has opted to utilize the soft match provision of ISTEA, making "flexing" easier. Pennsylvania, on the other hand, has not done so, even though restrictions associated with the Motor License Fund may be overcome by doing so. Referring to the local match problem, NJ Transit says that problems in flexing funds occur at the local, rather than federal level.

**Case Summary.** The DVRPC region seems to have supplemented "wishlist" planning with a very conservative articulation of future projects. It is true that the 2015 plan represents the first ginger steps into a difficult technical and political arena. The 2020 update is an opportunity for the region to build upon its successes and rectify its shortcomings. The TIP includes innovative consensus-oriented decision-making processes, and appears to represent fair financial planning, although future versions should attempt to close the overprogramming gap found in the current document. The 2020 Plan update must likewise improve upon the weak strategic-planning found in the 2015 document by analyzing what the region needs to and can afford to do, and identifying projects beyond the TIP time frame. This is especially critical given the need to manage and recapitalize the existing transportation infrastructure in the region. In short, DVRPC must continue to show leadership in implementing ISTEA financial planning and other principles. The challenge is increased due to the dual state interests in the region and the make-up of the MPO. However, pressing growth and mobility, air quality, safety and existing infrastructure needs make the effort imperative.



#### 4.2 Wasatch Front Regional Council, (Salt Lake City MPO)<sup>152</sup>

Whereas the DVRPC planning products did not meet the strict tests of financial constraint, the Salt Lake and Ogden metropolitan area Transportation Plan and Transportation Improvement Programs represent a much more sound financial planning process and product. A comparison of available revenues and costs in current dollars demonstrates that, with the exception of Phase 2 (the post-TIP phase of the long-range element) of the Long Range Transportation Plan in Ogden, the areas realize net surpluses throughout the TIP and post-TIP phases of the planning horizon. With the exception of a few caveats which can be made regarding certain assumptions in the fund estimate, in general, the Transportation Plan, TIP and other financial analyses contained within environmental and other studies affirm the financial condition of the region and identify adequate financial capacity to carry out proposed plans and programs.

**Revenues.** For both the Long Range Plan and the TIP, the MPO estimates Federal, State and local revenues and management system and other costs. A healthy “back and forth” takes place among the MPO, State and localities with respect to the development of forecasts of Federal, State and other funds.

The financial plan for the Long Range plan makes several assumptions concerning available revenues and costs to operate, maintain and expand the transportation systems. To begin, the plan assumes growth of Federal fund apportionments under ISTEA at 1% annually for most programs. In addition, the plan assumes that the 2015 state obligation authority limit will approach this future increased apportionment limit.

The major assumption for highway planning is the availability of additional revenues equivalent to a five-cent per gallon gasoline and special fuel tax every five years beginning in 1995. This assumption is based on historical trends. While the legislature has not

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<sup>152</sup>Sources used in this case study include:

1. WFRC staff issue papers, presented at Enhanced Planning Review, March, 1995.
2. WFRC, Salt Lake Area Transportation Plan, Technical Report 30, September, 1993.
3. WFRC, Transportation Improvement Program, 1995-1999, December, 1994.

actually increased taxes since 1987, it did pass a \$60 million general revenue allocation during this time, which is equivalent to the assumed tax. One possible impact of such an action may be that localities may not get their “fair share” of surpluses that build up at the state level. Consequently, local needs such as arterial improvements in fringe areas may be neglected over time.

Other State and Local revenues were assumed to increase at moderate rates. State highway fuel tax, user fee and permit revenues were analyzed using existing revenue source data and assumed to grow at rates consistent with historical as well as recent consumption rates. Seventy-five percent of State funds are kept by UDOT, while the remaining twenty-five percent is made available to cities and counties through the Class B and Class C programs. These funds are allocated to cities and counties based on population, road mileage and land area. They can be used for maintenance or construction of highways only. Finally, the financial plan also assumes the availability of \$20 million per year from the state general fund for highway improvements through the year 2015. This is consistent with historical trends for highway bonding or direct allocation.

The Long Range Plan also makes assumptions about the proportion of State funds that would come to the region. Although the region is responsible for 51% of the State VMT and 65% of the State’s population and 50% of the State’s revenues, the region expects to receive 60% of the State’s revenues over the first 10 years of the plan, and then 40% over the next 10 years. This is based on the historical under-allocation of State revenues to the region, (35%) and an agreement with UDOT’s Planning Division which recognizes the great needs of the region over the next 20 years.

Local government agencies have a variety of funding sources available to them, although the primary source is from the general funds. Cities and Counties also receive Class B and C funds from the state highway user revenues. Local funding for transit improvements and services is provided through a quarter percent sales tax in Salt Lake, Davis and Weber Counties.

Transit revenue projections were based on financial analyses contained in the Supplemental DEIS for the I-15/State Street Corridor, which projected revenues through 2010. These estimates were extended to 2015 by staff.

The Utah Transit Authority, the major transit operator in the region, receives revenues to support its operations and capital projects from a local 1/4 percent sales tax, FTA Section 9 funds, fare revenue and other sources, such as interest and advertising.

For transit planning, the major revenue assumption was the approval by the electorate of a quarter percent increase in the local sales tax, doubling the current tax base dedicated to transit, beginning around the year 2000. This assumption was based on a survey of 10 other MPOs and regions of like size and the size of their sales taxes. This assumption is carried through to the estimate of Section 9 funds, which are expected to increase as a result of increased revenue vehicle miles made possible by the additional 1/4 cent sales tax revenue. Finally, an estimate of “other revenues” is also inflated by this assumption, being pegged at 1% of total annual operating revenues.

In addition to the sales tax for transit, Federal operating assistance for transit is forecast to remain at current level over the five-year horizon of the TIP. UTA’s federal capital assistance estimates (Section 9 capital) increase significantly (8.59% annual growth), however, in 1995 and again in 1997, based on anticipated authorizations under ISTEA. Section 3 funds are assumed to be available for fixed guideway projects over the next 22 years. UTA also expects to receive additional Section 3 funds for major bus purchases and other capital facilities.

**Costs.** Cost estimates for the region’s highway improvements over the next 20 years included estimates for the categories of administration, maintenance, pavement preservation, safety, bridge replacement, congestion management, intermodal facilities,

enhancements, and new capacity. In this way, maintenance and preservation costs were considered in advance of new capacity costs.

To estimate overhead costs, a 15% rate was applied across the board to the total transportation budgets in each area. Highway maintenance costs were estimated at \$1000/lane mile and preservation costs at \$5-12,000/year per lane mile, applied to total lane miles which are assumed to grow at one percent annually. Local streets and roads maintenance costs were included in the estimate. MPO staff consulted with local traffic departments so that cost estimates would be based on needed improvements and not just upon historical levels of expenditure. This estimate also required the assistance of UDOT, which made available roadway data by functional class; HPMS lane mile data were also used to supplement these data.

For the CMS, the MPO estimated costs for a typical 10-year program and doubled these costs. Various operational and demand management strategies will cost approximately \$5.3 million per year to implement in Salt Lake and Ogden. The BMS needs were funded fully as were the SMS needs. For projects which can be categorized in a number of management systems, the MPO states that a single project may have been conservatively double-counted in the estimation of costs. On the transit side, the TDP provided transit cost figures for the near-term, serving as an interim PTMS. Intermodal facilities are “budgeted” approximately \$750,000 per year, although the IMS has not yet been developed. Many of the eligible facilities, however, are identified under the Public Transit and Congestion Management systems. Finally, Enhancement Program needs are considered, with estimates based on the limited experience of the region with this program.

New highway capacity needs are estimated for collector and arterial streets. The cost for local street construction is not included in the cost estimates; they are assumed to be incurred by private developers. Transit capacity needs were incorporated from the I-15

Corridor Project EIS financial analyses which estimated the costs for the proposed light-rail transit project.

Finally, in order for forecasted revenues to be compared with estimated costs, all values were discounted or otherwise stated in 1993 dollars. The discount rate applied to future revenue streams was four percent, representing the transportation construction inflation cost over the past few years. The projected amount of available revenue will be sufficient to meet the safety, bridge, pavement and other needs of the region, as well as to construct the projects on the current Long Range Plan.

**Programming.** The MPOs financial planning and programming process does not utilize prescribed funding formulas or proportions aside from allocations to Salt Lake and Ogden based on population. Local leaders have expressed a preference to instead determine these on a “case-by-case” basis, so that flexibility is preserved to accommodate large “lumpy” projects as appropriate. The Long-Range Plan does note, however, that a determination was made following the statewide fund estimate as to the proportion that would be dedicated to “expansion projects” in the Long Range Element as opposed to other projects. This figure approximates 25% of the total available revenues.

Fund programming activities for the Urban Area STP and CMAQ funds are performed by the MPO, and are reviewed by the technical committees. The MPO uses cost-benefit analysis as part of a semi-technical process to evaluate and rank STP projects. For the CMAQ program, priority is given to TCMs and projects within non-attainment areas. While some evaluation policies are utilized, the Policy Board prefers not to rely exclusively on pre-determined criteria.

With respect to the use of flexible funding provisions under ISTEA, significant transfers of funds to transit have not occurred in the region, nor are they expected to increase in the future. One exception is the use of CMAQ funds to fund bus/van purchases, park and ride

lots and transit centers. One reason for the low rate of transfer in the region is the persistence of highway needs in excess of available resources.

The MPO has encountered difficulty in administering the CMAQ program. It reports that attempts to take advantage of this program are frustrated by the many restrictions on eligible uses for these funds, e.g. to fund operating expenses. UTA also expressed concern about the inconsistent experience of transit properties in being permitted to use CMAQ funds to underwrite Deep Discounting fare programs, essentially operating programs. The Enhancement program seems to engender similar complaints about eligible uses.

### **Transportation Improvement Program**

The MPO prepares a single 5-year TIP for the combined Salt Lake and Ogden metropolitan area, in cooperation with UDOT and UTA. The document is currently updated annually. Projects in the TIP are drawn from the long-range element of the Transportation Plan, management systems, the Transit Development Program, and the SIP, in the case of Transportation Control Measures.

No new programs were added to the Surface Transportation Programs in either Salt Lake or Ogden in the current TIP, due to lower appropriations and higher project costs than were anticipated. The Federal review team encouraged the MPO to consider a more conservative estimate than the historical trend analysis that is used in light of possible declines in federal support for transportation programs.

The TIP financial plan includes a schedule of funds throughout the program horizon for each of the four programming areas: STP, CMAQ, other Highways and Transit. There are three cases of negative balances in the Ogden Area STP and CMAQ programs.

Transit Development Program: The TDP development process also includes an assessment of UTA's financial capacity to realize its proposed service. Forecasts show that UTA has the financial capacity to support existing service and the planned expansions included in the TIP. Initiation of an I-15 corridor light-rail line would require a "reasonable" amount of bonding. Furthermore, Section 3 funds will be requested to address the costs of rail transit final design, right-of-way acquisition, construction, and associated transit and park and ride lots, as well as replacement of 32 regular service transit vehicles.

The rate of obligation of funds is improving at both the state and MPO levels. The MPO is currently about a year behind in obligating funds.

**Observations.** While the approach that the MPO uses to estimate ISTEA federal program funds is reasonable, future updates to the financial plan should consider the decline in the rate of federal assistance for transportation. Assumptions such as the 1% growth rate in the allocations of federal funds, should be reconsidered if slowed trends are identified. In addition, in light of the experience with the current TIP update (which did not add projects due to lower-than-expected appropriations) programming principles such as programming up to authorized levels might be revisited.

Environmental analyses and right-of-way acquisition have been completed for a controversial 18-mile light rail project. The financial analysis contained in the EIS confirms local financial capacity to fund the transit project. However, the analysis relies upon a doubling of the sales tax dedicated to transit on a less-than-reasonable basis ("10 other regions of like size and population have it so why don't we?"). Without passage of this additional quarter cent sales tax, the UTA will not be able to afford expansion of the regional bus transit system as proposed in the Transit Development Plan if the light rail project goes forward. While it is laudable that the MPO has made this trade-off explicit, it is a poor one. Pitting rail expansion against bus expansion does not consider system-wide impacts and is not in the best interest of long-run transit planning. Instead, planners

should design strategies to incrementally improve the entire transit system, as voters seem to have indicated in their defeat of the sales tax measure earlier this year.<sup>153</sup>

The I-15 highway project, though not included in the current TIP for Conformity reasons, is a major local priority which will dominate regional decision-making for several years to come. The typical issues associated with large “lumpy” projects such as this project and the proposed light-rail project should be addressed on an ongoing basis. The MPO should focus on monitoring the federal and state funds to support the project, tracking the implementation of the program to ensure adherence to phasing schedules, and developing the project evaluation and selection process to balance the interests of the large and smaller projects in the region in future programming cycles. In this region, despite the prevalence of several large, high profile projects, the MPO and UDOT should be commended for their commitment to making maintenance of the existing system a priority.

As in other regions, one issue in the programming of state funds is that these revenues may only be used as match for highway projects and not transit projects. Multi-modal planning could be strengthened by removing biases at the local level to better leverage flexible federal funds. In addition, the MPO is discouraged from pre-determining a proportion of available funds for programming projects which are capacity-enhancing.

The MPO believes that regulations governing TIP development should be more flexible. In particular, it objects to having to constrain the three year program by year. It maintains that project development suffers and there are too many amendments both of which hurt the credibility of the process. In response to this concern, the federal team suggested that tracking projects could minimize the need for amendments.

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<sup>153</sup>In fact, a revenue measure linked to the proposed light-rail system failed when put to the voters recently. Local mayors faulted the lack of adequate long-range planning for the failure of the measure. They stated that planners should have done a better job in demonstrating the benefits of an integrated bus/rail system to voters in each locality.



**Case Summary.** The WFRC planning documents represent a good faith first-round effort on meeting the financial planning requirements of ISTEA. The revenue forecast was comprehensive and generally utilized reasonable assumptions. In addition, the cost estimation process was laudable for its “teletic” approach of basing estimates on needed rather than historical costs.

The overall transportation planning process in the region needs improvement, however. Due to conformity issues and lower than anticipated revenues, the TIP update did not add any new projects to the program. Moreover, the 1993 Transportation Plan update in the region was not considered as fully responding to ISTEA and the new regulations. Due to this and conformity problems in Salt Lake and the southern portion of Ogden, the plans were jointly accepted by FHWA and FTA as only interim plans. Clearly the region’s planning capacity is hindered by air quality problems and the classic resource problems associated with planning for a major, lumpy transportation project in the region, the I-15 highway project. This has made it difficult for the region to be visionary in its planning.

There are several indications that the future holds promise for the region, however. First, among these is the “attitude” of the MPO. MPO officials stated that they found the financial constraint requirement to be useful and to have improved the transportation planning process. In particular, the requirement was beneficial in focusing attention on planning realities. A secondary benefit of this requirement was to promote the integration and coordination of planning activities, e.g. management systems. Indeed, the region should be commended for its adoption of the metropolitan Management Systems as a structure for its long-range plan.

Finally, the Salt Lake region provides another observation point for the limits of technical capacity. While the financial plan contains some optimistic revenue assumptions, it is generally a technically acceptable planning document. However, its effectiveness is limited by the absence of mutually-developed and consensus-oriented decision-making institutions to support the project selection activities in the region. Federal support in the region should

focus on developing the institutional capacity of the region. While the major planning institutions, (the MPO, state and transit operator) seem to be working well together, it seems that air quality issues continue to be a point of frustration, especially with the state department of air quality. One issue which could be a focus for improvement is the coordination of planning cycles and data analysis methods in the region.

In addition, the region acknowledges needing help in the area of initiating dialogue with the public. The MPO long ago abandoned the idea of having a citizen's advisory committee, citing the non-representative nature of such entities. Fortunately, other groups have taken the initiative in the region to hold regional forums on planning issues, and the MPO has taken part in these.

#### **4.3 Puget Sound Regional Council, (Seattle MPO)<sup>154</sup>**

The Puget Sound Regional Council is the MPO for the Seattle, Washington metropolitan area. The organization of the Regional Council is based upon a General Assembly and Executive Board. The GA is composed of all elected officials from the executive and legislative branches of member cities plus representatives from the member ports and state agencies. Members of the Executive Board are appointed by their GA constituents. Two policy boards - the Transportation Policy Board and the Growth Management Policy Board - advise the Executive Board.

#### **Transportation Improvement Program**

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<sup>154</sup>Sources for this case study include:

1. PSRC, Policy Framework for 1993 ISTEA TIP Process and Criteria, April 1993.
2. PSRC, Policy Framework for 1995 ISTEA TIP Process, January 26, 1995.
3. PSRC, 1994-1996 Regional Transportation Improvement Program, October 28, 1993 as revised to include the 1994 Major Amendment, and as corrected and amended through October 19, 1994.
4. PSRC, Final Draft Metropolitan Transportation Plan, Transportation Element of Vision 2020, March 9, 1995.
5. Comments of King Cushman, Executive Director, PSRC, at Transportation Research Board, Annual Meeting, Session 175: Congestion Pricing and Other Market-Based Transportation Control Measures, "State of Washington Efforts to Advance the Pricing Concept", January 26, 1995.

The development of the 1993 TIP was preceded by the development and adoption of a Policy Framework in April 1993. The Policy Framework was developed to improve the TIP project-selection process. It provides guidance through an the expression of policy intent and project evaluation criteria which employ a point system that rates projects through both technical and policy perspectives. The policy emphasis areas in the Framework are:

- Non-SOV Emphasis
- Support for Transportation Enhancement Projects in excess of the State set-aside (10%)
- Comparable Review for All Projects
- Air Quality Scoring Emphasis (25% of total possible points)
- Encourage Innovative Projects
- Flexibility in Developing the Three-Year TIP in order to incorporate new directions in local growth management or state priorities.

Project scoring criteria evolved from the policy areas. These were divided into two categories: technical criteria and policy criteria, including:

- Enhancement objectives
- Regional and county-wide growth and transportation policies
- Air quality
- Beneficial environmental, social and energy impacts
- Support adopted regional economic strategies
- Assess cost-effectiveness

While the point system lends some objectivity to the project selection process, the TIP states that projects in the region are ultimately selected with a degree of pragmatic technical and political judgment.

The total request for ISTEA funds for the 1993 TIP cycle was over \$680 million while only \$290 million were available. The task of prioritizing the region's transportation investments fell to the PSRC's Regional Project Evaluation Committee. The Committee consisted of staff from planning and public works departments, transit agencies, WSDOT, the ports and a representative of the Regional Council's Transportation Enhancement Committee. Volunteers totaled 55 and were divided among 13 teams. Countywide technical committees were then asked to prioritize high-scoring projects. After one month of review, prioritized project lists were finalized.

Planners in the region believe that a broader project mix was achieved using ISTEA flexible funds and the regional policy objectives as guidelines. Over 15% of the regional STP/CMAQ funds were recommended for transit projects, 27% for non-motorized projects, 9% for intermodal projects, 9% for innovative/other (mostly TDM) projects and under 40% for roadway projects. By purpose, the 1993 program can be broken down as: 1/4 to preservation needs, 1/4 to expansion, and 1/2 to improvement. An interesting result is that only 6.6% of new Regional lane miles are for SOV use and 10.2% are HOV lane miles, with the remainder composed of bikeways, trails, and sidewalks. However, this scenario is counter-balanced with the state program which is 25% SOV, 73% HOV and 1.2% non-motorized. Recall our discussion about the proportion of funding which the MPO controls versus that which is controlled by the states. In the Puget Sound Region, ISTEA funding typically accounts for less than 10% of most city/county capital funds. State revenues account for approximately 20-30% of capital funds. Local and other revenue sources make up the remaining 60-70%. In contrast, federal ISTEA funding for WSDOTs projects typically accounts for more than 50% of the state's transportation program funding.

In January, of 1995, PSRC planners revised the 1993 Policy Framework to be used in the 1995 ISTEA TIP Process. The purpose of this effort was again to provide regional guidelines and policy intent for how the Regional Council would manage, administer and approve projects to be programmed and selected under the three regionally managed federal funding programs (STP, CMAQ, and FTA Programs). The 1993 process was considered in need of improvement for three reasons. First, planners wished to streamline and simplify the overall process. In addition, there was a desire to alter selection criteria to better allow funding of a few larger scale projects and innovative smaller projects in addition to the traditional medium-sized projects which fared best in the previous TIP cycle. Finally, there was a need to refine the process for the Regional Council to delegate a portion of its regionally managed funding to countywide organizations in recognition of local needs.

Here we explore PSRCs strategies for dealing with the chronic transportation planning problem of planning for large, lumpy transportation projects in greater detail. Recall that in the San Francisco metropolitan region, planners at the MTC would phase or segment projects so that they were competitive against smaller projects in the regional scoring system. In Seattle, planners observed that the TIP development process yielded a variety of smaller scale multimodal projects from \$300-\$500 thousand in project cost, but that larger projects did not compete very well. One reason for this was that the region had difficulty defining what was a regional project, and how to account for regional benefits in the scoring system.

For the 1995 cycle, the strategy adopted by the region was to create separate categories of funding for regional versus local projects. Four broad categories were created for solicitation and consideration of these larger projects. These categories were designed with both multimodal and preservation goals in mind:

- 1) Projects that Optimize or Manage use of Existing Facilities, i.e. Major rehabilitation or seismic projects.
- 2) Travel Demand Management/System Management Projects, i.e. planning studies for congestion pricing or freight/goods movement access studies.
- 3) Projects that focus on transportation investments that support transit and pedestrian oriented land use patterns, i.e. a major regional center or urban corridor development study.
- 4) Transportation Capacity Expansion projects: i.e. major regional multimodal terminals or centers, or missing links in the arterial system, land acquisition or HOV projects.

PSRC used the regional criteria in conjunction with a countywide (locally initiated) project development process, resulting in an independent but coordinated process for TIP project applications. Regional and countywide projects then undergo separate scoring processes, which were developed by the PSRC and countywide organizations respectively. In terms of programming, the Framework further recommended “funding targets” for the regional and countywide projects. The target for projects in the “regional” competition is 39% to 47.5% of total CMAQ and STP funds. The recommended range for programming projects through the countywide process is from 52.5% to 61%. Once the regional application process is complete (i.e. an “adequate number of high priority projects is approved), any remaining CMAQ and STP funds are then allocated to the countywide

process. Countywide organizations are responsible for developing criteria, processes and finally, project lists to the Regional Council for approval. The final project lists are submitted in June, 1995, with a finding that submitted projects do not exceed approved funding target allocations.

**Financial Constraint.** The investments in the 1993 TIP totaled \$1.7 billion. The TIP reports an affirmative finding of financial constraint. To do so however, the region relies upon full authorizations of Section 3 fixed guideway and Section 9 funds, or Section 3 Discretionary funds sufficient to cover the cost of several regional transit projects. These figures are in excess of historical trends for the Section 3 and 9 revenue sources.

**Transportation Plan.** The PSRCs Final Draft Metropolitan Transportation Plan was adopted on March 9, 1995. The MTP builds upon local plans, adopted multi-county and countywide planning policies, and the Washington State Department of Transportation (WSDOT) Multimodal and System Plans. The one-and-a-half year technical Plan development process included participation by the Growth Management and Transportation Policy Boards, as well as other PSRC committees. In addition a questionnaire was administered to over 7000 individuals, agencies and businesses, as well as 600 randomly selected households in the region to solicit data and gauge the public's views. Meetings with member jurisdictions, workshops and open houses were also held in all four counties of the region in the fall of 1994.

In the opening pages of the MTP, the region's planners candidly discuss the problems facing the region, and the resources available to tackle these. Citing VMT growth which has outpaced population and employment growth over the past two decades, the MTP states that congestion and auto-dependency cannot be eliminated but can be better managed in the region. This is necessary because the region lacks the financial resources to build its way out of congestion trends. In addition, there exist geographic constraints to expansion and public unwillingness in the region to building more highways. Finally,

planners note that transit's effectiveness too is limited by existing dispersed regional land use problems and limited control of development trends.

Planners were frank with respect to the "Significant Issues [they experienced] in Developing the MTP". The dilemma posed by limited resources, opposition to highway building, and the viability of transit services challenged planners in Seattle. This situation and other realities which make transportation planning difficult are not unique to Seattle.

Among the problems facing planners are:

- Failure to charge for the true cost of auto use;
- Insufficient investment in alternatives to SOV travel;
- Need to focus on minimizing and redistributing all trips not just HBW trips;
- Need to address both short- and long- range tripmaking since 82% of current trips are less than 10 miles in length;
- Tendency of investments to inadequately address needs of the young, elderly, disabled and low-income populations;
- Need to balance access, mobility and congestion management with economic growth and environmental quality;
- Lack of regional access and mobility performance indicators to compare multi-modal projects;
- Decentralization of jobs resulting in suburb-to-suburb travel and poor reverse commute access to suburban sites;
- Lack of pedestrian and bicycle-friendly environments;
- Historic inability to address the objective of reducing SOV travel while improving conditions for freight and goods movement over same roadways;
- Need to establish relationship between transportation investments and land-use development;

As a strategy in response to these dilemmas, the MTP elects to make changes to the "operating environment" in which travel choices are made, instead of constructing new facilities. Examples of these operating environment changes include controlling land use and development patterns, accessibility to various forms of transportation, price and availability of fuel, and fiscal and tax policies. Seattle is able to propose these relatively controversial strategies because the state has passed enabling legislation in a variety of areas, including growth management legislation, enabling legislation for regional pricing schemes, and local option parking, motor fuel and other taxes or fees.

Vision 2020, adopted in 1990, is the long-range growth management, economic and transportation strategy for the central Puget Sound region. Along with input from the public, planners used Vision 2020 to guide the development of the MTP, which is

organized into several components. These include: Maintenance and Preservation, Transportation System Management, Transportation Demand Management (including road pricing), Nonmotorized Transportation, Ferry Infrastructure and Service, Freight and Goods Mobility, Aviation Program, and Infrastructure Investments and Service Improvements.

Two components, TDM and Infrastructure Investments are noteworthy for their innovative approaches. In the TDM component, the MTP commits the region to pursuing transportation pricing initiatives. A major study undertaken in 1994 identified the effectiveness of over 20 pricing strategies in reducing travel demand and emissions. Hypothetical pricing levels were modeled, with the results showing high potential for VMT and trip-reduction benefits. In 1993, the state legislature established a new program, The New Partners: Public/Private Initiatives in Transportation, which was received with interest by the private sector. The six New Partners Projects involve: decking over park and rides and charging for parking; two Automatic Vehicle Identification HOV toll bridge projects; two SOV inter-regional corridor pricing projects; and one ambitious area-wide tolling and congestion pricing project covering several hundred miles of roadway. In order to work on these projects and incorporate them into the regional long-range strategy, the PSRC's Regional Council's Transportation Policy Board created an Ad Hoc Task Force on Transportation Pricing in 1995. The influence of pricing initiatives is evident in the MTP's financial plan for delivering the next generation of projects in the region.

The Infrastructure component provides major capacity expansions in public transit services, pedestrian and bicycle facilities. In addition, the region will provide foundation segments of major system additions to which the region is currently committed: i.e. Phase 1 of the Regional Transit Authority's rail/bus system plans, WSDOT's core HOV system, and completion of essential portions of "missing links" in the regional highway network. In the long-term, these projects will be completed, and a regional nonmotorized network and freight facilities will be added as they are identified. Finally, additional and restructured



local transit services are also included in this component. This component assumes increases in conventional transportation financing sources in the first 10 years of the 25 year planning horizon. In the last 15 years, additional system expansion is assumed through either of two approaches: 1) continuation of moderate increases of conventional financing sources (local ballot and legislatively authorized revenue increases) or by implementation of previously described transportation pricing strategies.

Specifically, the Action Element divides the region's initiatives into capital and noncapital projects and programs. Capital projects and programs are further divided between Candidate and Approved projects and programs. Candidate Projects are those which are proposed to meet an identified transportation deficiency, where the status of formal planning and review remains incomplete. These projects are eligible only for planning, environmental or preliminary engineering approval in the TIP. Approved Projects meet screening and other criteria such as public and environmental review requirements, MIS procedures if applicable, air quality conformity determinations, and identification of proposed funding source(s).

**Financial Constraint.** A financial capacity assessment for the region indicates that current revenue sources are reasonably adequate to maintain and preserve all modes of the existing local and regional transportation systems. The Regional Financial Strategy Analysis of current law revenues (projections of existing tax and operating revenues) indicates that they are reasonably sufficient to meet maintenance and preservation needs over the 25-year planning horizon. However, they can support very little overall system capacity expansion. In addition, long-term maintenance and preservation on highways and roadways are dependent upon a source which does not keep pace with inflation (motor fuel tax). Transit and ferries are able to expand services slightly because their tax bases are more closely tied to inflation and regional economic growth.

**Costs.** The region identified approximately \$36.9 billion in baseline maintenance and operating costs, (\$1.5 billion/year) over the 25 years of the Plan. Planned expansion projects totaled an additional \$23.5 billion, for a total future cost of \$60 billion.

**Revenues.** Projections for the growth of current-law operating revenues are based on historical growth trends for transit and ferry services and the revenue effects of implementing new services. For example, post 2005-2010 fare projections assume substantial transit ridership (and fare revenue) with rail build-out. Growth projections for other revenues are based not on changes in tax rates, but rather more on changes in tax bases, i.e. regional population, employment and growth. Total revenues are estimated at \$36.9 billion between 1996 and 2020. The MTP reports that over 80% of this revenue base is dedicated to specific programs either by law or by practice.

**Shortfall.** The MTP's financial assessment identifies a \$23.6 billion shortfall, or one third of the total need identified. Available revenues (\$36.9 billion) appears to just cover the Baseline total of maintenance and preservation costs (\$36.9 billion). In actuality, however, the shortfall is distributed over the entire planning horizon, if financial assumptions hold. The MTP financial strategy structures the shortfall such that approximately 25% of the shortfall is realized in the first decade, with the remainder occurring between 2006 and 2020. Planners state that this strategy allows time to develop and incrementally implement new strategies for dealing with the shortfall.

The MTP identifies three options to address the resource shortfall. These are reducing costs, postponing improvements, or increasing revenues. The option to increase revenues has four parts:

- Refine Local Option Taxes to be Regionwide in Scope;
- Adjust Formulas for Regionally Derived Income: to raise the region's share of statewide revenues to the level that it generates.
- Index the State Motor Fuels Tax to Inflation;
- Consider Transportation Pricing Measures

**Financial Strategy.** The MTP adopts an incremental financial strategy for its implementation. The shortfall in the first 10 years would be supported by increases in traditional taxes, including the sales tax for transit and motor fuel tax increases. In the longer term, the next 15 years of the program, the MTP assumes a combination of either increases in traditional revenue sources or implementation of one or more of the demand management/pricing options. The MTP assumes that \$7.9 billion could be raised through transportation pricing strategies during the 2006 to 2020 period. The equivalent gas tax during the same period would be 40 cents/gallon. Under either option, the MTP also supports reconsideration of postponing some projects to post 2020 periods.

Modally, the region's financial plan adopts a "shared pain" approach to distributing the shortfall in resources. Public transit projects account for about half of the \$23 billion shortfall, while highway projects total approximately 40%. The balance is represented by foregone improvements in the ferry, freight and non-motorized systems.

In comments delivered at the Annual Meeting of the Transportation Research Board in January of 1995, PSRC Executive Director King Cushman reported upon the results of the MTP effort. The 2020 financially constrained plan showed a 63% increase in VMT without the aggressive congestion pricing strategies found in the MTP. However with the institution of market-based and regulatory strategies which target road, vehicle and/or owner and which are projected to generate over \$400 million per year, King reports that VMT increased a reduced 43% over the same period. In addition, the pricing strategies resulted in a 4% mode choice shift to transit, and a substantial savings in total regional delay. King also noted that the region was engaged in public policy discussions on equity, access, and the diversion and uses of the pricing revenues. King concluded that these important and controversial issues result in the need for long lead times for congestion pricing programs to be implemented.

**Other Areas of Leadership.** In order to track the region's implementation of the MTP, the PSRC is developing a monitoring system in two parts. Implementation monitoring will

track and summarize how expeditiously regional and state agencies, as well as local jurisdictions, are applying Vision 2020 policies. Performance monitoring examines the effectiveness of implementation efforts through data collection and performance indicators. On the other end of the planning spectrum, PSRC is also initiating an MIS process for project development. Consistent with a state mandate emphasizing least-cost planning and cost-effective facilities, services and programs, future MISs will consider TDM strategies among the alternatives considered. The HOV MIS process will consider both lane conversion and new lane construction. In addition, the process will consider freight interests as HOV lane development occurs.

**Observations.** The PSRC and its partners have devoted considerable time and resources toward the evolution of sound processes for both TIP and Plan development. The PSRC processes enjoy a high level of regional consensus and yield plans and TIPs which generally meet the financial planning requirements of ISTEA. A singular recommendation which might be made to the region in the area of financial constraint is to revisit overly optimistic revenue assumptions in future TIP and MTP financial plans. This finding is validated somewhat by the defeat of a local sales and motor vehicle excise tax financing package for the regional rail and bus transit system earlier this year.

The PSRC's long range transportation plan employs the teleitic view by outlining the region's needed and desired levels of investments, showing the region's capacity for meeting those needs, and engaging in innovative strategies to meet expected shortfalls. In addition, in the event that shortfalls are not met, the region structures its projected financial deficit in a way which appears to ensure that no mode suffers disproportionately. Although some of the MPO's revenue and implementation assumptions are optimistic - especially those involving congestion pricing initiatives - the region should be commended for its approach to long-range planning. In addition, the region exhibits leadership in promoting public education and awareness on transportation planning issues, tackling the problem of planning for "large and lumpy" transportation projects in its project selectin

process, and developing both project development and implementation processes to support continuing effective transportation planning practices in the region.

**Case Summary.** The PSRC is an example of pro-active and comprehensive metropolitan transportation planning. Despite aggressive public campaigns and supportive state enabling legislation however, it appears that many of the innovative strategies which the region has developed will require long-lead times to implement. The Seattle MPO's experience illustrates the difficulty of fashioning solutions to complex transportation planning problems. Despite this, planners there are committed to seeking long-term solutions to the financial and other planning realities which they face, and which are faced by most U.S. metropolitan areas. Their efforts should be commended and supported by their federal, state, local and public counterparts.

#### **4.4 Summary**

In this chapter we examined three MPOs of varying size, institutional make-up and history. Though uneven in their achievement of ISTEA financial planning dictates, each MPO has acknowledged the importance of financial planning in the short- and long- range transportation planning process. Even where planners demonstrated a facility for long-range financial planning, it is important to note that they were no less frustrated by the outcome - limited public resources and an unwillingness on the part of the electorate to authorize new revenue measures.

This is an important point to note. Financial planning does not promise to solve metropolitan fiscal problems. In fact, the financial planning exercise may portend a period of major confusion, frustration and discord within a region. What planning with financial realities does yield, however, is an opportunity to ensure the preservation of the existing transportation

system, and an informed debate over the affordability of future investment alternatives and the need for associated financing options. This benefit is a tenuous one, admittedly. It requires continued commitment on the part of all parties to see the exercise through in order to result in a set of short- and long- term strategies which is acceptable to all. In this sense, the processes of financial planning can be considered more important than the technical fine points of the exercise.

Far from being insurmountable, financial planning was carried out successfully in two of the three metropolitan areas reviewed. Where financial planning was carried out successfully, e.g. Salt Lake City and Seattle, the technical difficulties of the exercise were overcome either through the MPO's resident expertise or the use of consensus-oriented development strategies. In addition, both documents were stronger planning frameworks for their explicit analyses of the financial condition and capacity of the respective regions. For example, in Salt Lake City, the assumption of a speculative new revenue source was tied to an explicit (though unfortunately modal) trade-off. Similarly, Seattle planners were explicit about the consequences of not realizing the assumptions included in the long-range plan, adopting a "shared pain" approach among the modes. In contrast, where financial planning was not undertaken, e.g. Philadelphia, the result is a weak long-range planning process, which does little to ensure the continued maintenance and preservation of an aging transportation network and even less to guide transportation policies and investments (or cuts) over the next twenty years.

There are several conclusions which can be drawn at this time. The primary lesson for all observers is to acknowledge the request of all three MPOs reviewed: allow MPOs and their partners more time to refine their first efforts in the difficult area of financial planning. MPOs are diverse in the problems they face and in their institutional capacity for solving them, but they are generally supportive of the requirement. For example, it is not surprising that the Seattle MPO, which enjoys favorable state enabling legislation and a more recent transportation history, has achieved greater success in the area of financial planning than the Philadelphia MPO, where institutional make-up is complex and infrastructure preservation

needs are great. Despite these differences, however, all three MPOs acknowledged the benefits of planning with financial constraint and pledge to continually refine and improve their processes in the future.

While it is promising to note the positive attitude MPOs display toward financial planning, it is discouraging, to note how this attitude is being rewarded. For example, even where financial planning was performed teleetically, e.g. Seattle, the success of San Diego in turning the exercise into new local revenue sources for transit could not be replicated. Likewise in San Francisco, voter sentiment toward new taxes is so negative that no state legislator from the area would carry a bill to implement a Congestion Pricing demonstration project on the Bay Bridge in the last legislative session. These realities underline the gravity of the transportation finance problem. Federal and local support for transportation is shrinking just at a time when nascent transportation planning reforms are being implemented. Needless to say, this unfortunate situation jeopardizes the promise of ISTEA significantly.

What can or should be done to address this situation? Again, there are no easy solutions to this dilemma. However, in Chapter 5 we offer some preliminary thoughts on the recommended next steps for Congress, the D.O.T., and MPOs and their partners in the area of financial planning.

## Chapter 5.0 Conclusions

In the preceding chapters, we have presented the salient issues surrounding the ISTEA requirement for financial constraint in transportation planning. This historic requirement represents a significant challenge to transportation professionals. As one report notes:

ISTEA challenges the transportation community, within existing budgetary constraints, to meet our growing transportation needs and sustain our aging transportation infrastructure. It asks that we not only maintain and improve existing highway and transit facilities but also manage these facilities more effectively so as to increase their capacity and efficiency.<sup>155</sup>

Fulfilling this challenge will not be easy, and Congress must acknowledge the learning curve on both the technical aspects and the more difficult institutional reforms that financial planning requires. In Chapter 2 we presented an historical perspective on the central debate regarding the net benefit or harm of the requirement. We hypothesized then that attention to process, defensible analysis and the teleetic approach to financial constraint could together overcome the barriers to implementing the requirement. This result should not be expected immediately, however. Recall that it took over 20 years just for financial planning requirements to be instituted evenly in U.S. transportation policies. At this early stage of implementation, the efforts have only just begun and should be closely monitored and nurtured rather than rushed.

With respect to the constructive (teleetic) versus potentially destructive view of the financial planning requirement, we conclude that ISTEA may have been remiss in not requiring long-range unconstrained (vision) plans to accompany the constrained versions. If performed teleetically, financial planning results in a comprehensive view of the costs of recapitalizing, operating and expanding the metropolitan transportation system, and a documentation of a region's capacity to deliver its vision. Collectively, these plans could

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<sup>155</sup>GAO, Transportation Infrastructure: Major Program Revisions Present Challenges, p.2.



form the “cost-to-complete” the new national transportation strategy to follow the construction of the Interstate: System Management.

Chapter 3 conceived a framework for measuring the effectiveness of the financial constraint requirement, and identified factors which may erode the effectiveness of aids to MPOs included in ISTEA by Congress. In addition, techniques for analyses of varying detail and complexity and for strengthening institutional capacity were suggested. Special roles and responsibilities of MPOs, States, Transit Operators and the federal agencies in implementing the requirement were highlighted.

In Chapter 4, we examined the experience of three MPOs of different circumstances, history and institutional make-up. Initial findings show that practitioners find transportation planning under financial constraint difficult, but worthy of their efforts.

What regions need most now is time, local education and leadership, and federal financial and technical assistance. The future of ISTEA implementation is at a crossroads today. Each member of the transportation community must do its part so that the benefits of implementing the requirement are achieved. In particular:

**5.1 MPOs.** As the “stars” of the regulation, MPOs must exhibit leadership in implementing financial constraint. MPO responsibilities span the Project Development, Systems Planning, Programming and Implementation phases of the 3-C process. These responsibilities include developing MIS and CMS procedures to ensure true multi-modal planning, educating and engaging the public vis a vis a regional “vision” to guide long-term investment, creating project selection processes which are fair and tractable, and monitoring implementation activities such that costly delays are minimized and opportunities for last-minute funding are not missed.

**5.2 States.** As key MPO partners States must learn to re-orient their missions to support greater planning autonomy at the regional level. States must forge new relationships with

MPOs and transit operators in a spirit of cooperation and intermodal partnership. This includes leveling the “local match”, “flexible funding” and “obligations” playing fields as well as simply providing timely estimates of funding which MPOs can rely upon to perform their financial analyses. States must also re-think the financial implications of their own transportation planning activities, given the sizable amounts of transportation funding they continue to control.

**5.3 Transit Operators.** To benefit from financial constraint, (or even to avoid being harmed in some states) transit operators must insist on being given a “seat” at the transportation funding table. Although much of the legislation was conceived in the spirit of helping transit interests, the ability of transit to take advantage of financial opportunities in ISTEA depends upon the financial condition of the operator. Unfortunately, most operators struggle just to maintain and sustain their existing systems, when in fact, it is just as important to engage in long-range planning in order to be able to generate a backlog of projects to compete in the regional process. Conversely, transit must fight for operating dollars, but also must secure local matching dollars in order to take advantage of flexible funds.

**5.4 Federal Agencies.** Federal agencies can do much to support the intermodal planning process at the regional level. First, inequities in the modal planning processes still exist today, and must be eradicated. Next, federal representatives at the regional and local levels must be active in the MIS, CMS, and financial constraint processes in their regions. In addition, at this early stage of implementation, the DOT should take the strategic view of enforcement. DOT should canvass initial efforts and identify problem regions; they should target common problems and develop guidelines based on the best-practices of successful MPOs. While generally there is a greater need for guidance and assistance than enforcement, federal representatives must be willing to enforce the most basic and fundamental tenet of financial constraint, the priority consideration of existing system needs. Sanctions should be used against regions which refuse to engage in responsible financial planning and asset management. Appropriate federal roles also include analyzing

long-range plans across the nation. Collectively, these documents are useful in operationalizing the teleitic approach at the national level by serving as an estimate of the “cost-to-complete” the current federal mandate, and assessing regions’ ability to meet those costs given current funding realities.

**5.5 Congress.** The requirement of financial constraint must not be judged on the products of this, the first phase of implementation efforts. Congress must take a long-term view of the financial planning experiment, and of ISTEA in general. In order to best assist regions in meeting their responsibilities, Congress should first and foremost fully fund ISTEA. MPO planning funds should keep pace with planning responsibilities. Program funds should be appropriated at their fully authorized levels, and transit operating assistance should be re-instated. In addition, oversight committees should continue to solicit testimony from a wide range of interests, and transportation research should continue to be funded. If, over time, states continue to exhibit divergent levels of success in implementing financial constraint, there may be a need to link program funds to proportional obligation rates, directly pass through a greater share of program funds to MPOs, and/or require more comprehensive long-range financial planning requirements at the state level. MPO structure and public involvement requirements may also need to be revisited in “Next-Tea” if highway projects continue to dominate the planning landscape.

**5.6 Conclusion.** It is time for the transportation community to be serious about financial planning. As one STPP document states, “We must begin now to ask the right questions, and trust them to lead us to the right answers.”<sup>156</sup> At stake are the safety, efficiency and effectiveness of investments past, and the ability of the next generation of projects to deliver solutions to pressing regional transportation and air quality problems and provide a superior quality of life. Sound financial planning, if conducted in the spirit intended in ISTEA, confers educational benefits to practitioners, decision-makers and the public, so that a realistic dialogue of values, priorities, and future strategies can be initiated in our precious urban areas.

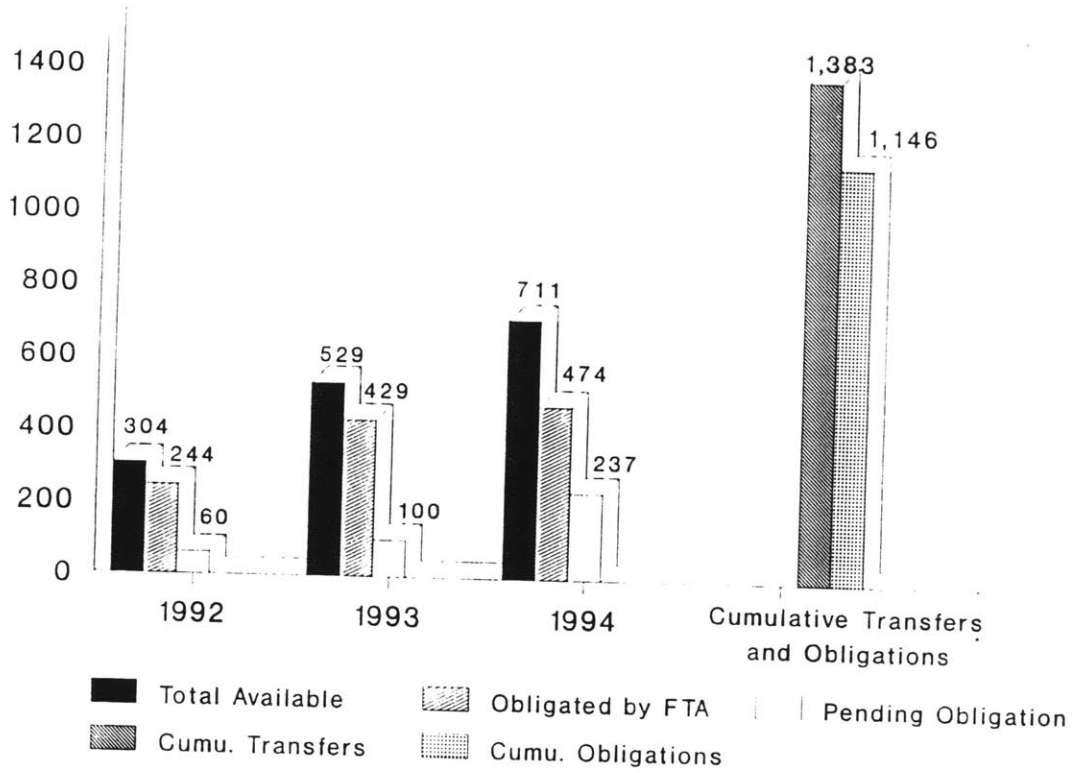
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<sup>156</sup>STPP, Year Three, p. 4.

## Appendix A

### Flexible Funding Transfers to FTA and Obligations Draft FTA Estimates

Millions Of Dollars



## Appendix B

### ISTEA Federal Aid-Highway Program Authorizations

from: FHWA, Financing Federal Aid Highways

PROGRAM	1992	1993	1994	1995	1996	1997	TOTAL
<b>Title 1—Surface Transportation</b>							
Interstate Construction Program	1,800.00	1,800.00	1,800.00	1,800.00	0.00	0.00	7,200.00
Interstate Substitute Program	240.00	240.00	240.00	240.00	0.00	0.00	960.00
Interstate Maintenance Program	2,431.00	2,913.00	2,914.00	2,914.00	2,914.00	2,914.00	17,000.00
National Highway System	3,003.00	3,599.00	3,599.00	3,599.00	3,600.00	3,600.00	21,000.00
Surface Transportation Program	3,418.00	4,096.00	4,096.00	4,096.00	4,097.00	4,097.00	23,900.00
Congestion Mitigation and Air Quality Improvement Program	858.00	1,028.00	1,028.00	1,028.00	1,029.00	1,029.00	6,000.00
Bridge Program	2,288.00	2,762.00	2,762.00	2,762.00	2,763.00	2,763.00	16,100.00
Federal Lands Highway Programs:	371.00	445.00	445.00	445.00	447.00	447.00	2,600.00
Indian Reservation Roads	(159.00)	(191.00)	(191.00)	(191.00)	(191.00)	(191.00)	(1,114.00)
Public Lands Highway	(143.00)	(171.00)	(171.00)	(171.00)	(172.00)	(172.00)	(1,000.00)
Parkways and Park Highways	(69.00)	(83.00)	(83.00)	(83.00)	(84.00)	(84.00)	(486.00)
Donor State Bonus Amounts	429.00	514.00	514.00	514.00	514.00	515.00	3,000.00
Reimbursement for non-federally aided Interstate Segments	0.00	0.00	0.00	0.00	2,000.00	2,000.00	4,000.00
Hold Harmless*	606.60	606.60	606.60	606.60	606.60	606.60	3,639.60
90% of Payment Adjustments*	0.00	83.00	83.00	83.00	83.009	83.00	415.00
Additional Allocation—Wisconsin	40.00	47.80	47.80	47.80	47.80	47.80	279.00
Highway Use Tax Evasion Projects	5.00	5.00	5.00	5.00	5.00	5.00	30.00
Highway Use Tax Evasion Projects—GF	2.50	2.50	2.50	2.50	2.50	2.50	15.00
Scenic Byways Program	1.00	3.00	4.00	14.00	14.00	14.00	50.00
Interim Scenic Byways Program	10.00	10.00	10.00	0.00	0.00	0.00	30.00
Ferry Boat and Facilities Construction	14.00	17.00	17.00	17.00	17.00	18.00	100.00
Emergency Relief	100.00	100.00	100.00	100.00	100.00	100.00	600.00
Arkansas Traffic Control Device	1.20	0.00	0.00	0.00	0.00	0.00	1.20
Minimum Allocation*	1,160.00	803.40	803.40	803.40	803.40	803.40	5,177.00
Projects:	542.62	1,225.46	1,158.85	1,100.52	1,100.52	1,100.52	6,228.49
High Cost Bridge Projects	(22.82)	(52.48)	(52.48)	(52.48)	(52.48)	(52.48)	(285.20)
Congestion Relief Projects	(39.20)	(90.17)	(90.17)	(90.17)	(90.17)	(90.17)	(490.04)
High Priority NHS Corridors	(94.65)	(270.99)	(204.38)	(204.38)	(204.38)	(204.38)	(1,183.16)
Rural Access Projects	(73.65)	(169.40)	(169.40)	(169.40)	(169.40)	(169.40)	(920.63)
Urban Access and Mobility Projects	(44.49)	(102.32)	(102.32)	(102.32)	(102.32)	(102.32)	(556.10)
Innovative Projects	(232.85)	(459.71)	(459.71)	(401.38)	(401.38)	(401.38)	(2,365.41)
Priority Intermodal Projects	(34.96)	(80.40)	(80.40)	(80.40)	(80.40)	(80.40)	(436.95)
High Priority NHS Corridor Studies	8.00	8.00	8.00	8.00	8.00	8.00	48.00
High Priority NHS Corridor Revoiving Fund	0.00	40.00	40.00	40.00	40.00	40.00	200.00
Infrastructure Awareness Education Program	2.00	0.00	0.00	0.00	0.00	0.00	2.00
Safety Belts and Motorcycle Helmets	17.00	Continues as \$24 million drawdown from sec. 402 for 93-94					17.00
Trauma Study	(5.00)	0.00	0.00	0.00	0.00	0.00	(5.00)
FHWA Highway (402) Safety Program	17.00	20.00	20.00	20.00	20.00	20.00	117.00

\* Estimated amounts.

## Appendix B (continued)

FHWA Highway R&D Safety (403) Program	10.00	10.00	10.00	10.00	10.00	10.00	60.00
National Magnetic Levitation Devt—TF	5.00	5.00	100.00	100.00	25.00	25.00	500.00
High-speed Ground Transportation Devt—TF	0.00	5.00	5.00	5.00	5.00	5.00	25.00
National Magnetic Levitation Devt—GF	225.00	0.00	0.00	0.00	0.00	0.00	225.00
High-speed Ground Transportation Devt—GF	25.00	0.00	0.00	0.00	0.00	0.00	25.00
High-speed Ground Transportation Devt R&D—GF	25.00	0.00	0.00	0.00	0.00	0.00	25.00
Railroad Relocation Demonstration Program—TF	10.00	10.00	10.00	0.00	0.00	0.00	30.00
Railroad Relocation Demonstration Program—GF	5.00	5.00	5.00	0.00	0.00	0.00	15.00
Private Sector Involvement Program GF	5.00	5.00	5.00	5.00	5.00	5.00	30.00
Miscellaneous Highway Projects	987.20	0.00	0.00	0.00	0.00	0.00	987.20
Recreational Trails*	30.00	30.00	30.00	30.00	30.00	30.00	180.00
<b>Title 1 Total</b>	<b>18,692.12</b>	<b>20,478.76</b>	<b>20,469.15</b>	<b>20,395.82</b>	<b>20,386.82</b>	<b>20,388.82</b>	<b>120,811.49</b>
<b>Highway Trust Fund—Highway Account</b>	<b>17,419.92</b>	<b>20,468.76</b>	<b>20,469.15</b>	<b>20,390.82</b>	<b>20,381.82</b>	<b>20,383.82</b>	<b>119,504.29</b>
<b>General Fund</b>	<b>1,272.20</b>	<b>10.00</b>	<b>10.00</b>	<b>5.00</b>	<b>5.00</b>	<b>5.00</b>	<b>1,307.20</b>
<b>Title II—Highway Safety</b>							
NHTSA Highway Safety (402) Program	126.00	171.00	171.00	171.00	171.00	171.00	981.00
NHTSA Highway R&D Safety (403) Program	44.00	44.00	44.00	44.00	44.00	44.00	264.00
Drug Recognition Expert Training Program	4.00	4.00	4.00	4.00	4.00	4.00	24.00
National Driver Register Act Authorizations	4.00	Continues as \$4 million drawdown from sec. 402 for 93 and 94					4.00
Alcohol Traffic Safety Incentive Grants	25.00	Continues as \$25 million drawdown from sec. 402 for 93–97					25.00
Traffic and Motor Vehicle Safety	68.72	71.33	74.04	76.86	0.00	0.00	290.95
Motor Vehicle Information and Cost Savings Programs	6.49	6.73	6.99	7.25	0.00	0.00	27.46
<b>Title II Total</b>	<b>278.21</b>	<b>397.06</b>	<b>300.03</b>	<b>303.11</b>	<b>219.00</b>	<b>219.00</b>	<b>1,616.40</b>
<b>Highway Trust Fund—Highway Account</b>	<b>199.00</b>	<b>219.00</b>	<b>219.00</b>	<b>219.00</b>	<b>219.00</b>	<b>219.00</b>	<b>1,294.00</b>
<b>General Fund</b>	<b>79.21</b>	<b>78.06</b>	<b>81.03</b>	<b>84.11</b>	<b>0.00</b>	<b>0.00</b>	<b>322.40</b>
<b>Title III—Mass Transit</b>							
Section 3 Discretionary and Formula	1,342.17	2,030.00	2,050.00	2,050.00	2,050.00	2,900.00	12,422.17
New Starts	(536.87)	(812.00)	(820.00)	(820.00)	(820.00)	(1,160.00)	(4,968.87)
Rail Modernization Formula	(536.87)	(812.00)	(820.00)	(820.00)	(820.00)	(1,160.00)	(4,968.87)
Bus	(268.43)	(406.00)	(410.00)	(410.00)	(410.00)	(580.00)	(2,484.43)
Section 9 Formula Capital and Operating	1,822.76	2,604.14	2,642.57	2,642.57	2,642.57	3,741.02	16,095.64
Section 18 Rural	106.09	151.56	153.80	153.80	153.80	217.73	936.78
Interstate Transfer—Transit	160.00	164.84	0.00	0.00	0.00	0.00	324.84
Section 16(b)(2)	54.88	70.15	68.68	68.68	68.68	97.15	428.21
Transit Planning and Research	109.12	157.05	153.75	153.75	153.75	217.50	944.92
National	(39.51)	(45.62)	(44.62)	(44.62)	(44.62)	(63.75)	(282.75)
State	(8.96)	(14.96)	(14.62)	(14.62)	(14.62)	(21.00)	(88.79)
Cooperative	(8.96)	(14.96)	(14.62)	(14.62)	(14.62)	(21.00)	(88.79)
Sec. 8 MPO Planning	(43.69)	(70.67)	(69.19)	(69.19)	(69.19)	(97.88)	(419.80)
* Estimated amounts							

**Appendix B (continued)**

Rural Transit Assistance Program	(5.00)	(7.85)	(7.69)	(7.69)	(7.69)	(10.87)	(46.79)
National Transit Institute	(2.99)	(3.00)	(3.00)	(3.00)	(3.00)	(3.00)	(17.99)
University Transportation Centers	6.99	7.00	7.00	7.00	7.00	7.00	41.99
Program Administration	37.00	50.26	49.20	49.20	49.20	69.60	304.46
<b>Title III Total</b>	<b>3,639.01</b>	<b>5,235.00</b>	<b>5,125.00</b>	<b>5,125.00</b>	<b>5,125.00</b>	<b>7,250.00</b>	<b>31,499.01</b>
<b>Highway Trust Fund—Transit Account</b>	<b>1,896.01</b>	<b>2,875.00</b>	<b>2,975.00</b>	<b>2,875.00</b>	<b>2,775.00</b>	<b>4,800.00</b>	<b>18,196.01</b>
<b>General Fund</b>	<b>1,743.00</b>	<b>2,360.00</b>	<b>2,150.00</b>	<b>2,250.00</b>	<b>2,350.00</b>	<b>2,450.00</b>	<b>13,303.00</b>
<b>Title IV—Motor Carrier Safety</b>							
Motor Carrier Safety Grants Programs	65.00	76.00	80.00	83.00	85.00	90.00	479.00
Motor Carrier Safety Functions	49.32	0.00	0.00	0.00	0.00	0.00	49.32
Longer Combination Vehicles	1.00	1.00	1.00	0.00	0.00	0.00	3.00
Uniformity	6.00	Continues as \$6 million drawdown from MCS Grants for 93-97					6.00
<b>Title IV Total</b>	<b>121.32</b>	<b>77.00</b>	<b>81.00</b>	<b>83.00</b>	<b>85.00</b>	<b>90.00</b>	<b>537.32</b>
<b>Highway Trust Fund—Highway Account</b>	<b>72.00</b>	<b>77.00</b>	<b>81.00</b>	<b>83.00</b>	<b>85.00</b>	<b>90.00</b>	<b>488.00</b>
<b>General Fund</b>	<b>49.32</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>49.32</b>
<b>Title VI—Research</b>							
Bureau of Transportation Statistics	5.00	10.00	15.00	15.00	20.00	25.00	90.00
Bus Testing	3.99	0.00	0.00	0.00	0.00	0.00	3.99
Howard Transportation Information Center	2.24	0.00	0.00	0.00	0.00	0.00	2.24
Nat'l Center for Advanced Transportation Technology	2.50	3.00	2.50	0.00	0.00	0.00	8.00
University Transportation Centers	5.00	6.00	6.00	6.00	6.00	6.00	35.00
University Research Institutes	6.25	6.25	6.25	6.25	6.25	6.25	37.50
Intelligent Vehicle Highway Systems	94.00	113.00	113.00	113.00	113.00	113.00	659.00
<b>Title VI Total</b>	<b>118.98</b>	<b>138.25</b>	<b>142.75</b>	<b>140.25</b>	<b>145.25</b>	<b>150.25</b>	<b>835.73</b>
<b>Highway Trust Fund—Highway Account</b>	<b>114.99</b>	<b>138.25</b>	<b>142.75</b>	<b>140.25</b>	<b>145.25</b>	<b>150.25</b>	<b>831.74</b>
<b>Highway Trust Fund—Transit Account</b>	<b>3.99</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>3.99</b>
<b>General Fund</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>TOTAL</b>	<b>22,849.63</b>	<b>26,226.07</b>	<b>26,177.93</b>	<b>26,047.18</b>	<b>25,961.07</b>	<b>28,098.07</b>	<b>155,299.96</b>
<b>HIGHWAY TRUST FUND—HIGHWAY ACCOUNT</b>	<b>17,805.91</b>	<b>20,903.01</b>	<b>20,901.90</b>	<b>20,833.07</b>	<b>20,831.07</b>	<b>20,843.07</b>	<b>122,118.03</b>
<b>HIGHWAY TRUST FUND—TRANSIT ACCOUNT</b>	<b>1,900.00</b>	<b>2,875.00</b>	<b>2,975.00</b>	<b>2,875.00</b>	<b>2,775.00</b>	<b>4,800.00</b>	<b>18,200.00</b>
<b>GENERAL FUNDS</b>	<b>3,143.72</b>	<b>2,448.06</b>	<b>2,241.03</b>	<b>2,339.11</b>	<b>2,355.00</b>	<b>2,455.00</b>	<b>14,981.92</b>

## Appendix C

### Survey and Assessment of Alternative Revenue Projection Methods

from: David Murray, "Financial Constraint of the Transportation Improvement Program", Surface Transportation Policy Project ISTEA Planner's Workbook, 1994.

Strategy	Advantages	Disadvantages	Appropriateness
OLS Regression: Ordinary Least Squares regressions characterize the relationship of one variable to other variables, which can then be used in projections.	Simplicity, flexibility, availability, familiarity. OLS regression options exist on most spreadsheet programs. User should be wary of presence of lagged and/or seasonal variables.	Requires careful analysis of cause-effect relationships; Requires data for trend analysis and working knowledge of statistical methods and properties.	Best method for funds that have a direct relationship to economic trends, i.e. gas or sales tax receipts. Also used to predict fare revenues for proposed fare structures.
Time Series Regression: projects variables based on past values of that variable alone.	Simplicity. User should be wary of presence of lagged and/or seasonal variables.	Requires special software. Current packages are a bit of a black box method.	Best method for variables that have a constant pattern over time, (certain business cycles), and no discernable relationship to any other economic or political factors.
Input-Output Model: characterizes an economic system and the direct and indirect linkages within it.	Some Input-Output models can calculate fund revenues or the variables that drive projections of funding resources with some degree of accuracy.	Complicated for projecting fund sources. Requires updated model, and working knowledge of some advanced statistical methods.	Good for analyzing direct and indirect impacts of a toll or tax structure, or the effects of other shocks to a regional economy.
Geometric or Exponential Growth Rates: uses a trend curve to characterize the behavior of a fund sources and to project future values.	Simplicity. Analysis can be performed on a calculator.	No sensitivity to political or economic forces.	Geometric formulas can be used for funds increasing at a decreasing rate. Exponential formulas may be used to project funds tied to exponential growth rates.



Constant Growth Rates: uses a linear trend line to project future values.	Simplicity. Can be performed on a calculator or by hand.	No sensitivity to political or economic forces.	Appropriate for funds that have experienced little variation of growth over time.
Institutional Formula: some fund sources are easy to predict because they are based on legislatively determined formulae.	Accuracy.	Only true for limited set of fund sources. Even ones that are legislatively-dictated can be changed by the body that devised them.	Appropriate only to funds that are so determined.
Algebraic: some fund sources have strict algebraic relationships to other variables, i.e. average General Fund contribution to transportation.	Simplicity.	Only true for some fund sources.	Appropriate only to those funds that have this direct relationship.
Political Judgment: some fund sources are subject to annual budget battles or are private dedications subject to negotiations.	Some funds just work like this and the judgment of experience may be more appropriate for these fund types.	Difficult to reach consensus. Relies heavily on open forum for reasonableness check.	Most fund sources benefit from this method as a reasonableness check on other methods.

# Appendix D

## FDOT Cash Flow Analysis Program

from: Hillard, "Financial Dynamics: A Model for Forecasting Transportation Program Cash Flow", Transportation Research Record 1305, 1991

TABLE 1 PROGRAM AND RESOURCE PLAN SUMMARY

TENTATIVE WORK PROGRAM		FLORIDA DEPARTMENT OF TRANSPORTATION 1990 PROGRAM AND RESOURCE PLAN SUMMARY FISCAL YEARS 1990/91 TO 1998/99 (MILLIONS OF \$)											DHP DEC 89	
PROGRAM AREAS	COMM. 88/89	CURRENT 89/90	90/91	91/92	92/93	93/94	94/95	5 YR TOTAL	95/96	96/97	97/98	98/99	4-YEAR SUB-TOT	10-YEAR TOTAL
I. PRODUCT	738.0	1136.7	1187.2	1371.2	896.1	839.1	928.2	5221.8	943.1	1032.2	1050.1	1073.1	4098.5	10457.0
A. Express. Const	345.4	229.0	195.2	548.2	195.2	175.1	181.3	1295.0	264.0	272.0	281.0	290.0	1107.0	2631.0
B. Arterial Hwys.	115.6	157.8	208.6	196.8	192.3	175.8	193.8	967.3	126.1	124.9	138.2	138.2	527.4	1652.5
C. Right Of Way	26.4	422.0	408.5	314.5	129.5	92.8	112.0	1057.3	151.1	148.5	151.7	155.7	607.0	2086.3
D. Aviation	34.5	44.8	43.5	44.8	45.2	46.1	47.9	227.5	50.7	52.3	53.9	55.6	212.5	484.8
E. Transit	24.7	22.8	40.0	33.8	23.8	25.1	25.7	148.4	38.0	38.0	38.0	38.0	152.0	323.2
F. Rail	50.6	45.2	40.6	39.5	54.5	56.1	57.6	248.3	45.1	45.0	6.7	5.0	101.8	395.3
G. Safety	13.9	10.7	19.6	11.0	12.5	10.8	14.0	67.9	17.0	17.0	17.0	17.0	68.0	146.6
H. Resurface/Rehab	34.7	55.0	154.7	115.4	130.8	169.6	226.3	796.8	164.1	244.8	259.4	259.4	927.7	1779.5
I. Bridge	92.2	149.4	76.5	67.2	112.3	87.7	69.6	413.3	87.0	89.7	104.2	114.2	395.1	957.8
II. PRODUCT SUPPORT	316.9	271.2	386.4	323.8	270.2	287.1	298.9	1566.4	300.6	311.8	323.0	337.1	1272.5	3110.1
A. Prel. Eng.	147.1	103.0	139.3	111.8	114.0	120.4	123.2	608.7	98.6	103.0	108.6	114.0	424.2	1135.9
B. Const Eng Insp.	74.0	72.5	63.8	91.3	58.8	67.7	73.2	354.8	78.6	81.1	82.7	86.7	329.1	756.4
C. R/W Support	41.1	46.7	130.0	64.8	39.2	37.9	35.1	307.0	51.5	52.4	53.0	55.4	212.3	566.0
D. Material & Res.	28.2	24.4	25.9	27.3	28.6	30.0	32.3	144.1	35.0	36.6	38.2	39.9	149.7	318.2
E. Planning	21.4	18.8	20.5	21.4	22.0	23.1	26.7	113.7	28.1	29.5	30.8	30.9	119.3	251.8
F. Pub. Trans Oper.	5.1	5.8	6.9	7.2	7.6	8.0	8.4	38.1	8.8	9.2	9.7	10.2	37.9	81.8
III. OPERAT. & MAINT.	263.4	241.5	273.0	288.6	303.0	318.7	334.6	1517.9	353.0	370.4	388.9	408.4	1520.7	3280.1
A. Routine Maint.	170.4	159.4	176.5	189.2	198.7	208.7	219.2	992.3	231.2	242.7	254.9	267.6	996.4	2148.1
B. Traffic Eng.	10.9	10.8	10.1	9.7	10.2	10.5	10.9	51.4	12.2	12.8	13.4	14.1	52.5	114.7
C. Toll Oper.	73.6	61.9	75.7	78.5	82.3	87.1	91.5	415.1	95.9	100.6	105.6	110.9	413.0	890.0
D. Motor Carrier Comp.	8.5	9.4	10.7	11.2	11.8	12.4	13.0	59.1	13.7	14.3	15.0	15.8	58.8	127.3
IV. ADMINISTRATION	51.4	58.7	65.8	69.3	72.3	75.4	84.4	367.2	89.5	93.6	95.2	99.5	377.8	803.7
A. Admin.	44.0	53.9	61.2	64.3	67.3	70.4	79.4	342.6	84.5	88.6	90.2	94.5	357.8	754.3
B. Fixed Capital	7.4	4.8	4.6	5.0	5.0	5.0	5.0	24.6	5.0	5.0	5.0	5.0	20.0	49.4
TOTAL PROGRAM	1369.7	1708.1	1912.4	2052.9	1541.6	1520.3	1646.1	8673.3	1686.2	1808.0	1857.2	1918.1	7269.5	17650.9
V. OTHER	94.1	107.1	108.0	127.5	131.2	135.0	139.1	640.8	143.9	148.4	153.0	157.9	603.2	1351.1
A. Dep. Data Ctr.	13.1	12.2	14.2	14.9	15.7	16.5	17.3	78.6	18.3	19.2	20.1	21.1	78.7	169.5
B. CME	52.2	45.9	50.8	57.6	60.5	63.5	66.8	299.2	70.6	74.2	77.9	81.8	304.5	649.6
C. Non-Oper. Trnfs.	28.8	55.0	55.0	55.0	55.0	55.0	55.0	275.0	55.0	55.0	55.0	55.0	220.0	550.0
D. Offset-Pay Pack	0.0	-6.0	-12.0	0.0	0.0	0.0	0.0	-12.0	0.0	0.0	0.0	0.0	0.0	-18.0
TOTAL BUDGET	1463.8	1815.2	2020.4	2180.4	1672.8	1655.3	1785.2	9314.1	1830.1	1956.4	2010.2	2076.0	7872.7	19002.0

TABLE 2 PROGRAM, FUND, AND CASH FLOW CATEGORIES

**PROGRAM CATEGORIES AND SUBCATEGORIES:**

**PRODUCT:**  
 CNST Construction  
 TOPS Traffic Operations  
 PREV Preservation (Resurfacing)  
 BRDG Bridge  
 ROW Right-of-Way  
 PTO Public Transportation Operations  
 TRTF Toll Facilities Revolving Trust Fund  
 2080 Special Local Gov't program  
 EDEV State Economic Development Program

**SUPPORT:**

PEI Preliminary Engineering (In-house)  
 PEC Preliminary Engineering (Consultant)  
 CEII Construction Engineering and Inspection (In-house)  
 CEIC Construction Engineering and Inspection (Consultant)  
 RWII Right-of-Way Support (In-house)  
 RWO Right-of-Way Support (Consultant)  
 M&R Materials and Research  
 PLAN Planning  
 PTOO Public Transportation Operations Support

**MAINTENANCE AND OPERATIONS:**

RMNT Routine Maintenance  
 TE Traffic Engineering  
 TOLO Toll Operations  
 MCC Motor Carrier Compliance

**ADMINISTRATION:**

ADMN Administration  
 FCO Fixed Capital Outlay

**FUNDS:**

I,ACI Interstate, Advanced Const Int  
 IR,ACIR Interstate Rehab, AC Int Rehab  
 O.F.A. Other Federal Aid  
 100% FED 100% Federal Financing  
 100% STATE 100% State Financing  
 TURNPIKE Financed with Turnpike Bonds  
 TOLL,LOC,OTHER Toll, Local, or other financing  
 BOND Bond Financed (not Turnpike)  
 above with"/ROW" Indicates funds for Right-of-way  
 CSX CSX Railroad Corridor Purchase

**CASH FLOW CATEGORIES:**

Federal Aid Interstate Construction  
 Other Federal Aid Construction  
 Federal Aid Preservation and Traffic Operations  
 Federal Aid Bridge Construction  
 Federal Aid Rights-of-Way  
 Consultants  
 State Construction  
 State Preservation and Traffic Operations  
 State Bridge Construction  
 Other Construction  
 State Rights-of Way  
 Public Transportation Operations  
 Budget - Flow in Year of Commitment  
 Other - Special Cash Flow Situations

**PROGRAM CATEGORIES AND SUBCATEGORIES:**

**PRODUCT:**  
 CNST Construction  
 TOPS Traffic Operations  
 PREV Preservation (Resurfacing)  
 BRDG Bridge  
 ROW Right-of-Way  
 PTO Public Transportation Operations  
 TRTF Toll Facilities Revolving Trust Fund  
 2080 Special Local Gov't program  
 EDEV State Economic Development Program

**SUPPORT:**

PEI Preliminary Engineering (In-house)  
 PEC Preliminary Engineering (Consultant)  
 CEII Construction Engineering and Inspection (In-house)  
 CEIC Construction Engineering and Inspection (Consultant)  
 RWII Right-of-Way Support (In-house)  
 RWO Right-of-Way Support (Consultant)  
 M&R Materials and Research  
 PLAN Planning  
 PTOO Public Transportation Operations Support

**MAINTENANCE AND OPERATIONS:**

RMNT Routine Maintenance  
 TE Traffic Engineering  
 TOLO Toll Operations  
 MCC Motor Carrier Compliance

**ADMINISTRATION:**

ADMN Administration  
 FCO Fixed Capital Outlay

**FUNDS:**

I,ACI Interstate, Advanced Const Int  
 IR,ACIR Interstate Rehab, AC Int Rehab  
 O.F.A. Other Federal Aid  
 100% FED 100% Federal Financing  
 100% STATE 100% State Financing  
 TURNPIKE Financed with Turnpike Bonds  
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**CASH FLOW CATEGORIES:**

Federal Aid Interstate Construction  
 Other Federal Aid Construction  
 Federal Aid Preservation and Traffic Operations  
 Federal Aid Bridge Construction  
 Federal Aid Rights-of-Way  
 Consultants  
 State Construction  
 State Preservation and Traffic Operations  
 State Bridge Construction  
 Other Construction  
 State Rights-of Way  
 Public Transportation Operations  
 Budget - Flow in Year of Commitment  
 Other - Special Cash Flow Situations

TABLE 3 PROGRAM PLAN PROGRESS REPORT

PROGRAM PLAN PROGRESS REPORT												
( \$ = Variance ) + or - (%)												
PLAN: ADOPT90F PROGRAM YEAR 1989-90	COMMITMENTS			PROGRESS AS OF JUNE 30, 1990								
	Prior Yr	Current Yr	Planned	Actual	Var %	Planned	Actual	Var %	Planned	Actual	Var %	
Actual	Planned	Planned	Actual	Var %	Planned	Actual	Var %	Planned	Actual	Var %		
I. PRODUCT	738.0	1136.7	1136.7	976.0	-14%	834.6	726.0	-13%	410.8	416.0	2%	
A. Expressway Const.	345.4	229.0	229.0	240.0	5%	292.3	205.0	-30%	100.0	99.0	-1%	
B. Arterial Highways	115.6	157.8	157.8	152.0	-4%	159.2	170.0	7%	150.0	140.0	-7%	
C. Right Of Way	26.4	422.0	422.0	200.0	-29%	162.0	136.0	-16%	63.0	75.0	19%	
D. Aviation	34.5	44.8	44.8	42.0	-6%	40.0	38.0	-5%	12.0	11.0	-8%	
E. Transit	24.7	22.8	22.8	20.0	-12%	18.0	17.0	-6%	5.0	6.0	20%	
F. Rail	50.6	45.2	45.2	30.0	-34%	50.0	48.0	-4%	35.0	38.0	9%	
G. Safety	13.9	10.7	10.7	10.0	-7%	10.5	5.0	-52%	4.0	4.0	0%	
H. Resurface/Rehab	34.7	55.0	55.0	52.0	-5%	18.5	19.0	3%	12.0	15.0	25%	
I. Bridge	92.2	149.4	149.4	130.0	-13%	84.1	88.0	5%	29.8	30.0	1%	
II. PRODUCT SUPPORT	316.9	271.2	271.2	275.0	1%	256.2	280.0	9%	172.0	174.0	1%	
A. Preliminary Eng.	147.1	103.0	103.0	120.0	17%	150.2	175.0	17%	112.0	110.0	-2%	
B. Const. Eng. Inspect.	74.0	72.5	72.5	72.0	-1%	40.0	50.0	25%	25.0	28.0	12%	
C. R/W Support	41.1	46.7	46.7	38.0	-19%	25.0	20.0	-20%	12.0	12.0	0%	
D. Material & Research	28.2	24.4	24.4	24.0	-2%	22.0	20.0	-9%	10.0	12.0	20%	
E. Planning	21.4	18.8	18.8	17.0	-10%	15.0	12.0	-20%	10.0	11.0	10%	
F. Public Transit Oper	5.1	5.8	5.8	4.0	-31%	4.0	3.0	-25%	3.0	1.0	-67%	
III. OPERAT. & MAINT.	263.4	241.5	241.5	239.0	-1%	231.0	223.5	-3%	220.0	219.0	0%	
A. Routine Maintenance	170.4	159.4	159.4	160.0	0%	155.0	150.0	-3%	150.0	149.0	-1%	
B. Traffic Engineering	10.9	10.8	10.8	8.0	-26%	8.0	7.0	-13%	4.0	5.0	25%	
C. Toll Operations	73.6	61.9	61.9	62.0	0%	60.0	58.0	-3%	58.0	58.0	0%	
D. Motor Carrier Comp.	8.5	9.4	9.4	9.0	-4%	8.0	8.5	6%	8.0	7.0	-13%	
IV. ADMINISTRATION	51.4	58.7	58.7	55.0	-6%	55.5	52.0	-6%	51.0	52.0	2%	
A. Administration	44.0	53.9	53.9	52.0	-4%	50.0	48.0	-4%	47.0	48.0	2%	
B. Fixed Capital	7.4	4.8	4.8	3.0	-38%	5.5	4.0	-27%	4.0	4.0	0%	
V. LOCAL GOV'T REIMBURSE	0.0	0.0	0.0	0.0		5.0	5.0	0%	5.0	5.0	0%	
TOTAL PROGRAM	1369.7	1708.1	1708.1	1545.0	-10%	1382.3	1286.5	-7%	858.8	868.0	1%	
VI. OTHER	94.1	107.1	107.1	92.0	-14%	100.0	99.0	-1%	100.0	99.0	-1%	
A. Dept. Data Center	13.1	12.2	12.2	12.0	-2%	11.0	10.0	-9%	11.0	10.0	-9%	
B. Mobile Equip. (CME)	52.2	45.9	45.9	46.0	0%	29.0	28.0	-3%	29.0	28.0	-3%	
C. Non-Oper. Transfers	28.8	55.0	55.0	40.0	-27%	50.0	55.0	10%	50.0	55.0	10%	
D. Offset-Pay Package	0.0	-6.0	-6.0	-6.0	0%	6.0	4.0	-33%	6.0	4.0	-33%	
TOTAL BUDGET	1463.8	1815.2	1815.2	1637.0	-10%	1482.3	1385.5	-7%	958.8	967.0	1%	

**Appendix E**  
**MTC Scoring Criteria for STP and CMAQ Programs**

**30 points    MAINTAIN/SUSTAIN THE METROPOLITAN TRANSPORTATION SYSTEM (MTS)**

Rehabilitations and replacements based on Management Systems are eligible for up to the full 30 points, depending upon the portion of the project that will rehabilitate the system, and the optimization of the proposed improvement with current condition.

Rehabilitations not based on a management system, or for support infrastructure like drainage, can only receive a maximum of 20 points.

**30 points    IMPROVE THE EFFICIENCY AND EFFECTIVENESS OF THE MTS**

Safety and security, congestion relief, cost effectiveness, and freight movement are the three subcategories where points can be assigned, up to a combined maximum of 30 points.

For both the safety and congestion relief criteria, the magnitude of the (safety or congestion) problem addressed by the project is multiplied by the impact that the project will have in eliminating or alleviating the problem. Guidelines for setting the multipliers are included, and impact scores are based on shared empirical experience (e.g. Class 1 bike paths are safer than Class 3).

Cost-effectiveness points measure the ratio of annual benefits in terms of total travel time savings and operating cost savings for the project to annualized total project costs. Cost-effectiveness scores are adjusted to reflect the median of all submitted projects.

Freight movement points are assigned based on the facility type and nature of the proposed project.

**15 points - SYSTEM EXPANSION**

System expansion projects are first evaluated as to whether or not they meet current demand through the use of a multiplier based on average daily traffic and existing level-of-service. Again, the impact that the project will have in meeting demand is set based on shared empirical experience (e.g. the addition of HOV lanes has more impact than ramp metering).

(Continued)  
Summary of MTC Scoring Criteria for STP and CMAQ Programs

**25 points - EXTERNAL IMPACTS**

Air quality improvement, land use policy support, energy conservation, and implementation of the Americans with Disabilities Act (ADA) are the four subcategories where points can be assigned, up to a combined maximum of 25 points.

Projects with positive air quality impacts are awarded up to the full 25 points if they implement MTC-adopted Transportation Control Measures (TCMs). Projects which are only partially TCMs are awarded proportionately smaller point values, and TCMs are grouped according to their effectiveness in cleaning the air.

A project can also be awarded up to 8 points if it supports land use policies that foster a mode shift away from single occupant vehicle trips on regional facilities. Up to 10 points can be awarded for projects with demonstrable energy conservation or modal shift benefits. Up to 20 points can be awarded for implementation of ADA enhancements.

**100 TOTAL POINTS POSSIBLE**

Planning projects are prorated according to the nearness and necessity of the planning project to direct and immediate transportation improvements.

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