Abridgment

Program Development and Management: Pennsylvania's Integrated, Organizational Approach

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In an era of severely limited resources, top-level management must be intimately involved in the programming process. To be effective, in a management sense, the programming, budgeting, and authorization process must be closely integrated. This becomes even more critical as the nation shifts from new highway construction to transportation system management. In a sweeping organizational restructuring, the Pennsylvania Department of Transportation shifted from its traditional allocation approach of transportation programming to an integrated, organizational approach. This restructuring was accompanied by a parallel realignment of fiscal and system management functions. Program priorities as well as key programmatic decisions are now made through the Program Management Committee chaired by the Secretary and comprised of the Department's nine top managers. Programs are developed by the newly created Center for Program Development and Management, which develops and presents options to the Program Management Committee. Fiscal implications are analyzed by the Center for Fiscal and Systems Management. The entire process is monitored and managed through computerized management information systems.

To be effective in today's rapidly changing and highly uncertain world, top management needs to control resources and to make basic decisions concerning program direction. Otherwise, management cannot have confidence in its ability to deliver agreed-on projects.

The traditional allocation approach to transportation programming fails to sufficiently link financial planning and management with program development and management. In a sweeping organizational restructuring, the Pennsylvania Department of Transportation shifted from its traditional allocation approach of transportation programming to an integrated, organizational approach. This restructuring was accompanied by a parallel realignment of fiscal and systems management functions. Program priorities as well as key programmatic decisions are now made through the Program Management Committee (PMC) chaired by the Secretary and comprised of the Department's nine top managers. Programs are developed by the newly created Program Development and Management Center, which develops and presents options to the PMC. Fiscal implications are analyzed by the Fiscal and Systems Management Center. The entire process is monitored and managed through computerized management information systems.

TRADITIONAL ALLOCATION APPROACH TO PROGRAMMING

Pennsylvania's traditional approach to transportation programming was based on a county-by-county allocation of anticipated resources. These county-by-county allocations drove the capital program development process. Non-capital program development was scattered among various organizational units within the Department. Other than the 12-year forecast of available federal aid, there was almost a complete lack of financial planning.

Capital Program Development

Development of the Department's capital improvement program was coordinated through the former Bureau of Economic Research and Programming (BERP). Even though capital program development was coordinated through BERP, decisions regarding priorities were, in general, external to the Department. The prevailing process was driven by a highly structured county-by-county allocation process adopted by the Pennsylvania Transportation Commission.

Anticipated financial resources were allocated to the 67 counties according to the Commission's allocation formula. Within the 12-year county allocations, the Department's engineering districts and county planning agencies assigned preferred priorities to individual projects. Prioritized projects were then selected for inclusion in the recommended program beginning with the highest priority and continuing until the respective county allocations were exhausted. The recommended program was subsequently presented to the Pennsylvania Transportation Commission, which ordinarily adopted the program as its own.

As long as resources were plentiful (or, at least seemingly so as with bond financing), this cooperative process ensured local input. However, inflation continued to take its toll and current resources increasingly were dedicated either to maintenance of the existing system or to debt service on previously issued bonds. When the Commonwealth's ability to sell bonds expired, the process collapsed and a moratorium was imposed on all new construction work.

Non-Capital Program Development

Non-capital programming was fragmented among various organizational units within the Department. Categorical programs initiated during the 1960s and 1970s (such as safety and highway restoration programs) were assigned to functional organization units. The nature of the organization was to institutionalize these assignments. Constituencies developed, leading to a very parochial process even within the Department. This led to a variety of disjointed, narrow programs at the expense of the overall program structure. Inconsistent program structures tended to remain that way, in part, because the fragmented assignment of programming responsibilities either obscured or obstructed required changes.

Fragmented non-capital programs were less visible because of the relatively small dollar amounts involved with each when compared with the highly visible capital improvement program. These less visible programs, while significant in cumulative expenditures and impacts, were completely overshadowed by the capital program. As the capital program became impossible to finance, it appeared that the Department was doing nothing even though it still collected more than a billion dollars from Pennsylvania taxpayers each year.

Because of the fragmented approach to programming, information available to management was often inconsistent and not readily comparable between programs. Decisionmaking trade-offs required by ever-increasingly scarce resources simply could not be made. This denied top management the opportunity to assess competing requirements in any meaningful way.

Financial Planning

The failure to integrate decision-making into the programming process contributed to the misunderstanding and confusion that existed both within and outside the Department. Further adding to the confusion was the lack of top-management involvement in linking the budget process with programming.

In the early 1970s, inflation notwithstanding, the Department had continued an ambitious program of highway construction financed largely through bond sales. Bond sales had averaged $250 million a year, reaching a high of $440 million in 1976. By 1978, Pennsylvania's highway debt had increased to its current level of $2.3 billion--twice as large as any other state in the nation. Bonds will not be fully retired until the year 2005, and debt service through 1990 will exceed $190 million per year.

By 1977, the lack of integrated financial planning and program development led to a moratorium on construction. The state had exhausted its capacity to borrow money for highway construction and could no longer match federal aid. Literally dozens of modern, multilane, divided highways had been started all over Pennsylvania and were left partially completed--leading to nowhere, connecting to nothing.

The near absence of financial planning during this period had several programmatic effects. The financial constraints estimated for program development focused on total funds available during the 12-year period. Within the overall 12-year financial constraint, projects proceeded to implementation on a first-come, first-served basis. Shorter-term program-related financial issues were not addressed in any systematic fashion.

Understanding transportation programming under the fragmented, allocation approach helps to explain the mentality that continued with big-ticket construction (using bond financing), while the existing highway and bridge system crumbled from age, weather, and overuse; that continued to rip up basically good roadways in the name of safety and/or operational improvements while adjacent roadways lay riddled with potholes, but unattended; and that continued to finance improvements with 100 percent state funds (bond financed) when, in fact, these same funds could have been highly leveraged against federal aid that lapsed and was reallocated to other states.

INTEGRATED ORGANIZATIONAL APPROACH TO PROGRAMMING

The new administration responded to unrealistic, fragmented programs and fiscal chaos by taking an integrated, organizational approach to programming. The first step was to develop a clear set of priorities as a framework for program development. Then, beginning with the legal framework established by Pennsylvania's constitution and statutes as well as applicable federal laws, the products of the programming process were defined. At the same time an organizational framework was established to ensure top-management control over program and fiscal matters.

Priority Framework

The priority framework for program development shifted emphasis from new construction to restoration of the existing transportation system. While this policy pervaded the state's entire transportation program, the initial efforts were focused on restructuring the highway program. The Secretary established four groups of work activities. The first priority was given to routine maintenance, including general maintenance, maintenance and upgrading of equipment, traffic services, winter maintenance, and roadside services. Second priority was given to improvements to the existing system. This group of projects included restoration improvements on roads and bridges, bridge replacements and rehabilitations, and operational improvements. The third priority was given to the highly leveraged federal-aid completion programs, including Interstate highway completions providing nine federal dollars for one state dollar, and the Appalachian development highway program providing four federal dollars for one state dollar. The last priority was given to other federal-aid completions in the less leveraged primary, secondary, and urban systems programs. These programs only bring three federal dollars for each state (or local) dollar. Figure 1 shows how priorities were reflected in the state's restructured highway program.

Organizational Framework

The PMC was established to take advantage of the collective background and experience of top management within the Department. Committee members include the Secretary of Transportation as chairman, the Department's five Deputy Secretaries (for Planning, Administration, Highway Administration, Safety Administration, and Local and Area Transportation), and the new Directors of Fiscal and Systems Management, Program Development and Management, and Communications.

Fiscal management and computerized information systems were pulled together into a Fiscal and System Management Center. Budget priorities and the budget structure were revised to enable immediate production of a transportation product with very limited resources. The Department's past bond-financing approach was changed to cash financing. Cash-flow management techniques were instituted, and, for the first time cash flows were projected for two years in advance. Management information systems were also rationalized and instituted throughout the Department.

Program development and management were consolidated into a Center for Program Development and Management. Consolidation was accomplished more by transferring responsibilities previously residing in the operating divisions of the Department than by transferring individuals involved. It was determined that to transfer individuals would be too disruptive. Restructuring led to three divisions within the program center: (a) project assessment, (b) program development, and (c) program management. Figure 2 shows the general organization of the program center.

The Office of Press Secretary and Director of Communications was also established to coordinate all liaison with the media as well as with the members of the Pennsylvania General Assembly.

Procedural Framework

The program development process in Pennsylvania now consists of five distinct steps with respect to individual projects: (a) initiate, (b) review and prioritize, (c) select, (d) schedule, and (e) fiscal release. The five steps are assigned in stages and by organizational unit for highway program development. Program development other than highways--public transportation, airport development, and rail--is in various phases of development. The identification of stages and organizational assignments has defined responsibilities and decision-making points to overcome the previous confusion and misunderstanding.

Within the organizational framework, the Fiscal and Systems Management Center prepares multiyear accrual and cash-flow projections showing estimated state financial resources available for transportation programs. Estimates developed around high and low scenarios are provided to the Program Development and Management Center. The Fiscal and Systems Management Center also reviews and releases projects, phases of projects, or programs prior to initial authorization by the PMC and, again, prior to construction letting.

Figure 1. Priority program groups.

Group A – Routine maintenance (including general maintenance, maintenance and upgrading of equipment, traffic services, winter maintenance and roadside services).

Group B – Improvements to the Existing Highway System

- Restoration Improvement on Roads
  - Interstate Restoration
  - Non-Interstate Federal-aid roads
  - Off Federal-aid System roads
- Restoration Improvement of Bridges
  - Federal-aid System Bridges
  - Non-Federal-aid System Bridges
- Bridge replacements and rehabilitation
  - Federal-aid System Bridges (State and Local)
  - Non-Federal-aid System Bridges
- Operational and Safety Improvements
  - New Initiatives to Save Lives and Reduce Congestion
  - Transportation Systems Management Improvements

Group C – Interstate and Appalachian System Completions

Group D – Other Federal-aid Completions

The Center for Program Development and Management maintains distinct project assessment, program development, and program management capabilities. For the first time, an assessment of competing requirements and alternatives is taking place in a systematic fashion providing the foundation on which program options can be developed. More importantly, the information is readily available to top management. The program center prepares and maintains multiyear federal-aid forecasts, within which program development is constrained and options for leveraging available state funds are developed. All program-project authorizations are now released through the program center. By and large, this authorization release is accomplished via a computerized project management system--another new initiative by the Department.

Following certification by the program center, fiscal release by the fiscal center, and action by the PMC, transportation programs, projects, or phases of projects are released for implementation. Within these authorizations, any departure from established program schedules is immediately brought to the attention of the program center. Also, any departure from the approved scope of work or from the approved cost estimates by more than 15 percent or $500 000, whichever is smaller, must be justified in writing to the PMC.

Revisions to the authorized program are reviewed on a case-by-case basis by the PMC at weekly meetings. Guidelines have been established by the PMC so that minor adjustments can now be authorized by the program center.

Products of Priority Programming Process

The primary products of the integrated, organiza-

Figure 2. Center for program development and management: organization.

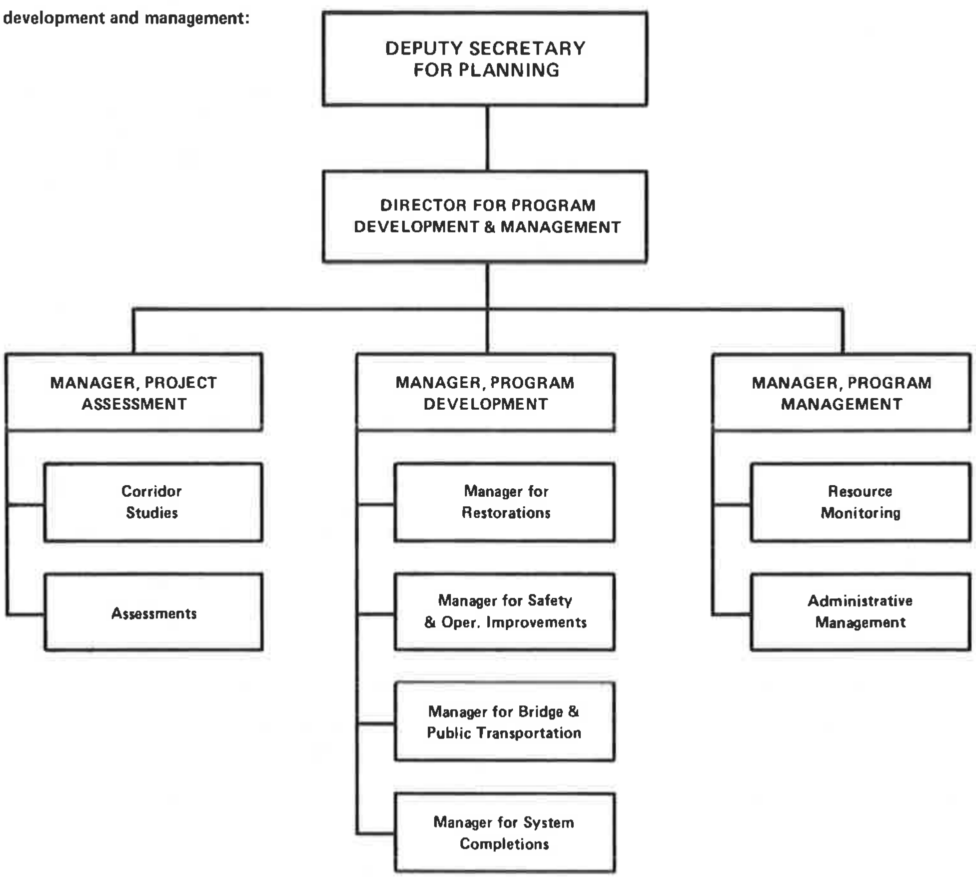
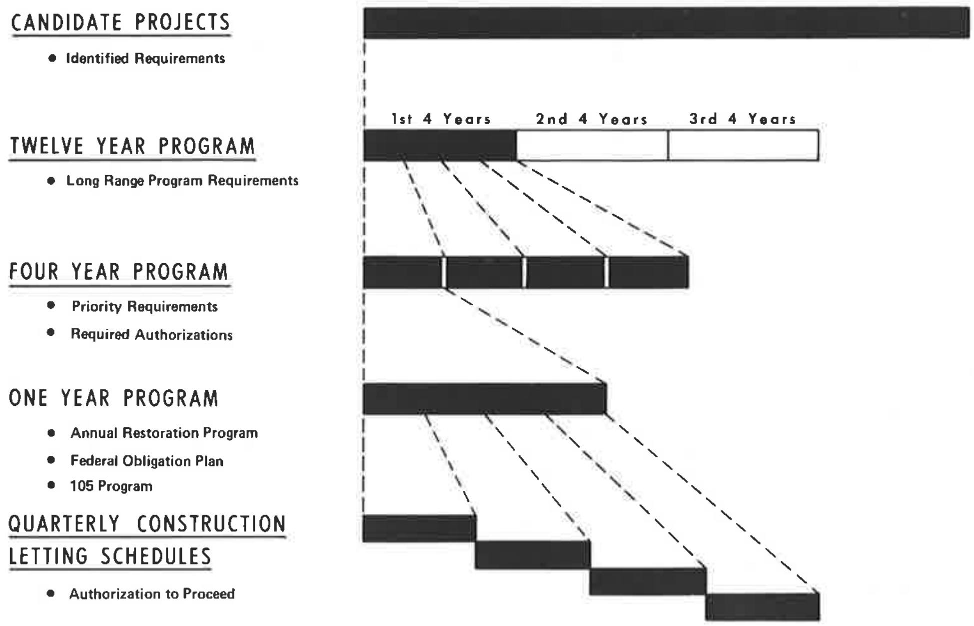


Figure 3. Program development.



tional approach to transportation programming are 12-, 4-, and 1-year programs, Figure 3 shows the relation between the primary products of the integrated, organizational approach to transportation programming.

For the 12-year period, there is a 12-year transportation program as required by state law. The 12-year program is reviewed, revised, adjusted, and extended every 2 years to cover, in general, capital improvement projects. The review and revision effort is undertaken in cooperation with county and regional officials. Recommendations are focused through the Program Development and Management Center, which initiates program development guidelines and criteria. The Program Development and Management Center develops alternate scenarios for the 12-year period based on assumed, alternate levels of federal and state funding. Within these scenarios, options are then developed first for consideration by the PMC and ultimately by the State Transportation Commission.

For the four-year period, there is a list of project phases (by priority grouping) expected to be initiated and/or completed within four years. The four-year priority program enables the Department to concentrate its resources--financial, human, and physical--on meeting specific objectives. The four-year priority program details the list of project phases on which Department managers are authorized to work. Compliance with these specific authorizations is ensured through the interfacing of the computerized project management system and the Department's computerized accounting system. Both the fiscal center and the program center monitor authorizations for compliance.

For the one-year period, there is now a list of project phases by priority grouping that are expected to be active during the year. The list includes the schedule of lettings for specific projects moving to construction during the period. It is also a reflection of the Department's planned federal-aid obligations for the year. Within the year, a detailed reconciliation between project activities and the one-year program occurs. The detailed reconciliation covers cost escalation within estimated cash available and required changes in project scope, costs, or scheduling. The changes may be dictated as a result of either project development or decisions to deliberately downscope improvements to remain within limited financial resources. Detailed reconciliation of the one-year program permits development of a firm-letting schedule for public announcement at the beginning of each quarter.

SUMMARY AND CONCLUSION

In summary, the key to successful program development in Pennsylvania has been the Department's ability to bring together programming and budget functions at the very top level of management. Information and monitoring systems have been instituted that allow top management not only to be involved in decisionmaking but also to monitor implementation. This is accomplished by active involvement of metropolitan and county planning organizations in the program development process and continuous liaison with the General Assembly. Pennsylvania has developed both a sensitive and effective program. The Department's integrated, organizational approach to programming has enabled Pennsylvania to more than double the amount of federal aid obligated within 20 months. In fact, over the past two years, Pennsylvania has obligated more federal aid than any other state in the nation.

Finally, open and effective programming has been one of the key contributing factors to rebuilding the Department's credibility with the General Assembly. Three years ago a disenchanted General Assembly considered legislation to dissolve the Department of Transportation. Last session, with an overwhelming, bipartisan vote of confidence, the General Assembly enacted a 3.5 percent oil franchise tax to stabilize the Department's declining motor fuel tax revenues. For the first time in a decade, the General Assembly understands and endorses the Department's program, believes that it will actually be accomplished, and because of this, has provided the revenues to finance it--a major accomplishment.