

# Assessment of the Planning and Decision Process

## INSTITUTIONAL PROCESS

The Washington region is an institutional jungle. The Federal Government, two States, the District of Columbia, four counties, three independent cities, and numerous smaller jurisdictions have created a tangle of Federal agencies, regional organizations, and local governments with overlapping responsibilities and powers. These circumstances pressed the planners of Washington's regional transit system to create an independent interstate compact organization beyond the reach of local regulation, State law, and even many Federal requirements. The success of the approach is measured by miles of rapid transit construction. Metro is the most significant product to come out of regional cooperation in the Washington area.

The nature of the institutional context for Metro planning changed over the years as the responsibilities were transferred from congressionally appointed agencies to the interstate compact organization in charge today. In particular, the degree of accountability to the public, the extent and effectiveness of citizen involvement, the role of public agencies, and the adequacy of the forum for decisionmaking have altered over time. The following section examines the institutional framework for Metro decisionmaking with special attention to its evolution over three periods: the period of early Metro planning from 1959 to 1965; the years prior to adoption of the Regional Metro System in 1968; and the period of system design and station area development planning since then.

### Forum for Decisionmaking

The forum for transit planning was lodged in **two** clearly designated institutions during the period of early Metro planning (the National Capital Planning Commission and the National Capital Regional Planning Council). Decisionmaking and implementation authority, on the other hand, was clearly the prerogative of Congress. In 1966 and 1967, as the Washington Metropolitan Area Transit Authority (WMATA) took over, some competition and duplication of system planning efforts briefly rose between it and suburban jurisdictions. However, WMATA's compact clearly

spells out its powers and has allowed the Metro plans to pass through the complex review channels and into implementation in the national capital region with relative ease. Historically, the most significant issues have been coordination of multimodal transportation planning and responsibility for station area and development planning.

Both institutions charged with early planning were Federally appointed bodies. The congressionally funded Mass Transportation Survey, created in 1959, was a study organization only and its findings were intended only to guide further study. Therefore, other agencies were satisfied to allow this planning forum to operate undisturbed. The National Capital Transportation Agency (NCTA), created by Congress in 1960, also provided a clear forum for transit planning, but its hold on highway planning responsibilities was less secure. Unlike its predecessor, NCTA was instructed to produce a plan for actually implementing a program. Its highway recommendations proved to be so controversial that the responsibilities for highway planning were quietly removed after 1963.

The key decisions during this period of early planning<sup>16</sup> were made by Congress. Congressional committee hearings were the arena for input from local jurisdictions. The suburban governments had no interest in challenging Congress because the decisions did not undermine their powers in any obvious way. It was understood that Congress had authority to implement the plans in the District of Columbia but that implementation responsibilities in the suburban jurisdictions would be given to an interstate compact organization.

WMATA took decisionmaking power from Congress in that the system WMATA adopted was backed by a financing commitment from local governments. Furthermore, WMATA's compact empowered it to construct the system. In 1967, as alternative regional plans were evaluated, the

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<sup>16</sup>Establishment of the Mass Transportation Survey in 1955, the NCTA in 1960, rejection of NCTA's rail proposals in 1963, and authorization of the basic system in 1965.

Northern Virginia Transportation District performed some of its own technical planning work in competition with Metro's consultants. At the time this was the only sign of disagreement over the adequacy of the WMATA forum.

Since the system was adopted, local governments have increased their involvement in transit planning. They have been planning for station area development, a responsibility that they agree ought to be lodged where it is in local government rather than WMATA. Local governments are also undertaking reevaluation of portions of the adopted system as pressures are felt for change. The relative responsibility WMATA should assume for this kind of work has not been clearly defined.

Planning for station area development began several years after the regional system was adopted in 1968. WMATA had authority to acquire land only for right-of-way and for stations. For this reason, and because UMTA funds for station area studies are allocated not through WMATA but through the Transportation Planning Board, WMATA did not take the initiative in station area planning.

Maryland's two counties, the two counties and three cities in Northern Virginia (through the Northern Virginia Planning Commission), and the District of Columbia have been engaged in development planning for several years. All regret that the major decisions had been made before their work began. Development planning could have been done in the context of a coordinated comprehensive planning effort that would have included Metro planning. Because this approach was not taken, development plans are created piecemeal for different station areas and are not coordinated at the regional level. Within Virginia, each city and county takes responsibility for its element and the elements are assembled with few adjustments into the Northern Virginia Planning District's plan. In the District, development planning might not have occurred at all were it not for the efforts in 1971 of a newcomer to the Planning Office staff. Today, after a stack of station area plans has been developed, citizens still criticize the District for the lack of a comprehensive plan that would be a point of reference for the station area plans.

The issue over responsibility for Metro route reevaluations has arisen in recent years as construction presses further into residential areas and people become concerned over the impact of

Metro's presence (or absence). WMATA's financing plan was carefully tailored to a specific system, and any alterations in the system would naturally require changes in the financing plan. To avoid this necessity, the WMATA board has agreed that the extra cost of major changes in the adopted system must be borne by the locality involved. The locality also must pay for studies that consider the necessity of such changes. Maryland DOT recently completed such a reevaluation in the context of its I-95 corridor study. The District and Prince Georges County are preparing to study an alternative alignment for the Suitland route through Anacostia.

The WMATA board is in the process of creating a policy statement that will help resolve potential future conflicts to sift out which types of changes are the collective responsibility of all WMATA participants and which are the responsibility of local governments.

The final issue with regard to decisionmaking forum and authority concerns coordination between regional highway and transit planning and decisionmaking. As the regional organization charged with coordinating transportation planning in the national capital region, COG's Transportation Planning Board (TPB) logically is the appropriate forum. However, it has almost entirely abdicated its transit decisionmaking powers to WMATA.

TPB was established in 1965 in response to the requirements of the 1962 Federal-Aid Highway Act. It was staffed by highway planners and engineers. State and District highway department representatives sit on the Board and tend to dominate their politician colleagues. Not surprisingly, TPB deals mainly with highway matters.

When the Metro system was adopted in 1968, TPB had not yet published its first 5-year plan and hence was not in a strong position to comment upon the rapid transit proposal. Charged with carrying out COG's A-95 reviews on transportation matters since 1969, TPB now passes approval on any major changes in the system that are brought to its attention, but TPB never opposes a WMATA request. The same political actors are engaged in the WMATA forum and this is where most policies are hammered out.

TPB has two important functions in transit planning. It prepares the region's annual unified work program for submission to UMTA. There-



Poor coordination between transit systems and adjacent development leads to situations such as this one at the Washington, DC., Metro's Rhode Island Avenue station. Residents of the housing complex on the left have no direct access to the station.

fore, TPB is the conduit of funds for station area impact studies. TPB also is responsible for developing the transportation element in the region's long-range plan.

Even in its long-range planning efforts, TPB defers to WMATA. The current long-range plan contains Metro extensions as they appeared on the map of the adopted system in 1968. The reason these and no other routes appear has been explained by a TPB staff member in colorful language: "Jackson Graham (WMATA's General Manager) thumped his fist on the table and said, 'Put them there'." Another indicator of WMATA's power is the fact that the base case network used to test alternatives for a new long-range plan includes the entire 98-mile system—even though most of it is unbuilt—and yet shows no highways other than those in existence today.

TPB's highway orientation, in combination with its relative weakness vis-a-vis WMATA, work against genuinely multimodal planning in the national capital region.

#### **Accountability of Decisionmakers**

The degree to which Metro planners and decisionmakers directly represented the people who would use and pay for the system changed significantly over time. At first there was no direct relationship and little substantive communication between the Federally appointed planners and local powers. The structure of the WMATA board, on the other hand, provides for a high degree of accountability and participation by the local governments who have been delegated decision-making authority by their constituents.

The Mass Transportation Survey and the National Capital Transportation Agency (NCTA) work was prepared" by Federal appointees. They had no direct responsibility to an electorate; their degree of cooperation with the local governments varied (Arlington, for example, worked closely with NCTA, while Alexandria did not) but generally was minimal. A number of organizations complained bitterly to Congress in 1963 that they were not consulted in NCTA's work.

WMATA was a more politically accountable organization than its predecessors, and local agencies participated in planning for the first time after WMATA was started. WMATA's accountability is due both the composition of its board and

to the realities of the Metro financing situation. The board is made up of two delegates from each of the three major political subdivisions of the national capital region. They are appointed by the District of Columbia City Council from among the Council members, and by Maryland's Washington Suburban Transit District (WSTD) and the Northern Virginia Transportation District (NVTD) from the members of these commissions. NVTD's bylaws require its commissioners to be members of a governing body; a number of WSTD's commissioners may be "qualified residents" rather than office holders. The District names members of the City Council. Hence, a maximum of two of the WMATA board members (the WSTD delegates) could be private citizens, but the majority will be public officials accountable for their actions to their constituents.

A further impetus for accountability at WMATA is the fact that the compact itself represents a complex financial plan keyed to a particular regional transit system. A board member who might want to change it must be prepared to "put his money where his mouth is," in the words of WMATA's community relations director Cody Pfanstiehl, and that necessitates responsiveness to the will of his constituents.

WMATA brought all the local jurisdictions into the same room to plan the adopted regional system. The approach, motivated by the need to negotiate agreement on the financing plan, differed dramatically from the approach taken by NCTA: WMATA succeeded in stemming complaints from local governments about lack of cooperation.

#### **Public Involvement**

Participation by the general public in Metro decisionmaking began relatively late in the planning process. Until early 1968, when the first public hearings were held prior to adoption of the regional system, the public could participate only indirectly. WMATA reluctantly has created channels for citizen participation in recent years. Several significant amendments to the system were made in response to citizen pressure, and more changes appear to be in the offing. But, in general, WMATA's approach to public involvement has been defensive and reactive.

Neither the Mass Transportation Survey nor the NCTA attempted to bring public agencies and

citizens into the respective studies in a structured process. Both made a vigorous effort to reach as much of the public as possible in presentations to service clubs, civic associations, and the like. The adequacy of this approach was called into question in 1959 by a staff report of the Joint Committee on Washington Metropolitan Problems, which stated that the business community, banking interests, and existing transportation concerns were excluded from participation.<sup>17</sup>

The NCTA came under heavy criticism for creating inadequate channels for participation by the general public and interest groups. Private transit operators—particularly O. Roy Chalk of D.C. Transit—complained that they had not been consulted when the NCTA developed its plan to mitigate the effect of its transit proposals on bus operators.

The first opportunity outside Congress for the public to comment on Metro plans occurred in January 1968. Regional jurisdictions and the WMATA Board had approved the Proposed Regional System the previous month. In January the plan was presented to the public at a series of 11 public hearings in the District, Maryland, and Virginia. In general, the hearings were not heavily attended.

The hearings in the District, however, marked the first time in a public forum on the rapid rail proposal that the issue of poor service to District residents was raised. Wilbert Williams of Chase, Inc., complained that Metro would serve Rockville residents better than it would the majority of Washingtonians, particularly those in Anacostia. The matter of inadequate service to Anacostia is still an issue today and has prompted the District of Columbia (with cooperation from Prince Georges County) to initiate reevaluation of the Suitland line.

The riots that occurred in Washington in April 1968, shortly after the Metro regional system was formally adopted, proved a catalyst for an important route change in the District. The mid-city alignment (the Greenbelt line) was moved from 13th to 14th Street where it could become an impetus for reconstruction of that riot-torn

corridor. Principal advocate of the change, which was formally made in June 1970, was Walter Fauntroy. Fauntroy was a considerable political force in the District, having been a Councilman and a WMATA Board Member. At that time, in early 1970, he was president of the Model Inner City Community Organization. He is now the District's nonvoting delegate to Congress. Fauntroy was able to bring enough pressure to bear to persuade the District to provide an extra \$3 million to pay for the increased costs of the route change.

Fauntroy could argue effectively on behalf of the mid-city route because he was an established political figure. But there were few opportunities after the 1968 public hearing for the general public to affect the system, which WMATA considered ready for final design and construction. An attempt by some board members to create a citizens' advisory committee to ensure continued citizen involvement never got off the ground.<sup>18</sup>

WMATA did not begin holding public hearings on its station plans until forced to do so by the courts. It was not until construction had begun on four Metro stations that WMATA first used its power of condemnation. This led to a suit by several landowners, on the grounds that WMATA had condemned private property without public notification. The suit resulted in a ruling by the court requiring WMATA to hold a public hearing each time it buys a piece of land.<sup>19</sup>

WMATA responded by scheduling a public hearing on its "general plans" for a given area. As a result of a second suit focusing on the need for environmental impact reviews,<sup>20</sup> WMATA has revised its procedure to include two public hearings, one on alternatives developed in the impact study and the second on general plans.

The handicapped represent a specific group that has been dissatisfied with WMATA's response to its input. Representatives of a number of organizations for the handicapped testified as early as

<sup>17</sup> Arthur Lazarus, "Metropolitan Transportation," a staff report prepared for the Joint Committee on Washington Metropolitan Problems, April 1958.

<sup>18</sup> Minutes of one of WMATA's first board meetings in late 1966 reveal a proposal by a board alternate member to establish a citizens' advisory committee. It was not discussed and no action was taken on it.

<sup>19</sup> *Booley, Inc. v. WMATA*, U. S. District Court for the District of Columbia, January 6, 1971 (amended January 8, 1971), Citation 326, Federal Supplement, p. 794.

<sup>20</sup> *Birnberg v. WMATA*, Civil Action 73-1853.

1965<sup>21</sup> that they wanted Metro to be fully accessible to the handicapped. Elevators or “incliners” were proposed as solutions to the station access problem. WMATA took no action on the requests. Now, following a 1973 court decision,<sup>22</sup> WMATA is retrofitting some stations and modifying plans for others to include elevators.

Much of the criticism has come from residents of the residential neighborhoods now being impacted as Metro reaches out from the city center. But in addition to strictly localized opposition, which has surfaced in many cities when their system reaches a similar stage of development, the District’s liberal and radical political elements are becoming discontented. However, these groups are not expected to become a major roadblock to completion of the system as long as funding continues to be available. In the words of an individual who was one of Washington’s most outspoken antifreeway activists in the late 1960’s and early 1970’s: “It is very fashionable among a lot of people to hate Metro and not do anything about it.”

## TECHNICAL PLANNING PROCESS

Due to the dominating role of Congress in Metro decision making, technical planning for the regional system in Washington was subjected to more formal debate than in perhaps any other city. The technical process, as a result, kept pace with and adequately informed the decision making. Decisions were grounded firmly in the technical information provided.

### Goals and Objectives

The plans for the basic Metro system and the adopted regional system were developed between 1959 and 1968, before it was an accepted planning procedure to set formal goals. Therefore, no formal process was employed and goals were not always explicitly stated in the Metro plans. However, implicitly the plans are directed to accomplishing a clearly identifiable, albeit controversial, set of goals.

Goals were not formally stated in the two earliest plans (*The Transportation Plan—National Capital Region*

of 1959, and the National Capital Transportation Agency’s November 1962 *Report to the President*). The former plan stated that its purpose is to accommodate future transportation needs in the face of an expanding population. The findings and policy statement prefacing the 1960 Act,<sup>23</sup> which mandated the NCTA study, spelled out the need for an improved transportation system to enhance the welfare of the District of Columbia, enable the orderly growth and development of the national capital region, and preserve the beauty and dignity of the Nation’s capital. Each of these concepts eventually was used to explain the merits of the transit/highway package that was proposed,

Furthermore, the popular concern over the implications of growth gave direction to both study teams. However, the fact that goals were not explicitly defined allowed confusion to develop over the mandate of Metro’s early planners and ultimately contributed to (1) a delay in system construction and (2) an end to multimodal transportation planning in the region. Although in 1959 it seemed clear that the public supported rapid rail as a substitute for new highways, highway interests in 1963 criticized Darwin Stolzenbach and NCTA for assuming that the protransit feeling went further than it really did. A number of observers believe a rapid transit system would be in operation today if Stolzenbach had not made this assumption. A public goal-setting process may have helped resolve the controversy at the beginning.

The desire to plan a coordinated multimodal network was implicit from the beginning of the work on Metro. However, adopting a multimodal approach was never identified as a goal. If it had been, some voices might have been raised when the NCTA lost its authority to plan for highways as well as transit in 1963, victim to the continuing controversy over the appropriate relative roles of highways and transit. Instead, stripping the NCTA of its authority over highway planning led to a seemingly arbitrary modal bias. Since at that time express bus transit was assumed to require reserved lanes in new freeways, and NCTA had lost all authority over freeway construction, planning for express bus transit was abandoned.

In another respect, in spite of the lack of explicit definition of its goals, the Metro technical planning was able to conform relatively well to the area’s development objectives as stated in regional

<sup>21</sup>“To Authorize the Prosecution of a Transit Development Program for the National Capital Region,” *Hearings before the Committee on the District of Columbia, U.S. Senate*, 89th Congress, 1st Session, July 20, 21, and 23, 1965.

<sup>22</sup>*Washington Urban League, Inc., et al. v. WMATA*, Civil Action 776-72, January 29, 1973, and October 23, 1973.

<sup>23</sup>Public Law 86-669, July 1960.

comprehensive plans. In 1955 the Mass Transportation Survey staff prepared a general development plan as the first step in its planning process. The NCTA evaluated its alternative schemes against the new "Wedges and Corridors" regional plan prepared in 1961 by area planning bodies. Later, in 1967, population, employment, and land use forecasts prepared by the Council of Governments were used in testing alternatives prior to selecting the final Metro system.

#### Development and Evaluation of Alternatives

Much of the alternatives evaluation work done for Metro was solid, and some of the technical backup was innovative and pioneering. There has been complaint, however, about the validity of the technical findings at each stage. In particular, there have been allegations that the 1962 NCTA plans were biased toward rail, and that work in preparation for the 1968 referendum relied too heavily on input from localities.

The 1959 Transportation Survey and the 1962 NCTA study can be commended for their breadth of coverage. Both studies examined highway as well as transit alternatives; the NCTA examined not one but several highway alternatives. The 1959 study concluded with recommendations for three transportation modes: auto, rapid rail transit, and express bus. To these modes the NCTA study added commuter rail. (Both mentioned regular bus transit but did not develop service recommendations. ) Although today transportation studies routinely pursue such a multimodal analysis, for their time these studies were advanced.

Nevertheless, the studies had their shortcomings. The 1959 study was criticized from two sides. Pro-rail and anti-highway interests attacked it, claiming that it underestimated the need for rail transit. At the same time, conflict within the study staff centered on the allegation that the study's conclusions were unfairly biased in favor of rail rather than bus transit. Although the contention that the 1959 study underestimates the need for rail was justified, it was led to such conclusions because it had to rely on outdated regional comprehensive plans. The staffers who made the second allegation—that the study was biased against rail—have not provided much evidence for this contention.

The only concrete evidence of the controversy is that study leaders refused to publish a draft of the final report prepared by contractors. The consul-

tant, the Institute of Public Administration (IPA), produced a version of the report that cast doubt on the feasibility of rapid transit and emphasized the need for highways; the published version gives equal emphasis to rail and highway recommendations. The IPA staff claimed that their draft of the report was not acceptable because of policy differences, a contention made moot by the fact that the IPA draft also was poorly written, badly organized, and contained errors of fact.

Criticisms of the 1962 NCTA plan took two forms. Some complaints focused on inadequacies in the technical procedure used. For example, NCTA used two alternative land-use forecasts in its evaluation—a commendable step. Unfortunately, the average of the two was used in the development of traffic forecasts, and the information that could have been gained by comparing the effects of two different land uses was lost. The results of the analysis would have been much more useful if separate trip tables for these two land-use futures had been developed.

However, the most serious charge is that NCTA biased its technical studies to favor the rail alternatives. NCTA Director Stolzenbach is characterized as a foe of highways for whom the ends justified the means. There are several concrete allegations at issue. The first criticism is that NCTA, although it considered five alternatives (including an all-bus system), did not quantitatively evaluate all five. This criticism is less strong in light of the fact that several of the alternatives had been considered in 1959, ably and in detail, and the NCTA could rely on this information. The second criticism, by several pro-highway groups, alleged that NCTA assumed a low average expressway speed to increase its patronage projections. At low speeds, highway travel looks less desirable compared to high-speed transit.

A third criticism was that NCTA projected large growth for the downtown area in spite of trends already in evidence for decreasing downtown growth. The high growth rate favored a radial rail system, which would be best able to handle high volumes of traffic to and through downtown. The dispersion of transit trips throughout the area tends to increase the attractiveness of a bus system by decreasing the peak hour volumes. (It is not likely, however, that decreases in the volumes forecast by NCTA would have made the all-bus system clearly superior to the rail system. )

Another example of NCTA's willingness to manipulate its findings in order to advance its goals has been alleged by a senior staff member of the study. The 1962 plan shows a dashed line indicating a future rail route heading directly east from the Capitol in the direction of one of the District's enclaves of poor, black residents. Reportedly this line was added to make the plan a more politically palatable to inner city interests. The route was never evaluated in the course of the technical work and was drawn on the map during a midnight conference as the plan was being rushed to completion.

The criticisms of NCTA's lack of objectivity were stated perhaps most forcefully by Martin Wohl, writing as a consultant to the Department of Commerce:

[The NCTA findings] are not supported by empirical studies and tests and certainly not by historical population, travel, or bus trends over the past two decades. In the main, they merely reflect the judgment of business and civic groups with a central city orientation and vested interests of one sort or another. . . . To use this sort of judgment and "back of the envelope" thinking may result in chronic overinvestment and substantial deficits.<sup>24</sup>

A final inadequacy in both the 1959 and 1962 studies was lack of attention to the "no-build" alternative and alternatives involving only minimal or low capital transit and highway improvements. Such approaches were not usually considered at the time. But although this option was given no formal consideration, over the years some discussion occurred regarding minimal solutions to improving transit. Congressman Joel T. Broyhill testified in 1955 that the new Mass Transportation Survey should determine the feasibility of fringe parking cost and inquire into the desirability of staggered hours of work. O. Roy Chalk of D.C. Transit discussed priority lanes for bus transit in several of his speeches over the years.<sup>25</sup>

<sup>24</sup> Hearings before Subcommittee No. 6 of the House District Committee, July 1963, op. cit.

<sup>25</sup> A humorous exchange on the subject took place in 1958 before the Joint Committee on Washington Metropolitan Transportation Problems. Congressman DeWitt S. Hyde asked Kenneth Hoover, director of the 1959 study, whether he would recommend reductions of parking in order to force people onto rapid transit. Hoover answered, "I am a man of peace, Mr. Hyde. " The two men agreed the best that could be done was to try to "attract" ridership.

After NCTA recommended its rail system for Washington in 1962, there was no further consideration of alternative modes of transit. The analysis that preceded selection of the regional system in 1968 assumed a rail system and examined only route options. No public criticism of the 1967 evaluation of alternative route configurations has come to light, although participants acknowledged there were two shortcomings.

First, the 1967 work was hampered by inadequate base data. The staff was directed to use the COG *Regional Planning Guide* land use/population/employment forecast. The *Guide* was acknowledged to be inadequate, and COG was in the process of updating it at the same time the alternatives were being developed and evaluated. To compensate, WMATA hired a consultant to contact planners in each jurisdiction and record changes in land use policy from the *Guide*.

The second criticism was that the route alternatives selected for evaluation in 1967 were biased by local interests. The 1967 process, led by Alan M. Voorhees & Associates for WMATA, was relatively open compared to its predecessors, and local agencies helped select the alternative systems to be evaluated. Their influence worked against Voorhees' desire to design alternatives for testing purposes to show most clearly which worked best. For example, Voorhees had wanted to evaluate the feasibility of a minimal system, but local politicians insisted on modifications that spoiled the effectiveness of the test.

Representatives from all the jurisdictions came together at an Airlie House workshop in July 1967 to assemble a regional system from elements of the three alternatives. They did so, dividing by State and adjourning to three separate closed-door meetings. Afterwards they assembled and agreed upon the Proposed Regional System. Subsequently, this configuration was tested in light of new COG data, subjected to public hearings, modified and adopted.

To the allegation that the basic system had been chosen because it was best for the District of Columbia was added the contention that the regional system, too, served local interests rather than serving the entire region. The Voorhees staff director for the project stated that the route and station locations followed logically from the technical findings in an inverse proportion to political pressures in the three major jurisdictions. In Maryland, where staff had worked closely with



WMATA, the alternatives testing yielded data that provided an adequate base for rational decisions on routes and station locations. The District also worked closely with WMATA but was dominated by the suburbs and usually conceded to their wishes. Virginia, through the staff of the Northern Virginia Transportation District, was at loggerheads with WMATA over a number of issues and allegedly bowed to the wishes of politicians. Unrealistic alternatives were tested, and the system in Virginia therefore did not grow out of a logical process. The Franconia branch on the Springfield line was described as an example of a purely political decision with no technical justification; it was dropped following later study.

WMATA considered the Regional Metro System to be fixed after it was adopted in 1968. It was thought to be ready for final design and construction with no further need to look at alternatives. One and a half years later the National Environmental Policy Act was enacted, and environmental assessments were legally required of major actions by the Federal executive branch affecting the environment. The Metro system was exempted from NEPA, as it is not sponsored by a Federal agency, but in 1973 a court ruling<sup>26</sup> required WMATA nevertheless to identify alternatives to environmentally harmful actions. The studies are being conducted on segments (portions of line 1 or 2 miles long, usually with a station) or groups of segments. Their findings are made public at hearings, citizen comments invited, and the package presented to the WMATA board for it to recommend a course of action. One of the six completed studies has resulted in dropping an alignment (the Franconia branch, mentioned earlier in this case assessment).

The environmental review process in theory gives citizens a role in selecting alternative alignments and station designs. However, WMATA's review did not provide for reevaluation of major sections of the system. The consultant<sup>27</sup> prepared a regionwide environmental assessment in which highways were the only alternative considered; alternative modes (e.g., light rail, bus) were not investigated. The adopted system was given a stamp of approval.

Some additional alternative studies of portions of the adopted system have been done or are

underway outside WMATA. The District and Prince Georges County recently have agreed to finance a study of an alternative route for the Branch Avenue line. Citizens in the District's Anacostia communities have complained ever since the 1968 hearings that they were inadequately served by the line to Branch Avenue.

A particularly admirable process was sponsored by the Maryland Department of Transportation in a corridor of Prince Georges County roughly overlapping the Greenbelt alignment. Goals were set, evaluation criteria derived, and multimodal transportation alternatives studied in the context of a broadly participatory process. The study concluded with the decision to delete a section of Interstate Route 95 and to request moving the Metro alignment several miles to the West. The WMATA staff approved; the board has not yet acted.

### Financial Plan

Metro's financial planning has been criticized for two key failings: (1) costs have been consistently underestimated, and (2) WMATA has repeatedly delayed altering its financial plan to keep pace with rising costs. The shortcomings of Metro's financial planning, in combination with steeply rising construction costs, have jeopardized completion of the 98-mile system.

An assessment of the financial plan is central to an evaluation of Metro planning because financial considerations have influenced the size of the system, the willingness of the local jurisdictions to cooperate in the undertaking, and the willingness of voters to buy into the system.

Since the Regional Metro System was adopted in 1968, the estimated cost of constructing the system has risen from \$2.5 billion to \$4.5 billion. Consequently, WMATA faces a dilemma. The financial plan is keyed to the full 98-mile system. Jurisdictions have all contributed accordingly and would sue for recovery of funds if service were cut. In addition, a smaller system could not draw the original patronage and revenues and would not balance costs. But WMATA claims that if it does not get the added funds, 36 stations will have to be eliminated, causing a 26 percent loss in ridership and a 35 percent loss in revenue. In addition, more funds would have to be spent on buses to serve some of the lost patrons, and new ratios between patronage, fares, and revenues would have to be approved.

<sup>26</sup> *Birnberg v. WMATA*, Civil Actions 73-1853 and 74-1740.

<sup>27</sup> Wallace, McHarg, Roberts & Todd.

Inflation, compounded by delays in construction, is responsible for the increase in the estimated cost of the WMATA system. The original estimate in 1969 assumed a 5 percent inflation rate over the 40-year construction period. By 1970, the inflation assumptions already proved too low and were adjusted upward to an average of 6.7 percent over 7 years,

A WMATA report, submitted March 31, 1975 to the House Committee on the District of Columbia illustrated the impact of inflation on Metro. The table that follows, excerpted from the WMATA report, is a comparison of WMATA's 1970 forecasted rates with the actual annual percentage change (inflation) and price index.

Comparison of Forecast With Actual Cost of Metro

Date	Forecast Nov. 30, 1970		Actual Cost Review	
	Annual percent change	Price index	Annual percent change	Price index
Jan. 1, 1969 . . . . .	—	100.0	—	100.0
Jan. 1, 1970 . . . . .	7.40	107.4	7.70	107.7
Jan. 1, 1971 . . . . .	10.99	119.2	10.40	118.9
Jan. 1, 1972 . . . . .	8.81	129.7	8.66	129.2
Jan. 1, 1973 . . . . .	7.40	139.3	7.50	138.9
Jan. 1, 1974 . . . . .	6.25	148.0	7.20	148.9
Jan. 1, 1975 . . . . .	5.81	156.6	8.93	162.2

The table shows that the original assumption about inflation was inaccurate by January 1975. WMATA material illustrates the impact of increasing oil prices on its vast material purchases and also shows the result of the lifting of Federal price controls for particular key materials such as steel. More generally, WMATA also stated that the original escalation assumptions were wrong because the 1969 forecasts had assumed the Vietnam War would be over by late 1971 and that the war-generated inflation would abate.

In addition to inflation, numerous project delays contributed to escalating costs. Delays occurred in acquiring land rights from the railroads, particularly for the Green belt route along the B & O tracks. It had been assumed that railroad rights of way would be relatively inexpensive because their use would minimize the need for relocation. In fact, serious delays were encountered because the railroad personnel were not in a position to be generous because of their own precarious financial position.

Other land acquisition delays were caused by what WMATA calls "disputes with local jurisdictions." For example, the City of Alexandria changed its mind on whether or not to use a rail right-of-way for a major Metro route. The track right-of-way was finally chosen, but only after time had been lost. Changes in required administrative procedures also caused delay and extra expense. For example, environmental review requirements were imposed after the original cost estimate had been made.

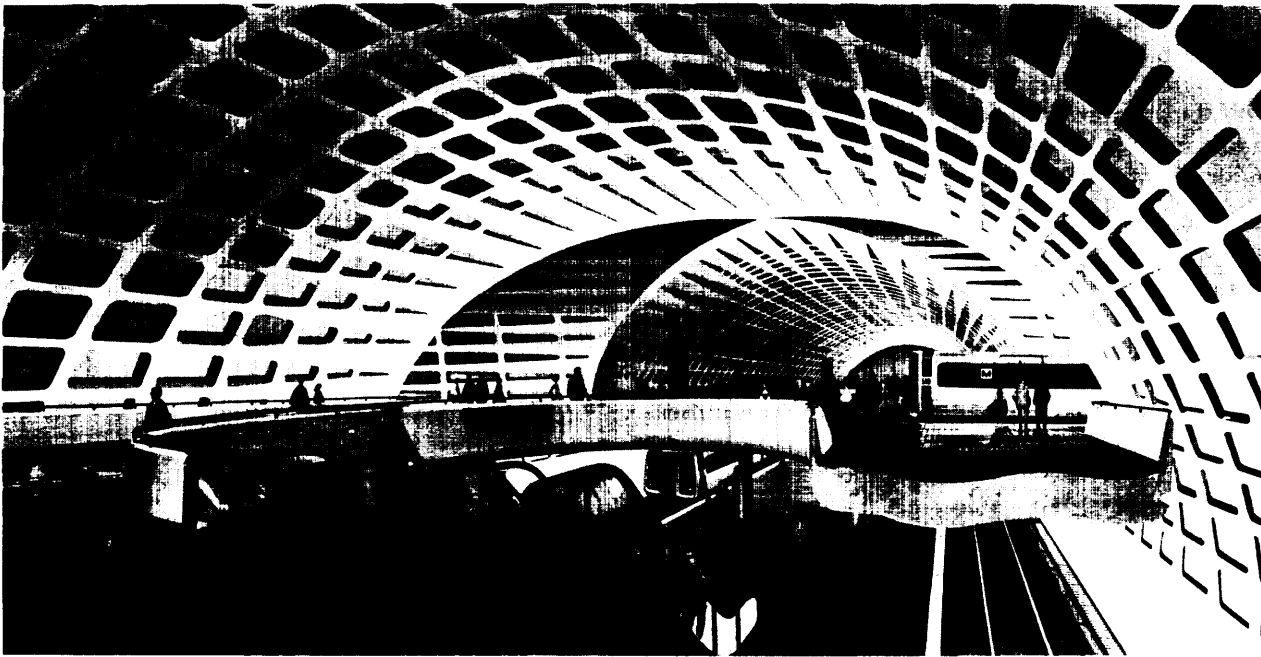
Other delays and cost increases relate more closely to the design and construction methods of the system. These have to do with unforeseen soil conditions; requirements (imposed by the U.S. Park Service, for example, in Lafayette Square) that the construction method be tunnel rather than cut-and-cover as originally assumed; more stringent utility-handling requirements imposed by the local utilities company after the original estimate; and new environmental requirements.

The erroneous inflation assumption in turn compounded the cost of every project schedule delay because it meant everything would have to be purchased at higher prices.

Certain design decisions also added to the cost of Metro. A vaulted station ceiling was chosen for all stations. The engineers claimed in the beginning that the vault was more expensive than boxlike construction of stations that would allow height to be determined by individual rock conditions. Others, led by design-oriented architects, claimed the regularity of design would save time and cost by using standardized materials and by allowing designers to develop each station more quickly and efficiently with less chance for requiring change orders from the field.

The technical aspects of delay and cost increase are easy to describe, for there is ample precedent on other major public works. The political delays are more difficult, particularly the delays Congressman William Natcher caused by withholding the District's local matching funds pending a resolution of the highway funding for Washington. Mr. Natcher claimed that the system would cost more than WMATA estimated. WMATA officials claimed that he created a self-fulfilling prophecy, because the delays he caused escalated the costs by over \$100 million.

At this point the lesson learned from the cost increase is not conclusive. On the one hand,



The vaulted ceiling design chosen for Metro's underground stations may have added to the system's cost

WMATA was criticized for including too small an inflation factor in the original estimate. On the other hand, contingency plans were overly optimistic: a 10 percent factor for incomplete design. The cost estimates were assumed to be valid "if all went well." The history of Metro suggests the tenuousness of so optimistic an assumption.

Some observers have commented in retrospect that the size of the system and the source of funding contributed heavily to the cost increases. For example, much smaller systems designed in Montreal and Toronto and funded by local rather than Federal sources stayed within their budgets better than WMATA. Others claim that the Corps of Engineers background of the WMATA builders led to a lack of concern for cutting costs. And still others state that WMATA was certainly not the only body, private or public, that made investment miscalculations during the late 1960's.

The financing plan currently in effect is based on a total system cost of \$2,980,200,000. WMATA's plan calls for the Federal Government to provide \$1.441 billion through grants to be matched at a ratio of two Federal dollars for each local dollar contributed. Thus the local jurisdictions in the plan

are to provide \$720.5 million. The remainder, slightly less than \$900 million is to be made up by revenue bonds issued by WMATA, bonds which will have a Federal guarantee together with a good faith pledge by the localities to support the debt service. Responsibility for the local share was divided in accordance with a weighted formula that took account of amount of construction, train miles and stations, population, and ridership in each of the jurisdictions.

When the estimate rose to nearly \$4.5 billion, WMATA called for the Federal Government to provide an additional \$1.25 billion. A portion of this increase represents a retroactive increase of the Federal funding share to 80 percent in keeping with the UMTA capital grant program. The local share would increase by \$135 million.

The chief alternative to this option, other than reducing the size of the system, is to transfer funds available for high way construction to the rail rapid transit. This alternative is available under the 1973 Federal Highway Act and is OMB's recommendation at least for the D.C. area, which has formally requested the transfer. The Maryland Department of Transportation also has requested transfer of

funds allocated for a section of I-95 but has not clearly indicated whether it would commit a portion of the money thus released to Metro. In Virginia, the Governor and State highway commission adamantly oppose diverting funds from deleted I-66 to any transit project.

Finally, even with the transfer, the local jurisdictions would be required to produce substantial sums of money, chiefly because of requirements that they fund bus operating deficits now as well as rail capital costs. Once they have exhausted their own financial capabilities, the localities may turn to the States for aid. Northern Virginia communities already requested the State legislature to levy a sales tax increase in the region to be devoted to transportation. The State refused in early 1975. Maryland's DOT has been providing the Maryland portion of Metro contributions since 1973. Any request for additional funds would have to compete with priorities that are set statewide.

Historically, financing plans and cost estimates for Metro always have been controversial. One of the reasons Congress rejected the first financing proposal in 1962 was its concern that the Federal share was excessive. NCTA's revenue projections in 1962 were ridiculed by many critics, who doubted that operating revenues from such a rapid transit system would in fact be able to pay back the bonded debt.

The doubt continues today. It is exacerbated by dramatically rising operating deficits on Metro's bus operations. During its first years of service, Metrorail also is expected to operate at a loss. However, WMATA still holds to its claim that revenues from the fully operating Metro system

will meet operating costs with a surplus for paying off part of the bond indebtedness. In August 1975, a committee of WMATA board members recommended a fare "structure designed for this purpose that the *Washington Post* said might lead to the "world's costliest ride" on an urban transit system.<sup>28</sup> Although WMATA's projections may be intended to reassure nervous local governments, there is little reason to expect that they will be taken seriously at a time when transit systems across the country are experiencing rapidly accelerating rates of growth in operating deficits.

In spring 1975 WMATA, COG, and UMTA were planning to conduct a study of alternative transportation modes for the yet unconstructed extremities of the system that would consider the option of cutting the system back. As of this writing, no products of such a study had been reported. Hopefully the effort will provide ample information about alternative courses of action for the public and their officials to draw upon in making what promises to be a difficult choice. Some observers expect this kind of investigation will show the need for a combined transportation-land-use policy that gets at the source of the transit financing problem by leading to more efficient patterns of urban development and land use.

Obviously, it is extremely important for WMATA to restore faith in its financial planning. The completion of the system—any system—hangs in the balance.

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<sup>28</sup> Jack Eisen, "Metro May Prove the World's Costliest Ride," *Washington Post*, September 1, 1975.

