

GOVERNMENT-LED CONTINGENCY PLANNING FOR
URBAN TRANSIT SERVICE DISRUPTIONS

by

Peter Paul Belobaba

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Signature of Author _____

Department of Urban Studies and Planning
May 10, 1982

Certified by _____

Michael D. Meyer
Thesis Supervisor

Accepted by _____

Nigel H.M. Wilson
Chairman, MST Program Committee

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ABSTRACT

The dependence of large metropolitan areas on public mass transit service for the daily commute and for mobility in general is such that a disruption of transit service can create severe congestion and adversely affect business activity in the urban area. This thesis explores how local government agencies can act in advance of urban transit service stoppages to prepare transportation contingency plans and then implement the required response strategies when a stoppage actually occurs.

Some theoretical issues relevant to organizational decision-making and planning in crisis situations are considered first, as past research on contingency planning for natural disasters is reviewed. The more practical aspects of contingency planning in the context of urban transit are identified from case studies of recent experiences with transit stoppages in New York, Boston, and Philadelphia. These theoretical and practical considerations are then combined to create a generalized framework for urban transportation disruption contingency planning.

The findings of this research suggest that the existence of a contingency plan developed in anticipation of a service disruption can indeed enable government agencies, with the cooperation of private sector interests, to implement a coordinated and effective response. The three cases examined highlight the fact that the process of contingency planning is just as important to the success of the response effort as the plan that is ultimately developed and implemented. In addition, political considerations related both to the actual disruption and to the government response effort are likely to influence many aspects of the contingency planning process. The net result is that the most effective response efforts to transit service stoppages are those based on a crisis management structure developed well in advance of the stoppage, or over the course of previous stoppages.

Thesis Supervisor: Dr. Michael D. Meyer

Title: Associate Professor of Civil Engineering

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The nature of academic research is such that a thesis derived from a research project is seldom an individual effort. This study of urban transit disruption contingency planning began as an examination of metropolitan energy contingency planning, and evolved to its present state under the encouragement and guidance of Professor Michael Meyer. Because this evolution has generated a number of working papers and a published journal article, it would be appropriate to say that, in many ways, this thesis is the result of a joint effort, and I would like to thank Professor Meyer for his contribution.

I would also like to thank Tom Humphrey for the initial research opportunity, Mary McShane for her efforts during the New York City transit strike, and Fred Salvucci for his many insights into Boston's MBTA crisis. Worthy of special mention is Professor Nigel Wilson, who devotes great effort to monitoring and guiding the development of both the MST program and its students.

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CHAPTER ONE

OVERVIEW1. Interruptions to Urban Mass Transit Services

The daily patterns of urban travel are shaped by millions of individual decisions as to the need for, timing of, and mode used for intra-urban trips, and by less frequent individual and public policy decisions concerning the spatial location of residential, commercial, and institutional activities. Given these decisions and the resultant travel patterns, the urban system, under routine conditions, tends toward some form of equilibrium between travel demand and supply in terms of the timing, routing, and mode of urban travel.

Although the travel routines in most urban areas reflect an overwhelming preference for, and dominance of, the private automobile for intra-urban trips, the largest metropolitan areas have special characteristics that make them highly dependent on mass transit to accommodate the demand for urban travel, particularly for trips to and from congested Central Business District (CBD) areas. High population densities and low car ownership levels, when combined with intense temporal and directional peaking of travel demand, enable modal splits in the more congested corridors of older U.S. cities to reach 70 percent in favor of public transit.

The suspension of mass transit services, for whatever reason, can therefore be a tremendous shock to an urban area's transportation

system, particularly for those metropolitan areas in which transit accounts for a significant percentage of urban trips. Individual travel patterns can be adversely affected, as a major mode of urban travel is suddenly no longer an option. A substantial proportion of the urban population can thus be forced to adapt by selecting another mode, possibly adjusting trip timing, or foregoing trips entirely. This need for a sudden shift in travel behavior is aggravated by the fact that transit services can be shut down literally overnight, allowing very little time for the public to adapt.

In the past, the shutdown of an urban area's mass transportation service has been associated primarily with management-labor disputes over union contract settlements. Transit employee strikes have interrupted transit operations in recent years in New York (1980), Philadelphia (1981), Toronto (1979), and Montreal (1980 and 1982) for periods of more than a week in each case, and commuters in numerous other North American cities have had to cope with similar service disruptions.

More recently, a trend toward fiscal austerity in government, combined with a "growing perception that the fiscal appetite of public transit is voracious and extremely difficult for elected officials to control", [1] has made the possibility of a suspension of transit service due to inadequate operating subsidies very real in many cities. In fact, this possibility has already become a reality in Boston, Chicago, and Birmingham, Alabama, where public transit operations were shut down for varying periods while politicians at different levels of government

debated the funding arrangements necessary for continued transit service.

With the U.S. government planning to phase out federal operating subsidies to mass transit systems by 1985, effectively reducing the "revenues" of large transit agencies by almost 15 percent, an increasing number of cities will be facing the potential of a shutdown of transit service because of financial predicaments. The likelihood of transit service interruptions is further increased by the fact that, as transit managers attempt to reduce costs in the face of public subsidy constraints, the potential for serious disputes with labor unions over wages and benefits will also increase.

Whether caused by a labor dispute or a financial/political crisis, a transit service interruption that forces a substantial proportion of a metropolitan area's population to suddenly alter its travel behavior carries with it the possibility of severe congestion and chaotic travel conditions. In situations where public authorities make little or no effort to prepare in advance for such a disruption, the travelling public, it could be argued, will still be able to adapt to the characteristics of the disrupted urban transportation system and a new urban travel equilibrium will in time be reached. The temporal and directional intensity of travel within large metropolitan areas, however, is such that, without some form of response from public authorities, congestion in core areas can become unmanageable to the point of endangering public safety and adversely affecting the economic health of core area businesses.

Prior to a number of past transit system shutdowns, public authorities did undertake some form of advance planning for the travel impacts of the disruptions. The planned actions, whether based on informal agreements to act in the event of a service disruption or on a detailed and structured response framework, were the products of a contingency planning effort. A contingency plan, in whatever form it takes, at the very least outlines the response actions to be implemented in the event of a shutdown and identifies the actors responsible for their implementation. The contingency planning process itself can also have a role in determining the success of a response effort, as the intra- and inter-agency relationships developed in the process can enhance the likelihood of mounting an effective government response.

2. Purpose of This Research

By comparing several recent contingency planning efforts for metropolitan mass transit service interruptions and relating actual experiences to the more theoretical concepts of emergency planning, organizational behavior, and policy-making and implementation, this thesis develops a framework for planning for transit service stoppages that is both theoretically sound from a planning perspective, and practical given the many constraints of the urban decision-making arena. The results of past research on emergency planning and organizational response to unexpected events such as natural disasters are used to develop several theoretical propositions concerning the need for and

usefulness of contingency planning for urban transit service disruptions.

Three recent transit service interruptions and the government efforts to cope with a lack of mass transit are then explored in the context of these propositions. The actual contingency planning efforts are examined in terms of the process of response planning, the measures contained in the plans, implementation of the measures during the disruptions, and the post-disruption impacts of each contingency planning process. In addition, the highly politicized nature of most transit system shutdowns, and the influence of a volatile political environment on all aspects of contingency plan preparation and implementation, are discussed in detail.

The relative levels of success achieved by the contingency planning approaches used in the case studies, together with the theoretical concepts relative to response planning, provide a basis for the development of an urban transit service stoppage contingency planning framework. Questions of how specific situations and environments can constrain the universal applicability of such a framework are addressed, and the problems that seem to be inherent in the planning environment before, during, and after a disruption are discussed. The contingency planning framework focuses on the aspects of response preparation that can be improved through additional effort on the part of the public authorities responding to a transit service disruption.

The development of a more consistent approach for responding to mass transit service disruptions is timely for several reasons. A very basic reason is that, although emergency planning and disaster response issues have been examined in the past, almost no attention has been given to the concept of contingency planning for disruptions to urban transportation systems. This lack of past research is reflected in the past inconsistency in contingency planning for transit disruptions among different metropolitan areas. A more practical reason for the development of such a framework involves the magnitude of the impact of transit service interruptions on large metropolitan areas. As mentioned, the suspension of transit service can adversely affect not only those directly dependent on transit for mobility, but car drivers, employers, and retailers as well. Finally, the future of urban transit funding, particularly in the United States, is such that there is a significant probability of future transit system stoppages in major metropolitan areas.

This examination of contingency planning progresses from a general, conceptual discussion of the merits of contingency planning to a more practical assessment of actual response planning efforts, and ultimately, to the development of a response planning framework. The remainder of this chapter focuses on conceptual aspects, as relevant past research is reviewed and several propositions about contingency planning in the urban transit context are made. Chapter Two outlines the case study methodology used in this research, and its shortcomings. As well, a brief summary of each of the three case studies examined is

presented.

The remainder of this thesis deals with contingency planning issues in the order that they would be encountered in any agency's attempt to lead a response effort. Chapter Three examines the pre-disruption preparatory phase as a process of contingency planning, focussing particularly on issues of organizational behavior and inter-agency coordination and cooperation. The contingency plan itself is dealt with in Chapter Four. The overall goals of a response plan are discussed, and the general characteristics of an effective plan are identified. In addition, specific measures for dealing with transit service disruptions are reviewed, and past experiences with these measures are evaluated. Chapter Five deals with the post-disruption impacts of a contingency planning effort. The influence of a comprehensive planning effort on inter-agency relationships, permanent transportation programs and projects, and potential future transportation disruptions is discussed.

Chapter Six ties many of the issues together by presenting a discussion on how political realities surrounding a potential disruption can limit any attempt at comprehensive contingency planning. The discussion is in part somewhat of a caveat to those hoping to undertake a comprehensive response planning effort based on the propositions of the three preceding chapters. A review of the politics surrounding the case study disruptions highlights the possible impediments to effective contingency planning.

Finally, the concluding chapter outlines a conceptual framework for contingency planning for urban transit disruptions. Both the characteristics of an effective response effort identified from the case studies and the possible constraints to response planning are integrated into the framework.

3. Past Research Relevant to Contingency Planning

Past research on the process of contingency planning, particularly in the context of urban transportation system disruptions, has been limited. Studies of transportation energy contingency planning efforts are among the most recent, many of which have been completed since the last experience of metropolitan areas with severe gasoline shortfalls in 1979.[2,3] These assessments of metropolitan-wide energy contingency plans have found that, in general, there is little consistency among contingency planning efforts at the metropolitan level, in spite of federal government initiatives and encouragement.[4] The multitude of agencies and interests involved in transportation at the metropolitan level, combined with a reluctance on the part of many actors to commit resources to a plan which deals with a very uncertain series of events, have impeded the development of comprehensive energy contingency plans in most metropolitan areas.

The most complete energy shortfall contingency plans at the metropolitan level have been developed by, and deal with the operations of, metropolitan transit agencies. The research efforts mentioned above

found that, not surprisingly, many transit agencies have been able to formulate effective energy contingency plans on their own. In most cases, the measures contained in these plans involve only the operations of the transit agency, meaning a minimal amount of input and cooperation from outside interests would be required for effective implementation of the contingency measures during an energy shortfall.

Although several basic characteristics of metropolitan energy contingency planning (e.g. the need for inter-agency coordination) are shared by the process of contingency planning for urban transit service disruptions, there are major, obvious differences. When transit service is interrupted, an urban travel mode is suddenly and totally removed from the choice of modes available for intra-city trips. The transportation expertise of perhaps the most experienced transportation operating agency in the metropolitan area is lost at the same time as the responses required by the disruption necessitate effective coordination of diverse agencies with different jurisdictions. Furthermore, because a transit service disruption results from a locally-based dispute of some sort (as opposed to a nation-wide gasoline shortage), the potential for serious politically-induced conflicts among the interests involved is far greater.

Issues of inter-organizational conflict, decision-making, and response implementation in a disrupted planning environment have been examined in the past primarily with respect to natural disasters and the resultant community or government response. Most closely related to urban transportation contingency planning are studies of organizational

behavior in disaster situations and of the emergency planning process in general.

One of the first studies of the characteristics of organizational response to a disaster was an examination by Roscow of government response in two communities to tornado destruction.[5] He found that, during the crisis period, conflicts over the assignment of responsibilities, over priorities for action, and over the meaning of statements made by public officials tended to develop among responding organizations. Similar research by Form and Nosow[6] and by Barton[7] established the basis for much of the more recent research of intra- and inter-organizational behavior both during and after natural disasters.

Recent studies have focussed more on the organizations directly responsible for responding to a disaster, such as police and civil defense agencies. Among the issues addressed have been the nature of organizational communications during crises,[8] the functioning of established organizations under crisis conditions,[9] and organizational innovation both during[10] and after crises.[11]

The findings of these research efforts are relevant to an examination of contingency planning for urban transit service disruptions in several respects. First, a focus on intra-organizational variables such as "mandate in crisis situations" and "capacity to respond" is important, given that public agencies will be primarily responsible for dealing with a transit service disruption. A transportation system disruption that requires immediate action, if it has any element of surprise associated with it, will likely create increased

workloads and unexpected stress for the organizations and their members. The net result is that, within policy-making and implementing agencies, disruptions to the normal routine tend to inhibit rather than facilitate the decision-making performance of policy-makers.[12]

Secondly, the need for coordinated action among diverse agencies and the relationship between organizational actions and political authority in the urban area also become important variables in investigating contingency planning efforts and responses to disruptions. As was the case with organizational functioning in crisis situations, inter-organizational relationships can also be adversely affected by crisis-related stress at a time when increased policy coordination and cooperation is most desirable.[13]

The approach most often used in the past for facilitating inter-agency coordination in situations where no advance preparation for a disruption had been made involved the formation of an ad-hoc committee responsible for crisis response coordination. The problem with such an approach, however, is that ad-hoc committees are less effective in crisis-oriented policy making than more established groups. Ad-hoc committees have proven to be inferior in their decision quality, resource utilization, and creativity in formulating responses to crisis situations.[14,15,16] The concept of contingency planning is in part a response to the intra- and inter-organizational problems related to the use of ad-hoc committees and reliance on spontaneous, crisis-oriented decision-making.

The second research area of relevance to urban transportation contingency planning, one which also involves several aspects of the organizational issues mentioned above, relates to the importance of emergency planning as a process. The process of planning for unexpected disasters or crises has only recently received attention in the planning literature. Of the most recent research efforts, three provide much of what is known about disaster planning. Perry, who examined incentives for ensuring compliance with evacuation orders, argued that behavioral research could be an integral component of disaster plans.[17] The emergency planning process proposed by Perry assumes that pre-disaster planning can in fact produce positive effects during a disaster response.

Wenger et al. examined 71 disaster plans and found that emergency planning efforts seemed to be pre-occupied with the production of a plan, and that little attention was given to implementation processes.[18] Finally, a study of the community response to the eruption of Mount St. Helen's in May 1980 focussed on the link between response planning and the actual response of 26 communities.[19] An important conclusion of this study was that, while the planning process was judged by local officials to have been worthwhile, the actual response measures proposed in the regional disaster plan generally went unused. Community officials instead relied on numerous informal and ad-hoc measures to organize a disaster response.

Past research of emergency response planning and of actual responses to disasters has served two major purposes, both of which are

especially relevant to contingency planning for disruptions to urban transit services. First, the results of these studies have generally supported the notion that, prior to the actual occurrence of a disruption, contingency planning efforts can help to "facilitate recognition of emergency demands and to make more effective the community response".[20]

Secondly, and perhaps of greater importance to the topic of this thesis, the studies outlined above have identified several aspects of contingency planning that are crucial to an effective disaster response. Through an examination of the shortcomings of numerous government response efforts, past research efforts have found that an effective contingency planning efforts should:

- (1) clearly identify the priorities for a government-led response;
- (2) provide for inter-organizational coordination of response activities;
- (3) delineate specific tasks and responsibilities for the organizations to be involved; and
- (4) relate the likely behavior of groups and individuals in a disaster situation to the types of measures included in the contingency plan.

Although disruptions to urban transit services are different from the natural disasters studied to date, many of the insights on disaster planning gained from this past research can be related to urban transportation contingency planning. Still, the differences between natural disasters and urban transit system disruptions are substantial. In the latter case, more advance warning of a potential disruption is usually available, individuals can eventually adapt to the disruption

without a great deal of government intervention, and the political atmosphere surrounding the disruption and its cause is often far more volatile than it is in the case of natural disasters. These significant differences highlight the need for a closer examination of the characteristics of an effective contingency planning process for urban transit service disruptions.

4. Planning for Transit Stoppages: Some Propositions

As mentioned, past studies of emergency planning and disaster response efforts have provided insight into organizational behavior during emergencies, and have identified several characteristics of effective contingency planning in the context of natural disasters. The results of these past efforts can be used as a basis for the development of a contingency planning framework for urban transit system stoppages.

A contingency plan prepares a community for a disruption before it occurs by detailing both the actions that could be taken and the actors responsible for their implementation. In addition, the actual process of contingency planning can have a great impact on the effectiveness of a response effort and the ability of the system to cope with the disruption. The relative success of a contingency planning effort can be affected by both intra- and inter-organizational relationships, by the nature of the actions included in the plan, and by the manner in which the selected actions are formulated, implemented, monitored, and perhaps maintained after the disruption.

Based on the findings of past research and concepts of organizational and inter-organizational theory, several important aspects of the urban transportation contingency planning process are highlighted below, and a number of propositions concerning the contingency planning process are made. These propositions will be subjected to analysis, given the outcomes of contingency planning efforts in three recent cases, and will form the basis of a general contingency planning framework applicable to situations involving urban mass transit service interruptions.

(i) Crises and Organizational Decision-Making

One fundamental reason for planning a response to a disruption before it occurs involves the decision- and policy-making functions of those agencies and organizations that will have to take some sort of action in the event of a disruption. During an interruption to urban transit service, each organization affected by the shutdown faces new demands, and policy makers are confronted with a situation requiring immediate action. Such a demand for action, if coupled with an element of surprise, puts pressures on both the agencies and individuals reacting to the disruption. As mentioned above, decision-making within organizations can be adversely affected by the onset of an unexpected change to routine.

The existence of a contingency plan in such a situation can help reduce the element of surprise associated with a disruption, the workload associated with formulation of response measures, and the over-

all level of confusion over the role in the response effort of an involved organization. The presence of a planned response should facilitate the implementation of response measures selected by an organization by specifying in advance the strategy it will follow in the event of a transit system shutdown, and consequently minimize the number of policy decisions to be made under crisis-like conditions.

(ii) Inter-Agency Coordination of Response Activities

While a contingency plan can be helpful to the individual responding agency, the fact that a transit system shutdown affects the activities of many organizations within a metropolitan area necessitates responses from numerous, and diverse, interests. In an environment where the responses of a great number of actors or groups are inter-related, the efforts made to improve cooperation and coordination among agencies during the planning process can make or break a contingency plan.

As was the case with organizational functioning in crisis situations, inter-organizational relationships can also be adversely influenced by disruption-related stress at a time when increased cooperation is essential for an effective, coordinated response effort. Where no advance preparations for facilitating inter-agency coordination have been made, the typical response at the onset of a disruption, as mentioned, is the formation of an ad-hoc committee responsible for response coordination. A structured contingency planning process, on the other hand, can both provide a forum for the coordination of

proposed response actions among the agencies to be involved, and create what is in essence a new decision-making unit which can operate during a disruption as a coordinating body that is somewhat more established. If the contingency plan is developed with future disruptions in mind as well, the inter-organizational relationships and responsibilities may be applied in future situations requiring inter-agency coordination.

(iii) Linking Response Planning to Implementation

The participation of the responding agencies in the contingency planning process can enhance inter-agency relationships and improve coordination of the response effort, but cooperation and coordination alone cannot ensure that the response measures proposed in the planning process will actually be implemented correctly. A major problem encountered in contingency planning involves the willingness of all organizations involved to both prepare for a disruption, and then respond with the planned actions once it does occur. In both the intra- and inter-organizational contexts mentioned above, the decision units responsible for plan preparation rarely have the capacity to implement the measures directly. Thus, although "a contingency action may be timely, well thought-out and ... the best to cope with a disruption, the system may still end up in a disaster through faulty implementation techniques".[21]

Problems associated with the implementation of planned measures by the agencies assigned the responsibility can be attributed to a lack of motivation to carry out the actions on the part of the

implementing units, poor communications between decision-makers and implementors, inflexible operating routines, or simple misunderstanding of the assigned responsibilities.[22] One approach to improving the motivation of implementing units, and thereby increasing the likelihood of successful implementation, is to involve at least one representative of each in some aspect of the planning process. When a group prepares for a disruption, each member participating is more likely to develop a commitment to making the selected actions work.[23] An effective contingency planning process would therefore involve as many of the organizations to be responsible for plan implementation as is practical. Such a comprehensive approach to contingency planning can promote acceptance of the proposed measures by the organizations responsible, and increase the likelihood of successful implementation.

(iv) Format of the Contingency Plan

Along with considerations of inter-agency coordination and implementation, the format of the contingency plan itself and the types of measures it includes will also have an influence on the success of a response effort. A structured plan clearly defines the response actions to be implemented, and explicitly identifies the agencies responsible and the resources to be employed. On the other hand, a flexible format permits responding agencies to monitor events associated with a disruption, and to react to any unanticipated problems which may arise.

The balance between structure and flexibility in a contingency plan has been suggested by a number of researchers. For

example, Ashley found that "a well-structured plan is a basis for effective crisis management, but a plan so structured that no allowance can be made for surprise events is inflexible, and thus undesirable".[24] He proposed that an "ideal" contingency plan should consist of small pre-structured components forming a larger response/decision framework to be used in an anticipated disruption. As the disruption evolves, these components would be modified or updated to meet changing conditions.

(v) Post-Disruption Impacts

While a contingency planning process is expected to have effects on a system under disruption before and during the disruption, it is possible that the existence and use of a contingency plan in a disruption can have impacts on the transportation planning and implementation environment after the disruption is over. Because a crisis not only disrupts a system, but also acts as a "device of change", the presence of a prepared response plan can in some situations affect the state to which a disrupted system returns.[25]

At both the intra- and inter-organizational levels, established operating routines are usually inadequate for coping with a major disruption, meaning that adaptive changes are likely to be made both in preparation for a disruption, and as the disruption develops.[26] If the contingency planning process can help develop some inter-agency rapport and establish an overriding concern for the functioning of the urban transportation system as a whole, innovative transportation

policies may be readily accepted by organizations in search of solutions to transportation problems created by the disruption. Once implemented, such innovative programs or projects, if successful during the disruption, have a better chance of being retained for permanent use.

The above characteristics of contingency planning in the urban transit service disruption context can best be summarized in the form of five propositions about the need for, and the usefulness of, effective contingency planning for potential transit system shutdowns:

- (1) Within each organization to be involved in the response effort, a contingency plan can reduce the element of surprise, the need for hastily formulated response measures, and the overall level of stress and confusion associated with the disruption of any organization's normal routine, thereby allowing more time to be spent during the disruption on response implementation and monitoring.
- (2) Among the different organizations to be involved in a response effort, a contingency planning process not only defines implementation responsibilities, but creates what is in essence a "new" planning unit that deals with the imminent disruption, and that can be re-constituted in future situations where inter-agency planning and coordination is desirable.
- (3) Participation in the response planning process of representatives of each agency to be involved in the response effort can help to promote the acceptance and subsequent implementation of proposed measures by the organization responsible.

(4) There are characteristics of a contingency plan, apart from the actual measures it contains, that enhance its effectiveness as a government-initiated response to a transit service disruption. While the plan needs enough structure to define the response measures, allocate responsibilities for their implementation, specify the resources to be used, and outline the mechanisms for response coordination, it should be flexible enough to permit adaptive changes to be made to the planned measures as the disruption progresses.

(5) Because a disrupted system is likely to change during the course of a real or threatened crisis, the contingency planning process can be used to direct this change. The existence of a contingency plan can serve to alter inter-agency relationships in the planning arena, or it can allow the implementation of innovative transportation policies or projects during the disruption that can be maintained permanently once implemented.

The above propositions will be tested, based on actual experiences with contingency planning for urban transit service stoppages. Each proposition will be further discussed under the relevant headings in Chapters 3, 4, and 5. The next chapter first deals with the study methodology used in this research, and summarizes the three case studies of contingency planning which were selected.

CHAPTER TWO

CASE STUDIES OF TRANSIT STOPPAGE RESPONSE EFFORTS

Experiences with disaster planning have provided the basis for most of the past research on government-led response to crises or disruptions. Recent experiences of major cities with transit system shutdowns, and the efforts made by public authorities in planning for these disruptions, provide a more relevant foundation for the development of a generalized contingency planning framework for use in metropolitan areas. The case studies examined in this research are summarized in this chapter to provide both background information to, and a general reference for, the discussion in the remainder of this thesis. First, however, the case study methodology employed is outlined, and its shortcomings identified as a caveat for the development of further conclusions and generalizations.

1. The Case Study Methodology

Two of the most important defining characteristics of transit system shutdowns — their infrequency in any one metropolitan area, and the overall uncertainty associated with their occurrence — are the two factors that make a systematic analysis of planning for such stoppages rather difficult. As well as presenting methodological problems, the different contexts and environments in which different transit service disruptions occur also mean that any generalizations must be made with

caution.

In the selection of an appropriate research strategy, it was this relationship of the characteristics of specific response planning efforts to their particular contexts that, in essence, ruled out all but the case study approach to analysis. The case study approach is an attempt to examine a given phenomenon in its context, "especially when the boundaries between phenomenon and context are not clearly evident".[1] The "data" to be included in each case study consist of those events deemed to be important, or at least relevant to the analysis, by the researcher himself.

The nature of the contingency planning process, or for that matter any planning process, presents major problems for the researcher hoping to develop case studies of contingency planning. At the outset, it is difficult to define what is meant by a "successful" contingency planning and response effort. Even if there exists some agreement among those involved as to the basis of an "effective" planning and response process, the ability of the researcher to obtain such information may be constrained. Because the outcome of a planning effort depends on the actions of numerous individuals, the researcher is limited to collecting information from: (1) direct participation in the process itself; (2) interviews with those involved in the planning process; and/or (3) observation of the outputs of the process. The unexpectedness of transit system shutdowns made direct participation difficult during this research. Instead, personal interviews and examination of the planning outputs and outcomes (i.e. the plans produced, the actions implemented,

and their impact on travel patterns) form the basis of the data collected.

The specific problems arising in the development of individual case studies involve both the sources of information used and the interpretation of the information gathered. The information collected, whether from personal interviews or actual observation, is subject to bias on the part of the researcher, and especially on the part of those actually involved in the planning efforts. By using as many sources as possible and compiling supplemental information to corroborate what those involved say, the researcher can attempt to piece together what tends to be a puzzling assortment of "facts". The point to be made is that, in case studies based on qualitative information, the perspectives of the researcher can play a role in influencing the analysis. The individual case study can thus become a fairly subjective account of the events of a particular situation.

Relating the major characteristics of two or more case studies in such a situation presents additional problems. Cross-case analysis is a methodology which carries with it no prescribed approach to analysis, once again making the details of its application a fairly subjective exercise. The researcher must face, and somehow resolve, "the steady tension between the unique, contextually specific nature of single sites, and the need to make sense across a number of sites".[2] A focus on individual cases can result in very thin, if accurate, generalizations, while excessive emphasis on case comparisons can produce broad or even unfounded generalizations.

In spite of the methodological shortcomings, the case comparison approach was selected for this research. The limited number of transit service disruptions occurring during the research period ruled out the use of other, more extensive case survey approaches. The case comparison approach to research is by no means perfect, but it can produce valid results if it is applied with the appropriate caveats in mind.

The cases examined in this study are discussed in light of previous related research, and actual planning experiences are assessed in terms of the extent to which they support the propositions suggested in the first chapter. The cross-case analysis focuses on the planning processes employed in each case in defining the characteristics common to the cases studied and in developing a generalized planning framework. It is this emphasis on process that permits generalizations to be made across cases, because there are many institutional and procedural characteristics common to transportation planning in most North American urban areas. Still, the unique characteristics of each case are identified and even emphasized throughout this thesis, because ignoring them would render the planning framework developed virtually useless in terms of practical application to other transit service interruptions. Although the case comparison approach should be used with caution, then, the emphasis placed on the events specific to each situation in this study should serve to limit the number of broad generalizations that are derived.

The three transit system disruptions selected for case study were chosen primarily because they were the major disruptions occurring during the research period. The April 1980 transit strike in New York City, the December 1980 Boston transit system shutdown, and the March 1981 transit strike in Philadelphia all involved at least some effort on the part of local authorities to make a response. Other transit system shutdowns did indeed occur in other cities during this period, but they were not included in this study because the impacts of the shutdowns on the functioning of the urban areas involved were not significant enough to warrant a contingency planning effort. New York, Boston, and Philadelphia are all major metropolitan areas that depend heavily on their public transit systems. The impact of a disruption to transit service on travel patterns, and the consequent need to take some sort of action to minimize this impact made the contingency planning experiences in these three cases essential to the development of a generalized response planning framework.

2. The Case Studies Summarized

A. New York City, 1980

When the members of the local transit workers' union went out on strike on April 1, 1980, all bus and subway services in New York City ceased operations. The strike lasted for eleven days, leaving 6.2 million daily transit riders without public transportation. To make matters worse, another strike closed the Long Island Railroad commuter

system at the same time, stranding another 250,000 commuters for its two-day duration. The serious traffic congestion and general travel chaos which could have occurred during the strikes was averted, however, because City officials had prepared a contingency plan in the weeks preceding the disruption. The Transit Strike Contingency Plan, together with the preparatory efforts made for its implementation, enabled public authorities to make a coordinated and effective response to the strike.

The foundation of the government-led response to the transit strike was an Emergency Management Plan developed by the New York City Mayor's Emergency Control Board (ECB). This Board had been partially mobilized for potential emergencies in previous situations, but the 1980 transit strike was the first occasion on which it was fully tested and its resources fully utilized. The Emergency Management Plan was a general response framework developed for use in many different urban emergencies and disruptions. Created because of a "need for a management plan flexible enough for use in various contingencies", the Plan focussed on the need for a rapid deployment of resources and direct inter-agency communication during both metropolitan-wide and localized emergencies or disruptions.[3]

The responsibility for implementing the procedures contained in the Emergency Management Plan rested with two principal groups. The Emergency Control Board itself, which included the Mayor, police commissioner, and representatives from other City agencies and major private organizations, was responsible for coordinating the use of available City resources and for keeping the Mayor informed of all

aspects of the emergency at hand. Another group, the Office of Civil Preparedness (OCP) was responsible for monitoring daily events in a crisis, for actually creating and updating the emergency procedures, for contacting the agencies to be involved, for data collection, and for providing centralized training to those implementing specific contingency measures.

The first phase of the Emergency Management Plan involved the activation of a monitoring system which was the basis for coordinating the activities of these two groups. The monitoring phase basically provided for preliminary assessment of any threatening crisis by the staff of OCP so that appropriate response actions could be determined. Once a crisis became certain, an Emergency Management Center, a command post, was to be established to permit direct communication among the agencies involved in the response effort. With representatives of each involved agency or organization present at the Center, continual updates or modifications to the Emergency Management Plan could be made.

The 1980 transit strike proved to be the first major metropolitan-wide emergency to be dealt with under the response framework of the Emergency Management Plan. As soon as the possibility of a transit service disruption arose, the NYC Department of Transportation, the Police Department, and the Mayor's Office of Operations began to prepare a specific response plan for the strike. In preparing the Transit Strike Contingency Plan, City officials first analyzed the impacts of the last New York City transit strike (January 1966) on travel patterns, and the efforts made to deal with it. In 1966, the basis of the contingency

response was the use of traffic engineering measures designed to accommodate as many extra vehicles as possible on the existing street network. Changes to the overall transportation policy environment and increasing central area congestion in the intervening years, however, forced planners to develop measures in 1980 which would expedite the movement of people, rather than vehicles.[4] Contingency actions for the 1980 strike therefore focussed on promoting the use of high-occupancy vehicles such as buses, vans, and carpools, and imposing restrictions on the use of single-occupant private automobiles in the core area.

Those agencies and groups to be responsible for implementing the various components of the Transit Strike Contingency Plan were notified a full two months before the anticipated strike deadline, when the Mayor's Office of Operations mailed a list of specific tasks and responsibilities to approximately thirty agencies on the Emergency Control Board. The Plan was focussed on the "maintenance of emergency services, providing exclusive routes for the remaining public transportation operations, maximizing the efficiency of the city's arterial roadways, and keeping the accumulation of vehicles in Manhattan to a manageable level".[5] The specific measures included in the plan are listed in Exhibit 2-1.

The Emergency Management Center had the responsibility for implementing these contingency actions and monitoring their effects. There, City officials monitored travel data such as traffic volumes during peak periods, as well as data collected in surveys of mode of travel and employee absenteeism. The information collected was used to

1. MAINTENANCE OF EMERGENCY RESPONSE ROUTES

- A. Reserved lanes and streets for emergency vehicles

2. CONTROLLING VEHICLE CONGESTION IN MANHATTAN

- A. Vehicle occupancy restrictions of three or more persons per vehicle
- B. Peak period lane reversals on major access routes
- C. Stricter police enforcement of traffic regulations
- D. Grid-lock prevention and monitoring

3. IMPROVING THE EFFICIENCY OF ARTERIAL ROADS

- A. Priority lanes and roadways for vehicles with three or more occupants
- B. Adjust computerized traffic signal control system
- C. Implement and enforce "no standing" regulations

4. PARKING MANAGEMENT ACTIONS

- A. Provide carpool staging areas
- B. Special carpool parking areas in core
- C. Suspension of alternate side of the street parking privileges
- D. Increase number of public parking spaces available in core
- E. Encourage increased private parking facilities

5. OTHER TRANSPORTATION MEASURES

- A. Special bicycle routes and separate bike lanes in core area
- B. Increase passenger ferry operations
- C. Allow taxi group riding in Manhattan
- D. Request additional gasoline allocation for metropolitan area
- E. Encourage staggered work hours and/or four-day work weeks
- F. Increase tow truck operations
- G. Suspend non-essential road repair operations

EXHIBIT 2-1: TRANSPORTATION MEASURES INCLUDED IN NEW YORK'S TRANSIT
STRIKE CONTINGENCY PLAN, 1980

deal with unanticipated problems arising during the strike, as the original measures in the plan had to be modified to respond to changing circumstances. As it turned out, actions to relieve specific problems such as underutilized bridges or unusually long queues at tunnel entrances were implemented frequently during the strike.[6]

Once the strike began, City officials concentrated their efforts on implementing and maintaining the response actions of the transit strike plan. Little explicit effort went into exercising any direct control over how the public would cope with the strike by organizing carpools, chartering buses, or requiring private businesses to undertake specific actions. Such activities were basically left to the initiative of private companies, although the Mayor did encourage businesses to organize their own pools and implement staggered work hours to minimize congestion during peak periods. The City's major role was the maintenance of emergency and municipal services and an orderly flow of traffic during the strike.[7]

Private businesses did in fact respond to encouragement from the Mayor. The Manhattan banks and financial companies, for example, established a form of transportation brokerage operation to charter buses in order to ensure the continued operation of the financial district. Most businesses seemed reluctant, however, to stagger work hours and/or go on four-day work weeks. Those agreeing to the measures suggested by City officials were not able to fully implement them before the end of the 11-day strike.

Advance planning for the transit strike, based on the established procedures of the Emergency Management Plan, unquestionably reduced the impact of the strike on commuters. While the number of people arriving by car into Manhattan during the morning peaks of the strike (460,000) was twice the daily average, the number of vehicle entries remained at near-normal levels, due primarily to the auto occupancy restrictions imposed in the core area.[8] Travel timing was also affected, with the morning rush beginning much earlier during the strike, although the peak period did not extend significantly later into the evenings. As well, person-per-vehicle figures were much higher than usual during the first week of the strike, and still higher during the second week. During the morning peaks, traffic on most major arterial and cross-town streets was observed moving at near-normal speeds. Finally, the use of special bikelanes in Manhattan increased significantly during the strike.

Several of the transportation measures employed during the strike have been maintained, or recommended for maintenance, as more permanent components of the New York City transportation network. An evaluation of the transportation innovations used in the crisis situation was prepared by the NYC Department of Transportation, and concluded that "the success of the various measures ... suggests certain techniques which can be adopted to relieve congestion and provide for a more efficient public transportation network".[9] Two transportation measures — exclusive lanes on Madison Avenue reserved for buses, taxis and delivery vehicles during peak periods, and physically separate bicycle

lanes on a major street — were implemented as a direct result of their success during the transit strike. As well, many of the traffic flow improvements to roadways made for the strike were retained. Studies of more extensive transportation programs, such as high-occupancy auto restrictions on major bridges during peak periods, and taxi group riding or jitney services in the CBD, were also done in the wake of experiences during the strike.

Overall, the efforts made to anticipate and deal with the effects of a transit strike in New York City did seem to reduce the impact of the disruption on urban travel. Extensive planning for implementing a response to a transit shutdown, done under the existing planning framework of the Emergency Management Plan, illustrated the potential of a well-prepared and coordinated transportation emergency plan. The process of plan preparation and implementation was a remarkably smooth one, due to several factors.[10] City officials knew that, because up to 87 percent of all person-trips entering or leaving Manhattan used some form of public transit, some action on their part was required to keep the strike from paralyzing the city's transportation network. They also realized that the strike threat was real and began planning for the strike deadline well in advance.

The Emergency Management Plan framework was already in place when planning for the 1980 strike began, allowing planners to effectively coordinate the actions of those agencies most likely to be involved in responding to the crisis. When the contingency actions were being implemented, public support for the City and its stance on the transit

strike issue served to minimize resistance to the more stringent of the transportation measures. Finally, large numbers of police and enforcement personnel deployed during the strike ensured correct implementation of, and compliance with, the contingency measures of the plan.

The contingency measures included in the plan, on the whole, seemed to work well, particularly those measures involving auto occupancy restrictions and bicycle traffic. Efforts to encourage private businesses to adjust their work schedules and establish their own transportation programs were not as successful both because the City did not devote great efforts to private businesses and employees per se, and because the Mayor's encouragement of such measures came too late for most companies to implement them during the 11-day strike.

The New York City contingency planning experience serves as a model for government-led response to transit service disruptions in many ways. From the establishment of a general emergency response framework in the form of the Emergency Management Plan, through the actual enforcement of contingency measures at street level, the strike response effort was, for the most part, effective in mitigating some of the hardships associated with the transit strike.

B. Boston, 1980

In early 1980, many officials in Boston began to realize that the Massachusetts Bay Transportation Authority (MBTA), the transit agency serving 275,000 daily commuters in the Boston metropolitan area,

was in such financial difficulty that a shutdown of its operations due to lack of funds was becoming a distinct possibility. The MBTA was spending its allotted operating budget at a rate that would leave it without funds by November 1980. Unlike previous years when local officials approved supplemental budgets to tide the MBTA over, increasing political pressure to reduce taxes meant that continued tax revenue support of an agency perceived to be grossly inefficient was highly unlikely.

By June, it was becoming apparent that a major political battle over the MBTA would likely occur in the late fall, but City officials were at that point not yet fully convinced that a financial crisis could lead to a total system shutdown. The Chamber of Commerce received a proposal to develop a business-based strategy for coping with a possible shutdown from a consumer group involved with public transportation. The proposal stated that "a political stalemate has developed between competing interests ... in this environment, very little is being accomplished, thus there is a need for private action".[11] The proposal was rejected at that time, but was resubmitted to the Chamber in October, when a shutdown appeared more certain. The Chamber, in an effort to avoid taking sides on what had developed into a volatile political issue, again decided not to sponsor the planning effort.

By mid-October, City officials themselves became concerned about a possible shutdown and decided to begin a contingency planning process. A "Transit Emergency Task Force" was established to guide the planning process. Members of the Task Force were selected by the

Mayor's Office from the private sector rather than from City staff so that its planning activities could be insulated as much as possible from the politics of the rapidly developing crisis. City personnel, however, did serve as technical staff to the task force and, in essence, developed the contingency measures for subsequent approval by the Task Force members.[12]

Several characteristics of the contingency planning process adopted in Boston merit special note. First, because plan preparation was delayed until a shutdown seemed imminent, there was very little time to do any detailed analysis of existing travel patterns in Boston, or of the expected impacts of any alternative transportation actions. The recommended contingency actions were based on estimates of the number of MBTA riders that would require alternate means to get to the Boston downtown area, and an assessment of what restrictions should be placed on travel in order to accommodate the extra traffic burden on the street network. Based on traffic volume data supplied by the Police Department, planners concluded that with three or more people in each car entering the central business district, the additional traffic flow could be handled.

Boston planners also made use of the New York experience with its Transit Strike Contingency Plan, with respect to both the transportation measures used and the travel data collected. The measures and the expected travel impacts had to be adapted to the Boston situation, different not only in its street configuration, but also in terms of the season in which the shutdown occurred. For example, planners had to

consider the fact that any staggering of work hours in the Boston situation would have to take into account the early darkness of the winter months.[13]

The agencies to be responsible for implementation — the police department, traffic and parking department, and the public works department — played a major role in the planning process by reacting to the proposed actions and modifying them when appropriate. In fact, once the contents of the plan had been finalized by the Task Force, it was turned over to the implementing agencies, and the planners originally responsible for it virtually lost track of how it would ultimately be implemented.[14] The analysis of alternative transportation actions by Boston planners was thus relatively simple, made use of available data sources, and was substantially influenced by the implementing agencies.

The importance of the role played by implementing agencies in the plan preparation process is highlighted by the participation of the Boston police department. Apart from being responsible for implementing and enforcing many of the emergency transportation actions to be used, Boston police also influenced the types of actions considered, and essentially established the overall goal of the plan. Police told contingency planners that the central area streets would not be able to handle more than a ten percent increase in peak-hour traffic volumes without serious congestion problems. Keeping the increase in traffic volumes to less than ten percent thus became the goal of the entire plan preparation process.

Another major characteristic of the process was the involvement of the business community. The Task Force itself consisted of representatives of the private sector. When meetings were held to brief the business community about the plan's components, downtown retailers became involved and voiced their concerns about the impact of a shutdown on Christmas season shopping, and felt that publicizing the existence of a contingency plan could scare potential shoppers away from the downtown area.[15] Most major employers were skeptical about the plan, however, and had prepared their own measures to get employees to and from work (e.g. shuttle bus services). The actual transportation measures recommended in the City-prepared plan were grouped into three categories, as shown in Exhibit 2-2.

These transportation measures focussed on accommodating the expected increase in traffic from suburban areas, while little was offered to those living in the inner city. This problem was recognized by the Task Force, but the planners involved argued that there had been very little time to explore all the available options in detail. For example, they had considered subsidizing private bus operators to provide service along major inner city MBTA bus routes. Such an action would have required extensive negotiations with bus companies, and a close examination of the legal and financial constraints on establishing the service. Given the limited amount of time available for preparation, such actions were not feasible.

The planning process in Boston was characterized by jurisdiction-specific actions. Although the city of Boston and 78 additional

1. CONTROLLING AUTOMOBILE TRAFFIC

- A. Impose vehicle occupancy restrictions in core area during peak hours
- B. Encourage establishment of staggered or flexible work hours
- C. Use fringe parking lots as staging areas for ridesharing
- D. Open downtown parking facilities earlier
- E. Utilize a peak-flow one-way traffic network in the core area
- F. Enforce on-street parking restrictions more stringently
- G. Restrict deliveries between 11 a.m. and 6 p.m. in core area

2. PROMOTING USE OF OTHER TRANSPORTATION MODES

- A. Expand handicapped and elderly transportation services
- B. Account for increased walking and bicycling into the core area
- C. Allow taxi group riding
- D. Permit private bus operators to expand services
- E. Establish passenger ferry operations

3. ENLISTING SUPPORT OF THE DOWNTOWN COMMUNITY

- A. Encourage large employers to modify work hours and to establish ridesharing programs
- B. Coordinate downtown retail hours to minimize peak travel periods
- C. Use media to publicize plan details

EXHIBIT 2-2: TRANSPORTATION MEASURES PROPOSED BY BOSTON'S TRANSIT
EMERGENCY TASK FORCE, 1980

surrounding cities and towns are served by the MBTA, only Boston and a few adjacent communities seriously planned for the shutdown. It was not until three days before the anticipated date of the shutdown that representatives of the concerned communities met to discuss the actions to be taken.[16] It was realized at this meeting that some of the proposed actions could create conflicts among the jurisdictions involved. Boston's plan to turn back all cars with less than three occupants at the central area boundary was of great concern to officials from neighboring communities, who envisioned massive parking and congestion problems in the neighborhoods immediately adjacent to this boundary.

The absence of a metropolitan-wide planning effort in the Boston case can be explained in several ways. First, there is no single agency which acts as the Metropolitan Planning Organization (MPO) for the area. Instead, coordination of the transportation planning process is provided by a committee of the heads of seven different transportation agencies. Second, those agencies that could have provided a broader perspective, the State transportation agency for example, were embroiled in the political battle over the MBTA. Because the financial crisis pitted the Governor against the cities and towns, and Boston in particular, cooperation from agencies under the Governor's control was unlikely.

The politics of the crisis leading to a possible MBTA shutdown were so important to all those involved that the product of the planning effort, the contingency plan, itself became a political weapon. As the shutdown date approached, the Task Force fully expected that

their plan would be released to the public well in advance to prepare it for the actions to be implemented. However, the plan was not made public for a number of reasons, including the Mayor's decision to wait and see whether the Governor would use his "emergency powers" to take over operation of the MBTA. During the entire plan preparation process, then, the planning effort could not be divorced from the politics of the crisis at hand. While the analysis of available transportation measures was more or less sheltered from political influence, the product of the contingency planning process was as much a political document as it was a response plan.

In summary, the contingency planning process for the transit system shutdown in Boston demonstrated the relationship between response planning and the political nature of a crisis. A group outside of the City government initially proposed the development of a contingency plan. When the Mayor's Office finally decided to start a plan preparation process, a private sector task force was created to lead the effort. Analysis for the plan was very simple, and the plan's components were heavily influenced by implementing agencies. The business community was also important in the process, although many major businesses decided to pursue their own methods of coping with a shutdown. Finally, the politics of the very crisis which created the need for a contingency plan had a significant impact on how the plan was ultimately used.

The MBTA did shut down for one day during the first weekend of December 1980, and the City at that time announced its contingency plan would take effect the following Monday. By Sunday, however, the

State Legislature had passed legislation to keep the system running for the rest of the year, meaning the plan was not implemented. Still, the planning effort was not a total loss, as the contingency plan which was developed is now considered to be the basis of any future contingency response.[17] Planners are also examining some of the transportation measures suggested for the crisis which received a favorable reception (e.g. changes to taxi regulations to permit group riding). As well, at least one City official viewed the planning effort as successful in encouraging greater business community participation in urban transportation planning in general. The crisis and the contingency planning effort thus provided increased opportunities for innovative transportation actions, opportunities which otherwise may not have occurred.

C. Philadelphia, 1981

When the transit workers went out on strike against the Southeastern Pennsylvania Transit Authority (SEPTA) on March 15, 1981, Philadelphia became the third major American metropolitan area to experience a transit system shutdown in less than a year. As was the case with the interruptions in New York and Boston, the Philadelphia strike involved a local government response in the form of contingency transportation measures. Unlike Boston and New York, however, the public agency response in Philadelphia was not nearly as extensive, as greater emphasis was placed on the public's past experiences with transit disruptions, and on private initiatives for coping with the strike. As well, the availability of alternative mass transportation in

the metropolitan area meant that fewer explicit transportation actions were required.

The walkout by 5,000 transit workers halted bus, trolley, and subway services, forcing 400,000 commuters to find other modes of travel. In general, public opinion and media support were behind SEPTA management's efforts to curb excessive union demands. With headlines proclaiming, "Neither Side Optimistic as SEPTA Strike Talks Stall", commuters anticipated an extended transit service disruption as the strike began.[18] The strike in fact continued for 19 days before SEPTA management effectively backed down on demands for part-time workers in return for wage concessions on the part of the union. Over the course of the disruption, picketers managed to shut down Conrail commuter operations for one day, New Jersey Transit suburban bus services on another, and attempted to close down a major expressway into the city.

The possibility that a transit strike would occur in mid-March first became a concern to City officials in December 1980, when the Mayor's Office notified the Office of the Managing Director that a disruption of transit operations could be expected. The City, under the direction of the Deputy Managing Director, in turn assembled a steering committee to lead the preparation process. It first met in late January, and several times thereafter. The City's agencies and the Mayor's Office thus led the contingency planning effort, and made preparations under the assumption that a strike would indeed occur.

An informal emergency response framework had evolved in Philadelphia as a result of previous transit strikes in 1975 and 1977, and from experiences with disruptions to transit services caused by special events such as World Series victory celebrations and the visit of the Pope. In the event of any serious disruption to public services, the City's Managing Director acted as the emergency coordinator, with all other involved City agencies and departments reporting to him. The entire contingency planning process for the 1981 strike thus relied heavily on past experiences with similar disruptions. Four major groups became directly involved in developing the City's response to a possible strike: the Mayor's Office, the Office of the Managing Director, the Police Commissioner's Office, and the Chamber of Commerce. Although the planning activities did exhibit some inter-agency coordination and communication, each agency was relatively independent in its efforts, so that the role of each is best discussed separately.

The Office of the Managing Director did not perceive a potential transit strike as being a "crisis" situation, but began planning for a shutdown 4 to 6 weeks before the labor contract was to expire. As part of the process, the City undertook a parking inventory to determine the car capacity of the central area, and asked its departments to survey all City employees with respect to their journey-to-work patterns.[19]

The major goal of the actions selected was to keep as many cars as possible out of the CBD during a strike. To this end, the contingency plan included the provision of remote parking areas for

carpooling into the downtown, and an information "hotline" for the public to call with their travel problems. As well, the City planned to use relaxed enforcement of certain parking regulations on downtown streets as one method of increasing total parking capacity. While these actions were directed toward the general public, the primary focus of many of the City-planned actions was to facilitate the travel of City employees to and from work. All City-owned vehicles were made available for pooling purposes, and flexible work hours were established. It was the intent of the City to play a leadership role in this situation by demonstrating how one of Philadelphia's largest employers could respond to a transit strike.

The actions which the City planned to implement were judged to be adequate because of certain characteristics of the Philadelphia metropolitan area that had reduced the level of impact of previous strikes. Most important of these was the presence of alternative mass transportation modes. Conrail commuter rail lines, the PATCO high-speed line, and several suburban bus companies could continue to provide fairly extensive service during a strike.

Although not directly involved in the plan development stages, the Mayor's Office did review the proposed actions and assisted in implementing the response.[20] For example, the Mayor's Office contacted the streets department to ensure that parking regulations could be changed efficiently, and the Chamber of Commerce was informed directly that a strike appeared to be inevitable and that major employers

should prepare their own contingency actions.

The Mayor personally avoided the negotiation process, although he did feel that it would be preferable to avoid a strike. He did not become involved in the issue because media and public support was already behind SEPTA, and his silence would imply support for SEPTA as well. The Mayor was more concerned over the impact of a shutdown on downtown retailers and transit dependents, and was also aware of the fact that any City-sponsored actions designed to supply alternative transportation services could be viewed as a form of strike-breaking. The financial realities of the SEPTA issue were also a concern, as there appeared to be a growing need for some form of regional transit tax to fund SEPTA operations. The Mayor's Office was thus more concerned over political and long-range issues surrounding the strike. While fully aware of the contingency planning process, the Mayor's Office relied on the expertise of the Office of the Managing Director to develop the actual plan.

The Office of the Managing Director coordinated all City departments and agencies, and kept the Police Department informed of the actions required. The Police Department's plan for a strike response was essentially an updated version of the 1975 and 1977 strike plans. The Department used more recent data on parking facilities and their capacities, traffic volumes, and congestion in the update process. The specific components of the Police Department response, both before and during the actual strike, included:[21]

- (1) a detailed inventory of central city parking, both on- and off-street;
- (2) an assessment of the need for special police control of access to/from downtown lots; and
- (3) increased traffic patrols in the CBD to keep intersections clear.

As well, throughout the strike, police would monitor traffic conditions during peak periods, both from the ground and from the air.

As part of its response to the strike, the Chamber of Commerce was able to make use of "Operation Alert", a framework used for informing major employers of possible transportation disruptions, ranging from severe weather conditions to transit strikes.[22] In preparation for the 1981 transit strike, the Transportation Council of the Chamber sent out information packages to all employers with 100 or more employees about two weeks before the strike deadline. The packages described which transportation services would be affected and encouraged employers to establish flex-time and ridesharing programs, not only in response to the strike, but in order to promote these concepts in general.

The Chamber of Commerce undertook this effort to help private employers because, during previous disruptions, there had been little interaction or coordination between the City government and the business community. It had become apparent that the City was once again dealing primarily with getting its own employees to work, forcing the Chamber to encourage private businesses on its own. While most firms had been able to respond well during previous disruptions, there was some feeling at

the Chamber that the City could have done more in the way of coordinating the response process.

The transit strike actually began on a Sunday, meaning that the public had at least a day to prepare for the Monday morning commute, and that the City could publicize its contingency actions without fear of influencing the negotiations. Unfortunately, references in the Sunday papers to a relaxation of parking regulations in the downtown area were misinterpreted both by the public and by enforcement officials. The result was a "ticket fiasco" on the first workday of the strike, when police towed and ticketed as usual. City officials attributed the confusion to a misunderstanding on the part of the media, who seemed to think that there would be no enforcement, and to poor communication within the Police Department itself. Police officials, on the other hand, insisted that the announcement did not come from their department, and that they would have preferred to increase parking enforcement during the strike to improve road capacities. The Deputy Police Commissioner felt that the people actually enforcing should be the ones to announce such policies, because "they would know what to say, and how to say it".[23]

Apart from the confusion over parking enforcement, Philadelphia commuters appeared to cope fairly well with the inconvenience of the strike, and most of the actions prepared by the City were successful in their objectives. The use of privately-owned empty lots for carpool staging was substantial, City-owned vehicles were used for ridesharing,

and staggered work hours helped spread the peak periods of congestion. The Office of the Managing Director monitored reports of absenteeism in City departments, and received detailed traffic updates every 30 minutes during rush hours. Overall, there was a feeling that the strike could have gone on indefinitely without severely affecting the operations and services of City departments. Except for additional overtime expenses for traffic patrols, the Police Department was not overtaxed during the strike either. The basic philosophy of the Police Commissioner with respect to the strike seemed to hold true, that "people should help themselves" with a minimum of official guidance.

Data collected by the Chamber of Commerce during the strike appear to support the position that past experiences with transit strikes made the public more ready to adapt their travel behavior (see Exhibit 2-3). The comparison of absenteeism and tardiness during the 1977 and 1981 strikes shows how the public can learn to cope with a disruption. The figures for retail sales, on the other hand, highlight the extent to which downtown retailers were affected by this and previous strikes. In fact, major downtown department stores and a shopping mall were forced to shorten their business hours due to poor sales during the 1981 strike. Overall, while the city seemed to cope well in terms of traffic flow and commuting patterns, downtown businesses could not afford to continue absorbing the sales losses, and those dependent on transit began to reach the point at which optional trips could no longer be deferred.

	1977 STRIKE (44 days in length)		1981 STRIKE (19 days in length)	
	First Day	Final Week	First Day	First Week
EMPLOYEE ABSENTEEISM AND TARDINESS				
Increase in absenteeism	3 %	0.25 %	0.5 %	0.25 %
Increase in tardiness	7 %	1.5 %	5 %	2 %
DOWNTOWN RETAIL SALES				
Decrease in sales	43 %	28 %	N.A.	45 %

Source: Philadelphia Chamber of Commerce

EXHIBIT 2-3: PHILADELPHIA TRANSIT STRIKE STATISTICS

As the strike ended, City officials felt that the principal permanent effect of the contingency planning process and the strike would likely be an overall ridership loss for SEPTA because of the public's ability to fare so well without transit. Otherwise, most of the temporary transportation measures were discontinued. City-owned vehicles were returned to normal use because the City felt it could "not afford to be in competition with mass transit".[24] The carpool staging areas could not be maintained because they involved primarily privately-owned vacant parcels of land. Police officials felt that one long-term result of the experience would be more police control over traffic and enforcement policies and planning during future disruptions.

In retrospect, both the Deputy Managing Director and the Deputy Police Commissioner felt that it was fortunate that there existed at least a framework of past response plans on which the 1981 plan could be based. Experiences during past disruptions also permitted the establishment of a response communications network both within City Hall and among other involved agencies. Unfortunately, although the communication and coordination framework existed in principle, and although it may have functioned among the City departments, it did not receive a great deal of praise from either the Police Department or the Chamber of Commerce. The parking enforcement confusion demonstrated that there were some problems with the system. Both police officials and Chamber representatives would have preferred closer coordination between the Office of the Managing Director and their respective agencies.

In summary, it would appear that the combination of experience with past disruptions and the unique transportation system characteristics of the Philadelphia metropolitan area allowed a less detailed and less comprehensive contingency planning effort to be, in the end, fairly effective. An informal response planning framework is evolving in Philadelphia, and the errors committed in responding to the 1981 strike should serve to improve it. While the relevant agencies in Philadelphia are still far from the Emergency Management Plan concept of New York City, improved coordination and communication among the agencies will move the Philadelphia contingency planning process another step in that direction.

Different types of response effort were made in the different situations examined, both because of variations in the contexts in which the disruptions actually occurred, and because those involved in preparing the response plans chose to follow different approaches. The next three chapters of this thesis examine the planning efforts on a comparative basis, in terms of the planning process undertaken, the actual plan developed and implemented, and finally, the permanent effects of the contingency planning efforts that remained after each disruption had passed. In each of the chapters, an effort is made to relate the actual contingency planning experiences in the three situations to the past research outlined in Chapter One, and conclusions are made with respect to the validity of the propositions suggested.

Throughout this effort to reach generalized conclusions with respect to events before, during, and after a transit service interruption, differences among the planning efforts attributable to explicit choices made by planners are distinguished from differences attributable to the specific context of each disruption.

CHAPTER THREE

THE PROCESS OF CONTINGENCY PLANNING

In each of the case studies described in the previous chapter, the disruptive impacts of a transit system shutdown were to some extent mitigated by the existence of a contingency plan prepared in advance of the expected service disruption. There were, however, substantial differences in the approaches used to prepare and implement the transportation contingency measures for the three disruptions. Consequently, there were also differences in the extent to which the contingency measures prepared were successful in helping commuters to cope with the disruptions in the two cases where contingency actions were actually implemented.

The transit stoppages examined demonstrate how the relative success of a contingency planning effort can be affected not only by the specific actions selected for implementation, but by several aspects of the planning process as well. The characteristics of the organizations involved in the process, the nature of the inter-organizational relationships in existence before and during the planning stages, and the manner in which the contingency plan is formulated and implemented are all aspects of the planning process that can ultimately determine the success of a response effort. In an effort to identify some of the more salient characteristics of an "effective" contingency planning process, several of the more important issues to be dealt with in the

response planning phase are examined separately in this chapter. For each issue, actual experiences from the case studies are used to illustrate its importance to an effective response plan preparation effort.

1. Unexpected Disruptions and Organizational Decision-Making

One fundamental reason for planning a response to a transit stoppage involves the decision- or policy-making functions of those organizations to be affected by the disruption. The first proposition made in Chapter One suggests that the existence of an actual response plan can help reduce the element of surprise associated with a disruption, the workload associated with the formulation of emergency response actions, and the general level of uncertainty or confusion over its exact role in the response effort for an involved agency. By defining in advance the strategy the agency will follow in the event of a service interruption, a contingency plan should serve to minimize the number of policy decisions to be made under crisis-like conditions.

In the contingency planning efforts studied, two of the major benefits of the contingency planning process realized by individual agencies involved in the response efforts were: (1) simply, an awareness of the possibility of a transit stoppage well in advance, enabling the agencies to make internal preparations; and (2) a knowledge of its responsibilities once the disruption in fact occurred. The advance warning provided by participation in a contingency planning process proved to be of differing value to the organizations involved, depending

on the various contexts in which the disruptions occurred. In the two transit labor strike cases, the termination dates of the existing labor contracts provided fairly accurate target dates for the response planning process. Certainty about the strike dates in New York and Philadelphia permitted at least the lead organizations to initiate the planning process a full two months before the disruption in both cases.

In Boston, although the possibility of a system shutdown was recognized by a consumer group six months in advance, plan preparation was not initiated until the Mayor formed the Task Force four weeks prior to the eventual shutdown. Uncertainty over whether the shutdown would even occur, combined with a desire to keep the contingency planning process out of the political debate over MBTA funding, kept Boston's Mayor from committing himself to a response effort any earlier. The volatile political environment of the Boston crisis further reduced the advance-notice benefits of response preparation, with State government agencies too involved in the political debate to be invited to participate in the process, and agencies in surrounding jurisdictions not being notified of the Plan until three days before the shutdown. The politics of the Boston shutdown were such that, had the contingency plan been actually implemented, only selected agencies from Boston that had knowledge of the process would have benefitted from the advance preparations.

Two factors seemed to increase the advance-notice benefits the individual agencies were able to derive from a contingency planning process. The first was, clearly, the willingness of the lead agency

responsible for the effort, the Mayor's Offices in the cases studied, to publicly recognize the possibility of a future disruption and to commit itself to a planning effort well in advance of the shutdown date.

Factors reducing this willingness included the political sensitivity of the specific issue behind the transit system shutdown at hand and the presence of other powerful agencies or organizations with a stake in either the shutdown issue, or in urban transportation issues in general. The political considerations arising during these crises are discussed in detail in Chapter Six.

The second factor contributing to the value of the advance notice to an organization is the involvement of that organization in the planning process itself. If an agency has not been made aware of and been involved in the process of response planning, it cannot be expected to prepare itself effectively for the disruption on the spur of the moment, even if it is handed a well-defined set of specific responsibilities by the contingency planning team. For an individual organization that is to be affected by a service stoppage, participation in the contingency planning process can better prepare its members for adapting its operating routines to the disruption, as well as providing the organization with a definite list of responsibilities or tasks to be carried out during the disruption.

In the cases examined, the presence of a contingency plan did in fact facilitate the implementation of response measures by the agencies involved. The response tasks assigned to individual agencies

stood a better chance of being implemented when adequate advance notice was given. Even when specific tasks were not assigned, the knowledge of a potential shutdown enabled agencies to make their own response preparations, as was the case in Philadelphia. Overall, the agencies that were able to benefit most from the contingency planning processes were those that had been directly involved in the planning efforts. This involvement depended a great deal, however, on the willingness of a lead agency to commit itself to contingency planning, a factor heavily influenced by the politics of the given situation.

2. Response Planning and Inter-Agency Coordination

Just as the operating routines of individual agencies tend to be negatively affected during disruptions, the explicit or implicit relationships among the many agencies and organizations likely to suffer the effects of a transit system shutdown can also be affected by such a disruption to routine. If there are no provisions made for inter-agency coordination prior to a service stoppage, the response actions taken by different interests can affect one another, and in some cases even contradict one another. The interrelationships among the interests of the many agencies likely to be involved in a response, and the consequent linkages among the response actions to be implemented, make the process of inter-agency coordination a primary objective of any contingency planning effort.

The literature reviewed in Chapter One suggests that the traditional response of organizations faced with a potential disruption to their routine is the formation of an ad-hoc committee for the purpose of overall response coordination. This same literature, however, indicates that such ad-hoc committees have proven to be inferior in the quality of decisions made, the utilization of available resources, and in overall creativity in formulating a response to a crisis situation than established policy-making groups.[1] The potential for innovative solutions to disruptions is reduced in ad-hoc committee deliberations because committee members, unfamiliar with each other, tend to resolve conflicts through compromise, so that, in many cases, the "best" alternatives may not even be considered.

The second proposition made with respect to contingency planning in Chapter One suggests that a structured response planning process can provide a forum for the coordination of proposed response measures among the agencies to be involved, and can in fact create what is in essence a new decision-making unit able to function during a disruption as a coordinating body that is somewhat more established than an ad-hoc committee. A task force composed of representatives of the major interests to be involved in the response effort should in principle be able to formulate a coordinated response plan, and in the process reduce the potential for serious inter-agency conflict during the response effort.

The New York City case study provides perhaps the best example of how a policy-making body created especially for the purpose

of coordinating agency responses to unexpected disruptions can be the basis of an effective contingency planning effort. There, the Emergency Control Board, composed of representatives from both public agencies and private interests, was able to develop a coordinated response plan. The formation of the Board to deal with any urban emergency, well before the possibility of a transit strike arose, permitted an inter-agency rapport to be established. This relationship among the many agencies on the Emergency Control Board meant that, when the Transit Strike Contingency Plan had to be developed, the agencies involved were familiar with the procedures to be followed, and were willing to become participants in a response effort.

The willingness of the many agencies in a metropolitan area to become involved in a coordinated response planning effort can be influenced by several factors. A very basic influence is the level of certainty associated with the occurrence of a transit service disruption. The more predictable the start of a transit system shutdown, and the greater the threatened impact of the shutdown on the agency concerned, the greater the pressure on that agency to cooperate in response planning.

The ability of one agency to take a leadership role in the planning and response process is another factor affecting inter-agency coordination. In the two cases involving labor contract disputes, the respective Mayor's offices assumed the dominant roles in response plan preparation. As a result, they were able to exercise direct authority over the City departments and agencies to be involved, and had a certain

amount of influence over other local interests and private organizations as well. Coordination of response activities with other jurisdictions in the metropolitan area still presented a problem, but the general legitimacy of the authority of the central city Mayor's Office, at least at the local level, seemed to promote inter-agency cooperation in both Philadelphia and New York City.

The political atmosphere which tends to accompany a transit labor contract dispute can also be an influence on the level of inter-agency cooperation that can be expected. In both New York and Philadelphia, public opinion and media support were generally behind the positions of the respective transit managements. The "villain" was perceived by the public, justifiably or not, as the transit union. Public opinion in these cases helped to encourage local agencies to cooperate in planning and implementing a strike response, and promoted more of a unified spirit among both groups and individuals coping with the disruptions.

Interviews with agency representatives in Philadelphia, however, suggested that the Mayor's Office and the City agencies planning for the strike did not take full advantage of this favorable climate for coordinating their response effort. Although City officials did make an effort to involve the Police Department and the local Chamber of Commerce, officials at the Chamber felt that more pre-strike communication would have been desirable. The lack of inter-agency coordination forced the Chamber to make preparations for the strike on its own.

In New York, while the favorable political climate also seemed to have a positive effect on inter-agency coordination of contingency responses, it was the leadership role assumed by the Mayor's Office that appeared to have the greatest influence on effective coordination. The Emergency Management Plan, established by the Mayor's Office well before a transit strike was a threat, provided the basis for inter-agency coordination. Diverse public and private interests had been involved first in the development of the emergency management framework, and then in the formulation of a response plan specific to the 1980 strike. The early involvement of virtually all the agencies to be involved in a transit strike response, when combined with the effects of a strong lead agency operating under a favorable political climate, encouraged the responding agencies to coordinate their activities.

Transit system shutdowns resulting from funding crises can be substantially more complicated in terms of inter-agency cooperation in planning a response. The Boston experience demonstrated how the political environment in which a disruption occurs can serve to hinder inter-agency coordination. There, the Mayor's Office established a contingency planning task force once a shutdown became imminent. However, the highly adversarial political debate over the future of MBTA funding meant that the relevant agencies of most of the other cities and towns in the metropolitan area, and agencies of the State government in particular, were not included in the planning effort. Some of these other agencies would not have participated even if they had been invited. State government agencies, for example, had no interest in

planning for an event that would occur only if the Governor could not reach a compromise with the "opposing" parties — the localities of the region, and the City of Boston in particular.

The Mayor's Office in Boston, therefore, was left only with the authority and influence to lead the preparation of contingency actions to be used by those agencies directly under its control. This meant that, when a shutdown occurred, the actions could only be implemented within the city boundaries. The Boston Police Department was to be the primary implementing agency in the event of a shutdown, and although efforts were made to contact other police departments in the metropolitan area, other jurisdictions generally did not become involved, partly because of the political climate, and partly because of the complexity of coordinating close to a hundred jurisdictions in a response effort. The effects of this lack of inter-jurisdictional coordination on the actual response cannot be evaluated, unfortunately, since the Boston plan was not actually implemented during the one-day shutdown of MBTA services.

All three case studies demonstrate, although to varying degrees, that in terms of fostering inter-agency cooperation and response coordination, the process of contingency planning is just as important to a response effort as the existence of an actual contingency plan. The planning processes in the three cases did provide some form of forum for inter-agency coordination, although the more structured the planning effort was, the more effective the coordinating role of the process proved to be. In New York and Boston, where specially-created task

forces developed the transit shutdown contingency plans, many of the problems associated with a dependence on ad-hoc committees in crisis-like situations were successfully overcome, at least among those agencies represented on the task forces. The characteristic of the New York process that further enhanced the effects of contingency planning on inter-agency coordination was the fact that the task force there, the Emergency Control Board, had been established well before the 1980 strike threat.

A cooperative response effort seems to depend heavily, not surprisingly, on the involvement of all the agencies to be responsible for implementing response actions in the planning process itself. In turn, the willingness of the relevant agencies to actually become involved in the planning process prior to a transit service disruption is affected by at least three characteristics of the pre-disruption environment: (1) the certainty with which the disruption is expected to occur and the potential impact of the disruption on each agency's routine; (2) the presence of an agency with enough legitimacy and influence to lead the plan coordination process; and (3) the nature of the political atmosphere surrounding the potential disruption, including the relative positions on the issue of the lead agency and the other agencies to be involved in the response.

3. The Relationship Between Response Planning and Implementation

Any coordination or cooperation among agencies fostered during the contingency planning process certainly contributes to what will ultimately be an effective response effort, but simple cooperation alone cannot ensure that the actions developed for the response plan will actually be implemented correctly, or implemented at all, when a disruption occurs. Among the agencies involved in planning, or even within individual agencies, those preparing the plans rarely have the opportunity or capacity to implement the plan components directly. Past studies of contingency planning efforts have emphasized the importance of effective implementation techniques to a response effort,[2] and have suggested that involvement of implementing units is one way of promoting agency commitments to the implementation of the plan.[3]

The third proposition made in the first chapter of this thesis postulates that such involvement of implementing agencies can in fact help promote the acceptance and subsequent implementation of the selected transportation contingency actions. Involvement of as many responding agencies as possible in the contingency planning process not only increases the likelihood of successful implementation of response actions, it can also lead to a widened perspective of the total crisis for the individual groups involved.[4] Acceptance of the proposed response actions is the key: "a low-quality solution that has good acceptance can be more effective than a higher quality solution that lacks acceptance".[5]

The implementation experiences in the three cases studied appear to solidly support the notion that participation by implementing agencies in the planning process does enhance the implementation process. Under New York City's emergency management framework, implementing and enforcement agencies were actively involved in the pre-strike preparations, and were fully aware of their responsibilities once the strike began. In Philadelphia, on the other hand, although the Police Department had been nominally "involved" in the planning process led by the Office of the Managing Director, the parking ticket "fiasco" on the first day of the Philadelphia strike suggests that this involvement was minimal. Poor communications and a misunderstanding between City Hall and the Police Department created a situation in which one policy was announced, while another was actually implemented. Whether due to poor communications, misunderstandings, or inadequate involvement in the planning process of the implementing agency, such contradictions do little to generate public support for the transportation measures in a contingency plan.

In addition to simply ensuring that implementing agencies participate in the planning process, there are several factors which must be present in plan preparation for the selected measures to be successfully implemented during a transit service stoppage. The Philadelphia experience demonstrates how important clear communication between the contingency planners and the implementors, together with an understanding of the measures on the part of the implementors, are to the response effort. The confusion experienced during the Philadelphia

strike suggests that when contingency actions are formulated, the actions and the associated implementation responsibilities should be explicitly detailed, and care must be taken to ensure that the implementing bodies understand their responsibilities.

An obvious, yet apparently elusive, objective of making the link between response planning and implementation involves the allocation of implementation tasks among the agencies involved. The contingency measures selected for an agency should be within the capabilities of that agency. When a contingency measure is proposed, the ability of an agency to implement that measure, the extent to which it would have to alter its routine to implement it, and the actual costs to the agency of implementing it are important considerations that can affect the ultimate success of a response effort.

The participation of the Boston Police Department in the contingency planning process prior to the MBTA service disruption is one of the better examples of how the link between planning and implementation can be made. In the Boston case, the Police Department was not only directly involved in plan preparation, but it in fact suggested the actions which it felt it could effectively implement. Once a preliminary contingency plan had been formulated by the Task Force, the Police Department, as a primary implementing agency, virtually took over the response preparation process. In this case, then, the contingency actions were proposed by the Task Force based on data originally supplied by the Police Department, and then the Police Department itself became responsible for the logistics of plan implementation. Although

the plan was not implemented in the Boston case, the degree of involvement of the implementing bodies in the planning process, and their apparent acceptance of the plan produced, would suggest that the transportation actions could have been implemented successfully in a shutdown situation.

The proposition that involvement of implementing bodies in the planning stages can be a foundation for making a link between contingency planning and implementation therefore seems to be supported by the actual experiences examined. These experiences, however, also indicate that in some cases, simply including implementors in the planning process may not be enough. The lesson to be learned from all three cases studied is that, once an implementing agency does become involved in contingency planning, efforts must be made to match the proposed contingency transportation measures with the capabilities, resources, and even the interests of the implementing agencies. In addition, throughout the planning process, involvement of the implementing bodies has to be supplemented by continual, direct, and clear communication with those formulating the actual contingency measures.

In the cases examined, the nature of the actual process of contingency planning which occurred before each disruption had a substantial influence on the contingency plan developed and on the effectiveness of each response effort once the disruption began. The first three propositions made on the basis of the literature reviewed in

Chapter One appear to hold true, given the contingency planning experiences studied. The actual experiences in Boston, New York, and Philadelphia, however, further suggest a number of conclusions about the process of response planning not mentioned in previous studies, conclusions that will be useful in the development of a generalized response planning framework in Chapter Seven.

While there are many other considerations, the most important characteristic of an effective contingency planning process, for the functioning of individual agencies, for inter-agency coordination, and for linking the planning efforts to eventual response implementation, is involvement. Involvement of as many responding agencies as possible in the contingency planning process, while not guaranteeing success on its own, emerges as the key to all three aspects of response plan preparation discussed thus far. That is, agency involvement in plan preparation can serve to improve:

- (1) the ability of the agency to prepare its own operations for a disruption;
- (2) the level of inter-agency coordination and cooperation developed in the contingency planning process; and
- (3) the likelihood of the selected contingency measures actually being implemented as planned.

The contingency planning process that is established is thus a very important output of any response planning effort. The other output, the contingency plan itself, is obviously just as important to the success of a response effort, and is examined in detail in the following

chapter. The planning experiences of the three case studies are once again used to discuss the most desirable characteristics of a contingency plan and the types of measure that can be included.

CHAPTER FOUR

FORMULATING AND IMPLEMENTING CONTINGENCY RESPONSE ACTIONS

The experiences during the three transit system shutdowns, in terms of the process of contingency planning adopted, tend to support the conclusions of past research on crisis planning that the planning process can be as important to an effective response as the contingency plan itself. The contingency planning efforts described above demonstrate how the issues of organizational decision-making, inter-agency coordination, and the relationship between the planning and implementation of response measures can be crucial to the outcome of an organized response to a transit stoppage. Yet, even when inter-agency cooperation and coordination exist in the planning process adopted, significant effort still has to be devoted to the development of specific response measures, the creation of an actual plan, and, if necessary, the implementation of the measures selected for use in a disruption.

This chapter examines the outputs of the planning processes or "crisis management frameworks" discussed in Chapter Three, namely, contingency plans and the measures they contain. The overall goals of formulating response plans for transit service disruptions are outlined first, and compared among the three cases. Given the types of objectives to be achieved through contingency planning, some of the specific transportation measures used in the case studies are described and compared next. The general characteristics of contingency plans in

terms of their format, level of detail, and structure are then discussed, and related both to past research and the proposition about plan format initially made in Chapter One. Finally, a number of issues to be dealt with in implementing and monitoring such transportation measures are examined.

1. Objectives of a Transit Stoppage Response Plan

As suggested in Chapter One, the general goals of contingency planning in advance of a transit service interruption can include the maintenance of public safety, the retention of certain levels of accessibility to specific areas or mobility for certain groups, and, in general, the avoidance of the type of travel chaos and congestion that can arise in the absence of public transit service. In order to achieve these rather broad goals, however, the transportation-related measures to be included in the contingency plan must be geared toward the attainment of more specific objectives.

The particular measures to be selected depend to a large extent on the nature of the specific disruption under consideration, on the capacity and structure of the transportation network in the given city, on the extent to which alternative or supplemental transportation services will be available during a transit service disruption, and even on the physical characteristics of the metropolitan area (e.g. water barriers, access routes). The objectives that contingency planners tried to meet in planning for the three disruptions studied are

discussed separately below. On a comparative basis, the influence of the characteristics of each city on the objectives established will quickly become apparent. In addition, other considerations such as the political environment and existing inter-agency relationships proved to have a substantial impact on plan objectives.

In the New York City case, officials were well aware of the fact that the biggest threat to the city during a transit strike would be unmanageable vehicle congestion in the Manhattan core area. An intense concentration of commercial activities and the heaviest dependence on public transit for CBD access of any city in the United States, when combined with the fact that Manhattan is an island with a limited number of vehicle access routes, made congestion on downtown streets and on the bridges and tunnels feeding them a primary concern for planners. Congestion of these facilities would carry with it several major repercussions for the functioning of the urban area. First and most obvious of the impacts would be significant delays for commuters attempting to gain access to or move around in Manhattan. Such delays would serve to discourage travel, thereby resulting in monetary losses to retailers and employers located in the downtown area, and would in general aggravate anyone attempting to move about.

The less direct repercussions of intense vehicle congestion in and around the core could be much more serious. Public safety could become endangered if emergency vehicles were unable to move because of congested streets. And, if the accumulation of vehicles on the street network in Manhattan were to reach a level of saturation, "grid lock"

could be the result. Grid lock occurs when an entire sector of a street system, intersections included, becomes saturated with vehicles to the point that no vehicle is able to move. When it does occur, the only remedy is to have police direct traffic manually, starting at the outer edge of the affected sector, and working inward.

New York's Transit Strike Contingency Plan was designed to avoid such conditions, and to keep traffic moving in order to maintain some level of mobility in the core area. Specifically, the objectives of the measures proposed in the plan included:[1]

- (1) the maintenance of emergency services;
- (2) providing exclusive routes for the remaining mass transportation services;
- (3) maximizing the efficiency of arterial roadways and access routes; and
- (4) keeping the accumulation of vehicles in Manhattan to a manageable level.

The New York plan thus focussed on preventing the adverse conditions which could arise, rather than specifically helping individuals or businesses to cope with a lack of public transportation. The implementation of specific measures to attain the above objectives did, nevertheless, help individual commuters cope, as will be discussed in the next section of this chapter.

The Emergency Management Framework in place in New York before the disruption, and the presence of a supportive political atmosphere, might suggest that planners could have made the maintenance of individuals' mobility a more explicit objective in developing the contingency

measures. The magnitude and implications of the problems associated with severe congestion in Manhattan, however, make such an expectation somewhat unrealistic. The limited resources available to planners, particularly in the form of implementation and enforcement personnel, necessitated a primary focus on the prevention of unmanageable congestion in the New York case.

In the Boston situation, many of the objectives of the planned measures were similar to those established in New York, in part because the Boston Task Force closely examined the New York transit strike experience when formulating its own plan. Several characteristics of the Boston situation made the contingency plan objectives and measures used in New York appropriate for an MBTA shutdown. The old and narrow streets in Boston's central business district, together with the fact that the core area is surrounded on three sides by water, made downtown congestion the biggest threat to Boston's functioning during a shutdown as well. In fact, the existing volume of traffic on Boston's antiquated downtown street network made controlling the number of vehicles in the core area the primary objective of a response plan.

It was the Boston Police Department, as outlined in the Boston case summary in Chapter Two, which set a ten percent increase in peak hour downtown traffic volumes as the maximum that could be handled by the street network and traffic officers without creating crippling congestion levels. The contingency planning Task Force then based their data analysis, limited as it was, and the actual response measures it proposed on this ten percent estimate. The primary objective for the

contingency plan in Boston was thus the result of input from what would be the primary implementing agency in the event of an MBTA shutdown.

The remaining objectives to be met by Boston's Transit Shutdown Contingency Plan can be traced to specific problems likely to be encountered in the Boston situation. Bridges and tunnels leading into the core area were a major concern to Boston planners, as they created a great potential for serious bottlenecks. Unfortunately, the fact that most of the access facilities were controlled by other jurisdictions, mostly State agencies under the Governor's control, precluded the establishment of objectives or measures that involved controlling access to, or improving flows on, these routes.

Objectives involving the facilitation of travel to and from employment locations in the core area were more prominent in the Boston planning process than in New York because of the involvement of the business community and downtown retailers in Boston. The Transit Emergency Task Force was composed of private sector representatives, and it was the Chamber of Commerce that first became aware of the potential need for a contingency plan when a consumer group originally proposed a business-oriented contingency plan. In general, then, the Boston contingency plan contained measures to meet three categories of objectives:

- (1) controlling automobile traffic in the downtown area;
- (2) promoting the use of alternative transportation services; and
- (3) garnering support of the downtown business

community to facilitate employee access to employment locations.

Once again, the explicit objectives for which transportation measures were to be developed did not specifically address the mobility problems of individuals, particularly those with no access to another mode of urban travel. Many individuals would admittedly benefit from measures that met the above objectives, but a lack of time and resources in the planning process ruled out more extensive efforts to provide alternative transportation to transit dependents in the inner city. As mentioned in the Boston case summary, the establishment of such an alternative transportation operation would be legally and financially complicated enough under routine conditions, let alone under the threat of a transit system shutdown.

Finally, one objective of the Boston response plan that was not at all evident in the New York case involved its use as a political weapon in the evolving debate over MBTA funding arrangements. As will be discussed in detail in Chapter Six, Boston City officials realized that the mere existence of a transit shutdown response plan, and the types of transportation measures it contained, could affect the eventual outcome of the MBTA funding debate. In addition, the way in which the plan would ultimately be put to use could have significant impacts on the political fortunes of the Mayor and other involved officials.

The Boston and New York cases demonstrate how the objectives of two different contingency planning efforts can be alike, in that similar problems of congestion and public safety were addressed, while

at the same time different objectives can arise due to the involvement of different groups in the planning process, because of greater time and resource limitations, and because of the politics surrounding the transit crisis. The objectives set for the Philadelphia contingency plan further reinforce both the similarities and differences mentioned, in spite of the fact that Philadelphia's response plan objectives were not made as clear in the planning process.

Controlling the potential for severe congestion in downtown Philadelphia was naturally among the most important objectives in developing the response plan. City officials felt that measures to keep intersections clear and to make every possible downtown location available for vehicle parking would suffice in handling the increased traffic volumes. Keeping cars out of the core area was not made an explicit objective for the measures to be applicable to the general public, although measures designed to meet this objective were developed for City employees working in the downtown area.

The absence of additional explicit objectives for the Philadelphia contingency plan is attributable in large part to the approach to contingency planning taken by the agencies involved. As outlined in the Philadelphia case summary, the Office of the Managing Director felt that the public's past experiences with transit shutdowns would enable commuters to cope. This meant that the primary objectives from the City's point of view were:

- (1) controlling congestion in the core; and

- (2) setting an example for other large employers with respect to the actions to be taken to ensure normal employee attendance.

Similarly, the experience of Police officials with past transit strikes in Philadelphia suggested that the objectives of any contingency actions under their control should be:

- (1) the maintenance of an orderly traffic flow; and
- (2) public safety.

A number of objectives evident in the New York and Boston plans did not emerge in the Philadelphia situation. Along with a dependence on past experience with transit strikes, the characteristics of the Philadelphia urban area itself made the attainment of certain objectives unnecessary. For example, more access routes to the core area and wider arterial roads reduced the need for measures designed to improve access facility efficiency. Similarly, the availability of several alternative transportation services made the provision of additional services unnecessary, except in the case of inner city transit dependents. Like the New York and Boston plans, the Philadelphia response effort did not include mobility maintenance objectives for isolated groups.

In all three cases examined, the focus of the plan objectives appeared to be on the home-to-work trips of those residing in suburban locations and working in core areas. Limited time and/or resources for planning an extensive program of alternative transportation in inner city areas meant that the needs of transit dependents during the transit service interruptions were all but ignored. The unfortunate truth is

that, given time and personnel constraints for contingency planning, resources can be more efficiently spent on developing objectives and measures that prevent chaotic conditions during a disruption instead of measures that promote normal travel conditions for everyone in the metropolitan area.

In general, then, there are numerous objectives which can be set for a contingency response plan and the measures it contains. Ranging from the fairly vague "ensuring public safety" to the more specific "keeping traffic volumes in the core area below 110 percent of current levels", the objectives set for a contingency plan can and will vary from one situation to the next. Public safety and uncontrolled congestion will be major concerns in any major metropolitan area facing a transit system shutdown. The more specific objectives set, and the actual measures developed to meet these objectives, will be affected by the individuals or groups responsible for the plan and the planning approach taken, by the physical characteristics of the urban area and its transportation network, and by the nature of the disruption and the politics behind it.

2. Transportation and Related Response Measures

Given the wide range of influences on the objectives of a transit stoppage contingency plan, it becomes difficult to prescribe one set of transportation-related contingency measures as being the most appropriate for all transit system shutdowns. Each objective set for

the response plan can be met by numerous specific measures and, conversely, most of the measures selected will likely serve to satisfy more than one objective.

The discussion of contingency measures in this section therefore focuses on four major categories of transportation-related response actions used in the case study situations. Measures to increase vehicle occupancy levels, to improve traffic flows on existing roadways, to encourage the use of alternative transportation services, and employer-based actions are discussed separately. Under each category, the specific measures included in the three planning efforts studies are described and, where possible, the impacts of the measures on travel patterns during the disruptions are compared.

A. Increasing Vehicle Occupancy Levels

As mentioned in the preceding section, traffic congestion in the downtown core of the metropolitan area is certain to be a major concern during any transit service disruption. One method of controlling vehicle congestion on a street network with a given capacity is to make the same number of vehicles carry more passengers. Measures to achieve this end can range from simply encouraging commuters to form carpools, to specific incentives for car drivers to carry more passengers, to outright restrictions on access to core areas for vehicles carrying less than some specified number of occupants.

At the more drastic end of this range of measures are vehicle occupancy restrictions imposed on vehicles entering the downtown core. The appropriateness of such restrictions depends both on the severity of the congestion anticipated by the contingency planners and on the physical characteristics of the street network in and around the core area. Existing heavy CBD congestion, narrow downtown streets operating above capacity levels, inadequate parking facilities for existing or anticipated vehicle volumes, and a potential for "grid-lock" conditions to develop are factors which may point to a need for vehicle occupancy restrictions during a transit service disruption. Another, just as important, consideration is the degree to which such a restriction could be effectively enforced. Apart from constraints in the form of personnel or finances available for enforcement, the actual configuration of access routes into the core area plays a big role in determining the feasibility of access restrictions.

In New York and Boston, the two cases in which vehicle occupancy restrictions were proposed and/or implemented, the limited number of access routes to the downtown across waterways made enforcement at least a viable threat to drivers ignoring the restrictions. In fact, in Manhattan, police and enforcement officers were able to turn back cars containing less than three persons at the bridge and tunnel exits, and at a boundary established north of the Manhattan core (see Exhibit 4-1). The restrictions in Boston, if implemented, would have similarly involved bridge and tunnel access points to the central city and a somewhat longer perimeter around the parts of the downtown area

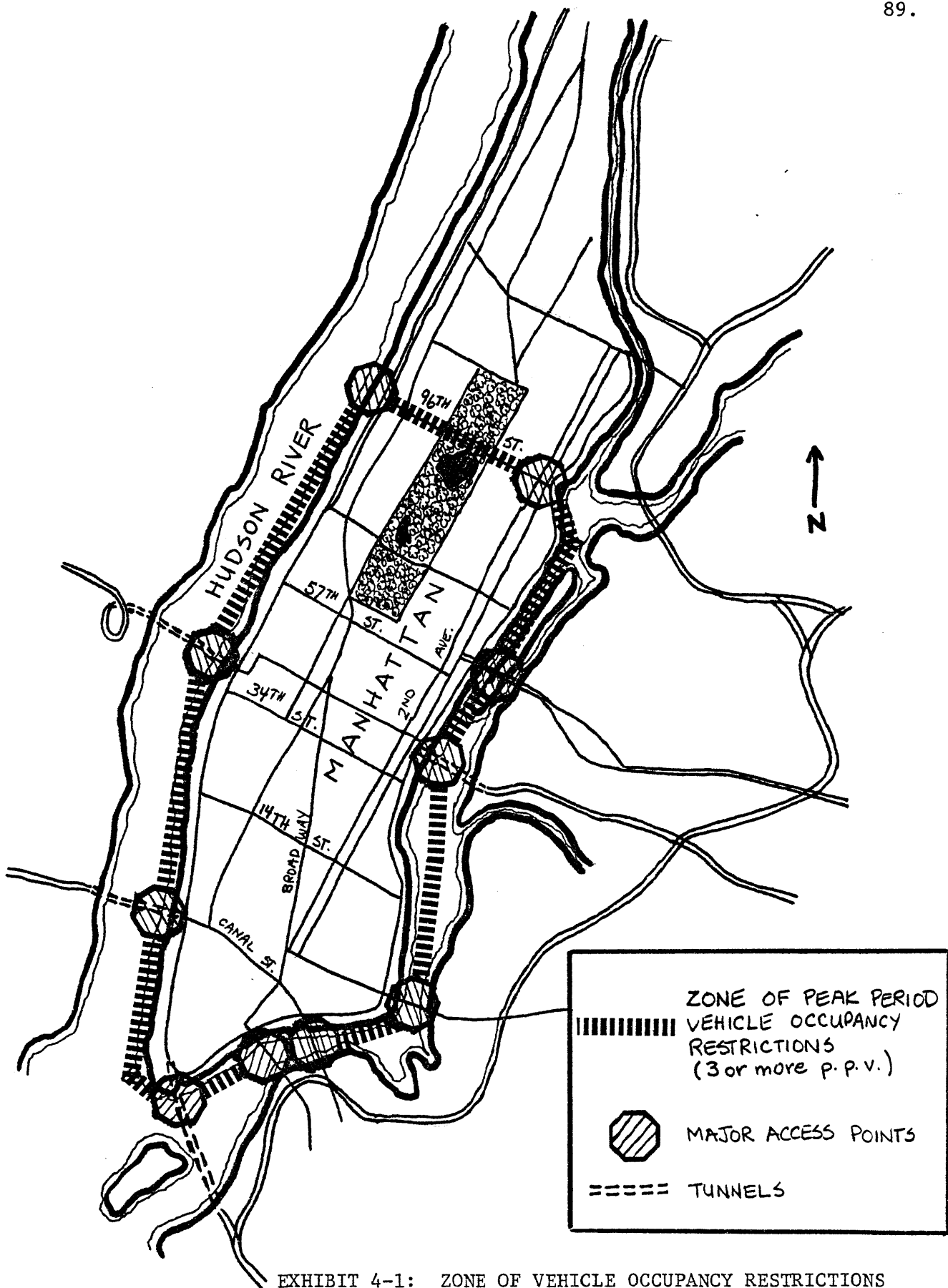


EXHIBIT 4-1: ZONE OF VEHICLE OCCUPANCY RESTRICTIONS
DURING NEW YORK CITY TRANSIT STRIKE, 1980

bordered by land (Exhibit 4-2).

If vehicle occupancy restrictions are indeed judged by contingency planners to be an appropriate preventative measure to control severe congestion, decisions have to be made with respect to the geographic extent, the temporal duration, and the exact limit on persons per vehicle of the restrictions. With unlimited time, resources, and data availability, these decisions could ideally be made on the basis of detailed technical analyses of travel patterns and forecasts of anticipated vehicle and person flows into the core area. Experience, however, suggests that such ideal conditions are unlikely to occur, meaning these decisions will depend to a great extent on past experience, simple data analysis, and input from the enforcing agencies.

Vehicle occupancy restrictions thus formed the backbone of two of the response efforts studied. They are appropriate only under certain conditions, and because their implementation tends to be controversial, their use should be accompanied by both a commitment on the part of City officials to ensure enforcement and some level of cooperation on the part of the public. Such measures are controversial because there is some debate over their legality, as some would argue that vehicle occupancy restrictions interfere with certain civil liberties.

One final consideration affecting the feasibility of using occupancy restrictions involves the impacts of their implementation on adjacent areas. In Boston, for example, surrounding jurisdictions were concerned that the back-ups caused by any occupancy restrictions would

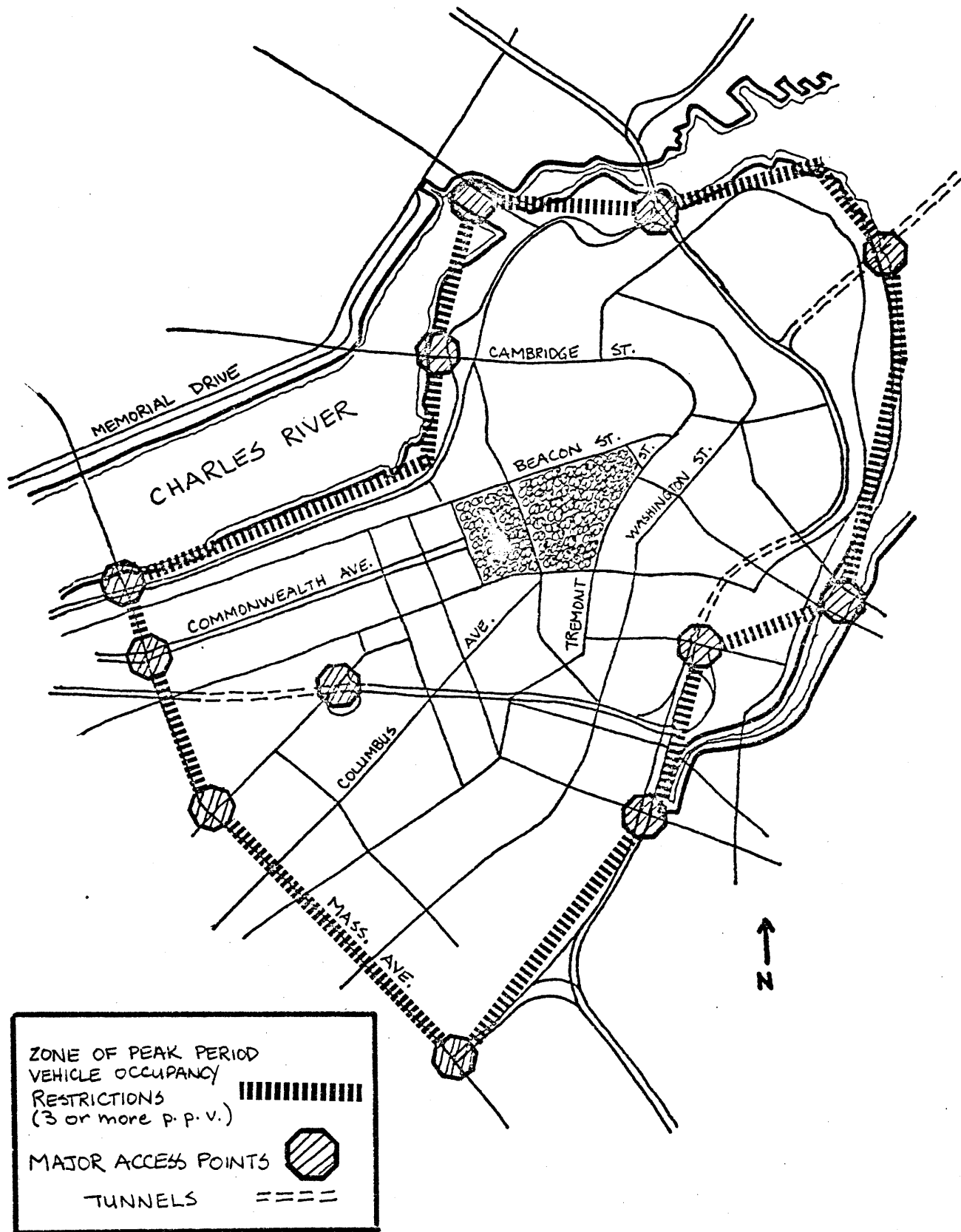


EXHIBIT 4-2: ZONE OF VEHICLE OCCUPANCY RESTRICTIONS PROPOSED FOR BOSTON'S MBTA SHUTDOWN, 1980

shift the congestion problem from downtown Boston to the neighbourhoods outside the cordon area. Again, the feasibility of enforcement and cooperation of other actors become key issues. The point is that, if vehicle occupancy restrictions are to be made a primary measure in a contingency plan, all of the above considerations are important in ensuring that the measure achieves its objective of controlling congestion rather than simply threatening to do so or shifting the problem to another location.

There are several less stringent measures available for increasing vehicle occupancy levels in congested central areas during transit stoppages. One step down from absolute restrictions are incentives designed to encourage increased vehicle occupancy levels. Preferential treatment for high occupancy vehicles (HOV's) on major access routes, at toll collection facilities, or even at downtown parking locations are all possible incentives.

In situations where occupancy restrictions for the entire downtown area are not appropriate or feasible, such restrictions on selected access routes or central area arterial roads may be a viable alternative. Although not directed toward private automobiles, the restriction of access to certain Manhattan avenues to taxis, remaining bus operations, and delivery vehicles during the 1980 strike provides an example of the priority roadway concept. Also considered, but not implemented, in New York was the designation of selected bridges and tunnels entering Manhattan as high occupancy vehicle access routes.

Designating separate lanes on major access routes for vehicles with at least a certain number of passengers is another possibility, although such a measure would require more effort to be put into signing and advance publicity, and would be more difficult to enforce than entirely exclusive roadways. Past experiences with exclusive HOV lanes on expressways, implemented during routine conditions,[2] suggest that use of HOV lanes introduced especially for a transit service disruption is likely to be less than effective.

Pricing incentives to encourage car pooling are also possible, particularly in terms of downtown parking charges. Either a discount for car poolers or a parking surcharge for automobiles carrying less than some number of occupants can encourage commuters to share rides to and from the downtown area. Along the same line, measures to make the most accessible parking areas available exclusively to carpool vehicles, or the provision of separate lanes at toll collection facilities for HOV's can be effectively used.

Establishing carpool staging areas at suburban locations (i.e. parking areas where commuters can leave their cars and form carpools) is a measure that can supplement any incentive measures imposed. Provisions for such staging areas were included in all three contingency plans examined. In Philadelphia, the remote carpool staging areas were the only City-initiated measures implemented to increase vehicle occupancy levels during the transit strike, although employers were encouraged to establish their own ride-sharing programs. In New York, many of the staging areas went largely unused, possibly because of

public perceptions of inadequate security measures on the lots.[3]

The implementation of carpool staging areas on a temporary basis during a transit stoppage is perhaps the least complex of all the vehicle occupancy measures described. Still, contingency planners must give some attention to the location of such areas, the responsibility for providing security at the lots (especially if the lot is to be located in another jurisdiction, as it often will be), and the need for public information if the staging areas are to be effective.

Overall, then, each of the response efforts studied contained at least some measures designed to prescribe or encourage higher levels of occupancy for vehicles entering the central city and using major access routes. In the two situations in which measures were actually implemented, car occupancy levels did in fact increase during the transit service disruption. It is impossible, of course, to determine the extent to which the specific measures contributed to the increased occupancy levels, as some of the increase can be attributed to voluntary actions on the part of commuters reacting to increased congestion of inadequate parking in the core area.

In New York, the mandatory restriction on auto occupancy in the downtown area was the biggest factor contributing to an increase in car occupancy levels from 1.5 commuters per car to 3.2 commuters per car during the transit strike.[4] On the other hand, the availability of remote carpool staging areas in Philadelphia had an undetermined impact. Car occupancy levels did increase during the Philadelphia strike, but

not nearly as much as they did in New York.[5]

It is clear that many of the above measures to increase vehicle occupancy levels and thereby make more efficient use of the existing road network make a great deal of sense under routine conditions as well as during transit service disruptions. In formulating such measures for a contingency plan, those involved in the planning process might want to develop a high occupancy vehicle program that can be left essentially intact after the disruption ends. This possibility is more fully discussed in the next chapter. At this point, it is only worth noting that too many or overly complex new measures implemented for a transit service disruption can create added confusion for motorists already frustrated by increased congestion, and thereby preclude the retention of the measures in the aftermath of the disruption.

B. Improving Traffic Flows on Existing Roadways

Closely related to actions designed to increase vehicle occupancy are measures geared toward making the most efficient use of existing roadways during a transit stoppage. Both types of measure attempt to increase the capacity of street and highway networks. The difference lies in the fact that, while occupancy measures increase the number of persons carried by a given number of vehicles, measures to improve roadway efficiency increase the number of vehicles carried on a given road network. As was the case with vehicle occupancy measures, traffic flow measures can vary considerably in their complexity and the

amount of effort required to implement them.

The more involved schemes to improve traffic flow can include the reversal of traffic flow on major access routes and arterial roads during peak periods. In Boston, a network of one-way streets was to be implemented in the downtown area to handle increased traffic volumes during the morning and evening rush hours. Not quite as elaborate was New York's use of lane reversals on major access routes (i.e. bridges and tunnels).

Complementary to any lane/road reversal or one-way street plan are measures designed to control parked vehicles and other obstructions on the streets involved, thereby further increasing road capacity and improving traffic flows. In both New York and Boston, stricter police enforcement of parking regulations was one measure included in the respective contingency plan. In New York, changes to existing parking regulations were also under this category of transportation measures. There, "no standing" regulations were imposed on major arterial roads to reduce the number and duration of obstructions to traffic flow.

Similarly, parking privileges on alternate sides of some streets were suspended for the duration of the transit strike. Obstructions to traffic flow were also reduced in New York by increased tow truck operations (for stranded or illegally parked vehicles) and a suspension of any road repair operations that would disrupt traffic flows. Finally, a special effort to prevent "grid lock" in Manhattan

through stricter enforcement of intersection obstruction violations completed the list of traffic flow improvement measures implemented in New York.

Boston's one-way peak flow traffic plan was to be supplemented both by stricter parking enforcement efforts and restrictions on deliveries in the downtown area. Deliveries were to be made before 11 a.m. or after 6 p.m. to keep downtown streets clear for the midday and afternoon peak periods.

In Philadelphia, the contingency plan included provision for relaxed parking regulations downtown rather than stricter enforcement of the existing regulations. This approach was intended to make more parking spaces available in the downtown core along the wider streets. Relaxed parking regulations were announced by City officials, in spite of the fact that police officials would have wanted to see tightened regulation of downtown parking, as discussed in the Philadelphia case summary. The Philadelphia response effort did, however, include some actions to improve traffic flows on downtown streets. Traffic police were assigned to all major intersections to keep them clear during peak periods to prevent any occurrence of "grid lock".

Improving vehicle flow on major roadways was thus an integral part of the contingency planning efforts examined. In terms of mitigating the impacts of a transit service stoppage on travel times and patterns, the measures described above go hand-in-hand with measures to increase vehicle occupancy levels — both serve to increase the capacity

of the remaining transportation network. Ensuring efficient traffic flow is also crucial to public safety considerations during a transit service disruption. Designating major streets as priority roadways where intense efforts are to be made to keep traffic moving is essential in providing emergency vehicle access to fires, accidents, and hospitals. New York's contingency plan provided for a number of exclusive lanes and roadways for emergency vehicles, while Boston's one-way street scheme was at least partially a result of concerns about emergency vehicle access.

Evaluating the effectiveness of traffic flow measures on travel times or travel patterns is even more difficult than assessing the impact of vehicle occupancy measures on person-per-vehicle figures during a transit service disruption. It is virtually impossible to determine the improvement in travel times caused by a lane reversal on a bridge, for example, unless before and after data is collected on different days during the transit disruption. It is intuitively clear, however, that three lanes of traffic in one direction on a bridge can carry more traffic than two lanes, thereby reducing overall travel times. Similarly, efforts to increase street capacities by controlling the amount of on-street parking and reducing the number and duration of traffic obstructions can produce visible results in terms of traffic flows.

C. Promoting Alternative Transportation Modes and Services

The most important factor in determining the feasibility of contingency measures designed to promote the use of alternative transportation modes and services during a transit service stoppage is, not surprisingly, the availability of such alternatives in a given metropolitan area. Commuters in all major cities will be able to make use of taxis, carpools, bicycles, and their own feet. Some metropolitan areas may have an inherent advantage in this area, however, as there may already exist an extensive system of mass transportation services which will not be affected by a shutdown of the main public transit operation (e.g. commuter rail services, suburban bus lines). Contingency measures under this category can therefore include measures to facilitate use of alternative private modes, measures to publicize the existence of alternative public transportation services, and even more direct actions to actually provide substitute transportation services during the transit service disruption.

All of the response planning efforts contained measures to encourage commuters to find alternative transportation on their own, or with the help of their employers. Ride-sharing was encouraged in all the cases through the use of occupancy restrictions or preferential treatment for HOV's, as described above. In New York and Boston, bicycling and walking provisions were explicitly considered in the response plans. New York's plan in fact provided for separate bicycle lanes on some downtown streets, and the lanes were retained for use after the transit strike ended. Apart from physical improvements to

facilitate bicycling, other measures could include the provision of bicycle parking areas in the downtown, and encouragement of employers to make shower and change facilities available to employees who bicycle to work.

Taxicabs were another private (or "semi-private") transportation mode addressed in the Boston and New York plans. Both plans contained measures to alter the existing taxi operating regulations to permit group riding in taxicabs. The measures were, again, directed toward increasing the passenger capacity of an existing transportation service. Boston planners also proposed the concept of taxi jitney services to operate along major transit corridors. Taxis would have been allowed to operate along transit routes, picking up passengers and charging a fixed or zone-based fare. There were concerns, however, that legal constraints could preclude the establishment of such a service, and that securing the cooperation of the taxi licensing bodies in all the involved jurisdictions surrounding the city of Boston could prove to be difficult.

The availability of alternative modes of public mass transportation varied among the cases examined, and was to at least some extent influenced by the transit service disruption involved in each situation. The start of the New York transit workers' strike was accompanied by a strike at the Long Island commuter railroad system. For the first two days of the NYCTA strike, commuters were unable to make use of LIRR commuter trains. Once the railroad workers returned to their jobs, however, the commuter rail system proved to be valuable to

many daily commuters. The New York Transit Strike Contingency Plan itself did not focus explicitly on promoting the use of alternative public transportation services.

There was some uncertainty among Boston officials with respect to the exact status of the MBTA commuter rail operations in the event that the MBTA system would be forced to shut down because of inadequate operating funds. Because funding for commuter rail was generally separate from transit funding, and because commuter rail services were provided under contract by a railroad company, planners believed that commuter rail operations would be able to continue during a system shutdown. The existing levels of crowding and limited capacities of commuter rail systems in these and most other cases, however, will constrain the effectiveness of commuter rail in providing alternative transportation to any significant proportion of those stranded by a service shutdown.

The availability of alternative mass transportation services was substantially higher in Philadelphia, where Conrail commuter train operations combined with suburban bus lines, New Jersey Transit suburban buses, and a high-speed rail line operated by an agency separate from SEPTA to provide a fairly extensive network of supplementary public transportation. The Philadelphia contingency plan did not explicitly promote the use of these services, but the Chamber of Commerce did publicize them in their efforts to inform the public and major employers of the impending strike.

If the Philadelphia experience is any indication, the existence of such supplemental mass transportation services in a metropolitan area can serve to reduce the extent or number of transportation measures required in a contingency response plan. Efforts can be made to publicize the remaining services and, if possible, to arrange for additional capacity on these services. Where such supplemental services do not exist or are fairly limited, the contingency plan can also include measures to provide additional public transportation services as a substitute for the normal public transit operation. The Boston and New York plans once again provide the best examples of such measures.

The Boston plan proposed to initiate a ferry service across the harbor to link the downtown area to the North Shore/Airport area during the MBTA shutdown. As well, private bus operators would be allowed to expand their services in Boston for the duration of a shutdown. Similarly, ferry services in New York were expanded during the transit strike there. Considerations of licensing, jurisdictional authority, and even public opinion can serve, however, to hinder the establishment of substitute transportation services during a transit service stoppage. For example, although Boston planners were willing to let private bus operators expand service on their existing routes, they stopped short of allowing private buses to operate on MBTA bus routes, as discussed in the Boston case summary. Legal implications, the complexity of the logistics required to establish such service, and a fear that MBTA unions would disrupt any private operations on MBTA routes ruled out such an action.

A similar fear on the part of City officials in Philadelphia, that of being perceived as encouraging City-sponsored strike-breaking, meant that substitute services were not even considered. Even with large numbers of transit dependents unable to travel in the inner city, the Mayor was not willing to consider directly supplying alternative transportation. In general, then, it would appear that, given the limited amount of time and resources in any city for planning for a transit disruption, and given the legal and political turmoil that could arise, providing substitute transit services during a disruption is not likely to be a feasible contingency measure in most situations.

The effectiveness of measures designed to encourage the use of alternative transportation modes and services in a disruption is, once again, difficult to specify. As mentioned, many of these measures tend to be interrelated with vehicle occupancy and traffic flow measures (e.g. promotion of ride-sharing), or are based on the promotion of already existing supplemental modes and services (e.g. commuter rail). Observations made in New York City suggest that measures specifically directed toward bicycling and walking can have a noticeable effect. Although the good April weather was also a factor, the percentage of walkers and bicycles entering Manhattan during the strike increased from 1 percent to 10 percent of all entries.[6] The impact of publicizing the existence of alternative mass transportation, as is the case with estimating the impact of any marketing campaign, is more difficult to determine. It is clear, however, that the use of such supplemental services will undoubtedly increase during transit service interruptions,

meaning that contingency planners should give at least some consideration to how these services can most effectively be used, the amount of promotion required, and the extent to which the capacity of these services can be expanded.

D. Employer-Based Contingency Actions

Most of the transportation measures mentioned thus far are directed toward making the journey to work, particularly to work locations in core areas, less frustrating for daily commuters during a transit service disruption. In fact, the focus of all three contingency planning efforts studied was on travel to and from downtown employment centers during the most congested peak periods of the day. There are, in addition, several contingency actions that can be taken by the employers themselves, whether under pressure or encouragement from government contingency planners and officials, or on their own initiative.

Perhaps the most effective action an employer can take in the event of a transit service interruption, one that would complement many of the other government-led measures discussed, is the establishment of variable or staggered work hours. Staggering the starting and finishing times for employee work days can help reduce the peaking of demand on transportation facilities even under routine conditions, and would thus be especially effective in the absence of transit service. All three response planning efforts provided for staggered work hours for

employees, but the extent of effort put into promoting the measure differed substantially among the cities studied.

In New York, the Mayor requested that major employers implement either staggered work hours or a four-day work week to reduce the daily flow of commuters into Manhattan. This request, unfortunately, was not made until the strike began and, as mentioned in the New York case summary, most businesses were either totally reluctant or unable to implement the measures during the 11-day strike.

The involvement of business interests in the contingency planning process in Boston, on the other hand, ensured that most major employers would be at least aware of the need for staggered work hours. The contingency plan proposed in Boston provided for the encouragement of staggered work hours by the City. A mandatory staggered work hour scheme had been imposed in Boston in the aftermath of a 1978 blizzard, but such a course of action could have proven to be unwise from the point of view of the Mayor's Office in the MBTA shutdown situation because of the politics and inter-governmental battles involved in the funding debate.

Philadelphia's contingency plan only explicitly provided for staggered hours for City employees. It was hoped that, by setting the example for other large employers, the City could encourage widespread establishment of staggered work hours during the transit strike. It was actually the Chamber of Commerce that provided the biggest incentive to large employers to stagger work hours by distributing information

packages about what actions could be taken during a strike. The Chamber of Commerce in Philadelphia was also instrumental in encouraging major employers to establish their own ride-sharing programs, with the same information packages outlining the steps in matching riders to carpools. Ride-sharing was thus one way in which employers in Philadelphia could facilitate employee travel to and from work during a strike, even though vehicle occupancy or preferential treatment measures to encourage ride-sharing had not been included for the general public in the City-prepared response plan.

New York's vehicle occupancy restrictions virtually ensured that employees headed for the downtown area would carpool to work. Still, large employers were encouraged by the Mayor to coordinate ride-sharing arrangements within their companies. Boston's vehicle occupancy restrictions would have had a similar effect, but they too would have been supplemented by employer plans to undertake some form of carpool matching.

The experiences with contingency planning for a transit system disruption in all three cities demonstrated that the largest employers were prepared to take action to get their employees to work in the absence of public transit service, with or without the help of a City-prepared plan. Philadelphia provides the best example of this, where the largest employers were literally left with little choice but to take action on their own. Even in Boston and New York, where more structured contingency plans were produced, large employers still prepared their own, separate actions. In Boston, the major downtown

employers and retailers considered the establishment of a shuttle bus system to feed the downtown in the event of an MBTA shutdown. And in New York, the large financial institutions did charter buses to bring employees from ferry terminals and commuter rail stations to the financial district during the strike.

Given the fact that the foremost concern of all employers during a transit service stoppage is getting their employees to work, and given a certain willingness on the part of most employers to take action, the focus of a government-led response for major employers should thus be cooperation. Staggered work hours, carpool matching programs, and privately chartered buses can all be effective contingency measures for employers to undertake, but their cooperation is necessary if any coordination of responses is to be achieved. Such cooperation may not be easy to obtain, however, for two reasons. First, most retailers and employers would much prefer no service stoppage, and may regard a contingency planning effort as a reflection of City Hall's willingness to accept a shutdown. Second, some businesses may prefer to implement their own measures rather than relying on a City-led response plan, as was demonstrated in the New York and Boston cases.

In terms of effectiveness, staggered work hours are the only employer-based contingency actions that can be assessed for their impact on travel patterns. Experiences in both New York and Philadelphia support the notion that staggered work hours can help spread and consequently lower the peak levels of demand during the day. In both cases, the morning "rush" began noticeably earlier during the transit

strikes and lasted later. Whether due to employees taking advantage of earlier and later starting times or simply because of voluntary decisions made by individuals to "beat the rush", it is clear that staggered or flexible work hours would encourage such travel behavior.

In summary, then, a fairly broad spectrum of alternative transportation measures, directed toward the attainment of several different objectives, is available to agencies or officials preparing a contingency response plan for a transit service interruption. The major types of measure mentioned in this section are summarized in Exhibit 4-3. The response planning experiences examined involved many similar types of transportation measures, but also differed substantially in many ways. It is clear that time and resource constraints played a role in determining the types of measures proposed and used in the respective plans, as all three cities focussed their response efforts on preventing chaotic travel conditions rather than providing more complicated alternative transportation services. This meant that most of the measures included in the contingency plans were designed to facilitate the journey to work in downtown locations, primarily benefitting suburban commuters.

Differences in the measures chosen for implementation can be traced to factors as diverse as the physical characteristics of the particular metropolitan area and the political climate surrounding the transit service disruption at hand. The nature of the contingency

1. INCREASING VEHICLE OCCUPANCY LEVELS

- A. Minimum occupancy restrictions for vehicles entering the core area
- B. Preferential treatment for high occupancy vehicles on roadways, at toll facilities, or at parking locations
- C. Vehicle occupancy restrictions on selected access routes or central area arterials only
- D. Pricing incentives for carpools on toll roads or at parking lots
- E. Carpool staging areas at suburban locations

2. IMPROVING TRAFFIC FLOWS ON EXISTING ROADS

- A. Reversal of traffic flow on major access routes during peak periods (entire roadway or individual lanes)
- B. Designation of a temporary one-way street network in the core area
- C. Imposition of parking and standing regulations on major routes
- D. Stricter enforcement of parking and stopping restrictions on downtown and arterial streets
- E. Suspension of parking privileges on selected streets
- F. Increased tow truck operations for rapid removal of obstructions
- G. Suspension of non-essential road repair operations
- H. Grid-lock prevention through enforcement of intersection obstruction violations
- I. Physical improvements to ramps and intersections to smooth flows
- J. Restriction of deliveries during peak periods

3. PROMOTING ALTERNATIVE TRANSPORTATION MODES AND SERVICES

- A. Bicycle routes and separate bicycle lanes on downtown streets
- B. Special bicycle parking areas downtown
- C. Change taxi regulations to permit taxi group riding
- D. Taxi jitney services along major travel corridors
- E. Expand capacities of alternative mass transit operations, if available
- F. Initiate passenger ferry service
- G. Allow private bus operators to expand services
- H. Expand elderly and handicapped transportation services

4. EMPLOYER-BASED ACTIONS

- A. Establishment of variable or staggered work hour schemes
- B. Four-day work weeks
- C. Employer-directed ridesharing programs and carpool matching efforts
- D. Shuttle bus services to feed the core area or areas of employment concentration from commuter rail and ferry terminals

EXHIBIT 4-3: TRANSPORTATION AND RELATED RESPONSE MEASURES AVAILABLE FOR USE DURING TRANSIT SERVICE STOPPAGES

planning process adopted, including the approach established for the process and the agencies and actors directly involved in plan preparation, formed the basis of many of the differences in the objectives initially set and, in turn, the measures ultimately included in the response plan. It was this wide range of actions included in each of the plans and the wide range of influences on these actions specific to each context that emphasized the fact that no one list of transportation contingency measures could possibly be appropriate for all situations.

In terms of preparing a specific response plan, however, the diverse experiences do provide some general guidelines for future planning efforts. Already mentioned is the inescapable fact that, in preparing for most disruptions, time, personnel, and funds will likely be limited. This means that large-scale, complex schemes to provide alternative transportation for all groups and programs requiring large levels of funding or large numbers of personnel for implementation cannot feasibly be included in most contingency plans. Similarly, the measures developed for the plan cannot be overly complex or innovative from the point of view of the commuter. Transportation programs that take months to implement under routine conditions should, obviously, not be considered for instant implementation under crisis-like conditions.

Perhaps the most important guideline for the selection of specific contingency measures to meet given objectives involves the interrelationships which exist among many of the possible measures. Encouraging higher vehicle occupancy levels is a prime example. The imposition of vehicle occupancy restrictions or even preferential

treatment for HOV's on access routes to the downtown should be supported by both carpool staging areas in suburban locations and the provision of adequate parking facilities for the increased number of vehicles to be entering the central core. What is important here is a recognition of the fact that the imposition of one transportation measure may have effects that will require the imposition of complementary measures, while other measures such as reducing on-street parking may both conflict with some plan objectives and contribute to others. The selection of specific measures for inclusion in a contingency plan thus requires the planners involved to relate the effects of the proposed measures on both travel patterns during a disruption and on other measures that may be included in the plan.

3. Format and Structure of Contingency Plans

Having selected specific transportation contingency measures to satisfy the objectives set for the transit disruption response effort, those involved in preparing the contingency plan must also be concerned about the structure and format of the plan itself. A contingency plan can be called "structured", in that it identifies and describes the measures to be implemented in a disruption, specifies the agencies responsible for the implementation of each, and explicitly outlines the resources to be used. A contingency plan can also be termed "flexible", as it can provide for modification of the measures, agencies, and resources involved in the response effort as the disruption

evolves. The fourth proposition made at the end of Chapter One suggests that an effective contingency plan should strike a balance between structure and flexibility.

The level of detail and the structure of contingency plans developed for the three transit service interruptions varied considerably, affected both by the environment in which the response plans were prepared and by the past experiences of each city with similar disruptions. For example, the response plan prepared in Philadelphia contained a minimum of actions explicitly directed toward the general public, relying instead on the past experiences of both the responding agencies and commuters in dealing with an interruption of transit service. The City officials responsible for developing a plan took the view that their role should be one of encouraging private groups to take their own contingency actions by providing an example of how the City, as a large employer, could cope with a transit strike.

The response plan developed in Philadelphia was thus relatively unstructured, involving only City departments and the police department as the primary participants in a response effort. The document itself took the form of memoranda circulated among the agencies involved. At the other end of the spectrum of structure and detail is New York's planning effort for the 1980 transit strike there. The New York contingency response involved two separate plans, the "Emergency Management Plan" and the "Transit Strike Contingency Plan".

The need for a balance between structure and flexibility in contingency plans suggested by the literature reviewed earlier has given rise to the concept of a "crisis management framework" developed for use in any kind of emergency in an urban area. New York's "Emergency Management Plan" provides the sole example from the three disruptions studied of this approach to response planning. Under the framework of the Emergency Management Plan, City officials developed a specific response plan for the 1980 strike.

The Transit Strike Contingency Plan that was developed was extremely structured, yet provided flexibility in the response once the strike occurred. The plan contained an extensive list of transportation contingency measures, each of which was described in detail, with the responsibility for each of actions assigned to the relevant agencies up to two months before the strike deadline. To ensure overall coordination and centralized control of the response activities, the transit strike plan provided for, and specified the responsibilities of, a "command center". Officials in the command center were made responsible for ensuring implementation of the planned actions by all the involved agencies and for monitoring their impacts once implemented.

The flexibility in New York's transit strike plan, ironically, was provided by the structured manner in which a monitoring system was to be established. The proposed system for monitoring traffic congestion and contingency measure impacts helped maintain flexibility in the plan, as changes to any of the response measures could be made when warranted. As well, the existence of a centralized command and

communications center meant that adjustments to the response actions necessitated by changing circumstances could be made rapidly. The New York Transit Strike Contingency Plan, in effect, provided for response flexibility through its very structured response framework. The plan document itself was a comprehensive outline of the proposed response effort, and was distributed to those involved or simply interested.

The politicized nature of the impending transit service interruption in Boston influenced both the environment in which the plan was developed and, in turn, affected the structural characteristics of the response plan produced. The result was a response framework between that of New York and Philadelphia in its level of detail and overall structure. While the effort put into plan preparation by the Task Force created a contingency plan much more detailed than the one used in Philadelphia, the highly-charged political atmosphere and the absence of any emergency management framework similar to New York's meant that the implementation structure associated with Boston's plan was much less sophisticated.

The police department was to be the primary implementing agency, with City Hall serving as a command center. As previously discussed, the politics of the Boston crisis meant that little cooperation could be expected from surrounding localities or the State government. Still, in terms of the actions to be employed within the city of Boston in the event of a transit system shutdown, the timing of and responsibilities for the implementation of the proposed measures was well detailed

in the contingency plan document.

The proposition made in Chapter One concerning structure and flexibility in contingency plans cannot be fully tested with the limited results provided by the three experiences examined. Based on past research and the response implementation experience of the most structured planning effort studied here, it is apparent that both structure and flexibility play crucial roles in the success of a contingency response to a transit system shutdown. The two-phase planning process adopted in New York (i.e. emergency management framework as the basis for a specific response plan), provided the foundation for an effective planning and implementation effort by permitting a significant amount of flexibility to occur within the confines of a very structured response plan.

In both of the other cases studied, the establishment of an emergency management framework like that used in New York would have been more difficult. In Philadelphia, for example, officials did not perceive a need for a plan so structured. Because the city had been able to cope well with previous transit service disruptions, a minimum of advance planning and coordination was judged to be adequate. In Boston, political realities ruled out the establishment of a comprehensive response framework because it would have required substantial cooperation from numerous agencies representing many jurisdictions within the metropolitan area.

While the circumstances surrounding the particular disruptions studied in Boston and Philadelphia precluded the establishment of a

comprehensive emergency management framework, this does not mean that such a framework could not be established in those cities. Such an emergency management framework, by establishing inter-agency relationships and an acceptance of contingency planning in advance, can provide a solid foundation for the formulation of a specific response plan for a transit system shutdown or strike. The existence of such a structured framework for the development and implementation of a response plan is perhaps the most important reason for the success of New York's response efforts in reducing the adverse impacts of the 1980 transit strike.

4. Implementing and Monitoring Response Actions

The true test of the contingency planning process adopted, and particularly of the response plan developed, occurs when the anticipated transit service disruption actually begins. The outcome of efforts put into the preparation of individual agencies, the establishment of inter-agency coordination, linking the planning process to implementation, and the development of a structured response plan which also provides flexibility in a disruption is contingent upon actually implementing and monitoring the proposed response measures. Effective implementation requires not only an initiation of the response process, but also a release to the media and public of the details of the response plan being implemented. Once the planned measures are indeed implemented, the impacts of the transit service disruption and of the contingency measures on travel patterns must be monitored so that the

response effort can remain flexible as circumstances change.

Even though the plan preparation process may involve the implementing agencies and the resulting response plan may be adequately structured, the logistics of implementing the response measures once the disruption begins should still be explicitly detailed in the plan itself. Response measure implementation, in principle, should not pose a great problem after a coordinated plan preparation process, but the release of the details of the plan to the public is an implementation issue to be dealt with as the transit service disruption becomes inevitable. Because the contingency plan itself can become a political tool in negotiations surrounding any transit system shutdown, the timing of the release of the plan can have an influence on the disruption itself.

Concern by the lead agencies over the timing of the plan's release was evident in both the Boston and Philadelphia cases. Because the Philadelphia disruption involved contract negotiations between management and the Transit Workers' Union, the Mayor's Office did not publicize the plan preparation process at all, and only released details of the measures to be implemented once the strike actually began. It was felt that an awareness of the existence of such a plan by the negotiating parties could have influenced the bargaining process. Similarly, in Boston, the heated political atmosphere surrounding the MBTA financial crisis kept the Mayor's Office from releasing the plan until the system was actually shut down. City officials felt that public knowledge of the existence of a contingency plan could have compromised the City's position on resolving the funding conflict. The

impact of politics and public opinion on this and other aspects of contingency planning is more fully discussed in Chapter Six.

When political concerns keep the details of a contingency plan secret until a disruption actually begins, some of the benefits of advance notice of the disruption can be lost. Nevertheless, as long as all the implementing agencies and organizations willing to respond are fully aware of their implementation responsibilities, an effective response is possible. Because specific measures cannot be made public in advance of many transit service disruptions, the contingency planning process should consider plan publicity and the role to be taken by the media in a disruption. An information package should be developed as part of the response plan so that the media can be given an accurate, single explanation of the planned response by the lead agency once it decides to release the details.

Once a decision to release details of the plan is made, the information released should, of course, be accurate. Philadelphia's experience with public confusion over parking regulations illustrates how important accurate information is. New York's approach of having a single information source at the Command Center responsible for keeping the media informed is perhaps the best model to follow. At a time when confusion among the public is bound to increase, confusion among those implementing the response actions is not at all desirable.

Monitoring the response actions and their impacts on travel is an activity that should be undertaken once the plan implementation

process has begun and the details of the plan have been made public. Effective monitoring depends on the establishment of communications channels from the lead agency to each implementing unit. In New York, the Command Center served as the hub of the monitoring system. There, a member of each major agency involved in the response manned telephones to keep the Center abreast of new information such as peak hour traffic flow data and survey results of mode of entry and employee absenteeism levels. The information gathered was used to make adjustments to the actions initially implemented and to ensure that all the contingency measures were in fact correctly executed.

To make use of the preparations made in the contingency planning process, then, there are several issues to be dealt with in actually implementing and monitoring the response measures. When a plan is ready for implementation, publicizing its contents is a first step in the response process. Political considerations can affect the timing of the plan's release, but once a decision is made to implement the plan, the media should be provided with an accurate package of information and, ideally, should receive all of this information from a central source. In addition, a pre-determined system for monitoring the implementation process should be established and maintained to ensure that all the planned actions are implemented and to provide for response flexibility.

The success of a transit service disruption contingency planning effort depends primarily on the effectiveness of the measures implemented, at least as perceived by both those implementing and being affected by the contingency measures. The plan itself plays perhaps the biggest role in determining how the response effort is perceived at street level, as the transportation measures used in a transit stoppage response are the most visible aspects of the entire contingency planning process. The specific measures selected are influenced by the objectives set for the entire contingency response process, which can in turn be influenced by numerous factors specific to the disruption under consideration. An effective contingency response plan provides for the implementation of the selected measures in a structured framework that remains flexible enough to permit adaptation throughout the disruption. Once a disruption begins, additional issues of plan implementation, information dissemination, and plan performance monitoring must be addressed.

The success of a response plan, as mentioned, is heavily dependent on the perceptions of officials, media, and especially the general public of the extent to which the planned response helps to mitigate the hardships and confusion associated with a transit service disruption. Once the contingency plan has been implemented effectively, then, the primary objectives of the contingency planning process have been fulfilled. There are, however, additional impacts of contingency planning which can be realized after the disruption ends, and these impacts are discussed in the next chapter.

CHAPTER FIVE

IMPACTS OF CONTINGENCY PLANNING AFTER DISRUPTIONS

One final issue arising from the preparation and implementation of a contingency plan, one which may not be as obvious to those in the midst of preparing a response to an imminent transit service stoppage, involves the period after the disruption or threat of disruption has passed. As mentioned in Chapter One, both the process adopted for contingency planning and the actual implementation of response measures can leave long-term transportation-related impacts after the disruption ends. Because any crisis or other disruption to routine can act as a "device of change", [1] the physical and organizational changes induced by contingency planning for a transit stoppage, along with the potential for consciously using the process to induce such changes, merit further discussion.

This chapter outlines how the contingency planning processes studied served to change both the transportation system and the urban transportation planning arena in each case. First, for the two cases in which response measures were actually implemented, the extent to which any innovative transportation policies or projects initiated for the disruptions were retained for permanent use is examined. The influence of each contingency planning experience on institutional arrangements and inter-organizational relationships in the urban transportation planning context is then briefly summarized. An assessment of the very

practical long-term impacts of an initial contingency planning effort — the establishment of a response procedure and an actual response plan that can be re-used in future situations — is included in this discussion of institutional impacts. Finally, the possibility of actively making use of a "crisis" situation and a contingency planning process to direct both types of change, based on the characteristics of disrupted organizations, is explored.

1. Transportation System Impacts

The most readily evident long-term impact of a transit service interruption that involves the implementation of specific transportation measures is the retention of the more successful measures for use after the disruption is over. While the more drastic, large-scale measures such as auto occupancy restrictions in downtown areas or bridge and tunnel flow reversals may not be appropriate as permanent fixtures in the transportation system, many of the measures available for use during a transit service stoppage, as mentioned earlier, are in fact Transportation Systems Management (TSM) techniques designed to make more efficient use of existing roadways.

The New York City transit strike response provides the best example from the three cases of how temporary measures can be integrated into the transportation system for permanent use. A study of the effectiveness of the transportation measures employed during the strike concluded that the success of some of the measures indicated a need for

their adoption in order to relieve congestion and to make better use of the transportation network after the strike ended.[2] As a result, a number of contingency measures were maintained after the strike, some were reimplemented, and several others were designated for further evaluation.

Among the measures retained for permanent use were exclusive-use streets and separate bicycle lanes on streets in the Manhattan core. Sections of Madison Avenue, chronically congested during most of the business day, were designated for limited use by buses, taxis, and local delivery vehicles during the peak periods of congestion. Acceptance of the Madison Avenue restrictions in turn prompted further studies of where similar restrictions could be effective. On the other hand, the physically separate bicycle lanes on downtown arterials, constructed in response to the popularity of temporary bicycle lanes during the 1980 transit strike, have not been as well accepted. The bicycle lanes were not only underutilized, as strike-bound bicyclists returned to their original modes of travel, but actually seemed to increase the number of bicycle-vehicle collisions by giving cyclists a false sense of security from motor vehicles.

Many of the more simple physical changes made to highway ramps, toll collection facilities, and major intersections to improve traffic flows during the transit strike have also been maintained. The possibility of permanently implementing some of the more extensive measures, such as auto occupancy restrictions in Manhattan or on major access routes, and taxi sharing regulations, is being further evaluated

in terms of feasibility.

The fairly extensive and detailed response plan used in New York City thus generated a number of longer-term impacts in the form of actual changes to the transportation system, and even more in the form of potential policy changes subjected to more detailed evaluation. The Philadelphia response plan, far less structured and less extensive in terms of the transportation measures it contained, not surprisingly, did not have the same long-term impacts. The limited transportation-related measures employed during the SEPTA strike were all discontinued once the disruption ended. Still, it can be argued that the limited response effort in Philadelphia did generate some lasting effects on urban transportation in that city.

While City-led promotion of ride-sharing during the strike was limited to providing remote carpool staging areas and encouraging its own employees to carpool to work, the efforts of the Chamber of Commerce to encourage other major employers to initiate their own ride-sharing programs were substantial. The resultant experiences of commuters with the ride-sharing concept during the transit strike could have provided some incentive to continue carpooling once the strike ended. Although such a shift in commuting patterns is difficult to accurately estimate, its occurrence is reflected in the significant ridership decreases experienced by large transit systems after labor strikes or other disruptions.[3]

The Philadelphia response experience was one in which new transportation measures were not extensively used as part of the strike response and, consequently, were not retained for permanent use. The potential for maintaining contingency measures implemented in a disrupted environment, however, was clearly demonstrated by the New York experience. The possibility of taking advantage of a disrupted environment to implement and maintain certain transportation measures is thus an important planning issue, one which is discussed further in a later section of this chapter.

2. Institutional and Organizational Impacts

Whether pre-determined by contingency planners or not, the retention of temporary transportation measures for permanent use is a readily apparent, physical impact of a contingency planning and response process. A more subtle remnant of such an experience can involve the inter-agency relationships which make up the urban transportation planning arena in a given metropolitan area. In some instances, planning for a possible transit system disruption may be a means of establishing inter-agency coordination and relationships that can be maintained as part of the normal transportation planning process. A cooperative contingency planning effort can provide a link between interests previously unrelated with respect to transportation issues.

The Boston response planning effort, for example, was one oriented at least partially toward business community concerns about

transportation service to the downtown core. The involvement of the private sector in planning a transit system shutdown response was seen by City officials as presenting an opportunity to establish and maintain increased business community participation in transportation planning activities in general. Even though the contingency plan was never implemented, the government-business links established in the urgent atmosphere prior to a potential system shutdown had Boston planners talking about the possibility of "new planning directions" for transportation in the metropolitan area.[4]

A similar relationship between City government and private business interests, with a little more conscious effort on the part of the contingency planners, could easily have been generated in both New York and Philadelphia. Many of the measures contained in transit stoppage contingency plans require cooperation from employers and their employees, making improved government/business relationships with respect to urban transportation policy-making a readily achievable long-term benefit of contingency planning.

It is also possible that participation in a comprehensive contingency planning process may improve (or establish) relationships among different government agencies at the same or different jurisdictions or levels. Although the impact of contingency planning on such relationships for routine planning or implementation activities is hard to determine, the impact in terms of the present and future disruptions can be substantial. New York's development of an Emergency Management Plan demonstrates how the establishment of inter-agency relationships in

the form of communication and coordination made the planning and implementation of the 1980 Transit Strike Contingency Plan a smoother process.

While not evident in all the situations studied (in Boston, politics of the transit crisis meant that relationships among some government agencies deteriorated instead of improving), the experience of planning for and responding to a transit stoppage in a unified way can positively affect inter-organizational relationships. Even if these changes do nothing to change the urban transportation planning routine, they are more than likely to make contingency planning for future disruptions a less complicated process.

Planning for future disruptions, given an initial contingency planning effort, is likely to be less complicated both because of the relationships established in the process and because of the fact that the plan which was formulated can be re-used in the event of another similar disruption. Many of the measures needed will likely be identical in a future contingency plan and, more importantly, any cooperative attitudes established among the responding agencies will not be forgotten.

Philadelphia City officials and the police department have, over the course of several transit strikes, developed a response plan which requires only minor modification and updating each time it is used. Similarly, Boston officials now consider their unused plan to be the basis for any future contingency response. The usefulness of a past contingency planning effort in future situations can be even greater

where an emergency management framework exists, as it does in New York. There, the continuity provided by the presence of the Emergency Control Board ensures that the experience of the 1980 transit strike will be of value in responding to future disruptions of any kind.

The institutional arrangements and inter-organizational relationships in existence in an urban area, while less visible to the general public than the characteristics of the transportation network, can therefore also be affected by a contingency planning and response effort. Although less readily apparent in the immediate aftermath of a disruption, organizational and institutional changes may carry with them greater long-term ramifications than physical changes to the transportation network. Whether new actors become involved in urban transportation issues as a result of the contingency planning experience or new links become established between formerly isolated actors, the potential for further innovation or change to the urban transportation planning process can be great. In addition, no matter what aspects of the routine transportation planning process are affected, the initial contingency planning effort is almost certain to leave behind both inter-organizational relationships and a response plan that can be of benefit in future disruptions.

3. Contingency Planning as An Opportunity to Direct Change

Both the physical network changes and the institutional and organizational changes discussed above imply that the policy- and

decision-making environment is somehow altered during the period before, and especially during, a transit service disruption. As suggested in the literature, the atmosphere of urgency which accompanies most crisis situations carries with it a potential for a more ready acceptance of change on the part of the involved actors. This change can come about during periods of disruption when the agencies involved develop a "recognition that previous modes of coping have been [or will be] inadequate and change is necessary".[5]

During crisis-like situations, then, the political and institutional barriers that normally tend to obstruct the adoption of new transportation policies or projects may in fact give way to a temporary willingness on the part of major actors to accept proposals for such projects in the interest of providing a unified response to the disruption. Although the initial reaction to a disruption by an organization usually reflects a strong resistance to change, there is a phase in planning for and responding to a disrupted situation when the need to adapt to the disruption will make innovation more acceptable.[6] The fifth and final proposition set forth in Chapter One postulates that a well thought-out contingency planning process can be consciously used by planners to take advantage of this need to adapt in a disruption to effectively direct any changes that may occur.

It is not clear from either the New York or Philadelphia experiences with preparing and implementing contingency plans that the planners involved had any "hidden agenda" or plans to use the process to

implement a controversial or innovative transportation policy or project. The success and acceptance of several measures during the New York strike and their retention after the strike, however, does indicate that such an approach to getting certain innovative transportation projects accepted could prove to be quite successful.

In Boston, where the contingency plan was not used, planners were at least partially disappointed that it was not implemented because they had hoped to see some of the measures they proposed achieve success and public acceptance during a transit system shutdown, thereby encouraging permanent adoption. For example, they felt that taxi jitney-type services along major streets would have been a great success during an absence of transit service, and that keeping them for permanent use would have been an innovative step forward for transportation in Boston. Similarly, encouraging employers to implement staggered work hours in response to a transit service interruption was perceived by planners as an opportunity to introduce the concept and to demonstrate its effectiveness.

While the cases examined do not provide a clear example of contingency planners successfully manipulating the response plan or planning process to promote a specific transportation policy or project innovation, it is clear that the characteristics necessary for such an effort were present in each of the cases. If one looks at change or innovation as a three-stage process of unfreezing, changing, and re-freezing the environment,[7] then the period before and during an urban transit stoppage can be viewed as one in which the many agencies

and organizations involved experience various degrees of "unfreezing", depending on how serious the threat of a disruption is. Planners hoping to use this opportunity to promote specific programs must therefore arrange to have them approved and implemented for the response effort, before the environment enters the "re-freezing" phase.

This concept of "re-freezing" is important because there tends to be a point during transit service disruptions after which the disruption is no longer perceived to be a "crisis" by those involved. Once the response plan has been implemented and each affected agency or organization has adapted to the situation, the willingness to accept innovative actions will diminish. This was the case in New York where, in spite of the fairly obvious success of the many transportation measures implemented for the transit strike, many City officials were in favor of having everything return to normal after the strike ended.[8] The efforts of the City's Department of Transportation, supported by the Mayor, were what kept many of the temporary actions alive, either as actual continuing projects or as potential projects subjected to further study.

Consciously inducing changes to the transportation network or to the transportation planning arena in an urban area may not be possible in all situations involving a contingency response to a transit service disruption. Those leading the plan preparation process should nevertheless be aware of this potential and, if some new policy or project is to be tested during the disruption, should take into account the aspects of the situation that could hinder any "unfreezing". As

well, the implications of the projects to be tested or promoted have to be considered, particularly with respect to the likelihood of their acceptance by the general public. As mentioned in Chapter Four, contingency transportation measures that are overly complex or which take a long time to correctly implement would be inappropriate for use during a disruption, and are likely to be rejected by those affected by them.

The cases discussed above demonstrate that the entire contingency planning effort, together with the actual plan produced, can have significant and potentially beneficial impacts on the transportation policy-making and planning environment after the disruption has ended. Although the measures contained in a response plan are the most visible impacts of contingency planning from the point-of-view of the general public, contingency planners should consider post-disruption effects of their planning effort for several reasons. First, a transit service stoppage can present a unique opportunity to implement transportation actions that under normal circumstances would not be adopted or would at least require a long approval process. As well, the relationships established among agencies and other interests during the planning process may lead to the involvement of new actors in the urban transportation planning process. Careful consideration of such post-disruption impacts by contingency planners can allow some effort to be made in terms of guiding these impacts. Finally, whether or not such an effort is productive, the effort put into developing a transit service disrupt-

tion contingency plan will always produce a response procedure and a response plan that can be used again in future disruptions.

CHAPTER SIX

THE POLITICS OF TRANSIT SERVICE DISRUPTIONS

The preceding discussions of the process of contingency planning, characteristics of the actual response plan, implementation considerations, and the potential impacts of contingency planning in the aftermath of a transit service stoppage, have all included some mention of the political atmosphere which can accompany such a disruption. The cases studied involved differing degrees of political confrontation over the disruption at hand, meaning the contingency planning process was in each case at least partially influenced by political considerations. Because a contingency plan can become a political document subject to the unique pressures of politics in a particular metropolitan area, those responsible for producing the plan should recognize both the political influences on their efforts and the influence of the plan they produce on the politics of a given disruption.

The politics of transit service disruptions, as an input into and an output of the contingency planning process, are examined in this chapter. The constraints imposed on, and the opportunities provided to, contingency planners by political considerations are discussed first. The potential political implications of the actual plan produced on the manner in which it is publicized and implemented are then addressed.

As was the case with all of the aspects of contingency planning discussed thus far, the three cases studied provide examples of

the ways in which politics can enter the planning process. In examining political considerations, however, it becomes apparent that contingency planning in Boston for a transit stoppage caused by an intergovernmental funding dispute was a far more political exercise than planning for the transit labor strikes in either New York or Philadelphia. The political issues that can arise in labor strike and funding dispute situations are therefore discussed separately in each of the following sections, and in turn highlight the fact that generalizations with respect to the political environments in different metropolitan areas under different circumstances are difficult to make.

1. Political Influences on Contingency Planning

The influence of political considerations on contingency planning for an urban transit stoppage can be related both to the nature of the conflict that leads to the disruption and to the effectiveness of the actual contingency plan in demonstrating the competence of the government agency responsible for implementing the response. These influences on the planning process involve the political image of those responsible, or perceived by the public as being responsible, for initiating and leading a contingency planning effort. A contingency plan is closely associated with the leaders and officials who adopt it. If it proves to be effective, they can claim credit; if it proves to be a failure, they will have to take the blame. The impact of this on contingency planning in the urban context is that "many of the finer

points of public policy [can] become overwhelmed by the necessity for a clear governmental presence ... just to maintain reasonable public order. Many of the actions taken during a crisis may be made for symbolic impact upon people's general behavior, more than for the specific effect they have".[1]

Apart from the expected public perception of the effectiveness of a contingency plan in a disruption, public opinion with respect to the cause of the transit service stoppage can also influence the response preparation process. If public opinion appears to be in support of, for example, the position of City officials or the Mayor with respect to the dispute over wages or funding arrangements, the Mayor may be more likely to initiate and support a contingency planning process. It is possible, however, that some segments of the public (i.e. constituencies) will either disagree with the position taken by the City, or feel that City officials should be putting their efforts into solving the dispute rather than planning for a service stoppage.

The opinions and interests of different constituencies in the urban political environment can thus play a major role in either promoting or impeding the efforts of contingency planners, through the political pressure that can be applied to elected officials. Among the most powerful constituencies likely to influence the contingency planning process are the affected labor unions and labor interests in general, and private business interests, both of which can act to either promote or impede the re-election chances of the leaders responsible. In addition, broader constituencies such as suburban commuters and inner

city transit dependents, each with potentially different concerns, have to be considered by City officials in their efforts to lead a contingency response. Because it would be impossible to serve the interests of all constituencies in undertaking a response process, political decisions have to be made with respect to the approach to be taken in developing a response plan and the amount of implicit or explicit support to be given to the effort by civic leaders.

Several of the political considerations mentioned above were evident in each of the cases studied, affecting the type of support given to contingency planning by the leaders involved. In New York City, the general consensus among City officials was that public opinion seemed to support the City's position in the labor dispute.[2] As a result, the Mayor was able to effectively lead the process and to make himself visible throughout the transit strike at daily press briefings about the response effort. The concern of New York officials over public reaction to the contingency plan and its measures appeared to be even greater than their concern over public opinion of the labor strike. Given the great potential for chaotic conditions in the New York situation, contingency planners there had to ensure that the public support for the City's position could be sustained by preparing and implementing a detailed, and ultimately effective, response plan. The political atmosphere in New York, therefore, was such that the Mayor and City officials had few reservations about fully supporting and being associated with the response effort.

In the case of Philadelphia's labor dispute, public opinion was even more clearly behind the City's position in the contract negotiations with transit workers.[3] The approach taken in contingency planning, however, was much less open than in the New York case. In Philadelphia, it was the City's Office of the Managing Director that initiated and led the response effort. The Mayor did not become directly involved in either preparing for or responding to the transit strike, primarily because the Mayor's Office did not want to influence the ongoing negotiations by taking a stand and committing itself to a contingency plan.

The reluctance of the Mayor to be associated with the response effort in turn affected the nature of Philadelphia's contingency preparations, as the Office of the Managing Director focussed its plan primarily on City employees and proposed only a limited number of actions designed to reduce travel problems for the public in general. As mentioned previously, the clear public support for the City's position in the Philadelphia situation meant that a far more extensive contingency planning and response effort would likely have been accepted and supported by the public. The Mayor's desire to stay out of the contract dispute issue, however, limited both the scope and scale of the Philadelphia response.

A similar desire by the Mayor of Boston to avoid commitment to any one position or course of action in the MBTA funding conflict greatly influenced the contingency planning process there, although the issues of political constituencies and public opinion were far more

complicated than in either of the labor strike situations. In Boston, the conflict was not as clear-cut as "management versus labor", but involved the Mayor of Boston, representatives of all the other cities and towns in the MBTA service area, the Governor, and State Legislators, all of whom had at least partial say over how the funding dispute would be resolved. From the perspective of the Mayor of Boston, the MBTA's financial predicament was an issue to be resolved by action on the part of the Governor or the Legislature, not by increased subsidies from Boston's property tax revenues.

This perspective, when combined with public opinion survey results that placed very little of the "blame" for the MBTA's condition on the Mayor,[4] meant that a contingency planning effort would have to be of very low profile until the system actually shut down. The City wanted to "keep the heat" on the State level to avert a shutdown by approving the required additional operating funds, and common knowledge of an ongoing contingency planning process could have implied that Boston officials were prepared and willing to accept a disruption. Not only would this knowledge have reduced pressure on the Governor to find a solution, but it could have been used by political opponents to suggest that Boston officials were placing more effort into preparing for a shutdown than into finding a solution, and were in effect the "cause" of a shutdown. In addition, the general desire of the Mayor to keep a distance between himself and MBTA issues in general appeared to keep the planning process a fairly low-key operation.

The result of the above political considerations in the Boston case was that a Transit Emergency Task Force was not established by the City until just a few weeks before the potential shutdown date. Once it was established, it consisted of private sector representatives, not City staff. The activities of the Task Force were not publicized, and the plan which was ultimately developed was not released to the media until the shutdown actually began. The initiation and overall approach to contingency planning for a transit stoppage was thus significantly influenced by the political atmosphere in the Boston situation, and to lesser extents, in both labor strike cases as well.

Apart from affecting the way in which a contingency planning process is started and led, and the approach taken in preparing a response plan, political concerns can also manifest themselves in more explicit impacts on the planning process. Once the planning effort has been started, aspects of the politics of the given disruption can affect the motivation and participation in the process of both the public agencies and private interests that will have a role in a contingency response. The involvement of both types of organization may depend on issues like the position in the dispute each group supports, what each group has to gain (or lose) from participating in the process, and whether or not jurisdictional differences will pose a problem, all of which can be affected by the politics surrounding the disruption.

The impact on contingency planning of taking sides in the conflict at hand was most apparent in the Boston case. There, contingency planners had to be very careful as to which agencies could be

expected to cooperate in the City-led response to an MBTA shutdown. Because of the heated dispute between the city and state governments over who should provide additional operating subsidies, planners quickly discovered that state agencies and those under the control of the Governor would not be cooperative in a response effort.[5] The contingency plan developed was thus limited primarily to agencies and groups under the control of the City, or operating solely within Boston's boundaries.

Jurisdictional problems, although not as politically induced as those in Boston, also limited the contingency planning effort in Philadelphia. The limited planning effort, as mentioned, involved only City agencies, and no attempt was made to coordinate any of the actions with adjacent municipalities or the regional planning agency. In fact, a somewhat surprising characteristic of all three planning processes examined was that, no matter how detailed or structured the response plan proved to be, it tended to be focussed on the activities of agencies under direct control of the lead organizations.

Apart from strictly political considerations of the position to take in the conflict, or whose jurisdiction would be affected by response actions, the issue of what each organization felt it would gain or lose by participating in a response effort appeared to be very important in influencing the nature of each response. For example, the police departments were heavily involved in both planning and implementing the response, not only because of their close ties to the lead agency in each case, but in more practical terms, because the police

officers involved stood to collect extra overtime pay during a response effort. Private business interests, on the other hand, seemed reluctant to fully cooperate in the planning processes no matter how much they were involved in actual preparations, because they would only lose business in the event of a transit system shutdown. In the Boston case, where downtown retailers were kept informed of the contingency planning process, the retailers felt that the City should have been putting its efforts into averting a shutdown during the very profitable Christmas shopping season rather than trying to involve them in a response effort.[6]

For those responsible for preparing a contingency response plan for a transit service stoppage, the influence of political considerations on motivating certain agencies and organizations to cooperate in, avoid, or even sabotage the planning and implementation effort becomes very important. In general, it would be wise for contingency planners in any situation involving a potential transit service disruption to consciously identify all the actors likely to become involved in or have some impact on a response effort, as well as the major constituencies to be affected by any actions on the part of City officials, and to assess their positions with respect to the politics of the situation. Such an assessment should include both likely supporters and opponents of any contingency plan, so that the plan which is ultimately developed relies only on those groups expected to be cooperative. An assessment of the actors involved in the Boston situation, for example, could have resembled the chart presented in Exhibit 6-1. Actors like

ACTOR/POTENTIAL PARTICIPANT	LIKELY POSITION ON MBTA SHUTDOWN ISSUE	EXPECTED LEVEL OF SUPPORT FOR A CONTINGENCY RESPONSE
Governor's Office	-major opponent of Mayor of Boston	-NONE
Other State Agencies	-controlled or influenced by Governor	-ALMOST NONE
Port Authority	-influenced by Governor	-ALMOST NONE
State Legislature	-mixed; some support for revamping MBTA	-unable to help directly
Downtown Retailers	-want MBTA operating at any cost during pre-Christmas season	-MINIMAL; except if efforts are made to provide core area shuttle bus service
Major Employers	-would like to see the issue resolved; but need transportation for employees	-if a shutdown is inevitable, potentially HIGH for journey to work measures
Taxi Operators	-attracted to possible extra revenues during a shutdown	-HIGH; City controls taxi licensing; jitney services could be lucrative
Parking Lot Operators	-may see marginal increase in revenues during a shutdown	-HIGH; City controls rates and licensing
Transit Unions	-MBTA problems are all to blame on management and politicians	-NONE; may picket any effort to provide substitute bus service
News Media	-whatever will provide the "best story"	-will publicize the plan, but will also emphasize congestion and plan foul-ups
Police Department	-under City direction	-HIGH; will enforce the plan; officers want overtime pay
Other Cities and Towns	-potential allies	-HIGH; <u>IF</u> problems of coordination and communications can be overcome
Boston Voters	-most don't care; have not blamed MBTA problems on the Mayor to date	-will support most measures; may resent excessive catering to suburban commuters

EXHIBIT 6-1: EXAMPLE OF AN ACTOR/PARTICIPANT ASSESSMENT FOR THE 1980 MBTA CRISIS IN BOSTON

city agencies, state agencies, agencies from surrounding jurisdictions, business interests, and the media all had potential impacts on the Boston response effort, and contingency planners had to, whether consciously or not, take these impacts into account.

Political considerations, as reflected in the issues of public opinion, political image, jurisdictional disputes, and positions taken with respect to the transit disruption, can also influence the actual contents of the contingency plan produced, its measures, and most of all its eventual implementation. The way in which the jurisdictions and perspectives of different organizations affect their participation in a response was outlined above. The same concerns in turn can affect which transportation measures are included in the plan.

Public opinion and concerns over the constituencies to be affected by the response were particularly important in influencing the type of measure included in at least two of the plans. In both Boston and Philadelphia, efforts to supply alternative transportation services were not made, primarily because officials in both cases felt that such efforts would be perceived by the labor unions as a form of "strike-breaking". Alternative transportation services could have been picketed by those on strike or locked out, thereby impeding the implementation of the services and possibly generating an adverse public reaction to the contingency response effort. In general, contingency transportation measures were selected, at least in part, according to the anticipated reactions of those to be involved in the response, those to be directly affected by the measure, as well as overall public opinion.

Contingency planners in all the cases had to deal with and react to the political atmosphere surrounding each disruption to some extent. In the most politically volatile situation, Boston's MBTA crisis, contingency planners did not explicitly tailor the response plan to the image and constituency concerns of the political leaders involved, although the most controversial actions such as substitute bus services were not included. Boston's planners attempted to develop what they felt was the most appropriate set of contingency measures for the situation, influenced relatively little by direct political pressures. Political manoeuvring did, however, have an influence on the use of the finished product, as the contingency planners saw their plan kept away from the media and the public until a shutdown in fact occurred.

The task of contingency planners in general, in dealing with the political influences on their efforts, thus becomes one of balancing their own opinions of the contingency measures "needed" to keep the urban area functioning against political constraints and the attitudes of other agencies and jurisdictions involved with the plan, integrating the feasible alternatives into a workable response. In cases where potentially controversial actions such as auto occupancy restrictions prove to be necessary for an effective response, planners may have to focus on strategies to secure approval of the proposed actions. In any event, the contingency planning process should include some attempt to identify both the actors and political constraints that could limit the planning effort and to adapt the resultant plan when necessary.

Because the actual political influences on the contingency planning process will vary widely from one situation to the next, the reactions of contingency planners to these influences are difficult to specify in any greater detail. It is important for planners to realize, however, that there can be considerable influences on their efforts attributable to the often heated political debates which tend to accompany transit service disruptions. In turn, as is discussed in the next section, planners should also be aware of how their efforts can be used to influence the potential outcome of these political conflicts.

2. Contingency Planning As a Political Weapon

Just as the politics of a transit service disruption can influence the contingency planning process and the plan that is produced, it is possible that both the process and the plan itself can be employed to influence the resolution of the conflict causing the disruption in the first place. This possibility has implications for the response planning effort in terms of how it is used to establish a position for the lead agency with respect to the dispute, how it is publicized and implemented if a disruption does indeed occur, and how the costs of planning and implementing a comprehensive response to a transit stoppage are rationalized.

At the outset, the decision by a Mayor or a City administration to undertake a response planning effort prior to a transit service disruption can have implications with respect to the labor or funding

dispute behind the disruption. As mentioned previously, an effort to prepare a contingency plan can be perceived by other actors in the conflict as reflecting a willingness on the part of the lead agency (the City) to accept a transit stoppage rather than give in to the wage or funding demands made by transit labor or management respectively. This interpretation of the planning effort was something community leaders tried to avoid in both Philadelphia and Boston.

In the case of Philadelphia's labor negotiations, the Mayor's Office felt that there was a distinct possibility that widespread publicity of a planning effort could influence the outcome of the negotiations.[7] Labor representatives, it was thought, could have accused the City of "bargaining in bad faith" had the contingency planning process been publicized. The businesses and retailers opposed to any kind of stoppage could also have negatively interpreted a full-scale response planning effort. The decision in the Philadelphia situation was thus not to use the contingency plan as a political weapon, but rather to use it only as a response if a strike occurred. Nevertheless, the concern of City officials over this issue suggests that the potential for using the plan, either explicitly or implicitly, as a firm statement of the City's position was very real.

This potential was recognized and came closer to being realized to a greater extent in the Boston MBTA funding dispute. In that situation, the "negotiations" involved elected representatives at different levels of government and from different jurisdictions, meaning the City of Boston could have taken a very firm stand on the issue of

additional subsidies from tax revenues. By making everyone aware of the detailed preparations which were being made in anticipation of an MBTA shutdown, Boston City officials could have emphasized just how serious they were about refusing to allocate any more operating funds. On the other hand, such publicity might have been exploited by political opponents of the Mayor, who could have suggested that the City was doing nothing to find a solution and would therefore be responsible for any shutdown.

The risk of this occurring apparently kept the Mayor from publicizing the planning process before the disruption. Plan preparations were kept fairly secretive, except for a partial leak of the plan details to one of the local newspapers about a week before the eventual shutdown.[8] The contingency planners, from a strictly practical viewpoint, wanted to publicize the details of the plan well in advance so that the public would be familiar with the proposed measures. They realized, however, that the Mayor was not about to "play his hand" until the last possible opportunity. As it turned out, the process was kept out of the media (although it was common knowledge that there existed some form of response plan), and the system was shut down when a compromise solution could not be reached, allowing the Mayor to release the plan on the following day. By doing this, the Mayor could both point to state level officials as the culprits and offer his plan to keep the city functioning during the shutdown.

The question of when the planned response should be made public is thus one which surfaced both in Boston and Philadelphia.

Publicizing the process and the plan too far in advance can not only generate a perception that the lead agency "wants" a disruption to occur, it can also leave the process and the plan's details exposed to public criticism by its opponents. This seemed to be a major concern of Boston's Task Force.[9] On the other hand, keeping the plan secret until the disruption begins means that any advantages of advance notice for the general public are lost. (The agencies to be involved in implementing the measures, however, should be fully aware of the plan's details.) In the final analysis, much to the chagrin of those preparing the contingency plan, political concerns like the ones outlined above will tend to dictate the way in which the plan is publicized or used to influence the dispute at hand.

The final way in which a contingency planning process can have an impact on the politics of the dispute under consideration involves the rationale for contingency planning in the first place, and is clearly interrelated with many of the political aspects already mentioned. A commitment to prepare and implement a contingency response can be viewed by City officials as an investment, not only in keeping the urban area functional during a disruption, but also as an investment in resolving the funding or wage dispute in their favor. The many political considerations associated with a transit stoppage may mean that a contingency planning process can be initiated to reduce travel hardships during the disruption, to demonstrate a refusal to give in to political opponents, and to reduce the amount of money spent in doing so.

During a labor strike, for example, it could be argued that if the funds spent on the contingency response are less than the subsidy funds that would be spent to meet labor's demands and keep the transit system running, then the investment in the response effort is economically worthwhile. Not surprisingly, none of the officials involved in the three cases examined even hinted that such logic was part of their effort. The labor unions to be put out of work by the transit system shutdowns, on the other hand, clearly articulated their belief that such a rationalization for contingency planning was indeed on the minds of the officials involved.

It is worth emphasizing that the contingency planning processes in the three cases studied were not used to a great extent as political weapons by the leaders involved. The very fact that such actions are possible, and thought probable by some of the parties involved in the respective disputes, however, means that contingency planners should recognize the possibility. In the Boston funding dispute, for example, a not too unlikely scenario could have seen the City take a very firm stand with respect to additional subsidies, preparing and implementing an extensive contingency response as a symbol of its willingness to live without transit service, and rationalizing the whole effort by proving that less tax money was being spent than on routine days. Such a move would have been extremely daring politically, but nevertheless possible, and it does present an alternative approach to dealing with similar disputes in the future.

The use of the contingency planning process as a political weapon to influence the resolution of the disputes over funding, wages, or other issues was therefore limited in practice. In the cases studied, the concern of city leaders and thus contingency planners seemed to be more on avoiding the situations which could prove to influence the disputes. Details of the planning processes and the plans themselves were generally kept away from the media until a transit stoppage became inevitable. Whether the contingency planning efforts actually influenced any of the disputes or not, it is apparent that the planning efforts undertaken were inextricable from the politics of the situations.

In summary, those given the task of preparing a contingency response to a potential transit service disruption in an urban area are likely to see much of their effort influenced, if not directed, by political considerations. The more heated the political debate over the disruption is, the bigger the role politics will tend to play in the response planning and implementation effort. The concerns of decision-makers over political constituencies and public opinion may influence how and when the planning process is initiated, the overall approach taken in making preparations, the parties to be involved in a response effort, and even the specific transportation measures to be used. These same concerns may in turn affect the way in which the plan is implemented, or used symbolically to influence the resolution of the political dispute.

No matter how "political" a given transit disruption proves to be, the planners involved in preparing a contingency plan have to recognize that there exists the possibility that their efforts to keep the urban area operating during a transit stoppage may be constrained by forms of political "one-upmanship" as the disruption draws near. Apart from identifying all the parties likely to have an impact on the process and their respective positions with respect to the political conflict of the situation, a generalized approach for contingency planners to follow in dealing with political issues is difficult to develop. The politics of transit service disruptions can vary greatly from city to city and from one situation to the next. Still, their influence on contingency planning efforts can be substantial, and should be kept in mind as a framework for contingency planning is developed in the next chapter.

CHAPTER SEVEN

CONCLUSION: A FRAMEWORK FOR TRANSIT STOPPAGE CONTINGENCY PLANNING

Throughout this thesis, the various issues and characteristics that make contingency planning a fairly unique process in the urban transportation planning arena have been discussed, with actual experiences from three cases providing some empirical background. The discussions of the issues likely to be faced by planners and decision-makers given the responsibility for developing and implementing a response to a transit system shutdown included relevant observations from the three cases, and suggestions of what planners in general could do to deal with these issues. It is the purpose of this concluding chapter to tie these observations and suggestions into a generalized framework for transit stoppage contingency planning, given the many caveats about making generalizations with respect to situations which can be context-specific. This chapter begins with a summary of the many ways in which a contingency planning effort can differ from normal planning activities. These unique characteristics are then used as a basis for the establishment of a contingency planning framework and response strategy for metropolitan areas.

1. Summary: The Issues Faced By Contingency Planners

Although any planning effort includes some components that resemble the basic steps of problem identification, development of

alternative actions, alternatives analysis and selection, and implementation, followed by some form of monitoring or feedback, the process of urban contingency planning can differ in numerous respects. These differences relate to the nature of the disruption for which the contingency plan is being prepared, the amount of advance warning available to government officials, and the actors to be involved in a response effort, all of which can be substantially affected by the political atmosphere that often surrounds disruptions to public services.

From the perspective of the contingency planner, the characteristics of planning for an urban transit stoppage that distinguish it from routine urban transportation planning activities can be categorized as: (1) issues related to the process of contingency planning and response implementation; (2) aspects of the contingency plan which is produced; (3) the potential post-disruption impacts of a contingency planning effort; and (4) political considerations affecting urban transit stoppages and any attempt to respond to them. These characteristics have been discussed in the preceding chapters and, based on the results of previous research and the findings of this study, are summarized below.

A. The Contingency Planning Process

The characteristics of the planning process adopted by those responsible for preparing a response plan for a transit stoppage can have impacts at both the intra- and inter-organizational levels for the agencies involved in or affected by the process. These organizational impacts, in turn, ultimately determine the manner in which the resulting contingency

plan is implemented.

At the level of the individual agency, the primary benefit of contingency planning relates to its ability to prepare its own operations for the imminent disruption and the response that it will have to make. This benefit can only be realized by an agency, of course, if it is both aware of a potential transit service disruption and included in any coordinated contingency planning effort undertaken by the lead agency. It is thus the willingness of a lead agency to commit itself to a contingency planning effort and to include the relevant agencies or groups in the planning process that determines the extent to which individual actors can benefit from the effort. Conversely, each actor has to be willing to participate in a response effort in the first place, where this willingness can be affected by the politics of the transit disruption and the agency that is leading the process.

A coordinated contingency planning process depends on the cooperation of numerous agencies and groups in the metropolitan area. At the inter-agency level, then, a structured contingency planning process can in fact create a new decision unit for the response effort, one composed of representatives from different agencies and responsible specifically for the development and implementation of a transit stoppage response plan. The participation of the relevant agencies in such a "task force" can be affected by the degree of certainty associated with the occurrence of a transit stoppage, and at a more basic level, by the expected impact of such a stoppage on each organization. Once again, issues of which agency takes the lead role, the authority and jurisdiction

of each of the participants, and public opinion and political image considerations can all affect the level of coordination achieved. The cases studied demonstrated that, in general, the more structured the contingency planning process adopted, the greater its coordinating effect.

Participation of the agencies to be involved in a response effort in the preparatory stages of the process also seemed to enhance the implementation process once the disruption became certain. Because the acceptance of the proposed contingency measures by the agency to be responsible for their implementation is the key, ensuring the involvement of implementors in the planning process can promote this acceptance by giving the agency input into the actual selection of transportation actions. In addition, such involvement can establish communication links between the implementing bodies and the lead agency so that the plan details and agency responsibilities are clearly understood by all. The role of the planners leading the planning process is then to ensure that implementation tasks are assigned to the proper organizations by matching specific contingency measures with the experience, capabilities, and resources of the organizations involved.

The basis for a comprehensive contingency planning process is therefore involvement. The likelihood of a coordinated transit stoppage response is increased when the lead agency is able to effectively structure the planning process so as to include the agencies required for a comprehensive response effort in spite of political and jurisdictional concerns.

B. The Contingency Plan

No matter what type of planning process is adopted for the preparation of a contingency plan, planners have to address several issues related to the characteristics of the plan itself. The objectives to be met by the response effort, the specific response measures required for these objectives to be met, and the format and structure of the contingency plan which is developed are all considerations that can significantly influence the effectiveness of the eventual response to a transit stoppage. In addition, as the plan is being developed, the issue of how the plan will be implemented and monitored should be addressed, and any constraints identified.

The objectives set for a response effort will depend a great deal not only on the nature of the specific disruption at hand and the political atmosphere which surrounds it, but on the characteristics of the particular urban area involved as well, including its physical geography and the nature of the inter-agency relationships already in existence. In general, because of the limited time and resources available to contingency planners in most cases, the focus of the planning effort will be on the prevention of chaotic travel conditions rather than the provision of any extensive substitute transportation services during a public transit service disruption. A common objective for such response efforts involves facilitating the daily journey to work for commuters headed toward congested core areas. In all the cases studied, the maintenance of public safety and the prevention of unmanageable congestion on the transportation network seemed to be the most important plan objectives.

The transportation contingency measures that can be used to help achieve such plan objectives can range from mandatory restrictions imposed on the individual traveler to simple encouragement of a specific travel behavior. Measures to increase vehicle occupancy levels can be used during an absence of public transit service to make the same number of vehicles carry more passengers. Closely related are traffic flow improvement measures designed to make the same road network carry more vehicles. Measures to promote alternative transportation modes will depend heavily on the availability of such modes in a given metropolitan area. Because it is generally a complex endeavor to provide substitute services, promotion of alternative modes will involve measures to expand the capacity and increase utilization of existing services. Finally, employer-based transportation measures can be very effective in helping to reduce the daily peaking of travel demand. For such measures to be implemented, of course, the cooperation of major employers is essential.

In selecting specific transportation measures for a transit stoppage contingency plan, planners should refrain from developing extensive transportation programs that are overly innovative or complex. Apart from the pragmatic problem of funding such measures, problems related to the travelling public's ability to quickly adapt to extensive transportation network changes mean that planners should anticipate how effective each measure might be and how it will be accepted. Also important are the numerous interrelationships among the different measures proposed for implementation, as some of the measures may in fact serve different objectives or even conflict with one another.

Once specific transportation measures have been selected through the contingency planning process, they must be integrated into a comprehensive response plan. The plan itself should be structured enough to explicitly define the contingency actions and the associated implementation responsibilities, yet be flexible in providing a mechanism for changing response actions as the disruption evolves and requirements change. Both characteristics can be present when a two-phase planning and response process -- a "crisis management framework" -- is adopted. Such a framework can involve the development of a general response plan which can be used in any urban transportation disruption. This response plan would in turn provide a well-established basis for the development of specific actions and implementation plans when a disruption becomes imminent.

The contingency plan also has to specify the logistics of response measure implementation, including how and when the plan details are to be made public, the communications system to be used by the agencies involved, and the monitoring and plan modification mechanisms to be employed. The timing of the plan's release to the media is likely to be determined by political considerations. Nevertheless, it is important that there be a single source of information -- a control center -- which can also serve as a communications center for plan implementors. The control center, usually established by the lead agency or the contingency planning team, can permit monitoring of the implementation process and of the effectiveness of contingency measures, and can provide a centralized decision-making location for the duration of the disruption.

C. Post-Disruption Considerations

The development of a contingency response plan, whether the plan is ultimately implemented or not, can leave impacts both on the institutional structure of urban transportation planning in a metropolitan area and on the actual transportation network. Because disruptions to routine activities can provide an opportunity for change, the potential for consciously directing such change during the planning process has to be considered by contingency planners.

The implementation of innovative transportation measures during a transit stoppage can enable planners to demonstrate the effectiveness of a new transportation policy or project. Decision-makers, eager to embrace concepts that will permit an effective and coordinated response to be made, may set aside the normal approval process because of a lack of time. Once implemented on a temporary basis, it is possible that the more successful or popular contingency measures, such as exclusive HOV lanes or carpool programs, can be retained for permanent use.

The institutional and organizational impacts of a contingency planning and response effort can have numerous ramifications for future transportation planning activities in the urban area. New actors may become involved in transportation and related issues, or new inter-agency relationships may be established as a result of the contingency planning process. At the very least, an initial contingency planning effort should provide a foundation for making a response to future urban transit or similar transportation disruptions.

From the planners' perspective, the opportunity for change

provided by a disrupted environment can be an additional benefit to be realized through the contingency planning process. Because there may be a more ready acceptance of innovation on the part of decision-makers, planners might want to use the process to consciously promote an untested or previously unacceptable transportation concept. If this is the case, planners should develop some form of strategy designed to convince decision-makers of the need for such measures during a transit stoppage, to obtain approval, and to have the measures implemented and their effectiveness monitored during the disruption.

D. Political Considerations in Contingency Planning

Urban transit stoppages generally are the result of some conflict among different interests over labor contract terms, subsidization arrangements, or other issues, meaning that political considerations can play a substantial role in a contingency planning and response effort. Throughout the plan preparation and implementation process, politics can have a great deal of influence on how and when the contingency plan is developed, which actors lead and participate in the response effort, the measures included in the plan, and the approach adopted for plan implementation. Conversely, the contingency planning process and the resultant response plan can potentially be used by certain agencies or officials to influence the eventual outcome of the dispute behind the transit stoppage.

The specific influences of politics on the contingency planning process and the plan itself are related to the political environment in existence in a particular situation and the constituencies that might be

affected by either the service disruption or a response effort. The perceptions of various political constituencies, including the "general public", of both the issues behind the impending transit stoppage and the efforts made by government agencies and decision-makers to either avert or plan for the stoppage can effectively determine the involvement of elected officials in a response effort and the amount of support given to contingency planners. Constituency concerns can in turn affect when a planning process is officially initiated, the amount of cooperation given to the planning effort by other public agencies and private interests, the extent to which controversial measures are included in the response plan, and the timing of plan release and implementation once a stoppage becomes certain. Those involved in developing a contingency plan must therefore be able to identify all the actors to be linked to their response plan and to assess the likely positions of these actors with respect to the disruption and the response effort in general.

In certain volatile political situations, the process of contingency planning can have the potential to be used as a political weapon. The lead agency, under the direction of a visible political leader (e.g. the central city Mayor), can commit itself to the preparation and implementation of a transit stoppage response plan and, in doing so, can establish a firm stand with respect to the dispute over wages or funding. In such a situation, the resources put into a response effort and the hardships endured during a transit stoppage could be viewed as an investment in a particular position or principle. In most situations, however, the "political weapon" aspects of contingency planning will not be this extreme. Still, artful manipulation of the plan development and

implementation process, and of the information related to the planning effort, can enable political leaders to subtly influence the resolution of the conflict at hand.

The implications of political considerations for the task of contingency planners are thus twofold. On one hand, it is possible that contingency planners can sidestep some of the uncertainty associated with transit disruption politics by consciously assessing the positions and likely reactions of the many actors even remotely involved in the planning or response process. On the other hand, it is almost inevitable that contingency planners will see some aspect of their efforts or the plan they produce affected by political gamesmanship.

2. Developing a Structured Approach to Contingency Planning and Response Implementation

The conclusions included in, or implied by, the above summary of the major issues which confront contingency planners all involve some general suggestions as to how planners can deal with specific problems encountered in developing a government response to an urban transit stoppage. Apart from dealing with these specific problems, however, those given the task of contingency planning will have to structure the planning and response process in a manner that will increase the likelihood of ultimately implementing an effective response. The three disruptions studied in this research demonstrated three very different approaches to structuring the response process. Based on these experiences

and on the past research on disaster planning reviewed at the start of this thesis, this concluding section proposes a generalized framework for urban transit disruption contingency planning and response implementation.

The characteristics of urban transportation contingency planning identified above indicate that there are likely to be elements of a response process which are common to the implementation of an effective response to any urban transit system disruption, as well as elements which depend specifically on the nature of the disruption immediately at hand. The need to include both types of element in a contingency planning effort suggests a model for contingency planning that consists of two distinct steps: (1) Establish a "crisis management" structure that can be used during any urban transit or other disruption by developing a response strategy which outlines agency responsibilities and specifies a communications network; and (2) Develop a specific implementation plan for the anticipated disruption, one which can be updated and modified in case of future transit stoppages of any kind.

A. Establishing a Crisis Management Structure and Response Strategy

A major factor contributing to the success of the New York City transit strike response effort in 1980 was the existence of an established Emergency Management Plan and the presence of the Emergency Control Board. The fact that a basic structure for making a response to an urban disruption -- in this case, a transit strike -- had already been established made the development of a specific contingency plan much easier. The Emergency Control Board, throughout the response planning

and implementation process, was able to coordinate the use of City resources and to maintain a centralized communications center.

The establishment of a crisis management structure in a metropolitan area should therefore focus on the process to be followed in making a response when a disruption becomes imminent. That is, an organizational framework that designates a lead agency, specifies a centralized communications center, and outlines the role of each actor in preparing and implementing a response to any transportation disruption can be the basis of an effective crisis management structure. The designation of a lead agency could prove to be a stumbling block in some situations. The New York approach of establishing an entirely new organizational structure, the Emergency Control Board, to lead a response is perhaps the best way to overcome initial conflicts over jurisdictions or authority.

The second step in establishing a generalized crisis management structure should address the issue of communications. A centralized communications center is essential in contingency response situations, in order to: (1) assure that disruption-related developments can be relayed to the implementing agencies; (2) act as a conduit of information from the implementing agencies to the lead agency; and (3) provide a contact point for the news media and for public information. [1]

Finally, attention must be given to outlining the responsibilities that each participant or outside actor will have in the event of a transit service disruption. Because there will not be, hopefully, a disruption imminent when this crisis management structure is first

established, it may be difficult to specify the responsibilities of some of the involved agencies in great detail. It is important simply to ensure that the many agencies and groups to be involved understand what will be expected of them. Some agencies will be responsible for implementing actions developed by the lead agency, while others will enforce them. Still other agencies will act as information brokers or as a liaison with the news media. An important step in indentifying these agency responsibilities is to assess the anticipated characteristics of a disruption and to relate these characteristics to the type of involvement required of the different government and private agencies.

If a metropolitan area is able to establish such a crisis management structure, it will be well on the way to developing an effective response plan once a specific disruption becomes a distinct possibility. Although it may not be reasonable to expect much more effort than the above three steps to be put into developing a crisis management structure when a disruption is not threatening, it is, of course, possible to make more detailed preparations, even at the general level. Certain activities can be anticipated to occur as part of any government-led response to a transportation disruption, and they can be prepared long before a disruption occurs.

For example, providing information on the disruption to the public is among the most important responsibilities of government agencies. Arrangements for disseminating such information can be made at any time with the news media. Some of the information can be prepared in a packaged form for release, particularly the arrangements to be made for

public information in general, which are not likely to be determined by the politics of a specific disruption. Another activity which will occur in almost any transportation disruption is extensive police enforcement of contingency measures. Because enforcement duties will have an impact on the normal operations of police agencies, arrangements can be made well in advance of a disruption with respect to how each police agency will have to adapt.

In general, then, a crisis management structure can include several activity-specific plans that can be prepared even before the possibility of a particular transportation disruption arises. The greater the effort put into establishing a generalized crisis management structure, the smaller the effort that will be required to develop a specific response implementation strategy. The complexity of the institutional relationships which exist in most metropolitan areas, however, suggests that the three steps of designating a lead agency, specifying a communications system, and outlining the roles of different agencies in the event of a disruption will be difficult enough tasks in themselves in the establishment of a crisis management structure.

B. Developing a Specific Implementation Plan for a Disruption

The nature and context of a specific disruption will often dictate the types of measure to be included in a response plan. An effort to assess the range of measures available and the implementation problems of each therefore provides a starting point for the development of a detailed implementation plan when a transit stoppage seems imminent.

The development of an implementation plan for a government response to a specific transit disruption, although it is likely to differ from city to city and from one situation to the next, should ideally include the following steps [2]:

1. Assessment of previous experiences with the type of disruption under consideration.
2. Identification of the likely characteristics of the impending disruption and identification of potential transportation measures to match the anticipated needs.
3. Selection of transportation measures that can be quickly and effectively implemented in the given situation.
4. Identification of the implementation requirements of the measures selected.
5. Coordination of the implementation plan with the established crisis management structure and any activity-specific plans already in existence.
6. Modification of the plan as the disruption nears to account for changing environmental conditions or unexpected actions by participating or other agencies.

The three cases studied would suggest that, in developing such an implementation plan, contingency planners must consider several subtle aspects of the disruption and the ability of government agencies to respond. For example, the dynamics of the crisis situation and the types of problem that may arise, the response of individual travelers to the disruption and to any contingency measures, along with the relationship of the implementation plan to the resolution of such problems should all be of concern in the development of an implementation plan.

The response implementation plan prepared specifically for a given disruption and the crisis management structure that provides the

foundation for response implementation are thus the core components of a two-stage urban transportation contingency planning framework. Once established, the crisis management structure need only be modified for application to any urban transportation disruption, and in fact, is very likely to be useful in dealing with other types of urban disruption or even natural disasters. Similarly, the transit stoppage response implementation plan, once it is developed and implemented, should only have to be modified for use in similar disruptions in the future.

The extent to which large metropolitan areas are dependent on mass transit was aptly demonstrated by the transit stoppages examined in this thesis. Yet, while substantial attention has been given to planning for government response to natural disasters, the preparation and implementation of a similar response to man-made urban disruptions such as transit stoppages has gone virtually untouched by researchers and, more importantly, planners and civic officials.

The observations made in this thesis suggest that the establishment of metropolitan crisis management structures and the initial preparation of a response plan for a transit stoppage are at the same time both simple and tremendously complicated. The benefits to an urban area of having such a contingency response framework are substantial enough that it would seem surprising to the casual observer that a metropolitan area does not already possess one. The same institutional fragmentation, jurisdictional conflicts, and political disagreements that serve as obstacles to coordinated metropolitan transportation planning under routine circumstances, however, are likely to impede the establishment of

a crisis management structure as well. Decision-makers will not be willing to commit themselves to such an effort when a disruption is not threatening, and are unlikely to be receptive when a volatile political dispute creates a transit stoppage threat. It is unfortunate, but very likely, that most planners and decision-makers in metropolitan areas will have to first experience the trauma of responding to a transit stoppage on an ad-hoc basis before the possibility of developing a crisis management structure is even recognized.

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