

THE FORCES THAT SHAPE TRANSPORTATION CONTROL  
MEASURES UNDER THE CLEAN AIR ACT:  
A CASE STUDY OF CAMBRIDGE MASSACHUSETTS

by  
Elizabeth M. Moore

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

MASTER OF CITY PLANNING  
at the  
Massachusetts Institute of Technology

May 1994

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ABSTRACT

For the last twenty years, Massachusetts has been dealing with transportation control measures as part of the State Implementation Plan under the Clean Air Act. This thesis looks at the way in which transportation control measures are selected and implemented and asks whether the statute provides a workable process for achieving desired outcomes.

To answer this question I conduct a case study of transportation controls in Cambridge, Massachusetts. I analyze the case study in terms of three theoretical perspectives that cut across decision-making actors and the approaches to decision-making they use. It is the interactions between the actors and their decision-making approaches that determine what decisions are made and how they are implemented.

The analysis reveals that the formal decision-making process specified in the Clean Air Act establishes equity goals and then relies primarily on rational analysis to select policies. This system breaks down under pressure from disparate interests among the levels of government and between the government and special interests. I conclude that a process that formally recognizes competing interests and incorporates a mechanism to deal with them would improve the planning and implementation process and achieve better outcomes.

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## **Acknowledgments**

I wish to express my thanks to my advisor, Connie Ozawa and my reader, David Bernstein for their support and flexibility in getting me through this process. I also wish to thank Langley Keyes for his cheerful, unflagging encouragement at the most difficult moments.

Many thanks also go to my children and husband who have lived without a mother/wife for the past two years without complaining. They were always ready to pitch in and do whatever needed to be done at home so that I could get my school work done.



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## Introduction

The Clean Air Act Amendments of 1970 introduced new strategies for improving the nations air quality. The statute imposed stringent emission control standards on both stationary sources (factories, power plants, etc.) and mobiles sources (cars, trucks, etc.) of air pollution. Additionally, the statute called for the creation of National Ambient Air Quality Standards (NAAQS)<sup>1</sup> to identify the level at which harmful pollutants could safely exist in the atmosphere without threatening the public health and welfare. Responsibility for reducing air pollution emissions to attain the NAAQS was left to the states. Each state was required to write a State Implementation Plan (SIP) that would establish procedures for pollution prevention and control. Any state that could not meet the NAAQS by the established deadline had to adopt transportation control measures (TCMs) as a part of the SIP.<sup>2</sup> TCMs were designed to discourage people from traveling alone in their car and to encourage people to use high occupancy modes of transportation such as carpooling or mass transit. The goal of TCMs was to lower the number of vehicle miles of travel (VMT), thus reducing the production of air pollution emissions.

Massachusetts embarked on a prolonged planning process to write a Transportation Control Plan (TCP) as part of the SIP. This plan selected TCMs for the Metropolitan Boston Intrastate Air Quality Control Region<sup>3</sup> to help the state come into compliance with the NAAQS. By the time the planning process was completed, the most stringent TCMs under consideration had been

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<sup>1</sup>See Table 1 in the Appendix for a list of acronyms

<sup>2</sup>See Table 2 in the Appendix for a list of the TCMs that appear in the 1990 Clean Air Act Amendments.

<sup>3</sup>The Metropolitan Boston Intrastate Air Quality Control Region included the cities and towns in Eastern Massachusetts. For a list, see Table II in the Appendix.

abandoned, leaving only those measures that met with local support (or did not meet with opposition). Attitudes toward controlling automobile use soon cooled, however, and implementation of the selected TCMs was less than satisfactory.

The “State Implementation Plan” implies a process that encompasses both the planning for, and the implementation of policies--in this case, TCMs.<sup>4</sup> SIP planning is accomplished through agency rulemaking, which is the official decision-making function of a regulatory agency. The process an agency uses for rulemaking is set forth in the originating statute (in this case the Clean Air Act) and is supported by the Administrative Procedures Act and court rulings, which interpret the agency's role in decision-making. Implementation encompasses rulemaking and the subsequent steps taken by the agency to carry out its rules. Often this includes the supervision of the lower levels of government that must implement the rules.

This thesis analyzes the way in which the process for planning and implementing TCMs played out in one city--Cambridge, Massachusetts. The purpose of the thesis is to answer the question: *Does the Clean Air Act provide a workable process for developing and implementing transportation controls measures, and if not, why not?*<sup>5</sup> I ask this question because I believe that a better process would lead to the selection of more effective policies and would facilitate proper implementation of the policies selected. Thus the process would produce more successful outcomes. Although the TCMs adopted since the 1970 Clean Air Act Amendments (CAAA) have had some positive impacts on air quality, there are numerous indications that they have not been as successful as originally

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<sup>4</sup>The process for planning and implementing TCMs is embodied in the development of the State Implementation Plan. SIP planning involves the writing of regulations by the state agency (also known as rulemaking). In the regulations, strategies are selected that, when taken as a whole, will reduce emissions to meet the NAAQS. TCMs are one part of the SIP.

<sup>5</sup>See Table 3 in the Appendix for a diagram of the decision-making process.

envisioned. First, national trends indicate that the major emission reductions achieved through the manufacture of cleaner cars have been counteracted to a large degree by growth in VMT (U.S. Department of Transportation and Environmental Protection Agency 1993, p. 32). This national trend is reflected by the three percent per year regional increase in VMT during the 1980's in eastern Massachusetts (City of Cambridge 1992, p. 19). Second, TCM planning originally took a regional approach to the regional problem of reducing ground level ozone. In the end, however, the mainstay of the plan was a parking freeze in a limited geographic area (Boston, Cambridge and Logan Airport). Third, a parking freeze by itself caps the growth of VMT, but does not garner actual reductions in VMT and therefore emissions. Fourth, due to the problems encountered in implementation, the parking freeze has not succeeded in capping VMT growth in Cambridge. Finally, even if the parking freeze had been successful in controlling VMT in the freeze area, it might have caused VMT to increase outside of the freeze area. Today, the effectiveness of the parking freeze is hotly contested in Cambridge and pressure is mounting to abandon the freeze and adopt new measures.

To understand how the process for planning and implementation works, one must look at both the players in the process and the approaches to decision-making that they use at each step of the way. It is the interactions between the players and their decision-making approaches that determine what decisions are made and how they are implemented.

The players in the process include the Congress, federal and state agencies, local government bodies, and the courts. Congress sets the overall goals in the Clean Air Act and establishes guidelines for the federal and state agencies to follow when writing regulations to implement the federal goals. The

Environmental Protection Agency (EPA) is charged with establishing the NAAQS and with approving SIPs, which are written by the state agencies. Local governments are responsible for implementing some of the TCMs in the SIP; however, there is no formal mechanism to systematically include local government in the state decision-making process. The courts enter the decision-making process whenever someone sues to contest an agency decision at either the state or federal level. Suits can also be brought against the local government officials if they do not properly implement measures in the SIP.

To understand how decisions are made, I consider three decision-making approaches. Each presents a different ultimate goal against which the success of a policy is measured, and each influences the way in which decisions are made, thereby shaping the planning and implementation process. First, decisions can seek “equity” outcomes. Such decisions are made on the premise of fairness in the distribution of costs and benefits to those affected by a policy. Second, decisions can seek an “efficiency” outcome. Decisions based on efficiency try to garner the most benefits at the least cost. Efficient decisions are made through a rational process that gathers factual information and bases decisions on a reasoned evaluation of the facts. Finally, decisions can seek an “effectiveness” outcome. Decisions based on the idea of effectiveness look for a way to get things done through whatever means are necessary. Usually, “effectiveness” is associated with political bargaining that accommodates special interests in order to gain support for decisions.

Although these three approaches to decision-making can be conceptualized discretely, most decisions have elements of all three. There are some bounded situations in which a decision can be made using only one of these approaches. However, in a highly complex political environment with many competing public and private interests, decisions that are made solely on

the basis of one decision-making approach (or to the exclusion of one approach) are vulnerable to challenges from interests that would prefer to see decisions made in another way. Therefore, to be successful, a decision-making process must recognize the importance of all three approaches and how they are used by the various players.

The case study analyzed in this thesis shows a SIP process that begins with goals that were based on decisions about “equity.” The process then prescribes an “efficiency” form of decision-making for developing plans to meet the goals. There is very little evidence that the process tries to include the “effectiveness,” or political bargaining approach in a formal way. By ignoring the importance of dealing with political power the process bogs down and the success of policies is impaired.

The process for selecting and implementing TCMs began when Congress established normative, equity goals by creating the NAAQS. Environmental degradation is a negative externality of economic activity. Businesses do not bear the cost of the pollution they create. The costs are borne by those who do not share the direct economic benefits of the activity that caused the pollution. In calling for NAAQS, Congress sought to protect the public health, which inevitably forced industry to internalize the costs of the pollution they create, thus shifting the distribution of costs and benefits.

These “equity” goals were reinforced by the courts, which are the ultimate interpreter of a statutory mandate. When faced with a challenge to the NAAQS established by the Environmental Protection Agency (EPA), the court determined that the Congressional intent of the NAAQS was to protect the most sensitive members of society, regardless of the economic cost (*Lead Industries v. EPA*, 14 ERC 1906 (1980)).

Given this set of “equity” goals, state agencies<sup>6</sup> were charged with developing a TCP as part of the SIP using the “efficiency” approach for decision-making. The job of the state agency is to write rules to carry out the laws passed by Congress, not to create new policy. The agency is therefore expected to make objective decisions about how best to carry out a legislative mandate. To do so, the agency uses a rational decision-making process in which it gathers facts and evaluates alternative courses of action based on the best available information. The role of rational decision-making is reinforced by the courts when they review the process of agency rulemaking.

Unfortunately, this process for state agency decision-making in the SIP does not include a systematic mechanism for dealing with the myriad of different interests in a politically charged, highly complex bureaucratic environment. Special interests are allowed a voice at the public hearings during the process of SIP promulgation; however, bargaining with special interests occurs outside the formal process. Frequently high ideals and rational analysis are subordinated when conflicts arise among the interests within various levels of government and between the government and special interests. Without an “effectiveness” process, accommodations are made in an ad hoc fashion that leads to piecemeal planning and agency paralysis.

To understand the interaction of the players and the decision-making approaches at play in the process, I will review three different theoretical perspectives that cut across the decision-making actors and the approaches they use in the decision-making process. First, I will examine rational planning

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<sup>6</sup>Although the states are required to write the SIP, the federal EPA has the power to write a Federal Implementation Plan for any state that writes an inadequate SIP or does not write a SIP at all. As will be seen, this is what happened after the 1970 CAAA.

and/or decision-making theory, which is prescribed for agencies rulemaking. This is an “efficiency” form of decision-making. The pitfalls of this approach have been documented in the planning and decision-making literature for many years. By heeding these well known lessons, improvements in the process could be made.

Second, I will examine the theory behind the changing role that the courts play in the planing and implementation process. In one sense, the court makes “equity” decisions as the final arbiter of the distributional disputes that arise when agencies write regulations. However, the courts have come to drive “efficiency” decision making by agencies, and also provide an “effectiveness” forum for special interests that enter the process by bringing suits against agency decisions. Although the ability to sue is an important part of our democratic process, the entrance of the courts into planning and implementation can have disruptive and unexpected results. By understanding the role of the courts and how it has changed, lessons may be learned that could further improve the planning and implementation process inherent in the Clean Air Act.

Finally, I will look at the theory of implementation, which documents the myriad problems that routinely occur when federal statutes are implemented at the state and local level. These problems are due to competing interests within the government and between the government and the public it serves. The lessons of implementation show how important consensus between interests is to a workable process.

In Chapter One, I discuss the theory of rational planning, the changing role of the courts in agency decision-making, and the theory of implementation. In Chapter Two, I present a case study of TCMs in Cambridge. In Chapter Three, I analyze the case study and compare it to the theory presented in Chapter One to deduce lessons for improving the planning process. In Chapter Four, I suggest

strategies that could potentially improve the planning and implementation process for TCMs under the Clean Air Act.



## **Chapter One**

### **Theoretical Perspectives**

This chapter will explore three theoretical perspectives, each of which shows the interaction between the players in the decision-making process and the approaches they take to decision-making. Examining each perspective offers insights into the decision-making process used by state agencies to plan and implement TCMs through the SIP. I will begin with a review of the rational planning and/or decision-making theory, which reflects the “efficiency” approach to decision-making used by agencies in rulemaking. Second, I will examine the role of the courts in agency decision-making. The court itself makes “equity” decisions, as the ultimate arbiters of distributional disputes raised by agency rulemaking. The courts have influenced the agency decision-making process in different ways over time and currently reinforce the use of the “efficiency” approach by agencies. Finally, I will discuss implementation. Where planning theory describes a normative ideal of how planning should happen, the study of implementation reflects a descriptive view of government programs as they actually play out in the complex bureaucratic and political world. Implementation theory points out the need for an “effectiveness” approach to decision-making to foster communication and consensus among the players. Taken together, these three theoretical perspectives teach the importance of a process that combines all three approaches to decision-making.

#### **Rational Planning/Decision-Making Theory**

The process of agency decision-making laid out in the Clean Air Act and many other federal statutes mirrors the theory of rational planning and/or

decision-making. This theory establishes a framework within which to logically organize the task of planning or decision-making by following a sequence of distinct analytic steps to achieve efficient outcomes. The steps in the rational process are (Faludi 1973, pp. 141-142; Meyerson and Banfield 1964, p. 314):

1. Define goals.
2. Consider all alternative courses of action to achieve the goals.
3. Identify and evaluate all the consequences of each alternative.
4. Select the alternative that best meets the terms of the stated goals.

The rational planning theory has long been recognized as being prescriptive rather than descriptive. It is an idealized form of decision-making that works well in practice only when there is a single decision maker with a well defined problem, complete information, ample time and resources, and no interest group pressure (Forester 1989, p. 52). Most decisions cannot be made through consideration of *all* alternatives and *all* consequences. This is due either to lack of adequate time, resources and knowledge or because political actors jockey to keep particular items off the agenda (Faludi 1973; Stone 1988). In such circumstances, the rational model breaks down and other strategies need to be adopted for decision-making.

Although there was great optimism about the usefulness of rational planning/decision-making in the early 1960's, its drawbacks as a prescriptive model were quickly recognized and have been well documented in the planning and decision-making literature for many years. An early critique of rational planning (in the context of comprehensive land use planning) pointed out two spurious assumptions on which the theory is built. One assumption is that planners, guided by the public interest, can somehow measure disparate community interests and blend them into a single hierarchy of goals. The other assumption is that planners can determine a course of action that will achieve

stated goals without causing unwanted side effects that would negate the benefits of the chosen action (Faludi 1973, p. 194).

### **Representing the Public Interest**

Let us first look at the assumption that a planner/decision-maker can represent the public interest when defining goals. Rational planning is also known as comprehensive planning.<sup>7</sup> It is comprehensive in the sense that it considers all alternatives and the impacts of all consequences. To do so the planner must have knowledge of all interests that might be affected and set comprehensive goals that represent all interests, expressed as “the public interest.”

To establish comprehensive goals a planner would need to open a public debate that would reveal the public interest. This would mean identifying all interest groups that might have a stake in the goals or be affected by the means of achieving them. It is easy to identify established interests, but to be comprehensive *potential* interests need to be identified and brought into the debate as well. There is no way, however, to identify potential interest groups before a plan is developed because interest groups generally do not form until there is a threat around which to organize (Faludi 1973).

Defining comprehensive goals does not provide such an impetus because comprehensive goals are, by definition, very abstract and general. To get people interested enough to debate, a goal must be operational—that is, it must be a goal

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<sup>7</sup>Traditionally, comprehensive planning was associated with land use Master Planning. In that context, comprehensive meant covering all aspects of a city plan from housing to open space, to transportation, etc., and balancing the interests of all. “Comprehensive” also applies to rational planning in other area as well as land use. For example, this case looks only at planning for air quality and not all other aspects of a city plan. “Comprehensive” in the narrowed sense for air quality planning means identifying all alternatives to be considered for air quality, not all alternatives and their consequences for all components of a city plan.

for which a measurement can be taken to determine the progress being made toward achieving it. Through experience, planners have learned that only when goals are operational can public debate be initiated and public support won because comprehensive goals are too vague to argue about (Faludi 1973, p. 197). Thus, planners tend to break problems into pieces that can be dealt with operationally. While this type of planning may provide a meaningful way to engage political discussion of goals, it is not comprehensive and does not provide a basis from which the planner can claim an understanding of the overall public interest (Faludi 1973, p. 202).

Comprehensive planning assumes a positive role for government, which attempts to solve the ills of society in the public interest. In true comprehensive planning, only the setting of general goals would need public discourse. The expert planner would then deduce the correct courses of action to meet these ends through analysis of alternatives. Thus using comprehensive planning, the usefulness of public discussion after general goals were agreed upon would be of questionable value. This would lead to the conclusion that competition among interest groups after comprehensive goals were set would not be good for the public interest. Such a conclusion, however, makes comprehensive planning at odds with American traditions of individual freedom and open participation in the democratic process. Interest groups therefore find comprehensive planning distasteful and associate it with "big government" and socialism (Altshuler 1965, pp. 316-319).

The antagonism of many special interests against agency decision-making has caused most regulatory agencies to cut back on positive government actions that try to solve the most difficult problems of society. As a result, agencies frequently follow a course of action that avoids controversy. Although this path

of least resistance still can produce benefits for society, it is not comprehensive as it does not consider unpopular alternatives (Altshuler 1965, p. 359).

### **Determining the Best Course of Action**

The other assumption underlying rational planning and/or decision-making is that a decision-maker can determine the best course of action to achieve goals without causing significant negative side effects. This would require a thorough knowledge of the public interest to determine who might be negatively affected and how. As has been seen, comprehensive knowledge of the public interest is difficult to acquire and interest group pressure from those who are concerned with the immediate consequences of a policy to themselves rather than to the public good is commonplace (Altshuler 1965, p. 317).

To evaluate the relative merits of various alternatives and determine which are "efficient," decision-makers rely on the use of analytic technical or scientific measurement tools to base their decisions on facts. Agencies rely on factual analysis because, as appointed rather than elected officials, they have no justification for making policy judgments. They must therefore base decisions on reasoned analysis, supported by expert opinion, which is impersonal and objective rather than arbitrary (Altshuler 1965, p. 334).

The term "rational" when used in this context has a different meaning than that traditionally associated with the word. In many contexts, the word "rational" is synonymous with the word "wise." Wisdom implies an understanding of complex issues and the ability to make "good" judgments even though knowledge about a situation is incomplete. Planners and decision-makers use the word "rational" in the contemporary economic sense, which implies efficiency when ends and means are known. This type of rationality is based on expert analysis and recommendation. When the two meanings of the

word are confused, it leads to the perception that expert logic or technique will, necessarily, produce wise outcomes (Faludi 1973, p. 196).

The concept of making “efficient” decisions is based on economic utility theory, which looks at government and society as a market populated by individuals, who are rational decision-makers. These individuals have set preferences and relate to each other through self-interested trading transactions in which they each maximize their personal utility. Through these transactions, decision-makers gain support for policies from the individuals who benefit from them (Shapiro 1988, p. 9-10; Stone 1988, p. 6).

The rational model has its roots deep in Western thought, extending back to the Age of Reason. From this heritage, we have developed a culture that values science, technology and facts. There is a dominant attitude in our culture that facts are objective and unbiased, and that any problem can be solved if the facts are discovered. The success of the scientific method has reinforced these values and beliefs. Thus the pragmatic, rational approach to decision-making, which resonates with these cultural ideals, has dominated policy analysis for over fifty years (Altshuler 1965; Brock and others 1973; Forester 1989; Yankelovich 1991).

There are many who criticize the rational decision-making process because they believe its aim is to circumvent politics and distill decision-making down to a precise science (Nathan 1988, p. 10). Detractors of the rational paradigm believe that comprehending the politics of decision-making is the only way truly “rational” decisions can be made. They posit that decision-makers must understand that, unlike the rational, market driven world, the political world is messy. Politics is about interpersonal conflict and power struggles, rather than efficiency and utility. In the political world, people act strategically and outcomes are often inequitable rather than Pareto optimal.

Some of the most commonly used tools of rational analysis are benefit/cost analysis, risk/benefit analysis and decision analysis. In the 1960's, there was a proliferation of analytic computer models to assist decision-making in every realm of policy (Schon 1983, p. 43). When using analytical tools for predicting consequences, all factors being considered must be distilled into a number. Often this number has a dollar value. Thus the value of life and death, or the value of intangibles such as the beauty of nature or the loss of a species must be quantified numerically, or are left out of the calculations (Stone 1988, p. 187).

Unfortunately, analytical tools are incapable of capturing important variables outside the quantified alternatives. For example, "certain actions whose costs outweigh their benefits are morally right and therefore should be taken nevertheless (Stone 1988, p. 186)." Also, when valuing outcomes, the tools of rational analysis indicate outcomes that maximize overall welfare. In a political context, however, decision-makers often consider the welfare of some special interests over others. Either way, there are winners and losers and much political debate is an exploration of the different distributional effects of the outcomes. It is the relative valuing of these effects that rational analysis cannot compute and around which political controversy frequently hinges in the selection of policy (Mitchell and Mitchell 1969, p. 414; Stone 1988, p. 204).

When using the rational model, the decision-maker bases his decision on the results of the technical analysis completed. Due to the complex scientific nature of many kinds of analysis, this frequently means placing faith in a handful of experts to inform the decision. When relying heavily on experts, adherents of the rational model make some tenuous assumptions. One is that there is a definitive, correct answer for any given problem, upon which the experts will agree. Another is that the public will accept expert opinion as truth. The rational

model also ignores the possibility that the expert or the decision-maker, cloaked in the legitimacy of expertise, might act strategically. Such occurrences are the staples of every-day politics, but the rational model does not account for them (Ozawa 1991, p. 8).

The rational model relies solely on a determination of “efficiency” for decision-making. As the criticisms of the theory point out, it takes a narrow view of the world and does not deal with power and politics. Thus it does not recognize or incorporate an “effectiveness” component to deal with special interests. It also does not deal with the fairness or “equity” of the decisions made.

### **The Role of the Courts in Agency Decision-making**

The Clean Air Act establishes a normative “equity” goal that redistributes the benefits and costs of air pollution. The administrative agencies are charged with writing the rules to enact this legislative mandate. When engaged in rulemaking, administrative agencies share their power with the judiciary as the courts are the final arbiters of what agencies can and cannot do (Shapiro 1988, p. 45)).

The courts are not able to review an agency decision unless or until someone brings a suit against the agency. When reviewing an agency decision, the court seeks to achieve adjudicatory fairness, which is characterized by “consistency over time (stare decisis), consistency across situations (treating like cases alike), reasoned elaboration, neutrality of the decision maker, and rich notions of hearing and confrontation (Edley 1990, p. 14).” The court will substitute its own judgment on questions of law that are within the special competence of the judiciary, such as interpreting the Congressional intent of a statute. However, on other questions, the court limits itself to deciding



reasonableness (Edley 1990, p. 96). For example, the court defers to agency expertise on highly technical or scientific decisions and limits itself to reviewing the reasonableness of the procedures used by the agency rather than substituting its own judgment for that of the agency. Thus the review of agency decisions is one of deciding the fairness of the process of agency decision-making rather than deciding the fairness of the outcome (Edley 1990, p. xi).

This review of procedure rather than substance comes out of administrative law, the purpose of which is to place bounds on what the court can do when deciding whether an agency has properly performed its regulatory function (Edley 1990, p. 3). The court provides a check on improper use of agency discretion. However, the various legal doctrines used by the courts to control agency discretion place little control over unrestrained judicial discretion. Administrative law attempts to check judicial discretion.

Formal administrative law is relatively new in the United States. The Administrative Procedures Act (APA), which governs the process of agency rulemaking, was not passed by Congress until 1946. By then, the number of agencies and process of agency decision-making had proliferated under the New Deal. The APA was therefore cast as a loose means of standardizing the procedures that agencies were already using, rather than being a set of rules to govern all administrative actions. In addition to the APA, many administrative procedures are either spelled out in the statutes that establish individual agencies, or in the originating statutes for which agencies write regulations. APA provides back-up procedures to be followed if proper procedures are not already covered in other statutes (Shapiro 1988, pp. 36-39).

APA sketched out only a brief outline for agency rulemaking. As agencies proliferated in the 1960's and 1970's, rulemaking procedures were redefined both by Congress, when writing statutes, and by the courts, when reviewing agency

decision-making. Originally, there were two types of rulemaking procedures offered in the APA: 1) agency adjudication, or formal rulemaking; and 2) notice and comment, or informal rulemaking. The procedures for formal rulemaking are comparable to those of a court trial with testimony, cross-examination and a formal written record, which is similar to a court decision (Shapiro 1988, p.110). Thus using formal rulemaking, an agency would conduct formal hearings and base its decisions on the evidence, all of which was documented in the record. The court, when reviewing an agency decision, would examine the record and could overturn an agency decision only if it was "unsupported by substantial evidence (Ashford and Caldart 1991)."

Informal rulemaking was much simpler and less time consuming. Using this procedure, an agency would issue a notice of a proposed rule, take comments from interested parties, and print the final rule in the *Federal Register* along with a general statement of the rule's basis and purpose. A reviewing court could strike down a rule made through informal rulemaking if it was "unlawful, arbitrary and capricious, or an abuse of discretion (Shapiro 1988, p. 44)." This meant that the courts could only review the procedures the agency had followed to make a decision, because without the formal record the court could not evaluate whether the decision was well reasoned.

Most regulations are promulgated through informal rulemaking. The brief outline for informal rulemaking in the APA has been filled out by Congress and the courts to reflect the changing political climate over the years. In the 1960's interest groups, rather than individuals, were considered the basic units of democratic pluralism. It was believed that these groups should have easy access to government decision-making. The courts and the Congress did two things to reflect this philosophy in administrative law. First, they expanded standing (the legal right to sue an agency) to allow more interests the opportunity to challenge

agency decisions. Second, they enhanced the public comment process. To insure that agencies actually listened to the public comments, the courts began to require agencies to respond to all the comments (Shapiro 1988, pp. 45-47).

This dialog between the agency and the public, through comments and responses, began a new procedure for informal rulemaking. This was the creation of a formal record for informal rule-making. The record included all of the public comments and the agency's replies (Shapiro 1988, p. 48). Both the Congress, when writing new legislation, and the courts, when reviewing agency rulemaking, began in the 1960's to call for a record of rulemaking even though it had not been required in the APA (Shapiro 1988, p. 48).

In this same time frame another evolution in informal rulemaking also took place. Originally, the scope of review for informal rulemaking was narrow in that it allowed the court to examine the procedures followed by the agency in its decision-making, but not the substance of the decision. Over time, the scope of review for informal rulemaking came to be more like that for formal rulemaking, which was a more substantive evaluation. This broadening of the scope of review began when Congress sent mixed messages in originating statutes. Congress did so by indicating that agencies should promulgate regulations through informal rulemaking, but that the courts should review the decisions as if they had been made through formal rulemaking. The scope of review was opened up further through *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402 (1971). In this case the Supreme Court noted that, when applying the arbitrary and capricious standard, the court must "engage in a substantial inquiry" and should determine whether the agency's decision "was based on a consideration of the relevant factors and whether there ha[d] been a clear error of judgment (Ashford and Caldart 1991)." This trend toward broader review allowed the courts to do more than simply evaluate whether proper procedures

were followed in informal rulemaking. The court began to take a "hard look" at the facts to see whether the findings of fact were supported by the record (Leventhal 1974).

Eventually, Congress and the courts became disillusioned with interest group pluralism, because some groups have much greater power and resources than other groups. In an effort to level the field for all groups to become involved, Congress and the courts further expanded the interpretation of who had standing to sue. Originally, only those injured by a regulation could sue. The definition of injured was expanded to include aesthetic as well as economic injury (*Sierra Club v. Morton*, 405 U.S. 727 (1972)). One statute granted standing to everyone (Shapiro 1988, p. 51) and one judge even suggested that rocks and trees should have standing (*Sierra Club v. Morton*, 405 U.S. 727 (1972)). Congress also included citizen suit provisions in statutes to allow private right of action to any citizen who wanted to sue to make an agency enforce its own rules (Ashford and Caldart 1991).

In the late 1970's and early 1980's, administrative law shifted away from the pluralist philosophy of decision-making to one of rational decision-making. This happened slowly and subtly through the omission of a few words from doctrinal language. Courts stopped requiring that agencies respond to "all significant issues *raised by all groups*" and began instead to require that agencies "respond to all significant issues (Shapiro 1988, p. 51)." This meant that decisions were no longer based on a compromise among competing interests, but on some overarching vision of the public good. Thus the courts began to push rational decision-making by agencies, where all alternatives are considered and the relative merits of each are measured using technical analysis. The record of rule-making, which had originally developed to foster pluralist debate, became a vehicle for rational planning/decision-making (Shapiro 1988, pp. 52-53).

As these transitions were occurring the decision-making approach fostered by the court changed. First, the court encouraged the “effectiveness” approach by expanding standing to allow interest group pluralism. Granting standing to everyone approximated an “equity” approach. However, the advent of the rulemaking record and the “hard look” caused the courts drive “efficiency” decision-making by agencies.

The irony of the role of the courts in agency decision-making is that instead of promoting the traditional “equity” approach, in which decisions are based on a judgment of the fairness of the outcome, the courts promote the “efficiency” approach by requiring rational/comprehensive decision-making from agencies.

Taken together, these changes in the role of the court have created a much more litigious environment for agency decision-making. Litigation and the necessity of producing a record have made informal rulemaking by agencies much more costly and time consuming (Susskind and McMahon 1985, p. 135).

## **Implementation**

While the rational decision-making theory sets forth a prescriptive process that strives for decisions with “efficient” outcomes, implementation is the descriptive study of how a policy is developed and of what happens when a program is put into action. "Implementation concentrates on the results of administrative action, not just on its process (Fesler and Kettl 1991, p. 240)." The purpose of the study of implementation is to determine why policies so often fall short of expectations and are not as successful as originally envisioned.

The field of implementation began in the early 1970's as a means of examining whether policies actually achieved what was expected of them (Rein and Rabinovitz 1977, p. 1). The conclusion of those who study implementation is

that, due to the complexities of modern government, we should not be surprised that the outcomes of government programs are so often disappointing (Fesler and Kettl 1991, p. 239-340).

When we say that programs have failed, this suggests we are surprised. If we thought from the beginning that they were unlikely to be successful, their failure to achieve stated goals or to work at all would not cry out for any special explanation. If we believe that intense conflicts of interests were involved, if people who had to cooperate were expected to be at loggerheads, if necessary resources were far beyond those available, we might wonder rather more why the programs were attempted instead of expressing amazement at their shortcomings (Pressman and Wildavsky 1979, p. 87).

The implementation process begins after a law is passed. It includes the writing of regulations to enact a law, the allotment of resources to carry out the law, and a system of oversight to insure accountability in the lower levels of bureaucracy that are responsible for carrying out the regulations (Rein and Rabinovitz 1977, p.17). This process is not as straightforward and linear as it might sound. In reality, it becomes a circular process as all of the stages are interdependent and players at any one stage often have influence over the other stages as well (Rein and Rabinovitz 1977, p. 25).

During implementation, there is conflict between the legal mandate set down in the statute, the agencies that must write the regulations and the interest groups that are affected by the policy (Rein and Rabinovitz 1977, p. 8). When an originating statute is clear, when the enacting agency has the will and the resources to enact the law, and when interest groups are aligned with the policy, implementation can proceed without tremendous difficulty. Unfortunately, this constellation of events rarely occurs.

First, implementation should be guided by a clear legal imperative but frequently is not. Federal statutes are often left ambiguous in order to gain agreement from those who otherwise would disagree on specifics, or to unite those who might support the same policy for different reasons (Stone 1988, p.

195). This ambiguity leaves much room for interpretation by the regulatory agency and for pressure by interest groups (Rein and Rabinovitz 1977, p. 11). Second, even with a clear mandate, agencies have some leeway to change legislative intent when writing regulations. Agencies tend to reinterpret laws when they are not consistent with agency philosophy, are not workable, or might have a negative impact on the agency's constituency (Rein and Rabinovitz 1977, pp. 11-13). The more ambiguous the original legislation, the easier it is for agencies to reinterpret Congressional intent when writing regulations. Third, special interests can have a large say in the implementation process. This is especially true when an agency is "new, weak, and under pressure to produce visible results." In such cases, special interests end up managing implementation (Rein and Rabinovitz 1977, p. 14). It was once believed that the conflict between the statutory mandate, the agency and special interests would act as a system of checks and balances. It has become clear over time, however, that they more often serve to frustrate the process of implementation (Rein and Rabinovitz 1977, p. 16).

During implementation there are three conditions that influence the success of the process. The first is the level of consensus on goals among the levels of government involved. The second is the degree to which adequate resources are available to implement the policy. The third is the complexity of the bureaucracy responsible for implementation (Rein and Rabinovitz 1977, p. 30). Problems with any one of these conditions can cause the implementation process to proceed slowly or not at all.

### **Consensus on Goals**

Obtaining a consensus on goals is the cornerstone of implementation (Kettl 1988, p. 132). Unfortunately, achieving a consensus is complicated by the

nature and complexity of the process. Responsibility for implementation often cuts across the federal, state and local levels of government. Implicit in federal legislation is often the assumption that the lower levels of government that are responsible for implementation are in agreement with federal goals. This is often not the case. Each governmental level has its own interests, opinions, priorities and timing (Pressman and Wildavsky 1979, p. 136). Even if there is agreement with the goals of a federal program, each level of government has a broader set of goals and programs within which the federal program is just one small cog. Therefore there are two levels at which resolution of goals should take place for implementation to be successful. First, the federal government and the state and local governments responsible for implementation need to come to a general consensus on the goal of the federal program. Second, the federal goal must be compatible with all the other competing interests within each level of government (Kettl 1988, p. 132). As implementation moves farther down the governmental hierarchy, there are more and more places for disagreement over goals to occur. If goals are unclear at any level, decision making may just be shifted to the next lower level of government (Rein and Rabinovitz 1977, p. 6).

There is also a temporal aspect to consensus on goals that complicates implementation. Once a policy has been implemented, circumstances change and goals must be readjusted. Thus, there is constant “interaction between the setting of goals and actions geared to achieving them (Pressman and Wildavsky 1979, p. xxi).” For implementation to work, there must be agreement not only with the initial goal, but with the goals at each step along the way. If the original goals are unclear, each step provides a new context for clarification and change. As these steps proceed, the ends and means of policy become blurred. What was originally a goal becomes a program (Pressman and Wildavsky 1979, p. xxi). Programs may then create new goals or take on different goals over time as



conditions change. When goals are redefined at each stage of the process, opportunities are created for interest groups to modify the policy. Thus, implementation becomes the “strategic stage” for special interests to try to resolve any ambiguities to their own advantage (Rein and Rabinovitz 1977, p. 6).”

### **Resources**

The other type of problem generally encountered in implementation is one of obtaining adequate resources. It may seem obvious that programs cannot be implemented without resources; however, it is common for program implementation to suffer due to lack of money or staff (Fesler and Kettl 1991, pp. 244-245). When resources are scarce, ideals are subordinated to the limits of what is practically feasible (Rein and Rabinovitz 1977, p. 5). What is often seen as a failure of implementation is really a failure to implement due to inadequate resources. Resources are important not only for instituting the policy, but also for monitoring implementation as feedback is critical to the success of any policy (Fesler and Kettl 1991, p. 267; Kettl 1988, p. 16).

### **Complexity**

The success of implementation is also dependent on the complexity of the bureaucratic system responsible for the program. The number of levels of government involved as well as the number of agencies at each level add to the difficulty of decision-making. Participation by interest groups also inhibits decision-making. In fact, experience has shown that the broader the participation is in decision-making, the less likely decisions will be made and programs implemented (Rein and Rabinovitz 1977, p. 33).

Unfortunately, many policy decisions are made without regard for the complexities of implementation, the need for consensus on goals or the necessity of adequate resources. "The separation of policy design from implementation is fatal (Pressman and Wildavsky 1979, p. xxiii)." The need for communication and consensus across public and private interests argues for the use of an "effectiveness" component in decision-making that gives voice to differences among the interests.

## **Conclusion**

The three theoretical perspectives reviewed in this chapter show the interactions between the players in the process and their approaches to decision-making. Analysis of these theories makes it clear that any decision-making process includes elements of all three approaches and the balance of the three in the process is critical to the success of the outcomes. In the next chapter, I will analyze the case study of TCMs in Cambridge and determine whether the conclusions from the theory are borne out in actual practice.

## **Chapter Two**

### **A Case Study of Transportation Controls in Cambridge**

With the theoretical perspectives from Chapter One clearly in mind, this chapter looks at a case study of the SIP process in Massachusetts and how planning and implementation of TCMs worked in the city of Cambridge. Cambridge was selected as the case study site for several reasons, not the least of which was proximity. The primary reasons for looking at Cambridge are that the city has been involved with TCMs since the original SIP planning, and that the city was initially very receptive to transportation controls. This positive attitude should have provided a climate in which transportation controls could succeed. However, many problems have been encountered and there is currently heated controversy over the future of transportation controls in Cambridge. These problems are probably representative of the problems encountered in other states as well.

The story of TCMs takes place in two parts. The first part occurred immediately after the 1970 CAAA. This part involved the writing of the Transportation Control Plan (TCP) in the SIP. This planning occurred at the state and federal level and included plans for the whole state. The second part of the story takes place primarily in Cambridge, although it still involves state and federal players. Although some the TCMs adopted in part one of the story have been implemented in other Massachusetts cities and towns, this case study looks only at Cambridge in the second part of the story.<sup>8</sup>

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<sup>8</sup>See Table 4 in the Appendix for a brief chronology of the events in the case study.

## **Part I: Writing the SIP**

### **Pre-Legislative Actions**

Although the Clean Air Act Amendments of 1970 marked the beginning of federal government efforts to control automobile use, Massachusetts, was already well on the way toward planning for reduced automobile dependence. Like most states, Massachusetts expanded its highway systems rapidly throughout the 1960's to meet the ever increasing demand for mobility by private automobile. By 1970, however, the folly of this approach to transportation planning had become readily apparent. As more highways were built to meet every increasing demand, people in Boston and surrounding towns became alarmed at the disruption and destruction this expansion brought to urban neighborhoods. A coalition of diverse community interests formed around this issue and in January 1970, at a rally on the State House steps in Boston, citizens demanded a halt to new highway construction in the city (Howitt 1984, p. 140).

In response to this expression of public opinion, governor Francis Sargent named Alan Altshuler, a professor of Political Science at MIT, to head a transportation task force to study the problem. Altshuler brought together a broad based group of representatives from academia, labor, business and civic associations, all of whom were as yet uncommitted on the highway issue. Based on the recommendations of this task force, Sargent placed a moratorium on highway construction until a more comprehensive study could be undertaken that would consider not only transportation issues, but the economic and social impacts of highway expansion as well (Howitt 1984, p. 140).

Altshuler (who was by then the Secretary of Transportation for the state) organized an in-depth analysis of these issues, out of which came a report known as the Boston Transportation Planning Review (BTPR). In the BTPR it was recognized that there was already too much congestion and too little parking in

Boston to accommodate the traffic that would be generated by building more highway capacity into the city. The BTPR recommended that additional highways not be built, and that other means be used to accommodate growth and economic development in the city. To this end, the BTPR recommended shifting travel away from the private automobile by increasing transit service and freezing the supply of parking at the current levels (Collins 1981, p. 3).

In November, 1972, based on the recommendation of the BTPR, Sargent announced a new transportation plan for the Boston area. It placed a permanent moratorium on highway construction inside Route 128<sup>9</sup> and transferred highway funds to projects that would improve the city's transit system (Howitt 1984, p.141; Schaeffer and Sclar 1980, p.101).

### **The Clean Air Act and Transportation Controls**

At the same time that Boston was going through this complete re-evaluation of its transportation needs, the U.S. Congress was passing the Clean Air Act Amendments (CAAA) of 1970. This statute set ambitious goals by requiring manufacturers to reduce automobile carbon monoxide and hydrocarbon emissions by 90 percent by 1975 and nitrous oxide emissions to the same degree by 1976. Congress realized that these targets would be difficult to achieve. It therefore gave EPA the authority to grant manufacturers a one-year extension of the deadlines if necessary (Howitt 1984, p. 120).

In addition to emission control standards, the 1970 CAAA also required EPA to establish National Ambient Air Quality Standards (NAAQS) for pollutants found to have adverse effects on human health. Initially, the NAAQS were to be achieved by mid-1975. States that were expected to be out of

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<sup>9</sup>Halted in this moratorium were an Inner Belt highway that circled within two miles of downtown and three radial highways running between the Inner Belt and Route 128.

compliance beyond the 1975 target were required to write a clean air implementation plan by 1972. Any state that could not reach compliance through stationary and mobile source emission controls was required to include a transportation control plan (TCP) in their implementation plan. The purpose of the TCP was to set out strategies through which vehicle miles of travel (VMT) could be reduced thus curbing emissions (Altshuler 1979, pp. 184-185). As originally envisioned in EPA's guidelines, these strategies would include, but not be limited to "conversion of commercial and governmental vehicle fleets to low-emission fuels or engines, and methods of reducing auto use, such as commuter taxes, gasoline rationing, parking limitations, staggered work hours, and restrictions on vehicle idling time (Howitt 1984, p. 123)." However, after review by a special interagency task force directed by the Office of Management and Budget, the final EPA regulation simply required state implementation plans (SIPs) to contain "such other measures as may be necessary" to control VMT (Howitt 1984, p. 124). The 1970 CAAA also required EPA to write a federal implementation plan for any state that submitted an inadequate SIP.

### **The Consultant's Plan (December, 1972)**

Within this context, Massachusetts began planning to meet the requirements of the 1970 CAAA. Initially, responsibility for writing the SIP fell to the state's Bureau of Air Quality Control (BAQC) in the Department of Public Health. As was the case with the air quality agencies in most states, BAQC had no expertise in transportation planning and EPA offered little guidance. In the fall of 1971, EPA therefore advised the states that they did not have to include transportation control measures (TCMs) in their SIPs, which were due at the beginning of 1972. The states were required, however, to write separate TCPs by

February, 1973. Massachusetts wrote the remainder of its SIP without the TCP and it was approved by EPA in May, 1972 (Howitt 1984, p.141).

EPA also granted a two-year extension for meeting the NAAQS, from 1975 to 1977. Massachusetts realized that, even with the extension, it would have to impose a strong TCP to meet the air quality standards. People driving in or to the metropolitan Boston area would have to end their reliance on the private automobile as their primary source of mobility. Even though the metropolitan area was already philosophically predisposed to transportation controls, there was fear that a stringent TCP would have adverse affects on the economy (Howitt 1984, p. 141).

As planning for the TCP got underway, it became clear that the understaffed BAQC was not up to the task. The governor therefore assigned responsibility for the TCP to Altshuler and the Executive Office of Transportation and Construction (EOTC). Because Altshuler was still deeply involved with the BTPR he hired a consultant to put together the TCP. The Consultant's Plan was completed in mid-December, 1972 (two months before the TCP was due to EPA). This plan included the following measures (Howitt 1984, pp. 142-143):

1. A program, known as the "retrofit" strategy, to install emission control devices on pre-1975 vehicles. The consultants anticipated that this measure would cost owners approximately \$300 per vehicle.
2. A traffic management strategy to "monitor and exclude low priority traffic" from Boston's downtown core area. This measure was linked to the following policy.
3. A licensing scheme through which drivers on a priority basis would be issued special licenses to drive in Boston's downtown core. The consultants proposed that "persons making trips deemed essential or deserving certain priorities" be allowed to enter the core area, but left unspecified which drivers fell into this category.
4. Imposition of tolls on all major radial routes into Boston to discourage unnecessary traffic. These included Routes 1 and I-93 to the north, Route 2 and the Massachusetts Turnpike to the west, and the southeast expressway (Route 3) to the south.

5. A state gasoline tax designed to curb unnecessary driving, enforced by "police border patrols" to prevent drivers from purchasing fuel out of state.

### **Altshuler's Plan (January, 1973)**

Altshuler recognized immediately that this plan would never gain political acceptability. He therefore began revising the consultant's plan. He had limited resources and believed that the quantitative models then available could not adequately predict the effects of different TCMs. It was therefore difficult for him to know the degree to which each measure he considered would contribute to emission reductions. When devising his plan, Altshuler counted on the fact that EPA was requiring Detroit to produce cleaner vehicles by 1975 model year. Based on this knowledge, he therefore put together a plan that was less draconian than the Consultant's Plan and that was compatible with the transportation policies Sargent had announced in 1972 (Howitt 1984, pp. 143-144). His plan included the following measures:

1. A state-run inspection and maintenance (I&M) program. Under this program, all vehicles registered in Massachusetts would be required to undergo biannual checks to ensure the proper installation and operation of their emission control devices.

2. Implementation of the state's recently unveiled \$1 billion transit improvement program for the eastern Massachusetts area. Altshuler felt that this was essential to attract additional transit riders and thus necessary to reduce further vehicular traffic.

3. A traffic management strategy to ban driving during meteorologically induced episodes of poor air quality. This measure would be applied in conjunction with the following policy.

4. A state-run "sticker plan" that separated "non-essential" vehicles into five groups, each marked by a different colored window sticker. Under this plan, on an alternating basis, one or more groups would be prohibited from traveling during poor air quality episodes.

5. A system of air quality monitoring and surveillance for episodic application of controls.

6. A freeze on the supply of parking in Boston's core areas. In his November 1972 speech Governor Sargent had broached the idea of prohibiting



development of further off-street parking lots in Boston as a long-term strategy to discourage driving downtown.

7. A \$1 parking surcharge on all parking in the core area to be imposed at the localities' discretion. The city of Boston supported this plan for the revenue it would earn, but Altshuler proposed it to discourage unnecessary traffic.

8. Special carpool and bus lanes on major radial highways into Boston, including the southeast expressway, Route 2, I-93, and Route 9 (Howitt 1984, pp. 143-144).

This TCP was to go to public hearing on February 27, 1973. However, on January 31, 1973, a federal court decision in Washington, D.C. abruptly altered the course of events. The Natural Resources Defense Council (NRDC) sued EPA for allowing states to submit their TCPs after the SIP deadline and for granting states the two-year extension for meeting the NAAQS . The court decided in favor of NRDC and ordered states to submit their TCPs by April 15 (Howitt 1984, p. 129).

This decision pulled the rug out from under Altshuler's TCP, which was geared to the 1977 attainment deadline. Success of the plan depended on cleaner running cars by 1975 to meet the goals by 1977. Changing the deadline to 1975 meant that the entire emissions reduction burden fell to the states, which would mean requiring strict limits on automobile use. Realizing that this would be political suicide for the governor, Altshuler opted to not submit a TCP at all. This move placed responsibility for writing the TCP on EPA. Virtually every state that was writing a TCP reacted in the same way. When faced with the prospect of imposing harsh plans, the states felt it would be better to pass the responsibility and the blame for the harsh plans to EPA (Howitt 1984, pp. 144-145).

### **EPA's First TCP - Draft Version (July, 1973)**

The NRDC decision had far reaching implications for EPA. Matters were made even worse when EPA granted auto manufacturers a one year extension on the deadline for producing cleaner cars. Allowing the extension did not change the deadlines for compliance with the NAAQS, which necessitated making the TCP even more stringent (Howitt 1984, p. 146).

Officials in the Region One EPA<sup>10</sup> office tried to work with local officials as much as possible when feverishly putting together a plan to meet the new deadline for submission of the TCP. In discussions with city officials they learned that Boston supported several parking management strategies such as banning on-street parking, freezing development of new parking facilities in the core area, and placing a tax surcharge on parking fees (Howitt 1984, p. 145). Some of these ideas were incorporated into the EPA plan that was announced in June and published in the *Federal Register* on July 2, 1973.

The plan included a number of stationary source strategies to reduce emissions of hydrocarbons. These included controls on evaporative emissions at gas stations and on producers of organic solvents and paints (U.S. Environmental Protection Agency 1973a). These were not technically transportation controls, but accounted for most of the hydrocarbon emission reductions (Howitt 1984 pp. 147-148).

For dealing with mobile sources, the TCP used two strategies. One was to control emissions from cars and the other was to reduce VMT. The measures in the plan that reflect these strategies were (U.S. Environmental Protection Agency 1973a):

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<sup>10</sup>EPA has regional offices throughout the country to administer federal environmental laws. Region One includes the Northeastern states of: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

1. An on-street parking ban from 6 a.m. to 10 a.m. and from 4 p.m. to 10 p.m. in Boston's downtown core.
2. A surcharge of \$5.00 per day on all off-street parking spaces in the Boston Intrastate Region. All owners of off-street parking had to provide an inventory of parking spaces.
3. A sticker system that divided all vehicles in the Boston Intrastate Region into five groups. Each group would be banned from the Boston metropolitan area during a given part of the year.
4. A biannual inspection and maintenance program to measure in-use emissions from all vehicles in the Boston Intrastate Region. Failed vehicles were required to receive the maintenance necessary to achieve compliance within two weeks.
5. A retrofit program to install emission control devices on pre-1975 vehicles in the Boston Intrastate Region.

The Boston Intrastate Region included most of the cities and towns in Eastern Massachusetts (see Table 5 in the Appendix). Therefore, Cambridge was subject to all of the above measures except the on-street parking ban.

Under the informal rulemaking provisions specified in the Clean Air Act, the TCP had to go to public hearings before it could be finalized. On July 19, 1973, the hearings opened with more than fifty groups and individuals signed-up to make comments. Negative reactions to the plan came mainly from the business community, which had organized through the Associated Industries of Massachusetts (Howitt 1984 p. 149). The most severe criticisms were of the five dollar surcharge, the sticker system and one of the retrofit measures (U.S. Environmental Protection Agency 1973b, p. 30963).

#### **EPA's First TCP - Final Version (November, 1973)**

EPA's regional staff set to work to revise the TCP after the public hearings. There were so many useful suggestions that they could not possibly incorporate them all. When deciding what changes to make, EPA paid close attention to the

comments of the state and the cities of Boston and Cambridge. (Howitt 1984, p. 150).

Although Altshuler had grave doubts about the plan, he worked with EPA to revise it, realizing that it contained some good elements that reinforced Governor Sargent's moratorium on highway construction and emphasis on mobility by transit. Also, he felt that by working with EPA he might be able to influence the final plan so as to make it politically viable for Sargent to live with (Howitt 1984, p. 150). The cooperation proved successful. The new TCP was unveiled on September 4, 1973, and published in the *Federal Register* on November 8, 1973. This TCP still included stationary source controls and the following mobile source measures (U.S. Environmental Protection Agency 1973b):

1. A "regional parking management system" to replace the sticker system in the previous plan. This included a freeze on creation of new employee parking in the Boston core and part of Cambridge. It also froze construction of new parking facilities at Logan Airport, and required employers in the Boston Intrastate Region with 50 or more employees to reduce their employee parking spaces by 25 percent.
2. An on-street parking ban in the freeze area from 7 a.m. to 10 a.m.
3. The \$5.00 per day parking surcharge for off-street parking was replaced with a 25 cent per hour surcharge (with a maximum of \$2.50 per day). Off-street parking lots were required to maintain a 40 percent vacancy rate between 7 a.m. and 10 a.m. This measure applied to the Boston Intrastate Region and the money collected would be used to support mass transit in the region.
4. Egress tolls for all vehicles leaving Logan Airport between 7 a.m. and 7 p.m.
5. A state run, computer aided carpool matching system for all employers in the Boston Intrastate Region with 50 or more employees.
6. Preferential lanes open only to carpools and buses from 6:30 a.m. to 9:30 a.m. and from 3:30 p.m. to 6:30 p.m. on the Southeast Expressway and on I-93.

7. A biannual inspection and maintenance program to measure in-use emissions from all vehicles in the Boston Intrastate Region. Failed vehicles were required to receive the maintenance necessary to achieve compliance within two weeks.
8. Installation of catalytic converters on 1974 vehicles and the use of less costly emission control devices on some older vehicles in the Boston Intrastate Region.

When this plan was first announced, it appeared that it would succeed. However, several circumstances conspired to bring it down. One problem occurred when the plan was sent to EPA headquarters. The general counsel's office tried to standardize all of the state TCPs and put them into language that would be defensible in court. In doing so, EPA imposed several deadlines that seriously jeopardized Massachusetts' ability to implement the plan. For better or for worse, however, the TCP was now the law.

Another threat to the plan occurred due to the 1973 Middle-East war. The Arab oil embargo that ensued led to a quadrupling of world oil prices, which were followed by steep inflation and a serious recession in the U.S. (Altshuler 1979, p. 187) With angry Americans waiting in long lines to purchase gasoline, President Nixon announced the need for emergency energy legislation that would relax environmental regulations if necessary to balance environmental concerns with energy needs. Although logically, transportation control measures would seem a reasonable way to encourage energy conservation, some members of Congress saw the emergency energy bill as an opportunity to act against parking controls. Congress added an amendment to the energy bill that denied EPA the "authority to impose parking surcharges, and other amendments [that] prohibited EPA from requiring special carpool and bus lanes on highways or requiring review of plans to construct new parking facilities (Howitt 1984, p. 153)." Although the bill was vetoed by President Nixon (for reasons not related

to the surcharge or other TCM restrictions), EPA considered the parking surcharge provision to be “firm Congressional guidance on the issue” and removed parking surcharges from all the TCPs that it had written (Rappaport 1976, p. 19). The prohibition on parking surcharges became official when it was included as a part of the 1974 Energy Supply and Environmental Coordination Act (Altshuler 1979, p. 193).

With the surcharge gone, public ire focused on other parking management techniques. In December of 1974, Congress prohibited the “use of any funds for the promulgation or implementation of parking regulations.” This stipulation originally applied for only one year, but was reenacted in July 1975 and became a permanent part of appropriations bills (Altshuler 1979, p. 193). This measure “prevented EPA from administering any parking controls (emphasis original) (Rappaport 1976).”

Contributing to the negative attitude of Congress against parking controls was also pressure from shopping center developers, who organized to stop what was known under the Clean Air Act as Indirect Source Review (ISR). Indirect or complex sources of emissions are those that attract large numbers of motor vehicles such as parking lots, shopping centers or highways. Under ISR the contribution of individual indirect sources to air pollution would be evaluated and their development halted if it was found they generated too much pollution. EPA’s original guidelines for ISR stirred up great controversy as they way overstepped the authority of the federal government to infringe on the state and local prerogative of land use planning. The combination of public opposition to ISR and lobbying by the shopping center developers turned Congress against any kind of parking controls (Melnick 1983, pp. 313-317).

## **EPA's Second TCP - Draft Version (February, 1975)**

In September of 1974, a decision of the United States First Circuit Court of Appeals totally changed the course of transportation control measures in Massachusetts. In the *South Terminal v. EPA* case, the petitioners, who were the developers for the South Terminal at Logan Airport, argued that EPA had violated a number of laws when it halted construction of their parking garage.<sup>11</sup> (*South Terminal v. EPA*, 504 F.2d 646 (1974)) The court responded to challenges based on procedural, constitutional and statutory objections. The court found in favor of EPA in most instances, stating that EPA had followed proper procedures, had exercised its proper legal authority in regulating the garage, had not violated constitutional doctrines such as the due process or just compensation, and had not been arbitrary and capricious in its regulatory decisions. The court did find, however, that there were potential problems with some of the technical data on which EPA based its regulations.<sup>12</sup> The court was not in a position to evaluate the accuracy of the data itself and without accurate data could not determine the rationality of the emission reductions goals. The court therefore ruled that EPA should conduct further public hearings on the TCP. It was hoped that new data could be brought to light through the hearings and that the TCP could be revised based on this data and further public comments (U.S. Court of Appeals 1974, p. 666).

The *South Terminal* case meant that EPA needed to re-evaluate its emissions data. It also meant that the TCP might need to be completely rethought in light of the new data. Many changes had occurred since the TCP had been promulgated. Public sentiment and therefore the mood of the Congress

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<sup>11</sup>This case was actually nine different suits that were consolidated and decided together.

<sup>12</sup>Petitioners argued that EPA based its region-wide estimate for hydrocarbon reductions on one-day readings of ambient air quality at a single monitoring station with an instrument that may have been malfunctioning.

had turned against the idea of strong controls on personal mobility by car. On the local level in Boston, Region One EPA was becoming more aware of the concerns of the business community and had begun to realize the difficulties EPA would have enforcing the TCP. To write the new plan, Region One therefore organized a TCP Strategy Committee that worked closely with the people at the state and local level, who would be responsible for implementing the regulations, and who would be directly affected by them (Howitt 1984, pp. 168-169).

There were several sticking points in the development of the new plan. One was the requirement that employers with fifty or more worker reduce employee parking spaces by 25 percent. After long negotiations between Region One EPA and the business community, which was dead set against the measure, a compromise was reached. They agreed on a new measure that established a goal of reducing single-passenger commuter vehicles by 25 percent rather than the mandatory 25 percent employee parking space reduction (Howitt 1984, p. 170). When the plan was published, however, the 25 percent single-passenger commuter vehicle reduction was mandatory.

Another problem was the retrofit of older cars with emission control devices. Although not politically feasible, hard-liners at EPA headquarters in Washington (fearing law suits from environmental organizations) were adamant that this measure be included to meet the statutory requirements of the plan. Region One finally convinced the EPA Administrator that retrofit should only be a part of the plan if enforcement were indefinitely postponed (Howitt 1984, p. 169).

The plan as it appeared in the *Federal Register* on February 28, 1975 included the following mobile source measures (U.S. Environmental Protection Agency 1975b):



1. An on-street parking ban in Boston proper from 7:30 a.m. to 9:30 a.m. and in the City of Cambridge from 7 a.m. to 10 a.m.
2. A freeze on construction of new off-street parking facilities in Boston proper, the City of Cambridge and at Logan Airport.
3. A state run "carpool matching" program.
4. Feasibility studies for extending the use of preferential lanes for carpools and express buses.
5. Mandatory 25 percent reductions of single-passenger commuter vehicles by all employers with 50 or more employees and all academic institutions with 250 or more employees and students.
6. A retrofit program for pre-1975 vehicles that dropped the use of catalytic converters and indefinitely postponed the application of other retrofit technology.
7. Continuation of the biannual state-administered inspection and maintenance program.
8. A study on the feasibility of developing permanent bikeways.
9. A study on strategies for reducing carbon monoxide hot spots.

When this TCP went to public hearing it met with mixed reactions. The business community was angry that the 25 percent single-passenger commuter vehicle reductions were mandatory. Governor Dukakis was generally in favor of the plan, but opposed the retrofit program and questioned the use of I&M. The cities of Boston and Cambridge were still in favor of the program (Howitt 1984, p.170). In fact, the Cambridge City Council had volunteered the whole city into the on-street ban, and parking freeze, fearing Cambridge would become a parking lot for downtown commuters if Boston had parking controls and Cambridge did not (Rappaport 1976, p. 149).

### **EPA's Second TCP - Final (June, 1975)**

There was still some controversy between Region One and EPA headquarters in Washington. Because the retrofit was very unpopular locally and because EPA was not planning to actually implement it, Region One felt this provision should be left out of the plan. Also, pressure from business caused EPA to back off on the mandatory 25 percent single-occupant reductions. When the final TCP was published in the *Federal Register* on June 12, 1975, the retrofit program had been dropped and the single-occupant reduction softened. The mobile source measures that appeared were (U.S. Environmental Protection Agency 1975b):

1. The on-street parking ban in Boston proper from 7:30 a.m. to 9:30 a.m. and in the City of Cambridge from 7 a.m. to 10 a.m. was continued. Both cities were allowed to exempt cars with resident stickers from the ban.
2. The freeze on construction of new off-street parking facilities in Boston proper, the City of Cambridge and at Logan Airport was continued. Both Boston and Cambridge were allowed to add eliminated on-street spaces to their allotment of off-street spaces. (On-street spaces were "eliminated" by bringing them under the resident sticker program, which meant they were no longer available for commuter parking).
3. The state run "carpool matching" program was continued.
4. The feasibility studies for extending the use of preferential lanes for carpools and express buses were continued.
5. A requirement that employers with 50 or more employees and all academic institutions with 250 or more employees and students offer incentives to employees and students to work toward achieving the goal of a 25 percent reduction of single-passenger commuter vehicles.
6. A continuation of state-administered inspection and maintenance program with revised procedures.
7. A continuation of the feasibility study for developing permanent bikeways.
8. A continuation of the study on strategies for reducing carbon monoxide hot spots.

With the TCP finally promulgated, it fell to the state to implement the control measures. Primary responsibility for managing the implementation belonged to Region One EPA. Given all its other responsibilities, Region One found it needed to rely heavily on the state and local governments to oversee the day-to-day operations of implementation (Howitt 1984, p. 171).

By the time the TCP was final in 1975, EOTC was no longer deeply involved with the planning process for transportation controls. Legal authority to regulate air pollution remained with the Bureau of Air Quality Control in the Department of Public Health until July of 1975, when the Department of Environmental Quality Engineering (DEQE) was established within the new Executive Office of Environmental Affairs (EOEA) (Howitt 1984, P. 172). As the state's air pollution regulatory agency, DEQE was ultimately responsible for overseeing the implementation of the TCP and communicating between EPA, EOTC, and those working on TCMs at the local level.

Although an attempt was made to implement all of the measures in the TCP, the fate of these TCMs has been mixed. The carpool matching program (now called ridesharing), was updated in 1979 but has never been enforced. One short segment of carpool/bus lane remains in operation on I-93 (Altshuler 1994). The requirement for employers to offer incentives to reduce single-occupant vehicles has also not been enforced (Easler 1994). The inspection and maintenance program, although widely used is subject to extensive fraud. A recent study by the Massachusetts Environmental Strike Force found that 85 percent of the cars that should fail inspection are passed (Allen 1993, p. 1). In Cambridge, the on-street parking ban was superseded by the resident sticker program (Sullivan 1975).

The parking freezes have fared somewhat better. Boston, Cambridge and Logan Airport still have freezes. The Logan freeze was extended to cover part of

East Boston and new freeze policies are being adopted in another part of East Boston and in South Boston. Of all the measures considered for and/or actually promulgated in the SIP, the freeze is the primary measure remaining in Cambridge and implemented at the local level. As will be seen by following the history of the freeze in Cambridge, there have been many problems with the parking freeze, and its success as a transportation control measure has been questionable.

## **Part 2: Implementation of Parking Controls in Cambridge**

Even though the state was responsible for regulating transportation control measures, implementation and enforcement of the parking freeze fell to the Department of Traffic and Parking in Cambridge (Bowyer and Teso 1973). In 1974, the Cambridge City Manager had designated the Director of Traffic and Parking, George Teso, “as the responsible local official” with whom EPA could work to enforce the freeze (Sullivan 1974).

Even before the final TCP was promulgated, Teso was anticipating potential problems with the freeze because Cambridge had very few off-street commercial parking lots. About 70 percent of workers in Cambridge commuted and parked on the streets. There was therefore concern among employers that between the rush-hour ban, the freeze, and the long lead time before transit improvements would be in effect, employees would have no place to park and no alternative means of commuting (Bowyer and Teso 1973; Rappaport 1976; Sullivan 1974).

### **Early Implementation, 1975 - 1987**

Before Cambridge was brought under the TCP, the city had undertaken some parking controls on its own. There was a long history of Boston commuters

parking in Cambridge and taking the subway or walking across the bridge to town. Cambridge residents were unhappy that they had to compete for on-street parking with Boston commuters. In response to this problem, Cambridge experimented with a residential parking permit program in Cambridgeport in 1972. Under this program, only cars displaying a sticker as proof of residency could park on the street in designated neighborhoods. This program was in the process of being expanded throughout the city when the TCP went into effect. The resident sticker program eventually superseded the on-street rush hour parking ban for commuters. Converting all on-street spaces to resident parking effectively created a 24 hour commuter ban (Sullivan 1975).

City Officials believed the residential sticker program could solve the problem of insufficient off-street parking supply. They based this belief on Section 52.1135 (n) of the Final TCP, which stated:

Where an agency approved by the Governor under paragraph (e) of this section to issue permits for new construction in the City of Cambridge demonstrates to the satisfaction of the Governor that (1) specific on-street parking spaces in use as of October 15, 1973 were being legally and regularly used as of such date for parking by commuters (as that term is defined in Section 52.1161 (a) (6)) who are not residents of Cambridge and that (2) effective measures have been implemented (including adequate enforcement) to prevent such spaces from being used by such commuters, then such approved agency may issue permits for construction of additional new commercial parking spaces equal to one-half of the number of spaces removed from regular use by such commuters and the total quantity of commercial parking spaces allowable in Cambridge under this section shall be raised accordingly (U.S. Environmental Protection Agency 1975a, p. 25163).

Cambridge Officials believed that all of its on-street parking was available for use “legally and regularly” by non-resident commuters. They therefore calculated that a full one half of *all* on-street parking could be added to the freeze bank as they were brought under the resident permit program. Spaces in the freeze bank would then be allocated to new development when applications for parking permits were requested. There was acknowledgment at the time from the Executive Secretary of Environmental Affairs, the Secretary of

Transportation, and various other Boston and Cambridge city officials that the City of Cambridge planned to calculate its allowed off-street spaces in this manner (Standley and Murphy 1975). As shall be seen, however, this practice was later challenged as a violation of the freeze.

In the early implementation of the freeze, City Officials adopted another implementation policy that also came under fire later. This was the definition of exactly which parking spaces were subject to the freeze. In the final version of the TCP, published in the *Federal Register* on June 12, 1975, only off-street “commercial” spaces were to be frozen. The TCP defined “commercial” parking as:

... any lot, garage, building or structure, or combination or portion thereof, on or in which motor vehicles are temporarily parked for a fee, excluding (i) a parking facility, the use of which is limited exclusively to residents (and guests of residents) of a residential building or group of buildings under common control, and (ii) parking on public streets (U.S. Environmental Protection Agency 1975a, p. 25162).

In the first TCP the parking freeze specifically targeted employee parking because commuters were the primary contributors to peak-hour traffic and congestion (Collins 1981, p. 4). The definition in the final TCP made no reference to commuter or employee parking but did not specifically exempt employee or commuter parking either. This left the definition open to some interpretation because employees usually do not pay a fee for parking. When the City of Boston wrote its “Procedures and Criteria for Issuance of Parking Freeze Permits,” it specifically exempted employee spaces from the freeze. It did so because the business community expressed overwhelming opposition to a freeze on employee spaces, saying it would hurt their ability to attract workers to the city (Collins 1981, p. 9). This procedure was approved by DEQE (Air Pollution Control Commission 1978).

Elimination of employee spaces from the freeze was also supported in the South Terminal case. When determining whether EPA had acted in an arbitrary and capricious manner when promulgating transportation controls, the judge stated, "EPA represents that it intends an amendment 'to clarify that residential parking spaces, free customer spaces and employee parking spaces are exempt.' We approve the regulation as so interpreted but not otherwise (U.S. Court of Appeals 1974, pp. 671-672)."

Cambridge used the same definition of "commercial" that Boston had used and that the judge in the South Terminal case had specified. That is, any space for which a fee is paid, exempting resident, visitor, free customer and employee parking. Thus, even with the freeze, a cap was not placed on the number of employee parking spaces. The validity of this definition was later questioned as a violation of the freeze.

Although the City Manager had designated Teso as the person responsible for the freeze, official delegation of authority to implement the freeze was not given to Cambridge until 1984. In that year, the City Manager requested that Governor Dukakis officially delegate authority for the freeze to the city. At the time of this request, the City Manager sent the governor a copy of the city's newly developed "Procedures and Criteria for Issuance of Commercial Parking Permits." In this document, the city explained both the two for one conversion it was using and the definition of "commercial" parking spaces it was using (based on the definition Boston was using).

It is unclear why the City Manager made this request. Cambridge's current Deputy Solicitor, Don Drisdell, speculated that it may have been precipitated by the development plans of a landowner, whose careful lawyer advised him that for the parking permits to be legal, the city had to have the official authority to grant them. Whatever the reason, the City Manager asked

for formal acknowledgment of what the city had been doing all along (Drisdell 1994).

After the governor delegated responsibility to the city, a Memorandum of Agreement (MOA) was written between the Traffic and Parking Department, the Community Development Department, the Inspectional Services Department and the Board of Licensing Commission of the city of Cambridge. This document incorporated the "Procedures and Criteria for Issuance of Commercial Parking Permits" and officially gave responsibility to the Department of Traffic and Parking to administer the freeze. Also in the MOA was a commitment to send copies of all permit applications to DEQE and to submit a complete inventory of parking spaces to EPA, which would be updated annually (Traffic & Parking Department and others 1984).

Teso sent a copy of the MOA to DEQE and EPA. DEQE responded saying that the Division of Air Quality Control concurred with the procedures (Hagg 1984). Cambridge therefore continued to administer the freeze as it had done all along. It did not, however, submit the required regular reports to DEQE and EPA.

## **Recent Implementation, 1988 - 1994**

### **The Lawsuits**

In 1988 a suit over the Cambridge parking freeze became front page news in the *Boston Globe*. This suit grew out of an attempt by a group of citizens to stop the development of a 1,530 space parking garage on Binney street near Kendall Square in Cambridge. Although the original motivation of the group, which became known as the Cambridge Citizens for Livable Neighborhoods (CCLN), was anti-development, they discovered that the clean air parking freeze



regulation might be the best way to fight the garage (Easler 1994). Their suit therefore challenged exemption of spaces in the garage from the freeze.

The CCLN suit questioned Cambridge's definition of "commercial" parking, arguing that if a fee is paid, whether it is paid by the employer or the employee, the parking space should be considered commercial and be included under the freeze.

The CCLN suit also brought into question the number of spaces Cambridge was converting from on-street parking to the freeze bank for use as off-street commercial spaces. Cambridge was living by Section 52.1134 (n) of the final TCP that said they could convert spaces two for one. However, an earlier part of the TCP, Section 52.1135 (a) (6), that stated:

*"Freeze" means to maintain at all times after October 15, 1973, the total quantity of commercial parking spaces available for use at the same amounts as were available for use prior to said date; provided, That such quantity may be increased by spaces the construction of which commenced prior to October 15, 1973, or as specifically permitted by paragraphs (n), (p), and (q) of this section; provided further that such additional spaces do not result in an increase of more than 10 percent in the total commercial parking spaces available for use on October 15, 1973, in any municipality within the freeze area or at Logan International Airport. . . (second emphasis added) (U.S. Environmental Protection Agency 1975a, p. 25162).*

This section, when applied to the later section that spelled out the two for one ratio, meant that the city could convert two for one only up to a number that was 10 percent above the total number of off-street spaces in existence in 1973. Using this means of calculation, the city had exceeded its number of allowed spaces by several thousand. According to the initial inventory, the city had only 3,542 off-street parking spaces and 17,414 on-street spaces (Howe 1988b, p. 14). Cambridge had assumed that at the two for one ratio, it could add up to 8,707 spaces to the bank for development. Using the 10 percent maximum, the city was allowed only a 10 percent increase over 3,542 spaces, or 354 spaces that

could go into the bank for later development. By 1988, the city had added 7,699 new commercial spaces (Howe 1988b, p. 14).

EPA and DEQE were caught totally off guard. Cambridge had not been reporting regularly and EPA and DEQE had not sought reports or exercised supervision. They were therefore unaware of the number of spaces created in Cambridge and admitted that the CCLN suit raised serious questions about the way in which Cambridge was implementing the freeze (Howe 1988c, p. 40).

The *Boston Globe* reported that Cambridge rewrote the freeze in its 1984 MOA and had failed to report this to EPA (Howe 1988a, p. 40). The city vehemently argued that its implementation of the freeze was consistent with its original understanding of the freeze and with all communication it had had with EPA and DEQE over the years. This assertion was supported by the 1978 Transportation Element of the SIP, which stated that Cambridge would be allowed 9,000 - 10,000 additional commercial spaces in exchange for the approximately 20,000 on-street spaces it would bring under the resident sticker program (Central Transportation Planning Staff 1978, p. 33).

It is easy in retrospect to say that Cambridge violated the freeze. It is not clear, however, that the city did so knowingly. What is clear is that there was a breakdown in communication between the government agencies. The Cambridge Department of Traffic and Parking was not reporting regularly to EPA and DEQE. These agencies, in turn, were not exercising their supervisory role. If they had, they would not have been shocked at the number of spaces Cambridge had converted to commercial parking.

At the same time CCLN was suing the developers of the Binney street garage, the developers were suing the city of Cambridge, claiming that the freeze was not legal. They argued that because the 1977 CAAA forbid EPA from requiring parking controls, the freeze was no longer valid and asked the court for

a Summary Judgment that there was no parking freeze. The Conservation Law Foundation (CLF) sensed a real ambivalence on the part of Cambridge to argue that the freeze was in fact legal. CLF intervened as a defendant in the developer's suit due to its concern that both the developer and the city would tell the judge that there was no parking freeze in Cambridge. Under those circumstance, CLF feared the judge would hold that the parking freeze did not legally exist (Pollack 1994)."

The developer's suit was not settled until March, 1992. The judge ruled that the parking freeze that had been imposed through the 1975 TCP "remains valid and in effect." Although EPA could not impose a freeze under the 1977 CAAA, it could enforce a freeze if the state requested one, which Massachusetts had done (Howe 1992, pp. 16 & 19).

### **The 1990 MOA**

The CCLN suit precipitated negotiations between the city, DEP and EPA over what should be done about the freeze. As a result of these negotiations, the City Council agreed to stop issuing off-street commercial parking permits as of November 10, 1988. Also, the City Manager and the Commissioner of the Department of Environmental Protection (DEP - formerly DEQE) eventually signed a Memorandum of Agreement (MOA) on August 10, 1990. In this MOA, the City of Cambridge agreed to collaborate with DEP on a SIP amendment that would update the existing transportation control measures. Although not a binding part of the agreement, the preface to the MOA included a statement that, "the final SIP amendments will include transportation control measures, including but not limited to parking restrictions, and a parking freeze. . . (Massachusetts Department of Environmental Protection and the City of Cambridge 1990, p. 1)." The city also agreed to develop interim parking freeze

procedures to be followed until the SIP amendment was adopted. The interim procedures included agreements to close the employee loophole in the freeze, to grandfather the existing spaces that were potential violations of the freeze, to establish a freeze bank of 500 spaces for potential development and to pass a city ordinance making the interim agreement legally binding (Massachusetts Department of Environmental Protection and the City of Cambridge 1990).

### **The Central Artery/Third Harbor Tunnel MOU**

During this same time frame another event occurred that influence the status of the freeze. Late in 1990, the state was wrapping up the Final Supplemental Environmental Impact Report (FSEIR) on the Central Artery/Third Harbor Tunnel (CA/THT) Project (under the Massachusetts Environmental Policy Act). When an environmental impact study is written for a project, mitigation measures are required to counteract the negative consequences to the environment caused by the project. Whether or not parking freezes should be required as mitigation for the CA/THT Project became a controversial issue.

Planning for the CA/THT Project had been under way for several years. To a large degree, the planning was based on computer modeling. The kind of modeling routinely used in transportation planning is the sequential demand-forecasting model. This model is a sequence of four different modeling components: trip generation, trip distribution, modal choice, and network assignment. The trip generation model forecasts the number of trips that will begin or end in a particular travel zone based on its land use and socioeconomic characteristics (Papacostas and Prevedouros 1993, p. 310). Data obtained from the trip generation model is fed into the trip distribution model. This model estimates the numbers of trips that occur between all pairs of previously defined

travel zones (Papacostas and Prevedouros 1993, p. 324). The mode split or mode choice model predicts the way in which travelers will get to their destinations (for example, by car, by transit, etc.). Mode choice modeling can be done either before or after the trip distribution modeling (Papacostas and Prevedouros 1993, p. 346). Network or trip assignment modeling is the final part of the sequential demand forecast. This model looks at the demand for travel (estimated earlier in the modeling sequence) and the supply of physical transportation facilities (for example, the road network or transit service availability). Given the balance between these two things, the model predicts the likely paths between zones that travelers will choose (Papacostas and Prevedouros 1993, p. 359).

For the CA/THT Project, modeling was necessary not only to design a functional road, but also to predict the air quality impacts of the new road. “The modeling that was done on the CA/THT Project was the most intensive, state of the art modeling that has been done on any project in the country (Cutler 1994).” However, not all of it was conducted with the same degree of care.

Just two weeks before the FSEIR was to be completed, it was recognized that some of the required modeling had not yet been undertaken. During the public review process, environmentalists had suggested that a sensitivity analysis should be completed. When using the sequential demand model, predictions for the future are based on current characteristics. For example, it is assumed that the price of gas, the price of parking, the price of insurance, etc., will remain constant into the future, even as development and therefore traffic increases. The assumptions about these kinds of future characteristics had been locked into the models in the very beginning of the project. In calling for a sensitivity analysis, the environmentalists were saying that twenty years from now, some of those things might be very different. If they were, future travel volumes on the highway would be very different as well. Environmentalists

therefore requested several “what if” scenarios that would give people a sense of different ranges of future traffic volumes on the Central Artery given changes that might occur. The scenarios they were interested in were: reduced rate of employment, lower levels of development in South Boston, increased gas prices, higher or lower rates of transit use for ground access to Logan Airport, higher than expected increases in vehicle trips, and strengthened and expanded freezes.<sup>13</sup>

Given only two weeks to complete this analysis, the modeling team was not able to do as thorough a job as they would otherwise have done. They had to make some snap decisions about how to model a strengthened freeze. In Cambridge, they chose to model two scenarios.<sup>14</sup> One was a “full freeze” (or strengthened freeze), which reflected the new policy under the August 1990 MOA that excluded the employee loophole. The other was a “partial freeze,” which allowed a 20 percent growth in parking supply. To perform the sensitivity analysis, a certain number of trips were deleted from the trip generation part of the model for each scenario and then the remaining trips were spread out through the trip distribution model to estimate the numbers of trips between zones, given the new circumstances.

The results of the analysis were no surprise. They showed that if you strengthened the freezes, you had fewer trips. The models couldn’t, however, say what happened to those trips (Cutler 1994). One of the common criticisms of parking freezes is that the assumption is made that if a person cannot park, they either suppress their trip or switch to a different mode of travel. Some people

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<sup>13</sup>The freeze would be extended to include South Boston and more of East Boston, and would be strengthened by closing the employee loophole and promulgating the changes as a SIP amendment.

<sup>14</sup>The modeling for Cambridge included only that part of the city that was in the CA/THT study area. This area included East Cambridge where the Charles River Crossing was to be re-constructed as a part of the CA/THT Project.

may, however, drive elsewhere and actually increase rather than decrease VMT. For freezes to work they must be coupled with other policies that support mode switching such as transit expansions or ridesharing regulations. The consultant pointed out this weaknesses in the modeling. These comments were edited out of the FSEIR.

The sensitivity analysis was precipitated at the end of the Central Artery study because the Secretary of Transportation was negotiating with CLF, which was threatening to sue the CA/THT Project if mitigation measures such as strengthened parking freezes were not included. The negotiations led to the signing of a Memorandum of Understanding (MOU) between the Secretary of Transportation the Secretary of Public Works and CLF on December 19, 1990. The goal of the MOU was to make the environmental mitigation measures for the CA/THT (including the strengthened freezes) legally binding (Pollack 1994).

The MOU was incorporated into the Secretary of Environmental Affairs' approval for the CA/THT Project and many of its mitigation measures (including parking freezes) were included in DEP's July 8, 1991 "Reconstruction Certification" for the Project. The MOU was not, however, incorporated into FHWA's the Record of Decision, which gave final approval for the project. CLF therefore sued FHWA and the state to have the transportation mitigation measures included (Pollack 1992, p. 3). The suit, which was filed August 21, 1991, was to go to trial on March 13, 1992. The day before the trial was to begin, the parties settled, agreeing that the mitigation measures would be incorporated into the SIP and become enforceable under federal law (Conservation Law Foundation 1992, p. 3). This agreement intensified the pressure for a strengthened freeze to be accomplished through a SIP amendment.

### **CTPS Modeling**

After the MOU was signed, DEP requested that modeling be done by the Central Transportation Planning Staff (CTPS) so that it could quantify the strengthened freeze. Any submission to EPA for a SIP amendment must be accompanied by technical analysis that measures the air quality benefits of the policy. To meet this requirement, CTPS undertook modeling for Boston and Cambridge to determine the effects of a strengthened freeze. The result of this analysis showed significant reductions in VMT as a result of the strengthened freeze (Hamel and Beagan 1992).

### **The Vehicle Trip Reduction Ordinance**

At the same time the Central Artery team was performing its sensitivity analysis, the City of Cambridge was working with a consultant to model the freeze in preparation for the SIP amendment. Both the preamble to the 1990 MOA and the settlement of the CLF suit against FHWA indicated that Cambridge would include a parking freeze of some kind in its SIP amendment proposal. However, the plan Cambridge eventually developed did not include a freeze at all. Cambridge believed, and their consultant concurred, that there are two basic flaws in a parking freeze (Lawton III 1994). One flaw, as previously mentioned, is the assumption that discouraging people from driving to the area where the freeze exists will make them suppress the trip or switch to a preferable mode of transportation, such as transit or carpooling. The other flaw is that a freeze does not create absolute reductions in VMT. A freeze creates reductions relative to what VMT would have been under conditions of growth without a freeze, because the freeze does not start to work until the freeze cap has been reached and development in the area has continued. In other words, if a cap is placed on parking today, all of the people who could drive and park today can



still drive and park tomorrow. It is only when new people start coming into the area, and cannot find parking spaces, that behavioral changes occur. The consultants at Cambridge Systematics, who were working for the city of Cambridge, set about to create a policy that would circumvent both of these flaws.

The consultants came up with an initial proposal that did not meet with approval by the city. It contained some tough provisions that proved to be quite unpopular. The City Manager established a Working Committee to try to bring different factions in the city together to improve the plan. The Working Committee had essentially a fifty-fifty mix of community activists and business interests. This committee took the city “through a major examination of how it is balancing the interests of being vibrant with regard to attracting and keeping business, maintaining a tax base and jobs, and still recognizing that development can have adverse affects on communities and residential neighborhoods (Drisdell 1994).” After this process, City Council believed it truly represented the views of a wide spectrum of public opinion.

The Working Committee eventually made proposals to the City Council, which further re-worked them until a consensus was reached. The policy that emerged was a vehicle trip reduction ordinance (VTRO) that was adopted by the City Council on April 27, 1992. It was subsequently submitted to DEP as a SIP amendment that would replace the parking freeze. The provisions of the VTRO include (City of Cambridge 1992, pp. 22-35):

1. An expanded commuter mobility program
2. A citywide bicycle and pedestrian mobility program.
3. Restrictions on the use of official visitor passes.
4. Residential visitor passes.

5. A progressive fee schedule for residential parking stickers.
6. A study of zoning revisions.
7. Coordination with the MBTA to improve services in the city.
8. Regulation of idling busses, trucks, taxis and automobiles.
9. Taxicab improvements such as use by multiple passengers and conversion to cleaner fuels.
10. Potential expansion of the Alewife Station garage and shuttle bus service to employment sites.
11. Pilot survey of commuting characteristics.
12. Municipal vehicle trip reduction plan.
13. Consultation with employers and residents about employer vehicle trip reduction programs.
14. Expansion of local employment opportunities.
15. Implementation of parking restrictions on currently unregulated streets.
16. Increased off-street municipal parking fees.
17. Exclusive residential parking near MBTA stations.

When developing the trip reduction ordinance the City Council recognized that clean air goals cannot be achieved through policies that affect only the core of the metropolitan area. Approximately 33 percent of the trips in Cambridge are “throughtrips.” These trips have neither their origin nor their destination in Cambridge--they are just passing through on their way to and from somewhere else. In addition to the local measures Cambridge therefore proposed several regional measures for adoption in the SIP as well. These regional measures include:

1. A regional, employer-based vehicle trip reduction program.<sup>15</sup>
2. A development-based transportation management plan that would require all new development to conduct traffic analysis and mitigation.
3. Improved mass transit.
4. Fringe parking.
5. Taxes aimed at automobile use (for example, a gas tax).
6. The use of clean fuels in public fleets.

Most of the local measures became effective immediately, when the VTRO was adopted. The other local measures and the regional measures will be instituted if and when the regional measures are accepted as a SIP amendment. If the regional measures are not adopted, the Cambridge City Council may decide to discontinue the local measures it has already implementation. Otherwise, it feels it may be putting itself "at a competitive disadvantage in the region (City of Cambridge 1992, p. 38)."

To show the effectiveness of the VTRO, Cambridge Systematics modeled the local measures for which there was sufficient data, and the Cambridge portion of the regional measures (Cambridge Systematics Inc. 1992, p. 2-1). The results of the modeling showed the VTRO to have immediate real reductions in VMTs. The freeze conditions were only shown to garner reductions in VMT when a substantial amount of development occurred over a long period of time. Under conditions of accelerated growth, comparable to the growth that occurred in the 1980's, the freeze would eventually show greater reductions than the

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<sup>15</sup>The regional employee-based vehicle trip reduction program would target all employers in the area with 50 or more employees. An automobile efficiency rate (AER) would be calculated by dividing the number of employees by the number of vehicles they use to commute. A target AER would be set every year and employers would have to take steps to increase the ratio of employees/vehicles to meet the target AER, thus reducing VMT and emissions (City of Cambridge 1992, P. 9).

VTRO (see Figures #1A & 1B). Given the long-term history of development in Cambridge, however, the city believes it is unlikely that rates of growth that high would persist.

### **The Decision for a SIP Amendment**

Cambridge submitted their VTRO to DEP and to the Metropolitan Planning Organization (MPO) for approval as a SIP amendment two years ago. Technically, the MPO must make a recommendation for approval or rejection to DEP before DEP makes its final decision. The Secretary of Transportation (who chairs the MPO) notified DEP on March 16, 1994 that it was recommending the VTRO for acceptance as a replacement for the parking freeze in the SIP amendment.

DEP must now make a decision and a recommendation to EPA. DEP and EOEA firmly believe that the strengthened parking freeze is a better policy than the VTRO for several reasons. First, their freeze modeling predicts VMT reductions that are far superior to the reductions modeled by Cambridge Systematics for the freeze. Second, much of the reductions accomplished through the VTRO are through policies that duplicate the ridesharing regulation in the current SIP. DEP therefore argues that this portion of the VTRO's reductions should not be counted toward its total benefits. Third, there is research showing that, without a real cap on parking spaces, trip reduction ordinances are much less effective (Hamilton 1992). Finally, under conditions of rapid growth, as occurred in the 1980's, even Cambridge's modeling shows the freeze to be superior to the VTRO in the long run.

The Cambridge City Council firmly believes that the VTRO should be approved, and has its modeling to back this policy up as well. It believes that the VTRO is a superior policy for several reasons. First, Cambridge is being put at

an economic disadvantage by being the only city or town in the state with a strengthened freeze. Boston also has its freeze, but it still has the employee loophole and has spaces in its freeze bank that have not yet been used. The Cambridge City Council therefore feels that it is unfair to burden one city with a full freeze when pollution from ground level ozone is a regional problem. Second, City Council argues that the VTRO should get credit for all of its reductions even though there is a ridesharing regulation on the books because that regulation has never been enforced. Third, modeling of the VTRO shows immediate, absolute reductions in VMT, whereas the freeze only creates relative reductions. Finally, City Council believes, and current growth rates indicate that the rapid rate of development in the 1980's was an aberration and is not likely to occur again. Therefore, Cambridge believes that the VTRO is a better policy for the short-term and the long-term.

The one thing that everyone agrees on is that there needs to be a regional approach to transportation controls. Politically, however, this is a hot potato. So, the arguing continues over what policy should be chosen. Ultimately, the Commissioner of DEP must, in consultation with his staff and with the Executive Secretary of EOEA and the governor, make a recommendation. Although neither CLF nor Cambridge Officials are revealing their plans, there is widespread belief among the environmental agencies that either one is likely to sue if the plan they support is not selected (Greenbaum 1994).

## **Chapter Three**

### **Analysis of the Case Study**

This Chapter analyzes the case study in light of the theories discussed in Chapter One. By looking again at these theoretical perspective, I show how the lessons of each apply in the SIP process for selecting and implementing TCMs. Also by analyzing the case through these theoretical perspectives, insights are gained into the interactions between the players in the process and their approaches to decision-making. These insights confirm the need for a process that encompasses all three approaches to decision-making.

#### **Rational Planning/Decision-Making Analysis**

The Clean Air Act establishes a rational planning/decision-making process for states to follow when developing the SIP. In the public interest, Congress set the comprehensive goal of improving the nations air quality. To achieve that goal, EPA established the NAAQS. As discussed before, these were “equity” goals as they were based on some assumption of fairness in the redistribution of costs and benefits.

To meet the “equity” goals established by Congress, the states were required to write a SIP. To do so, the Clean Air Act specified the use of informal rulemaking. As has been seen, the combination of the APA procedures, the requirement of quantification by EPA and the court’s “hard look” doctrine, called for the agency to use the rational decision-making paradigm.

1. Define goals: States were given a goal that was supposed to represent the public interest.

2. Consider all alternative courses of action to achieve the goals: When considering alternatives, states could look at whatever combination of stationary source, mobile source and transportation control policies they believed would best achieve improved air quality at the least cost.<sup>16</sup>

3. Identify and evaluate all the consequences of each alternative: The agency, as the expert, used sophisticated modeling techniques to calculate and compare the emission reductions potential of various policy options.

4. Select the alternative that best meets the terms of the stated goals: Each state was allowed to select whatever combination of policies they calculated would meet the air quality goals.

Analysis of the case study in light of the critique of rational planning/decision-making outlined in Chapter One confirms the flaws with this type of planning process. As will be recalled, the rational planning/decision-making theory is based on two assumptions. First is the assumption that comprehensive goals can be established in the public interest. The second is that planners can determine a course of action that will achieve stated goals without causing unwanted side effects that would negate the benefits of the chosen action.

### **Representing the Public Interest**

Analysis of the case study supports the criticisms of the first assumption stated in Chapter One--that disparate community interests can be blended into one comprehensive goal that represents the public interest. Congress established the comprehensive goal of improving air quality. As we learned in Chapter One,

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<sup>16</sup>Congress realized that the cost of complying with air quality standards could be very high. EPA guidelines encouraged states to identify costs and benefits of the alternative strategies considered. States were to consider the costs, but were not bound to give cost consideration a higher priority than consideration of the benefits (U.S. Court of Appeals 1974).

to plan in a meaningful way, comprehensive goals must be broken down into operational goals. States did so by setting emission reduction targets to achieve the NAAQS, selecting alternatives to meet the targets, and measuring the effectiveness of each alternative against the operational goal. Thus, as the critique of the theory suggests, the comprehensive process rapidly broke down when planning began, to achieve the operational goals, and various special interests appeared on the scene to protect their own turf. The presence of special interests meant that certain options were removed from consideration, or were kept off the agenda completely.

For example, in his original planning, Altshuler tried to avoid conflict with special interest groups. This approach was reflected in Altshuler's rejection of the consultant's plan that contained measures he knew would be unpopular, such as taxing gasoline or excluding "low priority" traffic from downtown. Altshuler also sought to avoid controversy over his own plan by selecting measures that were compatible with the governor's highway policy, which had already been accepted by influential interest groups (Howitt 1984, pp. 143-144).

Once EPA took over the planning process, it also tried to accommodate special interests. EPA tried to understand the interests of the affected localities and incorporate them into the plan. Before the first TCP went to public hearings, EPA Region I officials sought to diffuse potential negative responses from business by meeting with representatives from the Associated Industries of Massachusetts and the Greater Boston Chamber of Commerce (Howitt 1984, p. 148). This strategy was not very successful as business leaders severely criticized the plan for being "grossly unfair and discriminatory" and claimed it could cause the loss of millions of dollars in wages and serious disruption for business (Howitt 1984, p. 149). In general, however, EPA found the public hearing useful as it facilitated positive input from numerous interest groups. Based on this



input, EPA developed a plan it thought would succeed. This hope was dashed when another special interest sued and the whole planning process was opened up again by the South Terminal case.

When putting together the second TCP, Region I officials made a concerted effort to work directly with the affected parties through the TCP Strategy Committee. They did so in the hope of circumventing later interest group opposition. There were several stumbling blocks, however. The retrofit program, inspection and maintenance and the potential for gas rationing all met with negative reactions from the public as well as from the political leaders who would ultimately be responsible for them (Howitt 1984, p. 169).

The 25 percent mandatory reductions in employee parking spaces, also met with vehement opposition. Through comments and negotiation, the business community convinced EPA to delete the mandatory 25 percent reduction of employee parking spaces. Instead, EPA substituted a non-binding goal for reducing single-passenger vehicles by 25 percent and required employers to institute commuter incentives to achieve the reductions.

The pressure by business to drop the 25 percent reductions in employee parking spaces also led to the loophole that allowed employee spaces to be exempt from the freeze. Although there is much speculation now about whether or not the loophole was intentional, it is clear that when the 25 percent reduction was dropped from the TCP, it left some ambiguity in the way the regulation was worded. At the time, there was widespread belief that EPA definitely meant to delete employee spaces from the freeze because, "Although the City [of Boston] and the BRA had argued for the retention of employee spaces in the freeze, the overwhelming sentiment expressed by business people in the public hearings was that this would be detrimental to business and would limit their ability to attract workers to downtown (Collins 1981, p. 9)."

One by one, EPA gave up the strongest measures in the TCP as interest groups came out in opposition to them. Although the air quality goals did not change, the means to achieve them went through many alterations as EPA tried to maintain a positive plan while steering a course through the myriad special interest that sprang up in opposition to each new proposal. Under pressure from interest groups, EPA gave up many of its ambitious plans and took the path of least resistance to achieve whatever ends it could, changing the intended "efficiency" process into one that sought "effectiveness."

### **Determining the Best Course of Action**

The above examples show the difficulties of trying to plan for comprehensive goals and the pervasiveness of interest groups when planning for operational goals. The more recent TCM planning experience also brings out the problems associated with the second assumption of the rational planning theory--that planners can predict the consequences of various policy alternatives under consideration, evaluate the relative merits of alternatives, and make a choice from among them that will not have negative side effects.

Theoretically, agencies use technical analysis to make reasoned, objective decisions rather than ones that are arbitrary or politically influenced. This case study shows, however, that technical analysis itself was not the basis for decision-making--it was only one of many inputs into a political process. Sometimes technical analysis was completely bypassed. At other times, technical analysis was not undertaken until after a decision was made and the results were presented to legitimize the foregone conclusion. Then, technical analysis became a tool for the decision-maker to achieve political ends rather than an unbiased guide to rational decision-making.

When Altshuler was planning the first TCP, he did not rely on technical analysis. He believed from his experience with the BTPR that transportation modeling techniques were inadequate to measure the effectiveness of TCMs (Howitt 1984, p. 143). Later, when EPA took over the planning process, it analyzed other measures in the TCP, but did not require modeling of the parking freezes because “their anticipated impact is not clearly quantifiable (U.S. Environmental Protection Agency 1975a, p. 25155).” Without the use of formal technical analysis, the decision-makers had to rely on some kind of informal, internal model through which they evaluated the relative merits of an option. This evaluation may have been based on their understanding of technical factors, it may have been an assessment of the political feasibility of the policy options, or it may have been grounded in their basic belief systems about how the world should work. Although reasoned decisions, these do not meet the criteria of rational analysis, that the decision be based on consideration of measured factual information.

An attempt to formally quantify the effectiveness of the parking freezes did not occur until the CA/THT Study. This was a clear example of modeling being undertaken to support a decision that had already been made. At the time that the sensitivity analysis was finally completed, CLF and Secretary of Transportation, Fred Salvucci, were negotiating the MOU in which an agreement was reached to strengthen the Boston and Cambridge parking freezes. The outcome of the MOU would most likely have been the same even without the sensitivity analysis, because both CLF and Fred Salvucci were staunch supporters of parking freezes. “The actual analysis was not really important in the negotiation. It was just there to back [the decision] up. The negotiations, in the end, were remarkably analysis free--a triumph of ideology over fact (Cutler 1994).” The numbers would not have changed the decision because the

sensitivity analysis itself was not really conclusive. It showed that with freezes there were fewer vehicle trips, which was no surprise. The analysis did not, however, go the next step and predict whether the freeze would make levels of service significantly better (Cutler 1994).

Like the CA/THT analysis, the CTPS modeling was also completed after the decision. Once an agreement had been reached to strengthen the freezes, DEP needed quantification to consider them for a SIP Amendment. Although technical analysis of the freeze was not necessary at the time of the TCP, EPA now requires any measure submitted for a SIP revision to have some kind of analytic evaluation to demonstrate that it will achieve necessary VMT and emission reductions (Kirby 1994).

Development of the VTRO comes the closest to using technical analysis in the way prescribed by the rational planning/decision-making theory. Ironically, this analysis occurred twenty years after the 1970 CAAA established the SIP planning process, and was undertaken by the city rather than by the state. Cambridge Systematics was given a set of goals by the city. As the expert, Cambridge Systematics considered alternatives, measured their impacts, and proposed a program of strategies. Theoretically, Cambridge Systematics followed the proper rational procedures, and technically their plan made sense, but politically it had problems as some interests in the city opposed parts of the proposal. In response, the City Manager appointed a Working Committee to represent the various interests, and to develop a consensus among them. The Working Committee became a sounding board for the concepts Cambridge Systematics was proposing. Eventually, a new proposal was presented to the City Council. This proposal was further changed as a result of numerous meetings, hearings and public comments until a consensus was reached within the City Council. Cambridge Systematics was then asked to go back and analyze

the City Council's proposal to evaluate its effectiveness. The Ordinance that finally emerged, although based on various iterations of the Cambridge Systematics proposals, was the result of a political process. This political process used a rational process as its jumping off point and ended with follow-up technical analysis to be sure the measures were still within an acceptable range to meet EPA targets. The real decisions, however, were based on the policy's acceptability to various interests in Cambridge rather than on technical measures of effectiveness. Once again, the "efficiency" approach gave way to the "effectiveness" approach in the planning process.

Now DEP is faced with a common dilemma of rational decision-making. There are competing versions of expert opinion to choose from. According to the analysis done at CTPS (which was admittedly more of a "back-of-the-envelope" estimate than rigorous modeling) (Hamel 1994) a strengthened freeze in Cambridge would produce 737,236 fewer VMT per day in the year 2010 than would occur under conditions of unrestricted growth in demand for parking. One of the parking freeze scenarios Cambridge Systematics modeled was for similar conditions, but resulted in a very different estimate. This modeling estimated a reduction of only 252,000 VMT per day in the year 2010, when comparing a strengthened freeze (placing the cap at 1990 levels) with future conditions if development (and therefore parking) grew at the rate it had in the 1980's (Cambridge Systematics 1992). This large discrepancy should make a decision-maker question not only the real effectiveness of the freeze, but also how favorably the VTRO compares with the freeze.

Making comparisons between the CTPS data and the Cambridge Systematics data, or between any two models is a questionable procedure. Different models cannot be compared with each other because they have different inherent assumptions. One criticism of the CTPS modeling is that it

assumes that if people cannot park, they shift modes or suppress the trip. In reality, they may drive elsewhere. The CTPS model does not consider that possibility, it just eliminates the trips. The consultants at Cambridge Systematics believe that is one of the reasons why the CTPS modeling shows such large reductions in VMT (Lawton III 1994). DEP, as the decision-maker, has conflicting results of analysis that cannot be resolved without looking at the underlying assumptions and making a judgment about their validity.

Even if DEP only considered the modeling done by Cambridge Systematics, the agency would still have problems making a decision about which policy is better. Cambridge Systematics modeled the freeze scenarios and the VTRO at four potential rates of development growth in Cambridge (see Figures #1A & 1B in the Appendix). At slower rates of growth, the VTRO yields greater immediate and long-term reductions than the freeze. At high rates of growth, however, the freeze eventually yields greater VMT reductions than the VTRO. Cambridge Systematics believes that although the city grew at a rate of eight million square feet of development between 1980 and 1990, it is unlikely that this rate will continue for the next ten to twenty years (Cambridge Systematics 1992, pp. 19-20). The decision-maker must therefore make a judgment about what growth rate is the most plausible in order to choose between the freeze and the VTRO. The modeling cannot resolve this dilemma.

This case study shows some of the pitfalls of assuming decisions can be based on expert analysis of alternatives. First, technical analysis itself is limited because the assumptions it is based on may or may not be valid, because different forms of technical analysis for the same problem may show very different results, because there are frequently variables that cannot be predicted, or because some things just cannot be easily measured. These factors can cause even the best technical analysis to give uncertain results. When this happens,

technical analysis is not used as the basis for decision-making, but as one of many inputs into a complex political process. Second, technical analysis may be used strategically, not to evaluate alternatives before a decision, but to support a decision that was already made. Although technical analysis is frequently not a decision-maker, there is value in obtaining as many facts as possible. It can be a useful aid to decision-making and can be used to place boundaries on the range of acceptable alternatives that can be considered.

### **Conclusions**

Although the Clean Air Act called for a rational planning process for SIP development, one has never occurred. As the theory predicts, planning occurred around operational goals rather than comprehensive ones. Because operational goals did not represent the overall public interest, special interests became involved and the agency often had to give ground to get anything done. Also, technical analysis could not provide the information necessary to choose between alternatives in the highly political environment evident in the case study.

Over and over, the case study shows that the “efficiency” approach breaks down due to political pressure and the limitations of the tools of technical analysis. The agency then resorts to the “effectiveness” approach to decision-making to accomplish whatever it can. The formal agency decision-making process included public hearings, which gave special interests a voice, but the political bargaining that occurred when special interests raised their voice occurred on an ad hoc basis. By dealing with interests one at a time in a sequential fashion, it was difficult to keep a balanced perspective on the relative merits of the various alternatives. This argues for a formal “effectiveness” component to the process.

## **The Role of the Court in Agency Decision-Making**

The courts are the final interpreter of statutory mandate and the fairness of agency decision-making. As such, the courts play an important role as a check on agency discretion in decision-making. By understanding how the courts are brought into the decision-making process and the way in which the courts evaluate agency decisions, strategies might be developed that could circumvent the need for litigation and the disruption and delay it can cause.<sup>17</sup>

### **Early Court Cases**

During the development of the TCP, the courts made three decisions that had a major impact on the course of events. The first case was *NRDC v. EPA*. In this case the NRDC charged that William Ruckelshaus had exceeded his authority as EPA Administrator when he granted a two year extension to automobile manufacturers on the deadlines for meeting the NAAQS. The NRDC also alleged that Ruckelshaus had exceeded his authority by granting an extension that allowed states to submit the TCP one year later than the rest of the SIP. The court ruled that in granting these two extensions, Ruckelshaus had acted unlawfully because he was interfering with the express purpose of Congress to attain the NAAQS by May 31, 1975. The court therefore instructed EPA to rescind both extensions (*NRDC v. EPA*, 475 F.2d 968 (1973)).

The court decisions in the NRDC suit had far reaching impacts. It changed not only the immediate agency decision, but also had ripple effects which influenced other decisions. As will be recalled, the court decision precipitated the refusal of the states to write TCPs, shifting decision-making responsibility for the TCPs to EPA.

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<sup>17</sup>See Table 6 in the Appendix for a list of the court cases.



In the NRDC case, the court made a definitive ruling based on its understanding of Congressional intent, and struck down the agency decision. Often, however, the court will decide that an agency decision-making process needs additional clarification. In such cases, the court will remand the decision back to the agency for further consideration (Ashford and Caldart 1991). When a decision is remanded, the agency must rethink its decision making process. Sometimes on remand, an agency will simply find a new way of rationalizing the same decision, which brings into question the effectiveness of a court remand and shows the malleability of facts (Jaffe 1965, p. 589). Such was the case in the automobile manufacturers' suit against EPA.

In 1973, International Harvester, General Motors, Chrysler and Ford petitioned EPA for a one year extension of the automobile emission standard. These manufacturers claimed that the necessary technology would not be ready in time to build cleaner cars by the established deadline. Congress knew that the standards were "drastic medicine" and had therefore allowed EPA to grant a one year extension if necessary. Congress had directed the National Academy of Sciences (NAS) to conduct an ongoing study of the feasibility of compliance so that there would be some evidence as to whether the standards could be met (U.S. Senate 1973, p. 353).

Ruckelshaus denied the extension saying that the manufacturers had not demonstrated that technology was not available to meet the standard. The manufacturers therefore appealed to the court. The court was troubled by the EPA's methodology and by the manufacturer's claim that EPA's conclusions were at odds with the NAS report. The court remanded the decision back to EPA saying it needed further explanations from EPA to determine whether Ruckelshaus' decision "rested on a reasoned basis (U.S. Senate 1973, p. 361)."

On remand, Ruckelshaus again denied the extension saying that the NAS report was consistent with his decision. The automobile manufacturers appealed once again to the court. With "diffidence" the court waded through masses of technical information to determine whether or not the manufacturers had shown that technology would not be available. In this case the court went beyond just looking at the procedures used by the agency and made a substantive judgment, deciding that the manufacturers had established that technology was not available (U.S. Senate 1973, pp. 404 & 412). The court warned EPA that not allowing the extension could have grave economic impacts on the automobile industry and the American economy (U.S. Senate 1973, pp. 374-380). The court also informed EPA that although Congress had designed the standard as a "shock treatment," it had intentionally provided the extension as an "escape hatch." The court could not affirm EPA's denial of the extension, but decided that the rulemaking record left some uncertainty as to "whether the essentials of the intention of congress were achieved" by EPA's decision (U.S. Senate 1973, p. 406). The court therefore remanded the decision back to EPA again for further reconsideration by the agency (U.S. Senate 1973, p. 405). When faced with the specter of potential economic catastrophe if he did not allow the extension and the industry could not meet the deadline, Ruckelshaus allowed the extension but imposed strict interim standards (Jones 1975, p. 267).

In this case, the court clearly considered the equity impacts of EPA's decision on the automobile industry as well as taking a hard look at the technical analysis to determine whether the agency's decision was based on the facts. Although the first remand simply caused EPA to re-justify its "efficiency" decision-making process, the second remand made EPA reconsider the "equity" impacts of its decision, as they related to Congressional intent.

The other early court decision that influenced the course of events was the South Terminal Case. This case was a consolidation of nine cases brought by the developers of a parking garage at Logan Airport and other plaintiffs against EPA for numerous allegations of procedural, constitutional and statutory infractions. The court decided primarily in favor of EPA, finding that the transportation controls in the TCP were not arbitrary and capricious and that EPA had the statutory authority to impose them. However, the court did find a potential flaw in the meter readings that EPA had used to measure air pollution severity. It was beyond the purview of the court to determine whether the readings were accurate or not, but because the plaintiffs raised a plausible objection in questioning these key technical determinations the court remanded the decision back to EPA for further hearings on how it calculating the amount of reductions required (U.S. Court of Appeals 1974, p. 665).

Although there were many important court rulings in this case, the one with the most far reaching impacts turned on the validity of the agency's technical analysis. Because the court found the analysis wanting, the decision was remanded back to the agency for re-consideration. This ruling totally re-opened the decision-making process and a completely new TCP emerged.

### **Recent Court Cases**

The more recent court cases differ from the early cases in two major ways. First, most of the recent cases have taken place in the state courts rather than the federal courts. Each state has its own system of administrative law, however, the state systems all share the conceptual foundations of federal administrative law (Ashford and Caldart 1991). Second, most of the recent cases have been settled through negotiation among the parties rather than by a court decision.

In 1988, there were concurrent suits by Cambridge Citizens for Livable Neighborhoods (CCLN) and the developer of the Binney Street garage. Although neither suit challenged agency decision-making directly, both had important implications for the Cambridge freeze.

Originally, CCLN sued George Teso as Director of Traffic and Parking in Cambridge and the developers of the Binney Street Garage (*McManus, et al. v. Teso, et al.*, C.A. No. 88-6603) alleging “that Teso had improperly administered the Freeze, that the Garage was improperly determined to be exempt from the Freeze and that the plaintiffs were operating the Garage in violation of the Freeze (Todd 1992, p.3).” In 1989, CCLN initiated a similar suit in the U.S. District Court against the state (*Geer, et al. v. Commonwealth of Massachusetts*, C.A. No. 89-2499-WF). These CCLN suits brought Cambridge’s implementation of the freeze into question, and the city suddenly found itself in the awkward position of being accused of violating the Clean Air Act. The City Council responded by entering into negotiations with DEP and EPA in which the City of Cambridge agreed to stop granting permits for parking spaces, to develop an interim freeze agreement that eliminated the employee loophole, and to develop a new TCM policy to submit as a SIP Amendment. Because Cambridge and DEP negotiated this agreement, CCLN dropped its suit in the federal court completely, and discontinued its suit in the state court against Cambridge. CCLN sustained its suit in the state court against the garage developer.

After CCLN challenged the Garage’s right to an exemption from the freeze, the garage applied for permits under the freeze. When these were denied, the developer of the garage sued George Teso and the City of Cambridge “alleging improper denial of the permits and civil rights violations (Todd 1992, p. 3).” The developers also requested a partial Summary Judgment that the freeze was not valid (*Jones, et al. v. Teso, et al.*, C.A. No. 90-6444E). They claimed that the

freeze is actually an Indirect Source Review (ISR) and therefore no longer in effect because the 1977 Clean Air Act Amendments prohibited EPA from imposing ISR unless it was requested by the state. They further alleged that the state had never officially included the freeze in the SIP, and therefore argued that the freeze was not legally binding. CLF entered the case as a defendant-intervenor to argue that the freeze is a parking management strategy rather than an ISR, and has been included in the SIP subsequent to 1977. The judge agreed with CLF and denied the Summary Judgment declaring that “the Cambridge Parking Freeze remains valid and in effect (Todd 1992, p. 7).”

Even though this court ruling occurred after Cambridge and DEP agreed in the MOA to an interim freeze to be replaced by a SIP amendment, this court ruling is quite significant because it means that anyone could sue under the Clean Air Act to have the original freeze enforced as it appeared in the code of federal regulation (without the loophole). The federal law has precedent over the MOA, which allowed all the spaces granted through the loophole to remain. If someone sued and the court reinforced the original freeze, it could bring into question the legality of all the spaces that were granted through the loophole since 1975 (Pollack 1994). This could have very serious economic repercussions for the city.

More negotiations occurred in 1990 when CLF threatened to sue the CA/THT Project to require that it include transportation mitigation measures. Rather than have the project held up in court, Secretary of Transportation, Fred Salvucci negotiated with CLF to develop the MOU in which an agreement was reached to incorporate mitigation measures (including a strengthen parking freezes) into the FSEIR. When FHWA did not include the measures in the Record of Decision for the CA/THT Project, CLF filed suit under the Clean Air Act and other federal statutes (*CLF v. FHWA*, C.A. No. 91-12222-K). CLF alleged

that FHWA had unlawfully failed to adopt mitigation measures to avoid adverse impacts by the CA/THT Project on air quality. Rather than have the project tied up in court the defendants settled, agreeing that the mitigation measures would be incorporated into a SIP amendment, which would be enforceable under the Clean Air Act (Conservation Law Foundation 1992, p. 3).

DEP is currently facing the possibility of being sued by either CLF or Cambridge. CLF is committed to a permanent strengthened freeze for Cambridge, codified through a SIP Amendment, rather than (or in combination with) the VTRO. CLF has the strength of the MOU, the settlement from their subsequent suit over the MOU, and the judge's ruling from the developer's suit to back them up. CLF realizes that the freeze by itself is an inadequate policy. They would prefer to see a broader parking management strategy that covers a larger geographic area, and would like to sit down at the negotiating table to work out a meaningful SIP Amendment. CLF does not believe that the VTRO will be effective because it does not control parking. Many studies have shown that parking is the key to making other TCMs, such as a VTRO, work (Pollack 1994). CLF believes that suing the state to make the city enforce a freeze is inefficient. CLF would sue, however, if it thought that litigation would "get the attention of the policy makers to come to the table and write the policy the right way (Pollack 1994)."

The City of Cambridge is committed to the VTRO without a freeze. Cambridge has pointed out that a freeze in only one city does not meet the public policy objectives of improving regional air quality. Cambridge also asserts that the freeze is inequitable because Cambridge is the only city in Massachusetts with a full freeze, even though air quality is a regional problem. City officials believe that this puts Cambridge at a relative disadvantage in the region for attracting business. Because fifty percent of the land in Cambridge is tax exempt,

the city believes it needs to encourage development to remain financially healthy (Edmondson 1992, p. 59).

If either party sues and the case goes to court, the technical analysis of the freeze will be very important (Greenbaum 1994). A policy can only be removed from the SIP if its replacement is equivalent or superior in term of emission reductions. Thus, the court, which now demands a rational decision-making process of the agency, will look at the technical analysis to determine whether DEP has been arbitrary and capricious or has made a reasoned decision when deciding in favor of either the freeze or the VTRO.

### **Conclusion**

As has been seen, litigation has played an important role in the development of transportation controls. Although dealing with “equity” disputes, the courts demand “efficiency” decisions by agencies, as was evidenced in the early cases. The court does so by evaluating the fairness of the process of decision-making rather than the fairness of the outcomes.

Access to the courts by special interests supports the “effectiveness” approach to decision-making to some degree. As CLF pointed out, however, negotiating with the other stakeholders would be a better way to develop a good policy than suing to have the courts make the state make the city enforce an incomplete policy. This reinforces the need for a formal “effectiveness” component in the decision-making process.

### **Implementation**

Implementation is the descriptive study of how federal laws are carried out at lower levels of government. When analyzing rational planning/decision-

making, we looked for evidence that the prescriptive theory did not work in practice. When analyzing implementation, we will look for evidence that this descriptive theory is an accurate predictor of how decisions are made.

The process of implementation begins after a law is passed in Congress. This process encompasses the writing of regulations, the allotment of resources and the establishment of a system of oversight to insure accountability at lower levels of government. As will be recalled from Chapter One, during implementation there is tension between the statutory mandate, the agency and special interests. A clear statutory mandate leaves little room for interpretation, but if the mandate is ambiguous, the agency and special interests may try to interpret the law to their own ends. The 1970 CAAA guidance from EPA was vague in calling for the TCP to contain "such other measures as may be necessary" to control VMT (Howitt 1984, p. 124). This mandate was sent into a nascent bureaucracy, which, as has been seen, was swamped by pressure from special interests.

When analyzing the case study, we look for the three conditions that affect the success of implementation. First, is the level of consensus on goals among various levels of government. Second, is the availability of proper resources for implementation. Third is the complexity of the environment in which implementation takes place.

### **Consensus on Goals**

Consensus on goals needs to be achieved among the levels of government involved with implementation. In this case study, the federal goal was to improve air quality. As a means to that end, Congress directed states to institute transportation controls.



Under the broad umbrella of air quality, EPA had its own agenda. Initially, EPA saw Indirect Source Review as a means to the end of federal land use control as well as improved air quality. Special interests, such as the shopping center developers made sure that Congress put an end to that goal (Melnick 1983, pp. 313-317). As a result, Congress made it impossible for EPA to write parking controls into TCPs. Although Congress did not forbid states to impose parking controls, the lack of federal support made these TCMs harder to implement, and was the basis for the challenge of the Cambridge parking freeze by the Binney Street garage developer.

When working to develop the TCP, one of the state's major goals was to develop a plan that was compatible with the governor's transportation plan in order to protect the administration's political viability. When that goal could not be achieved, the state opted out of the planning process altogether (Howitt 1984, pp. 144-145).

In Cambridge, there was agreement that transportation controls should be put in place. However, Cambridge did so to achieve its own local land use control goals. Although land use is related to the federal air quality goals, air quality was not the primary motivation for the city (Epstein 1993). Because there was not initial alignment of goals among the layers of government, federal goals took a back seat as the city pursued its own agenda. If the City Council had appreciated how restrictive the freeze needed to be to achieve air quality goals, it probably never would have volunteered the whole city into the freeze (Easler 1994). As Cambridge officials understood the freeze, it offered a way for the city to protect itself from the threat of becoming a parking lot for Boston while allowing it to pursue its own local land use goals.

Although the federal air quality goal has remained the same over time, the state and local goals have changed. DEP currently needs to expand TCMs to a

larger area to have more of an impact on air quality and to place the burdens of compliance equitably among Massachusetts cities and towns. A strengthened freeze in Cambridge without similar measures elsewhere is not perceived as being fair. If DEP allows Cambridge out of the freeze, however, it may be harder to institute effective TCMs in other towns because there is evidence that parking controls are the key to success for any other TCM (Hamilton 1992, p. 3).

Goals have also changed over time in Cambridge. Although the original local goal of the freeze in Cambridge was to control commuter parking, CCLN and others later saw the freezes as a means to the end of controlling development. Those who favor development therefore want to eliminate the freeze. In the 1970's, Cambridge was a former industrial city, undergoing financial problems. During the 1980's Cambridge experienced unprecedented economic growth (Easler 1994). Now many in the city want to maintain a strong business community and see the freeze as an impediment to doing so. The city therefore prefers the VTRO to the freeze because it does not place the same kind of restrictions on business that the freeze does. Cambridge is quick to point out that, when viewed in terms of the federal goal of improving air quality, the VTRO has some aspects that make it a superior policy to the freeze. The VTRO takes a regional approach to the regional problem, whereas the freeze addresses only one small geographic area to reduce regional VMT. Also, according to the modeling, the VTRO will induce immediate reductions in VMT. The VTRO will succeed, however, only to the degree that businesses comply with the reduction targets. The VTRO stops short of sanctioning businesses that do not achieve reductions and does not stop businesses from building parking, which many believe will undermine any efforts to reduce VMT (Pollack 1994). Thus, the city's goal of remaining hospitable to business is competing with the national goal of improving air quality.

Implementation is further confounded if different levels of government do not have the same priority for a goal as compared to their other goals. For example, if a goal is a high priority at one level of government and not at another it may make implementation more difficult. Currently, EPA does not consider transportation controls a high priority. Region One has five other states to deal with and other programs that promise much greater gains than TCMs (Seidman 1994).

Transportation controls also have not worked their way to the top of DEP's priority list as they garner only a small portion of the emission reductions necessary for compliance.<sup>18</sup> DEP gives more attention to the programs that achieve major reductions (Seidman 1994). Also, there is no sense of urgency over the parking freeze because any measure that goes into the SIP as a substitute for the current freeze will not gain significantly greater reductions than what is already credited for the freeze in the SIP.

Cambridge places a high priority on getting the VTRO substituted for the freeze. That DEP does not view the VTRO as urgently as Cambridge, has contributed to the lengthy time that the VTRO proposal has been waiting for consideration by DEP as a SIP amendment.

### **Allocation of Resources**

Implementation of transportation controls was plagued at the beginning by a lack of appropriate resources to get the job done. In the early stages of the parking freeze, institutional capacity was a major roadblock to proper implementation and supervision. Given all its other responsibilities, Region One EPA ended up relying heavily on the state and the city to implement the freeze.

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<sup>18</sup>A recent review of the literature on TCMs concluded that, at best, TCMs will reduce hydrocarbon emissions by only 2 percent (Apogee Research , p. i).

The state was suffering from its own scarcity of resources as DEQE was in its infancy. This caused total responsibility for the Cambridge parking freeze to fall to the city. Although Cambridge had the institutional capacity to implement the freeze, the city's physical capacity to do so was questionable as it did not have an inventory of commercial parking spaces. Due to the initial lack of manpower, a system of oversight was never established. Thus, neither the state nor the federal government sought the necessary feedback from the city to insure proper implementation. Without clear expectations, the city did not volunteer the feedback on its own.

The fact that TCMs have to compete for priority at DEP with policies that promise much higher emissions reductions means that resources are not dedicated to them and policy decisions drag on for an inordinate length of time. Decision time is also lengthy due to the complex political environment caused by many competing interests that must be dealt with to get anything done (Drisdell 1994; Seidman 1994).

### **Complexity**

Problems in implementation are also exacerbated by the complexity of the decision-making process. For example, for a decision to be made at the state level for a SIP amendment, numerous actors and agencies must be involved. Although actual decision-making occurs at the agency level, the Governor is ultimately responsible for the SIP and therefore has some degree of input. Currently in Massachusetts, DEP is the agency with authority for environmental regulation and therefore for writing the SIP. However, because transportation controls must be reflected in the state's transportation plans, any transportation control measure proposed as a SIP Amendment must be approved by the Secretary of Transportation, as head of EOTC, before being promulgated by DEP.

When making a decision, EOTC relies on the technical expertise of CTPS for modeling the effectiveness of TCMs or analyzing modeling done by others. As was seen in the case study, this technical expertise is sometimes augmented by outside consultants as was done for the Central Artery Project.

After the Secretary of Transportation signs-off on a potential SIP amendment, the decision passes to DEP. From a technical and legal standpoint, the Commissioner of DEP makes the decision on what to recommend for a SIP amendment. However, the Commissioner consults with his staff and also with the Secretary of Environmental Affairs and the Governor before making a recommendation (Greenbaum 1994). According to the procedures in the Clean Air Act, DEP must have public hearings on any provisions it recommends for the SIP. The public hearings bring special interest groups into the decision-making process. DEP is also cognizant when making a decision that special interests might also sue under the provisions of the Clean Air Act.

Thus, any decision made by DEP regarding TCMs must go through a complex inter and intra agency process. The complexity of the bureaucracy combined with interest group pressure cause decision-making to be a slow and difficult process.

## **Conclusions**

Analysis of the case study bears out the theoretical prediction that the fatal flaw of implementation is the separation goals at the federal level from an understanding of the complexities of implementation at lower levels of government. In this case, the federal goals were at odds with state and local goals and did not consider the physical and political barriers to implementation.

Thus, during implementation, decisions were made to accommodate bureaucratic and special interests rather than being based on the “efficiency” of

outcomes. This confirms the need for a process that includes a mechanism not only to work out the differences between interest groups and the government, but also among the levels of government.

## **Chapter Four**

### **Conclusions**

In this thesis I have asked whether the Clean Air Act provides a workable process for developing and implementing transportation control measures. To answer that question, I analyzed a case study of transportation controls in the city of Cambridge, Massachusetts through the lens of three theoretical perspectives, each of which revealed valuable insights into the interactions between the players in the process and their approaches to decision-making.

By looking at this interaction, it became apparent that although air quality goals are based on decisions about “equity,” the dominant decision-making approach prescribed for agency use is the rational paradigm that seeks “efficient” outcomes. Left out of the process is formal incorporation of an “effectiveness” approach to decision-making. Special Interests are heard through the public hearings or can sue. Both of these mechanisms can precipitate ad hoc negotiations; however, the formal process does not include a mechanism to acknowledge the political bargaining that is so often necessary to get things done. This lacuna in the process leads to adversarial relationships and unresolved conflicts.

#### **Lessons From Cambridge**

Evidence of the need for a new strategy that includes an “effectiveness” component was found in each of the theoretical perspectives through which the case study was analyzed. First, analysis of the case study in terms of the rational decision-making paradigm reinforced the well known limitations of this approach. The literature suggests and the evidence concurs that this “efficiency”

approach does not work well in complex political environments. Comprehensive goals, although they may represent some overarching public interest, are too general for planning purposes. Problems are therefore broken down into pieces that have measurable, operational goals. Once goals are made operational, it becomes obvious how the means to achieve the goals will affect various interests. At that point, planning becomes a political rather than a rational exercise as interests must be dealt with. Lofty ideals are often set aside in the interest of following the path of least resistance that will still achieve some measures of success. In this environment, the tools of rational analysis, while important and useful, become only one of many inputs to the decision-making process rather than the objective basis for a decision.

Second, viewing the role of the courts in the case study revealed several important insights. The courts are the final interpreter of the normative, “equity” goals set by Congress and make their decisions based on fairness. However, the court looks at the fairness of the process rather than the fairness of the outcome. This, and the courts’ “hard look” doctrine<sup>19</sup> reinforce the need for agencies to use rational, “efficiency” decision-making. The court is an important check on agency power and the ability to sue offers a limited “effectiveness” process for involvement of interests. Litigation is not always the best way to resolve disputes though, as it can have a disruptive effect on planning and implementation. The specter of litigation and the potential for intervention by the courts leaves agencies with two potential strategies. They can be cautious about stirring up opposition or meticulous about their technical analysis.

Third, looking at the implementation process in the case study confirmed the lessons found in the theory. As plans are implemented, the complexities of

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<sup>19</sup>As discussed in Chapter One, p. 12



inter-governmental relations adds to the difficulty of obtaining the expected results. The federal government often sets goals that are unrealistic because state and local needs and resources are often not considered. When federal goals are set, there is often the assumption that those who will have to implement the plans are in agreement with the goals. Also, as each level of government pursues its own goals through a policy, the original objective may be displaced or forgotten. Besides the hierarchical obstacles to implementation, there are temporal ones as well. As policies are put into place, conditions change, sometimes as a result of implementation. As conditions change over time, goals change as well requiring adjustments in means or different ends against which to measure the success of the means. At each step along the way and at each level of government there are special interests that complicate the process. The study of implementation in this case study shows the need for an “effectiveness” approach to decision-making that would provide a mechanism for building consensus and resolving conflicts.

### **Building new strategies**

Given the shortcomings of the prescribed SIP process, we need to develop new strategies. The case study shows that when the “effectiveness” form of decision-making is excluded from the process, there is no means of resolving differences either among interests at different levels of government or between the government and special interest groups. Analysis of the three theoretical perspectives demonstrates that building a new strategy would include the following changes in the process.

First, the lessons of rational decision-making have taught that we need strategies that recognize special interests and bring them into the planning process up front. Although there is no way of identifying *all* interests, a process

could be developed to open debate with affected interests. Inclusion of interests at the beginning would make the process more comprehensive. Examination of rational decision-making also shows that we need a process that recognizes the limitations of the tools of technical analysis. Experts do disagree and sometimes use technical analysis as a tool for gaining political power. Therefore, we need a way to resolve technical disputes and defuse the strategic value of technical information.

Second, through an understanding of how the courts function, it becomes clear that a new strategy should include special interests at the beginning of the planning process not only to be more comprehensive, but also to circumvent later litigation, which can be disruptive and time consuming. Finally, the lessons of implementation have taught that, in addition to including special interests, we need a mechanism to deal with the complexities of inter-government relations. The current SIP process has goals set at the federal level, planning at the state level and implementation of some measures at the local level. Although the issue of how goals are established at the federal level is beyond the scope of this thesis, a process that collapsed the hierarchy to allow the state and local governments to work together on the SIP would alleviate many of the implementation problems encountered in this case study.

Taken together, these lessons suggest a strategy that would meet the following criteria. First, it would incorporate all three decision-making approaches--equity, efficiency and effectiveness. Second, it would provide a mechanism for interests outside the government to be brought into the process with government interests. Third, it would provide a forum for the state agency responsible for writing the SIP to work with affected local government to prepare a plan that would meet the requirements of EPA. Fourth, it would bring all these interests together at the beginning of the planning process to air their differences

and build consensus around areas of agreement to develop a better plan and avoid litigation.

There is an already existing strategy that meets all of the above criteria. This strategy is Negotiated Rulemaking, which was developed at the federal level specifically to circumvent many of the problems of agency planning and implementation that this case study has poignantly demonstrated (Susskind and McMahon 1985, pp. 133-137). Negotiated Rulemaking grew out of the “negotiated approaches to consensus building” that have already met with success in various different kinds of situations and have been widely used to resolve environmental disputes (Susskind and Cruikshank 1987, p. 11).

The success of negotiation is found in its approach to problem solving. Judicial proceedings and ad hoc political bargaining are adversarial approaches where each side tries to win and one party must lose. Through formal negotiation the parties look for win-win solutions rather than win-lose solutions. Negotiation accomplishes this by acknowledging differences and “trading across issues that the parties value differently (Susskind and Cruikshank 1987, p. 245).” Thus, through negotiation, consensus is built on joint gains rather than on compromise where one or both parties give something up.

The federal government began experimenting with Negotiated Rulemaking in 1982. EPA tried Negotiated Rulemaking because, at that time, 80 percent of EPA's proposed regulations were ending up in court. Of those going to court, EPA's decision was significantly changed in 30 percent of the cases. EPA believed that by using a Negotiated Rulemaking, the emphasis would be on problem solving rather than litigation to resolve conflicts, and that the result would be “an improved process and improved rules (Kettl 1988, p. 134).” EPA conducted some very successful experiments with Negotiated Rulemaking in the mid 1980's (Kettl 1988; Susskind and McMahon 1985). Subsequently, Negotiated

Rulemaking was formalized at the federal level as a part of the Administrative Procedures Act (Sections 563-569).

Negotiated Rulemaking fits well with the criteria elaborated above for a new strategy as it combines all three decision-making approaches. Negotiated Rulemaking includes the “efficiency” approach as any “negotiated rule should take account of the best scientific and technological information available at the time of the negotiation (Susskind and McMahon 1985, p. 141).” The negotiation forum offers an excellent way to deal with technical uncertainty and contention that might arise around expert differences. Through negotiation the basis for expert disagreements can be understood and fears can be separated from facts (Kartez 1989; Ozawa 1991). Negotiation would also reduce the opportunities for strategic use of technical analysis.

Negotiated Rulemaking also supports the “equity” approach to decision-making. Although it cannot include all interests, negotiation helps to even the playing field for the interests involved, giving less powerful groups equal access to the decision-making process with more powerful groups (Susskind and Cruikshank 1987, p. 134).

Most important, Negotiated Rulemaking offers a way to formally recognize the fact that special interests must be dealt with. It is far better to bring interests together to work cooperatively within the process than to have them as adversaries to the process. Negotiated agreements can give special interest a sense of ownership that should help to circumvent later litigation (Kettl 1988, p. 134). EPA’s experience with Negotiated Rulemaking has shown that even participants with a long history of “harsh adversarial relations” began to work better together through negotiation, leaving them in “a better position to deal with each other in the future (Susskind and McMahon 1985, p. 151).”

Besides incorporating all three decision-making approaches, Negotiated Rulemaking also fits the other criteria for a new strategy elaborated above. It would provide a forum for interests within and outside the government to come together to work out their differences and build consensus.

The case study shows a movement toward negotiation as a way of resolving disputes. However, the case study also shows that recent negotiations with state officials only occurred after a suit was threatened or initiated and only addressed one interest at a time. Cambridge took a more proactive approach to negotiation when planning the VTRO, but they did not negotiate with the state, which has the power to put measures into the SIP. A more effective negotiation strategy would bring all the players together at one time, before disputes come to a head, and would make the negotiated decision legally enforceable.

Analysis of this case study clearly reveals that a new approach to planning for TCMs in the SIP would be helpful. Negotiated Rulemaking has been adopted at the federal level and has been shown to be very successful in improving the decision-making process. States should evaluate the possibility of using this technique for selecting TCMs in order to move ahead toward achieving the ambitious new emission reduction deadlines established under the 1990 CAAA.

## **Appendix**

**Table 1: Acronyms**

AER	Automobile Efficiency Rate
APA	Administrative Procedures Act
BAQC	Bureau of Air Quality Control
BTPR	Boston Transportation Planning Review
CAAA	Clean Air Act Amendments
CA/THT	Central Artery/Third Harbor Tunnel
CCLN	Cambridge Citizens for Livable Neighborhoods
CLF	Conservation Law foundation
CTPS	Central Transportation Planning Staff
DEP	Department of Environmental Protection
DEQE	Department of Environmental Quality Engineering
EOEA	Executive Office of Environmental Affairs
EOTC	Executive Office of Transportation and Construction
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FSEIR	Final Supplemental Environmental Impact Report
ISR	Indirect Source Review
MIT	Massachusetts Institute of Technology
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NAS	National Academy of Sciences
NRDC	Natural Resources Defense Council
SIP	State Implementation Plan
TCM	Transportation Control Measure
TCP	Transportation Control Plan
VMT	Vehicle Miles of Travel
VTRO	Vehicle Trip Reduction Ordinance

**Table 2: Transportation Control Measures**

1. Programs for improved public transit.
2. Restriction of certain roads or lanes to, or construction of such roads or lanes for use by, passenger buses or high occupancy vehicles.
3. Employer-based transportation management plans, including incentives.
4. Trip-reduction ordinances.
5. Traffic flow improvement programs that achieve emission reductions.
6. Fringe and transportation corridor parking facilities serving multiple occupancy vehicle programs or transit service.
7. Programs to limit or restrict vehicle use in downtown areas or other areas of emission concentration particularly during periods of peak use.
8. Programs for the provision of all forms of high-occupancy, shared-ride services.
9. Programs to limit portions of road surfaces or certain sections of the metropolitan area to the use of non-motorized vehicles or pedestrian use, both as to time and place.
10. Programs for secure bicycle storage facilities and other facilities, including bicycle lanes, for the convenience and protection of bicyclists, in both public and private areas.
11. Programs to control extended idling of vehicles.
12. Programs to reduce motor vehicle emissions, which are caused by extreme cold start conditions.
13. Employer-sponsored programs to permit flexible work schedules.
14. Programs and ordinances to facilitate non-automobile travel, provision and utilization of mass transit, and to generally reduce the need for single-occupant vehicle travel, as part of transportation planning and development efforts of a locality, including programs and ordinances applicable to new shopping centers, special events, and other centers of vehicle activity.
15. Programs for new construction and major reconstruction of paths, tracks or areas solely for the use by pedestrian or other non-motorized means of transportation when economically feasible and in the public interest.
16. Program to encourage the voluntary removal from use and the marketplace of pre-1980 model year light duty vehicles and pre-1980 model light duty trucks.

*Source: Clean Air Act Amendments of 1990: Section 108 (f)(1)(A) (from Selected Environmental Statutes, 1993-94 educational Edition; West Publishing Co.)*



**Table 3: Diagram of the Decision-Making Process for TCMs**

<b>LEVEL OF GOVERNMENT:</b>	<b>DECISION-MAKING ACTORS:</b>	
<b>Federal</b>	<p><b>Federal Courts</b> Review federal and state agency decisions and local government implementation</p>	<p><b>Congress</b> Enacts Clean Air Act to establish goal of improving the nation's air quality</p> <p><b>EPA</b> Sets NAAQS Approves SIPs Writes a plan for any state that does not write a SIP, or writes an inadequate SIP</p>
<b>State</b>	<p><b>State Courts</b> Review federal and state agency decisions and local implementation</p>	<p><b>DEP (formerly DEQE)</b> Writes SIP - TCMs are one part of the SIP Implements regional TCMs</p>
<b>Local</b>		<p><b>Local Government</b> Implements local TCMs, such as the parking freeze</p>

**Table 4: Case Study Chronology**

1970	January	Rally at the State House against highway expansion in Boston Clean Air Act Amendments of 1970 adopted
1971	Fall	One year extension on TCPs granted (to February 1973) and Two year extension on NAAQS granted (to 1977)
1972	November December	Sargent announces new transportation plan for Massachusetts Consultant's plan for TCP
1973	January January April July October November	Altshuler's plan for TCP NRDC v. EPA decision - denied extensions on NAAQS and TCP (NAAQS due by 1975 and TCP due by April 15, 1973) One year extension granted to automobile manufacturers Draft of EPA's first TCP Middle-east war breaks out Final version of EPA's first TCP
1974	September December	South Terminal Case decision Prohibition on use of funds for parking regulations
1975	February June July	Draft of EPA's second TCP Final version of EPA's second TCP DEQE established
1984	November	MOA - responsibility for the parking freeze is delegated to the City of Cambridge
1988		CCLN suit Developers suit
1990	August November December	MOA - Cambridge agrees to interim freeze that eliminates employer loophole Cambridge enacts Parking Freeze Ordinance to reflect agreements in the MOA CA/THT MOU
1991	August	CLF sues CA/THT
1992	March March April	Settlement of CLF suit against the CA/THT Project Developer's suit decision - parking freeze is valid VTRO adopted in Cambridge
1994	March	MPO approves VTRO for SIP amendment

## **Table 5: Metropolitan Boston Intrastate Air Quality Control Region**

### **CITIES**

Beverly, Boston, Brockton, Cambridge, Chelsea, Everett, Gloucester, Lynn, Malden, Marlborough, Medford, Melrose, Newton, Peabody, Quincy, Revere, Salem, Somerville, Waltham, Woburn.

### **TOWNSHIPS**

Abington, Acton, Arlington, Ashland, Avon, Bedford, Belmont, Bolton, Boxborough, Braintree, Bridgewater, Brookline, Burlington, Canton, Cohasset, Concord, Danvers, Dedham, Dover, Duxbury, East Bridgewater, Easton, Essex, Framingham, Hamilton, Hanover, Hanson, Hingham, Holbrook, Holliston, Hopkinton, Hudson, Hull, Ipswich, Lexington, Lincoln, Lynnfield, Manchester, Marblehead, Marshfield, Maynard, Medfield, Middleton, Millis, Milton, Nahant, Natick, Needham, Norfolk, North Reading, Norwell, Norwood, Pembroke, Randolph, Reading, Rockland, Rockport, Saugus, Scituate, Sharon, Sherborn, Southborough, Stoneham, Stoughton, Stow, Sudbury, Swampscott, Topsfield, Wakefield, Walpole, Watertown, Wayland, Wellesley, Wenham, West Bridgewater, Weston, Westwood, Weymouth, Whitman, Wilmington, Winchester, Winthrop

Source: 40 CFR Ch. 1 (7-1-93) §81.19

## Table 6: Court Cases

*Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402 (1971)

*CLF v. FHWA*, C.A. No. 91-12222-K

*Geer, et al. v. Commonwealth of Massachusetts*, C.A. No 89-2499-WF

*International Harvester Company et al. v. William D. Ruckelshaus*, U.S. Court of Appeals for the District of Columbia Circuit (1973). Reprinted in U.S. Senate, Committee on Public Works, Subcommittee on Air and Water Pollution, hearings, *Decision of the Administrator of the Environmental Protection Agency Regarding Suspension of the 1975 Auto Emission Standards*, 93rd Cong., 1st sess., 1973, p.404.

*Jones, et al. v. Teso, et al.*, C.A. No 90-6444E

*Lead Industries v. EPA*, 14 ERC 1906 (1980)

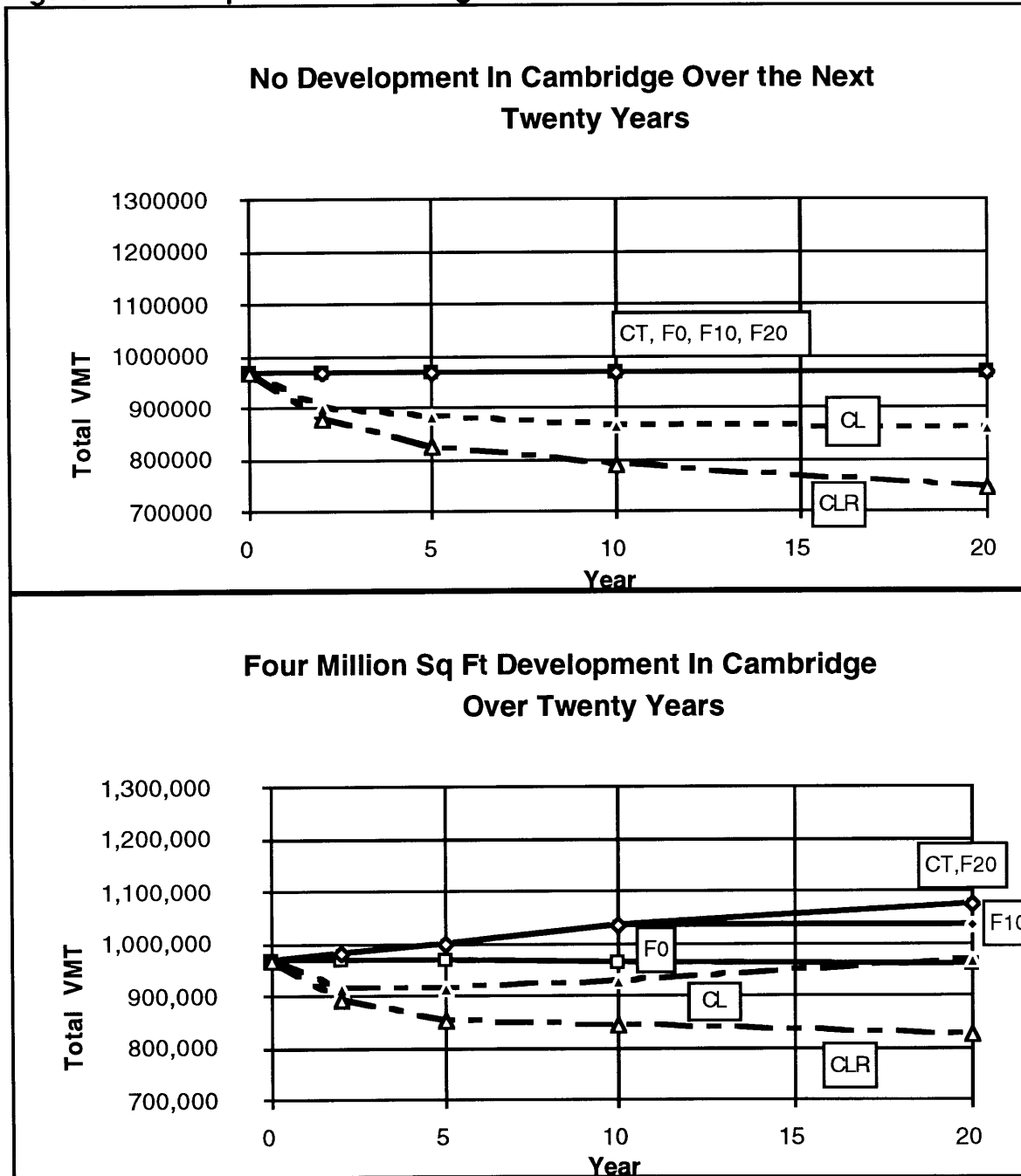
*McManus, et al. v. Teso, et al.*, C.A. No 88-6603

*NRCD v. EPA*, 475 F.2d 968 (1973)

*Sierra Club v. Morton*, 405 U.S. 727 (1972)

*South Terminal v. EPA*, 504 F.2d 646 (1974)

**Figure 1A: Comparison of Parking Freeze and VTRO**

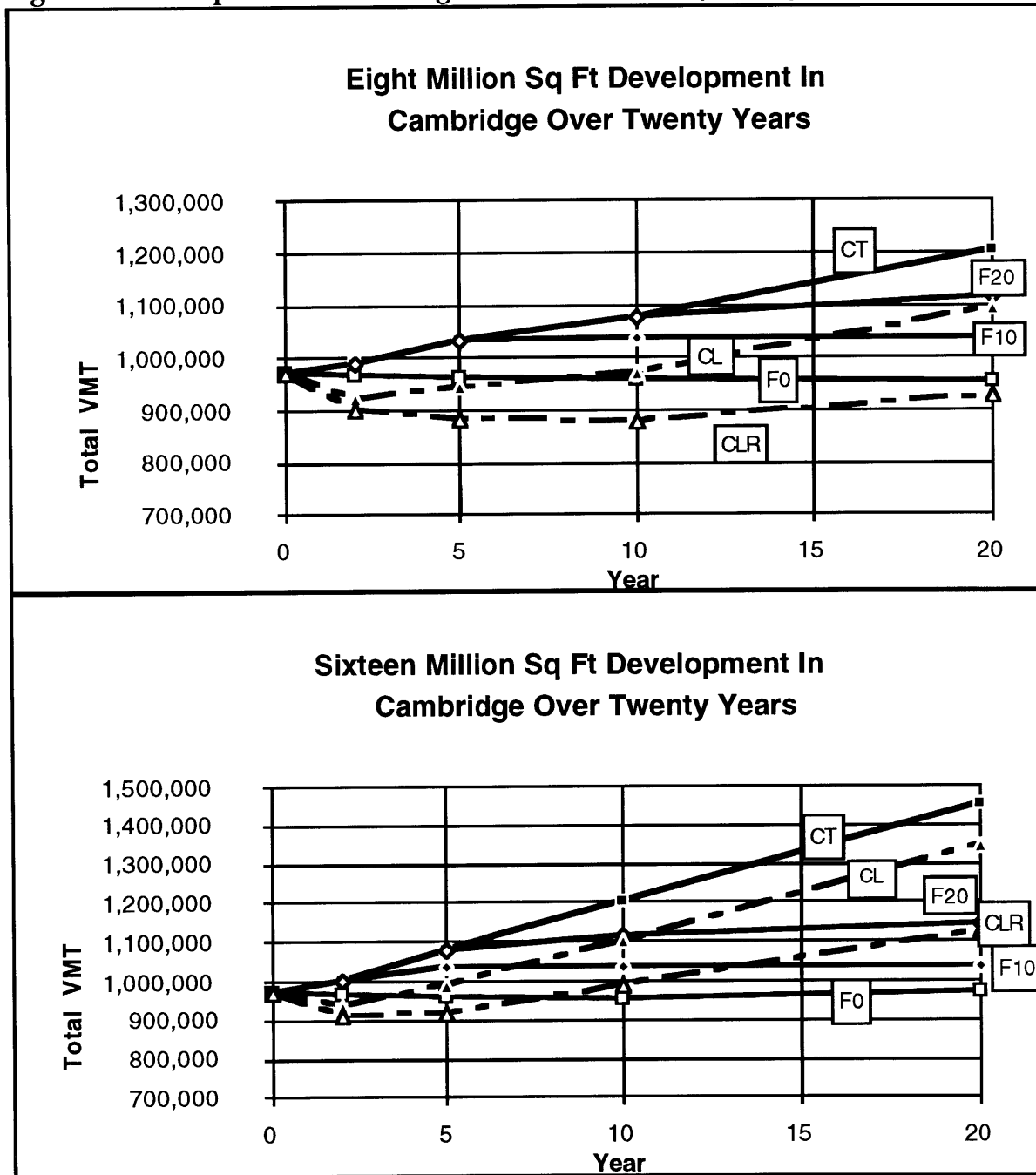


**Options Assessed:**

CT	Current Trends
F0	Freeze at 1990 Inventory
F10	Freeze at 1990 Inventory plus 10%
F20	Freeze at Year 1990 Inventory plus 20%
CL	Cambridge Six Local Measures SIP Amendment
CLR	Cambridge Six Local Plus regional Employer Trip Reduction Measures of SIP Amendment

Source: Cambridge Systematics, "Cambridge Proposed SIP Amendment, Technical Appendix", September 1992

Figure 1B: Comparison of Parking Freeze and VTRO (cont'd)



- Options Assessed:**
- CT Current Trends
  - F0 Freeze at 1990 Inventory
  - F10 Freeze at 1990 Inventory plus 10%
  - F20 Freeze at Year 1990 Inventory plus 20%
  - CL Cambridge Six Local Measures SIP Amendment
  - CLR Cambridge Six Local Plus regional Employer Trip Reduction Measures of SIP Amendment

Source: Cambridge Systematics, "Cambridge Proposed SIP Amendment, Technical Appendix", September 1992

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