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Transportation Control Plan

ENVIRONMENTAL PROTECTION AGENCY

[40 CFR Part 52]

[FRL 335-6]

BOSTON, MASSACHUSETTS

Proposed Amendments to Transportation Control Plan

The Environmental Protection Agency is considering a number of amendments to the transportation control plan which it promulgated on November 8, 1973 (39 FR 30960), for the Metropolitan Boston Intrastate Air Quality Control Region (the "Boston Intrastate Region"). These amendments stem in part from the conclusions of an exhaustive technical review of air quality in the Boston Intrastate Region which EPA has recently concluded as a result of the order of the Court of Appeals for the First Circuit in *South Terminal Corporation* v. *EPA* (6 ERC 2025, 504 F.2d 646) and eight related cases issued September 27, 1974. Certain additional amendments are being proposed as a result of conclusions which EPA has drawn in connection with its administrative experiences to date in implementing the original plan. In formulating these amendments, EPA has also drawn upon a wide variety of consultations with a number of affected state and municipal officials, business groups, environmental groups and members of the Massachusetts legislature.

Included in the proposed amendments is a revised regulation for reduction of commuter travel which would include both students and employees. This program would be implemented in conjunction with the carpool matching program being developed by the Commonwealth of Massachusetts and the employee pass program offered by the Massachusetts Bay Transportation Authority. Also included in these proposals is a new provision for limiting overall hydrocarbon emissions from major users of organic compounds. In addition, EPA is publishing a proposal for encouraging bicycle use, new proposals for controlling carbon monoxide levels outside the Boston core area, and a new procedure for periodic monitoring and updating of the plan. Other features of the original plan are retained with modifications in some areas. These include the ceiling on the level of commercial parking spaces in the so-called "freeze" area, limitations on on-street commuter parking, a semi-annual inspection and maintenance program, a retrofit program, and incentives for carpool and transit use.

Background

The Clean Air Act requires EPA to establish national "primary" air quality standards strict enough to protect all members of the population from adverse health effects caused by air pollution, including carbon monoxide and photochemical oxidants. It then requires each state to have in effect an "implementation plan" to achieve these standards throughout its territory by 1975, or 1977 at the latest if an extension is granted, as is the case for the Boston area. If a state does not submit an appropriate implementation plan, the Act requires EPA to promulgate an appropriate plan for the state.

Although the Massachusetts plan was substantially approvable for non-automobile-related pollutants, it did not provide for meeting the oxidant and carbon monoxide standards by May 31, 1975. The automobile is the source of nearly all carbon monoxide and a majority of the hydrocarbons which form photochemical oxidants. Although the Federal Motor Vehicle Control Program ("FMVCP") established by the Clean Air Act requires all new automobiles to meet strict emission standards for these pollutants, calculations show that this program will not by itself assure that the national primary air quality standards necessary to protect public health will be met throughout the Boston Intrastate Region by the 1977 date mandated by the Act. Therefore, the implementation plan for the Boston Intrastate Region must contain land use and transportation controls in order to be federally approved. However, instead of including such measures, Massachusetts asked for an extension of time in which to supply the missing portions of its plan and an extension of time in which to achieve the standards. On May 31, 1972 (37 FR 10842), pursuant to section 110 of the Clean Air Act and 40 CFR Part 51, the Administrator approved, with specific exceptions, the Massachusetts state implementation plan and approved the requests for extensions of time.

On January 31, 1973, the United States Court of Appeals for the District of Columbia Circuit found that the Administrator did not conform to the strict requirements of the Clean Air Act in granting Massachusetts and several other states their extensions. Accordingly, the Court ordered the Administrator to rescind the extensions. The Administrator complied on March 20, 1973 (38 FR 7327), and Massachusetts was required to submit a transportation control plan by April 15, 1973, as specified by the court. Because the Commonwealth did not submit its plan by that date, on July 2, 1973, the Administrator proposed a transportation control plan for the Boston Intrastate Region. Hearings on the plan were held on July 19 and 20, 1973 at Faneuil Hall, Boston. A final plan was promulgated on November 8, 1973 (38 FR 30960). The plan called for the control of hydrocarbon emissions from manufacturing establishments that contribute to photochemical oxidant formation, for the control of hydrocarbon emissions from gasoline marketing operations, for the installation of additional emission control devices ("retrofits") on various classes of motor vehicles currently in use, and for the reduction of motor vehicle traffic through a wide variety of devices aimed at reducing the availability of parking and encouraging carpools and mass transit.

In promulgating the plan, the Administrator found that some of the transportation control strategies selected for attaining and maintaining the carbon monoxide and photochemical oxidant standards were not implementable in the Boston Intrastate Region by May 31, 1975, the original date required by the Clean Air Act. Consequently, the Administrator acted under section 110 (e) of the Act to grant the maximum extension of the deadline for several strategies until May 31, 1977.

Nine separate petitions for review challenging the Administrator's action in promulgating the plan were filed with the Court of Appeals for the First Circuit pursuant to section 307(b) (1) of the Clean Air Act. On September 27, 1974, the First Circuit ruled on the issues in the *South Terminal* case. Briefly, the court upheld the Administrator's authority to impose each of the measures contained in the plan, and accepted his method of calculating the reduction in pollutant emissions needed to reduce a given level of pollutants measured in the air to the level of the standards. However, the court ordered two specific matters of detail to be changed in the regulations and declined provisionally to accept EPA's measurements of the actual severity of air pollution in the Boston area. The court stated that it did not have sufficient basis for deciding whether or not these measurements were accurate, and that the technical questions raised by the petitioners about the measurements justified further examination prior to the time the regulations would take effect. The Court ordered an informal rule-making hearing to be held by EPA, one purpose of which would be to permit further public comment on the technical data. The court also stated:

> It may well be that EPA, after full exposure to petitioners' objections, will effectively demonstrate the adequacy of existing readings and the rationality of its conclusions. Better still, by now EPA may have additional measurements and data on oxidant and carbon monoxide levels. (*South Terminal Corporation* v. *EPA* 6 ERC at 2035, 504 F.2d at 666.)

Technical Basis for the Controls

In preparation for the court-ordered public hearing to be held on March 20 and 21, 1975, EPA has examined all available recent data on carbon monoxide and photochemical oxidant levels in the Boston Intrastate Region recorded by the Massachusetts air monitoring network and a monitoring station located at Logan Airport operated by the Massachusetts Port Authority. Data from the following seven air quality monitoring stations was reviewed:

TABLE 1

Site location [1]	Date monitoring began: Carbon monoxide	Date monitoring began: Photochemical oxidants
1. Kenmore Square, Boston.	July 1969	Dec. 1970 to Nov. 1971 and Apr. 1972 to present.
2. Wellington Circle, Medford.	Sept. 1971	Apr. 1972.
3. Science Park, Cambridge.	May 1971	May 1973.
4. Moody and Main Street, Waltham.	Jan. 1973	Jan. 1973.
5. Fore River Bridge, Quincy.	do	Do.
6. Logan Airport, Boston	Oct. 1973	None.
7. East Boston	Oct. 1974	Do.

[1] All sites except Logan Airport and East Boston are operated by the Bureau of Air Quality, Commonwealth of Massachusetts. The Logan Airport site is operated by the Massachusetts Port Authority; the East Boston site is operated jointly by EPA and the Commonwealth's Bureau of Air Quality.

EPA has conducted an intensive quality control check on the reliability of instruments in service at each of the monitoring sites and reviewed the site locations and the validity of data.

Maintenance logs for all sites were examined to determine data validity. A detailed statistical analysis was performed. Data reported during any period of instrumentation malfunction has been disregarded in formulating EPA's present technical conclusions. EPA has conducted quality control audits of all sites to determine whether quality control procedures in use at those sites are proper and that the instruments are measuring correctly. A more detailed description of all quality assurance procedures followed is contained in a technical support document prepared by EPA, Region I, dated February 14, 1975 entitled "Technical Evaluation of the Metropolitan Boston Intrastate Air Quality Control Region Transportation Control Plan" which is available for inspection and copying as mentioned under "Availability of Information" below.

As a result of all of these quality assurance procedures, EPA has concluded that the air quality readings set forth in the following Tables 2 and 3 are valid and representative of the air quality problem in the Boston Instrastate Region:

TABLE 2.—*Carbon Monoxide Concentrations in Excess of 8-hour Standards Recorded in the Boston Intrastate Region—January 1, 1973 to June 30, 1974*

Location	Year	Highest (parts per million)	Date [1]	Second highest (parts per million)	Date [1]
Kenmore Square	1973	18.2	Dec. 4	15.4	Oct. 3
	1974	15.1	Apr. 13	13.9	Apr. 23
Wellington Circle	1973	22.8	Oct. 17	17.0	Nov. 21
	1974	12.0	Feb. 4	10.5	Jan. 7
Waltham	1973	29.0	Dec. 4	18.2	Dec. 5
	1974	16.6	Jan. 16	14.4	Jan. 11
Science Park	1973	11.6	Dec. 4	11.1	Nov. 12
	1974	14.4	Jan. 3	9.9	Jan. 3
Quincy	1973	15.5	June 4	11.2	June 1
	1974	14.0	Mar. 30	11.4	Mar. 29
East Boston [2]	1974	16.0	Oct. 31	15.7	Oct. 29
Logan Airport [3]					

[1] Date on which running averages is recorded (i.e., last hour of 8-hour period).
[2] Operated from October through December, 1974.
[3] No 8-hour averages at Logan Airport exceeded the standard during the period of operation from October, 1973 to June 30, 1974. This monitoring station is located on the airport itself. Therefore, it would tend to monitor only airport traffic; the East Boston site monitors both airport-bound and general traffic entering and leaving the Callahan and Sumner Tunnels.

TABLE 3.—*Photochemical Oxidant Concentrations Recorded in the Boston Intrastate Region 1973 to 1974*

Location	Year	Highest (parts per million)	Date	Second highest	Date
Kenmore Square	1973	0.13	Jan. 6	0.12	Jan. 6
	1974	.14	June 30	.13	July 2
Wellington	1973	.17	Sept. 1	.17	Sept. 1
	1974	.20	Apr. 29	.20	Apr. 20
Waltham	1973	.18	Sept. 2	.17	July 26
	1974	.16	June 30	.16	June 30
Science Park	1973	.20	Sept. 1	.18	Aug. 30
	1974	.13	June 10	.13	June 5
Quincy	1973	.21	Sept. 1	.20	July 13
	1974	.19	Apr. 29	.16	Apr. 21

INTERPRETATION OF TECHNICAL DATA
CARBON MONOXIDE

The national primary ambient air quality standard for carbon monoxide states that the level of 9 parts per million ("ppm") can be exceeded only once per year.

EPA has re-examined the carbon monoxide reading of 21.9 ppm taken at Kenmore Square on October 28, 1973, which was used in EPA's original plan. The second highest reading in 1970 is now calculated to have been 16.9 parts per million for 1970 as opposed to the 21.9 ppm used in formulating the original plan. The method of calculation resulting in this figure is discussed in detail in section IIIA of the February 14, 1975 technical support document mentioned above. However, as shown in Table 2, EPA is now using concentration data from 1973 and 1974 in preparing the current proposals.

As is more fully described in the aforementioned February 14, 1975 technical support document, carbon monoxide is a localized pollutant which is usually detected in high concentrations near the source of emissions. Kenmore Square is the intersection of a number of heavily traveled streets where traffic moves slowly throughout the day. The level of concentration recorded in Kenmore Square can be expected to occur or be exceeded in other major intersections in the Boston core where similar patterns of traffic and physical configuration occur, with variations depending upon traffic flow and physical and meteorological characteristics of the particular location.

The following Table 4 sets forth the projected concentrations of carbon monoxide at the Kenmore Square location and at two other principal locations in the Monitoring network for the period ending May 31, 1977:

TABLE 4.—*Projections of Impact of the Federal Motor Vehicle Control Program on Potential Maximum 8-hour, Carbon Monoxide Concentrations* [1]

[CO standard=9.0 pounds per million]

Date	Kenmore Square	Waltham	East Boston
May 31, 1974	14.5	----------	----------
May 31, 1975	12.8	16.9	14.2
May 31, 1976	10.9	14.7	12.4
May 31, 1977	9.1	12.7	10.6

[1] These figures assume (a) no inspection and maintenance program, (b) annual traffic growth rates of 0 percent for Kenmore Square and 2.5 percent for Waltham and East Boston and (c) implementation of the final 1977 Federal Motor Vehicle Control Program emission limitations. EPA believes that Kenmore Square is now totally saturated with traffic at peak rush hours and thus further growth is not projected.

EPA is taking Kenmore Square carbon monoxide readings as the basis for evaluating the need for restrictions in the Boston core area inasmuch as these are the highest measured readings in the area.

Because of the data set forth in Table 4, EPA now believes that a carbon monoxide strategy for the Boston core area would not be needed to meet a 1977 deadline. However, EPA is required by section 110(e) of the Clean Air Act, wherever it extends the May 31, 1975 attainment date, to impose interim measures which EPA determines to be reasonably available under the circumstances to attain the standards earlier than the extended date for final compliance. EPA has determined those measures which now being proposed as control strategies to control hydrocarbon emissions throughout the Boston Intrastate Region will also tend to reduce carbon monoxide emissions and therefore they fulfill the need for interim measures to control carbon monoxide.

However, carbon monoxide control strategies will be needed outside of the Boston core area. As shown in Table 4, neither East Boston nor Waltham will attain the standards even by the 1977 extended date. EPA has also determined that the regional photochemical oxidant control strategies will not be sufficient to meet carbon monoxide standards on or before the 1977 date. Consequently, separate carbon monoxide strategies for East Boston and Waltham (and similar suburban "hotspots") will be needed. This is

more fully explained in the description of the proposed carbon monoxide strategies below.

Summary of Control Strategies: Carbon Monoxide

Because the regional photochemical oxidant control strategy for the Boston Intrastate Region will not be sufficient to attain carbon monoxide standards by 1977 in East Boston and in the Boston suburban problem areas such as Waltham, EPA is now proposing that separate carbon monoxide control strategies be developed for these areas.

For East Boston, EPA is proposing to retain the ceiling on new commercial parking construction. In addition, employees at Logan Airport would continue to be subject to the controls on vehicle use, now proposed to be replaced by the single-passenger commuter vehicle use reduction program contained in a new § 52.1161. EPA is also proposing that the Commonwealth of Massachusetts, the Massachusetts Port Authority and the City of Boston begin joint consultation as to the means to reduce congestion in the vicinity of the Callahan and Summer Tunnels and to evaluate specific proposals to provide the needed reductions. Each of the affected entities would be required to report to EPA on its recommendations for achieving carbon monoxide standards in the East Boston area. On the basis of this consultative process, air quality data and the effects of the other elements of the transportation control plan, EPA would revise its regulations to include the measures necessary to achieve the standards.

Among the alternatives which EPA believes should be considered are: modifying the traffic patterns associated with the tunnel and removing parking areas and providing remote terminals with shuttle service for passengers.

EPA has already determined that a carbon monoxide control strategy is needed for Waltham. For other suburban areas, EPA is proposing that the Commonwealth analyze data on major intersections in the Boston Intrastate Region to identify those intersections where traffic density, intersection dwell time, local meteorology, physical configuration of the surrounding area and other factors are likely to produce a carbon monoxide problem. Those intersections would then be modeled and monitored as necessary to determine whether or not a carbon monoxide problem actually exists. In Waltham and elsewhere where a control strategy is indicated, EPA would require the Commonwealth, in cooperation with the affected municipality, to prepare a program to reduce carbon monoxide emissions in the area by such measures as are necessary. These measures would then be put into effect by the May 31, 1977 deadline.

Interpretation of Technical Data—Photochemical Oxidants

Unlike carbon monoxide which is a primary pollutant emitted directly from the tailpipe, photochemical oxidants are secondary pollutants that result from complex reactions of hydrocarbons and oxides of nitrogen catalyzed by sunlight. The conversion of hydrocarbons can require several hours to several days—depending on hydrocarbon reactivity. In either case, the oxidants produced are relatively stable and may last for extended time periods. While carbon monoxide emissions generally cause a localized problem, the oxidants and hydrocarbons may be subject to transport over considerable distances.

EPA has re-examined and vertified the validity of all oxidant data and, as indicated in Table 3, is basing the amended Boston transportation control plan on several second high readings of .20 parts per million rather than the reading of .26 parts per million in the original plan. The national primary ambient air quality oxidant standard is .08 parts per million. This data indicates that a 60 percent hydrocarbon reduction is necessary in the Boston Intrastate Region to reach the national standard by the 1977 deadline. However, to have assurance that the standards will be attained within the Boston Intrastate Region, it may be necessary in the future to amend the control strategy within the Region and to establish new control measures beyond its boundaries.

EPA is not proposing at this time to extend hydrocarbon controls beyond the boundaries of the Boston Intrastate Region. EPA will, however, modify the hydrocarbon control strategy in the future as necessary, according to the proposed periodic air quality review and update procedure proposed here. EPA is continuing to study oxidant transport. In the meantime, EPA Regions I, II, and III, comprising the Northeastern and Middle Atlantic areas of the country, are working towards developing additional hydrocarbon control strategies which could be implemented along the Atlantic seaboard.

Summary of Transportation Control Strategies: Photochemical Oxidants

The photochemical oxidant control strategies proposed for the amended plan and the emission reductions which are expected to result from each of such strategies are set forth in the following Tables 5 and 6:

Table 5.—*Effects of Hydrocarbon Controls*

		Kilograms per day
Hydrocarbon reductions required to meet national ambient air quality standards for photochemical oxidants, from 1974 base emission year		302,400
Hydrocarbon increase from expanded organic solvent use, etc., 1974–77		14,600
Total hydrocarbon reductions required		317,000
Nonvehicular reductions:		
A. Gasoline storage, transfer and marketing regulations		66,200
B. Organic solvent use regulation		155,200
Total reduction—nonvehicular sources		221,400
Vehicular reductions:		
A. Federal motor vehicle emission controls		51,600
B. Inspection and maintenance		20,500
C. Commuter automobile reduction program, supported by State carpool program and preferential bus and carpool efforts		12,200
D. On street parking limitations, and ceiling on off street parking		900
E. Retrofit program, including:		
1. Air bleed devices	8,400	
2. Vacuum spark advance disconnect	2,200	
Total retrofit reductions	10,600	
Total reduction from vehicular sources		95,800
Total reduction from vehicular and nonvehicular sources		317,200

Table 6.—*Effects of Controls on Hydrocarbon Sources*

Source	Base year (1974) emissions (kilograms per day)	1977 emissions without additional AQCR controls	1977 emissions with AQCR strategies	Reduction due to AQCR strategies
Nonvehicular:				
Organic solvent use (Drycleaning, degreasing, paints and coatings)	154,800	168,900	13,700	155,200
Gasoline handling (storage, marketing)	79,500	79,500	13,300	66,200
Miscellaneous (Aircraft, incineration fuel combustion, manufacturing)	20,900	21,400	21,400	
Total	255,200	269,800	48,400	221,400
Vehicular:				
Exhaust	170,900	124,200	80,000	44,200
Evaporative	77,900	73,000	73,000	
Total	248,800	197,200	153,000	44,200
Total nonvehicular and vehicular	504,000	467,000	201,400	[1] 265,600
Necessary to meet standards	201,600	201,600	201,600	
Reduction necessary	302,400	265,400		

[1] Excludes effects of FMVCP.

Estimates of the 1974 base year and 1977 deadline year emissions of organic solvents and gasoline from stationary sources were taken from "Hydrocarbon Emission Sources in the Metropolitan Boston Intrastate Air Quality Control Region", prepared for EPA by GCA/Technology Division and submitted in May, 1974.

Motor vehicle emissions were derived from the emission base estimates contained in the "Technical Support Document for the Transportation Control Plan for the Metropolitan Boston Intrastate AQCR", prepared for EPA by GCA/Technology Division in June, 1973. Modifications to this estimate base were made to account for: (a) the 1976 extension of the emission controls under the Federal Motor Vehicle Control Program, (b) new emission factors calculated by the methodology described in Supplement 5 to AP–42, "Compilation of Air Pollutant Emission Factors", (c) inclusion of the entire Boston Intrastate Region, as opposed to including only that portion of the Region within the confines of Route 128, and (d) the 1973 distribution of vehicle model years within the Region, as opposed to the original 1971 distribution. The latter information was obtained from statistics supplied by R. L. Polk and Co. and includes data, as of July 1, 1973, for the four counties of the Region.

During the past year, EPA has had extensive consultations with federal, state and local officials over the administrative requirements imposed by the original plan. EPA has met with chambers of commerce and other representatives of business groups concerned with the problems associated with the plan, particularly those aspects impacting employee parking spaces. EPA has also met with leaders of local environmental groups and has solicited their observations on the plan. EPA has had consultants assess and report on the costs and benefits of the plan. In addition, EPA has received numerous written comments from the public, some of them through the press. Throughout this process of consultation and critical review, EPA has attempted to review each of the strategies of the plan to determine how to mitigate the actual and perceived effects which commentators have pointed out.

EPA has decided that continuing emphasis should be placed on stationary sources of hydrocarbons such as solvent users and fuel transfer and handling facilities. This type of control has a substantial effect in terms of the actual reductions obtained.

The Federal Motor Vehicle Control Program is the core of EPA's strategies for reducing vehicle emissions. However, this program must be supplemented by a program for inspecting and maintaining the emission control devices installed under the FMVCP if the full effect of the FMVCP is to be felt. Inspection and maintenance can detect unlawful tampering. It can also detect malfunction of the engine or the emission control device. Where engine modification is detected and corrected, substantial fuel economies can result, thereby offsetting any costs to the public associated with the inspection and maintenance program.

The original plan (§ 52.1144) requires the Commonwealth to establish a state-operated program for the inspection and maintenance of emission control devices on various categories of vehicles. The regulation requires the use of the so-called "loaded mode" method of inspection. EPA and the Commonwealth have had extensive consultations in the past eight months as to the best procedure for inspection and maintenance and have reached agreement in principal on several matters. Because the Commonwealth now uses a certified private inspection station system for conducting its semi-annual safety inspection program, the Commonwealth and EPA are seriously considering the use of this system for an emission control inspection program in lieu of setting up an entirely new state-run inspection apparatus. In addition, the Commonwealth has stated its preference for the use of the "idle mode" inspection device rather than the more expensive "loaded mode" device prescribed by the regulations. Although EPA has not given its final concurrence to this alternate mode, it appears that there may be substantial initial capital cost advantages in using idle mode inspection and EPA is willing to allow the Commonwealth to proceed to assess the feasibility of an idle mode program, Finally, the Commonwealth has strongly recommended that a demonstration project be conducted in the Commonwealth prior to actual implementation. EPA has no objection to this, provided that the demonstration is carried out in time for actual implementation prior to the first 1977 deadline. EPA expects to continue to consult with the Commonwealth during the coming months.

The method and the administrative system to be used for inspection and maintenance in the Boston Intrastate Region are still under review. Until these subjects are finally determined, EPA is proposing to retain the semi-annual "loaded mode" state-operated system required under the present regulations.

The Commonwealth is currently preparing an instruction manual showing how employees and educational institutions can reduce commuter mileage by forming carpools and vanpools. EPA has worked closely with the Commonwealth on this manual. EPA believes that the manual will offer employers valuable information and will encourage the formation of a substantial number of carpools and vanpools. The Commonwealth is negotiating a contract with the firm of consultants which prepared the manual for a carpool program which would employ between twelve and twenty full-time carpool/transit consultants who would work with employers and educational institutions throughout the Commonwealth. In addition, the Commonwealth will make available a computer program for matching the names and travel patterns within large groups of employees or students and it is prepared to run such a program on a state-owned computer if a particular employer or educational institution should require the service. EPA believes that these actions on the part of the Commonwealth are likely to result in substantial carpool and vanpool formations, and strongly supports them.

EPA has received many comments to the effect that the success of any effort to encourage persons to shift from single-person private vehicle use to mass transit or carpool/vanpool alternatives depends upon the willing cooperation of both employers and commuters. A principal objection to EPA's original plan which many critics and observers made was that it called for a flat cut-back in employee parking spaces, without explicit provisions for exceptions for employees who had no readily available alternatives. When it was pointed out that certain employees would not be able to form carpools or take mass transportation, EPA determined that a hardship exemption should be adopted in order to make the regulation more equitable.

It was also pointed out that many employers who do not furnish parking spaces and educational institutions were not subject to the original requirements, even though many commuters traveled daily to their facilities and could be encouraged to shift to mass transit or carpool/vanpool alternatives. Therefore, EPA has decided (a) to expand the coverage of the plan to employers without parking facilities and educational institutions, (b) to drop the mandatory cut-back in parking spaces, and (c) in order to establish uniform requirements for all affected facilities, to propose a 25 percent cut-back in single-passenger vehicle commuting. Although this requirement would mean a slightly smaller reduction in commuter travel for some facilities subject to the original plan, the reduction would apply to more facilities thereby offsetting any emission losses from dropping the mandatory parking space cut-back feature. Furthermore, the new reduction appears to be more achievable by affected facilities, thereby eliminating the need for a formal hardship provision.

Many business groups have informed EPA that a regulation such as the one proposed will have the support of their organizations during the implementation phase and that employers can be expected to participate willingly in the programs being suggested to achieve the reduction. If this is the case, enforcement effort by EPA on the Commonwealth should be minimal, and it should not prove necessary to stiffen these requirements in connection with periodic updates to the plan.

There should be incentives built into the public highway system for encouraging carpool and vanpool formation and increased mass transit use. The original plan called for specific highway incentives, such as reserving lanes for exclusive carpool and bus use and contra-flow bus lanes. EPA and the Commonwealth are now reconsidering certain of those specific requirements owing to changes

in circumstances, such as the opening up of Interstate Route 93 during the period when the Mystic River Bridge was out of service. EPA is now proposing that the Commonwealth do a study of all points of advantage which could be offered to carpool and bus riders in order to shodrten their trip time and cost. This study would present alternatives which the Commonwealth could then put into effect in an effort to support the Commonwealth's carpool program.

Bicycle use in the Boston Intrastate Region could be increased substantially if safe bikeways were to be constructed and convenient storage facilities provided. In addition, it should be far easier to use bicycles to commute to transit stops than it is at present. The Environment Committee of the Boston Bar Association has developed a set of proposed regulations calling for a comprehensive study of bikeway and bicycle usage improvements as well as establishment of bicycle corridors in the near future. Although these proposed regulations have not been examined in detail by the Commonwealth, they are being published at this time with the Commonwealth's concurrence in order to acquaint the public with their contents and to solicit comment.

Travel to and from the Boston core area is responsible for a large portion of vehicle use within the Region. This contributes to both hydrocarbon generation and carbon monoxide emissions. Inasmuch as it is necessary to reduce hydrocarbons generally throughout the Region and to reduce carbon monoxide concentrations both within the City and in the vicinity of the Summer and Callahan Tunnels, EPA is proposing to maintain the ceiling on the construction of new commercial parking facilities and the on-street commuter parking ban for Cambridge and a portion of the City of Boston, both of which were in the original plan.

In addition to the new or modified strategies discussed above, elements of the original plan dealing with retrofits to existing vehicles would be retained, including the air bleed device and the vacuum spark advance disconnect, although the implementation dates in the original plan would be extended, thereby deferring implementation of the strategies.

PROSPOSED CHANGES IN THE REGULATIONS

1. In § 52.1128: The "freeze area" is currently defined to include a small section of the City of Somerville because of the location of a railroad line which was used as a boundary of the freeze area and it also excludes a small portion of the City of Cambridge. EPA has determined that there is no substantial reason to retain any portion of Somerville in the freeze area and is therefore proposing to exclude it. Officials of the City of Cambridge have requested that the freeze area include the entire City. For this reason, EPA is now proposing to include all of Cambridge. In addition, officials of the City of Boston have requested (a) reduction of the boundaries of the on-street commuter ban area in Boston for administrative convenience in enforcing the ban and (b) adjustment of the boundaries of the freeze area in a manner consistent with Boston's ongoing planning and construction review procedures for the affected areas. A new area called "Boston proper" is therefore being proposed to meet these requests.

2. In § 52.1134: In connection with the regulation limiting on-street parking in the freeze area, EPA proposes to revise the definition of "on-street parking" in order to make it clear that legal parking in loading zones and stops by emergency vehicles are not included in the ban. EPA is also proposing to revise the requirement that the Commonwealth and affected municipalities adopt on-street bans in the freeze area to make it clear that the officials thereof having responsibility over streets, highways and roadways are responsible for implementing the requirements. In addition, EPA is proposing to postpone the incremental steps toward full implementation of the on-street ban and to extend the date for final compliance from March 1, 1975, to January 1, 1976 for the City of Cambridge and March 1, 1977, for the City of Boston. This is being done in order to allow the Cities sufficient time to obtain funds and personnel, such as parking control officers, needed to implement the regulation. Exemptions from the on-street ban are now allowed for residents of the affected municipalities who park their vehicles within one-half mile of their residences, as well as for handicapped persons and disabled veterans. In accordance with the desires of officials of the affected municipalities, EPA is proposing to revise the exemption to apply to vehicles registered to residences in the Cities of Cambridge and Boston which display residential parking stickers issued by the respective Cities. EPA also proposed to eliminate the exemption for disabled veterans because the exemption for handicapped persons appears to be adequate to cover all persons who would require such an exemption for physical reasons. In addition, commercial vehicles would be permitted to park during the hours of the ban in order to facilitate commercial stops and deliveries.

3. In § 52.1135: The original plan contained requirements (a) limiting the number of new commercial parking spaces within the freeze area to the level existing on October 15, 1973, plus an additional 10 percent for spaces then being constructed, (b) forbidding any new or modified parking facility within the Region without a permit to be granted only upon a showing that the new facility would not interfere with the attainment of air quality standards, and (c) requiring every employer of 50 or more persons within the Region to reduce the number of his available employee parking spaces by 25 percent, or down to a parking space/employee ratio of 3 to 4.

The first requirement, that no new off-street facility be built within the freeze area without a showing that an equivalent number of spaces have been eliminated, would be amended by adopting new definitions of the terms "commence construction", "commence modification", "commercial parking facility" and "commercial parking space", in each case in order to clarify the intention of the regulation. In addition, the portion of the section dealing with preconstruction review of new parking facilities would be reserved pending promulgation of final regulations for management of parking supply. (See "Parking Management Regulations" below.) Finally, the portion of the section requiring certain employers to reduce available employee parking would be reserved and replaced by a new § 52.1161 requiring certain employers and educational institutions to reduce single passenger commuter vehicle use at their facilities by 25 percent.

4. In § 52.1136: The requirement of a 40 percent vacancy rate in commercial parking facilities in the Boston core area at 10 a.m. would be eliminated entirely.

5. In § 52.1138: This section would be revised so as to reflect the program which the Commonwealth is currently undertaking for comprehensive carpool matching programs throughout the Region. The proposed section contemplates the preparation and distribution of an employer carpool instruction manual, availability of a computer matching program, consultant assistance to employers, and use of a computer for matching groups of 400 or more commuters by the Commonwealth.

6. In § 52.1139: This section would be expanded to require the Commonwealth to do a feasibility study of bus and carpool incentives which are available on Interstate Route 93, the Southeast Expressway, U.S. Route C–1, U.S. Route 1 and the Central Artery.

7. In § 52.1141: Interim and final implementation dates for the retrofit of vehicles with the vacuum spark advance disconnect would be postponed.

8. In § 52.1142: Interim and final implementation dates for the retrofit of vehicles with the air bleed device would be postponed.

9. In § 52.1143: Retrofit of vehicles with the catalytic converter is no longer considered necessary. This section would be revoked.

10. In § 52.1145: Three changes are proposed for this section. The present organic solvent use regulations exempt the use of organic materials used in certain specified types of machinery, provided that the materials do not come into contact with flame. The exemption would be modified to provide that only machinery constructed or modified before November 8, 1973, need not have the flameproof feature in order to qualify for the exemption. Finally, a new proposed paragraph (k) would be added to limit overall hydrocarbon discharged from a facility to 3,000 pounds per day or 450 pounds per hour unless the emission represented at least an 85 percent reduction from the process discharge.

11. In § 52.1160: This section would be changed to emphasize the continuing role EPA intends to play in monitoring performance under the plan and in revising it as necessary. The Commonwealth is now responsible for monitoring air quality and reporting to EPA. The section

would require the Commonwealth to devise methods to improve overall data-gathering and reporting procedures in a manner necessary to provide current information to EPA on the effectiveness of the plan. As required by the order of the court in the *South Terminal* case, EPA must periodically assess the effectiveness of the plan and adjust its control measures as necessary to avoid having either too lax or too rigorous a plan. Upon receipt of information from the Commonwealth, EPA would then have a basis for evaluation. The section would require the Administrator of EPA to make whatever changes were necessary according to public participation procedures generally followed for rulemaking purposes.

12. In § 52.1161: This section proposes a complete modification of the original parking space reduction program for employees. EPA is proposing that employers having an employment facility with 50 or more employees and educational institutions with 250 or more commuting students and employees would be required to reduce by 25 percent the number of single passenger commuting vehicles used by employees and students commuting to work or classes. EPA is focussing on this category of vehicle users because they have the best chance of switching to carpools or mass transit for their regular commuting. Facilities would be required to develop programs to encourage the use of carpools or mass transit.

Affected facilities would be required to report on the number of commuters, commuting vehicles and single passenger commuting vehicles as of a base date. Employers who filed action plans with EPA under the original plan and commenced measures to cut back commuting vehicle use would be allowed to establish their base date as of the date of commencement of such measures, thereby receiving credit for efforts prior to the effective date of the proposed regulations. For other facilities, the base date would be October 1, 1975. No action plans would be required, as under the original plan. Instead, the affected facilities would be required to file base date reports indicating the above information. Facilities with 400 or more commuters would be required to file this report on October 15, 1975; facilities with 200 to 399 commuters would be required to file on March 1, 1976; facilities with 100 to 199 commuters would be required to file on May 31, 1976; and facilities with 50 to 99 commuters would be required to file on November 30, 1976. The 25 percent reduction would then have to be achieved within six to ten months after the date of the base date report, depending upon the size of the facility. At the end of the implementation period, an updating report would be due which would indicate whether or not the facility had achieved its goal. If the reduction requirement has been met by this time, the facility need only maintain the ratio of single passenger commuter vehicles to overall commuters which resulted from the original reduction and report periodically on its situation. If the reduction requirement has not been met by the date of the first updating report, the facility would be in violation of the section. It must then report on the measures used in an attempt to achieve the goal. It must also give the reasons why certain measures specified in the proposed section were not implemented at the facility.

The proposed regulations (§ 52.1139) would require the Commonwealth to have its carpool consulting program fully operational in time to assist affected facilities to meet the requirements of this proposed regulation. If an employer fails to achieve or maintain the required reduction, he could be contacted by the Commonwealth. In order to avoid duplication of reporting, the proposed section contemplates that the reports under the section would go directly to the Secretary of Transportation and Construction, who has overall responsibility for the carpool program. Based upon the reports, the Secretary could make a determination as to where efforts to encourage and assist affected facilities could be directed. Instances of violation of the regulations would be reported to EPA. Prior to commencing any enforcement action, both the Secretary and EPA would be required to take into consideration any good faith efforts made by a facility to achieve the required reduction.

13. In § 52.1162: A new section providing for a study of improved bicycle facilities and interim construction of bicycle routes would be added.

14. In § 52.1163: A new section would provide that the City of Boston, the Commonwealth and the Massachusetts Port Authority each study alternate means of reducing carbon monoxide concentrations in the vicinity of the Callahan and Sumner Tunnels and make recommendations to EPA for incorporation into the plan.

15. In § 52.1164: The Commonwealth would be required by this new proposed section to review available information on heavily-congested intersections in Waltham and elsewhere inside the Boston Intrastate Region and to develop programs to be implemented in time to reduce carbon monoxide concentrations to meet standards by the May 31, 1977 deadline.

Economic Impacts

Both positive and negative economic impacts on the Region can be expected, with a substantial net positive benefit due largely to reductions in general air pollution-related health costs and in automobile use costs to commuters.

The most significant economic impact can be expected with implementation of the commuter automobile use reduction part of the plan. Table 7 shows the vehicle miles traveled (VMT) reductions which may be expected with implementation of the plan. Table 8 shows the expected savings in gasoline consumption. Note the inclusion of fuel savings from the inspection and maintenance program, which would bring about a rise in the general level of vehicle fuel efficiency through better maintenance of vehicles. Table 9 shows the quantifiable annual private cost savings that will be directly attributable to the plan, based on 1974 prices. Not included in this Table are the as yet unmeasured air pollution-related health service costs, or the personal positive income effect of deferred replacement car buying made possible by substantial annual mileage reductions. Neither, of course, can the non-quantifiable, but nonetheless real, benefits of decreased morbidity and mortality, increased visual clarity of the atmosphere and decreased urban congestion be included in this Table.

The Tables are based on the assumption that 25 percent of current single-passenger vehicle commuters will switch to carpooling. To the extent that the switch is to mass transit instead, cumulative personal cost will be reduced as compared to the long-term operation and maintenance cost of automobile use. However, there will be certain offsetting incremental public costs to the mass transit system for additional capacity, if required. In general, the substitution of mass transit use for single passenger commuting will produce large real net benefits for the intra-Route 128 area.

Due to the flexibility available to the employer in allocating the single passenger commuting reductions, only a short-term minimal adverse effect on the work force should result. In the long run, insofar as public transportation system improvements are induced by the plan, a potentially significant favorable indirect effect on labor mobility and availability should exist. For the same reason, the long-term impact on Boston commercial businesses should be favorable.

Secondary impacts will tend to cancel one another. For example, reduced gasoline sales and deferred replacement car buying could have the secondary effect of reducing the income of those associated with automobile and gasoline sales. On the other hand, the income of those associated with automobile servicing should increase. Downtown garage owners should benefit from the on-street parking ban, as some displaced commuters choose to garage their automobiles.

In summary, when the economic benefits of decreased health costs from improved air quality, cost savings from automobile-use reduction, and the potential indirect benefits from induced mass transit improvements are weighed against the short-term dislocations and inconveniences associated with switching transit modes, the net economic impact of the plan cannot be less than substantially beneficial.

Table 7.—*Vehicle miles travelled (VMT) reduction as a function of the transportation control plan*[1]

1. Commuter automobile use reduction:	
A. 25 percent single passenger vehicle reduction.	[2] 2,278,000
B. Student parking (10,050 VMT/1000 vehicles removed from use).	(Data not available).
2. On-street parking reduction...	[2] 42,000
Total (per day).....	2,320,000

Note: Footnote references on page 8670.

TABLE 8.—*Gasoline use reduction as a function of the plan*

1. Stationary source control.	23,000 gal/day [3].
2. VMT reduction	193,000 gal/day [4].
3. Semi-Annual I & M program.	51,600 [5].
Total	267,600 gal/day.
Annual total	64,159,200 gal/year [6].

[1] Derived from Booz, Allen, Hamilton, Inc., Report No. 9075-075 (EPA Contract No. 68-01-2942.

[2] The Booz, Allen figure of 84,509 VMT reduced was modified based on the assumption that a substantial percentage of displaced parkers would enter garages.

[3] In-ground and in-vehicle tank filling.

[4] Assuming an average of 12 mi/gal.

[5] Assuming an overall 4% increase in engine efficiency.

[6] Assuming 240 working days per year.

TABLE 9.—*Private commuter annual cost savings with implementation of the transportation control plan* [1] *(in millions of dollars)*

1. Gasoline	$32.08 [2]
2. Auto repair and maintenance	17.68
3. Motor vehicle accidents	.06 [3]
4. Tolls—passenger vehicles	0.83
5. Other auto expense	5.23 [4]
Total	55.88

[1] Figures are based on a daily estimated reduction of 2.320 million VMT and 1974 prices. All estimates are derived from Booz, Allen, Hamilton, Inc., Report No. 9075-025 (EPA Contract No. 68-01-2942), except for a portion of the gasoline reduction (EPA data) and No. 5 taken from Jaca Corp. (EPA Contract No. 68-01-1356).

[2] Based on gasoline price of $.50.

[3] Includes wage losses, medical expenses, et al.

[4] Insurance.

MASS TRANSIT AND THE TRANSPORTATION CONTROL PLAN

Certain strategies in the proposed plan would tend to have a stimulating effect on mass transit construction and use. The proposed commuter vehicle use reduction regulation is the prime example. The required reduction in the use of single passenger commuter vehicles will encourage commuters to shift to transit use, thereby increasing ridership and demand for new facilities. Employers located on the MBTA system will be encouraged to offer the payroll deduction to their employees. Because the cost of transit commuting with the pass is lower, employees will have an incentive to use it for their daily commuting trips. The regulations also permit an employer or educational institution to satisfy its obligation to reduce single passenger vehicle use by a variety of transit-stimulating measures such as use of park-and-ride facilities to allow commuters to park in remote parking areas and take transit facilities, instituting staggered hours programs to permit commuters to take transit in off-peak periods, posting schedules and fees of all transit facilities servicing the facility, negotiating with transit officials for improved service to a facility, subsidizing costs of commuter transit use, participation in dial-a-ride programs, and instituting shuttle bus service. Another regulation requires the Commonwealth to study major highways leading into Boston in order to determine where bus service could be improved by opening up express lanes, thus cutting trip time for the bus commuter. In addition, the proposed bicycle regulation would require mass transit authorities to install secure bicycle storage facilities. This would have the effect of cutting down auto travel to transit stops and also encouraging commuters who use bicycles to commute by transit.

In addition to the planning requirements involved in the express bus lane program, EPA is proposing a regulation which would stimulate the Commonwealth to conduct its future transit planning with a view toward the greatest possible reductions in vehicle miles traveled. The first step toward this would be an annual report to EPA describing all mass transit improvements planned or proposed throughout the Boston Intrastate Region and the projected effects of such improvements on reducing vehicle miles traveled.

PARKING MANAGEMENT REGULATIONS

Section 52.1135(d) of the original regulations require any permit issued for the construction or modification of a new parking facility in the Boston Intrastate Region to state that "construction or modification of such facility will not interfere with the attainment or maintenance of applicable Federal air quality standards . . ." On August 22, 1974 (39 FR 30440) the Administrator proposed a set of changes to § 52.1135(d) which would have established procedures for meeting permit requirements. These changes were also proposed for nearly twenty other urban areas having transportation control plans with preconstruction review and permit requirements. Hearings on these proposed regulations were held in all of the affected areas except the Boston Intrastate Region. The public response to these proposed regulations is now being analyzed by EPA and final regulations are now being developed. Because EPA anticipates that the final regulations will be ready for publication in the FEDERAL REGISTER within one or two months, the proposals being published today do not include regulations on this subject. Rather, EPA will publish proposed parking management regulations for the Boston Intrastate Region as soon as these regulations are finalized for the rest of the affected areas. Notice of a public hearing on these parking management regulations will appear concurrently with the notice of proposed amendments to § 52.1135(d).

NOTICE OF PUBLIC HEARING

A public hearing will be held on March 20 and 21 at the Transportation Systems Center of the U.S. Department of Transportation, Kendall Square, Cambridge, Massachusetts, commencing at 10 a.m. on each day, with an evening session commencing at 7 p.m. on March 20, for the following purposes:

1. To receive and consider objections and arguments respecting the technical basis now being considered for calculating the amounts of hydrocarbons and carbon monoxide reductions required to attain and maintain primary photochemical oxidant and carbon monoxide standards within the Boston Intrastate Region and to modify the emission reductions stated in the original transportation control plan for the Boston Intrastate Region.

2. To obtain public comment on various proposed amendments to the original transportation control plan regulations, including the adoption as part of the plan of a regulation providing a procedure for the continuous monitoring of progress in air quality improvement and for the periodic updating of the controls set forth in the plan as may be appropriate in light of the results of such monitoring so that the transportation control restrictions are neither more or less rigorous than actually required to meet air quality standards.

3. To obtain public comments on any alternate methods for reducing photochemical oxidants and carbon monoxide with the Boston Intrastate Region which the Administrator could consider prior to final rulemaking action on the above proposals.

EPA will consider all comments relating to the plan which it receives after the date of this proposal and before April 1, 1975. Although EPA has been discussing the plan almost continuously with interested persons since it was first promulgated on November 8, 1973, those who wish to ensure that their views receive formal consideration as a part of this reproposal and are reflected in any record certified for judicial review must either testify at the hearings or submit written comments during the comment period. Persons wishing to give testimony at the hearing should contact the Region I Office to schedule a time for appearing and submit a copy of such testimony prior to the hearing, if possible. Persons who do not schedule a time for giving testimony may appear at the hearing and make a statement as time permits.

All comments should be addressed to:

Regional Administrator
Region I, Boston
Environmental Protection Agency
Room 2203
John F. Kennedy Federal Building
Boston, MA 02203

with a copy to:

Assistant Administrator for Air and Waste Management (AW-443)
Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

AVAILABILITY OF INFORMATION

In preparation for the public hearing, EPA has prepared a lengthy technical support document containing the results of its data analysis. In addition, consultants working for EPA have prepared separate reports on the following areas: (1) economic and social impacts of the plan; (2) secondary economic and social effects on the proposed commuter automobile use reductions and; (3) meteorological effects on the monitoring of pollutants in the Boston area. Such documents are available for inspection at the Regional Office of EPA in Boston. A schedule of these documents and fees

which will be charged therefor is available at the Regional Office of EPA in Boston. The Agency may waive the fee in the case of public agencies and public interest groups having a substantial interest in the transportation control plan. Documents may be ordered by writing to the Regional Administrator at the address shown above.

SCHEDULE FOR FINAL REGULATIONS

The Administrator's final promulgation of transportation controls for the Boston Intrastate Region will be influenced by the comments and testimony he receives, as well as by any further approvable strategies submitted by the Commonwealth as part of the state implementation plan. These influences and the additional analysis of alternative strategies that can be made in the time between this proposal and final promulgation, may lead the Administrator to adopt final regulations that differ in important ways from this proposal.

EPA is under court order to promulgate final changes to the regulations within 30 days following the public hearing and to submit such final regulations to the Court of Appeals for the First Circuit. Thereafter, petitioners in the *South Terminal* case will have ten days in which to file written objections to the court to the final regulations. The court has suspended controls under existing §§ 52.1135, 52.1136, and 52.1144 until further order of the court. Therefore, the new regulations now being proposed as §§ 52.1135 and 52.1161 would not take effect unless and until the court so rules in its final order. In other respects, the changes proposed by this notice, with appropriate modifications, will be effective as noted. This notice of proposed rulemaking is issued under the authority of sections 1110(c) and 301(a) of the Clean Air Act.

Dated: February 18, 1975.

RUSSELL E. TRAIN,
Administrator.

Subpart W—Massachusetts

1. Section 52.1182 is revised to read as follows:

§ 52.1128 Transportation and land use controls.

(a) For purposes of this subpart, the definitions herein are applicable.

(b) Definitions:

(1) "Register," as applied to a motor vehicle, means the licensing of such motor vehicle for general operation on public roads or highways by the appropriate agency of the Federal Government or by the State.

(2) "Boston Intrastate Region" means the Metropolitan Boston Intrastate Air Quality Control Region, as defined in § 81.19 of this part.

(3) [Reserved]

(4) "Freeze area" means that portion of the Boston Intrastate Region enclosed within the following boundaries: The City of Cambridge; that portion of the City of Boston from the Charles River and the Boston Inner Harbor on north and northeast of pier 4 on Northern Avenue; by the east side of pier 4 to B Street, B Street extension of B Street to B Street, B Street, Dorchester Avenue, and the Preble Street to Old Colony Avenue, then east to the water, then by the water's edge around Columbia Point on various courses generally easterly, southerly, and westerly to the center of the bridge on Morrissey Boulevard, on the east and southeast; then due west to Freeport Street, Freeport Street, Dorchester Avenue, Southeast Expressway, Southhampton Street, Reading Street, Island Street, Chadwick Street, Carlow Street, Albany Street, Hunneman Street, Madison Street, Windsor Street, Cabot Street, Ruggles Street, Parker Street, Ward Street, Huntington Avenue, Brookline-Boston municipal boundary, Mountford Street to the Boston University Bridge on the southwest and west; and the Logan International Airport. Where a street or roadway forms a boundary the entire right-of-way of the street is within the freeze area as defined.

(5) "Boston proper" means that portion of the City of Boston, Massachusetts, contained within the following boundaries: The Charles River and Boston Inner Harbor on the northwest, north, and northeast, the Inner Harbor, Fort Point Channel, Fitzgerald Expressway, and the Massachusetts Avenue Expressway access branch on the east and southeast, and Massachusetts Avenue on the west. Where a street or roadway forms a boundary, the entire right-of-way of the street is within the Boston proper area as here defined.

2. Section 52.1134 is revised to read as follows:

§ 52.1134 Regulation limiting on-street parking by commuters.

(a) "On-street parking" means parking a motor vehicle on any street, highway, or roadway, except for legal stops within designated loading zones or areas defined for loading purposes, at or before intersections, as caution, safety and emergencies require, whether or not a person remains in the vehicle.

(b) Commencing on or before June 30, 1974, the Commonwealth of Massachusetts, the City of Boston, the City of Cambridge, and administrative bodies of any of them having jurisdiction over any streets, highways, or roadways within the City of Cambridge or Boston proper, and the principal officials and administrative bodies thereof having responsibility over parking on such streets, highways, or roadways shall adopt all necessary administrative and enforcement procedures and regulations to effect a prohibition of on-street parking within Boston proper between the hours of 7 a.m. and 9:30 a.m., and within the City of Cambridge between the hours of 7 a.m. and 10 a.m. except Saturdays, Sundays and legal holidays. The regulations shall state that violation of the prohibition shall be punishable by a fine of not less than $15. The City of Boston shall at a minimum eliminate 33⅓% of on-street parking during the hours specified by September 30, 1974; 50% by September 30, 1975; 66⅔% by December 31, 1975; and 100% by March 1, 1977. The City of Cambridge shall at a minimum eliminate 33⅓% of on-street parking during the hours specified by September 30, 1974; 66⅔% by December 31, 1974, and 100% by January 1, 1976. Any other affected entity shall at a minimum eliminate 33⅓% of such parking during the hours of 7 a.m. and 10 a.m. by September 30, 1974; 66⅔% by December 30, 1974, and 100% by March 1, 1975.

(c) The following classes of vehicles shall be exempt from the requirements of this section, provided that on-street parking by such vehicles is in compliance with local and state regulations:

(1) Vehicles owned by residents of that portion of the City of Boston included within Boston proper that are registered in Boston and display a resident parking sticker for that area issued by the City of Boston, in accordance with procedures adopted by the City of Boston;

(2) Vehicles owned by residents of Cambridge that are registered in and parked within Cambridge and bear an appropriate parking sticker issued by the City of Cambridge;

(3) Vehicles owned and operated by handicapped persons with HP license plates; and

(4) Vehicles registered as "commercial vehicles" by the Commonwealth of Massachusetts and displaying appropriate license plates.

(d) On or before June 30, 1974, no owner or operator of a motor vehicle shall park, or permit the on-street parking of, said vehicle within the City of Cambridge or Boston proper except in conformity with the provisions of this section and the measures implementing it.

(e) The Governor of the Commonwealth of Massachusetts, and the chief executive of any other governmental entity on which obligations are imposed by paragraph (b) of this section, shall, on or before April 15, 1975, submit to the Administrator for his approval a detailed statement of the legal and administrative steps selected to effect the prohibition provided for in paragraphs (b) and (d) of this section, and a schedule of implementation consistent with the requirements of this section. Such schedule shall include as a minimum the following:

(1) Designation of one or more agencies responsible for the administration and enforcement of the program.

(2) The procedures by which the designated agency will enforce the prohibition provided for in paragraphs (b) and (d) of this section.

(3) The procedures by which vehicles exempt from the requirements of this section will be marked.

3. Section 52.1135 is revised to read as follows:

§ 52.1135 Regulation for parking freeze.

(a) Definitions:

(1) The phrase "to commence construction" means to engage in a continuous program of on-site construction including site clearance, grading, dredging, or land filling specifically designated for

a parking facility in preparation for the fabrication, erection, or installation of the building components of the facility. For the purpose of this paragraph, interruptions resulting from acts of God, strikes, litigation, or other matters beyond the control of the owner shall be disregarded in determining whether a construction or modification program is continuous.

(2) The phrase "to commence modification" means to engage in a continuous program of on-site modifications including site clearance, grading, dredging, or land filling in preparation for a specific modification of the parking facility.

(3) The phrase "commercial parking space" means a space used for parking a vehicle in a commercial parking facility.

(4) [Reserved]

(5) "Commercial parking facility" (also called "facility") means 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 a residential building or group of buildings under common control, and (ii) parking on public streets.

(6) "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; 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 Airport. For purposes of the last clause of the previous sentence, the 10 percent limit shall apply to each municipality and Logan Airport separately.

(7) —(12) [Reserved]

(b) [Reserved]

(c) There is hereby established a freeze, as defined by paragraph (a) (6) of this section on the availability of commercial parking facilities in the freeze area effective October 15, 1973, in the event construction commenced prior to October 15, 1973, exceeds 10 percent limit prescribed by paragraph (a) (6) of this section, in any municipality or at Logan Airport; then the Commonwealth of Massachusetts shall immediately take all necessary steps to assure that the available commercial spaces within such municipality or at Logan Airport shall be reduced to comply with the freeze.

(d) [Reserved]

(e) After August 15, 1973, no person shall commence construction of any commercial parking facility or modification of any existing such facility in the freeze area unless and until he has obtained from the Administrator or from an agency approved by the Administrator a permit stating that construction or modification of such facility will be in compliance with the parking freeze established by paragraph (b) of this section. This paragraph shall not apply to any proposed parking facility for which a general construction contract was finally executed by all appropriate parties on or before August 15, 1973.

(f) In order for any agency to be approved by the Administrator for purposes of issuing permits pursuant to paragraph (e) of this section, such agency shall demonstrate to the satisfaction of the Administrator that:

(1) Requirements for permit application and issuance have been established. Such requirements shall include but not be limited to a condition that before a permit may be issued the following findings of fact or factually supported projections must be made:

(i) The location of the facility.

(ii) The total motor vehicle capacity before and after the proposed construction or modification of the facility.

(iii) [Reserved]

(iv) [Reserved]

(v) [Reserved]

(2) Criteria for issuance of permits have been established and published. Such criteria shall include, but not be limited to:

(i) Full consideration of all facts contained in the application.

(ii) Provisions that no permit will be issued if construction or modification of the facility will not comply with the requirements of paragraph (c) of this section.

(iii) [Reserved]

(3) Agency procedures provide that

(iv) [Reserved]

no permit for the construction or modification of a facility covered by this section shall be issued without notice and opportunity for public hearing. The public hearing may be of a legislative type; the notice shall conform to the requirements of 40 CFR 51.4(b); and the agency rules of procedures may provide that if no notice of intent to participate in the hearing is received from any member of the public (other than the applicant) prior to 7 days before the scheduled hearing date, no hearing need be held. If notice of intent to participate is required, the fact shall be noted prominently in the required hearing notice.

(g) [Reserved]

(h) [Reserved]

(i) [Reserved]

(j) [Reserved]

(k) [Reserved]

(l) [Reserved]

§ 52.1136 [Reserved]

4. Section 52.1136 is hereby revoked and reserved.

5. Section 52.1138 is hereby revised to read as follows:

§ 52.1138 Regulation for computer carpool matching.

(a) "Carpool matching" means assembling lists of commuters with similar daily travel patterns and providing a mechanism by which persons on such lists may be put in contact with each other for the purpose of forming carpools.

(b) This section is applicable in the Boston Intrastate Region.

(c) The Governor of the Commonwealth of Massachusetts or a properly authorized department of the executive branch thereof shall establish a program for encouraging employees and educational institutions to set up carpool matching programs within facilities under their control. The program shall provide for:

(1) The distribution to each employer or educational facility subject to § 52.1161 by June 30, 1975, of a manual adequately showing how to establish and maintain a carpool program;

(2) A computer program available by June 30, 1975, to any such employer or educational institution or group for the purpose of carpool matching by use of such computer program;

(3) Processing by the Commonwealth by June 30, 1975, of any set of properly prepared computer cards for 400 or more commuters submitted by any such employer or educational institution;

(4) Distributing the results of any computer carpool matching to the person or persons who submitted the unprocessed cards;

(5) Full-time guidance and technical consulting to the affected facilities available by June 30, 1975, in order to initiate and maintain the carpooling program.

6. In § 52.1139, paragraph (i) is amended to read as follows:

§ 52.1139 Preferential bus/carpool treatment.

* * * * *

(i) The Commonwealth shall, by December 31, 1975, perform and complete feasibility studies for submission to the Administrator on the following measures:

(1) A north/south bus lane system through Boston proper with Washington Street utilized in one direction;

(2) Alternative mechanisms for bus/carpool preferential treatment on the Southeast Expressway, Central Artery, Interstate Route I-93, U.S. C-1, U.S. Route 1, including but not limited to:

(i) Exclusive bus/carpool lanes, including wrong way bus carpool lane;

(ii) A ramp metering system for preferential access given to buses and carpools; and

(iii) A regulation restricting the downtown on and off ramps for use by buses and carpools only during commuting hours (off ramps between 6:30 a.m. and 9:30 a.m. and on ramps between 3:30 p.m. and 6:30 p.m.).

§ 52.1141 [Amended]

7. Section 52.1141 is hereby amended by changing the date in paragraph (c) from January 1, 1976 to May 31, 1977; by changing the date in paragraph (d) from January 1, 1974 to October 1, 1976; by changing the date in paragraph (d) (1) from August 1, 1974 to November 1, 1976; by changing the date in paragraph (d) (2) from January 1, 1975 to January 1, 1977; by changing the date in para-

graph (d)(3) from January 1, 1976 to May 31, 1977; by changing the date in paragraph (e) from January 1, 1976 to May 31, 1977; and by changing the date in paragraph (f) from April 1, 1974 to November 1, 1976.

§ 52.1142 [Amended]

8. Section 52.1142 is hereby amended by changing the date in paragraph (c) from August 1, 1976 to May 31, 1977; by changing the date in paragraph (d) from January 1, 1974 to October 1, 1976; by changing the date in paragraph (d)(1) from January 1, 1975 to November 1, 1976; by changing the date in paragraph (d)(2) from August 1, 1975 to January 1, 1977; by changing the date in paragraph (d)(3) from August 1, 1976 to May 31, 1977; by changing the date in paragraph (e) from August 1, 1976 to May 31, 1977; by changing the date in paragraph (f) from April 1, 1974 to November 1, 1976.

§ 52.1143 [Reserved]

9. Section 52.1143 is hereby revoked and reserved.

10. Section 52.1145 is amended by amending subparagraphs (j)(4)(iv) and (j)(5)(iv) and by adding a new subparagraph (j)(7) and by adding a new paragraph (k) as follows:

§ 52.1145 Regulation on organic solvent use.

* * * * *

(j) * * *

(4) * * *

(iv) The organic solvent or any material containing organic solvent does not come into contact with flame. This last stipulation applies only for those articles, machines, equipment, or other contrivances that are constructed or modified after November 8, 1973.

* * * * *

(5) * * *

(iv) The organic solvent or any material containing organic solvent does not come into contact with flame. This last stipulation applies only for those articles, machines, equipment or other contrivances that are constructed or modified after November 8, 1973.

* * * * *

(7) An article, machine, equipment or other contrivance described in paragraphs (c), (d), (e), or (g) of this section used exclusively for chemical or physical analyses provided that—

(i) The exemption is approved in writing by the Governor or his designee.

(ii) The operator of said article, machine, equipment or contrivance is not an integral part of the production process.

(iii) The emissions from said article, machine, equipment or other contrivance shall not emit more than 800 lbs. in any calendar month.

(k) Effective May 31, 1977, no person shall cause, suffer, allow or permit the discharge into the atmosphere of more than 3,000 lbs. of organic material in any one day, nor more than 450 lbs. in any one hour from any facility unless said discharge has been reduced by installation of abatement controls by at least 85 percent. Emissions of organic materials into the atmosphere resulting from air or heated drying of products for the first 12 hours after their removal from any article, machine, equipment, or contrivance used for employing or applying any organic material shall be included in determining compliance with this section. Emissions resulting from baking, heat-curing or heat polymerizing as described in paragraph (c) of this section shall be excluded from any determination of compliance with this section.

11. Section 52.1160 is revised to read as follows:

§ 52.1160 Monitoring reports.

(a) All definitions are as used in 40 CFR 51.19.

(b) This regulation is applicable in the Boston Intrastate Region.

(c) The Commonwealth of Massachusetts or an agency designated by the Commonwealth and approved by the Administrator, shall monitor the emission reduction occurring as a result of all retrofitted devices and inspection and maintenance programs required under §§ 52.1140 through 52.1143, and as a result of the commuter automobile use reductions required by § 52.1161 and the reductions required by §§ 52.1163 and 52.1164.

(d) [Reserved]

(e) [Reserved]

(f) [Reserved]

(g) [Reserved]

(h) [Reserved]

(i) The Commonwealth of Massachusetts shall review its existing air quality monitoring program and modify it as necessary so as to provide an adequate basis for the annual review by the Administrator required under paragraph (n) of this section. At a minimum the Commonwealth shall review the number and placement of monitoring stations, the types of pollutants and meteorological parameters measured, and shall devise a comprehensive quality assurance program for all phases of the monitoring program.

(j) The Commonwealth of Massachusetts shall review its existing traffic monitoring program and modify it as necessary so as to provide reliable information about vehicle miles traveled and traffic patterns in all critical areas, and shifts in traffic patterns and vehicle miles traveled so as to better correlate traffic data with air quality measurements. Vehicle miles traveled information shall be based on representative traffic counts taken within the Region and shall be correlated with each applicable control measure designated in this plan.

(k) No later than October 1, 1975 the Governor or his designee shall submit a report to the Regional Administrator containing detailed information demonstrating compliance with paragraphs (c), (i) and (j) of this section. The information contained in this report shall include as a minimum:

(1) The administrative process to be used and the agency or agencies responsible for conduction, overseeing and maintaining the monitoring programs in paragraphs (c), (i) and (j) of this section;

(2) A description of the revised ambient air monitoring network, equipment operating and data reporting procedures, and quality assurance programs to be used to insure the routine collection of valid, reliable and representative air quality data;

(3) A description of the revised traffic monitoring program; and

(4) All other information necessary to describe the methods to be used to collect the required data.

(l) The Governor or his designee shall submit a report to the Regional Administrator annually, beginning on February 15, 1976, and containing the results of the monitoring program approved in paragraph (k) of this section. This report shall include at a minimum appropriate air quality and meteorological data, average vehicle miles traveled data, an appropriate analysis of the data base, and summary information on commuter automobile use reductions as required by § 52.1161 of this subpart.

This report shall be submited in a form acceptable to the Regional Administrator. In addition all air quality data will be submited quarterly to the Administrator by the Commonwealth as required by 40 CFR 51.7.

(m) Monitoring, quality assurance programs, reporting and other procedures and methodologies required by this section shall be subject to the approval of the Regional Administrator.

(n) Upon receipt of the annual report required by paragraph (g) of this section the Regional Administrator shall analyze it and determine whether the emission reduction is in substantial conformity with the projections which formed the technical basis for the promulgation of transportation controls for the Boston Intrastate Region. If the Administrator determines that the emission reductions are substantially less than or are substantially in excess of those required to meet air quality standards, the Administrator shall, after adequate public notice and public hearing, amend the regulations in such transportation control plan so as to avoid substantially implementing a plan which is either substantially more or substantially less rigorous than that required to meet ambient air quality standards.

(o) On or before February 15, 1976, and on each succeeding February 15 thereafter the Governor of Massachusetts or his designee shall submit to the Administrator a report listing each project for expanding or improving mass transit facilities which is then under construction or is being proposed to be constructed within the Boston Intrastate Region, together with a listing of the reductions in vehicle miles (i) estimated to result from such project and (ii) estimated to result from all projects as an aggregate.

12. A new § 52.1161 is added as follows:

§ 52.1161 Incentives for Reduction in Single Passenger Commuter Vehicle Use.

(a) *Definitions.* (1) "Employer" means any person or entity controlling an employment facility located in the Boston Intrastate Region employing 50 or more employees at any time during a calendar year.

(2) "Educational institution" means any person or entity controlling an educational facility offering secondary level or higher training including vocational training located in the Boston Intrastate Region which has 250 or more employees and students at any time during the academic year.

(3) "Employee" means a person who performs work for an employer on a full time, part time or seasonal basis for compensation.

(4) "Student" means any full time or part time day student who commutes to classes.

(5) "Commuter" means both an "employee" and a "student".

(6) "Single passenger commuter vehicle" means a motor-driven vehicle with four or more wheels with capacity for a driver plus one or more passengers which is used by a commuter traveling alone to work or classes and is not required to be used in the course of his employment or studies.

(7) "Base date" means the date set forth in paragraph (d) of this section as of which the base number of single passenger commuter vehicles at a particular commuter attracting facility must be determined.

(8) "The Secretary" means the Secretary of Transportation and Construction of the Commonwealth of Massachusetts.

(b) On or before the applicable reporting date set forth in paragraph (d) of this section, each employer and educational institution shall reduce the number of single passenger commuter vehicles customarily arriving at such facility as of its base date by 25 percent. Such employer or educational institution shall thereafter maintain the ratio of single-passenger commuter vehicles to total commuters customarily arriving at its facility at or below the ratio which it would achieve by meeting the required reduction.

(c) On or within 10 days before the dates set forth in paragraph (d) of this section, each employer and educational institution shall submit to the Secretary, a report containing the following information:

(1) The number of commuters who take any means of transportation to such facility as of its base date (and as of a date within 30 days of the date of such report);

(2) The number of single passenger commuter vehicles customarily used by commuters to the facility as of the base date (and as of a date within 30 days of the date of such report); and

(3) The total number of commuter vehicles customarily used by commuters to the facility as of the base date (and as of a date within 30 days of the date of such report).

(d) The base date for all facilities shall be October 1, 1975, except that, where a facility can establish to the satisfaction of the Secretary that such facility had commenced measures to reduce the number of single passenger commuter vehicles customarily arriving daily at an earlier date, beginning November 8, 1973, the Secretary may approve the use of such earlier date as the base date for such facility. An employer or educational institution shall determine whether or not it is subject to a reporting requirement and the schedule to be used in filing reports by reference to the number of commuters which it reasonably anticipates it will have coming to its facility at the date the base date report is due. The reports required under paragraph (c) of this section shall be filed according to the following schedule:

(1) For a facility with 400 or more commuters, a base date report shall be due on October 15, 1975;

(2) For a facility with 200 to 399 commuters, a base date report shall be due on March 1, 1976;

(3) For a facility with 100 to 199 commuters, a base date report shall be due on May 31, 1976;

(4) For a facility with 50 to 99 commuters, a base date report shall be due on November 30, 1976.

(e) By each of the applicable dates set forth in paragraph (f) below, each employer and educational institution shall submit to the Secretary a report containing the information called for in paragraph (c) of this section.

(f) Each affected employer and educational institution regardless of size shall periodically update its base date report, the first such periodic report shall be due on the next succeeding December 31 or June 30 after the base date report, whichever is later; and each successive six months thereafter on June 30 or December 31 until June 30, 1978, and every year thereafter on June 30.

(g) Where the total number of commuters to a particular facility is changed due to fluctuation in employment or enrollment between the base date and the date of any report under paragraphs (c) or (d) of this section, such fact shall be reported at the time of the submission of such report. The employer or educational institution having such a change shall be required to attain and maintain the same ratio of single passenger commuter vehicles to total commuters as was necessary to achieve the reduction required under paragraph (b) of this section.

(h) In lieu of accomplishing a 25 percent reduction in single passenger commuter vehicles arriving at a particular facility, an employer or educational institution may elect to demonstrate to the Secretary that it has accomplished a 25 percent reduction in the number of vehicle miles traveled to its facility by its commuters. Any employer or educational institution electing to use this option shall report the total of its vehicle miles traveled as of its base date in the base date report required under paragraph (c) of this section and shall thereafter update such total on its periodic reports.

(i) If an employer or educational institution does not meet and thereafter at all times maintain the reduction required under paragraphs (b) and (g) of this section, in connection with each report under paragraphs (d) or (e) of this section, it shall submit a complete description of all measures which it has applied to achieve and maintain the reduction; it shall further describe the consideration given to each of the following measures which it has not applied and the reasons for not applying such measure:

(1) Conducting a carpool program (either alone or in cooperation with neighboring facilities) which

(A) Matches the names, addresses, and work and home telephone numbers of all commuters to a facility or group of neighboring facilities so that persons with similar daily travel patterns are informed of each other for the purpose of forming carpools;

(B) Publicizes the advantages of carpooling, both in terms of savings of fuel and money, and any incentives in effect at the facility; and

(C) Creates incentives for carpool formation by providing persons who carpool with first call on available parking spaces or spaces which are closest to entrances to the facility.

(2) Participation in the payroll deduction pass program made available by the Massachusetts Bay Transportation Authority, if any commuter to the facility uses the mass transit facilities of such Authority as part of his daily commuting trip;

(3) Posting in a conspicuous place or places of the schedules, rate schedules, rate structure, and route of every bus, subway or rail facility which serves the facility;

(4) Publicizing any applicable on-street parking restriction and the penalty for violation which affects areas being used for parking by commuters to the facility;

(5) Staggered or flexible working hours;

(6) Incentives for bicycle commuting, such as secure locking facilities, removal of restrictive rules against bicycle usage at the facility and providing shower facilities;

(7) Negotiations with authorities in charge of rail or bus lines serving the facility for improved service to the facility;

(8) Establishment of park and ride facilities where commuters can park their vehicles in a remote area and carpool, vanpool or take transit services to the facility;

(9) Subsidizing the costs of carpool or transit trips by commuters to the facility;

(10) Establishment of shuttle bus service from collection points (such as mass transit stops) to the facility;

(11) Participation in dial-a-ride programs; and

(12) Establishment of vanpool programs whereby van-type vehicles are purchased or leased and made available to commuters who pay for the cost of their purchase and use.

In addition, it shall submit a description of all measures which it intends to take to meet the requirements of paragraphs (b) and (g) of this section and shall implement the measures so described as expeditiously as practicable.

(j) The Secretary shall report to the Administrator any person who fails to comply with this section and shall upon *request* by the Administrator, forward copies of all reports, correspondence and other documents pertaining to such instance of noncompliance together with a description of any enforcement action taken by the Commonwealth in connection with the matter.

(k) Prior to taking any enforcement action against any employer or educational institution for failure to meet the requirements of paragraphs (b) and (g) of this section, the Secretary or Administrator shall examine the report submitted pursuant to paragraph (i) of this section and take into consideration whether or not the employer or educational institution has acted in good faith in attempting to meet the requirements of said paragraphs.

13. A new § 52.1162 is hereby added as follows:

§ 52.1162 Regulation for Bicycle Use.

(a) *Definitions.* (1) "Bicycle" means a two-wheel nonmotor-powered vehicle.

(2) "Bike path" means a route for the exclusive use of bicycles separated by grade or other physical barrier from motor traffic.

(3) "Bike lane" means a lane on a street restricted to bicycles and so designated by means of painted lanes, pavement coloring or other appropriate markings. A "peak hour" bike lane means a bike lane effective only during times of heaviest auto commuter traffic.

(4) "Bike route" means a route in which bicycles share road space with motorized vehicles.

(5) "Bikeway" means bike paths, bike lanes and bike routes.

(6) "Bicycle parking facility" means any facility for the temporary storage of bicycles which allows the frame and both wheels of the bicycle to be locked so as to minimize the risk of theft and vandalism.

(7) "Parking facility" means a lot, garage, building, or portion thereof, in or of which motor vehicles are temporarily parked.

(8) "Parking space" means the area allocated by a parking facility for the temporary storage of one automobile.

(9) "MBTA" means the Massachusetts Bay Transportation Authority.

(b) *Application.* This section shall be applicable in the Boston Intrastate Region.

(c) *Study.* The Commonwealth of Massachusetts, according to the schedule set forth in paragraph (d) of this section, shall conduct a comprehensive study of, and in that study recommend, the establishment of permanent bikeways and related facilities within the area described in paragraph (b) of this section. The study shall consider or include at least the following elements:

(1) The physical design for bikeways, intersections involving bikeways, and means of bicycle link-ups with other modes of transportation;

(2) The location of bikeways, including means of avoiding or ameliorating high accident or pollution locations as well as means of providing intersection safety generally;

(3) The location of bicycle parking facilities, including bus stops;

(4) The rules of the road for bicyclists, and to the extent that present rules must be modified because of bikeways, new rules of the road for motorists. Also the feasibility of mandatory adult bicycle registration to minimize theft and increase recovery of stolen bicycles;

(5) Bicycle safety education for bicyclists, motorists, students, street maintenance personnel and policemen, including requiring bicycle safety principles and safe street riding skills to be taught in high school automobile drivers education programs;

(6) Methods for publicizing bicycles or bicycles plus mass transit as alternatives to automobile transportation, including the preparation, perhaps in conjunction with bicentennial efforts, of a master Boston area transit map, indicating the kind, extent and location of bicycle facilities, public baths, showers, toilet facilities, water fountains, as well as routes and stops for MBTA, common carriers and private bus lines, such map to be distributed by the Registry of Motor Vehicles with each automobile new registration and automobile registration renewal;

(7) Requiring or providing incentives for common carriers and mass transit carriers, especially the Blue Line of the MBTA, to provide bicycle parking facilities at their respective terminals and stations and bicycle carrying facilities on their respective vehicles.

(8) The creation of roadway zones in which all vehicles, except mass transit, emergency and service vehicles, and bicycles, would be excluded;

(9) Requiring or providing incentives for office buildings and employers to install and to provide free shower and locker facilities for cyclists;

(10) A bicycle user and potential user survey, which shall at a minimum determine:

(i) For present bicycle riders, the origin, destination, frequency, travel time, distance and purpose of bicycle trips;

(ii) In high density employment areas, the present modes of transportation of employees and the potential modes of transportation, including the numbers of employees who would use a bicycle for a significant portion of their commuting transportation were suitable facilities available to them. This section of the study shall seek to ascertain the size of the working population that would move from automobiles to mass transit and bicycles or bicycles alone as a significant form of transportation. It shall also seek to ascertain what bicycle facilities or mix thereof would produce the greatest conversion from auto use;

(iii) High air CO pollution and bicycle accident locations, as well as cases of bicycle accidents;

(11) The special problems related to the design and incorporation in the bikeway network described in paragraph (f) of this section of feeder bikeways to bridges, on-bridge bikeways, feeder bikeways to MBTA and railroad stations, feeder bikeways to fringe parking areas, and bicycle passage through rotaries and squares;

(12) The conversion of railroad beds, power lines, flood control channels or similar corridors to bikepaths;

(13) Removing barriers to employees bringing their bicycles into their offices;

(14) Removal or alteration of drain grates with bars so placed as to catch bicycle wheels;

(15) Bicycle rentals at appropriate locations; and

(16) The interim bicycle facilities and requirements set out in paragraph (f) of this section.

In conducting the study, opportunity shall be given for public comments and suggestions. Input shall also be solicited from state, regional and local planning staffs, state, regional and local agencies, bicycle organizations and other interested groups and be related to comprehensive transportation planning for the area designated in paragraph (b) of this section. The study shall recommend as large a network of facilities as is practicable within the area described in paragraph (b) of this section and shall recommend physical designs for said facilities. The network shall contain at least 180 miles of bikeways.

(d) The Commonwealth of Massachusetts shall submit to the Administrator no later than October 1, 1975, a detailed compliance schedule showing the steps that will be taken to carry out the study required by paragraph (c) of this section. The compliance schedule shall at a minimum include:

(1) Designation of the agency responsible for conducting the study;

(2) A date for initiation of the study, which date shall be no later than October 1, 1975;

(3) A date for completion of the study, and submittal thereof to the Administrator, which date shall be no later than June 30, 1976; and

(4) A schedule for compliance for establishing permanent bicycle facilities required by paragraph (h) of this section.

(e) On or before September 1, 1976, the Administrator shall submit to the Commonwealth of Massachusetts his response to the study required by paragraph (c) of this section, and shall, in that response, either approve the facility location and designs and other requirements as well as the proposed compli-

ance schedule for permanent facilities recommended in the study, or shall designate alternative and/or additional facility locations and designs and other requirements as well as modify the proposed compliance schedule for permanent facilities.

(f) *Interim Bicycle Facilities.* (1) The Commonwealth of Massachusetts and such municipalities and authorities, including but not limited to the Metropolitan District Commission, the MBTA, City of Boston, the City of Somerville, the City of Cambridge, the Town of Brookline, the Massachusetts Turnpike Authority, the Massachusetts Port Authority, the Boston Redevelopment Authority, as are necessary, shall establish, according to the compliance schedule required by paragraph (g) of this section, the following bicycle facilities: (The Commonwealth shall coordinate the implementation of these requirements among the affected jurisdictions.)

(i) A network of bikeways linking residential areas, employment, educational, and commercial centers in accordance with the following requirements:

(A) The network shall be designed to provide means of safe bicycle travel along selected corridors, including but not limited to the following:

(*1*) Central Square, Cambridge to Boston University;

(*2*) Harvard Square, Cambridge to Union Square, Allston;

(*3*) Union Square, Somerville to Central Square, Cambridge;

(*4*) Union Square, Allston to Government Center;

(*5*) Harvard Square, Cambridge to Government Center;

(*6*) Brookline Village to Government Center;

(*7*) Boston University to Longwood Avenue Hospital Zone;

(*8*) Egleston Square to Government Center;

(*9*) Columbus Park to Boston Common;

(*10*) L Street Beach to Government Center;

(*11*) Powder House Circle, Somerville to Harvard Square;

(*12*) Everett to Government Center;

(*13*) Porter Square, Cambridge to Columbus Park, Boston;

(*14*) Cleveland Circle to Government Center;

(*15*) Maverick Square, East Boston to Porter Square, Cambridge to Government Center;

(*16*) Harvard Square, Cambridge to Boston City Hospital; and

(*17*) Charlestown, Longfellow, Harvard, Boston University, River Street, Western Avenue, Anderson, Summer Street and Broadway Bridges.

(B) The network shall be designed to provide as direct, safe and flat continuous bikeways as possible consistent with the following additional criteria:

(*1*) bike paths are preferable to bike routes and bike lanes;

(*2*) bike routes are preferable to bike lanes so long as low motor vehicle volume side streets are used;

(*3*) bike lanes are preferable to bike routes where high motor vehicle volume streets are used;

(*4*) twenty-four hour bike lanes are preferable to peak hour bike lanes.

(C) Each bikeway shall at a minimum:

(*1*) Be clearly marked at reasonable intervals indicating the corridor being serviced;

(*2*) Be clearly marked at each intersection that the bikeway is for exclusive bicycle use or shared use with motor vehicles;

(*3*) Be clear of obstructions and hazards such as drain grates with bars so placed as to catch bicycle wheels;

(*4*) Be of a hard, smooth surface suitable for bicycles at commuting speeds with a minimum of curb ramps, and where ramps are used, such ramps shall be designed to accommodate commuting speeds;

(*5*) Be regularly maintained (including sweeping and snow plowing) and repaired by the agencies charged with such activities for the areas in which the bikeways are located;

(*6*) If a bikelane, have an "effective" width of at least 5.5 feet; if a bikepath, be at least 8 feet wide; "effective" width means minimum running space between lane edge and curb, parked cars, or other obstructions;

(*7*) Be adequately signed and marked for both motorists and cyclists and be adequately illuminated; and

(*8*) Where not specified otherwise in these regulations, bikeway design shall conform to the latest edition of Bikeways—State of the Art—published by the Federal Highway Administration.

(D) Wherever possible, road surfaces which have been cleared of on-street parking shall be used for bike lanes.

(ii) The MBTA shall provide bicycle parking facilities at each major MBTA station adequate to meet the needs of MBTA riders within the area designated in paragraph (b) of this section. Said parking facilities shall at a minimum be located at:

(A) All stations of the Riverside portion of the Green Line;

(B) Reasonably spaced stops on other portions of the Green Line;

(C) All stations of the Red, Orange, and Blue Lines; and shall have spaces for at least six bicycles per station, except for facilities at terminal stations which shall have spaces for at least 24 bicycles.

(iii) Advertisement of interim facilities required by this paragraph (f) to potential users by means of media advertisement, as well as the distribution and posting of bikeway maps, and bike safety information, as well as a program of bicycle safety education including the motor vehicle operators license examination and public service advertisement.

(2) Operators of commuter trains shall provide adequate bicycle parking facilities at major commuter train stations.

(g) *Compliance Schedule for Interim Bicycle Facilities.* (1) Bikeway Network; 50 percent of the mileage completed by September 1, 1976; 100 percent completed by May 31, 1977.

(2) Other requirements completed by May 31, 1977.

(h) *Permanent Bicycle Facilities.* At the conclusion of the study required by paragraph (c) of this section and the Administrator's response thereto, the Commonwealth of Massachusetts shall, together with the other municipalities and authorities having jurisdiction over affected roadways and areas establish permanent bicycle facilities as indicated by the Administrator's response to the study.

14. A new § 52.1163 is added as follows:

§ 52.1163 Development of Additional Control Measures for East Boston.

On or before January 1, 1976, the Governor of the Commonwealth of Massachusetts, the Mayor of the City of Boston and the Massachusetts Port Authority shall each submit to the Regional Administrator a study of various alternative strategies by means of which the level of carbon monoxide in the vicinity of the Callahan and Sumner Tunnels could be reduced to and maintained at a level consistent with the national primary ambient air quality for carbon monoxide. Such studies may be combined into a joint document. Each study shall contain recommendations for control measures to be adopted by the Administrator for implementation prior to May 31, 1977. The alternative strategies should include all or some of the following measures, as necessary:

(a) Increased use of carpools and vanpools for employees commuting through the above tunnels;

(b) Alterations in traffic patterns;

(c) Use of exclusive lanes for buses, carpools and taxi travel during peak hours;

(d) Reduction of parking spaces;

(e) Construction of satellite terminal facilities; and

(f) Such other measures as shall be necessary to achieve the required reductions.

15. A new § 52.1164 is added as follows:

§ 52.1164 Localized High Concentrations—Carbon Monoxide.

(a) Not later than October 1, 1975, the Commonwealth of Massachusetts shall develop and implement a program to identify urban and suburban core/areas and roadway/intersection complexes within the Boston Intrastate Region which now violate the carbon monoxide air quality standards. Once such localized areas have been identified, the Commonwealth, in cooperation with the affected local municipalities shall develop and implement appropriate control strategies to insure that air quality standards will be achieved at such areas. Plans shall be developed to include provisions for the entire municipality in order to insure that the implemented strategies will not create carbon monox-

ide violations elsewhere in the vicinity after the measures have been applied.

(b) To accomplish the requirements of paragraph (a) of this section, the Commonwealth shall do the following:

(1) Identify areas of potentially high carbon monoxide concentrations by reviewing all available traffic data, physical site data and air quality and meteorological data for all major intersections and roadway complexes within the Region. The Administrator will provide general guidance on area designations to assist in the initial identification process.

(2) Areas identified under paragraph (b)(1) of this section shall be studied in further detail, including meteorological modeling, traffic flow monitoring, air quality monitoring and such other measures necessary to accurately quantify the extent and actual levels of carbon monoxide in the area. A report containing the results of these analyses and identifying such areas shall be submitted to the Administrator no later than March 1, 1976.

(3) If, after the completion of actions required by paragraph (b)(2) of this section, an area shows or is predicted to have violations of the carbon monoxide standard, the Commonwealth, in cooperation with the affected municipality, shall submit a plan to the Administrator setting forth a program to regulate traffic and parking so as to reduce carbon monoxide emissions to achieve air quality standards in the area. Such plan shall include: the name of the agency responsible for implementing the plan, all technical data and analyses supporting the conclusions of the plan, all control strategies adopted as part of the plan and other such information relating to the proposed program as may be required by the Administrator. The Administrator shall provide general guidance on applicable control strategies and reporting formats to assist in plan development and submittal. Such a plan shall be submitted for each municipality which contains one or more identified areas no later than October 1, 1975 for Waltham and October 1, 1976 for other areas.

(4) All measures called for in the plan submitted under paragraph (b)(3) of this section shall be subject to the approval of the Administrator and shall be completed by May 31, 1977.

(c) The Commonwealth shall annually review the effectiveness of the control strategies developed pursuant to this section and modify them as necessary to insure that standards will be attained and maintained. The results of this review and any changes in the measures which the Commonwealth recommends as a result thereof shall be reported to the Administrator annually as required under § 52.1160.

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