Comprehensive, Practical Employee Commute Options Guidebook for New York State

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A comprehensive guidebook for practical employee commute options (ECO) was compiled for employers in New York State to provide them the technical expertise to develop an ECO program. This ECO guidebook is a result of literature search, employer survey, and the participation of advisory committee members consisting of people from the agencies that will be enforcing the state regulations that implement the federal Clean Air Act Amendments of 1990 and representatives of several organizations that have experience working with employers on commuter transportation in the New York metropolitan area. This study identified guaranteed ride home programs, parking management, and the commitment of upper management as three essential factors that will make an ECO program succeed. The strength of this ECO guidebook is an extensive discussion of each commute option and support strategy as well as a discussion of the entire process of developing and implementing an ECO program and the background of successful ECO programs. The description of each commute option or support strategy contains such topics as definitions, candidate employees, employee and employer benefits, employer's role, employer and employee costs, detailed implementation steps, successful cases, additional resources and readings, and sample program implementation schedules. A summary of the findings from the literature search and employer survey is presented, the responsibilities of the employee transportation coordinator are discussed, and the guidebook is introduced briefly.

The New York State Department of Transportation (NYSDOT) and the New York State Energy Office (NYSEO) have identified the New York metropolitan area as highly congested. To comply with the federal Clean Air Act Amendments (CAAA) of 1990, the NYSDOT and NYSEO train employers (especially those with 100 or more employees, who are required to participate) to develop employee commute options (ECO) programs. Through the University Transportation Research Center (UTRC) program of the U.S. Department of Transportation, they sponsored the development of an ECO guidebook (*1*). This guidebook is to be distributed to employers who, voluntarily or by requirement, undertake to start commute-reduction programs.

A UTRC project team from the City College of New York and Polytechnic University performed an extensive literature search on trip-reduction programs and surveyed selected employers to obtain their views on such programs. Most of the organizations were from the New York metropolitan area, and a few were from California. They were chosen from those that already have programs encouraging ridesharing and the use of public transit. The team also formed an advisory committee, whose members come from the agencies that will enforce the state regulations implementing the CAAA of 1990, as well as from several organizations that have experience working with employers on commuter transportation in the New York metropolitan area. For example, Transit Center, the agency that promotes the employer transit-subsidy program, and Long Island Transportation Management and Metropool, organizations that provide technical assistance to employers, were on the advisory board. The New York Chamber of Commerce was instrumental in soliciting feedback for the guidebook from several of its business members.

A summary of the efforts in preparing the guidebook is presented. First, a description of the state's requirements for an ECO guidebook is given, followed by the goal and objectives of the guidebook and major findings from the literature and employer survey. Then, the salient points of the guidebook are summarized. The guidebook is comprehensive and practical, prepared in plain English for future employee transportation coordinators (ETCs).

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REQUIREMENTS FOR ECO GUIDEBOOK

Past regulatory efforts to reduce pollution from automobiles, while successful in reducing pollutants per vehicle-mile, have been undermined by the increase in the total vehicle-miles that Americans drive. The CAAA of 1990 addresses the reduction of vehicle-miles through several measures, one of the most controversial of which focuses on commuting in single-occupant vehicles (SOVs). Unlike most regulations, final implementation will be done by large employers (public and private) rather than by governmental agencies specifically responsible for environment, transportation, or planning. Specifically, the regulations establish requirements for employers with 100 or more employees at a work site in a severe nonattainment area for ozone. These employers must show that the ratio of employees reporting during the peak period to the number of vehicles used for the commutes is equal to or greater than the average vehicle occupancy (AVO) targeted for the region where the worksite is located. The target AVO values are 25 percent above the AVO standards, which are computed using the 1980 and 1990 U.S. Bureau of the Census data and a linear projection. If this target is not met at present, the employers must make efforts to change commuting habits through ECO programs so as to achieve that AVO.

The new regulations require that organizations take on much more responsibility for how their employees get to work than they did in the past. These regulations ask most employers to reverse their involvement in commuting transportation. Few organizations are prepared for this role. Often, employers have provided free parking to their employees, which added to the incentives for employees to drive their own cars. The ECO regulations ask employers to reduce the number of commuters driving alone.

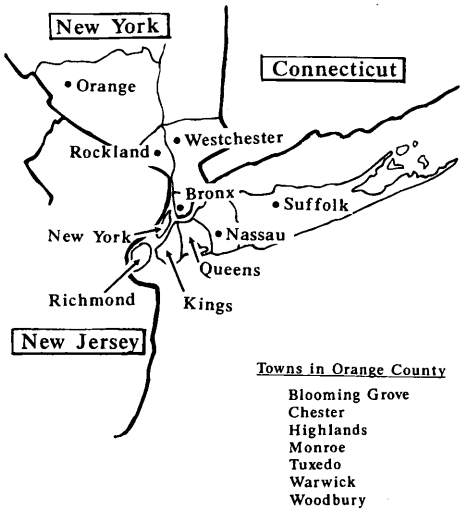

FIGURE 1 Counties and towns in ozone nonattainment areas in downstate New York.

Areas in New York State that are directly affected by the CAAA of 1990 are concentrated in the downstate region. The Environmental Protection Agency designated 9 counties, plus seven townships in a tenth county, in downstate New York as severe nonattainment areas for ozone. Figure 1 shows the locations and names of the affected counties and townships. These areas are grouped into four regions to apply state standards (*2*):

- Region 1: The county of New York (AVO = 7.81);
- Region 2: The counties of Bronx, Queens, Kings, and Richmond (AVO = 2.48);
- Region 3: The counties of Nassau and Suffolk (AVO = 1.46); and
- Region 4: The counties of Westchester and Rockland and, in Orange County, the townships of Blooming Grove, Chester, Highlands, Monroe, Tuxedo, Warwick, and Woodbury; any other contiguous counties or areas that are designated by the EPA as severe nonattainment areas for ozone (AVO = 1.56).

The regulations enacted by New York State to implement the federal CAAA of 1990 require that each county have a local administrative agency to monitor compliance and that each organization that must comply (i.e., that has a work site with 100 or more employees in the severe ozone non-attainment area) must designate one person, the ETC, to be responsible for preparing the compliance documents. Each organization must survey its employees to determine its current average passenger occupancy (APO). The concept of APO is similar to that of AVO. The APO is determined by individual organizations for their work sites, while the AVO is the target value determined for each region by the state, based on the 1980 and 1990 U.S. Bureau of the Census data. If the computed APO is below the target AVO for the area where the work site is located, the organization must prepare an ECO plan to show how they will achieve the target AVO. If their APO is equal to or greater than the target AVO, they must prepare a maintenance plan.

GOAL AND OBJECTIVES OF GUIDEBOOK

The goal of the ECO guidebook was to provide employers in New York State with technical information that is comprehensive and practical. It is written in plain English, in order to be readily understood by nontransportation personnel of an organization and to help them through the development and implementation of an ECO program.

The specific objectives of the guidebook were to accomplish the following:

1. Present the entire process of the program development in order for ETCs to gain an overview of the process;
2. Include sample forms and sample situations for easier comprehension of the concepts discussed in the guidebook;
3. Inform ETCs about potential barriers to developing ECO programs and how to overcome them;
4. Encourage ETCs to take a team approach involving management, union representatives, legal experts, information specialists, and so forth, as well as employees;
5. Include successful ECO programs as examples to illustrate in what circumstances particular commute options were successful;
6. Make the description of each commute option and each support strategy stand alone as much as possible so that sections for commute options and support strategies can be pulled out of the guidebook to circulate among those involved;
7. Include lists of administrative agencies, transportation management associations, and ride-matching organizations in New York to help ETCs access necessary information; and
8. Make the guidebook instructive for employers that are not affected by the NY ECO regulations either because they are not in the nonattainment areas or because they are below the threshold of 100 employees at a worksite.

RESEARCH FINDINGS

The project team drew together information from existing programs and studies, as well as the survey conducted as part of the project. Some of the earlier studies are listed in the reference section of this paper (*3–10*). Particularly useful were ECO programs in California that have already been implemented in response to California State Regulation XV, on which the federal regulations were modeled.

Most of the surveyed employers in the New York Metropolitan area developed ECO programs for other purposes than meeting the CAAA regulations. For instance, Cornell University developed a successful demand-management program with the goal of reducing the demand for parking on its campus so that they would not need to build a new parking garage. Similarly, Texaco in White Plains, New York, started its vanpool program in the 1970s primarily to alleviate some of the commute hardship of their employees who were being transferred to a suburban office. When the transfer took place, employees who did not own cars requested company-sponsored transportation. As a result of the success of the pilot program, vanpools are now operating at many of Texaco's major office facilities.

Certain lessons were learned from the various studies. For instance, the results from the first several years of California's ECO program suggested that ECO programs would not be an effective approach to clean air in California. The program there has had a small, probably insignificant, impact on total vehicle miles and on air pollution. This was partly because only 12 percent of the employers covered by the regulation achieved their target, but more because the vehicle-miles covered by the regulation were only a fraction of total driving in that state. Work trips make up only a quarter of total trips, and only trips to large work sites and only trips

during the peak period were included in the program. The decrease in vehicle-miles attributed to the programs was estimated to be less than 0.5 percent of total miles traveled. This amount was less than the annual growth in vehicle-miles of travel (VMT).

Although these results are discouraging, New York, particularly those counties that are in the nonattainment category, has a strong transit commute tradition that could help ECO programs succeed. Furthermore, over a longer period, there may be greater change in commuter behavior due to decreased availability of fossil fuels. Lessons from the California programs can make the New York programs more effective. For example, the most successful programs tend to combine several options and support strategies. Support strategies include policies that would make commute options more attractive, such as guaranteed ride home, parking management, flexible work hours, and the provision of shower facilities for employees who bicycle or walk to work.

Three support programs were essential to many successful ECO programs: guaranteed ride home, parking management, and upper management's commitment. Without a guaranteed ride home program, many employees will continue to drive their personal cars despite the advantages of alternative commute options because they are afraid of not being able to respond quickly to a personal emergency. This is particularly true of working parents with young children. Once they are assured that they can reach their homes or children quickly, through the use of a taxi, a company car, or other methods, they are much more willing to try other commute methods. A further finding is that most companies that have provided a guaranteed ride home reported that they were not paying a lot for it. Because the program was there for emergencies, it was not frequently used: it was the guarantee that gives the participants essential peace of mind.

A second support strategy that has been very effective is parking management, particularly reduction in free parking. Employers may find it difficult to take away free parking, a benefit that is often taken for granted and occasionally written into union contracts. One successful approach is to pay each employee a commute allowance which is equal to the fee for parking. Thus, an employee who chooses to continue to drive an SOV breaks even monetarily, while one who changes to another mode, transit for example, profits by the amount of the allowance. Parking-fee structures can also be designed to encourage carpooling and vanpooling by charging fees per vehicle that decrease with the number of occupants, or employees who have more than a set number of passengers can be given rebates. Cornell University used this type of parking-fee structure. The university's program was able to reduce the number of single-occupant drivers by about 26 percent within a year (*9*).

A third important factor for many successful ECO programs is the commitment of upper management. Only with strong management support can the ETC effectively enforce the ECO program. Upper management's commitment needs to be communicated to supervisors who directly deal with the commuting employees.

DEFINITIONS OF EMPLOYEE COMMUTE OPTIONS AND SUPPORT STRATEGIES

New York state grouped transportation demand management (TDM) measures described by the CAAA into two groups: employee commute options and support strategies. Commute options could involve modal changes by commuters from an SOV to high-occupancy vehicles (such as public transit, carpooling, and vanpooling) or to commute alternatives that do not involve motorized vehicles (such as bicycles or walking). Commute options could also involve changes in frequency or time of commuting, such as compressed work hours or telecommuting. Support strategies are ones that enhance the attractiveness of selected commute options, as defined in the previous section. By grouping programs into these two categories the relationship between commute options and support strategies was made clear. For instance, if use of public transit was selected as a commute option to reduce SOVs, then fare subsidies, guaranteed ride home programs, and so forth can be selected as support strategies to make transit use more attractive. Figure 2 shows the types of commute options and support strategies included in the New York ECO guidebook.

ROLE OF EMPLOYEE TRANSPORTATION COORDINATOR

The ETC is the key person to pull management, the union, and employees together to make an ECO program work. Having an ETC with the responsibility of carrying out the ECO program is a requirement for the employers covered by the metropolitan New York ECO regulations (*2*), and is recommended for voluntary programs. The ETC will guide the development of the ECO program

FIGURE 2 Table of contents of New York State ECO guidebook.

for the employer or for a specific work site of the organization, implement, market, manage and oversee, and monitor and evaluate the ECO program.

The guidebook provides sample job descriptions of future ETCs. The following are major tasks that ETCs may carry out; their actual duties will depend on commute options and support strategies chosen for their ECO programs.

- Conducting employee commute pattern surveys,
- Monitoring progress,
- Coordinating efforts,
- Providing personalized assistance,
- Cooperating with the local transit operators,
- Promoting the ECO program,
- Attracting new employees to the ECO program,
- Cooperating with the local administrative agency, and
- Keeping abreast of information about ECO programs.

In order to do all these activities, a potential ETC should have high motivation, an ability to work with people at all levels of the organization, creativity and independence in problem solving, commitment to following through and getting the details right, familiarity with marketing and promotion, and excellent interpersonal and communication skills.

PUTTING TOGETHER AN ECO PROGRAM

Figure 3 shows a flowchart of activities involved in putting together an ECO program at a work site. The entire procedure consists of the following activities:

- Establishing a schedule,
- Informing the participants,
- Getting management support,
- Forming a program team,
- Getting union support,
- Conducting a worksite analysis,
- Conducting a commute survey,
- Establishing the trip-reduction targets,
- Selecting commute options and support strategies,
- Preparing a budget,
- Preparing an implementation plan,
- Marketing the ECO program,
- Implementing the ECO program, and
- Monitoring and evaluating the ECO program.

Some of the activities need to be repeated throughout the preparation and implementation stages. For instance, employees, regardless of whether they participate in the ECO program, need to be informed of the progress periodically, and the program needs to be marketed continuously to retain present participants and to attract new participants.

CONDUCTING EMPLOYEE COMMUTE SURVEY

The employee commute survey is the most important source of information on employee travel patterns. If an employer is in an ozone nonattainment area, the local administrative agency will provide the employer with standard survey forms. The guidebook, however, contains sample forms with a sample problem for use by voluntarily-participating employers.

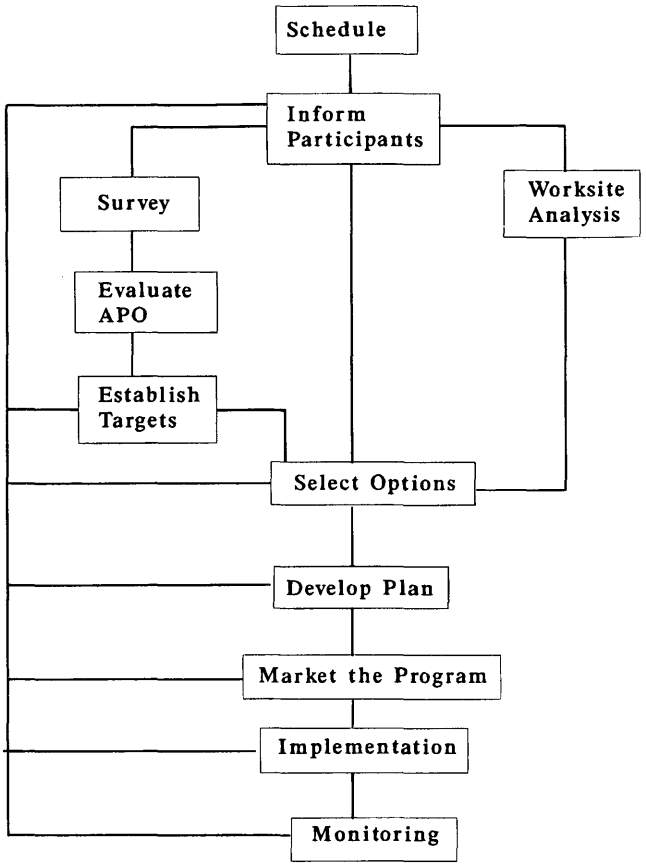

FIGURE 3 Flow chart for putting together ECO program.

Marketing of the employee commute survey was emphasized in the guidebook as necessary to getting an acceptable response rate to the survey. Employees must be told the purpose and importance of the survey. Several tips to boost the response rate were given, including posters, memos (on e-mail, if available), discussions with managers in advance, and incentives. The survey data must be analyzed properly. The NY ECO regulations require affected employers to collect information to determine their work sites' APOs, to compare with the target AVO of the area where the work sites are located and to estimate how many vehicle trips must be reduced to meet the target APO.

The sample employee commute survey has two parts: Part I for the APO survey (Figure 4), and Part II for employee attitude survey (Figure 5). The latter will be extremely important in selecting appropriate commute options and support strategies.

Based on the organization's current APO and the results of the attitude survey, the ETC needs to distribute the number of SOV trips to be reduced to various commute options, once an initial selection of options for the organization's ECO program is made. The ability to estimate the latent demand or attraction of employees to each commute option will be essential for the ETC to achieve the target trip reduction. At the beginning, the ETC needs to make an educated guess as to how many employees will actually be diverted to specific commute options in the ECO program; however, as time goes by, the ETC will learn more about the program's effectiveness and will be able to make better estimates.

The guidebook provides a sample estimation process, which uses the results of the commute survey and an attitude survey previously

PART I. APO Survey

(To be completed by the employer)

Company/Organization Name: _____

Work Location: _____

Commute information for week of: _____

(To be completed by employee)

Name: _____

1. a. Home City/Town: _____ b. Home Zip Code: _____
2. Usual Work Schedule: a) Report: _____ b) Leave _____ c) Hours worked per week: _____
3. What is the total length of your trip to work? a. Number of miles: _____ b. Number of minutes: _____
4. Please answer the following questions using the table below.
   A. Using the "Commute options" codes listed below, choose the one letter that best describes how you traveled to this work location each day last week. If you did not report to this work location on a given day, please choose one of the letters under "Reasons for not reporting". **If you used more than one mode of transportation, choose the letter that represents how you traveled for the last mode of the one-way commute trip (excluding walking as the last mode).**
   B. Write in the approximate time you reported to work each day last week.

Example		Report Time
Monday	C	9 AM

		Report Time
Monday	☐	
Tuesday	☐	
Wednesday	☐	
Thursday	☐	
Friday	☐	

COMMUTE OPTIONS

A Drive Alone
B Drive Alone due to Disability
C Public Transit (Subway, Bus, Ferry, Commuter Rail)
D 2 Employee Vehiclepool
E 3 Employee Vehiclepool
F 4 Employee Vehiclepool
G 5 Employee Vehiclepool
H 6 Employee Vehiclepool
I 7+ Employee Vehiclepool
J Taxi/Car Service*
K Motorcycle/Moped
L Walk Only
M Bicycle
N Alternative Fuel Vehicle
O Dual Fuel Vehicle
P Other:.....

REASONS FOR NOT REPORTING

Q Telecommute Day (Work at Home)
R Reported to Another Location/Business Trip
S Compressed Work Week Day off.
T Day Off (vacation, sick day, jury duty etc.)

* Use only if single passenger, if other adult passengers to the worksite shared the ride, count as vehiclepool.

FIGURE 4 Sample APO survey form.

completed. Figures 6, 7, and 8 show how this estimation may be done. In this example, the total number of affected employees was 250, with a response rate of 76 percent. Since the rate was less than 80 percent, it was necessary to compute the number of incomplete surveys and nonrespondents, which was found to be 57, as shown in Figure 6. Then, the number of weekly employee trips per category was converted to its vehicle equivalent using the criteria of the NY ECO regulations. There was a total of 900 employee trips, and its vehicle equivalent was 667.9 (Figure 7). Using the results from these forms, the current worksite APO was computed as 1.244 (Figure 8).

Next, it was necessary to estimate the number of vehicle trips to be reduced. The target APO for this example was 1.56. The maxi-

mum weekly vehicle equivalents was computed by dividing the number of affected employee trips by the target APO (1,185/1.56; see Figure 8). The estimated number of weekly vehicle trips to be reduced to meet target APO is computed by subtracting the maximum weekly vehicle equivalents allowed from the current total number of vehicle equivalents used in the worksite APO calculation. The value is 193 (that is, 953 − 760; see Figure 8) indicating the number of vehicle trips that must be reduced by a combination of commute options.

CHOOSING COMMUTE OPTIONS LOGICALLY

The key to a successful ECO program (that is, one that achieves the organization's targets with minimal cost and disruption) is providing a package of employee commute options that employees will want to use. This requires choosing options that are right for the organization and reinforcing them with appropriate support strategies. Thus, the selection of commute options requires a good understanding of work site characteristics, organizational culture, and employee preferences. Employee preferences for commute options are generally influenced by commuting time, commuting cost, and convenience. Which commute options can compete with the SOV on these three attributes will be affected by work site characteristics and support strategies.

A chapter of the guidebook discusses the steps of selecting commute options and support strategies. The ETC is guided by questions reflecting the items discussed above. The guidebook contains the results of a study (*4*) of the effectiveness of various ECO programs in giving the ETC a sense of direction in choosing programs

PART II. Employee Attitude Survey

5. In order to design an employee commute program that will meet your needs and interests, we need to know your opinion of each commute option listed below. DO NOT LEAVE BLANK. This is not a commitment to use any option. Note: For options A-E, state your opinion of using that mode one or more days per week, not necessarily all five.
   Answer this question even if you already use one of the commute options listed below.

	Very Appealing	Somewhat Appealing	Not at all Appealing
A. Train	☐	☐	☐
B. Bus	☐	☐	☐
C. Bike or Walk	☐	☐	☐
D. Vehiclepool (with 1 - 6 employees)	☐	☐	☐
E. Vehiclepool (with 7 or more employees)	☐	☐	☐
F. Compressed Work Week (work more hours per day, fewer days per week)	☐	☐	☐
G. Telecommuting (work at home)	☐	☐	☐

6. If you were to use any of the methods of commuting listed above, what concerns would you have? *Choose no more than* four *that are most important to you.*

☐ A. Longer commuting time	☐ E. Not having car with me	☐ J. Getting to work from station
☐ B. Need car for business appointments	☐ F. Getting home in an emergency	☐ K. Dropping off & picking up my child/dependent at day care
☐ C. More dependent on others	☐ G. Cost	☐ L. Other (describe)
☐ D. Overcrowded buses or trains	☐ H. Parking at train station.	_____
	☐ I. Personal safety at train station/park & ride lots	_____

FIGURE 5 Sample employee attitude survey.

(*continued on next page*)

7. If you now drive alone to work, would you consider changing to ridesharing, public transit, or other commuting alternative if any of the following services or incentives were available (CHECK ALL THAT APPLY)

	Yes	No	Maybe
A. Discount transit passes	☐	☐	☐
B. Cash subsidies for employees who do not drive alone	☐	☐	☐
C. Monthly travel allowances to be used for any commute mode	☐	☐	☐
D. Shuttle bus to transit station or park & ride lot	☐	☐	☐
E. Company cars or vans available for rideshare	☐	☐	☐
F. Preferential or reserved parking for ridesharing	☐	☐	☐
G. Guaranteed ride home in emergencies for ridesharers	☐	☐	☐
H. Help finding someone with whom to vehiclepool	☐	☐	☐
I. Information on transit routes and schedule	☐	☐	☐
J. Other (specify)	☐	☐	☐
K. Nothing. Would not consider alternatives to driving alone.	☐	☐	☐

8. Other issues/comments/ideas you have concerning NOT driving to work: _____

FIGURE 5 *(continued)*

appropriate for the organization, and in allowing the ETC to make an informed initial selection of site-specific commute options and support strategies.

The specific selection questions listed in the guidebook can be found in Figure 9. The list of questions is by no means an exhaustive one; its purpose is to guide the ETC in the right direction. Each question is followed by a detailed discussion related to that particular question. The selection procedure consists of the following six steps:

1. Analyze the characteristics of the work site.
2. Analyze the employees' preferences. The primary source of information will be the employee commute survey. Obviously, commute options that many employees have indicated as appealing should be high on the list to be considered.
3. Analyze the culture of the organization and how it affects the fit between commute options and the organization. If there is an ECO project team, the ETC can ask for its input. Also, a focus group of employees from different parts of the organization can be formed to assess preferences.
4. Make an initial selection for further consideration.
5. Select support strategies.
6. Refine the selected commute options and support strategies and combine them into an ECO program package.

DISCUSSIONS OF EACH EMPLOYEE COMMUTE OPTION

The most important part of the NY ECO guidebook is the chapter on commute options; its detailed discussion of individual employee commute options will give the ETC the whole picture of particular commute options that may be appropriate for the work site. Figure 2 lists the types of ECO discussed in the guidebook. A separate section is devoted to each commute option, containing in general the following topics: description or definition, candidates, employer benefits, employee benefits, employer's role, employer cost, employee cost, implementation steps, successful cases, additional resources, and sample program-implementation schedule.

These are essential pieces of information for the ETC to make an educated decision in the options-selection process. The candidates subsection helps the ETC to quickly group potential ECO participants into particular types of commute options. The subsection on employer and employee benefits provides types of benefits that they can expect from the program. The subsection on the employer's role indicates the level of effort required to make the option a success; it stresses the importance of management support for a successful program. Both employers and employees are cost conscious, and unless their choice is cost-effective, they will not be attracted to the program. The ETC can learn from this subsection the types of costs that will be incurred to operate a particular commute option.

The heart of each commute option subsection is the detailed list of steps needed to set up that particular option. Essential steps in implementing the commute option are discussed in order in plain English. The subsection on successful cases briefly presents one or two successful programs along with their backgrounds for the ETC to learn from them as well as to be encouraged by their successes. The subsection on additional resources gives titles of a few reports recommended for further information about the option. Finally, the sample program-implementation schedule subsection gives the ETC a time frame for implementing the option.

Sample Response Rate Calculation Worksheet

RESPONSE RATE:

A1	Total Number of affected* employees	A1	250
A2	Number of affected employees absent during the *entire* survey week	A2	13
A3	Number of affected employees to survey (target population): Subtract A2 from A1	A3 = A1 - A2	237
A4	Number of complete surveys returned by target survey population	A4	180
A5	**Response Rate:** Divide A4 by A3	**A5= (A4/A3)x100**	76%
A6	(Complete only if response rate is less than 80%) Number of incomplete surveys and non-respondents: Subtract A4 from A3	A6 = A3 - A4	57

* *affected employees are those employees that report to the worksite between 6:00 and 10:00 AM, Monday through Friday.*

FIGURE 6 Sample response rate calculation worksheet.

DISCUSSIONS OF EACH SUPPORT STRATEGY

Another chapter has similar detailed discussions of individual support strategies. Figure 2 lists the types of support strategies included in the guidebook. The subsections for support strategies follow a structure similar to the commute-options subsections: description, when it works, employer benefits, employee benefits, employer's role, employer cost, employee cost, implementation steps, sample (or successful) cases, additional resources, and sample program-implementation schedule when available.

The description subsection provides in detail kinds of approaches available for a particular type of support strategy. For instance, three approaches to parking management are discussed: charging for parking, creating preferential parking, and reducing parking supply. Some parking-management strategies are more applicable to certain work sites than others. Therefore, in the subsection on when it works, the appropriateness of various parking-management strategies to the employer's work site is addressed. The subsections on employer and employee benefits and costs present types of costs that may be incurred by the program. The role of an employer is crucial in parking management, because the employer can influence whether or not to provide free parking, and how much the employee has to pay. The subsection on implementation steps contains steps for successful implementation of parking management. This writing style avoids rhetorical arguments on the good and bad aspects of parking management.

IMPORTANCE OF MONITORING AND EVALUATION

Monitoring will tell the ETC whether the ECO program has achieved the organization's goal or not, and how the program can be improved. Monitoring also enables the ETC to maintain participation after initial enthusiasm has worn off and employees are returning to old habits. The four most common parameters used for monitoring the ECO program are APO, participation rates, employees' attitudes and concerns, and program costs. Evaluation means the interpretation of the records to determine what works and what does not work, identify where problems exist, and figure out how to improve the program. Monitoring and evaluation are essential to achieve the following goals:

- To prove the employer's compliance with the NY ECO regulations;
- To understand better the factors that impede or encourage the use of alternative employee commute options;
- To determine how to increase employee participation and APO;
- To increase the cost-effectiveness of the ECO program;
- To make effective progress reports to management, employees and other interested parties; and
- Ensure that only eligible employees receive participation incentives.

Sample Employee Trips and Vehicle Equivalents Calculation Worksheet

1) From the APO survey, count the total number of responses for each of the categories listed below and place the result in column 1.
2) Calculate the vehicle equivalents by following the directions in column 2, and place the result in column 3.
3) Sum column 1 to find the total employee trips and place the result in Box R1.
4) Sum column 3 to find the total vehicle equivalents and place the result in Box R2.

	Column 1 Number of weekly employee trips per category	Column 2 Conversion to vehicle equivalents	Column 3 Vehicle equivalent
Commute Options			
A Drive Alone	604	Divide by 1	604
B Drive Alone due to Disability	5	Multiply by zero	0
C Public Transit	60	Multiply by zero	0
D 2 Employee Vehiclepool	20	Divide by 2	10
E 3 Employee Vehiclepool	45	Divide by 3	15
F 4 Employee Vehiclepool	12	Divide by 4	3
G 5 Employee Vehiclepool	20	Divide by 5	4
H 6 Employee Vehiclepool	24	Divide by 10	2.5
I 7+ Employee Vehiclepool	28	Multiply by zero	0
J Taxi/Car Service	12	Divide by 1	12
K Motorcycle/Moped	15	Divide by 1	15
L Walk Only	20	Multiply by zero	0
M Bicycle	15	Multiply by zero	0
N Alternative Fuel Vehicle	-	Multiply by zero	0
O Dual Fuel Vehicle	5	Divide by 2	2.5
P Other:	-		-
Not Reporting To Work			
Q Telecommute Day (Work at Home)	5	Multiply by zero	0
R Reported to Another Location/Business Trip	-	Multiply by zero	0
S Compressed Work Week, Day Off.	10	Multiply by zero	0
R1 Total Employee Trips (sum row A through S)	900	**R2 Total Vehicle Equivalents**	667.9

FIGURE 7 Sample employee trips and vehicle equivalents calculation worksheet.

Sample APO Calculation Worksheet

APO Calculation:

Number of affected employees to be used in the worksite APO calculation

B1	Number of employee trips to the worksite (transfer value R1 here)	B1 = R1	900
B2	If the response rate was less than 80%, multiply the number of non-respondents, value A6, by 5 (days)	B2 = A6 x 5	285
B3	Number of affected employee trips to be used for the APO calculation:	B3 = B1 + B2	1,185

Number of vehicle equivalents to be used in the worksite APO calculation

B4	Total number of vehicle equivalents to the worksite (transfer value R2 here)	B4 = R2	667.9
B5	If the response rate was less than 80%, multiply the number of non-respondents, value A6, by 5 (days)	B5= A6 x 5	285
B6	Total number of vehicle equivalents to be used for the APO calculation:	B6 = B4 + B5	952.9
B7	**CURRENT WORKSITE APO** (divide B3 by B6)	**B7 = B3 / B6**	1.244
B8	Your target APO is (see regulations)	B8	1.56
B9	Maximum weekly vehicle equivalents allowed if target is to be achieved (divide B3 by B8)	B9= B3 / B8	760
B10	Number of weekly vehicle trips to be reduced to meet target APO	B10= B6 - B9	193

FIGURE 8 Sample APO calculation worksheet.

Monitoring and evaluation enable the ETC to answer in timely manner questions that may be posed by management, the union, and employees. The following are potential questions:

- What is happening to the worksite's APO?
- How much did the ECO program cost last year?
- How much did each employee commute option cost?
- How much did the support strategies and incentive programs cost?
- How are program costs related to changes in employee participation?
- Which support strategies or incentives and disincentives had the greatest impact on employees' decisions to use alternative modes?
- Did the number of participants increase after special marketing or promotional events? How much did these events cost last year?
- How successful have the selected commute options been in achieving the goals and objectives of the program?

Effective monitoring and evaluation are absolutely essential for the ETC to continue the ECO program and achieve the goals that were set forth in the beginning of the program.

SUMMARY

There have been several outstanding TDM or ECO guidebooks. The NY ECO guidebook builds on previously published ECO guidebooks and the results of many related studies. The NY ECO guidebook is the product of a literature search, an employer survey and the cooperation of the advisory committee.

A. Questions for Selecting Commute Options

Worksite Environment:

* Is your worksite adequately served by transit?
* Is your worksite located in a low density area?
* Do many of your employees live nearby and is your worksite in an area with good sidewalks?

Organization Characteristics:

* Does your organization have a motor pool?
* Is your organization having difficulty finding workers with some specific skill in the vicinity of the worksite?
* Does your organization operate extended hours or around the clock?

Employee Characteristics:

* Do many of the employees work on computers or spend a significant amount of time telephoning?
* Do one or several of your employees currently bicycle to work?

B. Questions for Selecting Support Strategies

* Is your worksite located in an industrial or office park or in an area with several other similar organizations?
* Does your organization provide free (or inexpensive) and convenient parking?

FIGURE 9 Questions asked in commute options and support strategies selection process.

This ECO guidebook can help employers educate new ETCs who are not familiar with transportation programs. This guidebook is comprehensive, definitive, and written in plain English. It describes the activities that the ETCs must carry out to develop and implement an ECO program.

Three support strategies were found to be especially important for making ECO programs work and last. They are the guaranteed ride home, parking management, and the commitment of upper management. Many successful programs had a combination of commute options and support strategies to meet the needs of participating employees. Guaranteed ride home programs are reported to be very low in cost because of the nature of such programs, that is, back-up transportation for emergencies.

Some specific references made in the Guidebook naturally pertain only to New York state; however, the majority of the discussions found in the guidebook are applicable to programs in other states and should be instructive to all employers interested in reducing the number of SOV commuters.

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