

## 3.0

# Measurement and Evaluation Guidelines

## 3.1 Preamble

This chapter contains the methodology for all measurement and evaluation processes necessary to be consistent with the CTR law. Affected local jurisdictions are strongly encouraged to follow the guidelines in this chapter when administering their CTR ordinances.

These guidelines were first written in 1992 and have been revised to reflect policy changes and to eliminate sections that applied only during the initial years of the CTR program. Revisions adopted in 1994 spell out requirements for data on employee commuting submitted by employers to be equivalent to data collected using the CTR employee questionnaire. (*CTR Task Force Policy Statement: Equivalent CTR Data for Measurement and Evaluation adopted October 7, 1994*)

Changes made in 1996 enabled employers to select between surveying all employees or only affected employees. (*Guide for Employee Surveys Update, November 1996*) The evaluation workplan also was updated by the Task Force in 1996.

Changes made in 1997 define the level of credit available to employers, and under what circumstances employers may receive credit, for shifting their employees outside of the commute window. (*CTR Task Force Policy Statement: Credit for Schedule Changes Which Move Some or All Employees Outside of the Commute Window adopted June 25, 1997*)

## 3.2 Purpose

The purpose of the measurement and evaluation guidelines is to establish the methods by which base year values of VMT per employee and proportion of SOV trips and the subsequent goals will be established; the methods by which employers will receive credit for the results of TDM efforts; the methods for determining progress toward achieving reductions in VMT per employee and proportion of SOV trips; and the framework for evaluating the costs and benefits of the CTR law.

A basic concept in the law is the CTR zone. It recognizes that employers located in different areas may have different opportunities for affecting the commute behavior of their employees because of such factors as transit service, employment, and population density. To require all employers to strive for the same goals without recognizing those differences would clearly be unfair. The CTR zone identifies areas that are similar in their opportunities for alternatives to the SOV. Affected employers within each zone are required to work toward goals for reductions in VMT per employee and proportion of SOV trips based on VMT and SOV rates in that zone.

This chapter is structured as follows: designation of CTR zones; determination of preliminary base year values of VMT per employee and proportion of SOV trips for those zones; a procedure to ensure that employers with successful TDM efforts receive credit for the results of those efforts; determination of the goals for VMT per employee and proportion of SOV trips for each CTR zone;

methods by which employee commuting (VMT per employee and proportion of SOV trips) will be assessed and compared against the goals; survey guidelines; and evaluation of the CTR law.

### **3.3 Designation of CTR Zones**

#### **3.3.1 Organizations That May Designate CTR Zones**

Preliminary designation of CTR zones shall be undertaken by RTPOs, as established in RCW 47.80.020, in areas subject to the requirements of the CTR law. RTPOs may assign, when appropriate, another organization which is representative of the affected cities and counties to complete the CTR zone designation. The CTR zone designation process shall involve affected employers.

A city or county may modify the initially designated CTR zone boundaries during the ordinance adoption process if it finds that failure to do so would result in treating affected employers inconsistently. In modifying the CTR zone boundaries, the city or county should first consult with the RTPO and affected employers on the merits of the proposed changes as they relate to the intent that there be consistent treatment of employers across jurisdictional boundaries.

*In order to ensure consistent treatment of affected employers from jurisdiction to jurisdiction, the RTPOs or their designees are the logical choice to initially designate the CTR zone boundaries. These organizations also have access to the VMT per employee and SOV information necessary to identify the CTR zones. The Task Force recognizes, however, that the authority and responsibility for adoption of the CTR zones rests with the local jurisdictions and that the local jurisdictions may have knowledge of local conditions that might alter the designation of a CTR zone. Provision is made for modification of the designation of the CTR zone boundaries recommended by the RTPO.*

#### **3.3.2 CTR Zones Based on TAZs**

CTR zones shall be based on combinations of TAZs used in transportation planning that have similar values for VMT per employee and SOV rate. These modeled values for VMT per employee and SOV are adequate indicators of other characteristics such as "employment density, population density, level of transit service, parking availability, and access to high occupancy vehicle facilities..." RCW 70.94.524[3] Determination of similarity for VMT per employee and SOV estimates shall be made by the RTPOs or their designees. RTPOs and their designees may take additional information into account in drawing zone boundaries.

*The Task Force has determined that modeled values for VMT per employee and the SOV rate are adequate indicators of the characteristics specified in the CTR law such as "employment density, population density, level of transit service, parking availability, [and] access to high occupancy vehicle facilities."*

#### **3.3.3 Number of CTR Zones in a Jurisdiction**

CTR zones shall not cross county lines but may cross other local jurisdictional boundaries. Cities may be divided into more than one CTR zone where appropriate. Each zone shall contain enough worksites to ensure that no one employer has a large effect on the VMT and SOV values for the zone.

County and local jurisdiction CTR plans shall provide a description of the boundaries of CTR zones in the county or jurisdiction.

Example 1:

The boundaries of the CTR zones for *(city/county)* are defined as follows:

CTR Zone 1 -- Northeast of Interstate 82/Highway 12  
CTR Zone 2 -- Southwest of Interstate 82/Highway 12  
CTR Zone 3 -- West of Highway 97

Counties and other jurisdictions also may want to include a map in the county CTR plan and/or local CTR ordinances clearly marking the CTR zones.

### **3.3.4 CTR Zones' Relationship to Federal Non-Attainment Areas**

CTR zones should be compatible with federally designated non-attainment areas for carbon monoxide and ozone.

### **3.3.5 GMA Considerations**

RTPOs or their designees are encouraged to coordinate their efforts to the extent possible with staff performing similar functions as part of the GMA. *RCW 70.94.527[6]*

## **3.4 Determination of Preliminary Base Year Values of VMT per Employee and Proportion of SOV Trips**

### **3.4.1 Origin of Information Used for Base Year Values**

Base year zone values for VMT per employee and proportion of SOV trips shall be determined either by surveying affected worksites with the state supplied survey form or by using existing transportation modeling data.

*Using surveys of affected worksites to determine zone baseline values for VMT per employee and proportion of SOV trips gives a baseline founded on the same methodology that will be*

*used to measure progress toward goals in future years. In areas where many affected employers have existing TDM efforts, a county may wish to consider using existing transportation model estimates of average VMT per employee and proportion of SOV trips for all worksites in a zone. This would minimize the potential for existing TDM efforts to affect the base year values. However, in most cases, average VMT per employee at affected worksites has been higher than the modeled values for all worksites. A county should compare existing SOV and VMT estimates against results of worksite surveys before using existing estimates for baseline values.*

### **3.4.2 Base Year Values Consistent within Counties**

Determination of base year values shall be consistent within counties and within RTPO areas. All jurisdictions within a county and all counties within a single RTPO shall use the same methodology.

*It is essential that all jurisdictions in a county or an RTPO (Puget Sound Regional Council is the only multi-county RTPO) use the same method to determine base year values, in order to ensure consistent treatment of affected employers.*

### **3.4.3. Dominant Employers**

A jurisdiction may adjust the base year values if any employer that implemented a TDM program prior to 1992 dominates the zone and significantly skews the proportion of SOV trips and VMT per employee.

## **3.5 Goals for VMT per Employee and Proportion of SOV Trips**

The goals for 1995, 1997, 1999, and 2005 for reducing VMT per employee (as of January 1 of each year) are specified in RCW 70.94.527 [4][g] to be 15, 20, 25, and 35 percent, respectively, from the base year values for a worksite or for the CTR zone where the worksite is located. The 1995 goal is 85 percent of the base year value, the 1997 goal is 80 percent of the base year value, the 1999 goal is 75 percent of the base year value, and the 2005 goal is 65 percent of the base year value.

The goals for 1995, 1997, 1999, and 2005 for reducing the proportion of SOV trips (as of January 1 of each year) are 15, 20, 25, and 35 percent, respectively, from the base year values for a worksite or for the CTR zone where it is located. *RCW 70.94.527[4][a] requires local governments to adopt specific goals for reductions in the proportion of SOV trips. The Task Force determined that these goals should be the same percentage reductions as required for VMT per employee.*

Example 2:

Given a CTR zone (CTR Zone 1) or worksite with a base year value of 20 VMT per employee and a proportion of SOV trips of 0.90, the goals would be as follows:

<u>CTR Zone 1</u>	<u>VMT per Employee</u>	<u>Proportion of SOV Trips</u>
1992 (base year)	20	.900
1995 (15% reduction)	17	.765
1997 (20% reduction)	16	.720
1999 (25% reduction)	15	.675
2005 (35% reduction)	13	.585

These calculations shall be done for each CTR zone designated within a jurisdiction.

### 3.6 Credit for TDM Efforts

#### 3.6.1 Background and Purpose

Employers with successful TDM programs implemented prior to the base year are entitled to credit for their efforts. *RCW 70.94.537[f]*

The overall scheme of establishing goals for VMT per employee and proportion of SOV trips in relation to the base year values for all employers in a CTR zone inherently gives credit to employers that have already implemented effective TDM programs. Since most employers have not implemented TDM efforts, it is expected that those who have will be able to demonstrate lower VMT per employee and proportion of SOV trips than average for the CTR zone.

In addition, the recommendation that the CTR zones be configured to include as many affected employers as possible reduces the likelihood that any single employer would significantly affect the overall zone averages. Analysis indicates that a very large employer that has had an effective TDM program prior to 1992 usually does not have a large impact on the overall zone average SOV rate and VMT per employee. However, a jurisdiction may adjust the base year values if any employer with previous TDM programs dominates the zone and significantly skews those values.

As public recognition for their efforts, employers with VMT per employee and proportion of SOV trips lower than the zone average will receive a CTR Certificate of Leadership from the local jurisdiction.

In addition to inherent credit and leadership certificates, employers that can demonstrate lower VMT per employee and proportion of SOV trips than the CTR zone goals may apply for program exemption credit.

#### 3.6.2 Credit For Programs Implemented Prior to the Base

## Year

Employers with successful TDM programs implemented prior to the base year may be eligible to apply for program exemption credit, which exempts them from most program requirements. When these employers apply for the program exemption credit within 90 days of CTR ordinance adoption, they shall be considered to have met the first CTR reduction goal (15 percent) if their VMT per employee rate and proportion of SOV trips are equivalent to a 12 percent or greater reduction from the final base year zone values. This three percentage point credit applies only to the 15 percent reduction goals.

### Example 3:

Given a CTR zone with a base year value of 20 VMT per employee and a proportion of SOV trips of 0.90, the goals for employers that had TDM programs prior to the base year would be adjusted as follows:

	<u>VMT per Employee</u>	<u>Proportion of SOV Trips</u>
1992 base year value	20.0	.900
1995 zone goal (15% reduction)	17.0	.765
1997 goal with credit (20% reduction)	17.6	.792

In the above example, an employer with a TDM program prior to 1992 could receive a program exemption credit if its VMT per employee is 17.6 or lower and its SOV rate is 0.792 or lower. The employer must also commit to continue its current TDM program.

### **3.6.3 Process To Apply for Program Exemption Credit**

Affected employers may apply for program exemption credit for the results of past or current TDM efforts. Affected employers can apply for program exemption credit within 90 days of adoption of the applicable CTR ordinance or as part of any annual report to their local jurisdiction or designee. The application shall include results from a survey of employees or equivalent information that establishes the applicant's VMT per employee and proportion of SOV trips. The survey or equivalent information shall conform to all applicable standards established elsewhere in this chapter.

Employers that apply for credit and that have VMT per employee and proportion of SOV trips equal to or less than goals for one or more future goal years, and commit in writing to continue their current level of effort, shall be exempt from the requirements of the ordinance except for the requirements to report performance in 1995, 1997, 1999, 2001, 2003, and 2005. *RCW 70.94.531[2][c]* If any of these reports indicate the employer does not satisfy

the next applicable goal, the employer shall immediately become subject to all requirements of the CTR ordinance.

## **3.7 Determination of Proportion of SOV Trips and VMT per Employee**

### **3.7.1 Basic Methodology**

The proportion of SOV trips and VMT per employee for each affected employer will be determined using data from a survey of employees about their commute mode choice as described in this chapter. If an affected employer has equivalent information that has been collected within 12 months of the measurement period, such information may be submitted by the employer in lieu of survey data. Criteria for establishing the equivalency of the employer information are described in this chapter.

### **3.7.2 Calculation Assumptions**

The following assumptions will be used in counting commute vehicle trips:

- Each SOV trip counts as one trip (includes one-person motorcycle and drive-on ferry trips).
- Carpool trips count as the inverse of the number of occupants in the vehicle:
  - Two-person carpool counts as 1/2 trip
  - Three-person carpool counts as 1/3 trip
  - Four-person carpool counts as 1/4 trip
  - Five-person carpool counts as 1/5 trip
  - Six-person carpool counts as 1/6 trip.
- Vanpools of seven or more occupants and transit (bus and bike-on ferry or walk-on ferry) count as zero vehicle trips.
- Teleworking, days off due to alternative work schedules (excluding flex-time), bicycling, and walking count as zero vehicle trips plus a 20 percent credit: each commute trip eliminated or via a non-motorized mode is counted as 1.2 trips eliminated. This assumption applies to both proportion of SOV trips and VMT per employee.
- Employers that modify work schedules so that employees who previously arrived at work between 6:00 and 9:00 a.m., but who now arrive before or after this period, shall receive a 20 percent credit for each trip shifted outside the 6:00 to 9:00 a.m. commute window. To receive this credit, an employer must report such schedule changes and the number of employees whose schedules were changed to its local jurisdiction in its annual program report.

For calculation purposes, VMT per employee is assumed to be the average trip length multiplied by the number of vehicle trips per employee (based on the above assumptions). As SOV trips are eliminated, fewer vehicle miles will be traveled.

In the local government review of employer programs, there are two acceptable methods for calculating VMT per employee. First, an affected employer may choose to use its own average measured survey data to determine VMT for its worksite. Alternatively, VMT per employee can be calculated using the baseline average commute trip length in the affected employer's CTR zone multiplied by the number of vehicle trips per employee for that employer. Using this method, reductions in the number of vehicle trips per employee are used as a surrogate for reductions in VMT per employee. Independent verification may be conducted by the local jurisdiction using ZIP Codes or other data.

For evaluation and calibration purposes, actual VMT per employee shall be calculated using commute trip length data from the employee survey for all employers.

## **3.8 Survey Guidelines**

### **3.8.1 Background and Purpose**

The Legislature, local governments, program managers, and affected employers desire consistent, accurate, timely, and valid information about the CTR law for use in decision-making, resource allocation, program development, evaluation, and other purposes.

The basic success indicators of the CTR law are reduced VMT per employee and SOV rates. Because employee surveys of commuting patterns will be a primary source of data regarding program performance, the Task Force has established these guidelines for the use of surveys in the CTR program.

In all phases of survey administration, the TAT shall provide assistance to local jurisdictions and affected employers, when it is appropriate and feasible.

### **3.8.2 Uses of the Survey**

Several possible uses of surveys are identified below. When surveys are required, affected employers shall provide to their local jurisdiction either survey data using the official state-provided survey form (see Appendix E) and in the reporting format established by the Task Force; or an alternative report that provides information equivalent to the official survey as described below.

When surveys are voluntary, the Task Force strongly urges affected employers to use the official state-provided survey forms. This way the employer does not pay for the design or printing of survey forms, and the state will provide centralized processing (data entry and analysis). Furthermore, the surveys provide consistent data, ensuring that the employer's information is acceptable over the entire duration of the CTR law for any reason listed below.

- To establish a baseline measure of employee commuting habits for use by employers in designing their CTR programs (*voluntary*).

- To evaluate the costs and benefits to employers and the public of the CTR law and to assess the effectiveness of the program (*voluntary*).
- To establish worksite and CTR zone base year values (*required, except in counties that elect to use existing SOV and VMT estimates for base year values*).
- To give credit for TDM programs existing prior to the base year (*voluntary*).
- To measure progress toward goals in 1995, 1997, 1999, 2001, 2003, and 2005 (*required*).
- To establish site-specific base year values for employers that request modifications of program requirements (*voluntary*).

### **3.8.3 Alternative Data on Employee Commute Patterns**

Local jurisdictions and the state should make every effort to minimize the cost and burden of surveys on employers. Therefore, employers may use an alternative report that provides information equivalent to the official survey. The information must have been collected within the 12 months before the time a survey would have been conducted. The employer must demonstrate to the local jurisdiction that the information is equivalent, based on the following criteria:

1. Employees are verified as regular, full-time employees who begin their regular work day between 6:00 and 9:00 a.m. (inclusive), two or more weekdays, for 12 continuous months;
2. Teleworking and alternative work schedules, such as compressed work weeks, are documented and categorized by type and frequency;
3. Commute mode choice is identified for the dominant mode for each trip; and
4. If employees use carpools or vanpools, the number of people in these vehicles is provided.

Alternative data may be used by employers according to the following specifications:

#### **3.8.3.1 Equivalent Information**

- Equivalent information stands alone as a substitute for the state-provided survey. Data to be considered equivalent and useful for measurement of SOV and VMT reductions must

provide information on the actual commute usage for employees during the measurement week. This information, in turn, must be linked to employee status and work schedules. These data characteristics are critical and necessary for calculating the worksite SOV and VMT and for identifying what program elements are successful at the work site. When alternative information is provided, the affected employer shall provide the raw data file upon which the information is based to the local jurisdiction, with all employee identifiers removed, in a format specified by the TAT.

In examining the effectiveness of the CTR program, the evaluation will analyze the impact transportation incentives have on employees' choice of commute modes. For example, if an employee is given a transit subsidy, how frequently will he or she use transit? Answering this type of question requires actual data on daily mode usage during the week. Without accurate information on actual commute mode usage, the impact of the worksite CTR program will be impossible to determine. Besides actual mode use, the following information must be collected for each commute mode:

- Carpoolers  
Daily commute trip mode(s) for the week  
How many people age 16 or older are typically in the carpool  
Confirmation that carpooling was the dominant commute mode (50 percent or greater of the commute distance)  
Estimated or actual one-way commute distance
  
- Vanpoolers  
Daily commute trip mode(s) for the week  
How many commuters were typically in the vanpool for the week  
Confirmation that vanpooling was the dominant commute mode (50 percent or greater of the commute distance)  
Estimated or actual one-way commute distance
  
- Transit/Bus Riders  
Daily commute trip mode(s) for the week  
Confirmation that transit/bus was the dominant commute mode (50 percent or greater of the commute distance)  
Estimated or actual one-way commute distance
  
- Walkers  
Counts at completely monitored access and egress points for the week  
Daily commute trip mode(s) for the week  
Confirmation from each walker that walking was the commute mode used for 50 percent or more of the commute distance (i.e., each person entering a worksite on foot must be interviewed)  
Estimated or actual one-way commute distance

- Bicyclists  
Counts at completely monitored access and egress points for the week  
Daily commute trip mode(s) for the week  
Confirmation from each bicyclist that bicycling was the commute mode used for 50 percent or more of the commute distance  
Estimated or actual one-way commute distance

Linking employees to actual commute mode usage provides critical information on how CTR elements work together and helps determine how effective these elements are for the worksite. For example, reducing commute trips for employees with shorter commutes will have a different impact on worksite programs than reducing commute trips for employees with longer commutes. Without the ability to link individual affected employees to actual commute mode usage, the impact of worksite CTR programs will be impossible to determine.

At a minimum, the information must include for all affected employees:

- IDs for all affected employees located at the worksite and daily attendance for a one-week period
- Home ZIP Code
- Job classification
- Weekly work schedule
- The number of days the employee is scheduled to telecommute in a two-week period
- Primary commute mode classification (SOV, bus, carpool, vanpool, walk, bike, other). This can be collected through a variety of means, including a list of non-SOV registrants, a list of employees who purchase passes for bus or vanpool use, a list of employees who are registered to use carpool or vanpool set-aside parking spaces, or a list of employees who indicated they commute non-SOV through CTR TRACK. All non-SOV commuters who cannot be identified or for whom complete information is not provided by the employer will be assumed to commute via SOV.
- Employee's scheduled start time

Data must be collected for a one-week period, or the employer must be able to demonstrate that the typical data collected is representative of actual weekly commuting behavior.

### **3.8.3.2 Supporting Information**

Supporting information does not stand alone, but can be used in addition to survey data if an employer's response rate is below 70 percent. For example:

- Transit pass sales or records of subsidies paid for carpools or vanpools. Acceptable as "supporting" data in all measurement years. In the 1992-93 base year only, these records may also be accepted as "equivalent" information.

- Parking lot counts, where affected employees' actual commute trip behavior is measured and documented during the peak period, Monday through Friday. Access and egress points must be completely monitored. Acceptable as "supporting" data in all measurement years.

### **3.8.3.3 Unacceptable Information**

Any information that cannot be validated by the employer and/or local jurisdiction is unacceptable information. For example:

- Aerial photographs.
- Driveway counts where access and egress is not completely monitored.

If an employer can provide basic mode choice information, but not all information required to be equivalent, the local jurisdiction shall use minimum default values. For example, if an employer can verify that a vanpool has at least seven employees on a passenger list (who may work for different employers) then that vanpool shall count as zero vehicle trips. If an employer can provide the number of employees who use carpools or vanpools, but not the occupancy in those vehicles, the local jurisdiction shall assume that they have two occupants. If an employer does not provide adequate information on alternative work schedules or telecommuting, the local jurisdiction shall assume no employees use these alternative modes.

### **3.8.4 Survey Design**

The local jurisdiction shall use the state-provided survey to measure affected employers' progress towards goal attainment. The local jurisdiction may not require employers to hire professionals to administer the survey.

Employers considering the use of equivalent data should notify the local jurisdiction in writing at least six months prior to the worksite's scheduled survey date. In turn, the jurisdiction will notify the TAT. The employer's notification should detail, at a minimum, the employer's burden of surveying all employees at the worksite or surveying a sample of employees at the worksite (e.g., cost of surveying, administrative obstacles, union issues).

Following the initial notification, the local jurisdiction and the employer are encouraged to work together to determine the feasibility of obtaining equivalent data for the worksite. If the employer decides to proceed with the use of equivalent data, it should file a written request with the jurisdiction at least two months prior to the worksite's scheduled survey date. The jurisdiction will notify the TAT when an employer has asked to use equivalent data. The employer's request should include, at a minimum, the following:

- A detailed description of the information to be provided;
- The methodology used to collect the information;

- The period (week) during which equivalent data will be collected;
- A plan for archival of the equivalent data;
- A letter from the CEO or CEO's designee indicating that the information provided is accurate and is the result of a good faith effort by the employer to collect complete and accurate information; and
- The date by which the equivalent data will be submitted to the local jurisdiction. This date must be no later than the scheduled survey completion date for the jurisdiction.

If employers do not have an alternative source of equivalent information, they shall use the official state-provided survey. The employer may not delete questions from the state survey. However, the last two questions on the state-provided survey are voluntary. This voluntary attachment includes questions related to program planning and demographics, which the employer may use to design its own program. The information from the voluntary survey attachment will be used for planning and research purposes only.

In addition, the employer may add its own supplemental questionnaire to the official survey for the purpose of developing its own CTR program. The employer may voluntarily provide the information derived from the additional questions to the TAT to be used for evaluation purposes; it could be very valuable in helping the state assess the effectiveness of elements in the CTR law. The employer also may voluntarily provide the information derived from the additional questions to the local jurisdiction.

### **3.8.5 Sampling at Worksites**

Employers may survey a sample of employees rather than surveying all affected employees. General guidelines for sampling will be provided by the TAT. Samples shall be random. Stratification shall be done to ensure that all major work groups are represented in the sample. The employer shall demonstrate to the local jurisdiction and/or the state that the sampling method is in accordance with generally accepted research sampling methods before sampling is undertaken.

The sampling method used at a specific worksite shall be developed by staff professionals with expertise in sampling techniques, in consultation with the local government and the TAT. Employers must, for example:

- Use a professional survey firm to draw the sample; or
- Use its own staff, with demonstrated expertise in sampling techniques, to draw the sample. In this case, the sampling frame must have prior approval from the local jurisdiction, with guidance from the TAT; or
- Use a public agency with staff that has demonstrated expertise in sampling techniques.

Employers choosing to undertake random sampling shall follow the sampling procedures outlined herein and in the Guide for Employee Surveys prepared by the TAT.

*Employers should be aware that there are costs associated with developing valid samples.*

### **3.8.6 Distribution and Collection of Survey Forms**

Employers are responsible for the distribution and collection of surveys at their worksites. The accomplishment of these tasks is at the discretion of the employer, but certain techniques are effective in increasing response rates. Recommendations for increasing survey response rates will be provided to the local jurisdiction and affected employers by the TAT.

If an employee works 35 or more hours in a week and is scheduled to report to a single worksite between 6:00 and 9:00 a.m. on two or more weekdays for at least 12 continuous months, he/she is an affected employee (as defined in Chapter 1) and should be surveyed. That person is counted as an affected employee at one location: his or her primary worksite. Seasonal agricultural employees are excluded from the count of affected employees.

Employers may choose to survey all employees at the worksite if they believe the commuting characteristics of the total employee population are significantly different than those of the affected employee population. For example, if a worksite believes the VMT rate per employee or the proportion of SOV trips is significantly lower for all employees than for affected employees, it would be in its interest to survey all employees. This approach will also be advantageous if the worksite cannot easily determine in advance of the survey which employees are and are not affected. If an employer chooses to survey all employees, it will have the option of choosing the calculated VMT rate or SOV rate for all employees or only for affected employees in order to determine the achievement of program goals in each measurement year.

### **3.8.7 Survey Response Rate**

The target minimum response rate for the survey is 70 percent of all affected employees (in the population/sample) who typically arrive between 6:00 and 9:00 a.m. on weekdays for at least 12 continuous months. If employers cannot determine and document which employees are affected, they should survey all employees at the worksite. For worksites that achieve at least a 70 percent response rate the SOV rate and VMT per employee calculated from the survey responses will be accepted as valid estimates of SOV and VMT for all affected employees.

Because some employers may have difficulty achieving the target minimum response, there are acceptable alternatives if they do not achieve a 70 percent response rate:

1. If an employer can demonstrate that they have followed all steps in the technical assistance document for maximizing response rate and they have "supporting" information, they may request that the local jurisdiction accept their survey as valid; or
2. An employer may choose to designate all non-responses below 70 percent of the affected employee population/sample as SOV trips; or
3. A combination of options 1 and 2 above, negotiated between employer and local jurisdiction.

### **3.8.8 Data Entry and Analysis**

Affected employers should send their official state-provided survey forms directly to the local jurisdiction or its designee for processing. The state will process the official state-provided measurement survey at no cost to the employer. In these cases, the local jurisdiction shall provide verification to employers that the survey forms were received. The survey data will be processed within 60 days of receipt by the jurisdiction, and the jurisdiction shall notify the employer of the survey results as part of its annual review of employer programs.

The employer may enter and analyze the state-provided survey, but is not required to do so. If the employer undertakes data entry of its surveys, that entry should be done to professional standards, where data entry staff verify at least 20 percent of the surveys by re-entering and checking for errors. If the employer adds a supplemental questionnaire to the official state-supplied survey, the employer will be responsible for processing the supplemental data.

Local jurisdictions may provide PC-based analysis software, in either DOS- or Macintosh-compatible formats to employers that want to analyze their own surveys. If an employer does data entry and analysis, it shall provide the raw survey data file to the local jurisdiction for verification purposes. The local jurisdiction shall provide verification to employers that the raw data file was received.

If an employer opts to provide equivalent data, it must be submitted electronically in a format approved by the TAT.

### **3.8.9 Reporting Survey Results**

Employers that do data entry and analysis are responsible for reporting their results to the local jurisdiction. All affected employers, including those that send their surveys to the local jurisdiction for processing, are still accountable for the results of their surveys.

*The Task Force believes that survey processing should be centralized and that the state should provide funding to support this activity throughout the CTR program.*

### **3.8.10 Credit for Schedule Changes Which Move Some or All Employees Outside of the Commute Window**

In 1997, the Washington State Legislature directed the Task Force to develop guidelines and methods to ensure that employers which have modified their employees' work schedules so that some or all employees are not scheduled to arrive at work between 6:00 and 9:00 a.m. are provided credit when calculating SOV trips and VMT per employee. *RCW 70.94.537[2][I]* This credit is to be awarded if implementation of the schedule change was an identified element in a worksite's approved CTR program or if the schedule change occurred because of impacts associated with RCW 36.70A, the GMA. *RCW 70.94.527[11]*

Although these schedule changes may result in less congestion during peak commute hours, the air quality and energy consumption benefits are minimal. Consequently, the Task Force believes that the credit level should be proportional to the benefit associated with the policy goals. The Task Force has determined that the credit level for such changes should be less than a full trip eliminated and should be established within the context of existing credit methodologies for SOV and VMT. Currently, trips eliminated through telecommuting, alternative work schedules, bicycling, and walking are awarded a 20 percent credit. The Task Force has determined that the same level of credit should be applied to the schedule changes described above. The effect of this level of credit is that for every five employees whose schedules are changed in order to avoid a peak-hour commute, a worksite will be credited with one full trip reduced.

Worksites will be awarded credit beginning in August 1997. Any worksite may apply for a retroactive credit for schedule changes implemented prior to the 1997 measurement survey, provided the schedule change was consistent with the criteria identified in *RCW 70.94.527[11]*. Application for the retroactive credit should be made in writing to an employer's local jurisdiction before December 31, 1997. At a minimum, the credit application must include the following information:

1. An explanation of how the schedule change is related to the provisions of the GMA or a demonstration that the schedule change was an identified element of a previously approved CTR program.
2. The number of employees whose schedules were changed.
3. The date on which the schedule change became effective.
4. The previous schedule for those employees for whom the credit is being claimed.

Upon receipt of an employer's credit application, the local jurisdiction shall notify the TAT. The validity of all credit requests shall be determined by the local jurisdiction. The local jurisdiction shall inform the employer of its decision in writing within 30 days of receiving the request. The local jurisdiction shall also notify the TAT of its decision. The TAT shall be responsible for recalculating the 1997 SOV and VMT rates for any worksite for which a local jurisdiction approves retroactive credit.

Beginning January 1, 1998, information to determine the legitimacy and amount of schedule change credit will be collected through the Employer Annual Report and Program Description form; no special application will be required. Jurisdictions shall notify the TAT when approving employer annual reports that contain requests for schedule change credit.

The TAT will ensure that the credit is applied in the subsequent measurement year to the worksite's SOV and VMT calculations.

## **3.9 Evaluation of the CTR Program**

### **3.9.1 Background and Purpose**

The Task Force is responsible for evaluating the CTR law. It must make recommendations to the Legislature at set intervals beginning December 1, 1995; and on December 1, 1999; December 1, 2001; December 1, 2003; and December 1, 2005; assessing whether the program should be continued, modified, or terminated. *RCW70.94.537[4]* The Task Force must also report to the Legislature by December 1, 1997, on employers' use of the ridesharing tax credit. *RCW 82.04.445B as amended in 1996.*

Specifically, the Task Force must review progress toward the law's implementation; evaluate the costs and benefits of the law; consider the costs of not having implemented the law; and examine other TDM programs nationally and incorporate its findings into its recommendations to the Legislature, as required by the CTR law.

The Task Force and Legislature will base major decisions on the evaluation results, so it is important that the information be of good quality. Employers will be interested in the evaluation results as well, since they are bearing a large part of the burden of this program, and will need information about the most cost-effective TDM strategies for their particular situations.

### **3.9.2 CTR Evaluation Workplan**

In 1996, the Task Force developed and adopted a workplan for producing a report to the Legislature by December 1, 1999. This section lists the topics that the Task Force plans to address in that report and the tasks required to address those topics. Following the 1999 report, the Task Force will establish a new work plan to guide its evaluation efforts in subsequent years.

#### **3.9.2.1 Evaluation Topics**

The Task Force has adopted the following list of topics for evaluation between July 1996 and September 1999:

##### Topics Required by the Legislature

- Benefits and costs of CTR: Identify and estimate the benefits and costs of CTR and determine whether the benefits are likely to be greater than the costs. Report to Legislature in 1999.

- Review of other TDM programs: Examine other TDM programs nationally, documenting successes and failures, to see what lessons they have for CTR. Report to Legislature in 1999.
- Results of expanded ridesharing tax credit: Determine number of employers applying for credit, number of employees ridesharing because of credit, and amount of credit. Report to Legislature in 1997.

#### Topics Related to Improving the Existing Program

- Reasons why commuters do and do not change modes in response to CTR: Identify program elements that have been most and least successful in reducing drive-alone commuting. Identify types of employees who are most likely and least likely to participate in CTR programs. Identify points where employees are most likely to consider changing commuting behavior. Provide information to local jurisdictions and ETCs. Incorporate into report to Legislature in 1999.
- Impacts of other factors on commuting and CTR: Identify other reasons why people change commuting behavior. Verify that changes in SOV and VMT are due to CTR and not other factors. Identify conditions outside of CTR that encourage or discourage non-SOV commuting. Provide information to local jurisdictions and ETCs. Incorporate into report to Legislature in 1999.
- Benefits and costs to employers and commuters: Identify benefits and costs that accrue to employers and commuters. Determine whether benefits are likely to exceed costs for each group. Identify ways to increase benefits and reduce costs to employers and commuters. Provide information to local jurisdictions and ETCs. Incorporate into report to Legislature in 1999.

#### Topics relating to the structure of CTR after 1999

- Baseline for SOV and VMT goals: Determine relationship between 1993 SOV and VMT and current and predicted future congestion and emissions. Examine procedures for setting baseline values. Determine whether procedures for setting baselines treat employers consistently and fairly. Incorporate into report to Legislature in 1999.
- Appropriate level for goals: Identify reductions in SOV and VMT that employers can reasonably be expected to achieve. Determine whether there is a point at which the costs of further reductions become greater than the benefits. Incorporate into report to Legislature in 1999.
- Appropriateness of zones: Examine differences in SOV, VMT, and conditions that affect employees' commuting choices in areas covered by the CTR law. Determine advantages and disadvantages to employers and local jurisdictions of having worksites grouped in zones. Incorporate into report to Legislature in 1999.
- Geographic areas covered by the law: Examine car-related pollution and congestion in areas covered by CTR law and in the rest of the state. Examine trends in pollution and congestion, especially in growing areas or areas

expected to experience growth. Identify any areas not currently covered by the CTR law where CTR could reduce current or future pollution or congestion problems. Identify any areas currently covered by the CTR law where air pollution and congestion are not problems. Incorporate into report to Legislature in 1999.

- Guidelines for zone construction, if there are to be zones: Examine various configurations of zones and procedures for drawing zone boundaries to ensure consistent treatment of employers, fairness to employers, costs to develop and administer zones, and relationship between zones and pollution, congestion, and conditions affecting commuters' mode choices. Incorporate into report to Legislature in 1999.

### **3.9.2.2 Evaluation Tasks**

Providing information on these topics requires completion of a number of tasks. There are several tasks that develop information for more than one topic. They are:

- Calculate aggregate SOV, VMT, trips, and miles by mode from the measurement survey. This will be done in 1997 and 1999.
- Design, administer, and process a survey of a sample of employees. Convene an expert review panel. Specify the information to be collected. Design, pretest, and administer a survey to collect the information. Analyze the results.
- Design, administer, and process a survey of a sample of employers. Convene an expert review panel. Specify the information to be collected. Design, pretest, and administer a survey to collect the information. Analyze the results.
- Estimate impacts of program elements, worksite characteristics, and occupation on employees' commute mode choices. This will be done using the 1995, 1997, and 1999 measurement surveys and annual reports.

There are seven categories of benefits and costs of CTR to be estimated:

- Estimate changes in fuel, operation and maintenance, and depreciation costs. Calculate the miles traveled using each mode from the 1997 and 1999 measurement survey results. Project the miles that would have been traveled using each mode without CTR. Obtain cost per mile for each mode from published sources and the transit agencies. Calculate changes in costs.
- Estimate changes in commute times and amenities. Estimate average trip speeds and times from published sources and traffic counts. Apply speeds and times to estimated trip numbers and trip lengths from measurement survey. Estimate changes in amenities and their values for people who switch modes from the sample survey of employees.

- Estimate value of freed-up parking spaces. Estimate the number of spaces freed up using the 1997 and 1999 measurement survey results. Estimate changes in use and the value of spaces freed up using the results of the sample survey of employers.
- Estimate changes in profitability and employee satisfaction. Estimate changes in employee satisfaction due to CTR and mode shifts from sample survey of employees. Estimate changes in profitability from sample survey of employers.
- Estimate worksite program costs. Estimate from the results of the employer cost survey.
- Estimate value of increased highway capacity. Estimate the number of additional person trips made possible by CTR from the measurement surveys. Obtain estimates of traffic capacity and current use for highways in CTR counties. Identify capacity constraints eased or delayed by CTR. Review published estimates of the value of an additional person trip.
- Estimate value of reduced emissions. Obtain updated estimates of emissions per mile from Washington State Department of Ecology (DOE). Calculate changes in emissions from the results of the measurement surveys in 1997 and 1999. Obtain estimates of health and other impacts from DOE published sources. Update estimates of the value of reduced health risks and obtain any available estimates of the value of increased visibility and other impacts. For some impacts, estimates may not be available by 1999. Obtain estimates of reductions in the costs of complying with other air and water quality regulations from DOE and other agencies.

Addressing the other topics in the workplan requires completing the following tasks:

- Review other TDM programs nationwide. The TAT performed a preliminary review of other TDM programs. Complete and update this review by interviewing parties involved in other programs and reviewing published accounts and reports.
- Determine results of the expanded ridesharing tax credit. The number of worksites claiming the credit, the number of employees for whom credit is claimed, and the incentives paid that will be collected by the Washington State Department of Revenue (DOR). Analyze the information from DOR and compare it with the measurement survey results for affected worksites that claim the credit. Prepare a report for the Legislature.
- Determine reasons why employees do and do not change modes in response to CTR. Most of the information to address this issue will be collected through the sample survey of employees. Analyze this information to determine effects of worksite program elements on employees' commuting choices, identify worksite barriers to shifting away from drive-alone commuting, and identify opportunities to change commuting behavior.
- Estimate impacts of other factors on commuting and CTR. The information to address this issue will be collected through the sample survey of employees. Analyze this information to identify effects of personal characteristics and

other factors outside CTR on employees' commuting choices and identify which groups of employees are most likely and least likely to change commuting behavior.

- Estimate benefits and costs to employers and commuters. The information needed to address this issue will be collected as part of the overall analysis of benefits and costs. The additional work for this topic will be in organizing and presenting that information.
- Determine what should be the baseline for SOV and VMT goals. Compare baseline SOV and VMT with current and predicted congestion and air pollution. Determine whether goals are related to areas with existing congestion and pollution problems and to areas where growth is likely to produce problems in the future. Develop alternative procedures for setting baselines. Compare baseline SOV and VMT produced by two procedures used in 1993 and other procedures. Determine advantages and disadvantages of procedures for setting baselines, including whether each treats employers fairly and each procedure's administrative difficulty.
- Determine appropriate level for goals. Examine the results of the measurement survey and cost survey and the annual reports to compare SOV and VMT reductions to program effort and program cost. Estimate relationship between program cost and results. To extent possible, compare marginal benefits and marginal cost to determine whether there is a point at which the costs of further reductions become greater than the benefits. To extent possible, compare marginal benefits and marginal costs to employers to identify reductions in SOV and VMT employers can reasonably be expected to achieve.
- Determine whether worksites should be grouped into zones. Examine results of measurement survey, cost survey, sample survey of employees, and annual reports to determine whether there are geographic patterns in SOV and VMT reductions, program costs, or conditions that affect employees' commuting choices. Interview employers and local jurisdiction representatives to determine the advantages and disadvantages to employers and local jurisdictions of having worksites grouped in zones.
- Determine what geographic areas should be covered by the law. Obtain data on car-related pollution and congestion in areas covered by the CTR law and in the rest of the state. Examine trends in pollution and congestion, especially in growing areas or areas expected to experience growth. Identify any areas not currently covered by the CTR law where CTR could reduce current or future pollution or congestion problems. Identify any areas currently covered by the law where pollution and congestion are unlikely to be problems in the foreseeable future.
- Determine how zones should be constructed, if there are to be zones. Examine various configurations of zones and procedures for drawing zone boundaries for their consistent treatment of employers, fairness to employers, costs to develop and administer zones, and the relationship between zones and pollution, congestion, and conditions affecting commuters' mode choices.