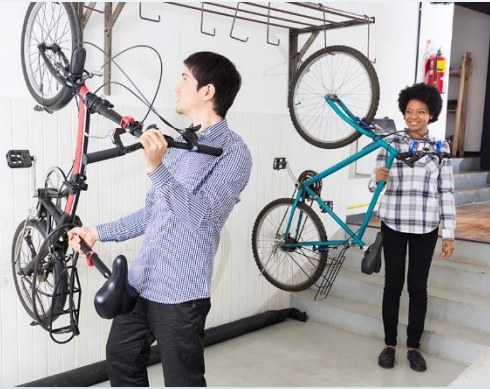
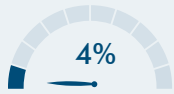


T-5. Implement Commute Trip Reduction Program (Voluntary)



GHG Mitigation Potential



Up to 4.0% of GHG emissions from project/site employee commute VMT

Co-Benefits (icon key on pg. 34)



Climate Resilience

CTR programs could result in less traffic, potentially reducing congestion or delays on major roads during peak AM and PM traffic periods. When this reduction occurs during extreme weather events, it better allows emergency responders to access a hazard site. Lower transportation costs would also increase community resilience by freeing up resources for other purposes.

Health and Equity Considerations

Design of CTR programs need to ensure equitable access and benefits to all employees are provided considering disparate existing mobility options in diverse communities.

Measure Description

This measure will implement a voluntary commute trip reduction (CTR) program with employers. CTR programs discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions. Voluntary implementation elements are described in this measure.

Subsector

Trip Reduction Programs

Locational Context

Urban, suburban

Scale of Application

Project/Site

Implementation Requirements

Voluntary CTR programs must include the following elements to apply the VMT reductions reported in literature.

- Employer-provided services, infrastructure, and incentives for alternative modes such as ridesharing (Measure T-8), discounted transit (Measure T-9), bicycling (Measure T-10), vanpool (Measure T-11), and guaranteed ride home.
- Information, coordination, and marketing for said services, infrastructure, and incentives (Measure T-7).

Cost Considerations

Employer costs may include recurring costs for transit subsidies, capital and maintenance costs for the alternative transportation infrastructure, and labor costs for staff to manage the program. Where the local municipality has a VMT reduction ordinance, costs may include the labor costs for government staff to track the efficacy of the program.

Expanded Mitigation Options

Other strategies may also be included as part of a voluntary CTR program, though they are not included in the VMT reductions reported by literature and thus are not incorporated in the VMT reductions for this measure.

This program typically serves as a complement to the more effective workplace CTR measures such as pricing workplace parking (Measure T-12) or implementing employee parking “cash-out” (Measure T-13).





GHG Reduction Formula

$$A = B \times C$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from project/site employee commute VMT	0–4.0	%	calculated
User Inputs				
B	Percent of employees eligible for program	0–100	%	user input
Constants, Assumptions, and Available Defaults				
C	Percent reduction in commute VMT from eligible employees	-4	%	Boarnet et al. 2014

Further explanation of key variables:

- (B) – This refers to the percent of employees that would be able to participate in the program. Employees who might not be able to participate could include those who work nighttime hours when transit and rideshare services are not available or employees who are required to drive to work as part of their job duties. This input does not refer to the percent of employees who participate in the program.
- (C) – A policy brief summarizing the results of employer-based trip reduction studies concluded that these programs reduce total commute VMT for employees at participating work sites by 4 to 6 percent (Boarnet et al. 2014). To be conservative, the low end of the range is cited.

GHG Calculation Caps or Maximums

Measure Maximum

(A_{max}) The maximum GHG reduction from this measure is 4 percent. This maximum scenario is presented in the below example quantification.

Subsector Maximum

($\sum A_{max_{T-5 \text{ through } T-13}} \leq 45\%$) This measure is in the Trip Reduction Programs subsector. This subcategory includes Measures T-5 through T-13. The employee commute VMT reduction from the combined implementation of all measures within this subsector is capped at 45 percent.

Mutually Exclusive Measures

If this measure is selected, the user may not also take credit for Measure T-6, which represents the same implementation activities as Measure T-5, except that the CTR program would be mandatory. Users should select either Measure T-5 or T-6.



If this measure is selected, the user may not also take credit for Measures T-7 through T-11. Measure T-5 accounts for the combined GHG reductions achieved by each of these individual measures. To combine the GHG reductions from T-5 with any of these measures would be considered double counting. However, the user may take credit for Measures T-12 through T-13 within the larger CTR subcategory, so long as the combined VMT reduction does not exceed 45 percent, as noted above.

Example GHG Reduction Quantification

The user reduces employee commute VMT by requiring that employers of a project offer a voluntary commute trip reduction program to their employees. In this example, the percent of employees eligible (B) is 100 percent, which would reduce GHG emissions from employee commute VMT by 4 percent.

$$A = 100\% \times -4\% = -4\%$$

Quantified Co-Benefits



Improved Local Air Quality

The percent reduction in GHG emissions (A) would be the same as the percent reduction in NO_x, CO, NO₂, SO₂, and PM. Reductions in ROG emissions can be calculated by multiplying the percent reduction in GHG emissions (A) by an adjustment factor of 87 percent. See *Adjusting VMT Reductions to Emission Reductions* above for further discussion.



Energy and Fuel Savings

The percent reduction in vehicle fuel consumption would be the same as the percent reduction in GHG emissions (A).



VMT Reductions

The percent reduction in VMT would be the same as the percent reduction in GHG emissions (A).

Sources

- Boarnet, M., H. Hsu, and S. Handy. 2014. *Impacts of Employer-Based Trip Reduction Programs and Vanpools on Passenger Vehicle Use and Greenhouse Gas Emissions*. September. Available: https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts_of_Employer-Based_Trip_Reduction_Programs_and_Vanpools_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf. Accessed: January 2021.