# T-12. Price Workplace Parking

## GHG Mitigation Potential


Up to 20.0% of GHG emissions from project/site employee commute VMT

## Co-Benefits (icon key on pg. 34)

## Climate Resilience

Priced workplace parking could incentivize increased use of public transit and thus 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.

## Health and Equity Considerations

Parking pricing should include hourly and daily options so part-time staff do not need a monthly pass. If the project includes low-waged employees that have fewer transportation choices or time and resource constraints, it is instead recommended to consider implementing Measure T-13, *Implement Employee Parking Cash-Out*, or other transportation subsidy.

## Measure Description

This measure will price onsite parking at workplaces. Because free employee parking is a common benefit, charging employees to park onsite increases the cost of choosing to drive to work. This is expected to reduce single-occupancy vehicle commute trips, resulting in decreased VMT, thereby reducing associated GHG emissions.

## Subsector

Trip Reduction Programs

## Locational Context

Urban, suburban

## Scale of Application

Project/Site

## Implementation Requirements

Implementation may include the following.

- Explicitly charging for employee parking.
- Implementing above-market rate pricing.
- Validating parking only for invited guests (or not providing parking validation at all).
- Not providing employee parking and transportation allowances.

In addition, this measure should include marketing and education regarding available alternatives to driving.

## Cost Considerations

Parking fees would be a direct, recurring cost for employees. Employer costs include labor costs for program management and monitoring, but this may be offset by revenue generated by the program.

## Expanded Mitigation Options

Best practice is to ensure that other transportation options are available, convenient, and have competitive travel times (i.e., transit service near the project site, shuttle service, or a complete active transportation network serving the site and surrounding community), and that there is not alternative free parking available nearby (such as on-street). This measure is substantially less effective in environments that do not have other modes available or where unrestricted street parking or other offsite parking is available nearby and has adequate capacity to accommodate project-related vehicle parking demand.

## GHG Reduction Formula

For calculating effectiveness of pricing residential parking, see Measure T-16, *Unbundle Residential Parking Costs from Property Cost*. For calculating effectiveness of pricing parking at visitor-intensive land uses, see Measure T-24, *Implement Market Price Public Parking (On-Street)*.

$$A = \frac{B - C}{C} \times E \times D \times F$$

## GHG Calculation Variables

| ID | Variable | Value | Unit | Source |
|---|---|---|---|---|
| **Output** | | | | |
| A | Percent reduction in GHG emissions from employee commute VMT | 0–20.0 | % | calculated |
| **User Inputs** | | | | |
| **B** | Proposed parking price | [ ] | $ | user input |
| **C** | Baseline parking price | [ ] | $ | user input |
| **D** | Share of employees paying for parking | [ ] | % | user input |
| **Constants, Assumptions, and Available Defaults** | | | | |
| E | Elasticity of parking demand with respecting to parking price | -0.4 | unitless | Lehner & Peer 2019 |
| F | Ratio of vehicle trip reduction to VMT | 1 | unitless | assumption |

Further explanation of key variables:

- (B) – Parking price can be provided on an hourly, daily, or monthly basis. Monthly pricing is less effective than requiring daily or hourly payment since the price signal is diluted to only once a month.
- (C) – If baseline parking price is $0 (that is, if parking is typically free), set C = ¼ B, allowing for the maximum 50 percent increase in price. Alternatively, for locations that are located within 0.5 mile of transit service, set C = average transit fare to/from the location.
- (D) – Many organizations allow some employees free parking benefits. VMT reductions should be adjusted based on the share of employees that would be paying for parking.
- (E) – A meta-analysis of parking price studies found that a 0.40 percent decrease in parking demand occurs for every 1 percent increase in parking price (Lehner & Peer 2019). Price elasticity of parking demand varies by location, day of the week, and time of day.
- (F) – The adjustment factor from vehicle trips to VMT is 1. This assumes that all vehicle trips will average out to typical trip length ("assumes all trip lengths are equal"). Thus, it can be assumed that a percentage reduction in vehicle trips will equal the same percentage reduction in VMT. Subsidies or discounts targeting commute trips may have a higher factor as they are generally longer than the trip lengths for other purposes.

## GHG Calculation Caps or Maximums

*Measure Maximum*

($A_{max}$) The GHG reduction from priced workplace parking is capped at 20 percent. This maximum scenario is presented in the below example quantification.

($\left(\frac{B-C}{C}\right)_{max}$) The percent increase in parking price is capped at 50 percent.

*Subsector Maximum*

($\sum A_{max_{T\text{-}5 \text{ through } T\text{-}13}} \leq 45\%$) 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-13, *Implement Employee Parking Cash-Out*. While both measures focus on providing a price signal for employees to consider other modes for their work commute, this measure actively charges all employees to park, while Measure T-13 reimburses employees who do not park. Users should select either Measure T-12 or T-13.

## Example GHG Reduction Quantification

The user reduces VMT by increasing the price of a monthly parking permit. In this example, the permit fee is increased from $50 (C) to $75 (B). If 100 percent of employees are subject to parking pricing (D), the user would reduce GHG emissions from VMT by 20 percent.

$$A = \frac{\$75 - \$50}{\$50} \times -0.4 \times 100\% \times 1 = -20\%$$

## 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, $NO_2$, $SO_2$, 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


- Lehner, S., Peer, S. 2019. *The Price Elasticity of Parking: A Meta-analysis*. Transportation Research Part A: Policy and Practice 121 2019. Available: http://sustainabletransportationsc.org/garage/pdf/parking_elasticity.pdf. Accessed: January 2021.