

Preliminary “High-Level” Evaluation Tool
for Supporting Initial Prioritization of Ozone Reduction Measures

Pricing Subcommittee
November 5, 2010

Strategy Included:

- Priced Parking

Note: Fuel Tax Pricing Strategies, Transportation Facility Pricing, Mileage Based Fees, and Pay As You Drive Insurance were discussed

(Strategy documents include sub-committee comments/suggestions)

Preliminary Draft for Discussion Only

Regional Air Quality Council
Transportation Pricing Subcommittee
Overview of Strategies Analyzed

Measure	Description of Measure	Experience in Colorado/Other Areas	Existing Authority or Needed Approvals	Implementation/SIP Measure Feasibility	Additional Analysis Needed
Priced Parking	Parking pricing strategies include those designed to either (1) increase the cost of driving a single occupancy vehicle by charging for parking, or (2) increase the use of alternative transportation in lieu of parking (ex: parking cash-out: where an employer may offer cash, or a transit pass instead of free parking).	The pricing of parking is common throughout the Denver metro, typically where demand for parking exceeds supply. There are no US examples of mandatory priced parking.	Currently done voluntarily through localities and the private sector. Mandatory program would require state legislation.	<ul style="list-style-type: none"> - Unlikely to be implemented in short/mid term - Potential for pilot pricing program - Unlikely to be included as mandatory program in SIP - Included in baseline modeling 	<ul style="list-style-type: none"> - Analysis of legal feasibility of implementation - Analysis of implementation steps and costs - Evaluation of VMT reduction potential

Preliminary High-Level Evaluation Tool
for Supporting Initial Prioritization of Ozone Reduction Measures

Draft: Not for Distribution

November 5, 2010

Measure type: Transportation Pricing

Measure name and description: Priced parking

The private cost of parking is often bundled into the price of retail goods/ services, housing, or lease/purchase of business space. By unbundling this cost, the cost of parking becomes more visible to drivers and could influence the amount of driving, including individual trips.¹ Most commercial and residential development provides for vehicular parking, whether it includes structured or surface parking, or is on or off-site parking. Local land use codes typically establish parking minimums (and in some cases maximums) for different types of development. For example, in Denver’s zoning code, a retail establishment must provide at least 1.25 off-street parking spaces for each 1000 sq ft of gross floor area (a 4000 sq ft shop would require 5 parking spots).² Without meeting this requirements, the retail establishment has to seek a variance (approval from the local planning body) to operate in that particular location

Parking pricing strategies include those designed to either (1) increase the cost of driving a single occupancy vehicle by charging for parking, or (2) increase the use of alternative transportation in lieu of parking (ex: parking cash-out: where an employer may offer cash, or a transit pass instead of free parking).

Parking is traditionally priced when there is high demand for parking facilities, such as central business districts (CBD), during special events, or other locations where the demand for parking exceeds the supply. On-street parking is managed by the locality, or district in which it is located. Structured/surface lots may be operated by public or private entities.

Preliminary sense of anticipated air quality benefits (e.g. NOx/VOC reductions? Potential reduction amount?):

Air quality benefits would occur from reduced VMT, but additional benefits may be seen from reduced idling, start-ups, and reduced congestion from cars driving around looking for available parking spots. Several studies have looked at the VMT reduction potential of priced parking. In, *The High Cost of Free*

¹ Greenberg, Allen. 2009. “Traffic Congestion and Pollution: Mileage, Insurance, Carsharing, and Parking Strategies”. *TR News*. Number 263.

² Denver, Colorado, Municipal Code. Article 8-45.
http://www.denvergov.com/Portals/646/documents/DZC/8_Downtown_DZC_91710.pdf

Parking, Donald Shoup estimates that for one individual, charging \$50/month for parking will reduce their individual VMT by 30% (using an elasticity of -.5).³ VMT reduction could come from reduced trips, use of alternative transportation, or redirected trips. As discussed below, additional analysis would be needed to estimate air quality benefits in our region of the associated VMT decrease.

Preliminary sense of anticipated costs and economic impacts

- Additional cost to drivers to park.
- Additional cost to those businesses not passing added cost on to consumers.
- Opportunity for revenue generation or cost recovery for providing parking facilities.
- Reduced car-traffic in otherwise high-traffic areas (which could both be beneficial and costly; for example: individuals that previously drove somewhere, may avoid shopping trips and instead buy elsewhere, while others will visit more frequently as parking is more readily available).

Additional technical analysis needed to refine benefits/costs estimates:

Refinement of the evaluation of this measure would require an in-depth analysis of the following, in coordination with CDOT and CDPHE

- Research on potential legal implications of making priced parking mandatory.
- Analysis of mechanisms for tax/fee collection, and overall administration (ex: would you need to establish a special district, could localities collect fee/tax, etc).
- Regional price points and associated elasticities to determine the extent to which priced parking would affect VMT and associated emissions in BOTH the short and long-term.
- Investigate where pricing strategies that presumably reduce VMT and associated emissions would offer the most benefit to regional ozone values (for example: Central Business Districts, along key corridors, etc).
- Updated emissions reduction estimates using assumptions from the above analysis and EPA's new emissions model (MOVES). Also using assumptions from the above analysis, conduct additional photochemical air quality modeling to determine impact of lower emissions on ambient ozone levels.
- Research where voluntary programs have been used.
- Consider pilot potential or priced parking (such as cash-out program).

Implementation feasibility (e.g. Who has authority? Who needs it? Who implements the measure?):

Implementation of this measure will require extensive collaboration with municipalities and businesses, since imposition of parking pricing measures do not fall under the jurisdiction of state or regional air quality management agencies.

Parking pricing strategies includes those designed to either (1) pricing parking, by increasing the cost of driving a single occupancy vehicle by charging for parking, or (2) incentives, to increase the use of alternative transportation in lieu of parking (such as parking cash-out, preferred parking for carpoolers, etc).

³ Shoup, Donald. 2005. *The High Cost of Free Parking*. American Planning Association: Chicago.

Pricing strategies

Mandatory Programs

We found no examples of mandatory priced parking in the United States. However, there are examples in Asia: Beijing, Guangzhou, Hanoi and Jakarta.⁴

Voluntary Programs

An example of voluntary program that exists today:

- Model fee structure/equations for pricing municipal parking facilities. For example, the State of Washington has created a website that showcases model parking codes.⁵
- Policies that reduce employee parking subsidies, so that commuters must pay some or all of their parking costs (such as many employers do in Denver).

Examples of voluntary programs that may exist today (although further research is needed):

- Public parking in lieu of private parking. Encourage localities to allow developers to pay a fee in lieu of providing parking spaces. That revenue can then be used for public parking infrastructure or used for alternative transportation.⁶
- Coordinate on/off-street parking facility management and charging for it. For example, motorists will choose the most affordable parking choice, if on-street is cheaper than off-street; coordination is needed to manage pricing/supply.

Incentives

Mandatory/Voluntary Programs

1. Programs such as Parking Cash Out offer incentives to employees to use alternative transportation rather than driving alone. Employees might be offered a transit pass in lieu of a parking spot. Implementation could be voluntary, or mandatory. The City of Santa Monica, CA implemented a mandatory Parking Cash Out program for employers with over 50 employees.⁷
2. Create development incentives, such as faster permit processing for meeting specific parking requirements (parking minimum/maximums/shared use, etc).⁸

Demonstrated ability to take "SIP Credit" for the measure:

As far as we have determined to date no state has taken SIP credit for a parking pricing program. However, the cost of parking is generally included in baseline transportation modeling. Any air quality benefits in this region associated with such a strategy would be considered in the air quality baseline

⁴ "Reinventing Parking" <http://www.reinventingparking.org/2010/09/puzzling-policy-price-controls-on.html>

⁵ Municipal Research and Services Center of Washington. 2010. "Sample Off-Street Parking Provisions". <http://www.mrsc.org/Subjects/PubSafe/offpark.aspx>

⁶ Shoup, Donald. 2005. *The High Cost of Free Parking*. American Planning Association: Chicago.

⁷ California Health and Safety Code § 43845 <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=43001-44000&file=43845>

⁸ Municipal Research and Services Center of Washington. 2010. "Sample Off-Street Parking Provisions". <http://www.mrsc.org/Subjects/PubSafe/offpark.aspx>

modeling, conducted by DRCOG, results of which are then fed into the travel demand model. These steps provide the emission estimates for motor vehicles.

Likelihood that measure could be in place in time for SIP inclusion (approx 2015); and, if later, how much later (e.g. 2 years? 10 years, etc?):

Not likely in near-term or mid term. This strategy would be difficult to implement in a mandatory sense, it has not been implemented in the U.S. This would require each jurisdiction to pricing parking which creates a competitive disadvantage.

Preliminary Assessment of Co-benefits (e.g. other air quality, economic, quality of life, transportation etc):

- GHG emission benefits through reduced VMT, congestion, and fuel usage.
- Increased revenue for localities and businesses.
- Increased quality of life due to lower congestion.

Other Considerations/Comments (e.g. Employed elsewhere, particular challenges/opportunities etc?):

- This measure may present equity concerns for low-income residents because parking pricing is considered regressive (low-income individuals may pay a higher percentage of their income toward pricing compared to individuals of higher income). However, revenues could be redistributed to offset potential inequities to enhance mobility options for low-income individuals.
- There was no record of mandatory priced parking in the US in a preliminary literature review, however, as mentioned above there are voluntary programs in place in some states/regions
- Parking pricing is typically market-driven where demand for parking facilities exceeds supply. Therefore, it may be more pragmatic to control supply of parking facilities rather than mandating pricing.
- Voluntary/market driven implementation is relatively easy to accomplish at local level.