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Executive Summary

The City and County of Denver has established goals to improve mobility, increase housing affordability, minimize environmental impacts, improve public health. How we manage our transportation system – the mobility options available to Denverites and the safety, affordability, and accessibility of those options – plays a critical role in helping us meet our goals. This study was conducted to advance community goals by identifying how the City can encourage or mandate access to a variety of mobility options at new development. The study determined that the integration of transportation demand management (TDM) strategies into new developments via mandates can reduce vehicle trip generation and other negative community impacts while expanding opportunities for people who live and work in Denver.

TDM is a collection of strategies that shift the how, when, and where of people’s travel to increase system efficiency, reduce single occupancy vehicle (SOV) trips1, improve regional air quality, and achieve citywide mobility goals. TDM strategies can be organized into five categories: (1) services; (2) infrastructure; (3) parking management; (4) subsidies; and (5) education, all of which are summarized in Figure A.

TDM strategies provide significant benefits to communities by encouraging the use of travel options other than driving alone. They reduce traffic congestion, lower harmful emissions, and encourage a more effi-

---

1 SOV trips are trips that are made in non-commercial vehicles with only one driver and no passengers. For the purpose of TDM planning, SOV trips also include Uber and Lyft rides with only one passenger.
cient use of the existing transportation system. The expanded travel options created by TDM will benefit everyone, and are particularly critical for lower-income families and those who can’t drive.

The idea behind mandating transportation options in developments is not new. Many cities across the country already have TDM requirements in place, including Boulder; Seattle; Bloomington, Minnesota; San Francisco; and Pasadena, California. The idea that new developments should provide for mobility is not new either. In the 1800s, it was not uncommon for developers to construct or subsidize trolley lines to connect their developments to other parts of the community. With the advent of the automobile, developers began constructing garages and surface parking, a practice which was eventually mandated by many communities. Typically, Denver and other cities require new developments to include parking for personal vehicles based on the size and type of the project. Cities are now moving away from the narrow definition of transportation improvements as roadway expansions and parking spaces toward a more holistic solution. With this study, Denver further expands the mobility conversation to rethink how to address the community’s mobility needs.

The study process was designed to ensure that the final recommendations achieve the following:

<table>
<thead>
<tr>
<th>Advance documented City goals and policies</th>
<th>Are informed by successful efforts and lessons learned in other communities</th>
<th>Account for the needs and address the concerns of internal and external stakeholders</th>
</tr>
</thead>
</table>

To achieve this, the planning process included a review of City of Denver plans and policies; a review of developer TDM practices and policies in other cities; and extensive engagement with City Council, applicable City staff, and external stakeholders including developers, mobility service operators, and residents.

The process was guided by an internal working group that consisted of representatives from the departments of Transportation and Infrastructure and Community Planning and Development. Meetings with this group were held periodically throughout the one-and-a-half year process.

Draft recommendations were developed after the project team completed the review of City goals and policies, collected lessons learned, and conducted an initial round of outreach with internal and external
stakeholders. The draft recommendations were subsequently shared with stakeholders and refined. The study process is summarized in Figure B.
Recommendations

The study recommendations outline how the City can mandate the inclusion of transportation options, through TDM strategies, to reduce vehicle trips at new developments and ultimately meet a target drive-alone rate lower than what would otherwise occur. The recommendations are divided into four categories:

**Participating Properties:** Which properties will be required to participate in the program.

**Requirements:** What developers and property owners will be required to do and how those requirements should vary by context.

**Monitoring and Compliance:** The process through which property owners will demonstrate ongoing compliance and the manner in which the City will collect data to measure program impacts and make refinements.

**Enforcement:** The mechanisms that will be used to enforce monitoring and compliance provisions.
Participating Properties

Participation is based on land use and size. This allows the regulation to adjust based on the differing impacts that various land uses have on the transportation system in terms of total trips and trip purposes. Four land-use categories were established.

- Residential: Includes single and multi-family residential developments. TDM measures for projects in this category target all drive-alone trips made by residents, including commute and other trips.

- Office: Includes general offices. Employee commute trips constitute most trips to this land use, and the TDM measures focus on reducing drive-alone commute trips by employees.

- Commercial: Includes retail, restaurants, lodging and accommodations, civic, institutional, and educational uses. Commercial land uses are characterized by high visitor or customer trips, with a smaller proportion of trips being made by employees. TDM measures in this category are intended to reduce drive-alone commute trips by employees, as well as drive-alone trips by visitors and customers.

- Industrial: Includes manufacturing, warehousing, transportation, and storage uses. Industrial land uses are characterized by much lower daily and peak-period trip generation per square foot than office or commercial uses but still characterized principally by employee commute trips. TDM measures in this category therefore target employee drive-alone commute trips but account for the lower trip generation rates per square foot typically associated with this land use category.
Three tiers were established for each land-use category to create a nexus between impact to the transportation system and TDM requirements. The tier thresholds are detailed by category in Table A.

<table>
<thead>
<tr>
<th>Tier 0</th>
<th>Tier 1</th>
<th>Tier 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td>0-24,999 sf</td>
<td>25,000 – 49,999 sf</td>
</tr>
<tr>
<td>Commercial</td>
<td>0-24,999 sf</td>
<td>25,000 – 49,999 sf</td>
</tr>
<tr>
<td>Industrial</td>
<td>0-149,999 sf</td>
<td>150,000 – 299,999 sf</td>
</tr>
<tr>
<td>Residential</td>
<td>0-24 DU</td>
<td>25 – 49 DU</td>
</tr>
</tbody>
</table>

*Table A. Tier Thresholds by Category*

All projects subject to large development review are categorized as Tier 2. Additionally, all projects receiving small lot parking exemptions are categorized as Tier 2.

**Requirements**

All Tier 1 and Tier 2 properties will be required to submit a TDM plan as part of the development approval process and subsequently implement and report on those plans as part of their occupancy permit. The required elements of TDM plans will vary based on developments’ context and size. The City will create a website that will help developers understand their specific TDM requirements and help them create complying TDM plans. Specific requirements are discussed below.

**Tier 0 Properties** were determined to not warrant TDM requirements at this time given their smaller impact on the transportation system, the cost to implement TDM strategies versus available revenue, and the associated administrative burden.

**Tier 1 Properties** will be required to develop TDM plans that utilize TDM supportive infrastructure, like secure bike parking or transit stop improvements, to achieve a target single-occupancy vehicle (SOV) rate for commute trips. Properties will also be required to designate a TDM contact who will be responsible for distributing TDM materials that are created by the City or other third parties such as area transportation management associations (TMAs). TMAs are non-profit organizations that work with employers and travelers to reduce vehicle trips and increase mobility options.

**Tier 2 Properties** will be required to develop TDM plans that meet Tier 1 requirements and add programmatic TDM strategies such as transit pass discounts, managed parking, and education efforts to achieve a target SOV rate and demonstrate on-going achievement of that SOV rate.
Target SOV rates will vary based on land use, surrounding context, and level of access to transit. Land use accounts for whether the project is residential or non-residential. Residential properties are the origins of commute trips while non-residential properties are the destinations of commute trips. Context is based on the Blueprint Denver Neighborhood Context in which a development is located. Blueprint Denver Neighborhood Contexts are a good indication of density, walkability, and land-use mix, which are all associated with travel mode choice. Access to transit accounts for whether a development’s residents or tenants will have access to high-frequency transit service.

Target SOV rates were established based on an analysis of current commute behavior, controlling for land use, context, and access to transit. The current SOV commute rates were then adjusted based on the likely impact TDM programs would have on commute behavior. Tier 1 target SOV rates are based on the installation of TDM supportive infrastructure. Tier 2 target SOV rates are based on the installation of TDM supportive infrastructure and the implementation of programmatic strategies.
## Blueprint designation

<table>
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<tr>
<th></th>
<th>No high frequency transit</th>
<th>With high frequency transit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Office, Commercial, Industrial</td>
<td>Residential</td>
</tr>
<tr>
<td>Downtown</td>
<td>60%</td>
<td>51%</td>
</tr>
<tr>
<td>Urban Center</td>
<td>75%</td>
<td>55%</td>
</tr>
<tr>
<td>General Urban</td>
<td>69%</td>
<td>62%</td>
</tr>
<tr>
<td>Urban</td>
<td>65%</td>
<td>68%</td>
</tr>
<tr>
<td>Urban Edge</td>
<td>69%</td>
<td>72%</td>
</tr>
<tr>
<td>Suburban</td>
<td>76%</td>
<td>74%</td>
</tr>
</tbody>
</table>

*Table B. Target SOV Rates for Tier 1 Properties*

## Blueprint designation

<table>
<thead>
<tr>
<th></th>
<th>No high frequency transit</th>
<th>With high frequency transit</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Office, Commercial, Industrial</td>
<td>Residential</td>
</tr>
<tr>
<td>Downtown</td>
<td>55%</td>
<td>46%</td>
</tr>
<tr>
<td>Urban Center</td>
<td>70%</td>
<td>50%</td>
</tr>
<tr>
<td>General Urban</td>
<td>65%</td>
<td>58%</td>
</tr>
<tr>
<td>Urban</td>
<td>61%</td>
<td>64%</td>
</tr>
<tr>
<td>Urban Edge</td>
<td>65%</td>
<td>69%</td>
</tr>
<tr>
<td>Suburban</td>
<td>73%</td>
<td>72%</td>
</tr>
</tbody>
</table>

*Table C. Target SOV Rates for Tier 2 Properties*
Research shows that the biggest factor in the decision to drive is the availability of parking. This means that drive-alone rates will be higher if parking supply remains abundant. Therefore, developers that exceed parking minimums will be required to implement additional TDM strategies to counteract that effect and create a disincentive for developers to over-park their projects. The additional requirements aim to offset 25% to 75% of the impacts associated with the excess parking, depending on the Blueprint Denver Neighborhood Context in which the development is located.

The target SOV rates focus exclusively on commute trips. However, commercial properties generate many more trips per square foot than the other land use categories and the majority of these trips are associated with visitors, not commuters. To offset the significant impacts associated with these non-commute trips, commercial properties assigned to Tier 2 will be required to augment their TDM plans with TDM strategies that reduce visitor vehicle trips. In most cases, this will require the addition of one to two visitor-targeted TDM strategies to a TDM plan.

**Monitoring and Compliance**

Monitoring and compliance consist of pre-occupancy inspections, annual reporting, and spot checks. Before a building can receive an occupancy permit, the property owner will need to demonstrate, through a pre-occupancy inspection, that infrastructure-focused TDM strategies have been constructed according to the TDM plan.

All properties with TDM plans must submit an annual report to the City. Tier 1 projects must provide contact information for the development’s TDM coordinator and verification that TDM infrastructure is in good working order. Tier 2 properties must provide all the information that Tier 1 properties provide plus verification that programmatic strategies are being implemented as specified in their TDM plans. In addition, Tier 2 properties will be required to conduct biennial commute surveys to measure the commute SOV rate of building occupants.

The City will conduct random spot checks to ensure that the TDM strategies specified in the approved TDM plan are implemented as detailed in the plan and verified in the annual reports.

**Enforcement**

If property owners fail to submit annual reports, the City will send notices to the property owners notifying them of the failure and providing 60 days to submit an annual report. Property owners who fail to respond
to the reminder within 60 days will be subject to enforcement based on Division 12.11 of the City's zoning code and Section 1-13 of the Denver Revised Municipal Code.

Adherence to target SOV rates by Tier 2 properties will be tracked through required biennial surveys that measure commute SOV mode share. Tier 2 properties that fail to achieve assigned target SOV rates will be subject to enforcement actions that escalate based on the number of failures as detailed below:

<table>
<thead>
<tr>
<th>Failure Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Failure</strong></td>
<td>The property owner will be required to meet with a City employee or area TMA to review the property's TDM plan, the manner in which the plan is being implemented, and identify voluntary remedies to reduce SOV trips.</td>
</tr>
<tr>
<td><strong>Second Failure</strong></td>
<td>The property owner will be required to officially update the TDM plan by adding a sufficient number of TDM strategies so that the property should achieve its target SOV rate.</td>
</tr>
<tr>
<td><strong>Third Failure</strong></td>
<td>The property owner will be required to meet with a City employee or area TMA to review the property's TDM plan, the manner in which the plan is being implemented, and identify voluntary remedies to reduce SOV trips.</td>
</tr>
<tr>
<td><strong>Fourth Failure</strong></td>
<td>A property owner will be subject to the City's administrative citation process based on each trip exceeding the target SOV rate established for the development.</td>
</tr>
</tbody>
</table>
Because surveys occur every two years, property owners would have six years to address TDM plan issues prior to triggering a fourth failure. In addition, no property owners will be required to update their TDM plans or be subject to fines unless three or more other properties within the same Blueprint Denver context and with similar SOV targets have achieved their target SOV rate. This will ensure that property owners are not held to overly ambitious SOV targets.

Next Steps

Expanding transportation options within new developments will help the City and County of Denver meet important city-wide goals, including shifting how many people drive alone for trips, reducing dangerous air pollution and climate emissions, and expanding access and opportunity. Traditionally, new developments have been required to provide parking, which greatly encourages people to drive. By expanding requirements to include other transportation options through TDM strategies, Denverites will be able to take other options, like carpooling, riding a bike, or taking the bus or the train to get to their destinations.
The City and County of Denver has established numerous goals through its planning and policy development processes to improve mobility, increase affordability, minimize environmental impacts, improve public health. To help meet these goals, the City has implemented transportation demand management (TDM) strategies internally and in coordination with developers, property owners, employers, and non-profits. TDM is a collection of strategies that shift the how, when, and where of people’s travel behavior to increase system efficiency, reduce single occupancy vehicle (SOV) trips, improve regional air quality, and achieve citywide mobility goals.

This study was conducted to create a policy that will formalize the use of TDM strategies in new developments, thereby helping the City achieve its transportation, land-use, and climate-change goals. This document is intended as an internal reference that documents the processes used to develop the policy and establish program requirements. Implementation of the TDM program will consist of the development of additional resources such as an implementation guide and an online tool to aid City staff and assist developers.

**TDM Background**

TDM strategies can be organized into five categories: (1) services; (2) infrastructure; (3) parking management; (4) subsidies; and (5) education, all of which are summarized in Figure 1. In general, TDM programs do not provide transportation services but rather leverage existing investments in transportation services and increase the efficiency of those investments through small-scale infrastructure improvements, parking management, subsidies, and education. However, there are circumstances where TDM programs will fund shuttles, microtransit, and other transportation services to help travelers connect to transit stations and stops or travel in areas where transit service does not exist or is lacking.

Examples of developer led TDM programs already exist in Denver, as well as around the country. In the early 2000s, as part of the development approval process, Clayton Lane, a mixed-use project in Cherry Creek North, included a bicycle shop with valet bike parking, changing rooms, and repair services. Employees working in the office portion of the development received annual transit passes, subsidized by a small monthly lease surcharge.

Even before Clayton Lane, Colorado Center stands as another example of a developer-led TDM program. This mixed-use development has used TDM strategies to reduce vehicle trips and parking demand from its inception. The property owner is a member of a local transportation management association (TMA) that works to reduce vehicle travel through the implementation of TDM strategies. TMA staff conduct ongoing on-site marketing and outreach efforts to help building tenants identify non-drive-alone ways to get to work. Staff also help employers identify and implement telework, compressed work week, and other strategies to reduce vehicle trips. The site has also offered discounts on transit passes, and facilities where cyclists can securely lockup bicycles and change clothes.

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2 SOV trips are trips that are made in non-commercial vehicles with only one driver and no passengers. For the purpose of TDM planning, SOV trips also include Uber and Lyft rides with only one passenger.
Transportation Demand Management

Figure 2: Examples of TDM Services and Strategies

**TDM Benefits**

TDM strategies can provide significant benefits to communities. By encouraging the use of non-drive alone travel options, TDM strategies reduce vehicle congestion, lower harmful emissions, and encourage a more efficient use of the existing transportation system. TDM strategies also make it less expensive and easier to use non-drive alone travel modes, which increases mobility options for low-income households, seniors who may be unable to drive, and any individual – younger or older – who does not have a driver’s license.

TDM strategies also yield significant health benefits. Reductions in harmful emissions have direct benefits to community members, as do increased levels of activity associated with walking, biking, and taking transit. During the Atlanta Olympics, when vehicle trips dropped significantly, hospitalizations for asthma declined by 30 percent\(^3\). Moving people out of automobiles and onto transit for commute trips is correlated with a five-pound drop in weight\(^4\). And, while transit usage is correlated with weight loss, every extra five minutes of driving increases the risk of being obese by 3 percent\(^5\). Meanwhile, transportation

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emissions are the second-leading source of greenhouse gas emissions in Denver – primarily from private vehicles. Expanding more efficient options is key to meeting the City’s climate goals.

Beyond health and environmental benefits, TDM strategies can yield significant benefits to affordable housing. The presence of TDM programs makes it easier for households to reduce car ownership. Two-car households may become one-car households and one-car households may become zero-car households. According to AAA data, getting rid of a car will, on average, save a household about $8,450 per year. Reduced parking demand also allows developers to build less parking, which can cost anywhere from $5,000 to over $60,000 per space. During a ULI presentation on May 30, 2019, a developer of the Coloradan near Union Station said that unbundling parking from property purchases reduced studio costs by $50,000 per unit. Being able to focus on non-auto infrastructure has other economic benefits. A study in Boston, Massachusetts found that each million dollars spent on roads created 7 jobs, while each million spent on pedestrian infrastructure created 11 jobs, and each million spent on bicycle infrastructure created 14 jobs.

A TDM policy associated with the development review and approval process for new buildings and major building improvements will allow the City to achieve the benefits listed above and meet many goals that have been established in its planning and policies documents:

- Blueprint Denver, Comprehensive Plan 2040, and the Mobility Action Plan all identify a goal of no more than 50% of commute trips being made in single-occupancy vehicles.
- The Climate Action Plan and the Mobility Action Plan call on the City to reduce greenhouse gas emissions 80% by 2050.
- The Comprehensive Plan 2040 calls for the City to make neighborhoods accessible to people of all ages and abilities and to create and enhance environments that support physical activities.
- Blueprint Denver calls on the City to align the impacts of private development with transportation infrastructure and promote development that creates walkable, transit-friendly communities. It also calls on the City to promote environmentally-friendly development strategies in the public and private realms.
- The City’s sustainability goals seek to increase the percent of youth in Denver at a healthy weight from 69% to 74%.

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Denver Moves Transit recommends encouraging first- and final-mile services, programs, and technology to increase options for transit access and connections. It also recommends evaluating curb lane management and off-street parking strategies to support multimodal access and connections.

An effective TDM regulatory program will help the community achieve these goals, resulting in a more livable city where travel without a car is easier, housing is more affordable, and job and educational access is improved.

The Evolution of Mobility Requirements

The idea behind mandating the provision of TDM services for new developments is not new. Many cities across the country already have requirements in place, including Boulder; Seattle; Bloomington, Minnesota; San Francisco; and Pasadena, California. Multiple programs were reviewed as part of this study. They are summarized in a later section, and full analyses can be found in “Appendix A: Case Studies” on page A1.

The idea that new developments should provide for mobility dates back many years. In the 1800s, it was not uncommon for developers to construct or subsidize trolley lines to connect their developments to other parts of the community. With the advent of the automobile, developers began constructing garages and surface parking, a practice which was eventually mandated by many communities, resulting in today’s parking requirements.

Mobility expectations changed with the advent of the automobile, and they are changing again today. Cities are moving away from a narrow definition of transportation improvements as roadway expansion and the provision of parking spaces toward a more holistic solution. Rather than focusing mitigation efforts associated with trip generation solely on increasing supply (e.g., more parking spaces and additional roadway lanes) cities are evolving development requirements to include demand-side efforts that are less costly and environmentally impactful. Increasing mobility options through TDM allows neighborhoods to maintain their character while density increases. This study and its associated policy recommendations seek to expand the definition of mobility within the context of new development. The goal is to increase the mobility options available to building occupants and ensure that access to mobility is equitable and that building residents, employees, and visitors have diverse travel options.

In the 1800s, it was not uncommon for developers to construct or subsidize trolley lines to connect their developments to other parts of the community.
In Denver, this evolution is well on its way. Beginning in 2019, the City began investing $40 million to improve bike access and connectivity. Since then over 35 new bike lane miles have been added as of fall 2020, part of the Mayor’s commitment to 125 new lane miles by 2023. Denver voters also overwhelmingly approved the Elevate Denver bond package in 2017, which includes funding for 50 bikeway miles to accelerate connectivity, functionality, and safety of the network. Additionally, the City has worked to increase the speed and reliability of transit service by implementing transit-only lanes on key corridors and installing transit signal priority to increase the speed of transit operations. The City continues to evaluate and study additional corridors and intersections for transit speed and reliability improvements. City plans now reflect specific designations for transit, bicycle, and pedestrian priority on many of the City’s streets. And, the City’s 12,000+ employees enjoy access to dramatically subsidized transit passes to encourage commuting to work by transit instead of in personal vehicles.

The City’s mobility system is not just a public responsibility, but a public/private project. Just as in the past public building of expanded roadways was paired with private requirements for parking, likewise today public investments in transit, bicycle, and pedestrian mobility must be paired with private requirements to support and exploit that infrastructure for the public good.

![Figure 2: Study Process](image-url)
The study process was designed to ensure that the final TDM plan recommendations: (1) advance documented City goals and policies; (2) are informed by successful efforts and lessons learned in other communities; and (3) account for the needs and address the concerns of internal and external stakeholders. To achieve this, the planning process included a review of City of Denver plans and policies; review of developer TDM practices and policies in other cities; and engagement with City Council, applicable City staff, and external stakeholders including developers, mobility service operators, and residents.

Draft recommendations were developed after the project team completed the review of City goals and policies, collected lessons learned, and conducted an initial round of outreach with internal and external stakeholders. The draft recommendations were subsequently shared with stakeholders and refined. The study process is summarized in Figure 2 (this document represents step 9) and fully described in subsequent sections of this chapter.
Development of Recommendations
City Plans and Policies

City plans and policies were reviewed early in the study process to: (1) identify existing policies and goals that should guide the development of TDM policies; (2) identify existing policy preferences related to TDM programing and strategies; and (3) understand existing policies to avoid duplication in the TDM planning process. Documents for inclusion in the review were identified by City staff and the consultant team and included the following:

- Article 10 from CPD’s Zoning Code (updated 2018)
- Denver’s Mobility Action Plan (2017)
- Strategic Parking Plan (2010)
- RTD First and Last Mile Study (2019)
- CCD 2020 Sustainability Goals (Updated annually)
- DRCOG TDM Plan (2012)
- Denveright Plans:
  - Blueprint Denver (2019)
  - Denver Moves: Bikes (Updated annually)
  - Denver Moves: Pedestrians and Trails (August 2018)
  - Denver Moves: Transit (2019)
  - Denver Parks and Recreation Game Plan for a Healthy City (August 2018)
- TOD Strategic Plan (2014)
- Denver Strategic Transportation Plan (2008)

The Mobility Action Plan specifically calls for TDM to be integrated into the development process. It says the City should develop and deploy policy and regulatory innovations to encourage building owners to incentivize employees and tenants to use transit and other alternative transportation modes. It also calls on the City to integrate programs for TDM into new and existing developments. The Strategic Parking Plan also calls for TDM to be integrated into the development process. It calls on private developers to utilize TDM to manage parking demand and lists specific TDM strategies that should be integrated into new developments: transit incentives and subsidies; bicycle parking; shower facilities; bike share; car share; and parking cash out.

Other planning documents provide guidance regarding how a TDM plan should be implemented and function. Based on existing plans, the TDM plan should:
• Support the City’s goal of no more than 50% of commute trips occurring in SOVs and reducing greenhouse gas emissions 80% by 2050.

• Integrate transportation management associations (TMAs), which are non-profit organizations that implement TDM strategies and work with employers, property owners, and travelers to reduce vehicle trips.

• Expand access to transit passes, bicycle amenities, and technology that increases awareness of mobility options.

• Acknowledge the variety of land-use patterns and context within the City and adjust based on context.

Case Studies
The project team reviewed five different approaches to developer TDM requirements from other jurisdictions. Case study jurisdictions included cities and counties and were selected because they represent communities with significant development pressures that have effectively implemented development-focused TDM programs. Each case study provided a different approach to incorporating TDM into the development process. Reviewed jurisdictions were San Francisco, CA; Cambridge, MA; Fairfax County, VA; Montgomery County, MD; and Pasadena, CA. For each case study, the project team collected information on:

• Program goals, metrics, and monitoring;

• Program requirements and mechanisms used to implement TDM requirements;

• How requirements integrate with parking policy;

• Process for developing TDM plans and associated fees;

• Monitoring, compliance, and enforcement;

• Administration and staffing requirements;

• And, results.

The complete case study report can be found in “Appendix A: Case Studies” on page A1. Below is a summary of the key findings.

Goals, Metrics, and Monitoring
The overarching goals set forth by the reviewed programs are similar – a reduction of vehicle trips associated with new developments – but, the jurisdictions took different approaches to identify specific measurable goals that developments have to comply with as well as related monitoring requirements.
Most jurisdictions set specific SOV or trip reduction goals at the development or district level. Travel surveys or vehicle trip counts are generally required to demonstrate progress towards goals.

San Francisco chose a somewhat different approach from other jurisdictions that doesn’t rely on surveys. The city relies heavily on extensive research on the expected impacts of specific TDM strategies in the local context. Developers have to achieve a point goal when submitting their TDM plan and then demonstrate compliance by proving the strategies have been implemented, which is assumed to consequently meet the trip reduction goal. This approach relies on the accuracy of the TDM impact estimates, and San Francisco is continuously working to update assumptions and improve vehicle trip reduction estimates. The advantage of San Francisco’s approach is that it avoids surveys and trip counts, which can be time consuming to administer for both developers and city staff. The disadvantage is that TDM impacts can vary drastically based on a variety of factors, making it difficult to accurately evaluate program impacts at each mandated site and for the program overall.

**Mechanisms Used to Implement TDM Requirements**

All jurisdictions researched except for Fairfax County passed an ordinance establishing the TDM plan requirement in the city or county code. Fairfax County does not mandate the provision of TDM strategies; instead, the county anchored TDM goals in its comprehensive plan and highly encourages TDM plans through the rezoning process. Once a property’s TDM plan is approved, it is included in the property’s proffer and becomes a zoning requirement for the property. Within Fairfax County, proffers are used to document all items that a developer commits to as part of the rezoning process.

**The advantage of San Francisco’s approach is that it avoids surveys and trip counts, which can be time consuming to administer.**

**TDM Requirements and Applicability**

The case study communities use different thresholds to determine whether a TDM plan is required. The cities of San Francisco and Pasadena base eligibility on development size. In Cambridge, the addition of parking spaces at an existing or new site triggers the requirements. In Fairfax County, developers are encouraged to submit TDM plans with every rezoning application in areas where the comprehensive plan has identified TDM goals. Montgomery County requires TDM measures when a development is located in any one of the six designated transportation management districts. In addition, the cities of Cambridge and Pasadena apply tiers to define the extent of the requirement and the level of commitment and monitoring required.

Most programs give developers flexibility in designing their TDM program, with the exception of Pasadena-
na’s requirements for smaller developments, which prescribe a list of TDM strategies. In San Francisco, developers must choose strategies from a list of vetted TDM strategies, while all other jurisdictions provide sample strategies to guide plan development.

Plan Development Process and Fees

All jurisdictions provide some level of assistance to developers in the form of online tools, guidance documents, or staff assistance. The cities of San Francisco and Pasadena charge specific fees for TDM plan review and for annual monitoring, while other jurisdictions do not spell out any separate fees related to the TDM requirements. Montgomery County does not specify review fees, but because all impacted developments are located in transportation management districts, they are already subject to a property tax assessment that funds TDM implementation. In all cases, fees are set to cover some or all of the program’s staffing costs.

Integration with Parking Policy

While parking policy is considered an effective TDM strategy, there seems to be little direct integration between TDM and parking requirements in most jurisdictions. None of the reviewed programs offer automatic reductions in parking minimums, though some can be negotiated. San Francisco requires additional TDM measures if the developer wants to exceed the minimum parking requirements.

Monitoring, Compliance, and Enforcement

With the exception of San Francisco, all programs require periodic travel surveys and reports to track compliance and progress towards goals. San Francisco requires proof of program implementation, assuming the program will meet the goals based on extensive research. The tracking and monitoring mechanism is directly tied to the way the goals and requirements are designed and to the level of accuracy desired to determine program impacts. With the exception of Montgomery County, where TDM fees are assessed with property taxes and therefore make it difficult for property owners to opt out, all programs have some form of financial penalties that can be levied for non-compliance. The threat of penalties is an effective way to gain compliance – the majority of developers covered by these programs fully comply.

Initial Denver Stakeholder Outreach

As part of this process, stakeholders were initially engaged in the planning process to understand their preferences and concerns, identify potential implementation resources and issues, determine how the
TDM requirement could fit into Denver’s workflow, and obtain feedback regarding the best way to implement TDM requirements and educate stakeholders. Outreach included City staff (internal stakeholders) and representatives from other agencies, neighborhood groups, and the development community (external stakeholders).

**Internal Stakeholders**

The study effort was guided by an internal working group that consisted of representatives from the departments of Transportation and Infrastructure and Community Planning and Development. Meetings with this group were held on an ad-hoc basis. The group provided input to goals, helped identify applicable planning documents and resources, identified potential concerns, helped guide development of initial concepts, and supported the selection of a final recommendation.

In addition to the internal working group, the project engaged City Council through in-person meetings with interested council members and presentations to the Land Use, Transportation, and Infrastructure committee to share information about the study and obtain feedback. Beyond those meetings, the team also met with representatives from Development Services to understand how TDM requirements could be integrated into the development review process and the impact of doing so on development review.

**External Stakeholders**

Input from external stakeholders was sought from multiple groups to guide development of the initial recommendations. Outreach efforts included focus groups, one-on-one discussions, and small meetings. Stakeholders provided feedback on multiple topics, including:

- Perceptions of general transportation challenges and those directly related to new development;
- The level of existing TDM knowledge within the development community;
- Perceptions of how TDM can positively impact neighborhoods, developers, and the City generally;
- Preferences regarding how TDM requirements could be implemented;
- Preferences for the type of TDM strategies that should be implemented within the City;
- Preferences for various verification and enforcement mechanisms;
- The potential impact of TDM regulations on property marketability and affordability;
- Potential partnerships with external organizations/agencies;
- And, the ability of shared mobility service providers to support TDM requirements and deliver services.

The project team coordinated a series of meetings with key stakeholders that included developers, financiers, representatives from registered neighborhood organizations (RNO), Regional Transportation District
Transportation Options: Requirements for New Development

(RTD) staff, representatives from TMAs, and shared-mobility service providers. The meetings took the form of focus groups, one-on-one discussions, and small meetings, depending on the number of individuals within a target group and the availability of participants. Below is a summary of meetings and the key outcomes organized by stakeholder type.

**Developers**

Two focus groups were held with developers and their representatives on December 6 and 12, 2018 and were attended by 14 individuals. Discussion topics included past efforts by developers to implement TDM strategies, preferences regarding TDM regulatory models, potential impacts of TDM regulations on developers and their projects, the ability of developers to create TDM plans without external support, preferences regarding City resources for the development of TDM plans, and the willingness of developers to implement certain TDM strategies/investments. Key takeaways from the meetings were:

- Developers would like a simple, well-defined requirement for small developments but a flexible requirement for larger developments that varies based on area and development-specific context.
- Requirements should be based on a checklist or point system with pre-approved TDM strategies to avoid an additional development review cycle or additional review time.
- Requirements should use carrots and sticks while not creating new barriers to development.
- If incentives are offered, they should ideally be parking reductions, a streamlined entitlement process, and density bonuses.
- When implementing the requirements, the City should educate developers and agencies likely to be impacted such as RTD, CDOT, and Xcel.

**Financiers**

Two financiers with knowledge of the financing of large developments were interviewed one-on-one in April 2019. Discussion focused on the potential impact of TDM regulations on the financing, value, and market-ability of developments. Key takeaways from the meetings were:

- Any reduction in parking requirements associated with the implementation of TDM strategies needs to be supported with data that banks and equity partners will trust. If the data is not trusted, developers will have a difficult time obtaining financing or selling projects with reduced parking.
- If TDM requirements can verifiably reduce parking demand while allowing developers to increase density, they would be seen as a carrot rather than a stick.
- Any policy the City develops should be flexible and allow for future revisions in case the policy does not work as intended.
- Not all condominiums have on-site staff; any TDM requirement that necessitates the presence of an employee could be expensive and cost prohibitive.
• Developers are unlikely to worry about ongoing programmatic expenses associated with TDM requirements, but equity partners will worry about those costs.
  − Ongoing TDM costs associated with programmatic strategies like transit subsidies and educational efforts can reduce the value of a building, which may be an issue to equity partners. The decrease in value is generally equal to 20 times the annual cost of ongoing TDM programming.
• Developers are unlikely to worry about potential fines for non-compliance because they generally do not hold onto a property. However fines may worry equity partners if they create ambiguity.

Registered Neighborhood Organizations
City Council members were contacted to obtain recommendations as to which RNO representatives should be invited to attend a focus group. Thirty-six RNO representatives were contacted and invited to attend a focus group on March 28, 2019. Seven individuals attended the meeting and an additional three individuals participated in one-on-one interviews. Participants were asked about the transportation challenges in their neighborhoods, transportation challenges specific to new development, and preferences regarding TDM regulatory models. Key takeaways were:
  • TDM requirements should allow RNOs to provide input that is real and allows them to have a degree of control over outcomes.
  • Requirements should be flexible and apply to individual neighborhoods and should not be “one size fits all.”
  • TDM requirements should help improve connections to transit stations.
  • Neighbors often question the willingness of people to use transit and other non-drive-alone travel modes. Any assumptions regarding TDM impacts and associated reductions in vehicle trips and parking demand will need strong supporting documentation.

Regional Transportation District
A meeting was held with RTD’s transit-oriented development planner and planning coordination manager on October 18, 2018. The discussion focused on potential benefits to RTD, transportation challenges that could impact the success of TDM regulations, the willingness of RTD to support the provision of TDM strategies by allowing access to its facilities, and the availability of RTD data to measure the impact of TDM strategies on travel behavior. Key takeaways were:
  • RTD would like to see developers near its stations build less parking for their own tenants.
  • RTD would like to see developers investing in infrastructure improvements that make it easier for transit riders to access stations.
• Available boarding and alighting data for bus stops and rail stations is limited due to the timing of surveys, but available data regarding EcoPass utilization is improving.

• Given that EcoPass prices can change significantly over time, any requirement that developers provide EcoPasses would need to have some level of flexibility to limit the developer's potential cost.

• A developer could purchase Neighborhood EcoPasses for a residential building. These passes are designed to be purchased by neighborhood groups unlike the standard EcoPass that is meant to be purchased by an employer.

Transportation Management Associations

TMAs provide TDM services throughout the City. They come in various forms including stand-alone non-profits, business improvement districts, and foundations. A focus group was conducted on October 4, 2018 with representatives from all TMAs that were serving the City of Denver at that time: Transportation Solutions, Downtown Denver Partnership, Denver South, and Northeast Transportation Connections. Since that meeting, the West Corridor TMA has begun offering TDM services in the western portion of Denver in an area generally surrounding RTD’s W rail line. The discussion provided an opportunity for the City to understand what work TMAs are already doing with developers, their lessons learned from that work, and their interest in participating in a TDM regulation. Key takeaways were:

• Requirements should not be overly prescriptive, but rather provide a clear framework and compliance options.

• Requirements should include flexibility that allows developers and subsequent property owners or managers to adopt new strategies that accommodate new transportation options and advances in technology.

• Complying with the requirements should not be overly burdensome, and the review process should be set up to be straightforward and quick.

• TMAs are open to providing some level of assistance (plan development, implementation, and evaluation) to developers if funding for doing so is provided.

• A membership amount should be specified if TMA membership is required.

• Requirements should encourage or allow developers to collaborate on strategies either through a TMA or directly with one another.

Shared-Mobility Service Providers

Shared-mobility services are transportation options that are shared by multiple travelers. Modern examples include scooters, bikeshare, carshare, and ride hailing companies like Uber and Lyft. Representatives of the City’s registered providers were invited to participate in a focus group on January 23, 2019. Eleven
individuals participated representing 11 companies. The discussion focused on defining the geographic contexts in which shared-mobility services are most applicable, potential TDM strategies that could support the use of shared-mobility services, challenges associated with payment and data sharing, and requirements for providing or guaranteeing service to specific properties. Key takeaways were:

- Providers are unlikely to expand their service areas significantly beyond high-density areas with good bike infrastructure and transit access due to a lack of expected demand outside those areas.
- Providers are reluctant to share data with the City but may be willing to provide aggregated data for properties.
- Most providers can contract directly with developers/property owners but would prefer a district model in which they contract with multiple properties at once.
- Providers have mechanisms to distribute/accept subsidies in the form of promotional credits, ride credits, or other formats.
- It can be difficult and expensive for a property to have guaranteed service that is available exclusively to building tenants.
- Many shared-mobility services require connectivity, which means vehicles cannot be stored in garages or other areas without a view of the sky and a cellular connection.

**Development of Draft Recommendations**

Draft recommendations were developed after completing initial research and stakeholder outreach. The recommendations process was driven by the collected data, established City goals, stakeholder input, and experience of the project team.

Prior to creating the draft recommendations, three guiding principles were established based on the data collection effort and stakeholder input:

1. TDM requirements should not negatively impact affordability or the financial feasibility of new developments.
2. TDM requirements should be equivalent to the impact a development will have on the transportation system and should adjust commensurate with impacts.
3. City staffing should be sufficient to allow the TDM recommendations to be implemented without significant delay to the development review process.

Additionally, TDM requirements should align with established City goals, specifically, the City’s goal of no more than 50% of commute-related trips occurring in SOVs by 2040, reducing greenhouse gas emissions 80% by 2050, and expanding access to non-SOV travel options.
High-level concepts regarding various options for a developer-TDM program were presented at a working session with staff from Public Works and Community Planning and Development. Their input was used to develop three options:

1. An option similar to the final recommendation outlined in this document.
2. A version of the recommendation outlined in this document but with a pilot phase.
3. A district-based option similar to a successful model from Montgomery County, Maryland in which property owners work together within defined districts to implement TDM programs.

The options were presented to internal and external stakeholders to narrow the list to a single option and subsequently refine the remaining option for further stakeholder input.

**Internal Stakeholders**

The initial options were shared with the internal working group, the Public Works Executive Management Team, and representatives from the City Attorney’s Office. Option 3 was removed from further consideration upon legal review and advice that its implementation would require enabling legislation at the state level. Based on feedback from the internal working group and the Public Works Executive Management team, it was decided to remove the pilot phase option due to the significant development pressure facing Denver and the need to respond more quickly than a pilot project would allow.

Once focused on a single option, the project team made refinements and detailed elements including impacted properties, requirements, monitoring, and enforcement. The draft recommendation was then shared with interested city council members in one-on-one meetings and subsequently presented to the City’s Land Use, Transportation, and Infrastructure committee. The project team also met with representatives from Development Services to understand how the draft recommendations could be integrated into the development review process and the impact of doing so on development review. The team also met with representatives from the Housing Policy Team within the Department of Housing to discuss the potential impacts and benefits of TDM requirements on affordable housing. Finally, an additional meeting was held with the City Attorney’s Office to review the draft recommendations to determine the process that would be needed to implement the recommendations and ensure they comply with all City and state laws and regulations.

**External Stakeholders**

The project team presented the draft recommendations to external stakeholders and sought input through in-person meetings, a webinar, and a survey.
Stakeholder Meeting

A stakeholder meeting was held on June 27, 2019 with developers, financiers, RNO representatives, RTD staff, representatives from TMAs, and shared-mobility service providers. Individuals who participated in previous outreach efforts had been asked if they were interested in continuing to provide feedback. Twenty-size Individuals who expressed an interest in continuing their participation were invited to the June 27 meeting, which was attended by 15 people.

During the meeting, the project team provided a refresher regarding TDM and the study, detailed the planning process, provided an overview of the draft recommendations, and solicited input on the draft recommendations. The overview included information on what types of properties would be affected, the requirements and how they would vary by property type, sample strategies, the process for monitoring to ensure compliance, and penalties for failure to comply with requirements. A copy of the presentation can be found in Appendix B.

As part of the effort to solicit input, attendees were provided with a handout that summarized all of the feedback obtained during previous outreach efforts and detailed how the draft recommendations addressed the feedback. A copy of this document can be found in Appendix C. Attendees were asked to confirm that their feedback had been addressed, to provide additional clarification regarding previous feedback, and to provide new feedback. Key comments provided were:

- Any strategies that count on ride-hailing services, like Uber and Lyft, should consider trips with one rider to be single-occupancy vehicle trips.
- The City should require shared-mobility service providers to pay licensing fees and/or taxes commensurate with their impact on infrastructure.
- The City should consider a “congestion” tax to change travel behavior.
- The City needs to determine a role for existing property owners when it comes to implementing TDM strategies. This will help distribute the burden of reducing vehicle trips while also increasing capacity to implement TDM strategies.
- The City should hold developers responsible for executing the TDM strategies they include in their plans but not to meeting SOV goals.
- The cost of implementing TDM strategies should not exacerbate affordability issues.
- TDM requirements should be tied to Blueprint Denver or future contexts and not to existing zoning.

Developer Meeting and Webinar

After hearing from all stakeholders, the project team conducted an additional round of outreach to developers and their representatives inviting 140 people to further participate. Opportunities to participate were offered through an in-person meeting on August 23, 2019 and a webinar conducted on September
5, 2019. The content for the in-person meeting and webinar was very similar to what was presented at the stakeholder meeting on June 27. The in-person meeting had 14 attendees. Ten people registered for the webinar. An attendee count for the webinar is unknown as we do not know how many people were listening per connection. Key comments provided were:

- Property owners should be able to work with other organizations and properties to implement TDM strategies.
- The City needs to determine how it will account for shared resources.
  - If a building has access to a first/last mile shuttle but does not contribute to the shuttle’s operating costs, can the developer claim credit for the shuttle?
  - If Building A has secure bicycle storage and changing facilities that are available to occupants of Building B, can Building B claim credit for the facilities?
  - If a developer counts on a shared resource, what happens if it goes away?
- Would tenant improvements result in an existing building needing to participate in the TDM program? Attendees were generally supportive of such a requirement and suggested that it be based on a ratio of improvement costs to building value.
- Buildings should be allowed to share parking. If one building has excess parking another building should be able to use the parking to meet its parking requirements.
- TDM requirements need to be clear and understandable early in the design process. Frequently a developer will say to an architect, “Here is my property. Tell me what I can do with it.” The architect needs to know what can actually be done.
- To minimize misunderstandings, TDM requirements that overlap with LEED language should use the LEED language.
- Tenants have leases that require property owners to give them a certain number of parking spaces. Any requirements need to avoid causing issues with current leases.
- Proposed fines and tracking may be heavy handed. Property owners may manipulate surveys or take other actions to avoid fines.
- Developers may find it difficult to secure survey responses as they seek to demonstrate compliance.
- Data that comes out of the program should be shared with developers for their benefit and for sharing with lenders.
- Ensure that TDM requirements do not conflict with the zoning code.
• Will there be interim SOV goals for developers or will they need to immediately meet the SOV reduction goals?

• Tax incentives could encourage developers to go beyond the minimum requirements.

• The City should develop a plan as to how TDM regulations will be rolled out and how impacted parties will be educated about requirements.

• The City should develop similar requirements for employers as it would for developers. An employer mandate would make it easier for developers to secure cooperation with implementation.

• This program needs to be supported by other efforts to improve walking and biking infrastructure and transit service. The City should also conduct general educational outreach to travelers that encourages them to drive less.

• TDM requirements should not increase the time associated with the development review and permitting process.

**Developer Survey**

All individuals who participated in the developer forums, or were invited to do so, were also invited to complete an online survey. The survey was intended to provide developers with an additional way to submit comments that may not have been expressed during the forums or were realized after the conclusion of the forums. The survey asked respondents about their past experiences with TDM, whether they had any TDM lessons learned to share, what educational programs the City could provide to help launch the TDM program, and what concerns respondents would like to share. Six individuals responded to the survey. Key comments were:

• When provided with a list of potential incentives and services that could make implementing the TDM requirements easier, respondents were most interested in:
  - Reduced parking requirements
  - Assistance implementing TDM plans
  - Data from a city-wide study of parking utilization rates
  - Assistance from an area TMA when working with local neighborhood organizations

• Respondents expressed the following concerns:
  - The required reduction in the SOV rate should be integrated into applicable traffic impact studies.
  - Architects need to be aware of requirements early in the design process. This is especially important with multi-building developments with different architects designing each building.
− More business groups should be included in the planning outreach efforts such as the Denver Chamber of Commerce, Restaurant Association, and NFIB.

− The threshold of 20,000 square feet for commercial buildings to participate in the TDM program is low, and the City should consider raising the threshold.

− Costs to join a TMA should be defined and should not be prohibitively expensive.
Recommendations
This section outlines the program recommendations and includes the following subsections:

**Participating Properties:** Discusses the process the team went through to identify which properties should participate and the development of thresholds to establish participation requirements.

**Requirements:** Identifies the requirements for participating properties.

**Monitoring and Compliance:** Outlines processes for monitoring program impacts and ensuring on-going compliance.

**Enforcement:** Provides recommendations for program enforcement.

### Participating Properties

It is necessary to determine which properties should be required to implement TDM strategies. None of the TDM requirements reviewed for the case studies research require all properties to participate. Rationale as to which properties must participate varies by community. Based on stakeholder feedback, TDM requirements should not negatively impact affordability, should be commensurate with a property’s impact on the transportation system, and should not result in unreasonable delays to the development review process. The project team evaluated three considerations based on these goals to determine which properties should be required to participate in the TDM program:

- The ability of property owners to implement TDM programs without unreasonable impact to project costs or subsequent lease rates;
- The likely impact of various land uses on the transportation system and community;
- The ability of the City to provide high-quality service to developers and property owners during development review and monitoring.

### Impact on Project Costs and Lease Rates

The cost of implementing a TDM program should not unduly impact the affordability of residential or commercial properties. Certain TDM strategies, such as providing on-site trip planning, developing and hosting an informational website, conducting outreach events, and subsidizing an on-site carshare vehicle have ongoing costs and are more easily financed by larger developments that can spread the costs across more tenants than smaller developments. TDM program requirements should recognize that larger developments are able to implement more robust TDM programs than smaller developments at equivalent costs per square foot or residential unit.

### Impacts on the Transportation System

An ideal TDM regulation will balance requirements to ensure they are equivalent to a development’s impact on the transportation system and community, i.e., more impactful developments should have to
do more to reduce vehicle trips than less impactful developments. Input provided by stakeholders and guidance from existing City plans and goals indicated that impact should be measured based on vehicle trip generation, which is a factor of total daily trip generation and trip purpose.

Trip rate or generation is largely a function of land use and the size of a development. The project team used the Institute of Traffic Engineers’ (ITE) Trip Generation Manual to gain an understanding of trip generation rates for various land uses and development sizes.

Another important aspect of estimating transportation system impacts is trip purpose. Trips can be taken for work, school, shopping, social, recreational, and other purposes. But work and school trips are typically regular trips, taken at the same time – often at the peak hour – and to the same destination. These trips are not only the most predictable and hence the most easily managed with TDM, they are also the trips that have the most outsized impact on the overall efficiency of the system and have the greatest impact on air quality. Other trip purposes, such as shopping or recreational, are discretionary trips that are highly variable by origin, destination, and time of day.

Impacts on Regulatory Review and Permitting

Developers who participated in the stakeholder process stressed their desire that any TDM requirements not delay the development review process. The potential for delays increases with the volume of properties impacted by TDM requirements. 2019 permit data was reviewed to inform potential development size thresholds and ensure that adequate resources are available within the City to implement the TDM recommendations.

Properties Required to Participate

The three criteria discussed above were considered when identifying properties required to participate in the TDM program. Thresholds identifying participating properties were developed based on land use, trip purpose, and development size.

Categories

As mentioned in the discussion above, trip purpose is an important consideration when developing a TDM program. Some TDM strategies are considered commute trip reduction strategies and are particularly effective at reducing work trips. Other strategies are aimed at reducing visitor trips. For this reason, categories were developed to group land uses by both overall impact to the transportation system, in terms of total trips, and by trip purpose. The four categories are described below.

Residential: Includes single and multi-family residential developments. TDM measures for projects in this category target all categories of SOV trip reduction for residents, including commute trips.

Office: Includes general office and medical offices. Employee commute trips constitute most trips to this land use, and the TDM measures focus on reducing SOV commute trips by employees.
Commercial: Includes retail, restaurants, lodging and accommodations, civic, institutional, and educational uses. Commercial land uses are characterized by high visitor/customer trips with a smaller proportion of trips being made by employees. TDM measures in this category are intended to reduce SOV commute trips by employees but also SOV trips by visitors and customers.

Industrial: Includes manufacturing, warehousing, transportation, and storage uses. Characterized by much lower daily and peak-period trip generation per square foot than office or commercial uses but still characterized principally by employee commute trips. TDM measures in this category therefore target employee commute trips but account for the lower trip generation rates per square foot typically associated with this land use category.

Tiers

Tiers were developed to further account for impact to the transportation system; more impactful developments should have to do more to reduce vehicle trips than less impactful developments. The tiers also aim to reduce the City and private administrative burden of tracking numerous TDM programs over time by limiting requirements to one-time infrastructure investments for smaller properties.

Three tiers were established for each land-use category to create a nexus between impact to the transportation system and TDM requirements for each of the categories identified. The tier thresholds are outlined by category in Table 1.

<table>
<thead>
<tr>
<th>Tier 0</th>
<th>Tier 1</th>
<th>Tier 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td>0-24,999 sf</td>
<td>25,000 – 49,999 sf</td>
</tr>
<tr>
<td>Commercial</td>
<td>0-24,999 sf</td>
<td>25,000 – 49,999 sf</td>
</tr>
<tr>
<td>Industrial</td>
<td>0-149,999 sf</td>
<td>150,000 – 299,999 sf</td>
</tr>
<tr>
<td>Residential</td>
<td>0-24 DU</td>
<td>25 – 49 DU</td>
</tr>
</tbody>
</table>

Table 1. Tier Thresholds by Category

Tier 0

Tier 0 consists of small developments including office or commercial uses that are 24,999 sf or smaller, industrial uses under 150,000 sf, and residential developments with 24 or fewer dwelling units. Tier 0 has no TDM requirements.
**Tier 1**

Tier 1 includes medium-sized office and commercial developments between 25,000 and 49,999 sf, industrial developments between 150,000 and 299,999 sf, and residential developments with 25 to 49 dwelling units.

Tier 1 requirements are focused on one-time infrastructure investments, which reduces the time needed for the development review process and ensures on-going compliance by property owners. For the property owner, this tier allows costs to be primarily limited to construction with some minor costs for the ongoing maintenance of infrastructure. The limited ongoing costs should be relatively easy for smaller projects to support.

**Tier 2**

Tier 2 consists of the largest development projects, including office and commercial developments that are equal to or greater than 50,000 sf, industrial developments equal to or greater than 300,000 sf, and residential developments with 50 or more units. Tier 2 developments will be subject to additional TDM requirements including programmatic efforts and more intensive reporting requirements than Tier 1 developments in following with the developments’ impacts to the transportation system.

**Mixed-Use Projects**

Mixed-use projects should be evaluated as a whole when determining whether they are required to participate in the TDM program and to identify their respective tier. This will create simplicity and consistency by ensuring that all land uses within a single development fall within the same tier.

The square footage of each land use will be divided by the minimum thresholds set as Tier 1 and Tier 2 requirements. For example, a 12,500 square foot retail building is half the size of the Tier 1 commercial threshold, 25,000 square feet, and 14 residential units is 56% of the Tier 1 threshold (25 units) as shown in Table 2. A mixed-use project is subject to requirements when the total of all prorated land uses is 100% or greater. In the example in Table 2, the project meets 108% of the Tier 1 threshold, so it would be subject to Tier 1 requirements.
<table>
<thead>
<tr>
<th>Proposed Project</th>
<th>% of Tier 1 Threshold</th>
<th>% of Tier 2 Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail 12,500 sf</td>
<td>50%</td>
<td>25%</td>
</tr>
<tr>
<td>Residential 14 units</td>
<td>56%</td>
<td>28%</td>
</tr>
<tr>
<td>Total</td>
<td>106%</td>
<td>53%</td>
</tr>
</tbody>
</table>

Table 2. Example Mixed-Use Project that Meets Tier 1 Requirement

Large Development Review Projects and Parking Exemptions

Regardless of size, new development should be subject to Tier 2 requirements if the property is subject to the large development review (LDR). For properties subject to LDR, each building may establish its own Tier 2 TDM program, or a single TDM program can be established for the development as a whole. If a single TDM program is established for the entire development, the developer will need to submit a TDM plan that accounts for all anticipated land uses. The plan would need to be updated if the as-built land uses deviate from the anticipated land uses.

TDM requirements will also apply to existing buildings when owners request a change of use and intensification of land use. Properties in receipt of a vehicle parking exemption or small lot parking exemption will be subject to Tier 2 requirements.

Impacts Analysis

To adhere to the guiding principles, the project team estimated how vehicle trip generation varies based on land use, the cost of implementing different levels of TDM programs, the potential impact of implementing TDM programs on lease rates, the effort required to conduct program reporting, and the potential delay to the development review process associated with TDM requirements.

Analysis of Impacts to Lease Rates

The project team conducted an analysis to determine how many square feet a commercial office building would need to contain to cover the annual cost of a basic TDM program without causing an undue burden on lease rates. A similar analysis was conducted for a residential building. The analysis, which is fully detailed in Appendix D, showed that a 25,000 square foot office building and a 45-dwelling unit residential building could generate sufficient revenue to cover the costs of implementing a TDM program that includes infrastructure investments and on-going programmatic efforts. The analysis indicates that the TDM requirements will not have an undue burden on lease rates.
Analysis of Transportation System Impacts

The table below shows the calculated daily and PM peak-period trips for a sample land use within each category. Trip generation varies widely between land uses, and the TDM program does not intend to uniformly mitigate trips across all land uses. The intent of the category and development size thresholds is to propose a relative magnitude of scale in TDM program requirements while also acknowledging time of day impacts to the transportation system, trip purpose, and respective responsiveness to TDM strategies.

Analysis of Impacts to Service Delivery

The project team reviewed 2018 permit data to understand how many developments would be impacted by the TDM requirements and what level of City staffing would be required to manage the TDM program requirements. The analysis indicates that City staff would need to review approximately one development per week based on 2018 permit data. In later years staff would also need to work to ensure completed projects are complying with the TDM requirements. At least initially, the City should have adequate resources to ensure developer adherence to TDM requirements without negative impacts to the development review timeline. However, it should be noted that the program will become more demanding of staff time as time passes and properties are subject to reporting requirements.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description/ITE Code</th>
<th>Units</th>
<th>Tier</th>
<th>Calculated Daily Trips</th>
<th>PM Peak Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office</td>
<td>Generation Office / 710</td>
<td>25,000 sf</td>
<td>1</td>
<td>459</td>
<td>107</td>
</tr>
<tr>
<td>Office</td>
<td>Medical Dental Office / 720</td>
<td>25,000 sf</td>
<td>1</td>
<td>903</td>
<td>87</td>
</tr>
<tr>
<td>Commercial</td>
<td>Shopping Center / 820</td>
<td>25,000 sf</td>
<td>1</td>
<td>2,249</td>
<td>187</td>
</tr>
<tr>
<td>Commercial</td>
<td>Supermarket / 850</td>
<td>25,000 sf</td>
<td>1</td>
<td>2,556</td>
<td>263</td>
</tr>
<tr>
<td>Industrial</td>
<td>General Heavy Industrial / 120</td>
<td>150,000 sf</td>
<td>1</td>
<td>225</td>
<td>102</td>
</tr>
<tr>
<td>Industrial</td>
<td>Warehousing / 150</td>
<td>150,000 sf</td>
<td>1</td>
<td>534</td>
<td>48</td>
</tr>
<tr>
<td>Residential</td>
<td>Apartment / 220</td>
<td>25 DU</td>
<td>1</td>
<td>166</td>
<td>16</td>
</tr>
</tbody>
</table>

Table 3. Transportation System Impacts
Requirements

All developers constructing impacted properties will be required to submit a TDM plan to the City that outlines the TDM strategies they will implement to reduce commute-related SOV trips to satisfy tier requirements. Based on a variety of factors that are explained below, each development will be assigned a specific maximum target SOV rate for commute trips that can be achieved through TDM strategies.

An analysis was conducted using Census data to determine existing commute SOV rates based on neighborhood context as defined by Blueprint Denver and the availability of high-frequency transit. An area was defined as having “high-frequency transit” if approximately four or more transit boarding opportunities were available per hour (15-minute frequency) within a five-minute walk throughout the day.

Table 4 summarizes the results of the analysis, and Figure 3 is a map of Blueprint Denver neighborhood contexts. Results are organized based on “workplace” and “residential.” Census mode split data is reported geographically based on home origins “residential” and work origins “workplace.” Some SOV rates are unexpected. For instance, areas defined as Urban Centers have higher SOV rates than areas defined as General Urban. This is likely due to the aspirational nature of the Blueprint Denver contexts.

<table>
<thead>
<tr>
<th>Blueprint designation</th>
<th>Average SOV Rate - No high frequency transit</th>
<th>Average SOV Rate - With high frequency transit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Office, Commercial, Industrial</td>
<td>Residential</td>
</tr>
<tr>
<td>Downtown</td>
<td>63%</td>
<td>52%</td>
</tr>
<tr>
<td>Urban Center</td>
<td>79%</td>
<td>56%</td>
</tr>
<tr>
<td>General Urban</td>
<td>73%</td>
<td>64%</td>
</tr>
<tr>
<td>Urban</td>
<td>68%</td>
<td>70%</td>
</tr>
<tr>
<td>Urban Edge</td>
<td>71%</td>
<td>74%</td>
</tr>
<tr>
<td>Suburban</td>
<td>78%</td>
<td>76%</td>
</tr>
</tbody>
</table>

*Table 4. Current Commute SOV Rates by Blueprint Denver Contexts*

Each property that must participate in the TDM program will be assigned a target SOV rate for commute trips based on its land-use category, tier assignment, the Blueprint context in which it is located, and the availability of high-frequency transit. This combination of factors will allow the City to adjust maximum SOV targets and TDM requirements as the City gathers more information on the effectiveness of TDM strategies.
strategies, as density increases in different neighborhoods, and as the City and others make further investments in transportation services and infrastructure.

To facilitate ease-of-use for development customers, the City will create a website that will help developers create their TDM plans and determine their target SOV rates. The website will provide developers with a list of TDM strategies that are applicable to their development based on the surrounding context, the development’s land uses, and the availability of transit. Each strategy will be ranked based on its ability to reduce commute related SOV trips and help the developer achieve the target SOV rate. A list of strategies is provided in Appendix E.

All requirements will apply to the developer as well as all subsequent owners. A process will be in place to allow property owners to update a TDM plan based on changes to the property, building occupants,
transportation services, technology, or other factors. The City will create tools to track developments subject to TDM requirements, track submission of compliance documentation by property owners, and notify property owners that are not in compliance with established TDM requirements.

**Tier 0 Requirements**

Tier 0 properties are all properties that are not large enough to have TDM requirements placed on them. These are all office and commercial properties smaller than 25,000 square feet, industrial properties smaller than 150,000 square feet, and residential properties with fewer than 25 units. Residential properties include single and multi-family projects.

**Tier 1 Requirements**

Tier 1 properties will be required to develop TDM plans that utilize TDM supportive infrastructure to achieve a target SOV rate. In instances where the developer would instead like to implement programmatic strategies, the developer can work with the City for a special exception. Properties will also be required to designate a TDM contact who will be responsible for distributing TDM materials that are created by the City or other third parties such as area TMAs. The TDM contact does not need to be onsite, and the property owner may hire a third party, such as an area TMA, to serve as the TDM contact.

**Tier 2 Requirements**

Tier 2 properties will be required to develop TDM plans that not only meet Tier 1 requirements, but also add programmatic TDM strategies to achieve a target SOV rate.

Target SOV rates for Tier 1 and Tier 2 properties are shown in Table 5 and Table 6. These targets were established by creating sample TDM programs and estimating the impact the programs would have on a theoretical development’s commute SOV rate given the Blueprint context, land use, and access to transit. See Appendix F for information on the likely program impacts and the associated methodology.
### Table 5. Target Commute SOV Rates for Tier 1 Properties

<table>
<thead>
<tr>
<th>Blueprint designation</th>
<th>No high frequency transit</th>
<th>With high frequency transit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Office, Commercial, Industrial</td>
<td>Residential</td>
</tr>
<tr>
<td>Downtown</td>
<td>60%</td>
<td>51%</td>
</tr>
<tr>
<td>Urban Center</td>
<td>75%</td>
<td>55%</td>
</tr>
<tr>
<td>General Urban</td>
<td>69%</td>
<td>62%</td>
</tr>
<tr>
<td>Urban</td>
<td>65%</td>
<td>68%</td>
</tr>
<tr>
<td>Urban Edge</td>
<td>69%</td>
<td>72%</td>
</tr>
<tr>
<td>Suburban</td>
<td>76%</td>
<td>74%</td>
</tr>
</tbody>
</table>

### Table 6. Target Commute SOV Rates for Tier 2 Properties

<table>
<thead>
<tr>
<th>Blueprint designation</th>
<th>No high frequency transit</th>
<th>With high frequency transit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Office, Commercial, Industrial</td>
<td>Residential</td>
</tr>
<tr>
<td>Downtown</td>
<td>55%</td>
<td>46%</td>
</tr>
<tr>
<td>Urban Center</td>
<td>70%</td>
<td>50%</td>
</tr>
<tr>
<td>General Urban</td>
<td>65%</td>
<td>58%</td>
</tr>
<tr>
<td>Urban</td>
<td>61%</td>
<td>64%</td>
</tr>
<tr>
<td>Urban Edge</td>
<td>65%</td>
<td>69%</td>
</tr>
<tr>
<td>Suburban</td>
<td>73%</td>
<td>72%</td>
</tr>
</tbody>
</table>
Additional Tier 2 Requirements for Commercial Properties

As shown in Table 3, Transportation System Impacts, commercial properties generate many more trips per square foot than the other land use categories and the majority of these trips are associated with visitors. Commercial properties are required to select additional strategies to mitigate visitor trips in addition to the required strategies to address commute related SOV trips. Strategies that are applicable to reducing visitor trips are assigned a point value ranging from 1 to 3 to represent trip reduction potential. Commercial properties subject to Tier 2 requirements must select enough visitor strategies so that the sum is equal to or greater than 3 points. In cases where a strategy is both a commute and visitor trip reduction strategy, a maximum of 1 point can be carried over from commute trip reduction strategies. In other words, a minimum of 2 points must be earned from visitor strategies that are not selected as commute reduction strategies.

Overparking Requirements

A comprehensive study, Effects of Parking Provision on Automobile Use in Cities: Inferring Causality, published by the National Transportation Research Board analyzed prior research and data from nine U.S. cities dating back to 1960. The authors found that “an increase in parking provision from 0.1 to 0.5 parking spaces per person is associated with an increase in automobile mode share of roughly 30 percentage points” and that restricting and reducing parking capacity in urban areas, in particular, was effective at reducing levels of automobile use1.

TDM will be less effective if parking supply remains abundant. Therefore, developers that exceed parking minimums will be required to implement additional TDM strategies to counteract that effect and create a disincentive to over-park projects.

A simple two-step process is used to determine the additional SOV reduction required. The process assumes that the development is subject to a minimum parking requirement identified in the zoning code. Some projects are not subject to minimum parking requirements. After coordination with staff from Development Services, it was determined that for properties where a parking minimum does not apply, the applicant shall use the maximum vehicle parking requirement associated with the pertinent primary use established for Downtown Central Platte Valley – Auraria Transition, River and Center Districts.

---


**Step 1.** Determine the percent a development is overparked using the following equation.

\[
\text{Percent Overparked} = \frac{\text{Actual parking provision} - \text{Denver zoning minimum parking}}{\text{Denver zoning minimum parking requirement}}
\]

**Step 2.** Adjust the target SOV rate from Table 5 (Tier 1 properties) or Table 6 (Tier 2 properties) by subtracting the additional reduction requirement listed in Table 7 below. The additional reduction requirements vary based on the amount of overparking, tier, and land use.

<table>
<thead>
<tr>
<th>Percent Overparked</th>
<th>Tier 1 Properties</th>
<th>Tier 2 Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Downtown, Urban Center, General Urban, Urban</td>
<td>Urban Edge &amp; Suburban</td>
</tr>
<tr>
<td>Less than 5%</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>5% - &lt; 10%</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td><strong>Table 8. Minimum Target Commute SOV Rates for Tier 1 Properties Based on Over Parking</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10% - &lt; 15%</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>15% - &lt; 20%</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>20% +</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

*Table 7. Additional SOV Reduction for Overparking*
Example A

An office project in the Urban Center context has been assigned to Tier 2 and has access to high frequency transit. Its target SOV rate is 68% based on Table 6. The project is providing 220 parking spaces and the parking minimum is 200. The additional SOV reduction required is:

\[
\text{Percent Overparked} = \frac{220 - 200}{200} = 10\% 
\]

Overparking by 10% for a Tier 2 property in an Urban Center context is associated with an additional 3 percentage point SOV reduction according to Table 7. The new target SOV rate is 68% - 3% = 65%.

Example B

A residential project in the Urban context has been assigned to Tier 2 and does not have access to high frequency transit. Its target SOV rate is 64% based on Table 6. The project is providing 350 parking spaces and the parking minimum is 325. The additional SOV reduction required is:
Overparking by 8% for a Tier 2 property in an Urban Center context is associated with an additional 2 percentage point SOV reduction according to Table 7. The new target SOV rate is 64% - 2% = 62%.

**TDM Strategies**

A list of TDM strategies along with information on their likely impact to SOV commute rates is provided in “Appendix E: TDM Strategies” on page E1. The list of strategies should not be considered all-inclusive. The City will need to update the strategy list as technology and the transportation system change. In addition, the SOV reductions associated with strategies will need to be updated over time.

To promote flexibility and innovation, developers may identify TDM strategies that are not within the City's list of strategies and will be allowed to do so. The City and developer will work together to determine the likely SOV reduction associated with the developer-recommended strategy. The monitoring process outlined in the section below can be used to determine if a developer-recommended strategy is resulting in the anticipated SOV reduction. If not, the developer or subsequent property owner will be required to work with the City to update the TDM plan to either improve the effectiveness of the strategy or replace it with a more effective strategy.

In addition, property owners will be allowed to update TDM plans after occupancy to ensure they remain effective through changes in surrounding land use, building occupancy, changes to available transportation services, and the addition or removal of transportation infrastructure. All changes to approved TDM plans can be made in coordination with City staff.
Monitoring and Compliance

An effective developer TDM program includes a monitoring component that allows the City to assess the effectiveness of the program overall as well as individual components in achieving the desired goals, which, in the case of Denver, are target commute SOV rates. Not only does this ensure that the program is effective, it also provides data that is helpful to refine the program after it has been launched. The monitoring and compliance process consists of pre-occupancy inspections, monitoring, and spot checks.

Pre-Occupancy Inspections

The monitoring process begins prior to occupancy. Before a building can receive an occupancy permit, the property owner will need to demonstrate that infrastructure-focused TDM strategies have been constructed according to the TDM plan. In addition, properties will be required to post a notice detailing the TDM infrastructure and programmatic strategies approved in the TDM plan along with information on how to contact the City with questions or concerns about the program. The notice shall be placed in a publicly accessible and visible location, such as a building lobby, break rooms, or elevator waiting areas. Property owners may post the notice on rotating or static video displays in lobbies, elevators, or other highly visible areas. The notice must be displayed long enough that an average person reading at a rate of 200 words per minute has sufficient time to read the notice. In addition, the notice must appear at least once every 15 minutes during times when the building is occupied.

Monitoring

All properties with TDM plans must submit an annual report to the City. Tier 1 projects must provide the following information:

- Updated contact information for the development’s TDM coordinator.

- Verification that TDM infrastructure is in good working order and is being maintained on a regular basis. The property owner will be asked to provide photographs (including dates the photographs were taken) of the infrastructure approved in the plan and report any maintenance or replacement activity.

- Verification that the TDM strategies notice is posted in a public location onsite.

Tier 2 properties must provide the above information plus verification that programmatic strategies continue to be implemented as specified in the TDM plan. This can include contracts, invoices, MOUs, or similar documentation that indicates the services or products and the timeframe that the services or products were provided.

In addition to the standard annual report, Tier 2 properties will be required to conduct biennial commute
surveys to measure the impact of selected strategies on the mode share of employee or resident commute trips. Visitor trips will not be assessed through surveys due the difficulty in obtaining a representative survey sample. However, the City should revisit this requirement at a later date as technology evolves and the potential for accurate monitoring becomes available.

The first survey shall be conducted and results reported within one year of receiving the certificate of occupancy. The submittal date of the first survey report will act as the beginning of the monitoring period going forward. The survey methodology will be standardized and provided by the City. After the project meets its SOV goals for three consecutive surveys, survey frequency will drop to every five years.

**Spot Checks**

The City will conduct random spot checks to ensure that the TDM strategies specified in the approved TDM plan are implemented in accordance with City guidance.
Enforcement

Enforcement of TDM plan requirements can be understood to focus on two different issues:

- Is the TDM plan being implemented?
- Is the TDM plan working?

General Enforcement

Enforcement of the TDM requirements can occur through the City’s municipal code, which already details penalties for building code violations. Section 107.2 notes that, “Whenever, by the provisions of this Code, any act is prohibited, or whenever any regulation, dimension or limitation is imposed on the erection, alteration, maintenance or occupancy of any building, structure or utility, each failure to comply with provisions of this Code shall constitute a violation. Each day for which a violation exists shall constitute a separate offense and a separate violation.” The code allows for any person convicted of a violation to be fined a sum not more than $999, jailed for a time not to exceed 300 days, or both for each offense.

Given the existence of an existing code regarding the enforcement of building codes, it is not recommended that a unique enforcement mechanism be developed for the TDM regulations.

Adherence to Reporting Requirements

Post occupancy, all properties must submit annual reports to the City verifying compliance with their TDM requirements. There are many instances in which a property may fail to submit an annual report such as a change in ownership or staff oversights. If a property owner fails to submit an annual report, the City should send a notice to the property owner notifying them of the failure and providing 60 days to submit an annual report.

If a property owner submits an incomplete annual report or a report that has other errors, the property owner should be notified of the oversight and provided 60 days to correct the oversight. A second reminder should be sent if the oversight has not been corrected within 30 days. Only after this process should a property be subject to penalties. In addition, penalties should be waived if the oversight is materially inconsequential to effective implementation and reporting of the required TDM program or if the property owner is actively working in good faith to address the error.

Adherence to SOV Goals

Adherence to SOV reduction goals by Tier 2 properties will be tracked through required biennial surveys that measure commute SOV mode share. If a Tier 2 property fails to achieve its assigned target SOV rate it will be subject to enforcement actions that escalate based on the number of failures.
No property owners will be required to update their TDM plans or be subject to fines unless three or more other properties within the same Blueprint Denver context and with similar SOV targets have achieved their target SOV rate. This will ensure that property owners are not held to overly ambitious SOV targets. In addition, any property that demonstrates compliance with its target SOV rate in two consecutive surveys will be considered in full compliance, and all previous failures will be removed from its record. For example, if a property has three failures on its record but then meets its target SOV reduction goal in two consecutive surveys, any future failure would be treated as the property’s first.

In addition, the City will adjust SOV targets depending on changes in transit service levels, land use or infrastructure changes, or other factors that may impact travel patterns.

**Adherence to Spot Checks**

If a spot check yields evidence that a property owner is not in compliance with TDM requirements the property owner should be sent a written notice detailing the compliance issue and provided 60 days to remedy the issue. A second notice should be sent if no response has been received from the property owner within 30 days. Only after this process should the property owner be subject to penalties. In addition, penalties should be waived if the property owner is actively working in good faith to address the item(s) not in compliance.

**Parking Reductions**

Many stakeholders stressed that they would like a TDM regulation that includes “carrots and sticks.” Stakeholders were asked during meetings and via the online survey what types of “carrots” would be most appealing. Responses generally focused on parking reductions, density bonuses, and fast-tracked development review.

Several “carrots” are already built into the results of TDM itself. Advantages inure to developers from the TDM measures they implement simply by reducing parking demand and the developable land necessary to devote to parking. This results in reduced costs and an effective increase in available density. The implementation of TDM strategies is directly related to parking demand. A successful TDM program should result in fewer vehicles parking at a development. Density bonuses are also related to TDM strategies, but less directly. A building’s density could increase to offset reduced vehicle trips, but impacts associated with building density are not limited to vehicle trips and parking demand.

The project team also met with the Housing Policy Team within the Denver Economic Development and Opportunity Agency (now the Department of Housing Stability) to discuss what type of incentive could be provided to offset TDM program costs and ensure continued financial feasibility of affordable housing projects. Representatives said that parking reductions could more than offset the potential financial impacts of TDM requirements.

In addition, however, reductions in parking requirements should be considered as part of TDM imple-
First Failure
If the results of a survey show that a property failed to meet its target SOV rate, the property owner or his/her designee will be required to meet with a City employee or area TMA to review the property’s TDM plan, the manner in which the plan is being implemented, and identify voluntary remedies to reduce SOV trips.

Second Failure
If a second survey shows that a property is failing to meet its target SOV rate, the property owner will be required to officially update the TDM plan. In this case, additional TDM strategies must be added to the plan. The number of strategies that must be added will be determined by the rate at which the property is missing its target SOV rate. For example, if a property is missing its target SOV rate by 2 percentage points, the property owner must add a sufficient number of TDM strategies to achieve a 2 percent reduction in the SOV rate.

Third Failure
If after updating a TDM plan, a property still fails to meet the designated target SOV rate the property owner or their designee would be required to meet with a City employee or area TMA to review the property’s TDM plan, the manner in which the plan is being implemented, and identify voluntary remedies to reduce SOV trips.

Fourth Failure
A property will be subject to fines if it fails to meet its target SOV rate after the TDM plan has been updated and the owner, or his/her designee, has met with the City or a TMA to review the TDM plan. The fine will be approximately proportional to the cost of providing a 50% subsidy for a monthly local RTD transit pass (or its equivalent should RTD change its pass structure) to a sufficient number of building occupants to achieve the target SOV rate. The fine will be paid to the City.

Implementation to ensure that developers and property owners are not asked to pay for a TDM program that subsequently reduces demand for parking they are nonetheless required to construct and maintain.
Providing parking reductions through the TDM plan will require an update to the zoning code. If such an update is made, City staff suggested that the zoning code update should also consider placing all applicable parking reductions under the TDM plan. Unlike current motor vehicle parking reductions provided for things like the provision of additional bicycle parking, providing space for a carshare vehicle, or providing access to a bike share station, the TDM requirements are enforceable over time and have a process for swapping out strategies. For example, multiple properties received parking reductions by providing access to a Denver B-cycle station. That program is no longer available within the City but property owners are subject to no new requirements. Had access to the B-cycle station been an element of a TDM plan, the property owners would be required to update their TDM plans with new and equivalent trip reduction strategies.

Due to complexities associated with updating parking requirements within the zoning code and addressing the potential expansion of parking maximums within the City, it is recommended that a connection between the TDM requirements and parking requirements be deferred for now. City staff will be working to address this issue as the TDM program is implemented.
Implementation
Successful implementation of the TDM requirements outlined in this document involves additional steps that are outlined below.

**Conduct Outreach and Education to City Staff**

Implementation of the TDM requirements requires coordination between staff in DOTI and Development Services. DOTI staff will need to educate and coordinate with staff from Development Services to implement the requirements.

**Revise the Denver Revised Municipal Code**

Staff from DOTI are in the process of developing updated code language that will need to be approved by City Council before the TDM requirements can be implemented. Upon approval of the code change, City staff will need to develop regulatory language that details the specific TDM requirements.

**Develop Implementation Guidance**

The City will need to develop implementation guidance for City staff. This document provides guidance to staff regarding specific elements of the TDM requirements and associated compliance. City staff will need to document the internal processes that will be used to move a development project through the TDM process.

**Create a Website**

The City has set aside funds as part of this effort to create a website that can be used by developers to understand the TDM requirements, develop a TDM plan, and submit that plan to the City. The project team will move forward with creation of the website upon approval of the TDM recommendations.

**Update Accela**

City staff will need to update Accela so that it can track information associated with TDM plan requirements and compliance. Ideally, staff should be able to use Accela to record TDM strategies contained within TDM plans and track annual reporting. If possible, TDM strategies should be searchable. This would allow City staff to identify developments that may have agreed to implement TDM strategies that are no longer applicable. For instance, if the TDM requirements had existed in the past and property owners had received credit for subsidizing B-cycle stations, City staff could have searched Accela to determine which properties had agreed to subsidize B-cycle stations. Staff could have then easily notified the owners of the need to update their TDM plans and identify a new strategy to replace the credits associated with B-cycle stations.

The City should also have a tool in place to track commute SOV rates by land use type, location, and TDM strategies being implemented. This will allow the City to understand program impacts by context and TDM strategy and make associated updates as needed.
**Secure Staffing**

Implementing the TDM requirements will require additional staffing. Current staffing is sufficient to establish the program, but over time, as more properties become subject to monitoring and enforcement, additional staff will be required.

**Consider Fees for Implementation**

The City should consider establishing appropriate fees to cover the cost of staffing associated with implementing the TDM program.

**Develop Survey Guidance**

The City will need to develop survey guidance for property owners. The survey guidance should include questions to determine SOV commute rates, identify tools that can be used to collect survey data, establish minimum response rates, provide guidance regarding how incomplete surveys and other errors should be addressed, and specify how long survey instruments and raw data should be maintained by property owners. The City may want to reference guidance provided by the South Coast Air Quality Management District in Southern California to employers that are required to conduct annual surveys to determine employee commute behavior.

In addition, City staff should establish a process that property owners can use to suggest and receive approval for alternative data collection processes.

**Develop TDM Contact Training Materials**

The City should develop training materials for TDM contacts and make them available online, in print, or both. The materials will help educate TDM contacts about their responsibility and provide them with helpful information to implement successful TDM programs. These materials and/or trainings could be developed in coordination with TMAs. Whenever a property owner submits information for a new TDM contact, that individual should be sent the training materials.

**Coordinate with Transportation Management Associations**

City staff should educate TMAs regarding the new regulations and work with TMAs to establish reasonable membership fees to be charged to developers and property owners interested in joining a TMA as part of complying with the TDM requirements. It is not necessary for each TMA to charge the same membership fees. The TMAs operate in different environments and have different overhead and direct costs. However, the fees will ideally be similar.
Conduct Outreach and Education to Developers

During the process of developing the TDM requirements, developers and other stakeholders asked that the City conduct outreach to help educate impacted organizations and individuals about the requirements and how they will be implemented. Applicable educational materials should be developed along with an outreach process.

Update Parking Requirements

A strong desire was expressed to reduce parking requirements commensurate with vehicle trip reductions associated with implementing TDM strategies. There was also an interest in removing current parking reduction opportunities in the zoning code and instead have interested developers create TDM plans or commit to more advanced TDM plans to obtain parking reductions. This would ensure that parking reductions are linked to specific actions and monitored over time. The City's zoning code needs to be updated to achieve these goals.
Appendix A: Case Studies
With a growing residential and employment population and significant levels of new development in the pipeline, the City and County of San Francisco adopted TDM requirements in order to help manage and mitigate the transportation impacts of new developments.

**Program Goals**

The City’s overarching goal for the Transportation Sustainability Program, which houses the TDM program, is to maintain mobility while accommodating significant growth in employment and housing. The goal of the TDM program is to contribute to community sustainability by reducing the VMT generated by new employees, residents, and visitors. By reducing VMT, and therefore crash exposure, the program also aims to increase public health and safety outcomes.

**Mechanism**

In February 2017, the City and County of San Francisco passed Ord. 34-17 establishing a Transportation Demand Management Program in the Planning code. The ordinance, which went into effect on March 19, 2017, can be accessed in Section 169 of the Planning Code.\(^1\)

**TDM Requirements and Applicability**

The ordinance specifies that developers of all new residential and commercial properties must submit a TDM plan with their development or redevelopment application, provided certain conditions are met. The ordinance applies to:

- New residential developments larger than 10 units
  - 100% affordable housing developments are exempt, because they typically do not provide much parking

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and the exemption removes the administrative burden associated with monitoring and reporting

- New commercial developments larger than 10,000 square feet
  - Non-accessory parking garages and lots are exempt
- A change of use unless the new use is less intensive than the old one (for example, commercial to residential)

There are no other exemptions, however nonprofit services can apply for a waiver from the administrative fees associated with the TDM Program. The thresholds and exemptions were selected to make sure that requirements would be both effective and not unduly burdensome and be consistent with thresholds for other planning code requirements. Those include onsite affordable housing and separating parking costs from housing costs in new residential buildings and shower facilities and locker requirements for commercial developments.

The City determines point targets for each development based on land uses and the amount of accessory parking proposed for the project. Land uses were categorized based on their trip generation potential per parking space from high to low: category A includes uses that function most like retail, category B includes uses that function most like office uses, category C includes uses that function most like residential uses and category D includes other uses with lower trip generation and fewer development applications than categories A to C.

Developers use an online tool\(^2\) that allows them to select TDM strategies that count towards their point target. Point values for each strategy were assigned based on the California Air Pollution Control Officers Association report on Quantifying Greenhouse Gas Mitigation Measures\(^3\), research conducted by the Bay Area Air Quality Management District and local data collection. The City reserves the right to adjust point values as new data on the impact of strategies becomes available and has done so already.

**Integration with Parking Policy**

Developers can earn points by providing less parking than the neighborhood parking rate. The more accessory parking is provided by the developer, the higher the required points necessary for compliance. This ensures that sufficient TDM measures are provided to compensate for the increased trips likely to be generated from oversupplying onsite parking.

Parking requirements in the City vary by district with some having no minimums and others having minimums and maximums. The TDM program allows developers to supply parking below or above the minimum (up to the maximum amount of parking allowed, where applicable), as long as the specified TDM targets are met.

**Plan Development Process and Fees**

Once developers have selected suitable TDM strategies to meet their targets, the resulting TDM plan is submitted to City staff, who review and approve the plan.

Developers pay a $6,000 application fee and a $1,000 monitoring and reporting fee that is paid annually. A voluntary plan update, which can be proposed by the developer at any time, carries a

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\(^2\) [http://www.sftdmtool.org/](http://www.sftdmtool.org/)

A $1,300 fee. The fees were set to recover staffing costs associated with program administration. They do not vary by size of the project, because the review time is expected to be similar and not be size dependent. The City does reserve the right to charge time and material fees in excess of the standard fees, should a project require additional review time.

Monitoring, Compliance and Enforcement

Tracking and enforcement varies by type of strategy and is laid out for each TDM strategy developers can choose. In general, physical infrastructure-based strategies (bike parking, showers, etc.) will undergo the following monitoring:

- Pre-occupancy: site inspection to verify standards are met
- Ongoing: provide photos, City staff performs site visit once every three years to ensure ongoing compliance

Ongoing programmatic measures, such as bikeshare memberships or transit passes, will be monitored as follows:

- Pre-occupancy: proof that measure is being implemented and marketed (online signup portals, marketing materials, etc.)
- Ongoing: billing information (with sensitive information redacted) and other marketing information provided to tenants (marketing plan, etc.)

The TDM requirements run with the land and will continue to exist under new ownership. To ensure that new owners, property managers and tenants are made aware of the requirements, the TDM coordinator is required to sign a letter agreeing to distribute the TDM plan via new employee packets, tenant lease documents and/or deeds.

In case of noncompliance, the planning code allows the City of San Francisco to levy a fine of $250 per day.

Administration and Staffing

The City expects to process approximately 40 to 45 projects per year. To meet the staffing requirements, one FTE (senior planner level/planner III) was hired for the first fiscal year and one additional FTE (associated planner level/planner II) was budgeted for the second year. In addition, one principal planner/planner V spends time on the TDM program.

Results

It is too early to gauge the success of San Francisco’s ordinance. The developer response was positive, which was in part ensured by conducting an extensive and inclusive outreach process and by involving developers early in the process.
Cambridge, Massachusetts

The City of Cambridge, MA, adopted a parking and transportation demand management (PTDM) ordinance that requires developers and property owners seeking to increase the number of parking spaces on their property to implement aggressive TDM measures.

**Program Goals**

The overarching goal of the City's developer TDM requirement is to regulate and control atmospheric pollution by reducing vehicle trips and traffic congestion and thus promote public health, safety, environmental protection and welfare. The stated trip reduction goal for nonresidential vehicle trips is 10 percent below 1990 levels.

**Mechanisms**

The City of Cambridge adopted a temporary Parking and Transportation Demand Management (PTDM) ordinance in 1998 and made it permanent in 2006.

**TDM Requirements and Applicability**

The PTDM ordinance is triggered when nonresidential developments seek to add spaces to those already registered for the development parcel and the new total number of spaces amounts to five or more. The City maintains a registry of parking spaces by parcel and applicability thresholds apply to the total number of parking spaces, not the number of proposed parking spaces being added. The ordinance distinguishes between small projects (between 5 and 19 new parking spaces) and large projects (20 or more new parking spaces). Residential developments and nonresidential developments proposing fewer than five new parking spaces are exempt. The Small Project PTDM Plan requires a set of three TDM measures and the submission of the Small Project Form available on the City's website.
The Large Project PTDM Plan applies if the total number of proposed parking spaces (existing and new) is 20 or more. It requires the following:

- Single occupancy vehicle mode share commitment (generally set at 10 percent below 1990 Census Data)
- A comprehensive set of TDM measures
- Annual monitoring and reporting
- A selection of TDM and parking strategies

Cambridge does not mandate the implementation of specific strategies but maintains a list of options. The following strategies are listed as sample measures:

- Transit subsidy
- Free shuttle bus
- Bus shelter
- Market-rate parking fee charged directly to employees or patrons
- Daily parking charge available for occasional drivers instead of monthly parking pass
- Bicycle parking above minimum zoning requirement
- Showers/lockers
- Financial incentive for walking or biking
- Emergency ride home
- Car/vanpool matching
- Priority/discounted high occupancy vehicle (HOV) parking
- Transportation information
- Hiring of Cambridge residents
- Onsite TDM coordinator
- TMA membership

Integration with Parking Policy

As part of the PTDM plan, the developer may request to provide fewer parking spaces than the minimum requirement or provide offsite parking spaces that are farther from the project site than the maximum distance specified in the zoning code. The planning officer reviews and recommends these elements to the Planning Board or Board of Zoning Appeals for review and approval.

Residential developments are exempt from the PTDM ordinance; however, residential developments of more than 50,000 square feet are required to include transportation demand measures as traffic mitigation.

Plan Development Process and Fees

The City provides a guidance document with a checklist of plan components and sample PTDM plans to assist developers with the plan creation process. Once the draft plan is submitted, the PTDM officer reviews and responds with recommended revisions and a draft decision. The developer revises the plan, if necessary, and submits the final plan, which is either approved, approved with conditions or denied by the PTDM officer. The final decision must be issued within 60 days from the draft submittal date. Once approved, the developer is eligible to obtain necessary permits.

Monitoring, Compliance and Enforcement

Small projects are not subject to ongoing monitoring. Large projects are required to submit an annual monitoring report, which includes:
• Employee/patron survey, including SOV rate
• Biennial counts of car and bike parking occupancy and trip counts at driveways (in/out)
• Status of TDM measures

Cambridge uses several mechanisms to enforce the ordinance. First, necessary permits are not issued by the City until an approved PTDM plan is on file. Once permits have been issued, the PTDM Planning Officer has authority to inspect parking facilities and audit their records to determine compliance with PTDM plans. Should a parking facility be built or modified without complying with the ordinance, the City can levy a fine of up to $10 per day per parking space. In addition, the City can revoke the facility’s parking permit or shut down a facility that violates any provisions of the ordinance.

To ensure the requirements are communicated to new owners, the owner and operator of the parking facility both commit to notifying the PTDM officer 30 days prior to any changes in ownership, use or operation of the facility. Within 30 days of title transfer, a change in ownership form must be completed and filed with the City. On the form the new owner either agrees to the existing PTDM plan on file for the property or submits a new plan, which goes through the normal approval process.

**Administration and Staffing**

Cambridge employs one full time PTDM officer who reviews, negotiates, approves and denies PTDM plans and tracks annual reports. The PTDM officer’s duties include the preparation of an annual report to City council and staff evaluating the effectiveness of the ordinance.

**Results**

As of 2014, almost 100 large projects have submitted TDM plans and are actively being monitored. More than 85 percent of those projects have met or exceeded their mode split goal. Parking ratios in Kendall Square, which added 3.2 million square feet of new development, went from 1.3 spaces/1,000 square feet in 2009 to 1.1 spaces in 2013. Drive alone rates of employees working in Cambridge were down from 51 percent in 1990 to 44 percent in 2010 with corresponding increases in biking, walking, and transit ridership rates.

Initially skeptical, developers learned that employees support the TDM programs available to them and that the programs are helpful in recruiting and retaining employees. Allowing developers flexibility to determine which specific TDM measures are best suited to their site reduces the likelihood of programs not being implemented upon completion and occupancy. The threat of having parking facilities shut down or parking permits revoked is a powerful enforcement mechanism, which to date the City has not had to do.
Fairfax County, Virginia

Fairfax County, home to over 1.1 million residents and more than half a million jobs, is located in the Washington, DC metropolitan area and is served by Metro rail and bus service. Despite the addition of the Metro Silver Line in 2014, the county experiences growth pressures and traffic congestion. Development pressure is particularly pronounced in the Tysons Corner area, through which the Silver Line runs.

Program Goals

To minimize vehicle trip generation from new development, Fairfax County, VA first included TDM requirements in its 2013 comprehensive plan and updated them in 2017. The plan sets vehicle trip reduction goals for new developments based on a property’s distance from the closest rail station and overall gross square feet of development in Tysons. Targets are expressed as a percentage reduction of Institute of Transportation Engineers (ITE) peak-hour vehicle trip estimates. Figure 1 shows vehicle trip reductions goals for the Tysons Corner area, which are accompanied in the plan by corresponding transit mode share goals. Less aggressive trip reduction goals have been established for developments outside of Tysons Corner.

Table 5

<table>
<thead>
<tr>
<th>Distance from Metrorail Stations</th>
<th>Trip Reduction Goal (Percentage reduction from the ITE Trip Generation Rate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 65,000,000</td>
<td>45% 35% 30% 25%</td>
</tr>
<tr>
<td>65,000,000</td>
<td>50% 40% 35% 30%</td>
</tr>
<tr>
<td>84,000,000</td>
<td>55% 45% 40% 35%</td>
</tr>
<tr>
<td>90,000,000</td>
<td>58% 48% 43% 38%</td>
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<td>96,000,000</td>
<td>60% 50% 45% 40%</td>
</tr>
<tr>
<td>105,000,000</td>
<td>63% 53% 48% 43%</td>
</tr>
<tr>
<td>113,000,000+</td>
<td>65% 55% 50% 45%</td>
</tr>
</tbody>
</table>

Figure 1: Tysons Corner Trip Reduction Goals

**Mechanism**

As part of any rezoning application, the county encourages developers to submit proffer statements that outline traffic mitigations and other details of the proposed development. Among other criteria, proffers are reviewed to ensure consistency with the comprehensive plan adopted for the area in which the proposed development is located. Profess are not a requirement of the process, however, virtually all applicants include proffer statements to increase their chances of development approval. While the submission of a TDM plan is not a mandatory element of a proffer statement, once rezoning has been granted, any TDM elements included in the proffer become a mandatory component of the zoning requirements for the property.

**TDM Requirements and Applicability**

TDM plans are required to include a list of strategies the development will implement to achieve the reduction goals, a program implementation budget, and a monitoring plan.

While no specified TDM or parking strategies are required, the comprehensive plan includes examples of TDM measures and notes that they will be most effective where parking costs are passed through to the users. It mandates that TDM programs be coordinated with parking reductions and/or management programs. The following TDM strategies are listed as examples:

- Transit and vanpool subsidies
- Pretax deduction of transit and vanpool fares
- Telework program
- Carpool and vanpool matching service
- Shower and locker facilities for bicyclists and walkers
- Secure and weatherproof bicycle parking
- Carpool and vanpool preferential parking
- Onsite carsharing vehicle
- Employee shuttle
- Guaranteed Ride Home Program
- Commuter information center (bulletin board, website, brochure table)
- Employee Transportation Coordinator (ETC)
- Flexible or alternative work hours
- TDM education programs directed at public and employers

**Integration with Parking Policy**

Similar to the trip reduction goals set for new development, parking minimums are based on distance from the closest transit station. In response to lower parking demand and developer requests for lower parking rates as part of rezoning applications, Fairfax County has lowered parking minimums near transit stations in 2018, after lowering them in 2010. Current minimums are as follows:

- 2 per 1000 square feet within ¼ mile of rail stop
- 2.3 per 1000 square feet beyond ¼ mile of rail stop
- Outside transit station areas parking requirements range from 2.6 to 3.6 spaces based on building size.
- Condo requirements were previously 1.6 per unit, they remain 1.6 outside of transit station areas but within TODs are as follow: 1.3 for studios/1BR up to 1.6 spaces for 3+BR
• Retail within a TOD had parking minimums reduced by 20 percent

In addition, there is a parking maximum in effect for Tysons Corner.

Plan Development Process and Fees

Developers are responsible for the creation of their TDM plans, which are submitted as part of the voluntary proffer. To clarify and facilitate the process, Fairfax County published TDM guidelines for developers in 2013. Developers typically hire third parties to assist with the creation of the plans. Final plan content is the result of negotiation between county staff, the developer and the developer’s representatives. Once rezoning is approved, the proffer becomes part of the zoning for the property involved and must be complied with like any other zoning requirement.

TyTran, the Tysons Transportation Management Association, is available to help developers in Tysons Corner comply with TDM plans and monitoring requirements and provide employers and commuters with information on transportation options.

Monitoring, Compliance and Enforcement

The following monitoring requirements are in place for developments to ensure compliance with the TDM plan and trip reduction targets:

• Travel surveys every two or three years

• Annual or biennial vehicle trip counts (timing based on negotiation)

• Annual reports (post-buildout until three consecutive vehicle counts show that goals were met), including status of program implementation and funds spent.

All TDM requirements for a site are established in perpetuity in a site-specific proffer, a legally binding document that becomes part of the site’s zoning and therefore applies to all current and future property owners. The proffer language requires developments to establish TDM accounts into which funds are annually deposited for the implementation of TDM strategies and programs. The site’s TDM plan identifies the amount that must be spent on TDM programs each year (adjusted annually based on inflation).

Developers are also required to pay into two additional funds:

• A remedy fund, which can be drawn upon should the site fail to meet required trip reductions.

• A penalty fund, which can be accessed by the county if a development fails to meet trip reduction requirements three or more years in a row. Funds may be used for transportation improvements or programs likely to reduce vehicle trips in the Tysons Corner area.

The penalty and remedy funds are returned to developers once a site reaches build out and trip reductions goals are met for three consecutive years. The requirement to implement programs and policies and fund the efforts outlined in the TDM plan continues even if developments are meeting the vehicle trip reductions goals agreed to in the proffer.

Administration and Staffing

Fairfax County employs one full-time staff person whose responsibility it is to implement and monitor the TDM program, conduct case reviews and develop recommendations when parking reductions are made. A separate transportation services group
provides assistance and outreach when requested by developers.

Results

As of 2015, all but one development in Tysons Corner that submitted annual reports met or exceeded their trip reduction goals. The program has been successful in educating developers on the benefits of TDM. Working closely with developers on the formation of the 2013 guidelines and when considering subsequent program changes has been important in ensuring buy-in and the continued success of the program.
Montgomery County

Montgomery County, located outside of Washington DC, has a population of just over 1 million. The county has been proactively managing its growth and associated transportation impacts and in 1997 passed legislation enabling the creation of transportation management districts (TMDs), in which developers and employers are required to commit to implementing TDM strategies.

Program Goals

Montgomery County’s TDM program was created to achieve specific transportation goals in areas where air pollution and congestion were an issue. The TDM program supports the commuting goals established in the county’s Growth Policy: increase transportation capacity; reduce existing and future levels of traffic congestion; reduce air and noise pollution; and promote traffic safety and bicycle and pedestrian access.

Mechanisms

Montgomery County established its TDM program through legislation based on the county’s overall Growth Policy. The TDM legislation establishes policies regarding TMD districts, the authority of the Planning Department and Board, traffic mitigation plans, traffic mitigation agreements, annual surveys, executive reports, transportation management fees and enforcement.

Since legislation was passed, Montgomery County has created five transportation management districts (TMDs) throughout the county to guide transportation activities. Each TMD is located in an urban center where traffic congestion and air quality have increasingly become county concerns. Within TMDs, developers must submit a traffic mitigation agreement (TMAg) and employers with 25 or more employees must submit a traffic mitigation plan (TMP), both of which commit them to the implementation of TDM strategies.

TDM Requirements and Applicability

TDM programs are implemented through the TMDs and are tailored to the unique characteristics of the TMDs. The five TMDs are North Bethesda, Downtown Bethesda, Friendship Heights, Downtown...
Silver Springs and Greater Shady Grove with White Oak identified as a future TMD.

Commute mode share goals have been identified for each TMD. These goals, which are consistent with acceptable traffic conditions, represent the percentage of commuters not driving to work during the most congested times of the day and range from 18 percent to 50 percent non-drive alone mode share by TMD.

Any proposed nonresidential subdivision or optional method development in a TMD that meets the transportation impact review threshold must complete a traffic mitigation agreement if the Planning Board and MCDOT Director jointly decide that more transportation demand measures are needed to meet local commuting goals. There is no fixed threshold that determines when a TMA is required.

An additional component of the TDM regulations is the payment of TMD fees\(^1\) by property owners. Fees apply to all commercial space where payment of the fee was a condition of approval and all commercial space first occupied on a certain date which varies by district\(^2\). The TMD fees support the implementation of TDM and must be spent within the TMD where the paying property is located. The fee is set by County Council and cannot exceed the cost of providing TDM services. In 2018, the fee is $0.10 per square foot per year.

Developer TMAgs must include commitments to designate a contact person, facilitate access to tenants/employers/employees for information and education, provide permanent displays with information on TMD transit, promote guaranteed ride home and file an annual report.

Elective strategies in each traffic mitigation plan include: attend workshops about commuting options; inform new employees of their travel options; provide free or reduced cost carpool and vanpool parking; provide preferred or reserved carpool and vanpool parking; offer alternative work schedules such as flextime, compressed work weeks, telework, and job sharing; provide pre-tax monthly transit benefits; purchase Maryland Commuter Choice Tax Credits; provide bike, transit, and pedestrian amenities; assist with carpool matching; and participate in Air Quality Action Days.

### Integration with Parking Policy

Parking requirements vary by district. Bethesda and Silver Springs are also parking lot districts, where parking is managed centrally, and no minimum parking requirements exist. In other districts, developers may propose to reduce the amount of on-site parking or provide no on-site parking as part of their TMAg. If developers wish to provide more on-site parking than required, they may be subject to additional TDM strategies.

### Plan Development Process and Fees

A TMAg is entered into by a real estate developer and Montgomery County government represented by the Department of Public Works and Transportation and the Montgomery County Planning Board. The agreement is established at the time land is being approved for subdivision.

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\(^1\) Fees are set by Gross Floor Area (GFA) square footage, but by law can also be set based on number of dwelling units or GFA in residential, the maximum or actual number of employees or average number of customers, visitors or patients in non-residential, number of parking spaces associated with a building or any other measure reasonably related to transportation. Council approves via a resolution and then approves fees every year.

\(^2\) July 1, 2006 for the Bethesda, Friendship Heights, North Bethesda and Silver Spring TMDs, July 1, 2011 for the Greater Shady Grove TMD and July 1, 2015 for the White Oak TMD.
Monitoring, Compliance and Enforcement

Developers and employers are required to conduct two annual commuter surveys and report the results to the county. The majority of TDM provisions run in perpetuity. Fees are collected as part of a property’s tax assessment, thus preventing property owners from opting out of participation in TDM programs.

Montgomery County enforces the terms of each traffic mitigation agreement. An owner who does not comply with the agreement is considered in violation. The Planning Board has the authority to revoke or otherwise enforce any approvals for subdivision or optional method development.

Administration and Staffing

TMD staff assists developers with the preparation of TMAgs as part of their development application. Montgomery County staff is responsible for development review and for negotiating the terms of the TMAgs. TMD fees make up an average of 31 percent of total TMD funding for TDM and related implementation efforts. The remainder of funding comes from parking management revenues; other developer, municipal and state funding or grants; and the general fund.

Results

In 2015, two districts had reached their goal and one was just below its goal. The fourth was still below but improving year over year. The fifth one did not have an identified goal, but also showed improvement year over year since 2011. Between 2000 and 2015 a total of 89 developer traffic mitigation agreements had been filed or were pending covering almost 9 million square feet and over 13,000 residential dwelling units. In addition, a total of 440 TMPs were on file covering about 50,000 employees.
Pasadena has a population of almost 140,000 and is home to the California Institute of Technology and multiple scientific institutions including the Jet Propulsion Laboratory. The City is relatively well served by transit. Pasadena created a TDM program to address congestion and to comply with county requirements.

Program Goals
The City of Pasadena’s trip reduction ordinance implements the requirements of the Los Angeles County Metropolitan Transportation Authority’s (“Metro”) Congestion Management Program. In addition, the City aims to be a leader in environmental compliance and sustainability efforts. Specific targets developers must meet relate to average vehicle ridership (AVR), a measure that is also used to track the progress of employer trip reduction programs in the region. AVR targets for trips that occur between 6:00 AM and 9:00 AM on workdays is 1.75 for projects located within a transit oriented development (TOD) area or downtown and 1.5 for trips elsewhere in the City.

Mechanisms
Pasadena’s trip reduction ordinance is contained within the City’s municipal code in two sections: the general development chapter and the transportation demand management chapter.

TDM Requirements and Applicability
Pasadena’s ordinance applies to residential developments, nonresidential projects, and mixed-use projects. Participation in the TDM program is divided into two tiers based on a development’s size. The thresholds were set to be in line with and build on those set for nonresidential developments by Metro’s Congestion Management Program. The first tier, with fewer TDM requirements affects nonresidential projects and the nonresidential portion of mixed-use projects, which are between 25,000 square feet and 75,000 square feet of gross floor area. The second tier, with more significant TDM requirements affects multi-family residential developments with 100 or more units, mixed-use developments with 50 or more residential units of 50,000 square feet or more of nonresidential
development, and nonresidential developments that exceed 75,000 square feet of gross floor area.

Smaller developments are required to implement a standard set of TDM strategies and submit an annual update on the implementation of their transportation plan.

Required plan elements include:

- Carpool and vanpool preferential parking designation;
- Bicycle parking designation;
- Commuter matching services for all employees on an annual basis and for all new employees upon hiring;
- Transportation information displays that include, without limitation, current maps, routes, and schedules for public transit routes serving the development;
- The telephone number and web sites for the regional ridesharing agency and local transit operators and other relevant transportation resources;
- Ridesharing promotional materials;
- Bicycle routes and facility information;
- A listing of facilities available for bicyclist, carpoolers, pedestrian, transit riders, and vanpoolers at the development;
- And contact information for responsible program management party at the site.

TDM plans for larger developments are not as prescriptive and should contain strategies that will reduce vehicle trips such that AVR goals are met. These plans include identification of site conditions that affect commute travel; TDM plan measures; evaluation criteria for reviewing TDM program plans; and duties, responsibilities and qualifications of a certified employee transportation coordinator. Furthermore, larger projects are required to submit a TDM program statement of commitment ensuring they will meet the South Coast Air Quality Management District’s regulations and monitoring requirements for the reporting of TDM strategies, annual status reports and AVR. All items must be submitted to and approved by the director of transportation prior to the issuance of a building permit.

Integration with Parking Policy

Pasadena’s parking requirements vary by location and land use. In downtown and TOD areas both minimums and maximums exist, while there are no maximums outside of those areas. Developers may ask for a reduction in parking with a parking study, but parking and TDM requirements do not appear to be formally integrated.

Plan Development Process and Fees

Developers must work with the City of Pasadena and Metro Commute Services, the local TMA, while creating TDM plans. Both small and large projects have strict requirements, as outlined above, which they must meet in order to receive necessary building permits, certificate of occupancy, or other forms of required approval for the project to proceed.

The City funds a TMA that provides transportation information to employers and developers at no cost. Developers often join the TMA to receive assistance with the development of TDM plans, to obtain help maintaining compliance with air quality mandates and standards and to obtain assistance with the creation of required reports. The TMA also provides a forum in which developers and employers can discuss TDM strategies and obtain
advice on how to successfully implement TDM plans.

Developer fees include an initial deposit of $2,000 paid upon submittal of a TDM plan for review and approval. The deposit is subject to refund or additional billing, depending on the actual cost of the project review. Every time the annual status report is submitted, the developer pays an additional fee, which is set at $455.13 in 2018.

Monitoring, Compliance and Enforcement

The City of Pasadena requires property owners to submit TDM annual status reports to the City containing results from annual commuter surveys. Annual surveys must conform with South Coast Air Quality Management District’s guidelines to determine commute travel behavior, which requires the collection of data on employee means of travel, arrival time, and interest in commute information.

Property owners are required to record the TDM plan as a covenant to the property’s codes, covenants and restrictions (CC&Rs) as a condition of property ownership. As part of the covenant, the property owner must notify the City of any changes in property ownership by submitting a property transfer form. Property owners must also inform any potential future owner of the associated TDM requirement and include provisions in lease agreements that inform and commit tenants to participation in the property’s TDM program.

If goals are not met, the property owner must submit a revised TDM plan that includes new strategies to reach the established AVR goals. Failure to comply with the policy can result in permits being withheld and fines. Noncompliance includes failure to submit a Transportation Demand Management Program Plan, failure to implement strategies contained in an approved TDM program plan, failure to submit annual TDM status reports and failure to substantially achieve the established AVR requirement.

Administration and Staffing

The City employs one full-time staff person to coordinate annual reporting of plans for developments subject to ordinance.

Results

Pasadena has successfully implemented and gained compliance with its TDM goals. The City recognized that different scales of TDM plans for small and large developments would aid landowners in successful compliance. Additionally, placing the TDM policy in both the City’s ordinance and zoning code incorporates TDM policy into every step of the development process and creates a mechanism for enforcement after the development process is complete.

In 2008, the AVR was 1.72, higher than the target.
Appendix B: Stakeholder Presentation
Denver TDM Plan

Zack Wallace Mendez
Denver Public Works Transportation & Mobility
Matthew Kaufman & Ulla Hester
UrbanTrans North America
• Welcome
• TDM refresher
• Planning efforts to date
• Draft concept
• Review your comments and our responses
• Breakouts
Strategies that **shift** the **how**, **when**, **and/or where** of people’s travel behavior to increase system efficiency, reduce single occupancy vehicle (SOV) trips, and achieve specific planning goals.
## TDM Examples

### Services
- Transit (RTD)
- Microtransit (RTD FlexRide)
- Car Share (ZipCar, car2go)
- Shuttles
- TNCs (Uber + Lyft)
- Micromobility (scooters/bikes)

### Infrastructure
- Curb Management
- Bicycle Parking
- Transit Stop Enhancements
- Bicycle Repair Stations
- Wayfinding

### Parking Management
- Paid Parking
- Unbundled Parking
- Preferential Parking
- Discounted Car-Pool Parking
- Car-share Parking
- Showers/Changing Facilities

### Subsidies
- Transit Pass Discounts
- Car-share Membership Discounts
- Bike-share Membership Discounts
- TNC Discounts
- Micromobility Credits
- Direct Payment to Service Providers

### Education
- New Resident/Employee Welcome Kits
- Information Kiosks
- General Marketing
- Bicycle Workshops
- Websites/Apps
- Trip Planning Assistance
Why TDM

- Reduces vehicle congestion
- Lowers harmful emissions
- Improves affordability
- Increases mobility options for low-income households, seniors, and individuals who do not have drivers’ licenses
- Yields significant health benefits
Planning Efforts to Date
1. Established TDM goals
2. Reviewed applicable peer and academic research
3. Conducted focus groups
   - Developers
   - Financers
   - RNOs
   - Shared mobility providers
   - RTD
   - TMAs
4. Identified potential strategies and incentives
5. Developed draft concepts
6. Shared concepts with City staff
Draft TDM Concept

Help the City Achieve its 50% non-SOV Commute Goal
1. Is the development large enough to support the implementation of TDM strategies?

2. What is the likely impact of the development on the transportation system?

3. What is the administrative burden on the City?
What is Affected?

• City-wide regulation with requirements that vary by development type.
• Developers are required to implement and monitor their own programs and report results to the City.
• Potential triggers for participation:

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Tier 1</th>
<th>Tier 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>25 to 44 Bedrooms</td>
<td>45+ Bedrooms</td>
</tr>
<tr>
<td>Commercial</td>
<td>20k to 49.9k SF</td>
<td>50k+ SF</td>
</tr>
</tbody>
</table>
Tier 1

• Identify and construct infrastructure on site or off site
• Assign a transportation coordinator (TC)
• Join a TMA if one serves the area
• Provide regular reports to the City

Tier 2

• Tier 1 requirements
  + Identify and implement programmatic strategies
  + Conduct surveys to measure TDM program impacts
  + Achieve designated SOV commute rate
Neighborhood Contexts

Future neighborhood contexts demonstrate the differences in the built environment between Denver’s neighborhoods.
## Draft SOV Goal

### Zoning Context

<table>
<thead>
<tr>
<th>Zoning Context</th>
<th>Average SOV Rate</th>
<th>Goal SOV Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtown</td>
<td>60.2%</td>
<td>30% - 50%</td>
</tr>
<tr>
<td>Urban</td>
<td>71.2%</td>
<td>65%</td>
</tr>
<tr>
<td>Urban Center</td>
<td>72.9%</td>
<td>63%</td>
</tr>
<tr>
<td>General Urban</td>
<td>75.4%</td>
<td>70%</td>
</tr>
<tr>
<td>Suburban</td>
<td>76.3%</td>
<td>71%</td>
</tr>
<tr>
<td>Urban Edge</td>
<td>76.9%</td>
<td>72%</td>
</tr>
<tr>
<td>Districts</td>
<td>75.1%</td>
<td>45% - 69%</td>
</tr>
</tbody>
</table>
• Menu of strategies based on:
  – Building use
  – Context
  – Available transit service
  – Proximity to active transportation infrastructure
<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Commercial</th>
<th>Residential</th>
<th>Downtown</th>
<th>Suburban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covered Bike Parking</td>
<td>Provide a secure, weather-protected bike cage or bike room.</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Public Bike Racks</td>
<td>Provide public bike racks near the building entrances for all cyclists.</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Bicycle Repair Station</td>
<td>Provide on-site tools and space for bicycle repair. Bike repair stations should include repair stands, air pumps, and other tools and resources necessary to quickly repair a bike.</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Micromobility Parking</td>
<td>Reserve space for parking micromobility devices, e.g., dockless bike share, e-bikes, e-scooters, and docked bike share.</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>?</td>
</tr>
<tr>
<td>Transit Shelter Additions or Improvements</td>
<td>Add or improve transit stops by adding shelters, providing seating and ensuring that they are easily accessible from building entrances.</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Name</td>
<td>Description</td>
<td>Commercial</td>
<td>Residential</td>
<td>Downtown</td>
<td>Suburban</td>
</tr>
<tr>
<td>----------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------</td>
<td>------------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Designated Transportation Coordinator (TC)</td>
<td>Designate an onsite Transportation Coordinator responsible for ensuring compliance with City of Denver TDM Plan requirements.</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Car Share Vehicles</td>
<td>Provide car share vehicle(s) or provide a vehicle that will be shared amongst at the worksite or residential building.</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Micromobility Service Credits</td>
<td>Provide credits to building occupants for the use of micromobility services.</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Real Time Travel Information Screens</td>
<td>Provide displays in key locations in developments which display real-time information about bus services.</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Mobile On site Amenities</td>
<td>Provide access to on-site amenities such as: food trucks, mobile bike repair services, and mobile hair salons that reduce the need to drive for errands during the work day.</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>
Tier 1
• Annual report with:
  – TC contact information
  – Verification that infrastructure is being maintained

Tier 2
• Conduct biennial commute surveys
• Annual report with:
  – TC contact information
  – Verification that infrastructure is being maintained
  – Verification that programmatic strategies are being implemented
  – Survey results
• No plan = no construction permit and/or CO
• Failure to provide annual reports, implement programs, or maintain infrastructure:
  1. Reminder of obligations
  2. Second reminder of obligations and outreach from a TMA
  3. Administrative fines
• Failure to achieve SOV goal for Tier 2
  – Require additional spending on incentives
  – Would need city-wide data to assure goals are reasonable
Your Feedback
<table>
<thead>
<tr>
<th>Goal/Recommendation</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Account for project scale.</td>
<td>Smallest developments not impacted Larger developments placed into two tiers.</td>
</tr>
<tr>
<td>Establish goals that are well defined and measurable.</td>
<td>Commute-trip SOV rate. Biennial commute surveys.</td>
</tr>
<tr>
<td>Include monitoring and enforcement provisions.</td>
<td>Regular surveys will monitor impacts. Enforcement will mimic existing City policies with fines.</td>
</tr>
<tr>
<td>Require property owners to share contact information for an assigned transportation coordinator.</td>
<td>This will be required.</td>
</tr>
<tr>
<td>Goal/Recommendation</td>
<td>Action</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Provide data to support trip and parking reductions associated with TDM strategies, ideally from local sources.</td>
<td>Consultant team is conducting research on likely reductions that will be documented and shared. Survey data from impacted developments will be shared.</td>
</tr>
<tr>
<td>Integrate TDM requirements into the existing review process rather than create a new element that will take additional time.</td>
<td>Anticipate that developers will coordinate directly with PW staff. PW and CPD already have a process for coordination that should be relatively seamless for developers.</td>
</tr>
<tr>
<td>Provide a process to regularly review and adjust the requirement.</td>
<td>Anticipate that most elements will be implemented via guidance that can be adjusted without review by city council.</td>
</tr>
<tr>
<td>Goal/Recommendation</td>
<td>Action</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Do not exacerbate neighborhood parking issues and, ideally, relieve them.</td>
<td>TDM strategies will generally reduce parking demand. Strategies that may increase on-street demand, such as unbundling, may only be recommended in neighborhoods with managed parking.</td>
</tr>
<tr>
<td>Developers should select strategies in collaboration with residents.</td>
<td>Menu of strategies can be reviewed during neighborhood planning processes that will occur in every neighborhood in the next 10 years. Certain strategies can be prioritized over others.</td>
</tr>
<tr>
<td>Allow developers to collaborate with one another on the implementation of strategies</td>
<td>If allowed, this will be limited due to concerns with tracking and assuring compliance with the intent of the TDM requirement.</td>
</tr>
<tr>
<td>Goal/Recommendation</td>
<td>Action</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Assure flexibility based on project location/neighborhood, land use, and tenant type.</td>
<td>Developers will be able to select strategies from a menu of options. How they get to the SOV reduction is up to them. Plans can be updated based on changes in technology, demographics, building occupancy, etc.</td>
</tr>
<tr>
<td>Provide guidance in the form of a checklist or point system. Make the process simple enough that hiring a consultant is unnecessary.</td>
<td></td>
</tr>
<tr>
<td>Do not create requirements that will cause conflicts between different city departments.</td>
<td></td>
</tr>
<tr>
<td>Goal/Recommendation</td>
<td>Action</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Include strategies that educate travelers about their travel options.</td>
<td>These items will be addressed in the menu of strategies and their associated guidance.</td>
</tr>
<tr>
<td>Include strategies that make it easier to get to and from building entrances when using non-auto travel modes.</td>
<td></td>
</tr>
<tr>
<td>Include strategies that increase transit ridership.</td>
<td></td>
</tr>
<tr>
<td>Address all travel modes, not just transit and driving.</td>
<td></td>
</tr>
<tr>
<td>Do not permit strategies that will duplicate RTD services.</td>
<td></td>
</tr>
<tr>
<td>Support MOD services with strategies that provide well-lit parking areas, electricity for charging, and curb management</td>
<td></td>
</tr>
<tr>
<td>Allow developers to work with a single MOD service provider but do not favor one provider over others.</td>
<td></td>
</tr>
<tr>
<td>Do not require developers to guarantee exclusive access to MOD vehicles for tenants</td>
<td></td>
</tr>
</tbody>
</table>
• Include incentives, such as reduced parking and density bonuses.
• Allow for parking reductions when developments are adjacent to RTD stations.
• Include incentives to encourage developers to provide more than the minimum TDM program.
• Provide a complimentary educational program at launch (anticipated).
• Requirements should not sunset.
• Require TMA membership but place a cap on membership fees to assure consistency for developers.
Break Outs
Next Steps
Next Steps

- Vet program concepts:
  - Update draft documents as needed.
  - Internal meetings with City staff
  - Meetings with council members
  - LUTI presentation

- Finalize recommendations based on feedback from LUTI
  - Final plan will include a web-based tool
  - May need to go before City Council for hearing and approval
  - Implementation: zoning code, rules & regulations.
Appendix C: Feedback Matrix
<table>
<thead>
<tr>
<th>Goal/Recommendation</th>
<th>Developers</th>
<th>Financers</th>
<th>RNOs</th>
<th>RTD</th>
<th>MODs</th>
<th>TMAs</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Assure flexibility based on project location/neighborhood, land use, and tenant type.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Developers will be able to select strategies from a menu of options. How they get to the SOV reduction is up to them. Innovative strategies are allowed.</td>
</tr>
<tr>
<td>2 Account for project scale within the requirements.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Smallest projects are not impacted. Larger projects are divided into two tiers with unique requirements.</td>
</tr>
<tr>
<td>3 Establish goals that are well defined and measurable.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Goal is based on commute-trip SOV rate, which is easily measured using surveys.</td>
</tr>
<tr>
<td>4 Include incentives and not just costs in the regulation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Still in review.</td>
</tr>
<tr>
<td>5 Provide data to support trip and parking reductions associated with TDM strategies. Ideally the data will come from local sources.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Consultant team is conducting research on likely reductions that will be documented and shared. Survey data from impacted developments will be shared in the future.</td>
</tr>
<tr>
<td>6 Provide a complimentary educational program when launching the TDM requirement.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Still in review, but planned.</td>
</tr>
<tr>
<td>7 Integrate the TDM requirements into the existing review process rather than creating a new element that will take additional time.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Anticipate that developers will coordinate directly with PW staff. PW and CPD already have a process for coordination that should be relatively seamless for developers.</td>
</tr>
<tr>
<td>8 Provide guidance in the form of a checklist or point system. Make the process simple enough that hiring a consultant is not necessary.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Developers will be able to select strategies from a menu of options that is specific to their development’s context and available transportation options.</td>
</tr>
<tr>
<td>9 Do not create requirements that will cause conflicts between different City departments.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The ability to select among multiple strategies will allow developers and City staff to avoid potential conflicts that could occur due to unique characteristics of the development.</td>
</tr>
<tr>
<td>10 Consider requiring less parking.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Still in review.</td>
</tr>
<tr>
<td>11 Provide a process through which the regulation can be regularly reviewed and adjusted.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Anticipate that most elements will be implemented via guidance that can be adjusted without approval by city council.</td>
</tr>
<tr>
<td>12 Include strategies that educate travelers about their travel options.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Education will be included (and required) within the menu of TDM strategies.</td>
</tr>
<tr>
<td>13 Do not exacerbate neighborhood parking issues and, ideally, relieve parking issues.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TDM strategies will generally reduce parking demand. Strategies that may increase on-street demand, such as unbundling, may only be recommended in neighborhoods with managed parking.</td>
</tr>
<tr>
<td>14 Include strategies that make it easier to get to/from building entrances using non-auto modes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Menu will include strategies and associated guidance that improves access. Examples include paths and protected walkways from streets to building entrances.</td>
</tr>
<tr>
<td>15 Developers should select strategies in collaboration with residents.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The menu of strategies can be reviewed during neighborhood planning processes that will occur in every neighborhood in the next 10 years. Certain strategies can be prioritized over others.</td>
</tr>
<tr>
<td>Goal/Recommendation</td>
<td>Developers</td>
<td>Financers</td>
<td>RNOs</td>
<td>RTD</td>
<td>MODs</td>
<td>TMAs</td>
<td>Action</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------</td>
<td>------------</td>
<td>-----------</td>
<td>------</td>
<td>-----</td>
<td>------</td>
<td>------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>16 Provide an incentive to encourage developers to provide more than the minimum TDM program.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Still in review.</td>
</tr>
<tr>
<td>17 Include monitoring and enforcement provisions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Regular surveys will monitor impacts. Enforcement will mimic existing City policies and fines.</td>
</tr>
<tr>
<td>18 Include strategies that increase transit ridership.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Menu of strategies will include discounted/free transit passes, education, transit stop improvements, etc.</td>
</tr>
<tr>
<td>19 Address all travel modes, not just driving and transit.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Menu of strategies will include programs to encourage walking, biking, vanpooling, carpooling, and MOD services.</td>
</tr>
<tr>
<td>20 Do not permit strategies that would duplicate RTD service.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Guidance within the menu of strategies will be written to discourage the selection of strategies that duplicate already existing services.</td>
</tr>
<tr>
<td>21 Allow developers who build near RTD stations to construct less parking.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Still in review.</td>
</tr>
<tr>
<td>22 Include strategies that support MOD services by providing well-lit parking areas with electricity for charging.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>This will be included in the menu of strategies.</td>
</tr>
<tr>
<td>23 Include strategies that encourage the provision of pull-in and curb lane spaces to support MOD services.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>This will be included in the menu of strategies.</td>
</tr>
<tr>
<td>24 Allow developers to work with a single company to secure better pricing and simplify payment for tenants/residents.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>It is anticipated that this will be allowed.</td>
</tr>
<tr>
<td>25 Allow developers/property owners to contract directly with MOD services rather than working through the City.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>It is anticipated that this will be allowed.</td>
</tr>
<tr>
<td>26 Do not favor one MOD service provider over another.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>It is anticipated that the guidance will be provider neutral.</td>
</tr>
<tr>
<td>27 Do not require developers to assure exclusive access to MOD vehicles. On-site vehicles should be available to the general public.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>It is anticipated that this will be allowed.</td>
</tr>
<tr>
<td>28 Requirements should not sunset</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>This is the City’s goal, but legal options still need to be confirmed.</td>
</tr>
<tr>
<td>29 Allow developers to collaborate with one another on the implementation of strategies.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>If allowed, this will be limited due to concerns with tracking and assuring compliance with the intent of the regulation.</td>
</tr>
<tr>
<td>30 Require property owners to share contact information for an assigned transportation coordinator.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>This will be required.</td>
</tr>
<tr>
<td>31 Require TMA membership, but place a cap on membership fees to assure consistency for developers.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Still in review.</td>
</tr>
</tbody>
</table>
Appendix D: TDM Program Costs Versus Lease Revenue
An analysis was conducted to determine the size a building would need to be to cover the cost of implementing a basic TDM program costing $5,000 per year without negatively impacting lease rates or building value. A reasonable goal may be to ensure that TDM costs do not exceed 1% of lease rates in a typical building. According to data from CBRE, the region-wide average lease rate for office space at the end of 2018 was $28.34 per square foot. That rate is likely significantly lower than what is charged for new office space where rates have exceeded $50 per square foot in premium buildings. If TDM program spending was $0.25 per square foot in office buildings, it would increase lease rates no more than 1% and potentially as little as 0.5%.

A building with approximately 20,000 square feet would be able to generate $5,000 in annual revenue for TDM activities at a cost of $0.25 per square foot. According to data from the Institute of Transportation Engineers (ITE), a 20,000 square foot general office building will generate 220 to 386 vehicle trips per day, or 57,000 to 100,000 trips per year. Given the large number of vehicle trips that a 20,000 square foot office building can create and its ability to generate sufficient revenue to support TDM activities, 20,000 square feet is a reasonable “trigger” at which to require the development and implementation of TDM plans for office buildings. Because not all land uses have the same impacts, some variation should exist as to when different land uses trigger TDM requirements. The Table D1 shows the typical trip generation rates per 20,000 square feet of space for various land use categories based on data from ITE. It shows that it may make sense for industrial land uses to have higher “triggers” while other land uses may warrant lower triggers.

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Daily Vehicle Trips per 20k SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>General light industrial</td>
<td>139</td>
</tr>
<tr>
<td>Recreational community center</td>
<td>458</td>
</tr>
<tr>
<td>Hospital</td>
<td>351</td>
</tr>
<tr>
<td>General office building</td>
<td>220</td>
</tr>
<tr>
<td>Shopping Center*</td>
<td>859</td>
</tr>
<tr>
<td>Supermarket</td>
<td>2,045</td>
</tr>
</tbody>
</table>

* Rate is based on gross leasable land

Table D1: Trip Generation Rates

2 http://sg-realty.com/denver-market-overview/denver-market-overview
Residential properties operate differently from commercial spaces. With residential properties the cost of implementing a TDM program is more closely related to the number of bedrooms versus the overall building square footage. According to apartmentlist.com the average monthly rent of Denver apartments as of April 2019 is as follows:

<table>
<thead>
<tr>
<th>Bedrooms</th>
<th>Monthly Rent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studio</td>
<td>$873</td>
</tr>
<tr>
<td>1 bedroom</td>
<td>$1,067</td>
</tr>
<tr>
<td>2 bedrooms</td>
<td>$1,351</td>
</tr>
<tr>
<td>3+ bedrooms</td>
<td>41,963</td>
</tr>
</tbody>
</table>

*Table D2: Average Monthly Apartment Rents*

As with new commercial space, new apartment buildings are likely to be more expensive than the average, and in some cases significantly more expensive. Monthly rents at The Henry, a recently completed apartment building at 201 East Mississippi Avenue, are $1,585 for a one-bedroom and $2,495 for a two-bedroom. At Union Denver, near Union Station, the cost of a studio ranges from $1,635 to $2,100, the cost of a one-bedroom ranges from $1,910 to $3,860, and the cost of a two-bedroom ranges from $2,955 to $5,600 as of mid-2019.

Assuming a goal to not increase average lease/rental rates by more than 1%, TDM program costs should be limited to approximately $120 per year per bedroom/studio. At that rate, a building would need to have approximately 45 bedrooms/studios to generate $5,000 for TDM programming, an amount equal to the goal established for office buildings. Given the number of vehicle trips that a 45 bedroom/studio building can create and its ability to generate sufficient revenue to support TDM activities, 45 units may be a reasonable and somewhat conservative “trigger” at which to require the development and implementation of TDM plans for residential buildings. The use of units as the measure is more conservative that a bedroom count as, on average, most buildings will average more than one bedroom per unit.

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<thead>
<tr>
<th>Land Use</th>
<th>Daily Vehicle Trips per 45 Dwelling Units</th>
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<tbody>
<tr>
<td>Multifamily housing (low-rise)</td>
<td>297</td>
</tr>
<tr>
<td>Multifamily housing (high-rise)</td>
<td>189</td>
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</table>

*Table D3: Vehicle Trip Generation per 45 Dwelling Units*
Appendix E: TDM Strategies
This appendix contains a list of TDM strategies that will be provided to developers to help them create their TDM plans. Each strategy includes a description, reduction range, and visitor trip reduction points.

Reduction ranges are noted as SOV and vehicle-miles traveled (VMT) reductions. VMT reductions are not always directly applicable to SOV reductions. Within this document they are used when data on SOV impacts are not available. The City should assume an equivalence between the two such that a VMT reduction of 1% is equivalent to an SOV reduction of 1%.

Ranges are necessary because the impact of TDM strategies will vary based on context (e.g., location, transit access, and land use), the quality of implementation, and what other TDM strategies they are paired with. In addition, limited information is available regarding the impact of some strategies on SOV trips. The ranges acknowledge these limitations.

The visitor trips reduction points represent the relative impact of the strategy on visitor trips. Point allocations range from 1 to 3. A higher score represents a higher likely impact on visitor trips.

Developers will be asked to create TDM plans using guidance provided by the City. The plans will then be reviewed by City staff as part of the development review and approval process. City staff may make recommendations to improve the plan and engage developers to reach a negotiated and mutually-agreeable plan.

Over time, the City will need to update the list of strategies based on advances in transportation technology and services and lessons learned. Staff will also need to update the likely impacts of strategies on SOV rates based on data collected from monitoring TDM programs.
#1 Bicyclist Support: Storage
Secure bike parking describes all bike storage that protects bikes against theft and inclement weather. It is typically provided and used for long-term bike parking, such as the duration of a workday. Examples include bike lockers and bike cages or rooms with restricted access. Secure bike facilities provide a greater degree of certainty that bike parking will be available than public racks and reduces fears of bike theft. Secure bike parking facilities can be situated within a building, for example as part of a secure car garage. The secure bike parking area must be access restricted to allow only building occupants.

SOV reduction range: up to 1%
Visitor trip reduction points: 1

#2 Bicyclist Support: Shared Amenities
This strategy includes providing showers with changing rooms, lockers, bicycle repair kits, and other amenities to encourage walking or biking.

Showers allow employees to freshen up, and lockers provide a space to keep a change of clothes, bike helmets or walking shoes. These facilities enable employees to enjoy an active commute and maintain a professional appearance.

Bike repair kits can be offered in the form of a permanently installed bike repair station near bike parking or as a set of tools that can be made available to students and employees. Tools should include a pump, multi-purpose bike tool, tire levers, tire patch kit, and tubes in common sizes.

Shared amenities can include shared umbrellas, ponchos, bike lights, rain covers for bike seats and bags/backpacks and other items that can be borrowed when needed to encourage walking or biking, especially in inclement weather.

VMT reduction range: 2% to 5%
Visitor trip reduction points: 2

#3 Preferential Parking for Sustainable Modes
Preferential parking for sustainable modes means reserving the most desirable parking spaces for employees who use a sustainable mode such as carpool and vanpool to get to work. These can be close to the building entrance, covered, or otherwise preferable. This strategy incentivizes modes such as carpooling and vanpooling by making the experience more convenient than driving alone.

VMT reduction range: up to 0.3%
Visitor trip reduction points: 1

#4 New Resident/Employee Kits
Provide welcome kits to all new building occupants to educate them about transportation options available at their new residence or employment site. Starting a new job or school is a behavior change moment when individuals are considering travel options and are more willing to try new modes of transportation. Providing information about alternatives to driving alone before that decision has been finalized can increase the rate at which employees and students carpool, bike, walk, or take transit to work. It is an opportunity to create a new behavior rather than change an existing habit.
The kits must include any applicable transit schedules, bicycle maps, information on available subsidies, and transportation programs, and, ideally, multiple free bus tickets or passes.

VMT reduction range: up to 4%
Visitor trip reduction points: N/A

#5 Flexible Sustainable Transportation Incentive Fund

Develop and manage an annual Flexible Sustainable Transportation Incentive Fund (FSTIF). This annual budget line item will be equivalent to the cost of providing an annual RTD EcoPass to each residential unit or equal to the cost of providing one local monthly RTD pass per 1,000 square feet of occupiable space. The available budget will be marketed with a list of potential uses. Examples of contributions or incentives include:

- A monthly subsidy to support bicycle/e-bike purchase and maintenance;
- Public transit fare subsidies;
- Carpool incentives such as gas cards for forming or participating in a carpool;
- Carshare incentives such as membership and use of Zipcar, Getaround or Turo;
- Rideshare (e.g., Lyft and Uber) subsidies for first/last mile transit access;
- Shared-mobility (e.g., scooters and bike-share) incentives;
- And, parking cash out (see details at that strategy).

VMT reduction range: 1% to 10%
Visitor trip reduction points: N/A

#6 Provide Bicycle, E-Bike, Scooter, or Equivalent Share

Bike, e-bike, scooter or similar share/loaner programs provide employees and residents with short-term access to a bike or other similar mobility device for specific trips. Programs can be based on a low-tech check-out system that allows users to rent bikes or scooters for a certain period or a technology enabled system can be used that allows for automated check-outs.

VMT reduction range: 1% to 4%
Visitor trip reduction points: 2

#7 Car-Share Parking

Car sharing allows members to rent cars on an hourly basis after paying a small annual membership fee. Several private providers are active throughout the US, including ZipCar, Getaround and Turo. Properties can facilitate car sharing by providing car-share spaces. Car-share parking space locations must be preferential to the average parking space. This can be achieved by situating the preferred spaces adjacent to building entrances and ensuring that they are covered.
Property owners should identify a car-share operator to utilize any identified carshare spaces. If a car-share operator cannot be found or ceases operations, the space must be converted into a car or vanpool only space.

**#8 Parking Fees**

Charge market rate fees for parking to make alternative transportation more attractive when compared to driving in a single occupant vehicle. The fees can be included in lease agreements, but any lessee must then pass the fee onto individuals who park. Alternatively, the fee can be collected directly from parkers by the property owner or manager. Up to 20% of building occupants (residents and/or workers) may receive free parking, but providing free parking to any users will reduce the effectiveness of this strategy.

All visitors must pay for parking at developments that claim the 3 visitor trip reduction points. Some visitors may receive validated parking, but providing validated parking will reduce the number of visitor trip reduction points that can be claimed.

The revenues generated by the parking fees should be earmarked to support implementation of other TDM strategies listed within this document.

**#9 Focus Infrastructure on Walking and Bicycling Efficiencies**

Design the site to facilitate priority connections across the site and to adjacent areas for pedestrians and bicyclists. These connections should be fully ADA compliant and meet the standards set forth in DenverMoves Bicycles and Pedestrians. The connections should include pedestrian and bicyclist dedicated wayfinding and signage.

**#10 Transit Connection Services**

This strategy includes the implementation of a transit connection service from the building to nearby high frequency transit services or other major destinations. Connection services can operate in multiple forms, including:

- Shuttle or vanpool services (such as those provided by hotels, major employers, or car rental companies)
- Microtransit (e.g., demand responsive shuttles that can be booked with an app and operate along a route or within a service area)
- Carpool services (e.g., using Uberpool and Lyftline to provide people with an ability to catch on-demand transportation without access to a personal car. Specifying pick-up and drop-off locations for this service is crucial)
#11 Incentivize Carpooling

The property owner should actively promote carpooling through encouraging building occupants to register for the My Way to Go program to find carpool partners. Active promotion includes organizing an event each year to promote My Way to Go carpooling.

Alternative services are also available through apps that utilize casual carpooling technology to provide flexible ridesharing solutions to building occupants. Current examples of casual carpooling technologies are Waze Carpool and Scoop.

VMT reduction range: up to 1%
Visitor trip reduction points: N/A

#12 Transit Station/Stop Investment

Work with RTD to improve transit station or stop infrastructure at or adjacent to your site. This may include:

- Sponsoring the implementation of a bus shelter with benches;
- Working with RTD to move an existing bus stop to a more convenient location or to locate a site for a new bus stop;
- And, implementation of other transit stop supporting amenities such as real-time information display boards.

VMT reduction range: up to 1%
Visitor trip reduction points: 1

#13 Emergency Ride Home Program

Emergency/Guaranteed Ride Home provides commuters who do not drive alone to work with a free ride home in case of an approved emergency. Rides are typically provided by taxi, Lyft/Uber, or rental car for long distances and either requires pre-authorization or subsequent reimbursement.

The service is reserved for true emergencies such as illness and unscheduled overtime. Programs usually cap the total number of emergency rides per person per year and/or require manager confirmation. Rides to work are not eligible.

VMT reduction range: up to 0.3%
Visitor trip reduction points: 1

#14 Membership in Local Transportation Management Association (TMA) or Similar Regional or Statewide Organization

TMAs are nonprofits with a mission to promote and facilitate transportation demand management in specific service areas. These organizations are funded through federal grants and the support of local jurisdictions, but are also membership organizations of local employers, activity centers, and building owners. TMAs serve their members with a variety of ongoing TDM measures and promotions and can also provide special fee-for-service activities, such as designing, implementing, and managing a robust building-specific TDM program.

Currently there are five TMAs serving the City of Denver.

Membership to a TMA includes paying annual membership dues to cover the cost of the provided...
TDM programs. The costs of joining a TMA depend on the location of your building and the local TMA. Specific services may be sought from a TMA for a standalone fee and may support the implementation of other strategies contained within this document.

VMT reduction range: up to 3.0%
Visitor trip reduction points: 1

#15 Pedestrian and Cyclist Scale Wayfinding
Provide signs, maps, and directions to point travelers to the location of nearby alternative commute routes, such as transit or shuttle routes, bicycle and pedestrian paths, as well as major nearby destinations. Multimodal signage and wayfinding should be guided by NACTO (National Association of City Transportation Officials) and RTD’s Regional Wayfinding Design Guidelines. Development of a wayfinding system can be branded to some degree by the building owners if suitable.

VMT reduction range: up to 1%
Visitor trip reduction points: 1

#16 Offer or Encourage Employer-Based Programs – Commuter Tax Benefits
The federal commuter tax benefit based on Section 132(f) of the federal tax code enables commuters to pay for “qualifying transportation expenses” that include transit passes, vanpool fares, and parking fees using pre-tax income. Employees can use pre-tax income to pay for transit, vanpool, and parking expenses through a payroll deduction up to a maximum amount designated by the IRS every year, much like a flexible savings account.

VMT reduction range: up to 1%
Visitor trip reduction points: N/A

#17 Offer or Encourage Employer-Based Programs – Teleworking/Work from Home Policy
Telework refers to allowing staff to work outside of the office some or all of the time. Telework can involve working from home, a satellite office or a telework center closer to home. By removing the need to travel to work some or all of the time, telework can have a significant impact on trip reduction and parking demand. This option does not work for every type of employee or with every position and may require some education for managers and employees.

VMT reduction range: 1% to 3.75%
Visitor trip reduction points: N/A

#18 Offer or Encourage Employer-Based Programs – Flexible/Alternative Work Schedules
Flexible work schedules allow eligible employees to vary their start and end times by a certain amount each day. Organizations typically specify core hours during which all employees have to be present, or arrival and departure windows. Another flexible
scheduling tool is a compressed work week. It allows employees to work more than eight hours per day and regularly take time off to compensate, such as working 4 x 10-hour days every week, 3 x 12-hour days per week, or one day off every two weeks when working 8 x 9-hour days plus 1 x 8-hour day.

**#19 Transportation Coordinator and Associated TDM Branding and Messaging**

All developments subject to the TDM ordinance are required to designate a transportation coordinator (TC) responsible for ensuring that infrastructure is maintained, policies and programs are implemented, and amenities and partnerships are maintained as described in the approved TDM Plan and otherwise ensuring compliance with City of Denver TDM requirements. The TC can be on-site or off-site. One TC can also be assigned to multiple buildings. The TC can be employed by the building owner, the property manager, or hired from a third party.

It is recommended that the TC be involved in survey efforts that may be mandated for certain properties. However, a property owner may choose to use another individual or hire another organization to conduct surveys. Lease agreements must specify that all building tenants must participate in any required survey efforts by directly distributing or aiding with the distribution of surveys to all their staff and/or residents.

| VMT reduction range: up to 1.5% | Visitor trip reduction points: N/A |

**#20 Parking Cash-Out**

Parking cash-out is a program that allows employees to receive cash for giving up their free or subsidized parking space at work. To allow flexibility, employees typically do not have to give up their parking space altogether, but can be compensated for every day, week, or month they do not park onsite and use alternative modes of transportation or work from home.

In addition to incentivizing employees not to drive alone, a parking cash-out program addresses an equity issue that is prevalent at many employment sites: employees who drive receive free or highly subsidized parking, while employees who choose to take transit, walk, or bike often do not receive a subsidy, or receive one that is of lesser value. By offering them an amount equal to the value of the parking space, they are recognized and compensated for their commute choice.

| VMT reduction range: 3% to 8% | Visitor trip reduction points: N/A |

**#21 Providing Information Via Kiosks, Transit Screens, Websites, or Apps**

This strategy involves providing a physical (e.g., information kiosk or digital display) or virtual (e.g., app or website) platform to provide information on transportation options. Information typically includes transit and shuttle maps and schedules, bike maps, location of car share and bike share as well as preferential carpool parking. Additional information displayed can include information on programs and promotions available to the target audience. Information should be specific to the building and not generalized to the region or city.

| VMT reduction range: None assumed | Visitor trip reduction points: 1 |
#22 Provide Free EcoPasses

EcoPasses are annual transit passes that allow holders to make unlimited rides on buses and trains within the RTD district. Passes must be purchased for every employee at a site or every resident at a site. Because each employee or resident receives a pass, the passes are offered at a significant discount compared to the cost of purchasing individual passes. Significant limitations exist when providing EcoPasses in a residential context. For support offering a resident-based EcoPass program, reach out to RTD or a local transportation management association (TMAs) or the Way to Go program. Information on TMAs and Way to Go can be found at drcog.org.

This strategy assumes that all building occupants will receive an EcoPass free of charge. If occupants will have to pay a fee for the EcoPass, the “Subsidize Transit Passes” strategy should be claimed.

#23 Subsidize Transit Passes

Providing subsidized transit passes is an effective strategy to increase transit ridership and decrease the number of employees driving alone. Transit subsidies can be provided tax-free to employees up to an IRS-specified monthly limit; however, transit subsidies can be used in a residential context, not just a workplace context. This strategy assumes a 100% transit subsidy will not be offered to all employees and/or residents. If a 100% subsidy will be offered to all employees and/or residents, a developer should claim the “Provide Free EcoPasses” strategy. The credit for VMT reduction will vary based on the number of percentage of building occupants that is eligible to receive the subsidy and the value of the subsidy.

#24 Unbundled Parking

Unbundled parking is the leasing or selling of parking spaces separately from residential units or office space. This can reduce the monthly rent of any building occupants who choose not to purchase a parking space(s) within their lease.

#25 Off-site Transit Improvements

Provide funding for enhanced and more convenient transit service to building occupants. This could mean adding more frequent service at certain times of the day or changing/extending a transit route to serve the building occupants or upgrading bus stop facilities (e.g., shelters). Any off-site investments must be completed in coordination with City and RTD staff.
**#26 Off-site Active Transportation Improvements**

Provide funding for enhanced active transportation links for building occupants. This could mean adding DenverMoves standard bicycle or pedestrian infrastructure from/to the building and any surrounding destination and/or the surrounding active transportation network (e.g., to connect to the City’s trail network or the City’s bicycle network). Any off-site investments must be completed in coordination with City staff.

VMT reduction range: up to 2%
Visitor trip reduction points: 1

**#26 On-site Child Care**

Include an on-site childcare facility to reduce commuting distances between households, places of employment, and childcare. The on-site childcare facility must comply with all state and City requirements.

VMT reduction range: 1% to 2%
Visitor trip reduction points: 1

**#28 On-Time Customer Transit Passes or Transit Validation Program**

Develop a program to provide visitors or customers with pre-paid transit passes prior to their visit or reimburse visitors that arrive to the site by transit.

VMT reduction range: 0.3% to 1%
Visitor trip reduction points: 1

**#29 Visitor Discounts to Avoid Peak Period Trips**

Develop a program that provides discounts or incentives to customers that avoid peak period trips.

VMT reduction range: 0.5% to 1.5%
Visitor trip reduction points: 1

**#30 Passenger Pick-up/Drop-off Areas**

This would require the development to identify an area to be designated for pick-up and drop-off and to provide adequate signage to demark. This strategy also requires the applicant to coordinate with Uber and Lyft to set up geofencing in the pick-up and drop-off area to better ensure driver compliance.

VMT reduction range: 0.5% to 1.0%
Visitor trip reduction points: 1
#31 Valet Bike Parking
Offer a valet bike parking service for use by employees and visitors.

VMT reduction range: 0.5% to 1.0%
Visitor trip reduction points: 1

#32 Special Event Transit Service
Provide transit service to special events or daily to places with high visitor attraction. The service can be a private shuttle or the property can coordinate with RTD to buy-out service.

VMT reduction range: 0.5% to 6%
Visitor trip reduction points: 2

#33 Affordable Housing
The City may consider providing VMT reduction credit for the provision of affordable housing units, which are associated with lower drive alone rates. Guidance on the impact of affordable housing on vehicle travel is available from the California Air Pollution Control Officers Association (CAPCOA)

VMT reduction range: TBD
Visitor trip reduction points: N/A
Appendix F: TDM Program Impacts
Commute SOV targets were created by estimating the impact that TDM strategies would have on commute SOV rates. This was done by creating sample TDM programs and determining the impact those programs would likely have on commute SOV rates. Approximately 150 sample TDM programs were created. Tables F1 and F2 show every potential combination of land use, tier, context, and transit frequency in the City. The numbers represent the likely percentage reduction in SOV trips that would result from implementing a TDM program that contains infrastructure focused TDM strategies (Tier 1 developments) or a combination of infrastructure and programmatic focused TDM strategies (Tier 2 developments). These values were applied to current commute SOV rates to calculate target commute SOV rates. For example, Census data indicate that a residential property in the downtown context that has access to high-frequency transit (HFT) will have a commute SOV rate of 40% in the absence of any TDM strategies. If Tier 2 TDM strategies are implemented, the commute SOV rate is likely to be reduced by 12%. This results in a target SOV rate of 35% (40% x (1-0.12) = 35%).

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<tr>
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<tr>
<td>Urban</td>
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<td>Suburban</td>
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Table F1: Potential SOV Commute Trip Reductions for Tier 1 Properties
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*Table F2: Potential SOV Commute Trip Reductions for Tier 2 Properties*