

TO: TPPB  
FROM: Charuvi Begwani, Bloomberg-Harvard Summer Fellow  
RE: Options for framing a city-wide TDM Ordinance  
DATE: July 2, 2020

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### Key abbreviations:

BRT: Bus Rapid Transit (referring to the upcoming East-West BRT Corridor)

SOV: Single Occupancy Vehicles

TDM: Transportation Demand Management

TMA: Transportation Management Association

TOD: Transit Oriented Development

VMT: Vehicle Miles Travelled

## 1. Background

### i. Existing TDM efforts in Madison

Madison currently lacks a comprehensive and standardized Transportation Demand Management (TDM) program for the city. TDM plans and measures have been required on an ad hoc basis, without any consistent standards, based on the discretion of the staff and/or Planning Commission. A handful of land uses have TDM requirements – specifically the larger, more prominent developments such as institutional campuses (UW-Madison, Madison Area Technical College), UW Health, Moxy Hotel, Archipelago Village and Madison Yards.

There has however been an option for using it in approving conditional uses for about 15 years (inserted in 2005) and for 3 zoning categories since 2012. The four references in Madison’s Zoning Ordinance are provided below:

- Conditional Use - section 28.183:

*Give consideration to TDM measures and participation in a TMA*

- Employment Campus District- section 28.087:

*Requirement of a master plan for any rezoning submittal which needs to have a TDM Plan with measurable goals, strategies, and actions to encourage non-SOV. The TDM Plan would be managed by a property owners' association or other acceptable entity, which would need to provide annual implementation reports to the Traffic Engineer.*

- Mixed Use Center District (MXC) – section 28.066:

*The City Traffic Engineer may require a TIA to determine the impacts of the District. A TDM plan may be required as a way to resolve traffic and parking concerns.*

- Urban Design Commission – section 33.24

*Single retail business establishments of or over 40,000 sq.ft. with 100 or more full-time employees are required to have a TDM Plan (updated every 2 years) or participate in a TMA. Provide either a full priced monthly bus pass (Madison Metro), or at least 3 of the following to all employees: ridesharing/ car pool matching; preferred parking for ridesharers; secured bicycle parking, showers and lockers; employee commuting subsidies or awards; emergency ride home program; employer-subsidized bus passes; provision of real-time transit information; or other options to discourage SOV use*

The most successful and comprehensive TDM plan in Madison so far, has been adopted by UW-Madison. It is a component of the UW-Madison Campus Master Plan, that is updated every 10 years, most recently in 2017. A unit called Commuter Solutions has been set up, dedicated to TDM, with the goal to reduce the amount of SOV coming to campus. As of 2015, UW-Madison ranked second in the nation in the number of faculty, staff, and students commuting to and moving around campus in non-SOV.

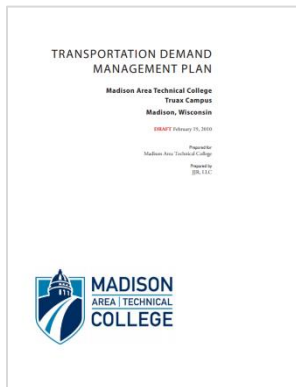


<p><b>BICYCLE INFORMATION</b> Wondering about the ins and outs of biking on campus? Look no further!</p>	<p><b>BIKESHARE</b> Did you know UW, UW Health, and UW affiliate employees and students are eligible for discounted bikeshare memberships?</p>	<p><b>CAMPUS BUS</b> All things bus! Fare-free campus buses are coordinated by Transportation Services.</p>
<p><b>CARPOOL</b> Have some friends to drive with? We administer a carpool program for faculty and staff. Benefits available for small and large groups.</p>	<p><b>CARSHARE</b> Did you know there are cars to rent on campus? Zpcars are located throughout campus.</p>	<p><b>CUSTOM ROUTE PLANNING</b> Submit this form to get a customized transportation info based on your preferences and interests.</p>
<p><b>EMERGENCY RIDE HOME</b> The Emergency Ride Home (EHR) Program supplies emergency cab vouchers for employees who don't drive to campus.</p>	<p><b>FLEX PARKING PROGRAM</b> Can you bike, bus, carpool, vanpool, or walk most of time? The Flex parking program is for those few times when driving is necessary.</p>	<p><b>EMPLOYEE BUS PASS</b> Transportation Services administers an employee bus pass program, available at a greatly subsidized cost. Students can get passes through ASM.</p>
<p><b>SAFEWALK</b> SAFEwalk is a walking companion service available to all students, faculty, staff, and UW visitors! Call/text 608-262-5000.</p>	<p><b>VANPOOL</b> Large groups (8-15 people) can rideshare in a state-owned passenger van, sharing costs.</p>	

Source: UW-Madison Facilities Planning

Commuter solutions offered by UW-Madison:

- Limited parking supply and permit parking requirements: 13,000 parking spaces;
- Abundant, convenient bicycle parking (15,000 spaces), weather bike protected lockers
- Free campus bus routes and subsidized Metro Transit bus passes for students and employees
- Accessible Circulator Shuttle PILOT
- Emergency ride home program
- Carpool/vanpool options
- Park-and-ride
- Car sharing & BCycle bicycle share
- Paratransit service



TDM measures in Madison Area Technical College TDM Plan (2010):

- Madison Metro Institution Commuter Program- subsidized transit passes
- Enclosed waiting areas to supplement high-volume transit stops
- Bicycle parking as per city requirements; showers & lockers
- Participates in MPO's Rideshare, etc. program for carpooling;
- Parking Permits required for cars for all campus users;
- No parking permits required for motorcycles, mopeds, bicycles.
- Flexible work/class schedules for faculty and students
- Increasing distance education and teleworking
- On-campus informational campaigns for alternative transportation

Some of the other developments with TDM requirements including UW Health at American Family, Archipelago village (office building) and Moxy Hotel on East Washington Avenue have had relatively weak TDM plans. They did not include specific implementation targets, enforcement mechanisms and implications in case of non-compliance. Some of these plans have been approved in good faith – since the developers are known and would most likely be needing approval for carrying out other developments in the future. The preparation and approval of the TDM Plan for Madison Yards (a large mixed-use development project) has been in discussion for the past few months.

Typically, a 30 percent non-SOV target has been required; yet most TDM plans till now have not clearly addressed this. There has been confusion about what the 30 percent could entail and absence of a clear baseline. Such ad hoc TDM requirements and a lack of clarity have led to pushback by developers, who can point to many other land uses without such requirements. It should also be noted here that the plans

have been required for projects along the BRT corridor, while it may be preferable to impose fewer burdens there to attract development.

Another aspect to be explored alongside TDM is setting up TMAs. No proper/official TMA exists at present in the city. It is being expected that the bigger employers or developments such as Madison Yards would establish TMAs, which could be expanded to the smaller employers/developments. While setting up multiple TMA's is a possibility, a city-wide TMA may instead be a more appropriate and efficient approach to take.

At the regional level, Madison Area Metropolitan Planning Organization implements TDM measures such as the Rideshare, etc. program, for commuters and employers in a 48-county area of central and southern Wisconsin and northern Illinois. The program seeks to reduce congestion and pollution and provide commuters- travel options and personal transportation cost savings. The Rideshare, etc. program is in partnership with Metro Transit (discounted fare pass programs), the State Vanpool Program, Dane County, City of Madison, UW-Madison, and other public/private employers throughout the area, helping develop in-house rideshare programs as well.

## ii. Need for a city-wide TDM ordinance

As highlighted above, ad-hoc TDM requirements have led to pushback from developers and unclear and weak TDM plans. The city administration also lacks a clearly designed program and standards to allude to while setting requirements and targets for developers / employers. There is thus need for a city-wide TDM ordinance to:

- provide clarity and some uniformity in requirements for developers / employers
- enable better administration and enforcement of TDM strategies by the City

This could possibly be replicated by the neighboring cities as well.



The requirement of a city-wide TDM ordinance and creation of TMAs is aligned with the targets and recommendations in the Madison's Comprehensive Plan and the Transportation Plan. The Comprehensive Plan (2018) discusses TDM as the third action required under Strategy 5, given below:

*Facilitate the creation of TMAs and implementation of TDM strategies to serve high-intensity development at Activity Centers and along major transit corridors.*



The Transportation Plan (Madison in Motion, 2017) defines TDM as policies and strategies implemented to shift travel patterns to better manage congestion. It includes TDM in two Priority Recommendations:

*11. Develop a prototype TMA in the City of Madison, at an appropriate area of the City (such as downtown Madison, the Capitol East District or UW Research Park), as a mechanism to organize individual employers and administer TDM initiatives.*

12. Evaluate employer-based TDM measures in order to increase the use of alternatives to the SOV and to reduce the need for parking. Research TDM requirements in zoning ordinances across the US and recommend approaches to the ZTAST Staff Team for incorporation in our zoning code.

## 2. TDM Program options

### i. Elements of a TDM program:

Designing a city-wide TDM program includes various considerations which could broadly be divided into four categories:

- a) WHO: Which parties have to participate? There are two primary approaches – based on land uses or on employers, which could exclude de minimis cases or scale the responsibilities by size.
  - *Land use based TDM*: This typically has a threshold based on size such as developments exceeding XX sq.ft or in terms of units for residential and mixed use developments, e.g. Multi-family residential exceeding XX dwelling units. This approach has been used in cities such as Arlington and San Francisco.
  - *Employer based TDM*: This is the other possible route by targeting employers with a threshold based on number of employees, as has been done in Santa Monica and Seattle.
  - *Parking based TDM*: A third way of setting targets is based on solely parking requirements. This has been successfully adopted by the city of Cambridge (MA), where developers providing additional parking spaces in non-residential developments, are required to undertake TDM measures. Although this approach may in some sense, be seen as an extension of the land-use TDM approach, it could be incorporated in a hybrid form with both employer or land use-based programs.
  - *Both land use / developments and employers*: This is also a possibility to account for both the parties. Both Seattle and Santa Monica have separate TDM requirements from developers, in addition to their TDM programs for employers. This would however expand the scope of the program significantly (contingent upon the threshold sizes) and may require much greater implementation capacity from the administration.

- b) WHAT: What do they have to do?

This aspect deals with the actual design of the TDM program and what the requirements of the TDM program should be. There are two potential ways to set these goals- performance target or through a menu of weighted measures – both of which can be adopted for whichever TDM model is selected (land use or employer based).

The first way of doing this is through a point target based on a menu of TDM measures ranging from easy (bike lockers or wayfinding signs to transit stops) to more complicated (funding new transit or building new bike-ped connections), with proportional points weightage. An example of how this has been done in San Francisco is given below. The measures have been given weights based on their ability to reduce VMT, derived from academic research.

Category	Measure	Points
ACTIVE-1	Improve Walking Conditions: Option A - D Provide streetscape improvements to encourage walking.	● 1
ACTIVE-2	Bicycle Parking: Options A - D Provide secure bicycle parking, more spaces given more points.	●●●● 1-4
ACTIVE-3	Showers and Lockers	● 1
ACTIVE-4	Bike Share Membership: Locations A - B Provide a bike share membership to residents and employees for one point, another point given for each project within the Bike Share Network.	●● 1-2
ACTIVE-5A	Bicycle Repair Station	● 1
ACTIVE-5B	Bicycle Maintenance Services	● 1
ACTIVE-6	Fleet of Bicycles	● 1
ACTIVE-7	Bicycle Valet Parking	● 1
CSHARE-1	Car-share Parking and Membership: Options A - E	●●●● 1-5
DELIVERY-1	Delivery Supportive Amenities	● 1
DELIVERY-2	Provide Delivery Services	● 1
FAMILY-1	Family TDM Amenities: Options A - B	●● 1
FAMILY-2	On-site Childcare	●● 2
FAMILY-3	Family TDM Package	●● 2
HOV-1	Contributions or Incentives for Sustainable Transportation: Options A - D	●●●●●● 2-8
HOV-2	Shuttle Bus Service: Options A - B	●●●●●●●● 7-14
HOV-3	Vanpool Program: Options A - G	●●●●●● 1-7
INFO-1	Multimodal Wayfinding Signage	● 1
INFO-2	Real Time Transportation Information Displays	● 1
INFO-3	Tailored Transportation Marketing Services: Options A - D	●●●● 1-4
LU-1	Healthy Food Retail in Underserved Area	●● 2
LU-2	On-site Affordable Housing: Options A - D	●●●● 1-4
PKD-1	Unbundle Parking: Locations A - E	●●●●● 1-5
PKD-2	Short Term Daily Parking Provision	●● 2
PKD-3	Parking Cash Out: Non-residential Tenants	●● 2
PKD-4	Parking Supply: Option A - K	●●●●●●●● 1-11

Source: TDM Program Standards, City of San Francisco (2018)

Another way could be in the form of a metric goal such as:

- Achieving a certain percentage of SOV or non-SOV mode-share (this has been done in Madison so far, with a target of 30 percent non-SOV mode-share)
- Average Vehicle ridership
- VMT target
- Ratio of parking spaces to number of employees

When adopting such a performance target, a clear baseline needs to be established and studies, surveys or trip assessments need to be conducted to verify if the performance target has been reached. These studies often do not give accurate results and are time-consuming.

In both cases there may be variable TDM requirements based on size, land use and geographical location. The city administration of Madison prefers to have a menu of measures with weighted points and determine TDM requirements for the developers / employers based on a variable point target. The targets may be revised and updated regularly based on how successful the measures are and/or knowledge and availability of newer measures. Similarly the requirement for a TDM plan could vary too – a smaller transportation plan for small projects and a more comprehensive TDM plan for larger projects.

c) HOW: How are those responsibilities met?

This could be done individually (by developers or employers) or via TMAs. A city-wide TMA could be established, or there may more than one, established at the lower levels such as district-wise or geographically.

d) **FEEDBACK:** How is activity monitored and enforced?

- Reporting mechanism: annual status of measures in place and target achieved, field inspections
- Program administration and enforcement: Separate program and staffing for TDM and TMA or private contracting (like Arlington).
- Non-compliance response: Fines/ Administrative penalty, non-approval of building permit, business license, etc.

**ii. TDM Ordinance Framework:**

The key question that needs to be discussed and decided on is who the TDM ordinance should target – land uses or employers (or both)? The table below outlines differences between how a TDM policy could be implemented throughout the city based on the two approaches.

*Table 1: Land Use versus Employer based TDM program design considerations*

	<b>Land use based TDM</b>	<b>Employer based TDM</b>
<b>Potential targets</b>	<ul style="list-style-type: none"> <li>- Both non-residential and residential (and mixed use) properties / parcels OR only non-residential uses (retail, office, employment, institutional), based on a size threshold, number of units, and/or parking requirements</li> <li>- Focus on new developments, redevelopment and infill, rezoning and change of use – existing development would probably not be affected</li> </ul>	<ul style="list-style-type: none"> <li>- Would target employers based on a threshold of number of employees (such as 100, 500, etc.) and establishment year and/or parking requirements.</li> <li>- Smaller employers could opt-in</li> <li>- Could include all existing employers above the designated threshold and so may target more (or scope could be narrowed if development approval is given consideration too)</li> </ul>
<b>Mechanism</b>	<ul style="list-style-type: none"> <li>- Would preferably be separate from zoning ordinance</li> <li>- Developers or building owners would be the responsible party; the TDM requirements would run with the land (e.g. stormwater mgmt. facilities)</li> <li>- Variable TDM requirements based on land use and size of development &amp; geog. Location, applicable as a part of the site plan approval process</li> <li>- Politically – may be easier as it would target new / expanding developments; could however impact fewer properties and take a longer time to get results</li> </ul>	<ul style="list-style-type: none"> <li>- Would be separate from the zoning ordinance</li> <li>- Employers would be the responsible party – could be done as part of business license registration / renewal</li> <li>- Programmatic advantage – TDM ordinance could be applicable for existing employers as well and could lead to immediate implementation - would include all employers within its ambit at once, when adopted</li> <li>- Political / stakeholder considerations</li> </ul>

<b>TDM Requirements</b>	<ul style="list-style-type: none"> <li>- Variable TDM requirements based on size of development, land use type and/or parking requirements.</li> <li>- More TDM measures and a more comprehensive TDM plan may be required from larger developments</li> <li>- Menu of measures – land use categories could be designated with point targets for each category</li> <li>- May have some other performance targets such as non-SOV mode share requirement, VMT target, average vehicle ridership or parking ratio;</li> <li>- Special considerations for development in the TOD zone (in proximity of the BRT stations)</li> </ul>	<ul style="list-style-type: none"> <li>- Variable TDM requirements based on number of employees (more TDM measures and a more comprehensive TDM plan may be required from larger employers)</li> <li>- Menu of measures with variable point targets based on employee size / geographical location / zoning district</li> <li>- May have other performance targets such as non-SOV mode share, VMT target, average vehicle ridership or parking ratio</li> <li>- More precedents and awareness about administering TDM measures such as transit pass programs</li> <li>- Special considerations for development in the TOD zone (in proximity of the BRT stations)</li> </ul>
<b>Administration &amp; Enforcement</b>	<ul style="list-style-type: none"> <li>- TDM would be a condition of approval of site plan</li> <li>- Staff from the city – capacity? Need for new staffing specifically for TDM, depends on the size of net cast</li> <li>- Potential no. of sites: approx no. of redevelopment sites, average no. of rezoning and change of use cases based on size parameter</li> <li>- City wide TMA (private contractor) managing the program and reporting regularly to the City (possible model – Madison Yards)</li> </ul>	<ul style="list-style-type: none"> <li>- Staff from the city – capacity? Need for new staffing specifically for TDM depends on number of employers and employee threshold</li> <li>- A city wide TMA (private contractor) managing the program and reporting regularly to the City</li> </ul>
<b>Potential Phasing</b>	<ul style="list-style-type: none"> <li>- Could start with only specific non-residential uses, with parking lots of a specific size and then expand the scope in the future</li> <li>- The thresholds may be revised every 3-5 years, or as required</li> </ul>	<ul style="list-style-type: none"> <li>- Could start with a higher threshold (500) to target fewer employers</li> <li>- The employee thresholds may be revised every 3-5 years, or as required – could reduce the employee size threshold in the future</li> </ul>
<b>Successful examples</b>	<ul style="list-style-type: none"> <li>- Arlington, Pasadena</li> <li>- San Francisco (land use and parking)</li> <li>- <i>Cambridge (based on parking requirements)</i></li> </ul>	<ul style="list-style-type: none"> <li>- Seattle (for employers and developers)</li> <li>- Santa Monica (for employers and developers)</li> </ul>



Other city level tools and complementing policies that need to be considered:

- Inclusion of TDM in TOD ordinance – the question of whether there should be relaxation of TDM for projects in the TOD overlay zoning district to reduce burdens and encourage development
- TDM can reduce off-street parking supply, creating more on-street competition if that is not managed and may thus need to be complemented with a revised RP3 policy.
- Educational and promotional measures in the city to increase awareness such as setting up TDM website with possible options and support for developers and users or residents

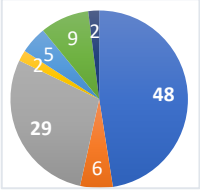
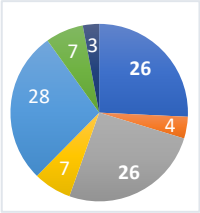
### **iii. TDM Legality**

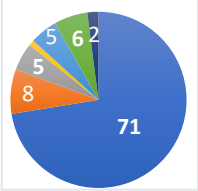
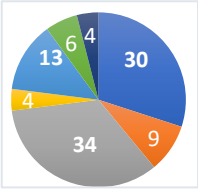
Highlights of the discussion with the City Attorney, on the legality of the above considerations, is provided below:

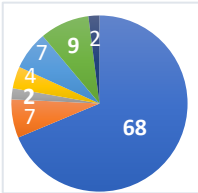
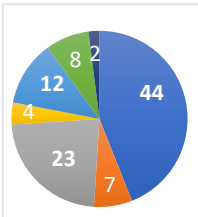
- A city wide TDM ordinance will ensure everyone is subject to it and provide greater clarity (may be separate from the zoning code)
- TDM requirements may be set by location, size, use or parking capacity
- Important to include specific requirements in the ordinance – including land use, size, etc.
- Land use vs. Employee trigger: they can both be legally used
- A menu of TDM measures can be provided with point target. Alternatively, providing a standard such as cars per occupants can be done.
- Option to pay for TDM services can be provided (as long as it is voluntary and not an obligation for the developers, it is not a form of tax)

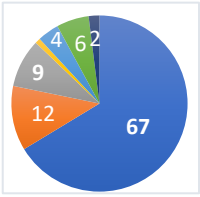
### 3. Successful TDM Programs in other cities

Mode-share Key: ■ SOV ■ Carpool ■ Public Transit ■ Bicycle ■ Walking ■ Work from Home ■ Other

Location	City Statistics	Target land use/ employers	TDM Amount determination	TDM Goal/ Requirements	Reporting Mechanism	Enforcement & Administration
<b>Arlington</b> (land use based)	<p><b>Population:</b> 237,521  <b>City Area:</b> 26 sq.mi.  <b>Pop. Density:</b> 9136 pp. sq.mi</p> <p><b>Modeshare:</b></p> 	<p>TDM for Site Plans targets developers and property managers for large residential and commercial development.</p> <p>TDM strategies have to be laid out as site plan conditions, for adoption along with the site plan. TDM Plans need to be prepared upon approval.</p>	TDM strategies tailored as needed to address the transportation impacts of the project, based on the TDM Policy Matrix (1990).	The TDM Policy Matrix (1990) provides a menu of measures based on different land use categories.	Annual site visits are conducted by the Site Plans team; annual reports outlining the TDM activities must be submitted by the site plan building. Commute Surveys of employees or residents of developments are required at 2, 5 and 10 year intervals; the county may require data collection in five-year increments after year 10.	<p>Contracts private company to operate and manage ATP- the B2B transportation consulting organization and other TDM programs.</p> <p>Enforcement action up to and including referral to the Zoning Administrator and escalating fines are allowed</p>
<b>Cambridge</b> (parking based)	<p><b>Population:</b> 118,967  <b>City Area:</b> 6.4 sq.mi.  <b>Pop. Density:</b> 18610 pp. sq.mi</p> <p><b>Modeshare:</b></p> 	Participation is triggered when an owner of non-residential property proposes to add parking spaces above the registered number.	No. of parking spaces determines if Large (20 or more) or Small (5-19 spaces) Project PTDM plans need to be prepared.	<p>Developers need to reduce SOV rate to 10% below the average rate for the census tract.</p> <p>TDM measures are required based on number of parking spaces – Small Project PTDM plan requires 3 TDM measures; Large PTDM Plan requires SOV mode share commitment &amp; comprehensive set of TDM measures</p>	<p>Annual monitoring and reporting for Large Project PTDM Plan- annual commute mode surveys required.</p> <p>These are validated by the city through bi-annual driveway/ lot utilization monitoring.</p>	The city may enforce and address non compliance by charging \$10 per parking space per day until the trip reduction requirements are met. It can shut down a non-compliant parking facility.

<p><b>Pasadena</b> (Trip Reduction Ordinance-land use based)</p>	<p><b>Population:</b> 141,374 <b>City Area:</b> 23 sq.mi. <b>Pop. Density:</b> 6157 pp sq.mi <b>Modeshare:</b></p> 	<p>Targets non-residential projects and non residential portion in mixed use development, based on size; Also targets multi-family residential based on number of residential units.</p> <p>TDM Program is a condition of property ownership</p>	<p>Transportation plan required for smaller development- over 25,000 sq.ft;</p> <p>TDM Plan required for larger development- over 75,000 sq.ft.</p>	<p>Designate minimum 10% of employee parking as preferential parking spaces for carpool and vanpool vehicles. Additional vehicle ridership value requirements for TOD area. Mitigation metrics- VMT, vehicle trips, accessibility</p>	<p>Annual TDM Status reports need to be submitted which require reporting on change in employees' means of transportation, average vehicle ridership calculations, vehicle counts status of commuter facilities and incentives provided, as well as involvement in a TMA.</p>	<p>If the AVR requirement is not met, the City shall work with the owner to identify modifications to the TDM Program which are to be revised within 60 days. Other measures: proceedings to revoke approval of a TDM Plan, administrative penalty, stop work order.</p>
<p><b>San Francisco</b> (land use + parking based)</p>	<p><b>Population:</b> 883,305 <b>City Area:</b> 46.9 sq.mi <b>Pop. Density:</b> 18848 pp. sq.mi <b>Modeshare:</b></p> 	<p>Applies to all new multi-family residential or group housing developments over threshold of 10 units, new non-residential development over 10,000 sq.ft. or non residential changed use over 25,000 sq.ft., properties applying for an increase in parking spaces</p>	<p>It includes TDM measures for different land use types (4 established land use categories) and different project characteristics.</p>	<p>Goal is reduction of VMT but it does not have a performance target.</p> <p>Uses a menu of 26 TDM measures with different point weightages, reflecting how likely they are to achieve mode shift and VMT reduction (based on literature study/ academic research)</p>	<p>Pre-occupancy staff visit to verify inclusion of all planned physical measures.</p> <p>On-site TDM coordinator required to be designated and regular reports documenting compliance need to be submitted with an administrative fee.</p>	<p>Enforcement and administration managed by the Planning Department</p> <p>The dept. will collect an ongoing fee from approved projects that supports the monitoring and reporting work.</p> <p>Regular monitoring, inspections and required reporting from developers.</p>

<p><b>Santa Monica</b> (employer + developer)</p>	<p><b>Population:</b> 91,417 <b>City Area:</b> 8.4 sq.mi. <b>Pop. Density:</b> 10.863 pp. sqmi</p> <p><b>Modeshare:</b></p> 	<p>Applicable for both employers and developers</p>	<p>AVR targets are defined based on land use and location (district) which developers (non-residential) need to achieve, and employers need to strive to achieve.</p>	<p>Employers with 10-29 employees need to submit Worksites transportation plans</p> <p>Employers with 30 or more employees need to submit an Emission Reduction Plan.</p> <p>Employers with over 250 employees utilizing fleet vehicles need to acquire low emission vehicles and submit a clean fleet plan</p>	<p>Annual plan indicating the amount of Mobile Source Emission Reduction Credits purchased or prepared and implemented Employee Trip Reduction Plans to document AVR levels and strategies being implemented from a provided list, to meet the target.</p>	<p>Revoke any approval of an ERP or WTP, revoke the business license held by any violator.</p> <p>Violating any provision of the Article of the Municipal Code shall be guilty of an infraction – fine or imprisonment may be possible</p>
<p><b>Seattle</b> (employer + developer)</p>	<p><b>Population:</b> 744,949 <b>City Area:</b> 83.9 sq.mi <b>Pop. Density:</b> 8883 pp. sq.mi</p> <p><b>Modeshare:</b></p> 	<p>Targets employers/businesses &gt; 100 employees to reduce employee commute trips; Separate Transportation Management Program for commercial buildings, having smaller employers. Conditions set as a part of site dev. Review</p>	<p>Based on number of employees;</p>	<p>Drive alone reduction goals established geographically; Employers select 2 strategies from each of 3 categories (employee information and amenities, subsidies and modal support, Parking management)</p>	<p>Each employer is required to have an Employee Transportation Coordinator and conduct commuter survey and submit report every two years.</p>	<p>If an employer does not appoint an ETC, distribute information, implement a program or survey employees as required, then the City of Seattle can levy a civil penalty of \$250 per day.</p>

<p><b>St. Paul</b> (land use)</p>	<p><b>Population:</b> 307,701 <b>City Area:</b> 52 sq.mi. <b>Pop. Density:</b> 5920 pp. sq.mi</p> <p><b>Modeshare:</b></p>  <table border="1"> <caption>Modeshare Data</caption> <thead> <tr> <th>Mode</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Blue</td> <td>67</td> </tr> <tr> <td>Orange</td> <td>12</td> </tr> <tr> <td>Grey</td> <td>9</td> </tr> <tr> <td>Yellow</td> <td>4</td> </tr> <tr> <td>Green</td> <td>6</td> </tr> <tr> <td>Dark Blue</td> <td>2</td> </tr> </tbody> </table>	Mode	Percentage	Blue	67	Orange	12	Grey	9	Yellow	4	Green	6	Dark Blue	2	<p>TDM Ordinance applies to commercial and residential development or redevelopment</p>	<p>Based on the no. of parking spaces in a new development.</p> <p>Over a threshold (100 spaces), TDM Plan is required.</p>	<p>Goals vary based on development location, such as 10 percent trips made by bike, or 20 percent of transit trips</p>	<p>Submit annual report after first and second year to the Zoning administrator to demonstrate 'good faith efforts towards implementing the TDM measures – follow up survey results, expenditures, implementation evidence</p>	<p>Failure to comply or submit a timely annual report: the security agreement (development's two-year TDM plan budget) is held for another year, following which it is released/forfeited based on zoning administrator's assessment.</p>
Mode	Percentage																			
Blue	67																			
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## Appendix: TDM Case Summaries

### 1. Arlington:

A TDM agency known as the Arlington County Commuter Services (ACCS) was established in 1989 to reduce traffic congestion, parking demand, promote HOV infrastructure and improve air quality and mobility. It is a separate bureau within Arlington's Transportation Division, operating under the Dept. of Environmental Services. Contracts private company to operate and manage ATP- the B2B transportation consulting organization and other TDM programs. It manages several programs including:

- TDM for Site Plans (2003) directly targets developers and property managers to coordinate the design and implementation of transportation elements in large residential and commercial development and their compliance with the TDM programs.
- Alternative Transportation programs: WalkArlington (2003) & BikeArlington (2006)
- Commuter Store: Customer service and information provision
- CommuterDirect.com: Online portal for fare media sales and transit benefit services
- Car Free Diet Initiative (2007): Marketing, outreach and educational campaigns
- Mobility Lab (2010): Research program on TDM
- Updates its Strategic Plan every year

TDM for Site Plans<sup>1</sup> is a division of ATP and ACCS, the process for which is as follows:

- The County reviews and negotiates a standard base set of site plan conditions with the developers, with TDM strategies tailored as needed to address the transportation impacts of the project, based on the TDM Policy Matrix (1990) provided below. This is adopted by the County along with the site plan.
- TDM plans are prepared by developers upon approval of their site plan and conditions to lay out schedule and implementation details of the TDM program. It needs to contain information about participation and funding, and each building must join a TMA and pay fees to said organization. Additional activities that should be funded, include: facilities and improvements, which must be specified in the plan; Carpool and vanpool parking; Promotions, services, and policies for outreach and education for tenants or visitors; Performance and monitoring.
- Annual site visits are conducted by the Site Plans team, and an annual report outlining the TDM activities must be submitted by the site plan building.
- Surveys of commuting habits for employees or residents of developments are required at 2, 5 and 10 year intervals; the county may require data collection in five-year increments after year 10.
- Enforcement action up to and including referral to the Zoning Administrator and escalating fines are allowed.

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<sup>1</sup> <https://arlingtontransportationpartners.com/programs/property-development/tdm-for-site-plans/>

TDM Policy Matrix (1990)

Strategies		Land Use Category			
		A	B	C	D
Rideshare Marketing	Information dissemination				
	Distribute/ Display	X	X	X	X
	Employee Surveys	X	X	X	X
	Operate Vanpools		X		X
	Subsidize Vanpools				
	Match State Subsidies			X	X
	Double Match State Subsidies				X
	Backup, Reserve Maintenance Vehicle				X
	Employee Transportation Coordinator				
	Part-Time	**	X	X	
	Full-Time				X
	On-Site Ride Matching				X
	Transit Store or TMA Contribution				
	\$7,970/ Year	**	X		
	\$15,947/ Year			X	
\$23,911/ Year				X	
Locate/ Operate Transit Store				X	
Emergency Ride Home		***	***	X	
Parking Management	Unlimited Reserved Rideshare Parking	X	X	X	X
	Market Rates for SOV Parking	X	X	X	X
	Outsource Parking Management <sup>5</sup>		X	X	X
	Reserved Vanpool Parking Space	X	X	X	X
	One-Half Market Rate	X		X	
	Free		X		X
	Variable Rate for Carpools (2+ Employees)				
	Market Rate	X			
	One-Half Market Rate		X	X	
	Free				X
Transit Programs	Contribute to Employer Bus Shuttle				
	\$7,970/ Year	**	*	*	*
	\$15,947/ Year	***	**	**	**
	\$23,911/ Year		***	***	***
	Operate Employer Bus Shuttle				X
	Fare Media Subsidy				
	25-50 Percent		X		
On-Site Construction	50-75 Percent			X	
	75+ Percent				X
	Bike Lockers, Racks	X	X	X	X
	Shower Facilities	X	X	X	X
	Van Accessible Garage	X	X	X	X
Off-Site Construction	Off-Street Delivery/ Loading	X	X	X	X
	Roadway Improvements	X	X	X	X
	Pedestrian Systems	X	X	X	X
	Direct Metro Connections				
	Existing Knockout Panels	X	X	X	X
Employee Policies	New Connections			X	X
	Intersection Improvements			X	X
	New Facility Construction				X
	New Metrorail Station				X
Employee Policies	Flex Time	X	X	X	X
	Telecommuting	X	X	X	X
	Trip Generation Restrictions		X		X
	Transportation Management Organization	X	X	X	X

Source: Arlington Zoning Ordinance, Administrative Regulation 4.1 (Attachment I)

2. Boston:

Similar to Cambridge, the city of Boston requires the Boston Transportation Department and developers to execute a TAPA for all new, individual developments.

- If a structure is > 20,000 square feet, or 15 housing units, developers need to complete a Small Project Plan.<sup>2</sup> If > 50,000 square feet, developers need to complete a Large Project Plan.
- Measures can be executed in a variety of ways, including becoming members of a local TMA, providing subsidized transit passes, or installing bike facilities.

<sup>2</sup> <http://www.bostonplans.org/projects/development-review/small-projects>

Although Boston doesn't require employers to meet certain requirements, Massachusetts state requires companies with 250 or more employees and educational institutions with 1,000 or more employees and students combined to adhere to the Massachusetts Rideshare Regulation. A plan must be in place to reduce the drive-alone rate by 25 percent and other actions are required including a survey of commuter patterns, offer options and incentive for reducing drive-alone trips. Such as parking cash-out program, transit subsidies, or bike-friendly elements and review of resulting commute patterns change.

### 3. Cambridge:

TDM: Parking and Travel Demand Management Ordinance was adopted in 1998 and made permanent for developers in 2006.<sup>3</sup> It requires any new development that adds parking to implement TDM measures and annual monitoring. The City created a new position, PTDM Planning Officer, which manages the program. The program has been credited for reducing driving by 10% and increasing transit use 13%. (2017)

- Requires that developers reduce the drive alone rate for their development to 10% below the average rate for the census tract in which their development sits. Participation is triggered when an owner of non-residential property proposes to add parking above the registered number.
- TDM measures are determined based on number of parking spaces- Large and Small Project plans need to be prepared based on no. of parking spaces.
- Small Project PTDM Plan required with a set of 3 TDM measures if total parking = 5 to 19 spaces. These can range from installing showers and lockers, a membership to a TMA, offering a financial incentive for walking or biking to work, among many other options.

Measure	Details
<input type="checkbox"/> Transit subsidy (must be at least 50%)	Amount of monthly subsidy per person:
<input type="checkbox"/> Charge drivers directly for cost of auto parking	Cost of parking charged directly to driver: Percent of full cost:
<input type="checkbox"/> Subsidy for other modes	Amount of monthly subsidy (indicate mode):
<input type="checkbox"/> Shuttle service to nearby MBTA station	Station(s) served: Peak frequency:
<input type="checkbox"/> Preferential carpool parking program	Attach parking plan and application form for use of reserved spaces.
<input type="checkbox"/> Reduced rates for carpool parking	Cost of monthly parking for a carpool: Attach application needed to qualify for reduced rates.
<input type="checkbox"/> Bicycle amenities (above zoning requirement)	Describe:
<input type="checkbox"/> Car-share parking space	Describe terms (donated or leased):
<input type="checkbox"/> Other measures (See PTDM Officer list)	Attach description.

*Source: PTDM Small Project Form, City of Cambridge*

- Large Project PTDM Plan is required if total parking = 20 or more spaces, with Single-occupancy vehicle mode-share commitment, a comprehensive set of TDM measures and annual monitoring and reporting.
- The annual reporting consists of surveying building employees and patrons, counting car and bike parking spaces available every two years, and the status of implemented TDM measures. Annual commute mode surveys required. These are validated by the city through bi-annual driveway/lot utilization monitoring

<sup>3</sup> <https://www.cambridgema.gov/CDD/Transportation/fordevelopers/ptdm>



- Charles River TMA serves the city: run the EZRide shuttle, which offers free service for employees who work for a member company
- The city may enforce by charging \$10 per parking space per day until the trip reduction requirements are met. It can shut down a non-compliant parking facility.

4. Fort Collins:

- North Front Range MPO Regional Smart-Trips program providing programs/services to encourage commuters to use other travel modes instead of driving alone. These include free carpool matching, regional vanpool services, bus/transit scheduling and route options, Employer transportation programs, Bike trail information and assistance, Telework information, flexible and alternate work scheduling and Guaranteed Ride Home information.
- Fort Collins also developed its own TDM program by the same name- SmartTrips (Master Plan, 2004) which included a large number of programs and had 412 participating companies in 2003.<sup>4</sup> It focuses on VMT reduction targets.
- FortPass: a bulk-pass program in place with CSU and employee-pass program which offers bulk passes at a 68% discount.
- Partnership with a private taxi company to supplement on-demand and Dial-A-Ride service.
- Considering establishment of Mobility Innovation Zones in the future and exploring opportunities to partner with the private TNCs and autonomous vehicle transit-services for pilot programs and to integrate fare payment, trip planning and other mobile device technologies with other agencies and modes.
- Transit Fares: Currently, universities fund about 13% of the annual operating budget for Transfort, in exchange for free rides for CSU students, staff and faculty. Fort Collins is also considering conversion to a fare-free transit system like Chapel Hill NC, Missoula MT, and Corvallis OR, for increased ridership and to help achieve mobility, climate action and environmental goals. Fort Collins aims to build strong partnerships with the universities and has the potential to implement a fare-free funding model similar to cities such as Chapel Hill and Missoula, that report a farebox recovery due to universities funding a portion of service.

**VMT Reduction Programs**

	2003 VMT Savings	2003 CO Savings (lbs.)
<b>Business Outreach</b>		
Drive Less Challenge	876,962	44,988
Freewheels Program	5,744	295
Commuter Bicycle Coach	53,165	2,727
PassFort	169,908	8,716
Carpool/Vanpool	390,000	20,007
<b>Transit Marketing</b>		
Communities in Motion	15,379	789
Senior Campaign	26,391	1,354
Events & Free Ride Promotions	15,712	806
Colorado State University Promotions	41,160	2,111
Route Specific Promotions	139,650	7,164
<b>Bicycle/Pedestrian Outreach</b>		
Bike to Work Day	117,790	6,043
Bike to Worship Day	1,576	81
Bike to Campus Day	869	45
<b>Youth Outreach</b>		
SchoolPool	79,685	4,088
Youth Drive Less Contest	605,325	31,053
Walk a Child to School Day	152,485	7,822
Clean Air Campaign	18,375	943
<b>Total</b>	<b>2,710,176</b>	<b>139,031</b>

*Source: Fort Collins SmartTrips statistics*

<sup>4</sup> <https://www.fcgov.com/fcmoves/pdf/final-chapter-five.pdf?>

## 5. Minneapolis:

TDM Plan required based on size and location of new development (over 4000 sq.ft. in a specific area), included within the Pedestrian Oriented Overlay District.

All development containing over 4,000 square feet of new/ additional gross floor area, or more than four new or additional parking spaces, in the Lake and Hennepin Area; and over 10,000 square feet of new/ additional commercial gross floor area, or more than 75 residential units, in the Nicollet Franklin Area are required to submit a travel demand management plan (TDMP) for development review, that addresses the transportation impacts of the development on air quality, parking and roadway infrastructure.

## 6. Pasadena: <sup>5</sup>

Goal is to encourage alternative transportation modes and off-peak hours by implementing requirements of LA County MTA's Congestion Management Program.

- Non-residential projects between 25,000- 75,000 gross sq.ft. projects required by city to submit transportation plan<sup>6</sup>
- Requirements: Designate minimum 10% of employee parking as preferential parking spaces for carpool and vanpool vehicles; provide employees with commuter-matching services and trip reduction information; provide bicycle parking facilities and/or other non-auto enhancements.
- TDM plan required to be submitted for new non-residential projects exceeding 75000 sq.ft., Multi-family residential developments with 100 or more units and Mixed-use developments with > 50 residential units.
- All projects shall strive to meet an AVR of 1.5 starting 1 year. Projects located within TOD area to meet 1.75 avg. vehicle ridership in 3 years; commitment to conduct annual surveys to determine commute travel behavior and submission of annual TDM Status report; carpool and vanpool on-site passenger loading area, pedestrian paths connecting each structure with external sidewalk, bus stop improvements.

## 7. San Francisco:

The city seeks to reduce VMT generated in new development projects through a citywide TDM program established in the Planning Code (Sec 169).

- Development Projects required to develop TDM plan that offers on-site infrastructure and programs to prioritize alternatives to driving alone according to a point-based system.<sup>7</sup>
- Applies to all new multi-family residential or group housing developments with 10 or more units; new non-residential construction resulting in at least 10,000 occupied square feet; a change of use resulting in 25,000 or more occupied square feet of non-residential use; or properties applying for an increase in parking spaces. Fully affordable housing projects and non-accessory parking lots or garages are exempt.<sup>8</sup>
- 4 land use categories have been created (A-D) representing a continuum from highest to lowest estimated number of vehicle trips per parking space provided for primary users. The target is

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<sup>5</sup> <https://www.cityofpasadena.net/transportation/complete-streets/transportation-demand-management/>

<sup>6</sup> [https://library.municode.com/ca/pasadena/codes/code\\_of\\_ordinances?nodeId=TIT10VETR\\_CH10.64TRMAPR](https://library.municode.com/ca/pasadena/codes/code_of_ordinances?nodeId=TIT10VETR_CH10.64TRMAPR)

<sup>7</sup> <https://sfplanning.org/transportation-demand-management-program>

<sup>8</sup> [https://default.sfplanning.org/transportation/tdm/TDM\\_Technical\\_Justification\\_update2018.pdf](https://default.sfplanning.org/transportation/tdm/TDM_Technical_Justification_update2018.pdf)

based upon the land use(s) associated with the Development Project and the number of Accessory Parking spaces proposed for the land use. A TDM menu with 26 measures is provided; the points for the measures are based on VMT reduction capability percentage.

Land Use Category	Typical Land Use Type	# of Parking Spaces proposed by Land Use	Target
A	Retail	Base number: 0 ≤ 4	Base Target: 13 points
		Each additional 2*	1 additional point
B	Office	Base number: 0 ≤ 20	Base Target: 13 points
		Each additional 10*	1 additional point
C	Residential	0 ≤ 5	10 points
		6 ≤ 10	11 points
		11 ≤ 15	12 points
		16 ≤ 20	13 points
		Each additional 10*	1 additional point
D	Other	Any # of parking spaces	3 points

Category	Measure	Points
ACTIVE-1	<b>Improve Walking Conditions: Option A - D</b> Provide streetscape improvements to encourage walking.	● 1
ACTIVE-2	<b>Bicycle Parking: Options A - D</b> Provide secure bicycle parking, more spaces given more points.	●●●● 1-4
ACTIVE-3	<b>Showers and Lockers</b>	● 1
ACTIVE-4	<b>Bike Share Membership: Locations A - B</b> Provide a bike share membership to residents and employees for one point, another point given for each project within the Bike Share Network.	●● 1-2
ACTIVE-5A	<b>Bicycle Repair Station</b>	● 1
ACTIVE-5B	<b>Bicycle Maintenance Services</b>	● 1
ACTIVE-6	<b>Fleet of Bicycles</b>	● 1
ACTIVE-7	<b>Bicycle Valet Parking</b>	● 1
CSHARE-1	<b>Car-share Parking and Membership: Options A - E</b>	●●●●● 1-5
DELIVERY-1	<b>Delivery Supportive Amenities</b>	● 1
DELIVERY-2	<b>Provide Delivery Services</b>	● 1
FAMILY-1	<b>Family TDM Amenities: Options A - B</b>	●● 1
FAMILY-2	<b>On-site Childcare</b>	●● 2
FAMILY-3	<b>Family TDM Package</b>	●● 2
HOV-1	<b>Contributions or Incentives for Sustainable Transportation: Options A - D</b>	●●●●●●● 2-8
HOV-2	<b>Shuttle Bus Service: Options A - B</b>	●●●●●●●●●● 7-14
HOV-3	<b>Vanpool Program: Options A - G</b>	●●●●●● 1-7
INFO-1	<b>Multimodal Wayfinding Signage</b>	● 1
INFO-2	<b>Real Time Transportation Information Displays</b>	● 1
INFO-3	<b>Tailored Transportation Marketing Services: Options A - D</b>	●●●● 1-4
LU-1	<b>Healthy Food Retail in Underserved Area</b>	●● 2
LU-2	<b>On-site Affordable Housing: Options A - D</b>	●●●● 1-4
PKG-1	<b>Unbundle Parking: Locations A - E</b>	●●●●● 1-5
PKG-2	<b>Short Term Daily Parking Provision</b>	●● 2
PKG-3	<b>Parking Cash Out: Non-residential Tenants</b>	●● 2
PKG-4	<b>Parking Supply: Option A - K</b>	●●●●●●●●●● 1-11

Source: TDM Program Standards, City of San Francisco (2018)

- There are no performance target such as VMT or non-SOV mode-share. There are no requirement for reduction in parking- the more parking that is created, the higher the point target for the development
- An on-site TDM coordinator is required to be designated and regular reports documenting compliance need to be submitted.

## 8. San Jose:

In 2013, it amended its zoning ordinance to reduce minimum parking requirements from 15 to 50 percent for developments that are located near transit and include Travel Demand Management (TDM) measures. Qualified TDM programs include carpooling, vanpooling, onsite car share parking, transit passes, electric vehicle charging, alternative fuel vehicle priority parking, guaranteed ride home, telecommuting, parking cash out, education and programmatic support, emergency transportation, transit shuttles, and bicycle commuter facilities.

## 9. Santa Monica:

- TDM ordinance is applicable for both employers and developers. Santa Monica Municipal Code (Chapter 9.53) requires employers to submit detailed reporting on the transportation habits of employees. This information is provided annually to the City of Santa Monica by completing plan forms.

- Employers shall strive to achieve and developers of non residential developments need to achieve the applicable Average Vehicle Ridership (AVR) targets, which are defined separately for different land uses and locations (districts)<sup>9</sup>. All employers except very small ones are affected; threshold: 10 employees

- Also applicable for developers who need to submit a Developer TDM Plan (thresholds: non-residential- 7500 sq.ft., residential – 16 units)

- Annual Employer Transportation Fee which can be reduced if AVR target is achieved and/or by joining TMOs

- Annual Worksite transportation plans need to be prepared by employers with 10 - 29 employees. Employers with 30 or more employees (threshold is 50 for those before 2016) need to submit an Emission Reduction Plan which has 4 key elements:

- Attend a class to become certified as an Employee Transportation Coordinator.
- Survey employees' commuting patterns
- Identify and carry out strategies to increase biking, walking, riding transit, and carpooling to the worksite.
- Pay the Annual Transportation Fee. Discounts are given to employers who successfully reduce the number of people driving alone and meet the target vehicle reduction as assigned by the City.

- Options for implementing the Emission Reduction Plan

- An annual plan indicating the amount of Mobile Source Emission Reduction Credits purchased and the amount of emissions reduced
- Prepare, implement and monitor Employee Trip Reduction Plans (ETRP) for TDM with mandatory parking cash out programs, which will be updated annually. It will document AVR levels and strategies being implemented from a provided list, to meet the target.
- Employers with or over 250 employees who utilize fleet vehicles need to acquire low emission vehicles and submit a clean fleet plan

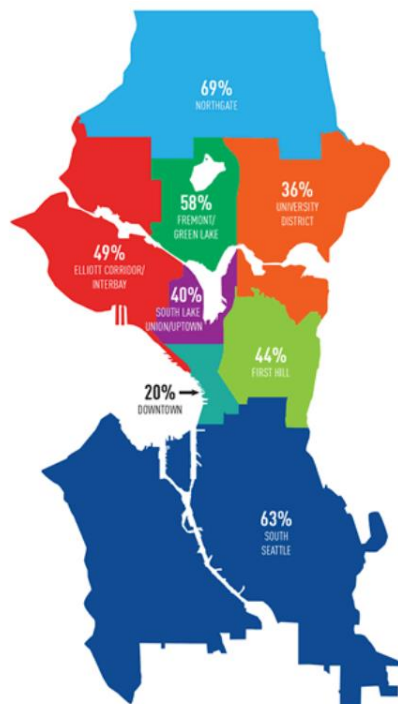
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<sup>9</sup> [http://www.qcode.us/codes/santamonica/view.php?topic=9-6-9\\_53-9\\_53\\_040&frames=on](http://www.qcode.us/codes/santamonica/view.php?topic=9-6-9_53-9_53_040&frames=on)

## 9. Seattle:

Washington state's 2006 Commuter Trip Reduction Efficiency Act requires its metro areas to reduce employee commute trips to large workplaces by car and per capita vehicle miles traveled. The programs are run locally as partnerships with other local agencies and employers with technical assistance from the Washington DoT.

- Employer-based or 'business-oriented' TDM model – Seattle employers with > 100 employees working at a single site between 9am – 6pm must meet more rigorous requirements; each employer is required to have an Employee Transportation Coordinator and conduct commuter survey and submit a biennial report.
- Drive alone reduction goals established geographically calculated by dividing the total drive-alone trips by the total trips made to their location.



Source: Seattle's 2019-2023 CTR Strategic Plan

- TDM Policy: Each affected employer has to select at least 2 strategies from each of 3 categories.  
**Category A: Employee information and amenities** – real time transportation information, flexible work schedule, employee shuttles, rideshare matching, bicycle parking facilities, guaranteed ride home  
**Category B: Subsidies and modal support** – transit subsidies, carpooling subsidies, vanpooling provision, Pre-tax transportation benefits  
**Category C: Parking management** – Increased charges for SOV parking, daily rate (rather than monthly), preferential HOV/ bicycle/ micromobility parking, carshare parking, parking cash-out program

- For eg. The Gates Foundation attributes its significant drop in single-occupant car use to free transit cards, locker rooms, bike storage areas, a financial incentive of \$3 per day for choosing any alternative transportation and charging parking fees daily instead of monthly.<sup>10</sup>
- If an employer does not appoint an ETC, distribute information, implement a program or survey employees as required, then the City of Seattle can levy a civil penalty. Penalties for sites that are considered out of compliance are \$250 per day.
- Separate Transportation Management Program for new commercial buildings over 100,000 sq.ft. gross area, to mitigate traffic / parking impacts- that may have a number of smaller employers that don't fall under the mandates for larger employers. Conditions are set as a part of site development review.
- One-way / point-to-point carsharing, which allows customers to pick up a vehicle at one location and drop it off at another, launched in 2012 through provider car2go – has been very successful

#### 10. St. Paul, MN

- In the case of Saint Paul, the TDM Ordinance applies to both commercial and residential development or redevelopment.
- The TDM Ordinance is based on the number of parking spaces a new development calls for. Over a certain threshold- 100 parking spaces, a TDM Plan is required.
- Each TDM Plan has a number of key components: The goals can vary based on the development location. A typical goal might be to have a 10 percent of trips made by bike, or 20 percent of trips made by transit.
- 5 to 8 of the outlined strategies are recommended to be included- these fall under the categories of rideshare programs and services, transit services and products, active transportation programs and infrastructure and promotional marketing and campaigns.
- Annual status reports are required to be submitted. Submit annual report after first and second year to the Zoning administrator to demonstrate 'good faith efforts towards implementing the TDM measures – follow up survey results, expenditures, implementation evidence
- In case of failure to comply or submit a timely annual status report, the zoning administrator may hold the security agreement (an irrevocable letter of credit, a performance bond, or cash escrow equal to the development's two-year TDM plan budget) for an additional 12-month period, following which it would be released or forfeited based on the administrator's assessment.

#### 12. Vancouver

##### TDM Plan for Downtown<sup>11</sup>

- New developments over a size threshold (land/ floor area); smaller threshold in Downtown area- required to submit a TDM Plan.
- Under its planning bylaws, the city of Vancouver establishes that all projects in the Downtown area (with some exceptions for residential strata and non-social housing rental) are required to submit a TDM plan. Large Sites having a total site size of 1.98 acres or more, or containing 45,000 m<sup>2</sup> or more of new floor area are also required to do the same.
- Point based TDM system: A point target is specified based upon land use, size, and location of the development. The land uses are divided into 5 categories and different sizes within each have

<sup>10</sup> <https://www.ssti.us/2017/08/the-psychology-of-daily-versus-monthly-parking-fees/>

<sup>11</sup> <https://vancouver.ca/files/cov/transportation-demand-management-for-developments-in-vancouver.pdf>

a different point target. A list of acceptable TDM Measures for New Developments is provided with points specified for each, a section of which is provided below:

TDM Measure	Details	Applicable Land Uses - Maximum Points					
		Residential Strata	Residential Rental	Residential Social Housing	Commercial Office	Commercial Retail/Service	
<b>Financial Incentives</b>							
FIN-01	Car Share Membership	Provide annual car share membership to residents.	2	4	4		
FIN-02	Public Transit Passes	Provide subsidized transit pass for residents and employees.		16	16	16	6
<b>Active Transportation</b>							
ACT-01	Additional Class A Bicycle Parking	Provide additional Class A bicycle parking above minimum requirements.	8	8	8	8	3
ACT-02	Improved Access to Class A Bicycle Parking	Provide improved access to Class A bicycle parking.	8	8	8	8	3
ACT-03	Enhanced Class B Bicycle Parking	Provide enhanced visitor Class B bicycle parking, including well-lit, secure, indoor facilities.	2	2	2	2	2
ACT-04	Secure Public Bicycle Parking	Provide secure public bicycle parking on-site.				2	2
ACT-05	Bicycle Maintenance Facilities	Provide on-site bicycle maintenance facilities.	2	2	2	2	2
ACT-06	Improved End-of-trip Amenities	Provide improved and/or additional end-of-trip amenities for employees.				6	2
ACT-07	Public Bicycle Share Space	Where the City requires space and SRW for on-site Public Bicycle Share (PBS) station.	8	8	8	8	8