



Establishing an Effective Commute Trip Reduction Policy in Massachusetts

Lessons Learned from Leading Programs

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A Better City improves the economic competitiveness and quality of life of the Boston region by advancing and providing leadership on significant transportation, land development, and environmental policies, projects, and initiatives related to the commercial real estate sector.



A Better City Transportation Management Association (ABC TMA) is an independent, consensus oriented, nonprofit organization made up of employers, institutions, building owners, and public sector representatives working together to address employee transportation issues and improve air quality and traffic in the Boston area and the region.

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Executive Summary

This report provides an assessment of best practices in Trip Reduction Ordinances (TRO) from around the United States and is intended to guide and inform policy at the city and state level in Massachusetts in the hopes of strengthening the Massachusetts Department of Environmental Protection (MA DEP) Rideshare Regulation and the city of Boston's Transportation Access Plan Agreements (TAPAs). An examination of the history of Trip Reduction Ordinances has shown that many regulations were born out of the 1990 Clean Air Act amendment and that those who have been successful have adapted policies to growth in their area and/or current environmental policy. Aggressive sustainability and climate mitigation is becoming a larger part of the business culture both for the public and private sector, and as such an opportunity to create congestion mitigation and air quality policy that reflects this change and capitalizes on it exists.

Research for this report identified thirteen regions that were examined further due to their similarity to Massachusetts and Boston and due to their unique nature and success. The similarities of these programs have provided a list of best practices that can be implemented at the city and state level. Further review of the individual ordinances has allowed an opportunity to compare strategies and learn from several creative approaches. The knowledge gained from this research was used to create a list of specific recommendations, with the hope that a portion of them will be adopted.

Common TDM Requirements

- Parking Pricing
- Transit Subsidies
- Ridematching
- Flextime and Compressed Work Weeks
- Telework
- Transportation Management Association (TMA) Membership
- Pedestrian and Bicycling Improvements and Facilities
- Guaranteed Ride Home Program
- Incentive Programs
- General Marketing and Promotion of Alternatives

Introduction

A Trip Reduction Ordinance (TRO) is a requirement adopted by a city, state or region to manage congestion and improve air quality by promoting transportation alternatives to single occupancy driving. The majority of TROs and similar regulations relating to managing congestion date back to the late 1980's when the US EPA adopted the concept of using local measures to promote trip reduction. In 1990, the US Congress passed the Clean Air Act amendment which endorsed the idea of TROs as a means to increase non-automobile travel. The Clean Air Act required areas of "non-attainment" (where air pollution levels persistently exceed National Ambient Air Quality Standards), to implement employer based trip reduction programs with the goal of achieving a 25% increase in the Average Vehicle Occupancy (AVO).

TROs are widely used throughout the US, and can be found in nearly every state, in both large urban areas as well as rural counties. TROs are used to address:

- Congestion and parking issues
- Air quality issues
- Growth and development
- Zoning regulations
- Lack of transit improvements or funding

The ordinances vary in terms of who is applicable. However, all are aimed at getting the private sector involved in transportation demand management (TDM). While the requirements themselves vary, they generally include a mix of TDM measures.

The growth of TROs over the past twenty years indicates the success and importance of having local municipalities partner with the private sector to encourage sustainable transportation options. The majority of congestion takes place during peak commute times that are determined by work schedules. By having employers and building owners involved in creating and promoting policies within their workplace, government is addressing the problem at the source. Research studies have shown that worksite implemented trip reduction strategies can reduce vehicle miles traveled among employees by 4-6% (1), although outliers have achieved reductions as high as 20%. In addition, TROs help bring about public/private partnerships that leverage private funding for congestion mitigation and mobile source emission reductions.

Massachusetts Rideshare Regulation

The Massachusetts Department of Environmental Protection (MA DEP) administers the Commonwealth's Rideshare Regulation. The Rideshare Regulation is an air quality initiative that requires employers exceeding applicable employee thresholds, including businesses, academic institutions, and healthcare facilities, to develop plans and set goals to reduce commuter drive alone trips by 25% from a baseline established through an employee survey.

Employers with more than 1,000 applicable commuters (employees and students) are required to submit an annual report. Applicable employees are those who:

- Work 17 hours or more per week for 20 or more weeks per year
- Begin and complete their workday between 6 a.m. and 8 p.m.¹
- Use their vehicle for work purposes (not commuting) less than five times per month²

Applicable students are those who:

- Are full-time commuting students and live off campus³
- Are students scheduled to begin and complete classes between 6 a.m. and 8 p.m.¹
- Use their vehicle for assignments or after-school work less than five times per month

In addition, any businesses with 250 or more applicable commuters that are subject to the Massachusetts Air Operating Permit Program (310 CMR 7.00) must comply with the regulation. The Air Operating Permit Program requires facilities with the potential to emit 50 or more tons per year of volatile organic compounds (VOC), nitrogen oxides (NO_x), 10 or more tons per year of a single Hazardous Air Pollutant (HAP), 25 or more tons per year of combined HAPs, or 100 or more tons per year of any other pollutant to have an operating permit.

Businesses that are subject to the Rideshare Regulation must survey their employees to establish their baseline, from which the company sets a goal and outlines commute options strategies that will be implemented to reduce drive alone trips by 25%. There is no set time period or deadline to

achieve this reduction. Businesses are required to re-survey every two years and report on changes and progress made toward their drive alone trip reduction goal. In non-survey years, an annual update is required. There are no penalties for not achieving drive-alone trip reduction goals.

The DEP Rideshare Regulation specifies that all employers must provide the following trip reduction incentives:

- Ridematching (carpool and vanpool)⁴
- Preferential carpool and vanpool parking
- Bicycle incentives

Those within one mile of transit must also:

- Provide transit pass sales onsite
- Provide route and schedule information
- Negotiate with transit providers for additional bus and/or transit services

There is no set time period or deadline to achieve this reduction. Businesses are required to re-survey every two years and report on changes and progress made toward their drive alone trip reduction goal.

History of the Regulation

The MA Rideshare Regulation is one of the oldest in the country. It was created in the late 1970's in response to the Federal Transportation Clean Air Act. Throughout the 70's and 80's the regulation was overseen and implemented intermittently by the Massachusetts Executive Office of Transportation and Construction, now the MA Department of Transportation (DOT). In 1990, the Federal government passed an amendment to the clean air act which increased the types of measures needed by states to meet new air quality standards. It was determined at that time that the best agency to oversee the Rideshare Regulation was the MA Department

1 Employers have the option to choose only work schedule to determine applicable employees and students.

2 Employees who use their vehicle more than five times a month for work purposes are considered exempt as they need to drive the vehicle as part of their job function.

3 Full-time student status is determined by the educational institution based on the number of credits the student is enrolled to complete.

4 A facility is only required to provide vanpool matching if there is 1,000 or more applicable employees; students are not considered as employees.

of Environmental Protection (DEP). DEP has been the lead agency ever since.

Initially the regulation was intended for all employers in the Commonwealth with over 250 applicable employees; however, staff constraints at MA DEP has meant that only employers with 1,000 or more applicable employees and those facilities with 250 or more applicable employees and an air operating permit are asked to comply at this time. Currently, there are 157 companies reporting to MA DEP. Of those, 144 are required to do so. In addition to MA DEP's database of employers subject to the Rideshare Regulation, MA DEP also reviews other Commonwealth employment databases every couple of years to determine whether additional facilities may be subject to the Rideshare Regulation. Currently there are approximately 21 facilities in non-compliance. The MA DEP is working with those companies to come into compliance. About 75% of those in non-compliance are cooperating with DEP to remedy the situation.

There have been few changes to the Rideshare Regulation since MA DEP began oversight of the regulation in 1995. In 2012, an agency wide effort to streamline reporting and data collection took place and at the urging of MassCommute, a coalition of 11 TMA's in MA, MA DEP agreed to include the Rideshare Regulation as one of 19 regulations to go through a formal review process by MA DEP.

The goal of the review is to make the regulation more effective and flexible, and to achieve better results. In October 2013, MA DEP convened a stakeholder meeting to determine if the current incentives and TDM measures are still relevant, and to identify other ways employers may be able to reduce emissions. In addition, the DEP would like to have reporting online, and may consider having an administrative fee for reporting. The outcome of the reforms, if approved, would be instituted between 2015 and 2018.

Impact of the Regulation

Determining the success of a regulation requires clear goals to be established and continual evaluation of the methods and standards being implemented. In the case of the MA DEP Rideshare Regulation, little has been done over the past 19 years to communicate the level of success for the Rideshare program. Based on 2011 data from reporting facilities, approximately 220,500 drive-alone commute trip reductions per week (or approximately 44,000 vehicles off Massachusetts roads) have been achieved under the Rideshare program. However, due to funding and staff limitations, a more comprehensive and independent evaluation of the program's success has not taken place. MA DEP has focused on reviewing submitted reports for compliance per the current regulation which provides little or no recognition to the actual commute options being offered to employees.

In 2010, MassCommute surveyed employers who were required to comply with the regulation to determine if they



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felt the regulation was effective. According to the report, “results reveal that a majority of employers consider the current rideshare surveying and reporting process as having no impact on their organization’s efforts to reduce drive alone commuter trips.” (2)

In 2013, as a part of the regulatory review process, MassCommute submitted a proposal to create an expedited reporting system for companies who are members of a TMA or who are partners with the state’s commuter services agency, MassRides. The goal of the proposal is to strengthen the regulation by streamlining the reporting process, increasing compliance and participation, and reducing the burden on the most compliant businesses via their commitment to TDM as active members of TMA's. The proposal would allow these companies to take credit for programs their employees participate in through the TMA and MassRides and would only require a full survey every five years. By streamlining and simplifying the reporting process the proposal could allow MA DEP to lower the threshold for employers from 1,000 employees to a level more in line with other states. The proposal is still under review by the DEP.

City of Boston Transportation Access Plan Agreement

The city of Boston requires developers with new projects of 50,000 square feet or more, or projects adding 20,000 square feet or more or fifteen dwelling units or more to complete a Transportation Access Plan Agreement (TAPA). Key components of TAPAs include TDM measures as well as traffic mitigation measures (i.e. signal equipment).

Implementation of TDM measures can include, but are not limited to:

- Subsidized MBTA pass programs
- Membership in the local TMA
- Bicycle parking areas
- Priority car share, vanpool and carpool parking

History of the City of Boston's TAPA

The city of Boston first began requiring TAPAs in 1989. Initially TDM measures were negotiated between the city and the developer, and were chosen from a standard list of options which included transit subsidies, bike facilities, ride matching, etc. Over the years there have been a few changes/additions to the plan template as new technologies or services are launched. In 2005 TMA membership was added as a standard requirement for developers whose buildings fell within the geographic area of a TMA.⁵ If no TMA existed at the time, language was added requiring the developer to join a TMA if and when one was formed in the area. In recent years, TAPAs have been requiring electric vehicle charging stations in new developments as part of the city's climate action plan.

In 2007, Boston published a Climate Action Plan establishing a goal of reducing greenhouse gas emissions 25% by the year 2020. The plan outlines a series of tasks needed to meet the goal, and divides these tasks into various environmental impact areas including transportation. Transportation accounts for 31% of the 2020 goal, within transportation, transportation demand management measures account for 12%. In addition to the greenhouse gas emission reductions, Boston has set a specific goal to reduce Vehicle Miles Traveled (VMT) 7.5 % by 2020 (3). TAPAs are one of the tools the city identifies within the plan to achieve these goals.

Over the years, Boston has looked at ways to enhance and strengthen the TAPA program. These measures have included conducting workshops for developers on TAPA compliance, instituting an administrative fee for the program, and the creation of an annual update form. At present, none of these have been formally adopted.

Impact of TAPAs

Boston's TAPAs have proven to be an effective way to mitigate the impact of new development on the city through requiring developers to provide the infrastructure necessary to encourage the use of transportation alternatives to the single occupancy vehicle (SOV). The physical requirements of the TAPAs (bike racks, high occupancy vehicle (HOV) parking, electric vehicle (EV) charging station, etc.), coupled with the city's parking freeze and aggressive parking ratios make driving alone an expensive and less convenient choice for most Boston commuters.

In 2007, Boston published a Climate Action Plan establishing a goal of reducing greenhouse gas emissions 25% by the year 2020. The plan outlines a series of tasks needed to meet the goal, and divides these tasks into various environmental impact areas including transportation.

In addition to the use of TAPAs, the city's zoning focuses on parking maximums for development instead of the typical parking minimums. Parking ratios range from a low of 0.4 to a high of 1.5 spaces per 1,000 feet of development and are based on a variety of factors. These include land use, parking supply, housing density, local street capacity, impacts of new and proposed development and the area's access to public transportation. The city considers its parking policy to be among the most effective demand management strategies to reduce vehicle miles traveled. In addition to its low parking ratios for automobiles, the city has a high bike parking ratio as part of current TAPAs. Developers are required to provide one bike parking space for every three residential units or 10 commercial parking spaces (for non-residential buildings).

The current parking ratios coupled with TAPAs are a strong deterrent to driving alone, but congestion is still a significant issue in Boston. The South Boston Waterfront/Innovation District is a prime example as nearly all development in the area has a TAPA and the area falls within the

⁵ Boston currently has five TMAs serving the Downtown, Back Bay, Kenmore/Fenway, Longwood Medical Area, Seaport, Allston/Brighton, and the South End.

parking freeze, yet congestion is now the number one issue for the area and is a major concern as new developments are planned. It is clear that these two policies on their own and in their current form will not enable the city to fully address its congestion and air quality goals.

TAPAs do require a variety of TDM measures which are meant to assist commuters who will occupy the proposed buildings when constructed. Unfortunately, there is presently no follow up with developers post occupancy to ensure compliance with these measures. In many cases, the developer who signs the TAPA is no longer involved with the project once the building is completed and occupied. In addition, there is a lack of funding and staff at the city to determine compliance with post occupancy portions of the TAPA. Language requiring annual reporting to the city exists but no standard form has been developed to enable reporting. Surprisingly, a handful of developers do report their efforts on their own volition. These issues have been going on for many years and are well known by the development community. So much so, that many developers who are made aware of their non-compliance have chosen to disregard warnings to implement agreed upon TDM measures.

The lack of staff associated with TAPAs has also meant that previous attempts to inform, educate and monitor developers have not become institutionalized and while they exist in writing are not currently in practice. In the city's Access Boston Transportation Plan for 2000-2010, suggestions were

made to provide training to developers on TAPA requirements. This was done once during the ten year period, and while viewed as successful by the city, has not been repeated. In addition, the plan proposed instituting an application fee for TAPAs to cover some of the administrative costs of the program. This measure has never been implemented.

A further challenge to implementing successful TDM strategies and achieving the mode shift and climate goals of the city are the availability of low cost or no cost public on-street parking rates in the city, which have remained unchanged for the past several years. In terms of municipal parking rates, Boston, at \$1.25 per hour, ranks well below other cities in the country. Twenty cities have higher rates, which range from a high of \$6.50 in Chicago to a low of \$0.50 in St. Louis (4). At the same time, transit has become more expensive. Moreover, Boston does not currently charge a fee to residents to receive a residential on-street parking permit. These low rates, combined with increasing public transportation fares, (which increased 23% in 2012), and the 2014 reduction in the federal transit benefit from \$245/month down to \$130/month has meant that for many commuters transit is more expensive than or comparable with driving. Given this situation, it is important that Boston employ an aggressive TDM strategy, including the use of parking pricing combined with a more effective TAPA program, to impact change.



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A Summary of Effective Trip Reduction Ordinances

Research was conducted to identify cities, counties and states throughout the US that have formal trip reduction ordinances or regulations. Previous research, peer referrals, internet searches, and personal interviews were used. Of the many regulations identified, a total of 13 areas were chosen to examine due to their similarity to Massachusetts and specifically Boston and/or due to their unique nature. A list of these is provided in Appendix A. While each area has specific measures that set them apart, there are areas of similarity.

Of the many regulations identified, a total of 13 areas were chosen to examine due to their similarity to Massachusetts and specifically Boston and/or due to their unique nature. While each area has specific measures that set them apart, there are areas of similarity.

Requirements: Almost all require a written plan or report that outlines the TDM measures to be undertaken by the developer or employer. In many instances, businesses are given a menu of options to choose from and are allowed to customize their TDM plan. In several California cities however, businesses are given a choice of only three TDM measures and must choose to implement one of the three. This approach is discussed further in the Successful Ordinances section.

Penalties: The majority (75%) have a penalty in place for non-compliance. The penalty is most often a fee based on the number of days of non-compliance. In Santa Monica, CA, employers not in compliance are fined \$5 per employee per day of non-compliance, up to revocation of business. In other cities in California, a building permit can be withheld if a developer is not in compliance with the regulation. In Cambridge, MA, developers are fined \$10 per parking space

per day for non-compliance. In discussing penalties further, it was noted that in most cases these measures are rarely enforced. While it is helpful to have a “stick” if needed, most staff prefer to work with businesses to achieve compliance rather than impose fines. It is important to note that none of the penalties are related to meeting TDM goals, but are for non-compliance with filing or implementing TDM plans or not cooperating with the administrative process.

Applicability: Of the regulations looked at, half are targeted at development in the area and are applicable when a certain square footage, number of parking spaces, or significant trip generation are being proposed. The other half of regulations target businesses with a certain number of employees. In both instances the number needed for applicability has a very large range. In terms of development ordinances, Bloomington, MN, requires developments with as little as 1,000 square feet, while nearby Minneapolis has a much greater threshold of 100,000 square feet. Cities in California require any business with over 10 employees to comply, while Massachusetts has a threshold of 1,000 employees. The majority chose 100 employees as the threshold for applicability.

Goals: The majority of regulations have a goal associated with the required TDM measures that assesses either the air quality benefits or the trip reductions achieved. The method used varies both in type and in specificity. Several areas measure success by the reduction in single occupancy vehicles (SOV), while others look at vehicle miles traveled (VMT) or average vehicle ridership (AVR). In some instances the goal is a general percentage reduction over a period of time based on an individual baseline measurement, while others use an area standard SOV rate (such as census data) to base the reduction on. While goals are viewed as important, compliance and effort are stressed in all cases, and take precedence over meeting trip reduction goals.

In some instances, there is a financial incentive built into the regulation for those businesses who meet their goals. For example, in Santa Monica, CA, employers are given a credit on their fee for each year that they meet their established trip reduction goals; if AVR of 1.5 is achieved a 40% credit is given for year one, 50% for year two and 60% for years thereafter.

Best Practices

While there are dozens of trip reduction ordinances in place throughout the US, many have been developed and then scaled back or are not fully executed. The programs which are successful are a result of many factors but there are some common aspects they share, which are detailed below.

Broad Support: The majority of the regulations have coordinated support within city and state agencies. In the examples featured in this report, leaders from several levels of government as well as within city and state departments are working in cooperation to achieve congestion mitigation and air quality goals, and at the same time are trying to be cognizant of the needs of the private sector. In many cases, government is working with non-profit organizations such as TMAs to bridge the gap between the public and private sector. In Bloomington, MN, the local TMA assists employers with creating TDM plans required by the ordinance. In addition, if it is determined that an employer's efforts to implement TDM measures are not sufficient, the fees collected for the ordinance can be transferred to the TMA to implement programs on their behalf.

The State of Washington has taken a cooperative approach to implementing its Commute Trip Reduction (CTR) program. In 1991, Washington State enacted a law requiring that cities develop an employer based CTR program. In order to ensure that all necessary players were in agreement and represented at all levels, the state created a CTR Board. The CTR Board is made up of major employers, local governments, transit agencies, regional planning organizations, state representatives, and the Washington Department of Transportation (WSDOT). The CTR Board sets the overall policy direction, allocates funding appropriated by the legislature and reports to the legislature every two years on the progress of the program. Each group represented has a specific role (see box, "Washington State CTR Partners and Their Roles," page 10) and all work together to reduce VMT throughout the state. This model has won awards nationally and has resulted in a 5.6% reduction of VMT (5). In addition, the program brings \$16 of private funding for every \$1 of state money spent on congestion mitigation.

Alternatively, without government support, a successful regulation can be revoked, as is the case in Durham, N.C.



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The city of Durham had a successful ordinance with staff funded through federal Congestion Mitigation Air Quality (CMAQ) funds and matching transit dollars. Over the 12 years the ordinance was in place, the ordinance had exceeded its goals for reducing VMT and served over 60 employers annually. However, the political climate was such that Governor McCrory passed legislation in August 2013 limiting local government's rules on development (6) which has eliminated Durham's ordinance.

Staffing: In addition to cooperation, areas with successful ordinances have adequate and designated staffing, to verify, monitor and promote trip reduction measures that employers and developers are being asked to implement. The credibility of the program is based on the level at which the municipality is involved with the process and more importantly, the follow up to the creation of a TDM plan. In cases where a TRO was not living up to its expectations, staffing was generally the reason for the shortfall. The majority of examined areas impose a fee on employers and/or developers to pay for staff to implement the ordinances. Fees vary widely from a simple administrative fee of \$200, to a .75% sales tax, to a per square foot or per employee cost. For example, the city of Cambridge, MA, which has one full time staff person dedicated to their TDM ordinance, uses residential parking permit fees and parking citations to fund this position.

Streamlined Process: The majority of ordinances have reviewed and revised their programs over time to meet the needs of the business community and to streamline the process required. In more than one example, municipalities have chosen to forgo open ended TDM options for a smaller list of targeted TDM requirements over a designated period of time. This approach allows for more successful, measurable TDM programs that are implemented due to the ordinance

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but are more likely to become institutionalized within the business and continued beyond the period of obligation. The city of Boulder is a great example of this approach. Previous Boulder building code required developers to provide a TDM plan outlining "how multi-modal access will be improved and how impacts from traffic will be mitigated through a significant shift in vehicle trips." Developers

Washington State CTR Partners and Their Roles

Major employers implement programs based on locally adopted goals for reducing VMT established by the city or county in which they are located. TMAs or chambers of commerce, may also partner to provide services and support to commuters.

Local governments provide assistance and services to employers to help them achieve the goals and may offer services directly to commuters. They are responsible for developing a CTR plan that establishes goals, policies and strategies. More than 50 local governments are involved in the CTR program.

Transit agencies operate bus and vanpool services and coordinate programs with local governments.

Regional planning organizations provide planning support and coordination across jurisdictions, ensuring consistency of plans.

The State provides grants to local governments to support employers and commuters.

WSDOT administers funding, guides the program with policies and procedures, and coordinates measurement and evaluation of the program.

subject to the regulation had questions regarding which measures were appropriate and how to define "significant" shift in vehicle trips. In 2011, city staff recommended modifying their existing Transportation Options toolkit to identify TDM programs and strategies that will meet the city's interpretation of "significant" while still allowing sufficient flexibility. The toolkit, which consists of three "packages" of TDM options, provides clarity and predictability for developers, the Planning Board and city staff as the implementation of any of the three is designed to result in "significant" vehicle trip reductions. Boulder's approach is discussed further below.

Evaluation: Areas that have been successful have built into the ordinance a process to track progress towards established goals. Often times this is an annual survey, in some instances it is a follow up meeting, or other reporting mechanism. A few of the municipalities researched outsource this function to their local TMA. For example, the city of Minneapolis uses its local Transportation Management Organization (TMO) to "audit" developer's TDM plans to ensure that measures are being implemented successfully post occupancy. The city of Bloomington, MN, requires developers to complete an annual status report for two years after they begin implementing their TDM plans. A sample annual status report can be found in Appendix B.

Successful Ordinances

Over a dozen Rideshare Regulations were examined and four cities (two in CA, one in MD, and one in CO) were chosen as creative examples. A large number of cities in California have trip reduction ordinances. This can be traced to the fact that California, as a state, was the largest non-attainment area in the US under the 1990 Clean Air Act Amendment. The Amendment requires states in non-attainment areas to submit a plan which includes specific measures and assigns either local or state government with responsibility for these measures. States that do not work within these guidelines are at risk of losing their federal funding for transportation. In response, California formed Air Quality Management Districts (AQMDs) to manage efforts in their regions and work with municipalities to implement trip reduction ordinances. Five California cities were looked at for this report. Since the state and regional AQMDs have a large role in local TROs it was found that many have similar requirements. Two of those city ordinances are discussed here.

San Francisco, CA In 1973, the city passed a transit first policy which states “decisions regarding the use of limited public street and sidewalk space shall encourage the use of public rights of way by pedestrians, bicyclists, and public transit, and shall strive to reduce traffic and improve public health and safety.” This policy, along with the state’s environmental policies led to the creation of the city’s Commuter Benefit Ordinance in 2008 (Appendix C).

San Francisco’s approach is both bold and simple at the same time. The policy requires all employers with 20 or more employees nationwide (including part-time, out of state, and temporary workers) to provide one of three commuter benefits.

1. **A pre-tax election:** allowing employees to exclude from taxable wages and compensation, employee commuting costs incurred for transit passes or vanpool charges up to the maximum level allowed by federal tax law; or
2. **An employer-paid benefit:** whereby the employer supplies a transit pass for the public transit system requested by each covered employee or reimbursement for equivalent vanpool charges at least equal in value to the purchase price of a monthly MUNI “A” Pass (currently \$76); or
3. **Employer-provided transit:** transportation furnished by the employer at no cost to the covered employee in a vanpool or bus, or similar multi-passenger vehicle operated by or for the employer.

In turn, the city provides a guaranteed ride home program, ridematching, and a bike share program to support employers. City staff also provide survey questionnaires and analysis to assist employers with determining the best fit program, and one-on-one consultations.

San Francisco’s approach is to require businesses to implement TDM measures that other entities such as the city or TMAs could not, and that would have the biggest impact on commuting choice. The city looked at research, which showed that in a hierarchy of TDM, incentives that make alternatives to driving alone cheaper and more convenient are the most successful. Other, less concrete TDM measures such as ridesharing and promotion are handled by the city itself. In addition to crafting the ordinance to have the largest impact on VMT reduction, San Francisco also made an ordinance that is straight forward and uniquely simple to administer. Unlike the vast majority of ordinances around the country, employers are not required to survey, complete lengthy TDM plans, or determine reduction goals; simply by offering powerful TDM incentives and showing proof to the city that they do so, employers are in compliance with the regulation. The city benefits from the simplicity of the program as well, with over 9,000 employers subject to the regulation, the city is able to run the program with 1.5 staff members, whose primary job is to educate and assist employers with implementing the benefits. The focus of the staff is on outreach rather than on compliance and enforcement. The city works with various benefits vendors and TMAs to provide assistance to employers on implementing benefits.

The approach San Francisco has taken is working. Of the 9,000 employers approached last year, 45% have reported back to the city. Of those, 77% were offering a benefit, 18% were exempt from the program and only 5% were not currently in compliance. In evaluating the program, San Francisco reports that some 40% of employers have added a benefit program in direct relation to the ordinance. Businesses in general have concerns about the cost of the program, but the city feels it is a benefit that many are already offering and that payroll tax savings can in most cases offset the administrative cost. The program also gives back to employees. San Francisco’s program has been such a success that the Bay Area Air Quality Management District has adopted a similar program for nine Bay Area counties and will focus on employers with fifty or more employees.

Santa Monica, CA The city of Santa Monica has a complex and comprehensive TDM ordinance, which combines several different strategies. This approach provides an opportunity to be able to compare strategies side by side. The element of Santa Monica's program which most stands out is its fee. While many other cities and states have a fee, few are as substantial as Santa Monica. Any employer in Santa Monica with over 10 employees is required to pay an annual fee per employee. Small businesses with less than 50 employees are charged \$16.83 per employee; employers with over 50 employees are charged \$13.25 per employee. The result is a substantial operating budget of over \$400,000 annually which currently funds two full time staff members. The city has a \$1.5 million dollar surplus and plans to hire two additional staff people and use these funds to pay for trip reduction programs, such as transit and vanpool subsidies. Employers have the opportunity to reduce the fee if they achieve their established trip reduction goal; a 40% credit is given for year one, 50% for year two and 60% for years thereafter. In addition, employers who are members of a TMA automatically get a 25% discount on the fee.

Employers must survey annually to determine the Average Vehicle Ridership (AVR)⁶ number for their worksite. The survey is supplied by the city and asks employees to indicate how they arrive at work each day for a one week period. A 75% response rate is required. All employers are expected to achieve an AVR of 1.5 or better, although there is no penalty for not meeting the goal. At present the average citywide AVR is 1.68. Seventy-seven employers met the AVR goal in 2013. Forty-three employers have met their goals for three years in a row. The city is currently reviewing proposed changes to the trip ordinance which would add significant TDM requirements for developers over 7,500 square feet or 16 residential units or more, and increase the AVR requirement for employers and developers from 1.6 to 2.2 based on the proximity to transit. The proposed changes correlate to the opening of light rail in the city in 2016.

In addition to its fee structure and survey requirements, Santa Monica also has an extensive list of required TDM measures. The Trip Reduction Plan (TRP) is broken into three categories; within each category, employers must select a minimum of five elements, some of which are required. The first category covers marketing programs and is completed by all employers regardless of size. TDM measures that are required under marketing are rideshare bulletin boards and new employee orientations. The second and third categories are only required for employers with more than 50 employees. The second category is basic support strategies which are more policy based TDM measures. Within this category, employers are required to provide a

guaranteed ride home program. The third category of the TRP is direct strategies which are subsidy based. Within this category, employers are required to provide a parking cash out program, which encourages mode shift by offering a choice of the parking space or the cash value of the parking space to employees for not driving alone to work.

The comprehensiveness and checks and balances built into the reporting are extensive. For example, an employer who chooses to provide prize incentives to their employees as one of its direct strategies must provide a minimum of \$800 in prizes and list the prizes given. The level of reporting (the TRP paperwork is 46 pages in length) is considerable. Of the 758 employees who are subject to the ordinance, about 20% are using consultant services to complete their TRP.

Rockville, MD Rockville is the third largest city in Maryland and is considered part of the Baltimore/Washington Metropolitan area. Its current TDM ordinance was newly instituted in 2011, so there is little information to go on as to its success but the approach that the city is implementing is unique. Unlike other examples we have looked at in California which focus on employers, Rockville's ordinance applies to developers. Developments which are determined to generate 125 or more trips are required to prepare a TRP.

The city has developed a web-based trip reduction tool that takes applicants through a series of questions about the development site's availability of transit, land use mix, density, and pedestrian accessibility to determine a trip reduction goal and a list of trip reduction strategies. The primary consideration for trip reduction is the availability of transit. Developments are divided into three transit categories:

1. **High Transit Service:** Development is located within a half mile of Metrorail and short bus headways.
2. **Medium Transit Service:** Development is located with connectivity to Metrorail by headways of no more than 15 minutes during the peak hour, and 30 minutes during the off-peak hour.
3. **Low or No Transit Service:** Development is located in areas with transit service greater than 15 minute peak, 30 minute off-peak headways; or no transit service.

Based on the answers to these questions, point values are assigned to a list of trip reduction strategies; see sample in Appendix D. Developers can select preferred strategies so that the total point value equals a minimum of 80 points. Applicants developing in transit-oriented areas automatically receive ten points toward their total score. After the site is fully occupied, developers must perform annual traffic counts for a 10-year period until the site meets its trip reduction goal for three consecutive years.

⁶ AVR is the average number of commuters per vehicle arriving at the worksite. AVR can be determined by the number of employees who start work at a work site divided by the number of vehicles those employees use to arrive at the work site.

In addition to filing a TRP, the city also has a transportation improvement fee for any development generating more than thirty trips. The one-time fee is \$1.50 per square foot of gross floor area or \$900 per unit of multi-unit residential development. The fee is used to implement multimodal improvements throughout the city of Rockville, to provide transportation information and services and to monitor TRPs to ensure compliance with trip reduction goals. Since the program was implemented, only one development has been subject to the regulation. The project is not yet at occupancy so none of the agreed upon TDM measures are in place at the time.

Boulder, CO Boulder has long been held in high esteem for its progressive approach to TDM and the city's commitment to alternatives to the single occupancy vehicle. In 1967, the city of Boulder established a dedicated sales tax to fund transportation, including the city's Community Transit Network. This branded, high frequency bus system coupled with its extensive bike paths and bike facilities have given Boulder one of the lowest SOV rates (38%) for all trips by residents of any city without a rapid transit system, a reduction of 15% since 1990. A major contributor to this low SOV rate has been the choice Boulder made to utilize parking revenues to subsidize the cost of public transit in its central business district. The city uses parking revenue to provide a free annual all access bus pass (known as Eco Pass) to all 7,000 downtown employees. In addition, all University of Colorado students are provided a similar pass through their student fees. Employers outside the central business district can participate voluntarily in the Eco Pass program and are also eligible for a 50% discount on their passes for the first year, and a 25% rebate for the second year.

Boulder's design and construction standards state that when a commercial development is expected to exceed 100 vehicle trips at peak hour or 20 vehicle trips at peak hour for residential developments, the creation of a TDM plan is required. The language in the standards require the TDM plan to demonstrate a "significant shift" in vehicle trips. As discussed above, developers were often unsure what significant meant and the city was not confident that the TDM measures being chosen were the strongest that could be chosen. In order to remedy this, Boulder created a TDM toolkit that allows developers to choose one of three TDM packages designed to meet the needs of the area they are building in. All three packages, detailed below, must offer basic TDM measures that include assigning an ETC, providing ridesharing information, bicycle parking, and periodic program evaluation among others. A sample TDM plan matrix can be found in Appendix E.

- **Package A** is based on the success the city has seen with the Eco Pass program. Under this plan any developer who is within the area served by the transit system must provide a 100% transit subsidy for all employees/tenants for

a three year period and financially guarantee the funds in a city-controlled escrow account.

- **Package B** focuses on parking management, financial incentives, and other requirements for when the Eco Pass is not a viable or practical option due to a low level of transit service. These strategies include managed and paid parking, parking cash out and unbundled parking for tenants.
- **Package C** is an open ended option for those developers who are not suitable for options A or B and who choose to create their own TDM plan that would then be approved by the city. Developers are required to work with city staff to design the customized package including a process to evaluate its effectiveness and adjust the plan over time to meet vehicle reduction needs.

Boulder created a TDM toolkit that allows developers to choose one of three TDM packages designed to meet the needs of the area they are building in.

In addition to the toolkit, Boulder has begun looking at the creation of TDM taxing districts, whereby the city collects a specific tax to run TDM programs for a specific area. TDM programs within the district include free Eco Passes, bike sharing and other shared TDM services. This strategy will be piloted in the Boulder Junction area in the near future. Boulder Junction's trip generation allowance stipulates that only 45% of all trips in the planning area are in SOVs. To meet this requirement the city established dual overlapping taxing districts in Boulder Junction. The parking tax district collects property taxes to fund shared parking structures and manage all on-street parking. With the shared structured parking available, developers have the opportunity to build more leasable spaces since they do not have to provide a significant amount of on-site parking. The second taxing district collects property taxes for a TDM program that provides Eco Passes, discounted bike share memberships and free car share memberships to everyone that works or lives in Boulder Junction.

As mentioned previously, the success of the Boulder program is due to designated funding to provide staff for its programs and the cooperation of the city with the regional transit authority and its' Transportation Management Organization (TMO), Boulder Transportation Connections. Boulder works closely with its TMO, to implement and evaluate TDM plans. Presently the city is subcontracting the follow up survey work relating to its TDM ordinance to the TMO, an entity similar to a TMA.

Recommendations

The research in this report has generated many practical and implementable strategies for the Commonwealth and the city of Boston to enhance and improve their current regulations and strategies. The majority of recommendations detailed can be applied at either the state or city level or both. However, for the purposes of this report they have been divided into the areas most likely to be implemented.

MA DEP

Based on the finding of this report it is recommended that the MA DEP adopt the following additions/changes to its existing regulation:

- **Coordinate with municipalities in the Commonwealth to promote trip reduction ordinances.** Massachusetts is a relatively small state that could benefit from coordination of TDM regulations at the city, state and regional level. Information gathered from employers and TDM plans filed should be shared between agencies to strengthen the regulations themselves and to ensure that a double burden is not being placed on businesses. MA DEP should consider a program that would provide guidance and possibly funding to adopt TDM ordinances or programs that meet or exceed the current goal of the Rideshare Regulation to reduce drive alone commuting by 25%. The Green Communities Division may be a possible host for this initiative.
 - **Lower the threshold for applicability to 250 employees.** The original intent of the regulation was to include all employers with over 250 employees; this should be restored to the program. Increasing the number of employers required to comply with the regulation will serve to increase air quality benefits and further reduce SOV use in the Commonwealth. This will help the state reach its climate and mode shift goals. The inclusion of these employers will make the regulation more equitable for their employees and will raise the overall awareness of the program within the business community. Based on the annual Book of Lists from the *Boston Business Journal* (7) a significant number of employers within some of the state's most important job sectors have between 250-1000 employees (see inset).
 - **Continue to streamline the process.** The majority of successful regulations nationwide have taken the focus off reporting and placed it on implementing strong measurable TDM measures. To further expedite reporting,
- MA DEP should consider eliminating open ended and difficult to measure requirements such as promotion of ridesharing and negotiation with transit providers. Instead more concrete incentives such as offering a pre-tax benefit or membership in a TMA should be considered.
- **Create a centralized, web-based survey mechanism for those employers not using a direct count method.** Funding should be identified or the state should look to partner with a non-profit organization to create an online survey tool that is provided to employers for free or little cost, to determine mode split and progress toward Ride-share Regulation goals. This tool should include analysis and results calculations that employers will then use to develop their TDM plans. By having one survey tool that is used by all employers subject to the regulation, MA DEP will eliminate the number of employers who are in non-compliance for reporting errors, and will free up DEP staff time. In addition, employers will be saving time and money on the survey process and will hopefully invest those savings into TDM measures. MA DEP should continue to offer a direct count method to determine mode split for those employers who have access to parking and transit data.
 - **Expedited reporting for TMA members.** Allow companies to participate in a DEP Rideshare Regulation Expedited Reporting/Certification Process (ER/CP), as proposed by MassCommute. The ER/CP report would include a letter of compliance certifying TMA membership and supply specific information regarding employer commuter

Private Companies in MA with 250–1,000 Employees

- 26 of top 50 employers have over 250 employees
- Best Places to Work: 18 of top 50 medium and large businesses
- Life Sciences: 21 of top 50
- Medical Device Companies: 11 of top 25
- Hotels: 15 of top 25
- Non-Profits (museums, health services): 11 of top 25
- Advertising: 4 of top 10

initiatives and participation in TMA events and programs—including details regarding mode split, VMT reduction, and air quality benefits. For those companies not currently located within a TMA area, participation as a MassRIDES partner may be considered as qualification for the expedited report program. By offering this option to companies in the Commonwealth, DEP will be further promoting TMAs and will be ensuring that TDM measures, such as subsidies and guaranteed ride home programs are being implemented and measured. In addition, having an expedited reporting process should free up time for DEP staff.

By including the Rideshare Regulation as part of the Commonwealth’s goal of a 25% reduction in greenhouse gas emission by 2020, we would be providing a framework to establish a timeline for employers to meet the 25% reduction in drive alone commuting that is currently required.

- **Hire additional staff to implement and monitor program.** Every regulation identified as successful had at least one, and in many cases several staff members dedicated to the oversight of their regulation. The Commonwealth has one half-time employee to oversee the Rideshare Regulation. This is not sufficient to identify all employers required to comply, provide adequate support to employers and to ensure that the proposed TDM plans are being implemented. The possibility of charging a reasonable administrative application fee should be considered to fund a full time staff person.
- **Incorporate Rideshare Regulation into larger Climate Action Plan and establish time based goals for regulation compliance.** Currently the Rideshare Regulation is part of the Air Pollution Control Regulations for the Commonwealth. As the MA DEP reviews this and other regulations as part of the reform process consideration should be given to incorporating the Rideshare Regulation and use of sustainable modes in general into the state’s larger climate action plan and goals. By including the Rideshare Regulation as part of the Commonwealth’s goal of a 25% reduction in greenhouse gas emission by 2020, we would be providing a framework to establish a timeline for employers to meet the 25% reduction in drive alone commuting that is currently required.

City of Boston TAPAs

Based on the finding of this report it is recommended that the City of Boston adopt the following additions/changes to its existing agreements:

- **Hire additional staff to implement and monitor agreements.** As identified at the state/regional level, every successful regulation has at least one, and in many cases, several staff members dedicated to the oversight of their regulation. The city of Boston does not have any staff member whose sole or primary responsibility is to implement and monitor TAPAs. Given that Boston currently has over 45 projects under construction and another 150 developments that have been approved (8), the pattern of growth in the city will continue at a rapid pace. A dedicated staff person to ensure that all of these projects are approached with clear and achievable TDM measures is critical. In order to fund the position, the city should consider using parking fees, such as a cost per commercial parking space for developers or a resident parking permit fee.

Massachusetts Cities/Towns with Resident Parking Permit Fee

Brookline \$25.00	Cambridge \$25.00
Everett \$10.00	Framingham \$10.00
Malden \$15.00	Newton \$25.00
Quincy \$20.00	Salem \$10.00
Somerville \$30.00	Winthrop \$5.00

Presently, the city of Boston does not have any fees associated with commercial parking spaces. Many large cities have chosen to charge a fee per space or a commercial parking tax to cover the costs of administering TDM programs or to mitigate the costs associated with single occupancy vehicles. Research has shown that the average parking impact fee for US cities is as much as \$31 per space (9). Given the large amount of development in Boston this could provide a significant revenue source that could be devoted to TDM measures.

In addition, Boston does not charge an annual fee for resident parking permits. In looking at a small sample of other cities both in Massachusetts (see insert) and nationwide, fees for parking permits range from \$5 to \$140 annually. Given that over 85,000 permits are issued each year in Boston, the city could raise significant revenue from a nominal fee, that could cover the cost of administering the TAPA programs and potentially invest in neighborhood specific TDM efforts.

- **Strengthen language to ensure post occupancy TDM measures are implemented.** As discussed previously, in many cases, the developer who signs the TAPA is no longer involved with the project once the building is at the point of occupancy. This presents a problem since the majority of TDM measures required are actions that occur post occupancy (TMA membership, marketing, subsidies, appointing an Employee Transportation Coordinator). In order to ensure that the requirements are passed on to the new owner and its building management, the city needs to clarify language in the agreement to establish a clear transfer of responsibility. Sample language from the city of Pasadena, CA regulation can be seen in Appendix F. In addition, a sample transfer agreement from the city of Cambridge, MA can be found in Appendix G.
- **Require an annual follow up meeting with developers post occupancy to ensure that TDM measures have been implemented.** To ensure that a transfer of responsibility takes place, and that the new party is clear about post occupancy requirements, the city should host an annual update meeting with building management. If the developer is required to join the TMA in its area, TMA staff should be present at the meeting. Together, the city, building management, and the TMA can review implemented actions and develop a plan for continued action.
- **Impose and enforce penalties for non-compliance.** At present there is no language in the TAPA laying out consequences for non-compliance. While it has been established that these penalties are rarely enforced and that supportive assistance is preferred over punitive measures, it is important that developers understand the importance of the agreement and that the city has the ability to issue punitive damages if deemed necessary. In order to ensure that all developers are treated fairly with regards to TAPAs the city needs to add language

that clearly establishes penalties for non-compliance. In addition, a process for identifying and dealing with those developers not in compliance needs to be established.

- **Outsource auditing of TAPA TDM plan to TMAs.** A partnership with the TMAs should be established to create a matrix of TDM measures that weighs each item in terms of effectiveness, cost, and level of commitment. The city should consider having the TMA's involved in reviewing development plans prior to approval and in auditing TDM plans post occupancy to determine compliance with the agreement.
- **Evaluate TDM measures.** The city should take the opportunity to review all TDM measures being required in current TAPAs and work with TMAs and other TDM experts to determine which measures are the most effective in creating mode shift. As has been determined by looking at the best practices of other cities, not all TDM measures are equal. In order to ensure that the impacts of development are being mitigated, a value system may be considered for each TDM measure.
- **Require fewer measures and give developers a choice.** Some of the most successful ordinances we have seen have streamlined their ordinances to a handful of successful measures. The simplification of options makes the regulation easy to understand as well as easy to implement and enforce. In addition, giving developers a choice of TDM measures to include in their TDM plans has proven successful both during the regulation period and in the long term adoption of policies in the workplace. In some instances multiple TDM measures may be achieved by taking a single action, as is the case with TMA membership, where TMA members typically receive a wide range of programs, incentives, and coordination as a benefit of membership.

REFERENCES

- 1 Boarnet, Marlon, Hsin-Ping Hsu, and Susan Handy, "Policy Brief on the Impacts of Employer-Based Trip Reduction Based on a Review of the Empirical Literature." California Air Resource Board. September 30, 2010.
- 2 MassCommute, "Findings on the Impacts of the MassDEP Rideshare Regulation." March 2011.
- 3 Greenovate Boston, "A Climate of Progress, City of Boston Climate Action Plan Update 2011." April 2011.
- 4 San Francisco Park, "Peer City Parking Rates and Policies Survey." December 2013.
- 5 Washington State Trip Reduction Board, "CTR Report to the Washington State Legislature." January 2012.
- 6 Stabley, Susan "NC Governor Pat McCrory Signs Environmental Reform Bill Into Law." August 23, 2013. http://www.bizjournals.com/charlotte/blog/going_green/2013/08/mccrory-signs-regulation-reform-bill.html?page=all
- 7 *Boston Business Journal*, "Book of Lists." 2014.
- 8 Boston Redevelopment Authority Projects. Retrieved June 2014. <http://www.bostonredevelopmentauthority.org/projects>.
- 9 Shoup, Donald, "Instead of Free Parking," *Journal of Planning and Educational Research*. Summer 1999.

Appendices do not appear in this publication. To view them, please visit www.abettercity.org/about/publications.html.



A Better City

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Appendix A: City and State TRO Summaries

City Ordinances

Boston, Massachusetts	
Population	636,439
Total Workforce	2,250,000
Transit	Massachusetts Bay Transit Authority
Program Specifics	City develops an agreement plan which outlines all mitigation measures related to traffic and access, including signalization, parking, roadway improvements, and some TDM measures.
Applicability	Any development with more than 50,000 square feet
TDM Requirements	Determined by city staff based on a recommended list of items including transit subsidies, ridesharing, and TMA membership
TDM Goals	None specified
Penalties	None specified
Evaluation	TDM requirements are post occupancy and no evaluation is done after permitting.
Contact	Vineet Gupta, 617-635-2756, vineet.gupta@cityofboston.gov
Bloomington, Minnesota	
Population	86,033
Total Workforce	88,942
Transit	Metro Transit
Program Specifics	Developers are required to complete a TDM plan and join a TMA. There is no fee for joining the TMA.
Applicability	Any development with more than 1,000 square feet or 350 parking spaces
TDM Requirements	TDM Plan with an outline of expenditures over three years and TMA membership
TDM Goals	SOV reduction determined on a case by case basis
Penalties	Ordinance requires a financial guarantee before occupancy permit of \$50 per parking space. Money is returned if compliant within three years, otherwise money is donated to TMA.
Evaluation	Annual report with specific measures of success
Contact	Melissa Madison, Commuter Services TMA, 612-749-4494, Melissa@494corridor.org Jen Desrude, jdesrude@ci.bloomington.mn.us
Boulder, Colorado	
Population	101,808
Total Workforce	171,000
Transit	Regional Transit District
Program Specifics	Choice of three TDM plans are transit oriented, parking management and other
Applicability	Any development that is adding 20+ peak trips for residential or 100+ peak trips for commercial
TDM Requirements	Three plan choices include: Plan A, transit which requires an ECO transit pass for all employees; Plan B, parking which requires limiting and charging for parking; and Plan C, a customized plan for those that do not fit well into plan A or B. All plans require bike amenities, an ETC and surveying measures for follow up.
TDM Goals	Goal is to have 75% of residential and 60% of work trips using alternatives.
Penalties	None enforced
Evaluation	Surveying done by the City with assistance from employers; focus on compliance for those with plans B and C.
Contact	Chris Hagelin, 303-441-1832, hagelinc@bouldercolorado.gov

City Ordinances

Cambridge, Massachusetts	
Population	91,867
Total Workforce	54,595
Transit	Massachusetts Bay Transit Authority
Program Specifics	Small projects must choose three TDM measures. Larger projects must create a TDM plan. A TDM plan is triggered when a developer of a non-residential project proposes to add parking. The final plan is subject to city review to decide if enough strategies have been applied.
Applicability	Small projects with more than five parking spaces and large projects with more than 20
TDM Requirements	Requirements include: transit pass subsidies, market-rate parking fees, shuttle buses, bicycle enhancements, guaranteed ride home, ridematching, bus shelters, on-site TDM coordinator.
TDM Goals	Single occupancy vehicle reduction of 10% below the 1990 Census Journey to Work data
Penalties	Shutting down employer parking and fining employers \$10 per parking space per day
Evaluation	There is no evaluation done for small projects. Monitoring of large projects includes employee and/or patron mode split surveys or SOV rate, biennial counts of parking occupancy and driveway in/out, and status of the TDM measures.
Contact	Stephanie Groll, 617-349-4673, sgroll@cambridgema.gov
Durham, North Carolina	
Population	239,358
Total Workforce	285,000
Transit	Triangle Transit
Program Specifics	Requires a survey every two years to determine VMT and trips reduced. A trip reduction plan is filed every year and a \$200 administrative fee is paid to the transit authority.
Applicability	Any business with over 100 employees
TDM Requirements	Employers can choose from a list of suggested measures that include: ridesharing, vanpools, preferential parking, subsidies, pedestrian and bike amenities, telework, parking cash out, etc.
TDM Goals	20–25% reduction in VMT each year
Penalties	\$100 a day fine up to \$1,000 for not submitting the report
Evaluation	One-on-one meeting to determine TDM measures and go over survey results
Contact	Stephanie Loyka, 919-485-7463, sloyka@triangletransit.org
Minneapolis, Minnesota	
Population	392,880
Total Workforce	1,800,000
Transit	Metro Transit
Program Specifics	Requires creation of a TDM plan at the discretion of the planning department
Applicability	Any development over 100,000 square feet
TDM Requirements	Plan should have but is not limited to: on-site transit facilities, transit use incentives, preferential location of car pool and van pool parking, on-site bicycle facilities, staggered starting times and telecommuting opportunities.
TDM Goals	Set by developers, approved by the city, generally vehicle trip reduction
Penalties	None being applied
Evaluation	TMO is given plans, a certain number are audited by TMO
Contact	Dan Maclaughlin, 612-370-3987, dmaclaughlin@commuter-connection.org , Alan Keugman, 612-673-2743

City Ordinances

Pasadena, California	
Population	138,547
Total Workforce	3,923,000 (LA County)
Transit	Pasadena Area Rapid Transit System and Metro Gold
Program Specifics	Required TDM measures include: carpool and vanpool parking, bike parking, ridematching, and commuter info. Those with over 75,000 sq. feet or 100 residential units must create a TDM plan with evaluation criteria, and assign an ETC.
Applicability	Any development over 25,000 sq. feet
TDM Requirements	Carpool and vanpool parking, bike parking, ridematching and other measures of developer's choice
TDM Goals	Average vehicle rate of 1.5/developers in transit development areas must meet an AVR of 1.75
Penalties	Permit withheld, fines and/or additional TDM measures required
Evaluation	Unknown
Contact	Jon Pollard, 626-744-6831, jpollard@cityofpasadena.net
Richmond, California	
Population	106,516
Total Workforce	635,000
Transit	Bay Area Rapid Transit
Program Specifics	Requires employers to implement one of three site specific TDM measures
Applicability	Any business with 10 or more employees
TDM Requirements	Must provide a pre-tax benefit, transit subsidy, or shuttle
TDM Goals	To reduce average vehicle rate
Penalties	\$200–\$600 for non-compliance
Evaluation	Unknown
Contact	Linda Young, 510-215-3008, linday@cl.sanpablo.ca.us
Rockville, Maryland	
Population	63,000
Total Workforce	32,820
Transit	Washington Metro
Program Specifics	Developers are required to pay a transportation improvement fee of \$1.50 per square foot or \$900 for each residential unit. TMA membership is required. Trip reduction goal is determined by a number of factors including transit access and land use in the area.
Applicability	Developments generating 30 or more trips during peak periods are required to pay the fee. Developments generating 125 or more trips are required to create a TDM plan.
TDM Requirements	A variety of TDM measures are proposed, each with a point value. Developers must choose a combination of methods that equal the required points needed for trip reduction. Examples of TDM measures include paid parking, transit subsidies, and unbundled parking.
TDM Goals	Trip reduction between 14–40% depending on transit access and land use calculations
Penalties	None specified
Evaluation	The City began implementing this plan in 2012; to date they have only one development that has fallen within the parameters, and is in the beginning stages so there is no information on compliance or enforcement.
Contact	Emad Elshafei, 240-314-8508, EElshafei@rockvillemd.gov

City Ordinances

San Francisco, California	
Population	825,863
Total Workforce	1,025,700
Transit	San Francisco Municipal Railway/Bay Area Rapid Transit
Program Specifics	Annual form completed, must provide one of three commuter benefits
Applicability	Any business with over 20 employees
TDM Requirements	Must provide either pre-tax benefits, transit benefit, or employer provided transportation (shuttle). The city offers other TDM measures such as GRH and ridematching.
TDM Goals	No specific VMT or percentage, simply to get 100% of companies to offer one of the benefits
Penalties	\$100 per year not in compliance; fine is for non-compliance not non reporting
Evaluation	Companies who are not in compliance are contacted and are offered consultation.
Contact	Sue Ellen Atkinson, 415-355-3705, sue-ellen.atkinson@sfgov.org
Santa Monica, California	
Population	91,812
Total Workforce	73,372
Transit	Big Blue Bus/light rail proposed for 2016
Program Specifics	Tiered requirements based on number of employees: 10–49 attend workshop and create a worksite plan; 50 or more, designate an ETC, create a trip reduction plan, survey with 75% response rate, 250 or more employees must also file plan with the county. In addition, employers are charged an annual fee ranging from \$13–\$16 based on number of employees.
Applicability	Any business with 10 or more employees
TDM Requirements	A menu of options is available, each plan must have five marketing strategies, five basic TDM measures (i.e., ridematching, flextime) and five direct TDM measures (i.e., subsidies, shuttle, telework, prizes).
TDM Goals	Average vehicle ridership of 1.5 (proposed to increase in 2016 between 1.6–2.2 depending on transit options in the area)
Penalties	Developers are fined and cannot receive an occupancy permit. Employers are fined \$5 per day, per employee.
Evaluation	If AVR of 1.5 is achieved a 33% reduction in the fee (credit) is given; 40% for year one, 50% year two, and 60% years three or more.
Contact	Jacquilyne Brooks de Camarillo, 310-458-8956 Luis Morris, 310-458-8957, luis.morris.smgov.net
Seattle, Washington	
Population	634,535
Total Workforce	1,900,000
Transit	King County Metro
Program Specifics	Requires a plan with two TDM measures, and participation in a state-conducted survey with a 70% response rate
Applicability	Any business with more than 100 FT employees commuting during am/pm commute
TDM Requirements	Requires two TDM measures from a list. A plan must be submitted. TMA membership required.
TDM Goals	VMT reduction of 15–35% over a 12-year period; tiered year 2–3 20%; year 4 20%; year 5–6 25%; up to 35% in 12 years
Penalties	None for not achieving goals, \$250 a day for non-compliance
Evaluation	Unknown
Contact	Eric Mamroth, 202-684-5420, eric.mamroth@seattle.gov

State Regulations

State of Massachusetts	
Population	6,646,144
Total Workforce	3,314,000
Transit	Massachusetts Bay Transit Authority and Regional Transit
Program Specifics	Employers must provide trip reduction incentives to achieve a 25% reduction in drive alone commuting, and conduct a bi-annual survey.
Applicability	Businesses with 1,000 or more employees (or students) or 250 or more employees if subject to Air Operating Permit
TDM Requirements	Ridematching, carpool and vanpool parking, bicycle incentives, transit pass sales, transit negotiations
TDM Goals	To reduce drive alone trips by 25%
Penalties	Penalties can be assessed for non-compliance but are rarely instituted.
Evaluation	Reports are reviewed for completeness
Contact	Christine Kirby, MA DEP, 617-292-5631, christine.kirby@state.ma.us
State of Oregon — Greater Portland Area	
Population	3,899,353
Total Workforce	1,665,000
Transit	Tri-Met
Program Specifics	Must complete a baseline survey or document auto trips (i.e., counts, etc.). Follow up survey every two years, with a 75% response rate. Provide plan to reduce trips using a variety of self-chosen suggested measures.
Applicability	Any business with 100 or more employees in Portland Air Quality Maintenance area
TDM Requirements	Requirements include: ridesharing, telework, compressed work, subsidies, etc. Alternatives to complying with the program include voluntary parking ratios, parking cash out, 50% transit subsidy, and other emission reductions.
TDM Goals	A 10% reduction in auto trips annually from baseline amount
Penalties	If goal is not met, a revised plan must be submitted along with proof of good faith effort. This is required for two years in a row if not achieved.
Evaluation	Annual review of the program goals
Contact	Rose Lim or Susan Drake, 503-229-6154, eco@deq.state.or.us
State of Arizona — Pima County	
Population	992,394
Total Workforce	354,000
Transit	Sun Tran
Program Specifics	Requires an annual survey and TDM plan
Applicability	Any business with 100 or more employees
TDM Requirements	TDM plans must include at least three of the following: a designated Transportation Coordinator, ridematching, provision of vans or vanpooling, subsidized carpooling or vanpooling, negotiation of service with transit provider, subsidized bus fares, construction of transit, bike or walk facilities, teleworking, flexible scheduling, or parking cash outs.
TDM Goals	VMT reduction of 15% in the first year; 20% in year two; 25% in year three. After the third year of the regional program, either: A 1% increase in employee participation in alternate modes until 40% percent; or a reduction in average annual VMT per employee of 1.5% per year after a 25% percent alternate mode or commuter trip VMT.
Penalties	Up to \$250 per day for non-compliance. No penalties for good faith effort.
Evaluation	Staffing issues and elimination of air quality issues have reduced this measure drastically. No longer enforced.
Contact	Ruth Reiman, 520-792-1093, rreiman@pagnet.org

Appendix B: Sample Annual Report Form Bloomington, MN



TDM Annual Status Report

The City of Bloomington's Transportation Demand Management (TDM) ordinance requires certain large developments and redevelopments to implement programs that encourage employees to reduce single occupancy vehicle trips to help relieve traffic congestion, allow parking flexibility and reduce air pollution.

Developers/property owners affected by the TDM ordinance must submit an Annual Status Report form each year for a minimum of 2 years from the Initial TDM Plan Implementation Date. The information is used by the City of Bloomington to determine if the developer/property owner has put forth a good faith effort to implement the TDM strategies in their approved TDM plan.

Please complete the following report as carefully and completely as you can. Specific instructions are included in sections requiring detailed answers. If you would like to provide more information about your TDM program, attach additional pages.

Worksite Description

Date Submitted: _____ Case File Number: _____

Property ID No.: _____

1 worksite name

2 site address

3 city, state

4 zip

5 TDM contact name

6 title

7 phone

8 TDM contact mailing address

9 email address

10 fax

Employee Information

11 total number of building employees: _____

12 total occupied square feet of building (s): _____

13 Is your TDM program offered to all employees/tenants?

yes no

14 Does this worksite have multiple shifts?

yes no

If yes, describe:

ENGINEERING DIVISION
1700 WEST 98TH STREET, BLOOMINGTON MN 55431-2501
PH 952-563-4870 FAX 952-563-4868 TTY 952-563-8740

AN AFFIRMATIVE ACTION/EQUAL
OPPORTUNITIES EMPLOYER

Appendix C: Sample Ordinance Flyer, San Francisco, CA

Requirements of San Francisco's Commuter Benefits Ordinance

Effective January 19, 2009, San Francisco employers are required to offer a commuter benefits program to encourage employees to use public transit or vanpools.



San Francisco's new Commuter Benefits Ordinance allows employers and workers to tap into an existing federal program to pay for transit passes and van pool expenses. Employers save up to 9% on payroll taxes and employees save up to 40% on their transit costs. The benefit works like other pre-tax plans such as retirement, dependent care, and medical reimbursement, except that it's much simpler.

Employers can offer commuter tax benefits as a payroll deduction, a subsidized benefit, or a combination of the two. Employers can administer the benefit themselves, purchasing the transit tickets or vouchers each month and distributing them to employees. Some employers may find it more practical to hire a third-party administrator to manage their program.

What are the requirements of the new commuter benefits law?

All employers in San Francisco that have 20 or more persons performing work for compensation on a full-time, part-time, or temporary basis and who work an average of at least 10 hours a week while working for the same employer within the previous calendar month, must offer one of the following options:

1. **Pre-tax Transit:** Employer sets up a deduction program under existing Federal Tax Law 132(f), which allows employees to use up to \$115 a month in pretax wages to purchase transit passes or vanpool rides. SF Environment (San Francisco's Environment Department) is available to assist businesses in self-administering a benefit program or can offer assistance with hiring a third-party administrator.
2. **Employer Paid Transit Benefits:** Employer pays for workers' transit fares on any of the San Francisco Bay Area mass transit systems or reimburses workers for their vanpool expenses. Reimbursements for transportation expenses must be of at least an equivalent value to the purchase price of a San Francisco MUNI Fast Pass, which is presently \$45.
3. **Employer Provided Transit:** Employer offers workers free shuttle service on a company-funded bus or van between home and place of business.




For more information please visit SFEnvironment.org or call (415) 355-3700.

SFEnvironment Our home. Our city. Our planet.

SF Environment is a department of the City and County of San Francisco.

Appendix D: TDM Strategies Form, Rockville, MD

City of Rockville Trip Reduction Program



TRIP REDUCTION PLANS
CONTACT US
LOG OUT

SELECT TDM STRATEGIES :: CITY OF ROCKVILLE_2

Please select transportation program strategies below that could be applicable to your site. Each strategy has been assigned a point value based on the responses you provided to the previous transit and land use questions. You are required to select enough strategies that you equal or exceed the 80 point threshold shown below. Once you have selected your strategies, hit the Continue button to proceed to the next page.

Points Required: 80

Points from Selected Strategies: 5 (Includes Smart Growth Priority Points of 5)

Points Needed: 75

Progress

[Transit Questions](#)

[Land Use Questions](#)

[Validate Answers](#)

[Select TDM Strategies](#)

[Print Summary](#)

[Submit](#)

AVAILABLE STRATEGIES:

Select	Strategies (click for details)	Points
<input type="checkbox"/>	Charge for parking (paid parking)	12
<input type="checkbox"/>	Commuter Rewards Program	3
<input type="checkbox"/>	Compressed Work Weeks	7
<input type="checkbox"/>	Employer Training	7
<input type="checkbox"/>	Flextime	7
<input type="checkbox"/>	Guaranteed Ride Home	5
<input type="checkbox"/>	Information Kiosks	2
<input type="checkbox"/>	Live Near Work Marketing	3
<input type="checkbox"/>	Minimum \$100/mo Metrorail and/or vanpool subsidy	12
<input type="checkbox"/>	Minimum \$20/mo bicycle subsidy	3
<input type="checkbox"/>	Minimum \$50/mo Metrorail and/or vanpool subsidy	9
<input type="checkbox"/>	Occasional Parking Permit Program/Variable price	6
<input type="checkbox"/>	On-site Transportation Fairs	3
<input type="checkbox"/>	Parking not exceeding minimum req'd by LU code	7
<input type="checkbox"/>	Real-time Transit Displays	8
<input type="checkbox"/>	Ridematching (through MWCOG)	7
<input type="checkbox"/>	Shop Near Work Marketing	3
<input type="checkbox"/>	Telework	7
<input type="checkbox"/>	Unbundled Parking (line item parking costs)	9
<input type="checkbox"/>	Website providing information	5

Select

SELECTED STRATEGIES (0):

Go Back
Continue

Appendix E: Sample TDM Plan Matrix, Boulder, CO

TDM Plan Sample #1		
1-Feb-07		
Program	Description	Points
Management and Parking Strategies:		
1. Clustered Parking	By providing parking below grade we have been able to create a large plaza on the south side of the building for pedestrian use.	4
2. Parking Charges	By charging for parking we are promoting the use of alternative transportation modes such as bus, bicycle, carpool and van pool.	10
3. Parking Management	Due to the site's proximity to the bus transit station on Canyon our design has balanced the amount of total parking on site to the relative availability of transit and other services.	8
4. Preferential Parking	We will designate with signage one parking space for carpoolers and vanpoolers near the commercial elevator for a total of 2 designated signage. Will also offer reduced parking rate for car/vanpools.	4
5. Unbundled Parking	Allow residential and commercial tenants to choose whether or not to include parking in their lease/purchase agreement.	8
Subtotal:		34
Facilities and Design:		
1. Bicycle Racks/Lockers	By providing bicycle racks for commercial tenants and private residential storage units in the parking garage sized to accommodate bicycles and which are conveniently located for the uses, we have provided commuters the ability to secure their bicycles once they have reached our site.	3
2. Onsite Amenities	We have provided a bank and restaurant space within the project to relieve offsite travel demands.	3
3. Protected Walk/Bike Corridors	By providing all of the parking below grade we have separated bike and pedestrian traffic from parking spaces onsite.	4
4. Traveler Friendly Site Design	We will be improving and providing better access to the existing bus stop adjacent to the site and upgrading walking amenities adjacent to the building including improved lighting, enhanced paving and expanded landscaping. We will also be improving the alley's pedestrian environment through the addition of office/retail storefronts, trees, planters, enhanced paving, signage and lighting.	5
5. NextBus Signage	NextBus sign will be installed in the commercial lobby to help transit and potential transit users know when the next bus will be arriving at the stop located adjacent to the site.	2
Subtotal:		17
Marketing Strategies:		
1. Bicycle Riders Guide	The applicant will provide a guide to commercial tenants that includes bike routes, locker and rack locations, and other pertinent information.	1
2. Bus Riders Guide	The applicant will provide a guide to commercial tenants that includes information on how to read a bus schedule, where to wait for the bus, and how to use the "bikes-on-buses" program.	2
3. Travel Options Marketing	The applicant will provide a display or kiosk for brochures, maps and other information to commercial tenants related to transit options and will proactively promote use of transportation options and pick up and use of Eco Pass. This information will also be accessible and made available to residential tenants.	2
4. Survey	Will administer survey 1x each year and share results with GO Boulder to understand the effectiveness of the TDM programs provided.	2
Subtotal:		7
Incentive Strategies:		
1. Poolbike Program	Will investigate the opportunity to provide poolbikes in partnership with the One Boulder Plaza properties to allow residents or employees of the site to checkout bikes for short trips. Partnership might enable a flexible option for administering the checking in and out and maintenance of the bikes, helmets and locks.	1
2. Business Eco Pass Program	Because the development is located within the Central Area General Improvement District (CAGID) employees at this site will be eligible for Eco Passes.	4
Subtotal:		5
Grand Total:		63

Appendix F: Sample Property Transfer Language, Pasadena, CA

Commitment to Maintain Transportation demand management compliance for the life of a project.

1. Property owners subject to trip reduction requirements shall record a Covenant and Agreement to a property's codes, Covenants and Restrictions (i.e., CC&Rs) that make the TDM Program a condition of property ownership. The CC&Rs shall include provisions to:
 - a. Guarantee adherence to the TDM objectives and perpetual operations of the TDM Program Plan for all legal parcels within the site regardless of property ownership.
 - b. Inform all subsequent property owners of requirements of the TDM Program Plan.
 - c. Inform the City Department of Transportation of any change in property ownership.
 - d. Identify consequences of non-performance.
2. Space use agreements (i.e., lease documents) shall include provisions to inform and commit tenants to and participate in measures of the property's TDM Program, including:
 - a. Encouraging employees to participate in campaigns that promote use of carpools, vanpools, transit, walking and bicycling; and
 - b. Posting transportation information in employee common areas; and
 - c. Participating in the annual employee commute survey; and
 - d. Promoting the availability of preferential car/vanpool parking spaces to employees.

Appendix G: Sample Property Transfer Form, Cambridge, MA

City of Cambridge
Community Development Department
344 Broadway, Cambridge, MA 02139
Attention: PTDM Planning Officer

Parking and Transportation Demand Management Plan Property Transfer Form

Name and Address of Transferee _____
_____ Telephone _____

Name and Address of Approval Holder _____
_____ Telephone _____

Name and Address of Facility _____
_____ Telephone _____

Date of Current PTDM Plan Approval _____

Instructions for Transferee: Complete either Section A or Section B within thirty (30) days of title transfer. Attach information about changes in use of the parking facility and associated buildings. If completing Section B, attach proposed revisions to approved plan.

Section A

- I certify that I have reviewed and agree to implement the approved Parking and Transportation Demand Management plan for this facility.
- I understand the commitments made in the approved PTDM plan, including the commitment not to exceed a Single-Occupant Vehicle mode split of _____ % for this facility.
- I understand that failure to implement the approved PTDM plan may result in enforcement actions per the Parking and Transportation Demand Management Ordinance.

Transferee Signature and Title _____

Date _____

Section B

- I understand that the facility being transferred is subject to the Parking and Transportation Demand Management Ordinance. Having reviewed the approved PTDM plan, I believe that revisions to the approved plan are warranted and I am submitting a revised plan for approval. I understand that pending amendment of the approved plan or approval of a replacement plan, the approved plan is still in effect and I am responsible for its implementation.

Transferee Signature and Title _____

Date _____

April 2000