

City of Madison

DEPARTMENT OF



TRANSPORTATION

Transportation Demand Management Program

*Prepared by the State Smart Transportation Initiative, UW-Madison, &
the City of Madison Department of Transportation*



State
**Smart Transportation
Initiative**

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Table of Contents

| | |
|--|----|
| 1. INTRODUCTION | 1 |
| 1.1 – Planning for Transportation Demand Management in Madison | 1 |
| 1.2 – Existing TDM efforts in Madison | 4 |
| 1.3 – Advantages of the proposed citywide TDM program | 6 |
| 1.4 – National best practices | 7 |
| 2. TDM PROCESS..... | 8 |
| 2.1 – Step 1: Determine Applicability | 8 |
| Considerations for Mixed Use and/or Multitenant Developments | 10 |
| 2.2 – Step 2: Determine TDM Requirements | 10 |
| 2.3 – Step 3: Create and Submit TDM Plan | 16 |
| 2.4 – Step 4: Implementation, Reporting and Monitoring | 18 |
| 2.5 – Applicability of TDM Requirements to Existing Properties | 18 |
| 2.6 – Appeals Process | 19 |
| APPENDIX A: TDM MENU & MEASURES..... | 20 |
| A.1 – Active Transportation..... | 20 |
| A.2 – Transit..... | 21 |
| A.3 – Parking Strategies..... | 22 |
| A.4 – Shared Mobility | 23 |
| A.5 – Information | 24 |
| A.6 – Delivery..... | 24 |
| A.7 – Land Use | 25 |
| A.8 – Employer Policy | 26 |
| A.9 – Other | 26 |
| APPENDIX B: HYPOTHETICAL PROJECT EXAMPLES..... | 27 |
| B.1 – Residential Use | 27 |
| B.2 – Employment Use | 29 |
| B.3 – Commercial Use..... | 31 |
| B.4 – Mixed Use..... | 33 |
| APPENDIX C: Use Categories and Standards | 36 |
| 1. Residential Uses..... | 36 |
| 2. Employment Uses..... | 36 |
| 3. Commercial Uses | 37 |
| 4. Institutional Uses..... | 38 |
| APPENDIX D: TDM PROGRAMS IN OTHER CITIES | 39 |

Table of Figures

| | |
|--|----|
| Figure 1 - Annual Vehicle Miles Traveled in the US vs. Population Growth..... | 1 |
| Figure 2 - Traditional Congestion Management vs. Transportation Demand Management Model..... | 2 |
| Figure 3 - East Washington Avenue During Peak Rush Hours | 2 |
| Figure 4 - Relevant planning goals and strategies in Madison | 3 |
| Figure 5 - Means of transportation to work in Madison | 4 |
| Figure 6 - Purpose of TDM and community benefits..... | 4 |
| Figure 7 - TDM references in Madison's Zoning Ordinance | 5 |
| Figure 8 - TDM at the University of Wisconsin – Madison | 6 |
| Figure 9 - Round Trip, GMMPO's Ridesharing Program | 6 |
| Figure 10 - Existing TDM programs reviewed..... | 8 |
| Figure 11 - Land Use Categories and TDM Applicability..... | 8 |
| Figure 12- TDM Plan Creation Tool..... | 11 |
| Figure 13 - TDM Requirements for Different Land Uses | 12 |
| Figure 14 - TDM Requirement Modifiers Based on Location | 14 |
| Figure 15 - Transit Service Base Points Based on Location..... | 15 |
| Figure 16 - TDM Measure Categories | 16 |
| Figure 17 - TDM Mitigation Measures..... | 17 |
| Figure 18 - Active Transportation Measures | 20 |
| Figure 19 - Transit Measures | 21 |
| Figure 20- Parking Management Measures..... | 22 |
| Figure 21 - Shared Mobility Measures..... | 23 |
| Figure 22- Information Measures..... | 24 |
| Figure 23 - Delivery Measures | 24 |
| Figure 24- Land Use Measures | 25 |
| Figure 25 - Employer Policy Measures..... | 26 |
| Figure 26 - Other Measures..... | 26 |

Key Abbreviations

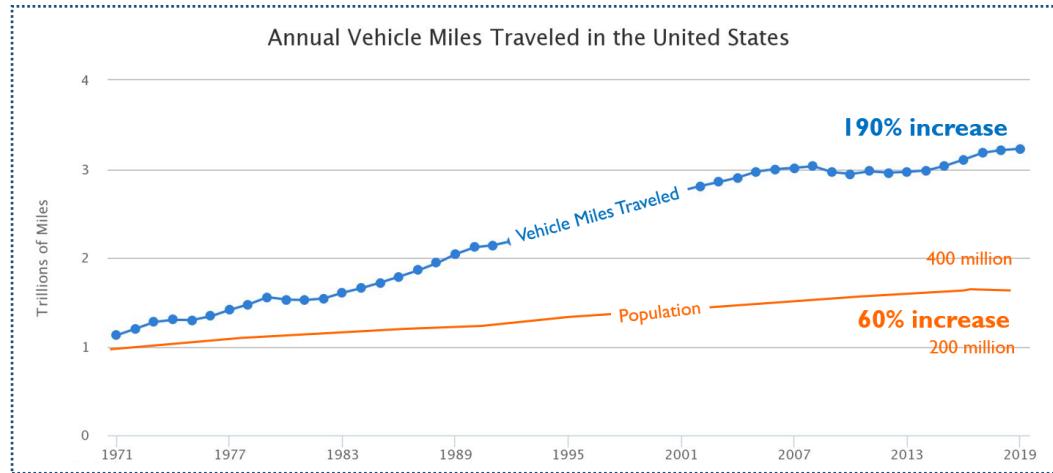
| | |
|------|---------------------------------------|
| BRT: | Bus Rapid Transit |
| DU: | Dwelling unit |
| HOV: | High occupancy vehicles |
| SOV: | Single occupancy vehicles |
| TDM: | Transportation demand management |
| TMA: | Transportation management association |
| TOD: | Transit-oriented development |
| VMT: | Vehicle miles traveled |

1. INTRODUCTION

1.1 – Planning for Transportation Demand Management in Madison

Over the past five decades, auto use, or Vehicle Miles Traveled (VMT) has grown at a rate three times greater than the population. As VMT increases, so do the challenges associated with increased auto use. Street networks have had to increase at a disproportional rate to satisfy the demand for travel. Similarly, motor vehicle emissions from transportation now are the greatest contributor to greenhouse gas emissions.

Figure 1 - Annual Vehicle Miles Traveled in the US vs. Population Growth^{1,2}



Traditionally, the roadway network capacity has increased as new development and/or congestion occurs along a corridor. This method of transportation system management has led to increases in vehicle miles traveled (VMT) that has outpaced population growth.

This growth in transportation network capacity can “induce demand” – a phenomenon in which adding roadway capacity makes commuting via single-occupant vehicle (SOV) an attractive option due to excess capacity in the network. This, in turn, enables development in greenfield, peripheral areas in a more disbursed, sprawling, low-density development pattern – as development on the urban edge seems more viable. This new development pattern increases VMT, which can lead to congestion, creating the need for more roadway capacity.

Adding roadway capacity indefinitely to address congestion concerns is not practical for a number of reasons:

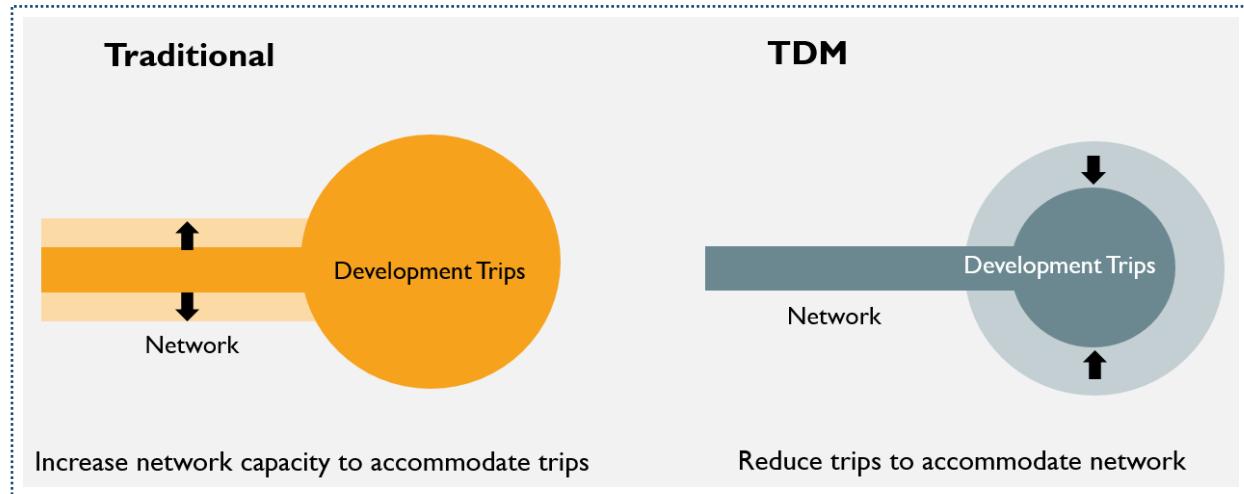
- Climate change is no longer a distant threat, but something that is occurring now. Additional VMT facilitates increase carbon emissions.
- Even with increasing reliance on electric vehicles, roadway capacity is a finite resource that cannot continually be enlarged.
- Financial capacity of local governments has decreased in recent years, making it more difficult to address the congestion and safety concerns associated with increasing VMT.
- Space for future roadway expansion is exhausted in many the places where it is most needed.
- Capacity expansions lead to wider, less safe places for users of alternative transportation and can foster less vibrant communities.

¹ Vehicle miles traveled. FRED. (2021, August). Retrieved August 2021, from <https://fred.stlouisfed.org/series/VMT>

² Bureau, U. S. C. (2021, August). *Historical Population Change Data (1910–2020)*. Census.gov. Retrieved August 2021, from <https://www.census.gov/data/time-series/demo/popolchange-data-text.html>

Transportation Demand Management (TDM) seeks to reduce the number of SOV trips new and existing developments generate to right-size utilization of the existing transportation network, rather than continually increasing the capacity to accommodate additional motor vehicle trips.

Figure 2 - Traditional Congestion Management vs. Transportation Demand Management Model



Transportation Demand Management is a package of information, policies, strategies and incentives designed to encourage users of the transportation system reduce the number and length of SOV trips and consider alternative, more sustainable, forms of transportation. A well-designed TDM program can optimize use of all alternative transportation and act as a counterbalance to the traditional incentives to drive, such as free parking and significant subsidies to the roadway network.

Figure 3 - East Washington Avenue During Peak Rush Hours



The need for a TDM program has been identified in numerous City plans including the “Imagine Madison” Comprehensive, the “Madison in Motion” Transportation Plan that recommends administering a TDM initiative and the latest Climate Forward agenda that pushes for sustainable, low-carbon transportation modes. Figure 4 cites specific references to the need for a TDM program.

Figure 4 - Relevant planning goals and strategies in Madison



CLIMATE FORWARD VISION (2021), ACTIONS:

- #3. Continue to invest in transit and other low-carbon transportation modes.

Require new development to incorporate features that help future workers get around without a car.



COMPREHENSIVE PLAN (2018), STRATEGY 5 ACTIONS:

- c) Facilitate the creation of TMAs and implementation of **TDM strategies to serve high-intensity development** at Activity Centers and along transit corridors.
- d) Transition auto-oriented commercial areas into **mixed-use activity centers**



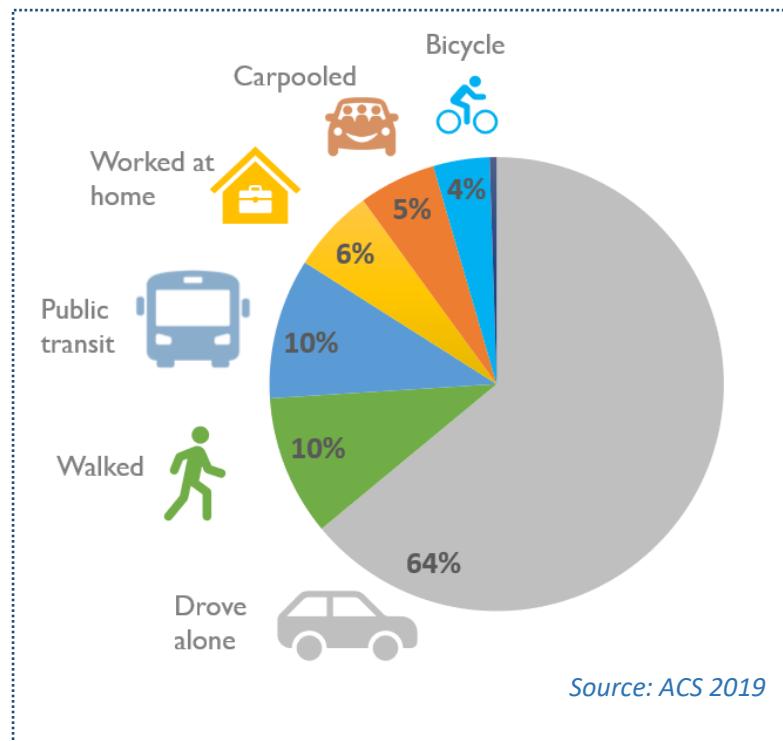
TRANSPORTATION PLAN (2017), PRIORITY RECOMMENDATIONS:

- 11. Develop a prototype TMA in Madison, at an appropriate area of the City, as a mechanism to organize individual employers and **administer TDM initiatives**.
- 12. Evaluate employer based **TDM measures** to increase the use of **alternatives to the SOV** and to reduce the need for parking.

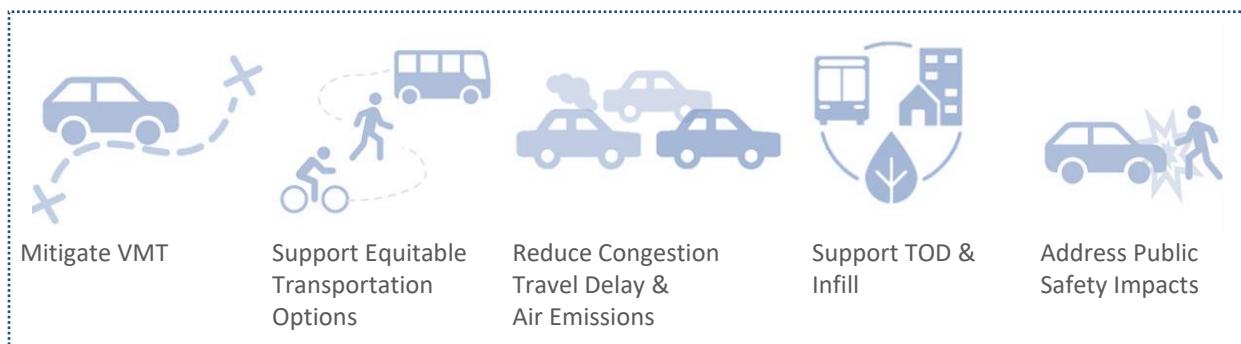


SUSTAINABILITY PLAN (2011), GOALS:

Various transportation-related goals and actions that seek to expand and encourage use of **sustainable transportation choices** to enable mobility without a car and establish evaluation methods to **track usage** and goal achievement.

Figure 5 - Means of transportation to work in Madison

Roughly two-thirds of work-related commute trips in Madison are SOV trips (Figure 5). By encouraging alternative ways of commuting and discouraging new car travel, TDM policies can help preserve road capacity and limit negative impacts of system-wide traffic such as air emissions, noise, and congestion. TDM also can proactively address localized issues of public health and safety, livability, and multimodal access. It does this by improving sustainable transportation choices, infrastructure, and services. Further, the program can influence land use decisions and make the built environment more conducive to alternative modes of transportation.

Figure 6 - Purpose of TDM and community benefits

1.2 – Existing TDM efforts in Madison

Through its development review process, Madison currently requires some TDM measures – including bike parking and direct pedestrian access to all new developments – and requires more extensive measures in some cases. Under the city's current land use ordinances, TDM measures are sometimes required for conditional uses, planned

developments, big box stores, and “employment campus” and “mixed use center” districts. However, the current ordinances and policies lack consistent standards and predictable application. TDM plans and measures have been required on an ad hoc basis, at the discretion of city staff and/or committees/commissions. This at times has created an unequal and unpredictable environment for developers. Some developments have additional TDM requirements, while others do not. Additionally, in absence of a uniform policy, Plan Commission, Transportation Commission, and even the Common Council spend hours of deliberation on how many TDM measures are appropriate for a specific development. This creates a loose-loose environment for both developers and elected officials. A consistent policy provides predictability and transparency for developers. A consistent documented policy allows elected officials to focus their attention and time on other pressing issues.

Figure 4 outlines the existing references to TDM within the City of Madison Zoning ordinance.

Figure 7 - TDM references in Madison's Zoning Ordinance

CONDITIONAL USE

Give consideration to TDM measures and participation in a transportation management association. (section 28.183)

EMPLOYMENT CAMPUS DISTRICT

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. (MGO 28.087)

MIXED USE CENTER DISTRICT

The City Traffic Engineer may require a TIA to determine the impacts of the District. A TDM plan may be required to resolve traffic and parking concerns. (MGO 28.066)

BIG BOX RETAIL (BY THE URBAN DESIGN COMMISSION)

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/ carpool matching; preferred parking for ride sharers; 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. (MGO 33.24)

PLANNED DEVELOPMENT DISTRICT

A TDM plan may be required to resolve traffic and parking concerns. The Plan shall include measurable goals, strategies, and actions to encourage travelers to use alternatives to driving alone, especially at congested times of day. These could include carpools and vanpools; public and private transit; promotion of bicycling, walking and other non-motorized travel; flexible work schedules; parking management programs, etc. (MGO 28.098)

There are a number of TDM efforts occurring within the City. For instance, the University of Wisconsin Madison Campus has adopted a state of the art TDM program and numerous employers also offer some form of TDM to their employees. Some of the larger, more prominent developments with existing TDM plans include the Madison Area Technical College, UW Health, the Moxy Hotel, Archipelago Village and Madison Yards.

Figure 8 - TDM at the University of Wisconsin – Madison

BICYCLE INFORMATION
Wondering about the ins and outs of biking on campus? Look no further!

CARPOOL
Have some friends to drive with? We administer a carpool program for faculty and staff. Benefits available for small and large groups.

EMERGENCY RIDE HOME
The Emergency Ride Home (EHR) Program supplies emergency cab vouchers for employees who don't drive to campus.

SAFEWALK
SAFEwalk is a walking companion service available to all students, faculty, staff, and UW visitors! Call/text 608-262-5000.

BIKESHARE
Did you know UW, UW Health, and UW affiliate employees and students are eligible for discounted bikeshare memberships?

CARSHARE
Did you know there are cars to rent on campus? Zipcars are located throughout campus.

FLEX PARKING PROGRAM
Can you bike, bus, carpool, vanpool, or walk most of the time? The Flex parking program is for those few times when driving is necessary.

VANPOOL
Large groups (8-15 people) can rideshare in a state-owned passenger van, sharing costs.

CAMPUS BUS
All things bus! Fare-free campus buses are coordinated by Transportation Services.

CUSTOM ROUTE PLANNING
Submit this form to get a customized transportation info based on your preferences and interests.

EMPLOYEE BUS PASS
Transportation Services administers an employee bus pass program, available at a greatly subsidized cost. Students can get passes through ASM.

UW-Madison is a national leader in campus-based TDM and has the most successful and comprehensive TDM plan in Madison so far. It is a component of the UW-Madison Campus Master Plan, which is updated every 10 years. A Commuter Solutions unit has been set up, dedicated to TDM, with the goal to reduce the amount of SOV coming to campus. The measures that have been implemented are found in the image above.

Source: UW-Madison Facilities Planning

There are some TDM-related initiatives at the regional level as well. The Greater Madison Metropolitan Planning Organization administers the RoundTrip platform, which provides commuter resources – such as carpool, vanpool, transit, and bike partner matching within Dane County – and the Wisconsin Department of Transportation administers the Rideshare, etc. program for commuters and employers in a 48-county area of central and southern Wisconsin and northern Illinois. Each of these programs seek to reduce congestion and pollution and provide commuters with travel options and personal transportation cost savings.

1.3 – Advantages of the proposed citywide TDM program

While the City's current TDM requirements help to limit the traffic impacts from development, additional mitigation may still be required. To that end, Madison seeks to build on its current program by building upon best practices and

Figure 9 - Round Trip, GMMPO's Ridesharing Program



successful programs implemented across the country to build a program that is fair, consistent, and can be evenly and predictably applied citywide TDM.

Developers applying for building permits in the city would submit a TDM plan with their application, which would comprise of measures selected from a menu of options to meet TDM requirements. The requirements would be based on the project's land use, size, proposed parking capacity, and location, and proximity to alternative transportation. The process would be transparent and predictable.

The proposed citywide TDM program will offer various advantages to prior TDM practices, specifically it would offer:

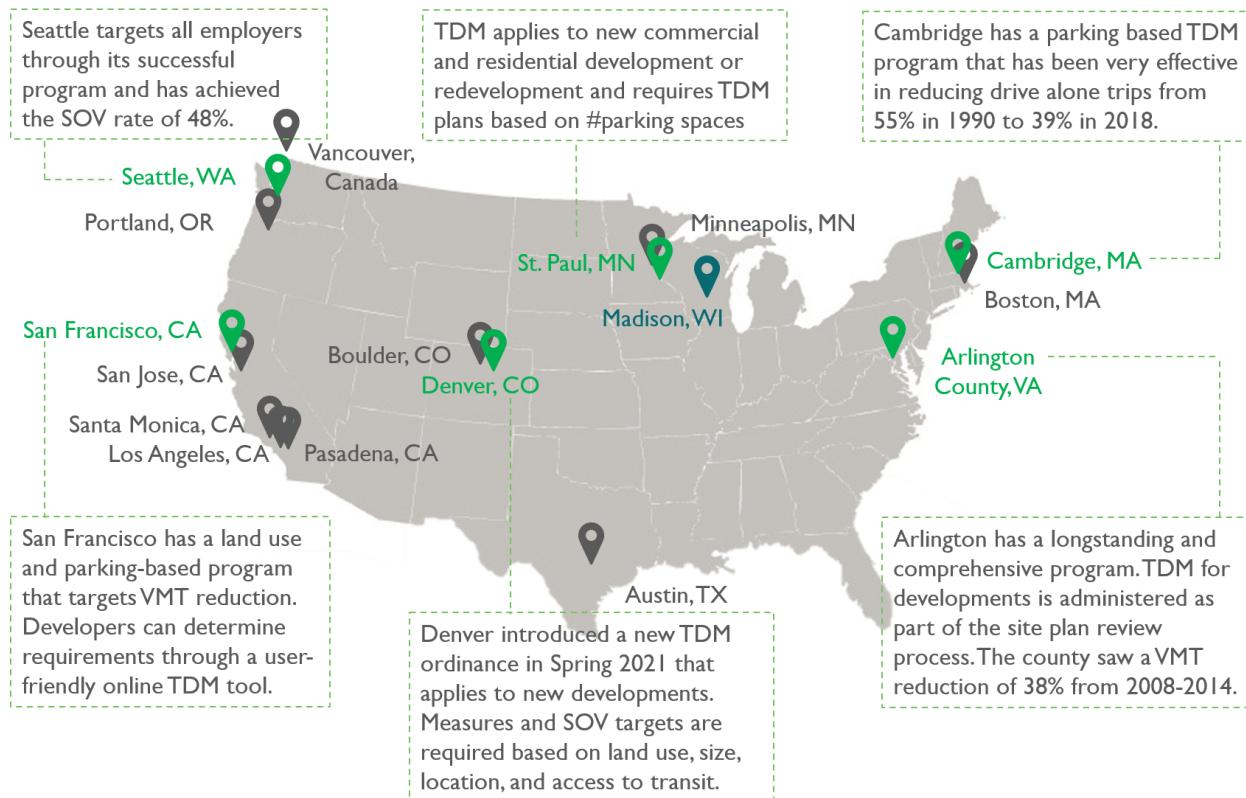
- ✓ **CONSISTENCY** – Uniform requirements across Madison with targets based on project size and proposed parking capacity.
- ✓ **CHOICE** – A menu with a range of TDM measures, from simply installing wayfinding signs to providing a land-use mix.
- ✓ **CLARITY** – Straightforward requirements and measure options through a simple online tool.
- ✓ **CONVENIENCE** – Streamlined approval process for new or expanded buildings that minimizes the need for external assistance.
- ✓ **COMMUNICATION** – Traffic-reducing elements of a project are summarized for the public and policymakers.

1.4 – National best practices

Throughout the United States, more communities are adopting TDM programs — choosing to address transportation needs and traffic impacts by managing travel demand instead of adding road capacity. Some of those communities which informed the program development process in Madison are shown in the Figure 6 (next page). Refer to [Appendix C](#) for a matrix summarizing successful TDM program structures and requirements in some other cities across the country.

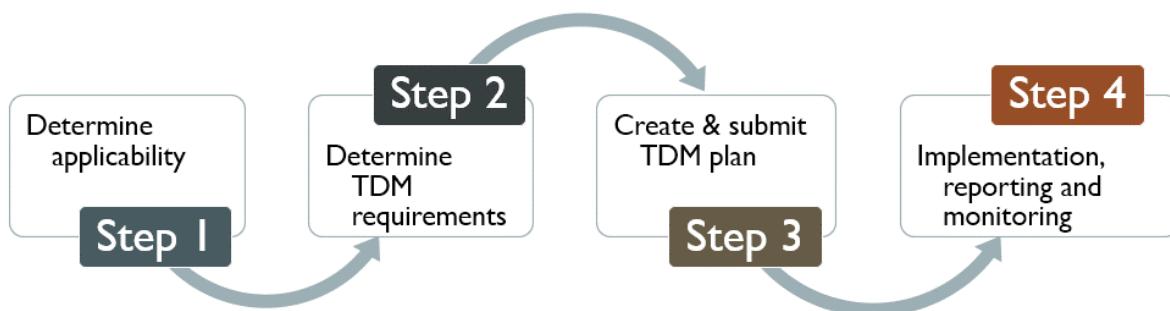
By implementing the program outlined in this document, Madison will join the ranks of these other leading cities and in many ways advance the state of practice in TDM, subsequently making progress toward its long-term goals related to sustainability and multimodal access.

Figure 10 - Existing TDM programs reviewed



2. TDM PROCESS

The TDM process can be broadly divided into four steps, which have been explained in detail below. Refer to [Appendix B](#) for hypothetical project examples that illustrate how the program would work for different uses.



2.1 – Step 1: Determine Applicability

TDM applies to new and expanding developments seeking building permits with residential and/or non-residential uses (commercial, employment, institutional) or the addition a new or expanded parking facilities. Figure 11 lists out the size thresholds, exemptions, and eligible uses for each of the four broad land use categories.

Figure 11 - Land Use Categories and TDM Applicability

| LAND USE CATEGORY | APPLICABILITY | ELIGIBLE USES (as defined in Madison's Zoning Code) |
|----------------------|--|--|
| RESIDENTIAL | <p>Applies to all proposed residential developments with 10 or more dwelling units, including residential components of mixed-use projects. Affordable housing projects are given some relaxation via point credits</p> <p>Exemptions:</p> <ul style="list-style-type: none"> - Uses with less than 10 DU - Uses with between 10-25 DU and a proposed parking ratio less than 1.0 | <p>Multi-family dwelling; Adult family home; Community living arrangement; Cohousing community; Housing cooperative; Dormitory, fraternity, or sorority; Assisted living, congregate care, skilled nursing facility.</p> |
| EMPLOYMENT | <p>Applies to all employment uses with over 10,000 sq. ft. of floor area including offices, service centers, storage and distribution centers, industrial uses, etc., as given alongside.</p> <p>Exemptions:</p> <ul style="list-style-type: none"> - Uses with less than 10,000 sq. ft. of floor area. - Uses with between 10,000 - 25,000 sq. ft. of floor area and a proposed parking ratio less than 1.0 - Developments located in Employment Campus Districts with approved master plans. | <p>Offices; Artist, photographer studio, etc., Insurance office, real estate office, sales office; Telecommunications center; Artisan workshop; Wholesale Bottling plant; Laboratories - research, development, and testing; Limited production, processing, and storage; Mail order house; Printing and publishing; Recycling collection center, drop-off station.</p> <p>Industrial uses: Brewery; General manufacturing; Hazardous waste collection, storage or transfer; Light manufacturing; Recycling center; Asphalt, concrete batching or ready-mix plant; Concrete, asphalt and rock crushing facility; Extraction of gravel, sand, other raw materials; Motor vehicle salvage; Lumberyard.</p> |
| COMMERCIAL | <p>TDM measures would be required only with respect to employees since the focus is on reducing employee SOV trips. Visitor/patron measures are optional and would get additional credit.</p> <p>Exemptions:</p> <ul style="list-style-type: none"> - Uses with less than 40,000 sq. ft. of floor area and proposed parking less than 1.25 times their respective parking minimums (or base parking). - Daycare services including day care center, nursery school and animal daycare facilities. | <p>General retail: Animal boarding facility, kennel; Bank, financial institution; Business sales and services; Laundromat, self-service; Liquor store; Package delivery service; Payday loan business; Service business with or without showroom or workshop; Small appliance repair; Building materials; Drive-through sales and services, primary and accessory; Dry cleaning, commercial laundry; Furniture and household goods sales; Garden center; Greenhouse, nursery.</p> <p>Food services: Catering; Coffee shop, teahouse; Restaurant; Restaurant-tavern, tavern, brewpub.</p> <p>Recreational and entertainment: Health/sports club; Indoor recreation; Private club, reception hall; Outdoor recreation; Theater, assembly hall, concert hall; Adult entertainment establishment, adult entertainment tavern.</p> |
| INSTITUTIONAL | <p>TDM measures would be required only with respect to employees since the focus is on</p> | <p>Hotel/lodging: Bed and breakfast establishment; Hotel, inn, motel; Lodge.</p> |

| LAND USE CATEGORY | APPLICABILITY | ELIGIBLE USES (as defined in Madison's Zoning Code) |
|-------------------|--|--|
| | <p>reducing employee SOV trips. Visitor/student measures are optional and get additional credit.</p> <p>Exemptions:</p> <ul style="list-style-type: none"> - Uses with less than 40,000 sq. ft. floor area and parking less than 1.25 times their parking minimums (or base parking). - Elementary and middle schools. - Institutions with campus masterplans. - Places of worship, public safety facilities. | <p>Educational: Public and private high schools (Grade 9 and above); Arts, technical or trade schools; Colleges, universities.</p> <p>Health: Clinic, medical, dental, or optical; Medical laboratory; Physical, occupational or massage therapy; Veterinary clinic, animal hospital; Hospital</p> <p>Others: Library, Museum</p> |

Considerations for Mixed Use and/or Multitenant Developments

For mixed use or multitenant developments, TDM requirements for each are generally considered and met separately for each use or tenant space. However, uses may be considered together if mitigation measures for each use category are common across all uses or jointly between all uses. Measures being jointly implemented for the development can be counted towards the point target for each use, provided they are accessible for each use. Parking is allocated for all uses to determine use specific TDM targets. If parking is shared amongst the different uses, their respective parking maximums would be considered for determining their targets.

Because of the possibility for shared TDM amenities, zoning certificate applicants are generally responsible for ensuring TDM program compliance. Similar to building and zoning compliance issues, the zoning certificate applicant is responsible for non-compliance related to certification and/or recertification of TDM plans. These responsibilities and obligations may, however, be passed along to tenants in lease agreements.

For “white box” developments, or multitenant developments for which one more users have not yet been identified, the developer will be responsible for drafting and submitting the initial TDM plan. This plan should reflect the proposed or assumed occupant and contain mitigation measures demonstrating compliance with the plan. These can include both programmatic measures (which a potential tenant would be expected to implement) as well as infrastructure-based measures (which the developer would be responsible for implementing at that time).

2.2 – Step 2: Determine TDM Requirements

TDM requirements are assigned using a point-based system and depend on the development’s land use(s), size, proposed parking capacity, and location. Further, measures related to transit and share mobility will have their point values adjusted based on the proposed developments proximity to the service areas of those transportation options.

The TDM requirements for a proposed development can be determined by using the city-provided *Transportation Demand Management Plan Creation Tool* (Figure 9), which is an excel-based spreadsheet that automatically generates the TDM requirement and based on the aforementioned characteristics of the proposed use. One can download the spreadsheet at <https://www.cityofmadison.com/transportation/initiatives/transportation-demand-management/tdm-project-documents>. The tool can be used to identify mitigation measures and demonstrate compliance with the TDM ordinance. Though the tool is used to derive TDM requirements and demonstrate compliance, an explanation of what the tool calculates is included for added clarity and transparency.

Land use has a direct impact on how size tiers are classified. Size tiers are defined differently for the four use categories – dwelling unit for residential uses, student enrollment for educational uses and floor area for all other non-residential uses. Parking ratios also vary across the different uses – for residential uses, the TDM requirements are based on the ratio of parking stalls per dwelling unit; for employment uses it depends on the number of stalls per 500 sq. ft. of floor area; and for commercial and institutional it depends on the ratio of proposed parking to use-specific parking minimums, or “base parking” (Refer Appendix C or [MGO 28.141 \(4\) \(f\)](#) in Madison’s Zoning code). A large building size a high parking ratio, or the combination of the two would imply a higher TDM target for the development. For buildings in the lower size tiers, reducing parking ratios can eliminate TDM requirements all together. TDM targets would range from five to thirty seven points for each use. Table 2 lists point value requirements based upon building size tier and parking ratio.

Once the raw TDM target have been determined, the value is multiplied by a location-based modifier. The location-based modifier seeks to acknowledge that different amounts of TDM measures are available and feasible within different locations of the city.

As shown in the TDM Requirement Modifiers Map (Figure 14), projects located in the densest portions of the City are required to meet the highest TDM requirements. As development occurs further from the urban core, point requirements decline. To determine the final TDM target, the raw TDM target is multiplied by the modifier percentage shown in the map. For example, a project located on the Capital Square with a raw TDM value of 20 would have a final TDM value of 20 ($20 \times 100\% = 20$). The same project, if located on the periphery would have a point value of 13 ($20 \times 65\% = 13$). The opportunity to implement mitigation measures and the effectiveness of those measures declines as a development occurs further from the downtown area.

Next, proximity to transit is considered to derive transit base points. As shown on the Transit Base Points map (Figure 11), projects are awarded base points for proximity to existing or planned transit service. For instance, projects that locate within $\frac{1}{4}$ mile of the planned bus rapid transit service area would receive 5 base points, those within the all-day transit service area would receive 3 base points, those within the peak-only service area would receive one base point, and those outside of the transit service network would not receive transit base-points. For projects located outside of the transit service area, the points provided for transit mitigation measures would be reduced by 50%. The aim of this modifier-and base-points approach is to incentivize developing within areas rich with transit alternatives.

Finally, proximity to alternative transportation modes, such as car sharing and bike sharing service is identified. Similar to transit, point values for measures related to car sharing and bike sharing services are reduced by 50% if the development is located more than $\frac{1}{4}$ mile from a station. For a current listing of Zip Car stations (Madison’s car



City of Madison | Department of Transportation

Transportation Demand Management Plan Creation Tool (DRAFT)

Transportation demand management (TDM) refers to a package of policies and strategies designed to increase transportation system efficiency and shift travel patterns to reduce the number and length of single-occupancy vehicle (SOV) trips.

The purpose of this spreadsheet is to:

- determine the applicability of the TDM program to your project
- if your project is subject to TDM requirements, provide a number of points to meet VMT reduction goals
- show you the mitigation measures applicable to your project
- provide you a clear tool to demonstrate compliance with the TDM requirements for your project

Project Name:

Project Address:

| | |
|-----------|----------------------|
| Address | <input type="text"/> |
| Address 2 | <input type="text"/> |

TDM Coordinator:

| | |
|-----------|----------------------|
| Name | <input type="text"/> |
| Address | <input type="text"/> |
| Address 2 | <input type="text"/> |
| City | <input type="text"/> |
| State | <input type="text"/> |
| Zip | <input type="text"/> |

Proximity to Alternative Transportation

With all-day transit service area?

| |
|--|
| <input type="checkbox"/> Please Select an Option |
| Click here for Map (coming soon) |

With $\frac{1}{4}$ mile of bike sharing station?

| |
|--|
| <input type="checkbox"/> Please Select an Option |
| Click here for Map |

With $\frac{1}{4}$ mile of car sharing station?

| |
|--|
| <input type="checkbox"/> Please Select an Option |
| Click here for Map |

What Zone is your Project Located In

| | |
|-----------------------|---|
| Downtown / University | Click here for Density Zone Map (coming soon) |
|-----------------------|---|

Figure 12- TDM Plan Creation Tool

sharing service), visit <https://www.zipcar.com/universities/university-of-wisconsin-madison>. For a current listing of B-Cycle Stations (Madison's bike sharing service), visit <https://madison.bcycle.com/>.

Figure 13 - TDM Requirements for Different Land Uses

| | SMALL | LOW-MEDIUM | MEDIUM | HIGH-MEDIUM | LARGE |
|--|-----------------------------------|--------------------------------|---------------------------------|----------------------------------|-----------------------------|
| RESIDENTIAL USES | 10-25 DU | 26-50 DU | 51-100 DU | 101-150 DU | > 150 DU |
| EMPLOYMENT USES | 10,000 - 25,000 sq. ft. | 25,001 - 50,000 sq. ft. | 50,001 - 100,000 sq. ft. | 100,001 - 150,000 sq. ft. | > 150,000 sq. ft. |
| PARKING STALLS PER DWELLING UNIT (DU) OR 500 SQ. FT. FLOOR AREA | <i>Mitigation points required</i> | | | | |
| < 0.5 | no TDM | 5 | 7 | 9 | 12 |
| 0.5 - 0.99 | no TDM | 9 | 12 | 15 | 17 |
| 1.0 - 1.49 | 12 | 15 | 17 | 19 | 22 |
| 1.5 - 1.99 | 17 | 19 | 22 | 25 | 27 |
| 2.0 - 2.5 | 22 | 25 | 27 | 29 | 32 |
| 2.5 + | 27 | 29 | 32 | 35 | 37 |

| | SMALL | LOW-MEDIUM | MEDIUM | HIGH-MEDIUM | LARGE |
|--|-----------------------------------|--------------------------|---------------------------|---------------------------|-------------------|
| COMMERCIAL USES | < 40,000 sq. ft. | 40,001 - 100,000 sq. ft. | 100,001 - 150,000 sq. ft. | 150,001 - 200,000 sq. ft. | > 200,000 sq. ft. |
| RATIO OF PROPOSED PARKING TO USE-SPECIFIC BASE PARKING (BP) | <i>Mitigation points required</i> | | | | |
| UNDER PM | no TDM | 5 | 7 | 9 | 12 |
| 1.00 - 1.24 TIMES BP | no TDM | 9 | 12 | 15 | 17 |
| 1.25 - 1.49 TIMES BP | 12 | 15 | 17 | 19 | 22 |
| 1.50 - 1.74 TIMES BP | 17 | 19 | 22 | 25 | 27 |
| 1.75 - 2.00 TIMES BP | 22 | 25 | 27 | 29 | 32 |
| 2+ TIMES BP | 27 | 29 | 32 | 35 | 37 |

| | SMALL | LOW-MEDIUM | MEDIUM | HIGH-MEDIUM | LARGE |
|--|-----------------------------------|--------------------------|---------------------------|--------------------------|-------------------|
| EDUCATIONAL USES | < 500 students | 501 - 1000 students | 1001 - 2000 students | 2001 - 5000 students | > 5000 students |
| INSTITUTIONAL USES | < 40,000 sq. ft. | 40,001 - 100,000 sq. ft. | 100,001 - 150,000 sq. ft. | 150,001 -200,000 sq. ft. | > 200,000 sq. ft. |
| RATIO OF PROPOSED PARKING TO USE-SPECIFIC BASE PARKING (BP) | <i>Mitigation points required</i> | | | | |
| UNDER PM | no TDM | 5 | 7 | 9 | 12 |
| 1.00 - 1.24 TIMES BP | no TDM | 9 | 12 | 15 | 17 |
| 1.25 - 1.49 TIMES BP | 7 | 12 | 17 | 19 | 22 |
| 1.50 - 1.74 TIMES BP | 12 | 17 | 22 | 25 | 27 |
| 1.75 - 2.00 TIMES BP | 17 | 22 | 27 | 29 | 32 |
| 2+ TIMES BP | 22 | 27 | 32 | 35 | 37 |

* Floor area is defined in Madison's Zoning Code as the sum of the gross horizontal areas of the floors or parts of a building devoted to the use, measured from the exterior faces of the exterior walls or from the center line of walls separating two buildings. It does not include porches, garages, or space in a basement or cellar when used for storage or incidental uses.

**For unspecified uses under commercial and institutional use categories, the parking minimum, or base parking, of the use with the highest parking requirement among all uses specified for the zoning district where the site is located, shall be used to calculate the ratio of proposed parking to base parking. (Refer [Section 28.141 – Table 28I-3](#) in Madison's Zoning code).

Figure 14 - TDM Requirement Modifiers Based on Location

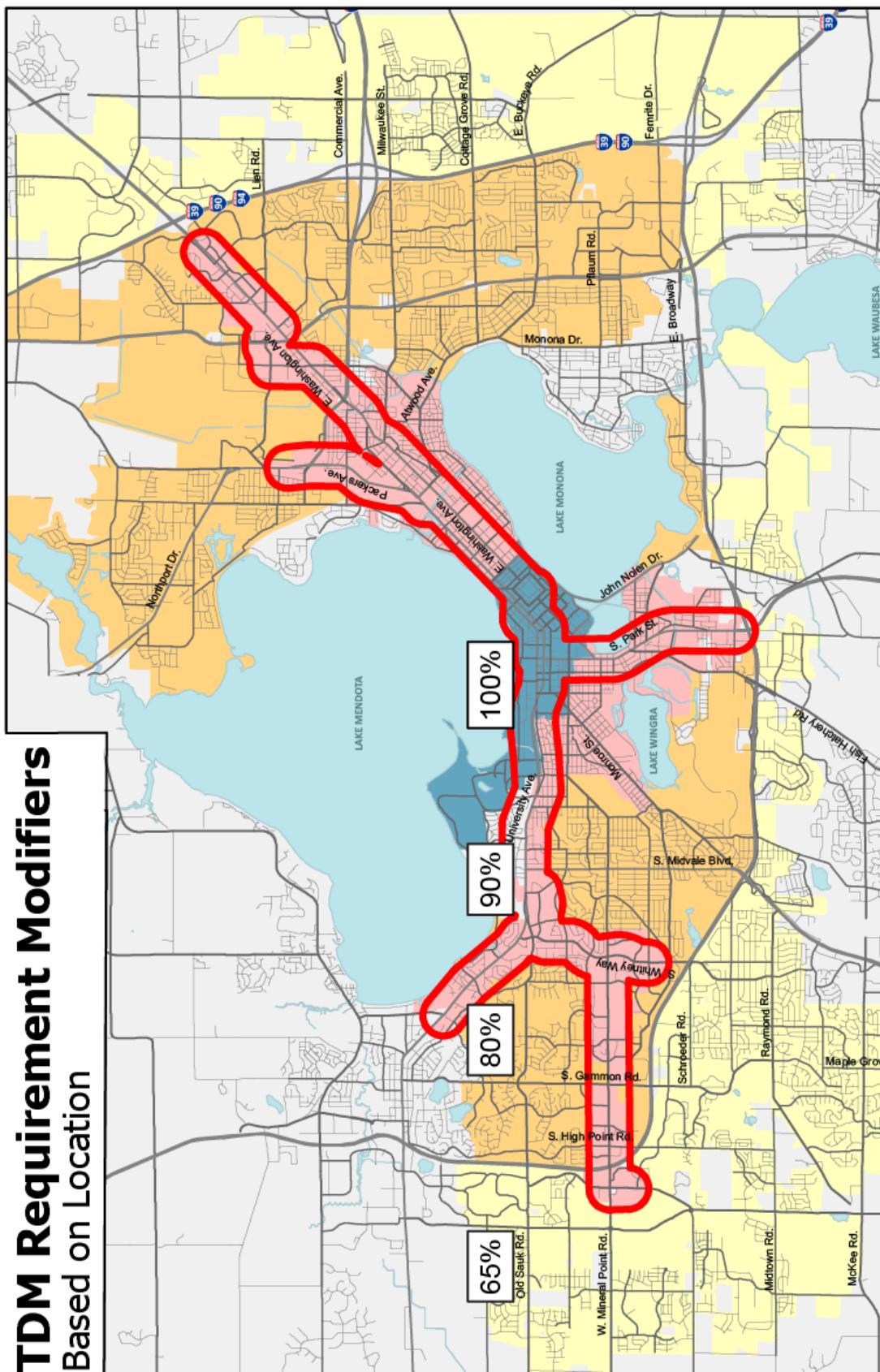
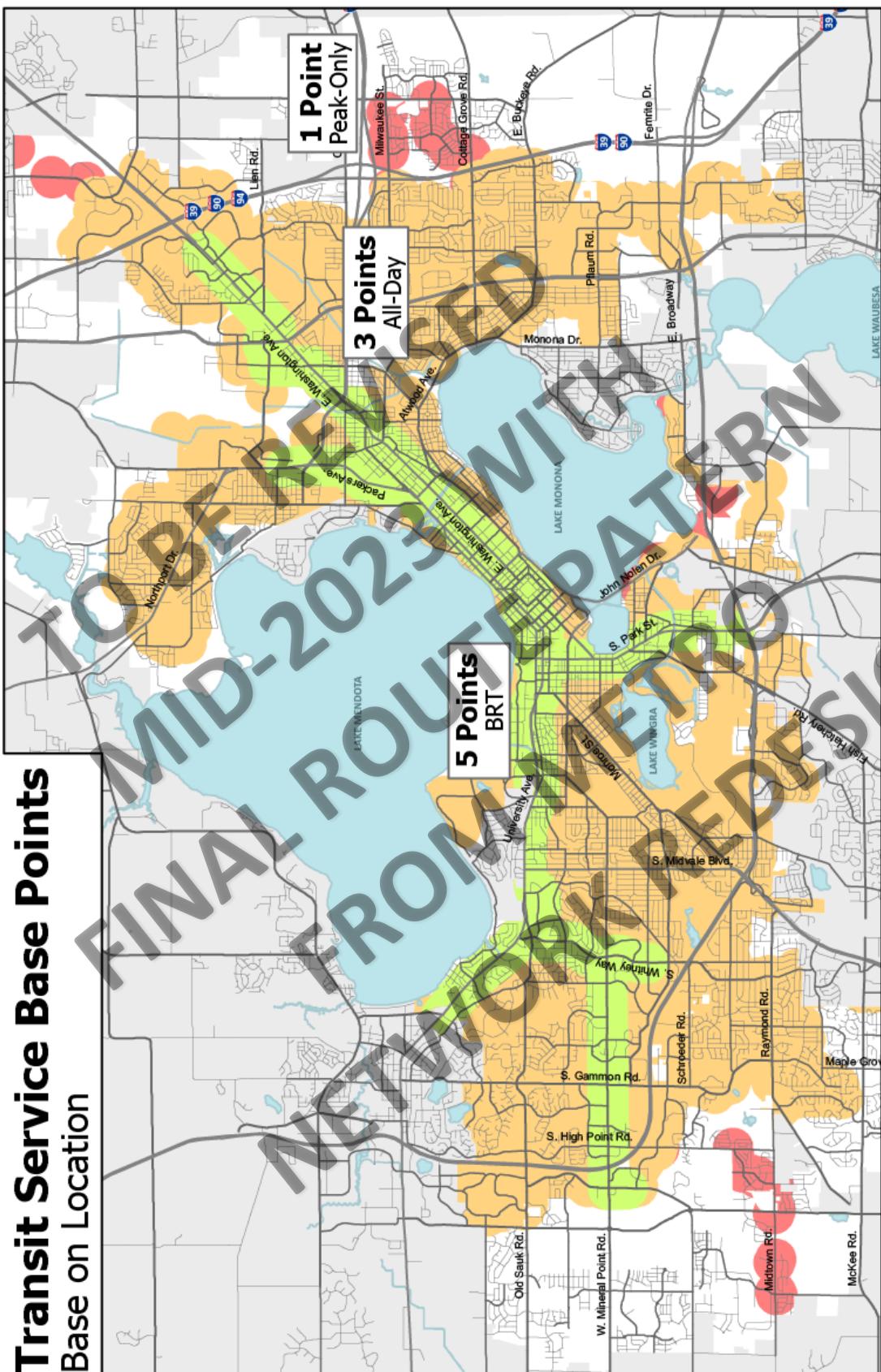


Figure 15 - Transit Service Base Points Based on Location



2.3 – Step 3: Create and Submit TDM Plan

The next step requires developers or building owners to choose TDM measures from a menu to meet the assigned point target. They would then need to prepare a TDM plan with descriptions of the selected measures and submit it for review and approval, along with a nominal fee to cover administrative review of the plan.

The TDM menu comprises of 43 measures in 9 categories – Active Transportation, Transit, Parking Management, Shared Mobility, Information & Communication, Delivery, Land Use, Employer Policies, and Other measures. Under each of these broad categories, there are multiple measures to choose from. Each measure is worth points ranging from one to ten, which are based on efficacy in reduction of vehicle miles traveled (VMT)³, documented best practices, cost of implementing the measure, and contextual relevance for Madison.

Figure 16 - TDM Measure Categories



³ California Air Pollution Control Officers Association (Aug 2010). *Quantifying Greenhouse Gas Mitigation Measures*. Retrieved from: <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>

Some of the measures have their efficacy based on the location of the development and its proximity to existing transportation options. These measures include measures related to transit and shared mobility services included car and bike share systems. Selecting these measures when located without the service rea will result in the measures counting for half of their maximum point value. Further, some measures provide varying point values based on the level of investment provided in those measures (i.e. different point values depending on the amount of a transit pass subsidized by a building owner/lessee)

Some additional flexibility can be found in the “Other Innovative Measures” measure provided under the “Other Measures” category. Building owners can also propose any other TDM measure that is not on the list and propose a point value, based on the aforementioned rationale. They may then be awarded points at the discretion of the city staff. Table 3 given below lists the measures included in the menu of TDM options. The next section explains each of these measure categories along with their respective options. [Appendix A](#) provides information on applicability, points, and compliance requirements for all the measures in the TDM menu.

Figure 17 - TDM Mitigation Measures

| CATEGORY | MEASURE TYPE | MEASURE NAME | PTS |
|-----------------------|----------------|---|-----|
| ACTIVE TRANSPORTATION | Infrastructure | Dedicated Access to Bike Parking | 1 |
| ACTIVE TRANSPORTATION | Infrastructure | Indoor covered bike parking near Entrance | 1 |
| ACTIVE TRANSPORTATION | Infrastructure | Bicycle Maintenance Facilities | 1 |
| ACTIVE TRANSPORTATION | Infrastructure | Clothes Lockers and/or Showers | 1-2 |
| ACTIVE TRANSPORTATION | Infrastructure | Secure Storage Room or Bicycle Lockers | 2 |
| ACTIVE TRANSPORTATION | Programmatic | Shared Fleet of Bicycles | 2 |
| ACTIVE TRANSPORTATION | Infrastructure | Improve Surrounding Pedestrian Infrastructure | 1-4 |
| ACTIVE TRANSPORTATION | Infrastructure | Improve Surrounding Bicycle Infrastructure | 1-4 |
| ACTIVE TRANSPORTATION | Infrastructure | Traffic Calming Measures | 1-4 |
| TRANSIT | Programmatic | Provide Free Two-Ride Bus Passes | 2 |
| TRANSIT | Programmatic | Sell Madison Metro passes | 2 |
| TRANSIT | Programmatic | Offer Subsidized Monthly Transit Passes OR daily passes | 1-3 |
| TRANSIT | Infrastructure | Fund transit facilities and amenities | 1-4 |
| TRANSIT | Programmatic | Offer Complementary Monthly Transit Passes | 7 |
| PARKING | Programmatic | Carpool preferential or free parking | 1 |
| PARKING | Programmatic | Shared parking agreement | 4 |
| PARKING | Programmatic | Parking cash-out | 10 |
| PARKING | Programmatic | Unbundle Parking | 10 |
| PARKING | Programmatic | Market-rate Parking Fees | 10 |
| SHARED MOBILITY | Programmatic | Provide Shared Fleet of Vehicles | 1 |
| SHARED MOBILITY | Programmatic | Provide car share parking space | 1 |
| SHARED MOBILITY | Programmatic | Subsidized car-sharing memberships | 2 |
| SHARED MOBILITY | Programmatic | Offer complimentary Bikeshare membership or passes | 2 |
| SHARED MOBILITY | Programmatic | Emergency Ride Home program | 2 |
| SHARED MOBILITY | Programmatic | Provide a Shuttle bus | 3 |
| SHARED MOBILITY | Programmatic | Provide Vanpool | 3 |
| SHARED MOBILITY | Infrastructure | Install a bike share station | 6 |

| CATEGORY | MEASURE TYPE | MEASURE NAME | PTS |
|-----------------|----------------|--|------------|
| INFORMATION | Programmatic | Marketing & informational campaign | 1 |
| INFORMATION | Infrastructure | Active Transportation Wayfinding, Maps, and Signage | 1 |
| INFORMATION | Infrastructure | Alternative Transportation Kiosk | 1-2 |
| DELIVERY | Programmatic | Delivery Supportive Amenities | 1 |
| DELIVERY | Programmatic | Package Drop-Off Area | 2 |
| DELIVERY | Programmatic | Provide VMT-Reducing Delivery Services | 1 |
| LAND USE | Infrastructure | Provide Affordable Housing at 30% of AMI | 1-10 |
| LAND USE | Infrastructure | Provide Affordable Housing at 60% of AMI | 1-5 |
| LAND USE | Infrastructure | Proximity to Public Transportation | 1, 3, or 5 |
| LAND USE | Infrastructure | Add to Land Use Mix | 1-5 |
| LAND USE | Programmatic | On-site Childcare Facility | 4 |
| LAND USE | Programmatic | Provide Other Specific Trip-reducing Service | 1 |
| EMPLOYER POLICY | Programmatic | Flexible Work Schedules | 1 |
| EMPLOYER POLICY | Programmatic | Teleworking / Work From Home | 1 |
| OTHER | Programmatic | Join a Transportation Management Association | 3 |
| OTHER | N/A | Other Innovative measures | 1+ |
| OTHER | N/A | Relief Points (for properties built or approved prior to 6/6/23, issued at staff discretion) | 1-5 |

*Transit, Bikeshare, and carshare measures worth 50% if located outside of ¼ mile service area

2.4 – Step 4: Implementation, Reporting and Monitoring

Once the TDM plan is approved, building owners are required to implement the measures specified in their plans. Developments may also choose to enroll or participate in a Transportation Management Association for additional assistance with on-site TDM operations. The city will track and monitor program implementation and set reporting requirements for developments, to ensure compliance with their respective TDM plans.

TDM Plans shall be recertified bi-annually, by re-submitted a TDM plan spreadsheet, along with nominal administrative fee, to the Department of Transportation.

2.5 – Applicability of TDM Requirements to Existing Properties

TDM requirements are applicable to all existing structures within the City that are expanded or for which:

- Uses change from one primary use category to another (e.g. changing from employment to commercial use)
- Sub-uses change from one category to another (e.g. commercial – retail to commercial restaurant)
- The total parking on the site is increased
- The primary structure in which the use takes place is expanded.
- The overall composition of uses on the site changes (e.g. a building with 50% employment and 50% commercial, becomes 60% employment and 40% commercial)

For all existing structures in which uses or sub-uses do not change, the structure is not expanded, parking is not modified, or the overall composition of uses on the site does not change, the TDM requirements outlined in this plan would not apply. Further, sites in which prior uses are reactivated are not subject to TDM requirements unless the structure and/or parking are expanded to accommodate this reactivation of use.

2.6 – Appeals Process

For existing properties brought into the TDM program that are unable to meet the mitigation point requirements for either cost or physical constraint reasons, the applicant may appeal to the Department of Transportation staff review for relief from up to five (5) mitigation points, which can be provided at the discretion of the staff member. These mitigation points should be considered a last resort, only provided if the applicant can demonstrate significant hardship, making meeting TDM requirements impractical. If the applicant wishes to appeal the staff mitigation point decision or requests further relief, they may request elevation of the relief request to the Transportation Commission

The applicant will be required to share the following information with the Transportation Commission: site information, required TDM mitigation point, proposed TDM mitigation measures, requested point reduction, rationale for reduction. The Transportation Commission will have the final determination on the point reduction. If staff and/or the Commission grant mitigation points reductions, these reductions will continue in perpetuity until uses are expanded, changed, or parking is modified.

APPENDIX A: TDM MENU & MEASURES

The following section describes the seven measure categories mentioned above, along with information on each of the thirty-five measures in the TDM menu.

A.1 – Active Transportation

The measures in this category seek to improve accessibility, safety, and convenience in making trips by active modes, i.e., walking and cycling. The eight measures listed ahead encourage enhanced access to bicycle parking, pedestrian and bike infrastructure improvements for better connectivity, traffic calming measures, provision of street furniture and bike user facilities such as showers, lockers and repair/maintenance facilities, and use of bike share facilities by onsite users. These measures focus on planning and designing for pedestrians and bicyclists, which help improve “first mile” and “last mile” connectivity between transit stations and the origin/destination of trip makers.

Figure 18 - Active Transportation Measures

| MEASURE NAME | TYPE | CONSIDERATIONS & DESCRIPTION | PTS |
|--|----------------|--|-----|
| DEDICATED ACCESS TO BIKE PARKING | Infrastructure | Provide a convenient and separate access to the bike parking area without stairs. | 1 |
| INDOOR COVERED BIKE PARKING NEAR ENTRANCE | Infrastructure | Locate the bike parking in a covered, indoor space, less than 100 feet from a building entrance. | 1 |
| BICYCLE MAINTENANCE FACILITIES | Infrastructure | Provide a bicycle maintenance station for on-site employees, tenants, residents and visitors. Tools and supplies should include at minimum: a bicycle pump, wrenches, a chain tool, tire levers, hex keys/ Allen wrenches, torx keys, screwdrivers, and spoke wrenches. Suggest including lubricants. | 1 |
| CLOTHES LOCKERS AND SHOWERS | Infrastructure | Provide showers and clothes locker for cyclists. One point for showers, one point for lockers. | 1-2 |
| SECURE STORAGE ROOM OR BIKE LOCKERS | Infrastructure | Provide secure storage room or bike lockers for secure, long-term storage of bikes. Suggest 1 locker for every 20 DUs or 30 employees. | 2 |
| SHARED FLEET OF BICYCLES | Programmatic | Provide an on-site shared fleet of free loner bicycles for use by residents/ employees. Recommend a fleet with at least 1 bicycle for every 10 DUs or 30 employees, with a minimum of 5 bikes. | 2 |
| IMPROVE SURROUNDING PEDESTRIAN INFRASTRUCTURE | Infrastructure | Improve pedestrian infrastructure (sidewalks, curb ramps, crosswalk, RRFB, etc.) on adjacent properties within 500 ft. of project consistent with city plans and ordinances and federal accessibility requirements. 1 point per 100ft of infrastructure, up to 4 total points. | 1-4 |
| IMPROVE SURROUNDING BICYCLE INFRASTRUCTURE | Infrastructure | Improve bicycle infrastructure (bicycle lanes, cycle tracks, new crossings, bike-ped paths, etc.) within 500 ft. of project consistent with city plans, ordinances, and federal requirements. One point per amenity or one point per 100 ft. of infrastructure, up to 4 points. | 1-4 |
| TRAFFIC CALMING MEASURES | Infrastructure | Install traffic calming measures such as speed humps and roundabouts. One point per small-dollar measure (e.g. pedestrian flags, temporary speed hump) and two points per large-dollar measure (e.g. RRFB, permanent speed hump). Must be located within 500 ft. of project and be consistent with city plans, ordinances, and federal requirements. One point per amenity or one point per 100ft of infrastructure, up to 4 points. | 1-4 |

A.2 – Transit

The measures in this category are focused on encouraging the use to public transportation as an alternative to driving for all or a portion of a trip. These measures are programmatic and focus on subsidizing transit passes, pass validation, or selling Metro passes to residents and/or employees. Measures in this category are subject to the transit modifier and all properties located out of the transit service area are only eligible for 50% of the listed point values.

NOTE: As of 9/28/22, monthly transit passes cost \$1.40 per trip with a maximum cost of \$65.00 per month. If a pass is not used, purchaser is not charged.

Figure 19 - Transit Measures

| MEASURE NAME | TYPE | CONSIDERATIONS & DESCRIPTION | PTS |
|---|----------------|--|-----|
| PROVIDE FREE TWO-RIDE PASSES | Programmatic | Provided two-ride passes for all residents, employees, or visitors that want them. | 2 |
| SELL MADISON METRO PASSES | Programmatic | Sell Madison Metro transit passes to visitors, patrons or students. All potential beneficiaries should be clearly informed about the availability of transit passes through appropriate signs or communication channels. Must verify eligibility with Metro Transit. | 2 |
| PROVIDE SUBSIDIZED MONTHLY TRANSIT PASSES | Programmatic | Offer subsidized monthly transit passes to employees/residents (one per DU or employee). 1 point per 25% subsidy, up to 75%. | 1-3 |
| FUND TRANSIT FACILITIES AND AMENITIES | Infrastructure | Build or fund transit facilities and existing or proposed stops including benches, trash receptacles, shelters, and real-time arrival screens. Up to 1 point per feature, up to a maximum of 4 points. Metro Transit must accept proposal prior to points being awarded. | 1-4 |
| PROVIDE COMPLEMENTARY TRANSIT PASSES | Programmatic | Offer complementary monthly transit passes to employees/residents (one per DU or employee). | 7 |

A.3 – Parking Strategies

This category of measures is focused on discouraging trips made by private vehicles and limiting parking supply through the implementation of pricing measures such as unbundling the cost of a parking space from the cost of housing and/or not providing free parking as a benefit of employment. Priced parking encourages an individual to weigh the cost of parking against the cost of taking a sustainable transportation mode on a regular basis. There are also other measures, such as preferential parking for carpool vehicles, which seeks to incentivize HOV trips, and shared parking, which allows uses to jointly lower their parking capacity below the applicable parking minimums.

Figure 20- Parking Management Measures

| MEASURE NAME | TYPE | CONSIDERATIONS & DESCRIPTION | PTS |
|--------------------------------------|--------------|---|-----|
| CARPOOL PREFERENTIAL OR FREE PARKING | Programmatic | Provide free or preferentially sited parking for carpool vehicles for employees, shoppers, students, or others as applicable. | 1 |
| SHARED PARKING AGREEMENT | Programmatic | Keep parking capacity below the applicable base parking (parking minimum) by sharing parking or off-site parking arrangement with a nearby land use, or allow users at another land use to park on-site such that that facility has parking capacity below applicable base parking (parking minimums). May utilize City of Madison Parking garages. | 4 |
| PARKING CASH-OUT | Programmatic | Offer all employees the choice to forgo free parking for an in-lieu cash payment equal to the market rate cost of parking. Cannot be used in combination with unbundle parking or parking fees. Not applicable for Residential Developments. (Most appropriate in Suburban environments) | 10 |
| UNBUNDLE PARKING | Programmatic | Lease or sell parking separately from residential units or office spaces. Must be optional. Cannot be used in combination with parking fees or cash out. | 10 |
| MARKET-RATE PARKING FEES | Programmatic | Drivers must pay the full market value for parking. Properties offering validation not eligible for this strategy. Cannot be used in combination with cash out or unbundling. (Most appropriate in Urban environments) | 10 |

A.4 – Shared Mobility

Shared Mobility Strategies encourage the use a number of modes of alternative modes of transportation by actively subsidizing the use of other forms of transportation. The measures listed ahead are focused on public transit (Metro Transit buses), vanpools and private shuttle services, and shared mobility services. Most measures are programmatic and would need to be maintained throughout the life of the project.

Figure 21 - Shared Mobility Measures

| MEASURE NAME | TYPE | CONSIDERATIONS & DESCRIPTION | PTS |
|---|-----------------------|--|-----|
| PROVIDE SHARED FLEET OF VEHICLES | Programmatic | Provide a shared vehicle available for use by employees or residents. | 1 |
| PROVIDE CAR SHARE PARKING SPACE | Programmatic | Contract with car-share provider (such as Zipcar) to place vehicles on site for use by car-share provider's customers. | 1 |
| OFFER SUBSIDIZED CAR-SHARING MEMBERSHIPS | Programmatic | Offer subsidized car-share memberships - covering the cost of membership, at a minimum) to every resident or employee for using car-share. Car-share vehicles must be located on-site or within a quarter-mile walking distance. | 2 |
| OFFER COMPLIMENTARY BIKESHARE MEMBERSHIP OR PASSES | Programmatic | Offer complimentary Bikeshare membership to each employee or building tenant that wishes to obtain one. | 2 |
| EMERGENCY RIDE HOME PROGRAM | Programmatic | Establish an Emergency Guaranteed Ride Home account with applicable vendors (e.g. Lyft, Uber, etc.). Greater Madison MPO to assist with information and coordination. Promote the program to all employees or residents that do not drive to work. | 2 |
| PROVIDE A SHUTTLE BUS | Programmatic | Provide a complementary shuttle services for employees or resident. 3 points for shuttles circulating within one-mile radius of the site or providing service to major transit hubs or facilitating a complete trip. (Not applicable for residential uses) | 3 |
| PROVIDE VANPOOL | Programmatic | After ensuring that such a service is not duplicative of existing vanpool offerings (state Vanpool), establish and maintain a vanpool program for residents or employees. (Not applicable for residential uses) | 3 |
| INSTALL A BIKE SHARE STATION | Infrastructure | Coordinate with the operator of the existing bike share network to pay for and install a bike share station within ¼ mile of the project. | 6 |

A.5 – Information

This category of measures is focused on ensuring that residents, tenants, employees and visitors are well informed about the sustainable transportation options open to them. This can be done through programmatic measures such as organizing tailored marketing campaigns and informational events, providing information through employee orientations and resident-welcome packets as well as infrastructural measures such as installing multimodal wayfinding signs and screens to provide real time information on transit or shuttle arrival times and availability of bike share bicycles at docking stations. These measures complement many of the other TDM measures included in the menu.

Figure 22- Information Measures

| MEASURE NAME | TYPE | CONSIDERATIONS & DESCRIPTION | PTS |
|--|-----------------------|---|-----|
| MARKETING & INFORMATIONAL CAMPAIGN | Programmatic | Provide informational material/brochures on TDM and various sustainable transportation options as part of a welcome packet/orientation packet. Organize at least one tailored promotional campaign annually. | 1 |
| ACTIVE TRANSPORTATION WAYFINDING, MAPS, & SIGNAGE | Infrastructure | Provide all-weather signs, maps, and wayfinding signage that indicate the direction of nearby alternative commute routes, bicycle and pedestrian paths, and nearby major destinations and amenities. | 1 |
| ALTERNATIVE TRANSPORTATION KIOSK | Programmatic | Install, operate, and maintain a kiosk providing alternative transportation information. The kiosk should contain, at a minimum, include bike route system maps, information about TDM programs, and transit system maps for one mitigation point. Adding a screen displaying real-time travel information for buses in the nearby vicinity adds an additional point. Bicycle Network Maps and Transit System Maps can be obtained at no-charge from the City of Madison. One point for carrying information, one additional point for real-time display. | 1-2 |

A.6 – Delivery

Delivery services can reduce VMT by consolidating trips that would otherwise be made by a single-occupant vehicle. This can include the provision of package drop boxes or a package pick-up area for residential or employment uses, or by providing delivery services for businesses that are able to do so.

Figure 23 - Delivery Measures

| MEASURE NAME | TYPE | CONSIDERATIONS & DESCRIPTION | PTS |
|---|---------------------|--|-----|
| DELIVERY SUPPORTIVE AMENITIES | Programmatic | Provide a secure area for receipt and temporary storage of deliveries (e.g. USPS, UPS, FedEx, and/or Amazon) | 1 |
| PACKAGE DROP-OFF AREA | Programmatic | Provide an area to drop off packages for acceptance (e.g. USPS, UPS, FedEx, and/or Amazon) | 2 |
| PROVIDE VMT-REDUCING DELIVERY SERVICES | Programmatic | Provide delivery services that reduce VMT from single-stop motorized deliveries. Qualifying services include deliveries by bicycle, on foot, or in a delivery vehicle that makes multiple stops. | 1 |

A.7 – Land Use

This category of measures focuses on improving the land use mix or providing trip-reducing uses as a means of reducing VMT. In addition, this category provides a varying number of points for located within priority development areas – specifically those within close proximity to high-quality transit that can be depended upon for most daily trips. Further, it provides an incentive for providing affordable housing, as residents in affordable housing generate less VMT due to residents of affordable housing having increased transit dependency in comparison to residents of market-rate housing.

Figure 24- Land Use Measures

| MEASURE NAME | TYPE | CONSIDERATIONS & DESCRIPTION | PTS |
|---|-----------------------|--|------------|
| PROVIDE AFFORDABLE HOUSING AT 30% OF AMI | Infrastructure | Provide affordable housing. 1 point is awarded for every 10 percent of units that are offered at or below 30 percent of Annual Median Income (AMI). Maximum of 10 points. Only applicable to residential developments. | 1-10 |
| PROVIDE AFFORDABLE HOUSING AT 60% OF AMI | Infrastructure | Provide affordable housing. One point is awarded for every 20 percent of units that are offered at or below 60 percent of Annual Median Income (AMI). Maximum of 5 Points. Only applicable to residential developments. | 1-5 |
| PROXIMITY TO PUBLIC TRANSPORTATION | Infrastructure | Locate development within close proximity to existing or planned public transit service. 1 point for locating within the transit service area, 3 points for locating within the all-day service area, 5 points for locating within the planned BRT service area. (see map) | 1, 3, or 5 |
| ADD TO LAND USE MIX | Infrastructure | Provide two or more land uses onsite, allowing users to drive less. One point per additional use outside of the primary use. Maximum of 5 points. | 1-5 |
| ON-SITE CHILDCARE FACILITY | Programmatic | Establish an on-site daycare facility, to be used by residents or employees. Points are additive to land-use mix points awarded under LU-3. | 4 |
| PROVIDE OTHER SPECIFIC TRIP-REDUCING SERVICE | Programmatic | Provide any other trip-reducing service for building users, such as on-site food service for employees, pet-care service, laundry, playroom, dog walking/park, or a business center/co-working space. | 1 |

A.8 – Employer Policy

The COVID-19 pandemic offered a glimpse into a future of remote work. At this time, it is yet to be determined in employer policies such as flexible work schedules or the ability to telework increase or reduce VMT. Some studies suggest that employees may end up moving further from work or spurring numerous mid-day trips, causing them to commute further on days they do come into the office. Other studies suggest that VMT is reduced on the balance, even if more mid-day trips are present or employees relocated. As such, the policies are given modest point values with the intention of the values being adjusted in the future as more information becomes available regarding the real-world impact of the policies.

Figure 25 - Employer Policy Measures

| MEASURE NAME | TYPE | CONSIDERATIONS & DESCRIPTION | PTS |
|-------------------------------------|---------------------|---|-----|
| FLEXIBLE WORK SCHEDULES | Programmatic | Provide at least 25% of employees the opportunity to begin AND end work shifts outside of peak traveling hours. Not applicable to residential developments. | 1 |
| TELEWORKING / WORK FROM HOME | Programmatic | Provide at least 25% of employees the opportunity to work from home. Not applicable to residential developments. | 1 |

A.9 – Other

This category offers some additional options to meet TDM requirements. Projects may receive three points for joining a city-approved Transportation Management Association. Building owners have the additional option to propose any other TDM measure that is not on the list. They may then be awarded points at the discretion of the city staff. Owners may also seek additional relief for properties built or approved prior to the enactment of the TDM program (6/6/23), as explained in Section 2.6.

Figure 26 - Other Measures

| MEASURE NAME | TYPE | CONSIDERATIONS & DESCRIPTION | PTS |
|---|---------------------|---|-------|
| JOIN A TRANSPORTATION MANAGEMENT ASSOCIATION | Programmatic | Form or join a Transportation Management Association (TMA) to facilitate TDM activities such as marketing, outreach, and distribution services. Such TMA must be accredited by Madison Transportation Engineering and must provide services that meet or exceed requirements for those relevant measures claimed by the building under this program | 3 |
| OTHER INNOVATIVE MEASURES | N/A | Provide measures not listed here. Points are awarded at the discretion of city staff. | 1 + |
| RELIEF POINTS | N/A | Relief Points (Only for properties built or approved prior to 6/6/23, issued at staff discretion based on financial viability and space constraints) | 1 - 5 |

APPENDIX B: HYPOTHETICAL PROJECT EXAMPLES

The following are a series of hypothetical project examples to demonstrate how point values would be applied to a variety of project types. Though these examples demonstrate how to calculate values manually, applicants shall use the City-provided TDM spreadsheet, which calculates requirements automatically and allows applicants to demonstrate compliance by identifying measures, and point values, using the tool.

B.1 – Residential Use

Step 1: Determine applicability

Project information

- **Property:** 7400 block of Raymond Road
- **Use:** Residential (20 percent units at or below 60 percent of annual median income)
- **No. of DUs:** 100
- **Proposed parking capacity:** 150 stalls

Based on the information provided above, the proposed number of residential units is above the threshold of ten units. TDM requirements would be applicable under the residential use category.

Step 2: Determine TDM requirements

Based on the information provided, the project would fall under **Medium** size tier and the proposed parking rate per dwelling unit (DU) is **1.5 stall/DU**. Referring to the TDM target table for residential use given below the general point target for this type of use is 19 points.

| | SMALL | LOW-MEDIUM | MEDIUM | HIGH-MEDIUM | LARGE |
|---------------------------------------|-----------------------------------|------------|-----------|-------------|----------|
| RESIDENTIAL USES | 10-25 DU | 26-50 DU | 51-100 DU | 101-150 DU | > 150 DU |
| PARKING STALLS PER DWELLING UNIT (DU) | <i>Mitigation points required</i> | | | | |
| < 0.5 | no TDM | 5 | 7 | 9 | 12 |
| 0.5 - 0.99 | no TDM | 9 | 12 | 15 | 17 |
| 1.0 - 1.49 | 12 | 15 | 17 | 19 | 22 |
| 1.5 – 1.99 | 17 | 19 | 22 | 25 | 27 |
| 2.0 - 2.5 | 22 | 25 | 27 | 29 | 32 |
| 2.5 + | 27 | 29 | 32 | 35 | 37 |

After identifying the general point target for this type of use, the value is modified by the location of the project. The project is located within the periphery zone. As a result, the point value – 22 – is multiplied by 65%, resulting in a score of **14 points**. The area is outside of the transit, car share, and bike share service areas and would be eligible for only 50% of the available points for these measures.

Step 3: Create and submit TDM plan

To meet the 14 points, the building owner can choose from other measures in the menu. Since it is an affordable housing project, it would also earn some points based on the percentage of affordable units. A sample list of measures that could be carried out to meet the target is provided below.

| MEASURE TYPE | TDM MEASURES | POINTS ACHIEVED |
|-----------------------|---|-----------------|
| Active Transportation | Dedicated Access to Bike Parking | 1 |
| Active Transportation | Bicycle Maintenance Facilities | 1 |
| Land Use | Provide Affordable Housing at 60% of AMI (20% of all units) | 2 |
| Parking | Unbundle Parking | 10 |
| | TOTAL POINTS | 14 |

Step 4: Implementation, reporting and monitoring

Pay a nominal review fee for administrative processing of the TDM application. Once the TDM plan is approved, building owners would be required to implement the measures specified in the plan. The City would monitor the implementation to ensure compliance with the plan and may set some reporting requirements.

B.2 – Employment Use

Step 1: Determine applicability

Project information

- **Property:** 100 block of E. Main Street
- **Use:** Office
- **Floor area:** 110,000 sq. ft.
- **Proposed parking capacity:** 220 stalls

Based on the information provided above, TDM requirements would be applicable under the employment use category.

Step 2: Determine TDM requirements

Based on the information provided, the project would fall under **High-Medium** size tier and the proposed parking rate is **1 stall per 500 sq. ft. gross area**.

| | SMALL | LOW-MEDIUM | MEDIUM | HIGH-MEDIUM | LARGE |
|---|-----------------------------------|-------------------------|--------------------------|---------------------------|-------------------|
| EMPLOYMENT | 10,000 - 25,000 SQ. FT. | 25,001 - 50,000 SQ. FT. | 50,001 - 100,000 SQ. FT. | 100,001 - 150,000 SQ. FT. | > 150,000 SQ. FT. |
| PARKING STALLS PER 500 SQ. FT. GROSS AREA | <i>Mitigation points required</i> | | | | |
| < 0.5 | no TDM | 5 | 7 | 9 | 12 |
| 0.5 - 0.99 | no TDM | 9 | 12 | 15 | 17 |
| 1.0 - 1.49 | 12 | 15 | 17 | 19 | 22 |
| 1.5 - 1.99 | 17 | 19 | 22 | 25 | 27 |
| 2.0 - 2.5 | 22 | 25 | 27 | 29 | 32 |
| 2.5 + | 27 | 29 | 32 | 35 | 37 |

After identifying the general point target for this type of use, the value is modified by the location of the project. The project is located within the downtown and campus zone. As a result, the point value – 19 – is multiplied by 100%, resulting in a score of 19 points. The area is within of the transit, car share, and bike share service areas and would be eligible for 100% of the available points for these measures.

Step 3: Create and submit TDM plan

The project earns five points based on its location within the BRT service area. To meet the remaining ten points, the building owner can choose from other measures in the menu. A sample selection of measures to meet the target is provided below.

Alternative 1

| MEASURE TYPE | TDM MEASURES | POINTS ACHIEVED |
|--------------|---|-----------------|
| Transit | Offer transit passes to all employees (75% subsidy) | 3 |
| Information | Marketing & informational campaign | 1 |
| Land Use | Proximity to Public Transportation (BRT) | 5 |
| Parking | Market-rate Parking Fees | 10 |
| | TOTAL POINTS | 19 |

Alternatively, the developer could choose to reduce parking and take a different approach to SOV mitigation. A slight reduction in the number of stalls from 220 to 210 available would result in the TDM point requirements being reduced from 19 to 15. Under this scenario, the developer could pursue different avenues to meet TDM requirements.

Alternative 2

| MEASURE TYPE | TDM MEASURES | POINTS ACHIEVED |
|--------------|--|-----------------|
| Transit | Complimentary Transit Passes for Employees | 7 |
| Information | Marketing & informational campaign | 1 |
| Information | Alternative Transportation Kiosk (w/real-time display) | 2 |
| Land Use | Located within BRT Service Area | 5 |
| | TOTAL POINTS | 15 |

Step 4: Implementation, reporting and monitoring

Pay a nominal review fee for administrative processing of the TDM application. Once the TDM plan is approved, building owners would be required to implement the measures specified in the plan. The City would monitor the implementation to ensure compliance with the plan and may set some reporting requirements.

B.3 – Commercial Use

Step 1: Determine applicability

Project information

- **Property:** 2100 block of Regent Street
- **Use:** Grocery store
- **Floor area:** 20,000 sq. ft.
- **Proposed parking capacity:** 65 stalls
- **Use-specific parking minimums, or base parking:** 50 stalls (1 per 400 sq. ft.)

Based on the information provided above TDM requirements would be applicable under the commercial use category.

Step 2: Determine TDM requirements

Based on the information provided, the project falls under **Small** size tier. The ratio of the proposed parking to the use-specific base parking is **1.30 times the base parking**. Referring to the TDM target table for commercial use given below, this project would need to achieve a **target of 12 points**.

| | SMALL | LOW-MEDIUM | MEDIUM | HIGH-MEDIUM | LARGE |
|--|-----------------------------------|--------------------------|---------------------------|---------------------------|-------------------|
| COMMERCIAL | < 40,000 SQ. FT. | 40,001 - 100,000 SQ. FT. | 100,001 - 150,000 SQ. FT. | 150,001 - 200,000 SQ. FT. | > 200,000 SQ. FT. |
| Ratio of proposed parking to use-specific Base Parking (BP) | Mitigation points required | | | | |
| UNDER PM | no TDM | 5 | 7 | 9 | 12 |
| 1.00 - 1.24 TIMES BP | no TDM | 9 | 12 | 15 | 17 |
| 1.25 - 1.49 TIMES BP | 12 | 15 | 17 | 19 | 22 |
| 1.50 - 1.74 TIMES BP | 17 | 19 | 22 | 25 | 27 |
| 1.75 - 2.00 TIMES BP | 22 | 25 | 27 | 29 | 32 |
| 2+ TIMES BP | 27 | 29 | 32 | 35 | 37 |

After identifying the general point target for this type of use, the value is modified by the location of the project. The project is located within the general urban zone. As a result, the point value – 12 – is multiplied by 90%, resulting in a score of 11 points. The area is within of the transit, car share, and bike share service areas and would be eligible for 100% of the available points for these measures.

Step 3: Create and submit TDM plan

The project earns three points for its proximity to all-day transit service. The remaining points could be met by a combination of measures, as is demonstrated in the table below.

| MEASURE CODE | TDM MEASURES | POINTS ACHIEVED |
|------------------------------|--|-----------------|
| Active Transportation | Dedicated Access to Bike Parking | 1 |
| Active Transportation | Secure Storage Room or Bike Lockers | 2 |
| Shared Mobility | Provide complimentary bikeshare membership or passes | 2 |
| Information | Alternative Transportation Kiosk | 2 |
| Land Use | Proximity to Transit Service (All-Day Service Area) | 3 |
| Delivery | Provide VMT-Reducing Delivery Services | 1 |
| TOTAL POINTS | | 11 |

Step 4: Implementation, reporting and monitoring

Pay a nominal review fee for administrative processing of the TDM application. Once the TDM plan is approved, building owners would be required to implement the measures specified in the plan. The City would monitor the implementation to ensure compliance with the plan and may set some reporting requirements.

B.4 – Mixed Use

Step 1: Determine applicability

Project information

- **Property:** 2900 block of University Ave
- **Use:** Residential + Commercial (retail)
- **No. of DUs:** 50
- **Commercial Floor area:** 10,000 sq. ft.
- **Proposed parking capacity:** 110 stalls (residential: 70 stalls; commercial: 40 stalls)
- **Retail parking minimum, or base parking:** 25 stalls (1 per 400 sq. ft.)

Based on the information provided above, TDM requirements would be applicable separately under the residential and commercial use categories.

Step 2: Determine TDM Requirements

For residential use, the project falls under **Low-Medium** size tier and the proposed parking rate per dwelling unit (DU) is **1.4 stall/DU**. Referring to the TDM target table for residential use given below, this project would need to achieve a **target of 15 points**.

| | SMALL | LOW-MEDIUM | MEDIUM | HIGH-MEDIUM | LARGE |
|--|-----------------|-----------------|------------------|-------------------|--------------------|
| RESIDENTIAL | 10-25 DU | 26-50 DU | 51-100 DU | 101-150 DU | > 150 DU |
| PARKING STALLS PER DWELLING UNIT (DU) | | | | | |
| < 0.5 | no TDM | no TDM | no TDM | no TDM | no TDM |
| 0.5 - 0.99 | no TDM | no TDM | no TDM | no TDM | no TDM |
| 1.0 - 1.49 | 12 | 12 | 12 | 12 | 12 |
| 1.5 – 1.99 | 17 | 17 | 17 | 17 | 17 |
| 2.0 - 2.5 | 22 | 22 | 22 | 22 | 22 |
| 2.5 + | 27 | 27 | 27 | 27 | 27 |

After identifying the general point target for this type of use, the value is modified by the location of the project. The project is located within the general urban zone. As a result, the point value – 15 – is multiplied by 90%, resulting in a score of **14 points**. The area is within of the transit, car share, and bike share service areas and would be eligible for 100% of the available points for these measures.

For commercial use, the project falls under **Small** size tier. The ratio of the proposed parking to the use-specific base parking is **1.60 times the base parking**. Referring to the TDM target table for commercial use given below, this project would need to achieve a **target of 17 points**.

| | SMALL | LOW-MEDIUM | MEDIUM | HIGH-MEDIUM | LARGE |
|--|-----------------------------------|--------------------------|---------------------------|---------------------------|-------------------|
| Commercial | < 40,000 sq. ft. | 40,001 - 100,000 sq. ft. | 100,001 - 150,000 sq. ft. | 150,001 - 200,000 sq. ft. | > 200,000 sq. ft. |
| Ratio of proposed parking to use-specific base parking (BP) | Mitigation points required | | | | |
| Under PM | no TDM | 5 | 7 | 9 | 12 |
| 1 - 1.24 times BP | no TDM | 9 | 12 | 15 | 17 |
| 1.25 - 1.49 times BP | 12 | 15 | 17 | 19 | 22 |
| 1.50 - 1.74 times BP | 17 | 19 | 22 | 25 | 27 |
| 1.75 - 2 times BP | 22 | 25 | 27 | 29 | 32 |
| 2+ times BP | 27 | 29 | 32 | 35 | 37 |

After identifying the general point target for this type of use, the value is modified by the location of the project. The project is located within the general urban zone. As a result, the point value – 17 – is multiplied by 90%, resulting in a score of **15 points**. The area is within of the transit, car share, and bike share service areas and would be eligible for 100% of the available points for these measures.

Step 3: Create and submit TDM plan

Both uses within the project would receive five points for located within the BRT service area. Location-based measures such as proximity to transit service and a bike share station would give points to both the uses. Infrastructure-related measures such as building off-site pedestrian infrastructure and wayfinding signs would be counted for the both the uses as well. The residential use earns points for mixed use due to the presence of on-site retail use. Programmatic measures would earn points for one or both uses, based on whether they are directed towards residents and/or employees.

| MEASURE CODE | TDM MEASURES | POINTS ACHIEVED | |
|-----------------------|---|-----------------|------------|
| | | RESIDENTIAL | COMMERCIAL |
| Active Transportation | Improve Surrounding Pedestrian Infrastructure | 2 | 2 |
| Active Transportation | Bike work station – within residential garage | 1 | 0 |
| Active Transportation | Indoor Covered Bike Parking | 1 | 1 |
| Shared Mobility | Offer complimentary bikeshare membership or passes to employees | 0 | 2 |
| Shared Mobility | Offer subsidized car-sharing memberships | 2 | 0 |
| Shared Mobility | Emergency Ride Home Program | 0 | 2 |
| Information | Marketing & informational campaign | 1 | 1 |
| Information | Active Transportation Wayfinding, Maps, and Signage | 1 | 1 |
| Land Use | Add to Land Use Mix(two uses) | 1 | 1 |
| Land Use | Proximity to Public Transportation (BRT) | 5 | 5 |
| TOTAL POINTS | | 14 | 15 |

Step 4: Implementation, Reporting and Monitoring

Pay a nominal review fee for administrative processing of the TDM application. Once the TDM plan is approved, building owners would be required to implement the measures specified in the plan. The City would monitor the implementation to ensure compliance with the plan and may set some reporting requirements.

APPENDIX C: Use Categories and Standards

1. Residential Uses

For all Residential uses, the base parking – 1 parking stall per dwelling unit – shall be applied to determine TDM requirements for the use.

2. Employment Uses

For all Employment uses, the base parking – 1 parking stall per 500sq – shall be applied to determine TDM requirements for the uses found below:

- Airport
- Animal husbandry
- Artisan workshop
- Asphalt, concrete batching or ready-mix plant
- Automobile storage and towing (excluding wrecked or junked vehicles)
- Bakery, wholesale
- Bottling plant
- Brewery
- Bus or railroad passenger depot, railroad or intermodal freight yard, motor freight terminal, railroad yard or shop, taxi or limousine dispatching, maintenance and storage
- Car wash
- Concrete, asphalt and rock crushing facility
- Contractor's yard
- Cultivation
- Electric power production
- Electric substations, gas regulator stations, telecommunications facilities, sewerage system lift stations, water pumping stations and other public utility uses
- Extraction of gravel, sand, other raw materials
- General manufacturing
- Hazardous waste collection, storage or transfer
- Intensive agriculture
- Laboratories - research, development and testing
- Light manufacturing
- Limited production and processing
- Lumbeyard
- Mail order house
- Motor vehicle salvage
- On-site agricultural retail, farm stand
- Printing and publishing
- Recycling center
- Recycling collection center, drop-off station
- Storage - personal indoor facility

3. Commercial Uses

For all Commercial uses, the base parking to be applied to determine TDM requirements can be found below:

- **Adult entertainment establishment, adult entertainment tavern:** 20% of capacity of persons
- **Animal boarding facility, kennel:** 1 per 400 sq. ft. floor area
- **Animal daycare:** 1 per 15 clients
- **Auto convenience store:** 1 per 1,000 sq. ft. of floor area
- **Auto sales and rental:** 1 per 1,000 sq. ft. floor area + 2 spaces per service bay, if any
- **Auto service station, body shop, repair station:** 1 per 2,000 sq. ft. of floor area excluding service bays + 2 spaces per service bay
- **Bank, financial institution:** 1 per 400 sq. ft. floor area
- **Building materials:** 1 per 1,000 sq. ft. floor area + 1 per 1,000 sq. ft. of outdoor sales, display
- **Business sales and services:** 1 per 400 sq. ft. floor area
- **Catering:** 1 per 2 employees
- **Coffee shop, tea house:** 15% of capacity of persons
- **Drive-through sales and services, primary and accessory:** 0 or as determined by Zoning Administrator
- **Dry cleaning, commercial laundry:** 1 per 2 employees
- **Farmers' market:** N/A
- **Furniture and household goods sales:** 1 per 1,000 sq. ft. floor area + 1 per 1,000 sq. ft. of outdoor sales, display
- **Garden center, outdoor:** 1 per 1,000 sq. ft. floor area + 1 per 1,000 sq. ft. of outdoor sales, display
- **General retail:** 1 per 400 sq. ft. floor area
- **Greenhouse, nursery:** 1 per 1,000 sq. ft. floor area + 1 per 1,000 sq. ft. of outdoor sales, display
- **Indoor recreation:** determined by Zoning Administrator (number employees & use characteristics)
- **Laundromat, self-service:** 1 per 400 sq. ft. floor area
- **Liquor store:** 1 per 400 sq. ft. floor area
- **Lodge, private club, reception hall:** 15% of the capacity of persons
- **Mortuary, funeral home:** 1 per 200 square feet of assembly area
- **Outdoor recreation:** determined by Zoning Administrator
- **Outdoor uses, commercial:** 1 per 1,000 sq. ft. of outdoor sales, display
- **Package delivery service:** 1 per 400 sq. ft. floor area
- **Payday loan business:** 1 per 400 sq. ft. floor area
- **Post office:** 1 per 400 sq. ft. floor area
- **Restaurant:** 15% of capacity of persons
- **Restaurant-tavern, tavern, brewpub:** 15% of capacity of persons
- **Service business; service business with showroom or workshop:** 1 per 400 sq. ft. floor area
- **Small appliance repair:** 1 per 400 sq. ft. floor area
- **Theater, assembly hall, concert hall:** 20% of the capacity of persons in the auditorium, or as established in Campus Master Plan (if applicable)

4. Institutional Uses

For all Institutional uses, the base parking to be applied to determine TDM requirements can be found below:

- **Bed and breakfast establishment:** 1 per 2 bedrooms in addition to requirement for dwelling
- **Clinic, medical, dental or optical:** 1 per 2 employees
- **Health/sports club:** 10% of the capacity of persons
- **Hospital:** 1 per 4 beds or based on a parking study or Campus Master Plan
- **Hostel:** N/A
- **Hotel, inn, motel:** .75 per bedroom
- **Medical laboratory:** 1 per 2 employees
- **Physical, occupational or massage therapy:** 1 per 2 employees
- **Veterinary clinic, animal hospital:** 1 per 2 employees

APPENDIX D: TDM PROGRAMS IN OTHER CITIES

Case Study #1: Arlington County, VAⁱ

Demographics

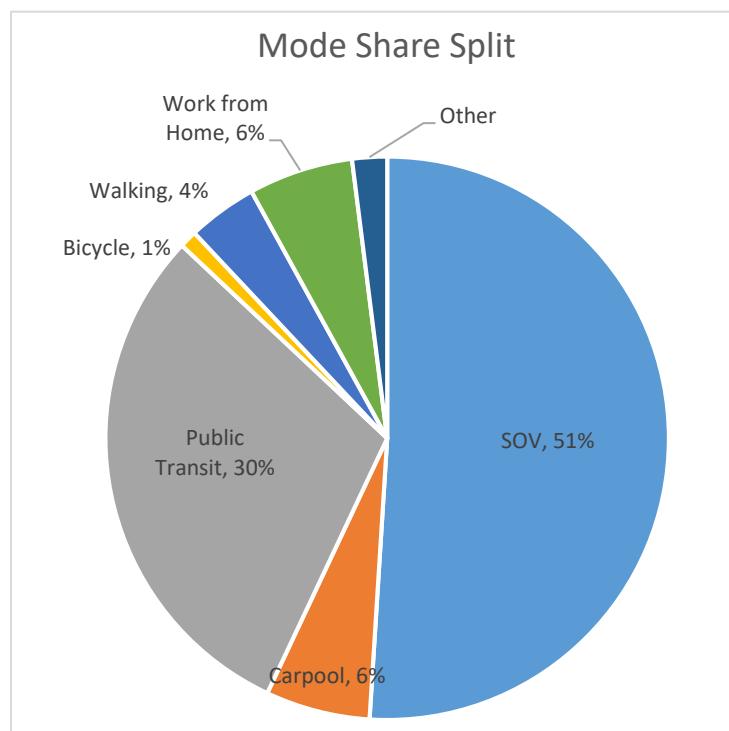
Population: 236,842

City Area: 26 sq. mi.

Pop. Density: 9,110 pp. sq. mi.

Program Goal and Applicability

Arlington County Commuter Services was established as a TDM agency in 1989 to reduce traffic congestion, parking demand, promote HOV infrastructure and improve air quality and mobility which manages several TDM-related programs. TDM for Site Plans targets developers and property managers for large residential and commercial development. The underlying goal is to reduce SOV trips and change commuter travel habits in Arlington by offering more and better choices at the building level.



TDM requirements

TDM strategies must be laid out as site plan conditions, for adoption along with the site plan, required under the Administrative Regulations Governing the Submittal of Site Plans (A.R. 4.1).ⁱⁱ

Upon approval of their site plan and conditions, TDM plans are prepared by developers to lay out schedule and details about TDM strategies. The strategies are tailored to address the transportation impacts of the project, based on the TDM Policy Matrix (1990). This matrix provides a framework of requirements based on land use category (consistency with Arlington's General land use plan) and size classification. TDM plans also contain information about participation and funding, and each building must join a TMA and pay fees to said organization.

Reporting and Monitoring

Annual site visits are conducted by the Site Plans team and annual reports outlining the TDM activities must be submitted by the site plan building. Surveys of commuting patterns of on-site employees or residents are required at two-, five- and ten-year intervals and after the tenth year, the county may require data collection in five-year increments. Enforcement action up to and including referral to the Zoning Administrator and escalating fines, are allowed.

Case Study #2: Cambridge, MA ⁱⁱⁱDemographics**Population:** 118,925**City Area:** 6.4 sq. mi.**Pop. Density:** 18,601 pp. sq. mi.Program Goal and Applicability

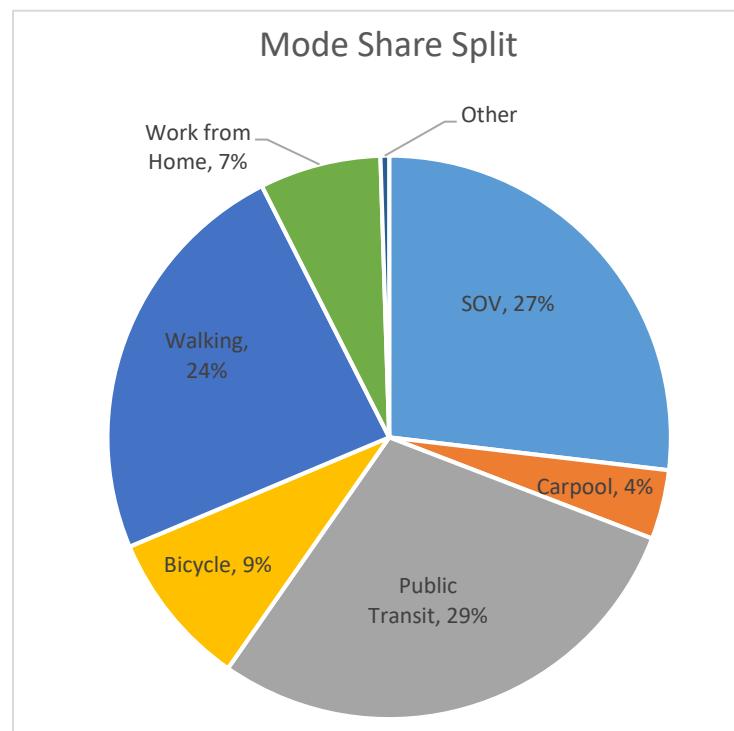
A Parking and Travel Demand Management Ordinance was adopted in 1998 and made permanent for developers in 2006. Participation is triggered when an owner of non-residential property proposes to add parking spaces above the registered number. The program has been credited for reducing driving by 10% and increasing transit use by 13%, as of 2017.

TDM requirements

The number of parking spaces determines TDM requirements. For projects with 5-19 spaces, Small Project PTDM plans need to be prepared which require 3 TDM measures from many options such as installing showers and lockers, membership with a TMA and offering a financial incentive for walking or biking to work. For projects with 20 or more spaces Large PTDM Plans are required with SOV mode share commitment, a more comprehensive set of TDM measures and annual monitoring and reporting. Developers need to commit to reduce SOV rate for their development to 10 percent below the average rate for the census tract in which their development sits.

Reporting and Monitoring

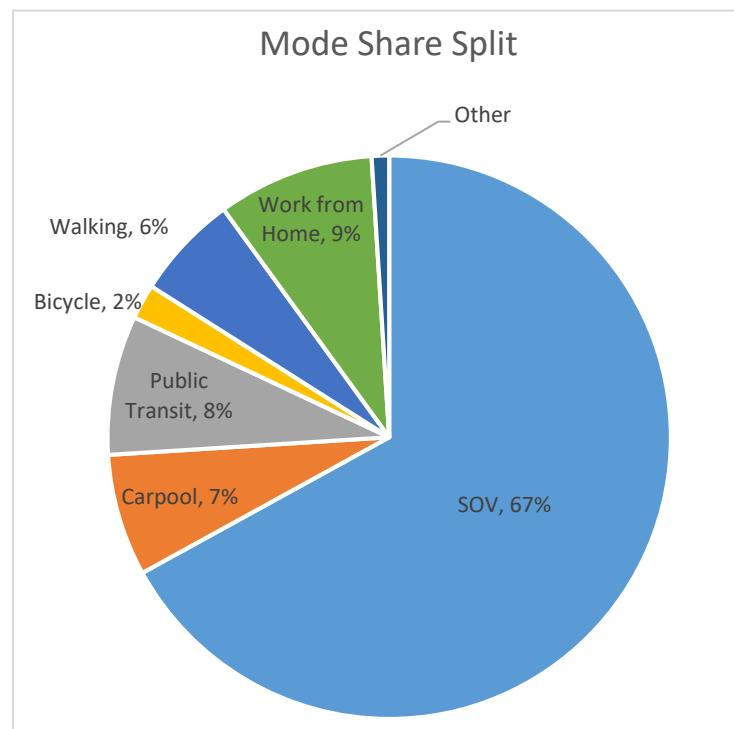
Annual monitoring and reporting are required for Large Project PTDM Plan. The annual reporting consists of surveying building employees and patrons, counting car and bike parking spaces available every two years, and the status of implemented TDM measures. These are validated by the city through bi-annual driveway/lot utilization monitoring. The city may enforce and address non-compliance by charging \$10 per parking space per day until the trip reduction requirements are met and can shut down a non-compliant parking facility.



Case Study #3: Denver, CO^{iv}Demographics**Population:** 727,211**City Area:** 153 sq. mi.**Pop. Density:** 4,744 pp. sq. mi.Program Goal and Applicability

Denver recently introduced a new TDM ordinance (in Spring 2021) for new development to help balance the demand on city transportation infrastructure by reducing vehicle trip generation and promoting utilization of the city's transit, bicycle and pedestrian infrastructure.

The ordinance establishes three development tiers by number of residential units or square feet of non-residential space – tier 0 properties are exempt; Tier 1 includes smaller developments (25-49 residential units, 25000-50000 sq.ft. non-residential area); tier 2 includes larger developments (50+ residential units, 50000+ sq.ft. non-residential area).

TDM requirements

TDM plans have to be submitted as part of the Site Development Plans. Tier 1 properties have to assign a TDM coordinator, achieve a target SOV commute rate and implement infrastructure-based TDM measures. Tier 2 properties additionally need to implement programmatic measures, verify implementation of measures, and conduct a biennial commute survey.

The measures and SOV target rate required of developers correspond to the land use (residential, commercial & office, industrial), size tier geographic location, and access to high-capacity transit. SOV targets may vary and are generally lower in more dense areas.

Reporting and Monitoring

A pre-occupancy inspection will be conducted to verify construction of infrastructural TDM strategies. Annual reports are required to verify implementation of TDM strategies as per the approved TDM Plan. Tier 2 properties need to conduct biennial tenant surveys to ensure the Maximum SOV rate is being achieved.

In case of failure to implement TDM measures, the Certificate of Occupancy will not be issued. For programmatic strategies, a grace period of six months will be provided after issuance of the certificate, to demonstrate measure implementation.

Case Study #4: Pasadena, CA^vDemographics**Population:** 141,040**City Area:** 23 sq. mi.**Pop. Density:** 6,143 pp sq. mi.Program Goal and Applicability

The goal of Pasadena's Trip Reduction ordinance is to encourage alternative transportation modes and off-peak hours by implementing requirements of LA County MTA's Congestion Management Program. It applies to non-residential projects and non-residential components of mixed-use development based on floor area, and multi-family residential projects based on the number of residential units.

The TDM program is a condition of property ownership.

TDM requirements

Transportation plans are required for smaller developments (25,000 sq. ft. – 75,000 sq .ft.) while TDM plans are required for larger developments (75,000 sq. ft. and above).

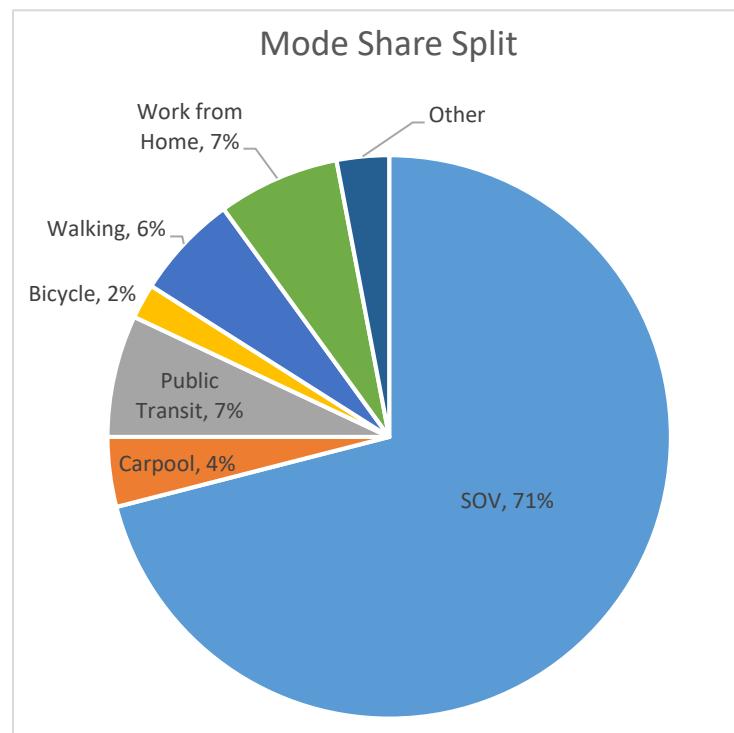
Developments are required to designate a minimum 10 percent of employee parking as preferential parking spaces for carpool and vanpool vehicles, provide employees with commuter-matching services and trip reduction information, provide bicycle parking facilities and/or other non-auto enhancements.

All projects must strive to meet an average vehicle ridership (AVR) of 1.5 starting after the first year. Projects located within a TOD area or downtown need to meet an AVR of 1.75 in 3 years.

Reporting and Monitoring

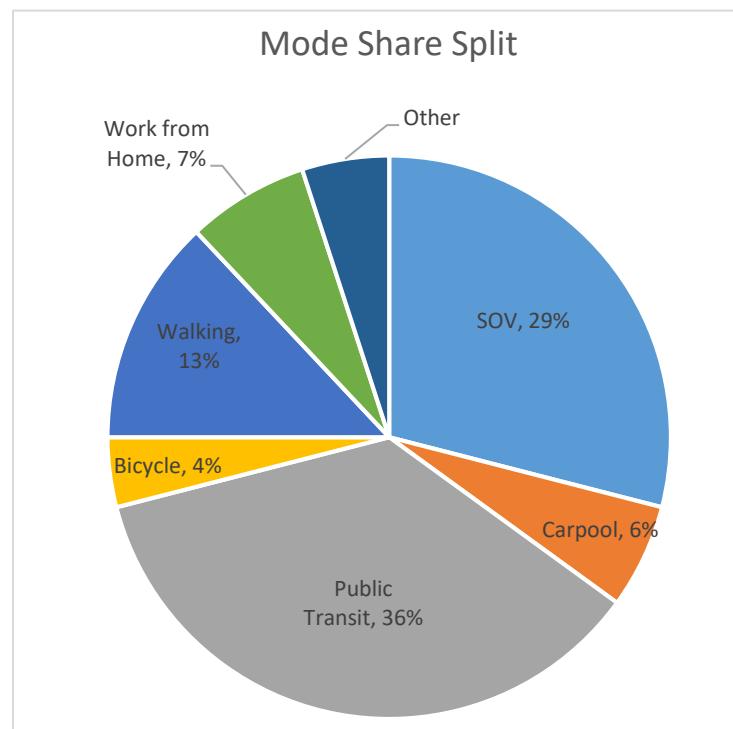
Annual TDM Status reports need to be submitted which require reporting on change in employees' means of transportation, average vehicle ridership calculations, vehicle counts, status of commuter facilities and incentives provided, as well as involvement in a TMA.

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 enforcement measures include proceedings to revoke approval of a TDM Plan, administrative penalty and a stop-work order.



Case Study #5: San Francisco, CA^{vi}Demographics**Population:** 881,549**City Area:** 46.9 sq. mi.**Pop. Density:** 18,795 pp. sq. mi.Program Goal and Applicability

The goal is to reduce VMT generated in new development projects through a citywide TDM program established in the Planning Code (Section 169), effective since March 2017. Applies to all new multi-family residential or group housing developments over the threshold of 10 units; new non-residential development with 10,000 sq. ft. of occupied area; and 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. 100 percent affordable housing projects are exempt from the program.

TDM requirements

New development projects are required to develop a TDM plan that offers on-site infrastructure and programs to prioritize alternatives to driving alone according to a point-based system. There is no measurable performance goal such as a VMT or SOV mode-share target. Targets are established based on the land uses associated with the development projects (there are four established land use categories) and the number of accessory parking spaces proposed for the land use – the more parking that is created, the higher the point target for the development.

Developers need to choose from a menu^{vii} with 26 TDM measure options and a total of 68 sub-options, grouped into 8 categories – active transportation, car share, delivery, family, HOV, information & communication, land use and parking management. Points are awarded for the measures based on likelihood to achieve VMT reduction (derived from literature study/academic research).

Reporting and Monitoring

The program involves regular monitoring, inspections and required reporting from developers. Pre-occupancy staff visits are conducted to verify inclusion of all planned physical measures. An on-site TDM coordinator is required to be designated and regular reports documenting compliance need to be submitted. Enforcement and administration are managed by the Planning Department which collects an ongoing fee from approved projects to support the monitoring and reporting work.

Case Study #6: Santa Monica, CA^{viii}

Demographics

Population: 90,401
City Area: 8.4 sq. mi.
Pop. Density: 10,743 pp. sq. mi.

Program Goal and Applicability

Santa Monica Municipal Code (Chapter 9.53) establishes a TDM ordinance that applies to both developers and all employers, except the very small ones with less than 10 employees.

TDM requirements

Employers need to strive to achieve, and developers of non-residential developments need to achieve the applicable AVR targets, which are defined separately for different land uses and locations (districts).

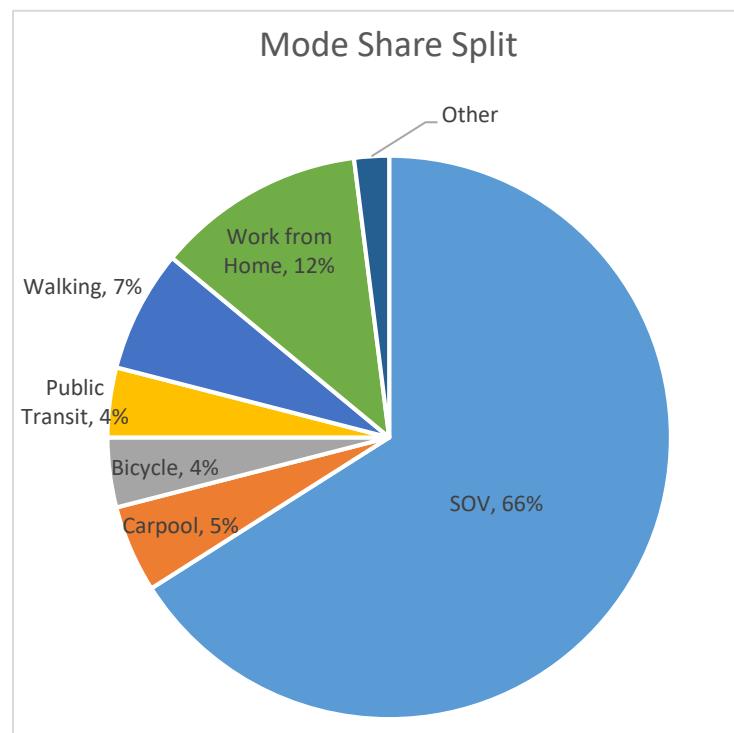
Developers need to submit a Developer TDM Plan if they exceed 7500 sq. ft. floor area for non-residential use and 16 DUs for residential uses.

Employers with 10-29 employees need to submit Worksite transportation plans and those with 30 or more employees need to submit an Emission Reduction Plan (ERP) with mandatory parking cash out programs. The ERP requires four key elements: attending a class to become certified as an Employee Transportation Coordinator; survey of employees' commuting patterns; implementation of strategies to increase biking, walking, riding transit, and carpooling to the worksite; and payment of an annual transportation fee. Discounts are given to employers who successfully reduce drive-alone trips and meet the target vehicle reduction assigned by the city.

Reporting and Monitoring

Annual plans need to be submitted, indicating the amount of Mobile Source Emission Reduction Credits purchased or as part of the ERP, employers have 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.

Non-compliance strategies include revoking any approval of an ERP or WTP or revoking the business license held by any violator. Violating any provision of the Article of the Municipal Code shall be guilty of an infraction – and a fine or imprisonment may be possible



Case Study #7: Seattle, WA^{ix}Demographics

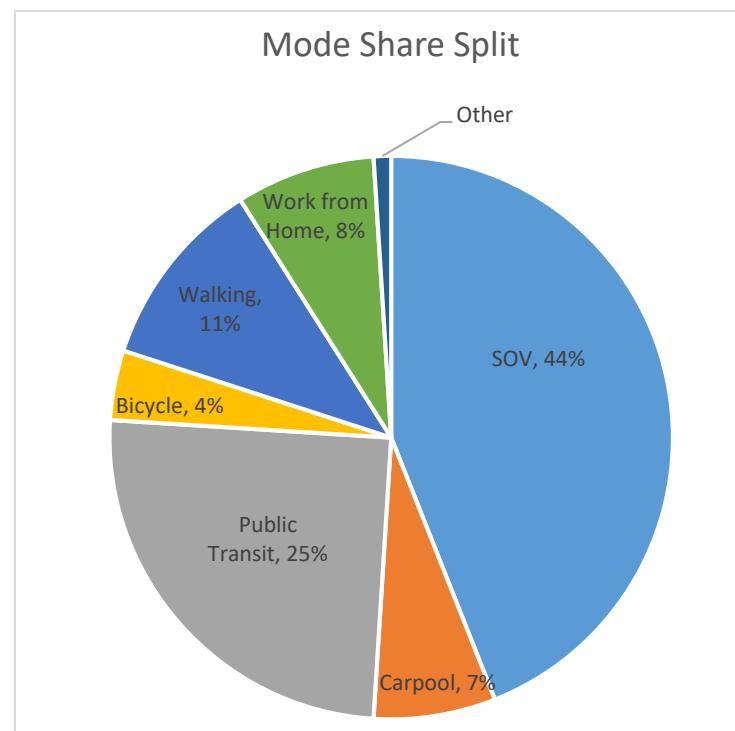
Population: 753,655

City Area: 83.9 sq. mi.

Pop. Density: 8,987 pp. sq. mi.

Program Goal and Applicability

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 VMT. The TDM program in Seattle targets employers/ businesses with over 100 employees working at a single site between 9am – 6pm, to reduce employee commute trips. There is a separate Transportation Management Program for new commercial buildings with over 100,000 sq.ft. of gross area, that have smaller employers. Conditions are set as a part of the site development review process for them.

TDM requirements

Based on the number of employees.

Drive alone reduction goals established geographically calculated by dividing the total drive-alone trips by the total trips made to their location. TDM measures are divided into three categories and employers have to implement two strategies from each category.

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/ micro mobility parking, carshare parking, parking cash-out program.

Reporting and Monitoring

Each employer is required to have an Employee Transportation Coordinator (ETC) and conduct commuter surveys and submit biennial reports. 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.

Case Study #8: St. Paul, MN^xDemographics**Population:** 308,096**City Area:** 52 sq. mi.**Pop. Density:** 5,927 pp. sq. mi.Program Goal and Applicability

The TDM requirements applies to commercial and residential development or redevelopment

TDM requirements

TDM applicability is based on the number of parking spaces in a new development. If the development exceeds the threshold of 100 spaces, a TDM plan is required to be submitted.

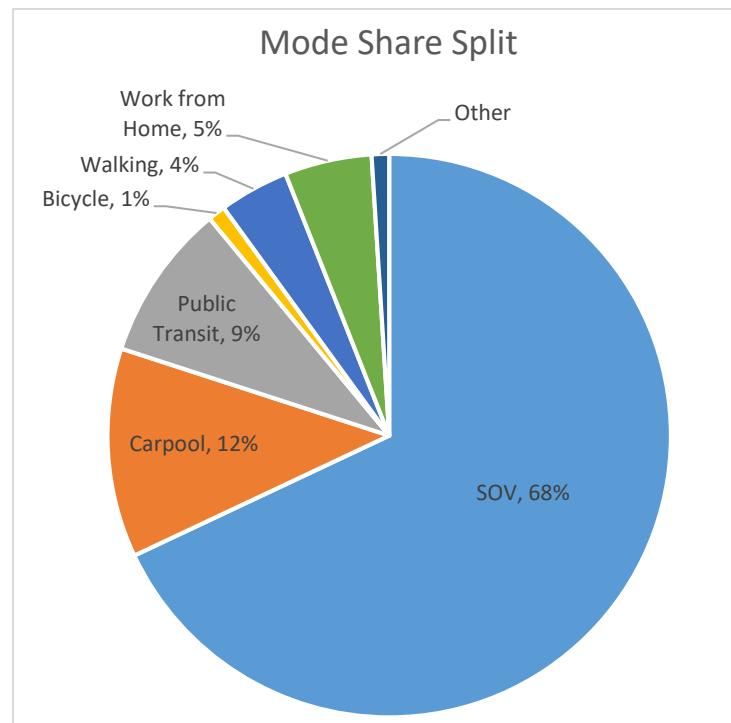
Each TDM Plan has several key components and requirements can vary based on the development location. A typical goal might be to have a 10

percent of trips made by bike, or 20 percent of trips made by transit. Five of the eight outlined strategies are recommended to be included in the plan which include measures related to rideshare programs and services, transit services and products, active transportation programs and infrastructure and promotional marketing and campaigns.

Reporting and Monitoring

Annual reports need to be submitted after the first and second year to the Zoning administrator to demonstrate 'good faith efforts towards implementing the TDM measures which should include follow up survey results, expenditures and TDM implementation evidence.

In case of failure to comply or submit a timely annual report, the security agreement (development's two-year TDM plan budget) is held for another year, after which it is released/ forfeited based on the administrator's assessment.



ⁱ Arlington Transportation Partners. *Arlington TDM for Site Plans program*. Retrieved from arlingtontransportationpartners.com/programs/property-development/tdm-for-site-plans/

ⁱⁱ Arlington County. *Administrative Regulation 4.1*. Retrieved from arlingtonva.s3.amazonaws.com/wp-content/uploads/sites/31/2019/06/AdminReg4.1_May2019_FINAL.pdf

ⁱⁱⁱ Arlington Transportation Partners. *Arlington TDM for Site Plans program*. Retrieved from arlingtontransportationpartners.com/programs/property-development/tdm-for-site-plans/

^{iv} Denver Department of Transportation and Infrastructure. *Transportation Demand Management*. Retrieved from denvergov.org/Government/Departments/Department-of-Transportation-and-Infrastructure/Programs-Services/Transportation-Demand-Management

^v City of Pasadena. *TDM requirements*. Retrieved from cityofpasadena.net/transportation/community-mobility/transportation-demand-management/

^{vi} San Francisco Planning Department. *Standard for the Transportation Demand Management program*. Retrieved from sfplanning.org/transportation-demand-management-program

^{vii} San Francisco Planning Department. *Appendix A – TDM measures*. Retrieved from https://default.sfplanning.org/transportation/tdm/TDM_Measures.pdf

^{viii} City of Santa Monica. *Transportation Demand Management*. Retrieved from smgov.net/departments/pcd/transportation/employers/

^{ix} Seattle Department of Transportation. *Commute Trip Reduction program*. Retrieved from seattle.gov/transportation/projects-and-programs/transportation-options-program/commute-trip-reduction-program

^x Move Minnesota. *Transportation Demand Management: Build Capacity or Change Behavior*. Retrieved from movemn.org/transportation-demand-management-build-capacity-or-change-behavior/