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# I. Introduction

## Why Create a Transit-Oriented Development Typology?

Transit-oriented development (TOD) is an approach to community development that leverages the unique opportunities provided by access to high-quality public transportation. TOD contributes to creating healthy, walkable communities that provide residents with housing and transportation choices, which support an affordable lifestyle. At the neighborhood scale, TOD is typically defined as compact community development within easy walking or biking distance of a transit station.

There is no “one-size-fits-all” approach to TOD. Over the last five years the Center for Transit-Oriented Development (CTOD) has developed and applied many TOD Station Area Typologies, in different regions, such as Denver, Portland, Chicago, and Baltimore, to help plan for station area revitalization and development.

A TOD typology is a way to group together different transit zones that have a common set of characteristics. A typology has several place types, and all of the station areas within one place type have some elements in common. The characteristics that define a typology can differ

depending on what outcomes the typology is meant to accomplish, and not every station area in one place type will be exactly the same. Typologies are useful tools because they increase understanding of characteristics that contribute to place, establish measurable performance benchmarks, and provide a framework to set goals for better performance.

The widely varying characteristics that help define places require different strategies and approaches to be employed to foster the growth of vibrant transit-oriented neighborhoods that enhance existing assets and conditions and serve people of all incomes. These differences can often be highlighted through the use of a typology tool that identifies key themes and strategic decisions that apply across a range of places when implementing TOD.

## Why Use Performance-Based Measures in a TOD Typology?

Performance measures use data on existing conditions to compare station areas to aspirational outcomes. Performance measures can be studied over time, gauging whether station areas are moving towards aspirational conditions or away from them. Using performance

measures in a typology means that users can identify “higher-performing” place types as aspirational places, making goal-setting a more straightforward process. Using place types also helps stakeholders compare one transit zone to another and understand the characteristics that make them different.

TOD in particular can benefit from using a performance-based typology to define and differentiate different types of TOD. Some of the questions a performance-based TOD typology might answer include: What outcomes can we expect from investments in transit and TOD? What differentiates transit-oriented development from transit-adjacent development? What standards should be utilized in evaluating zoning for TOD or other policy interventions?

## Why VMT as the Performance Measure?

Vehicle miles traveled (VMT) works well as a performance measure for a TOD typology because places with lower VMT tend to be places where more people walk, bike and take transit, one of the goals of TOD. VMT accounts for not only the number of trips households take but also the distance traveled on each trip, both of which affect greenhouse gas emissions. The total

number of trips in a transit zone or region is not necessarily correlated with VMT—a household that takes only a few very long trips a day may have higher annual VMT than a household taking many very short trips.

At the core of transit-oriented development is the idea that people with a wide range of incomes can live and work in places with more transportation options, giving them the choice to take care of some of their daily trips by using transit, walking and biking, rather than driving. Most transit supportive places also tend to be compact neighborhoods of varying densities. Density is the key variable that allows communities in rural, suburban and urban environments to support a mix of uses and activities including work places, child care, stores, restaurants, and different housing types.

Because these neighborhoods are both small enough to be walkable and have many uses and activities, it is easy for residents and workers to walk or bike to take care of some of their daily needs. Thus, people are able to reduce the amount of money spent on travel, their household VMT, and perhaps the number of cars they own – creating positive benefits for households and for greenhouse gas reduction goals. While other characteristics (reduced household expenditures on housing and transit,

increased transit ridership, etc.) might also have served as a performance-based measure, VMT correlates strongly with those metrics and using it as the performance-based measure accomplishes other purposes.

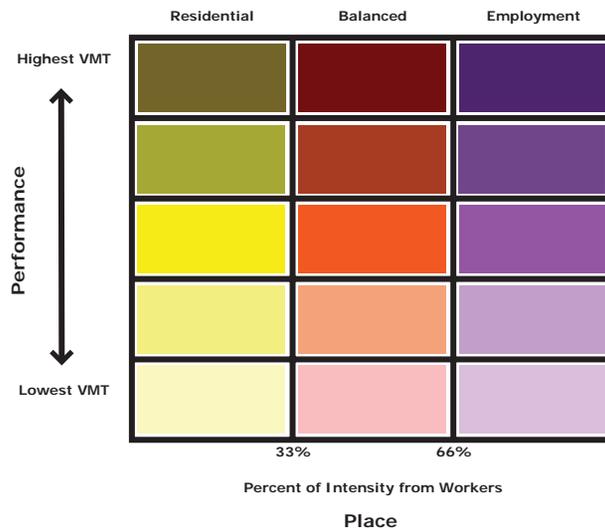
VMT also serves as a good performance measure for TOD because of the growing interest in sustainable communities, neighborhoods that have more housing and transportation choices, are closer to jobs, shops or schools, are more energy independent and help protect clean air and water. While there is a growing understanding and appreciation for TOD in America, urban, suburban and rural policy makers are increasingly

concerned with sustainability at the state, regional, municipal, and neighborhood level.

The pursuit of sustainability includes a wide range of policy goals that address environmental, equity, and economic conditions. The transportation sector is frequently seen as a place ripe for helping regions meet their sustainability goals because of its relationship to global warming, pollution, employment access, and household costs. To address global warming and pollution especially, policy makers use a three-pronged approach, with the first two prongs focusing on improving fuel efficiency and vehicle efficiency to address transportation's role in increased emissions and travel. The third prong, the built environment, has been linked by numerous studies to vehicle miles traveled and greenhouse gas emissions (GHGs).<sup>123</sup>

In this Guidebook, VMT serves as an estimate of the number of miles driven by a household in one year. TOD is at the nexus of the land use

Figure 1: Performance-Based Typology



1 Cambridge Systematics. Moving Cooler: Transportation Strategies to Reduce Greenhouse Gas Emissions. 2009 <<http://www.movingcooler.info/home>>  
 2 CTOD. Transit Oriented Development and the Potential for VMT Related GHG Emissions Reduction. 2010 <<http://www.reconnectingamerica.org/public/stories/1530>>  
 3 United States Department of Transportation. Transportation's Role in Reducing U.S. Greenhouse Gas Emissions. 2010 <[http://ntl.bts.gov/lib/32000/32700/32779/DOE\\_Climate\\_Change\\_Report\\_-\\_April\\_2010\\_-\\_Volume\\_1\\_and\\_2.pdf](http://ntl.bts.gov/lib/32000/32700/32779/DOE_Climate_Change_Report_-_April_2010_-_Volume_1_and_2.pdf)>

changes and increased transportation options that can reduce carbon production, improve air quality, and reduce the burdens on households related to the cost of automobile ownership and operation. Average household VMT is an important driver of all of these outcomes, and is thus an important variable in assessing the sustainability of a place.

Using VMT as a performance measure for TOD also helps simplify and focus the discussion around how to reduce VMT. Many policy makers and stakeholders want to reduce VMT in their communities, but there is little consensus on the best way to achieve this goal. Nor is there agreement on what amount of VMT reduction is achievable or what strategies should be employed to meet these goals in different places. The inputs that can affect VMT, especially land use and transportation policies, tend to happen at different scales. Bringing VMT to the local level helps tie regional VMT reduction strategies to local TOD improvements.

Currently many of the attempts to reduce VMT or address climate change use language that is often hard to understand. It is difficult to create rallying cries such as “returning to 350 parts per million” or “a 30% reduction in emissions,” but building 1,000 more housing units or providing more transit service are much easier for most

people to understand. Because stakeholders often have more pressing needs, climate change goals are often left behind when addressing short-term challenges such as economic or equity goals — even though these are not mutually exclusive options. Moreover, since transportation relates to other strategies, making the connection to VMT can have a tremendous impact. Using VMT as a performance-based measure for TOD can help engage a broader set of people in identifying solutions that may reduce VMT.

CTOD’s previous TOD typologies sorted station areas with similar critical characteristics to provide a framework for how to organize planning strategies, preservation approaches and community development goals. The Performance-Based TOD Typology builds upon this work by developing Normative Metrics from nationally comparable data on a number of different factors across regions and provides baseline guidance for long-term strategies that address the goals of reducing VMT and transportation-based greenhouse gas emissions.

## A User Friendly Tool

The Performance-Based TOD Typology is a user friendly tool that gives communities around the country the ability to evaluate the performance of their transit zones (see Figure 2). The typology

creates distinct place types by identifying the number of miles the typical household within each transit zone will travel in a year and whether the area is primarily residential, employment, or a balance between the two. Understanding where an individual transit zone sits in this spectrum, or how all of the transit zones in a region compare to one another can make it easier for stakeholders to identify strategies to reduce VMT or to take advantage of existing low VMT places.

The Normative Metrics in Section 3 expand upon the typology’s existing conditions analysis by looking at several categories of place characteristics, including urban form, transportation, and household characteristics.

Figure 2: Normative Metrics Example

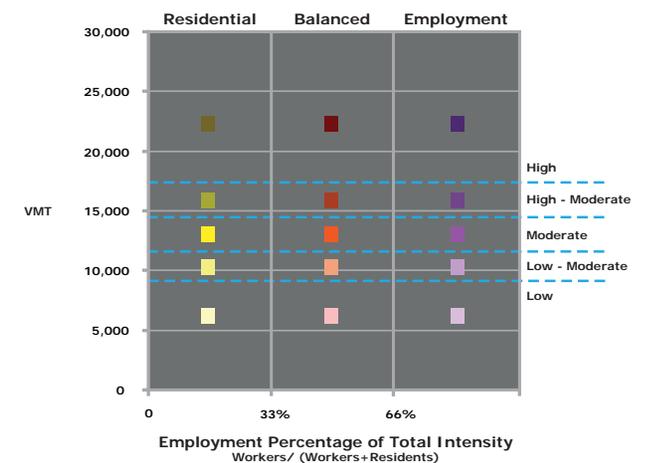
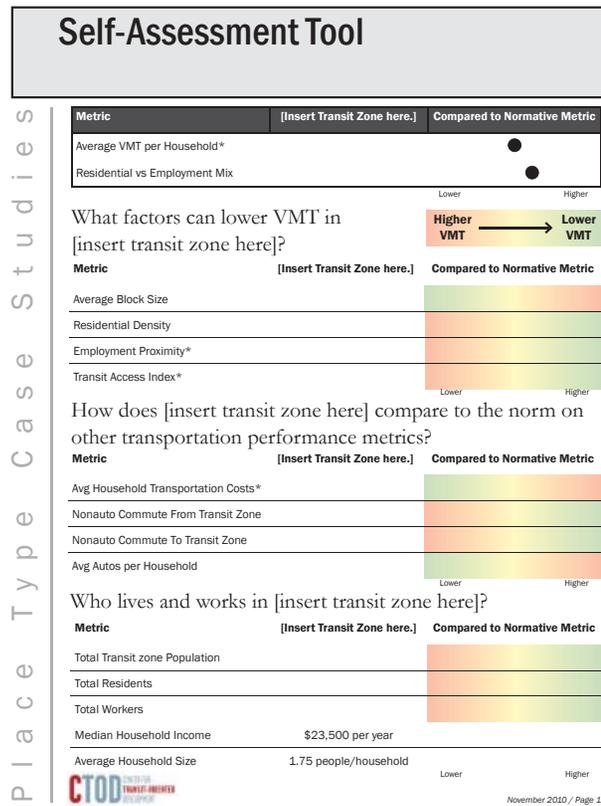


Figure 3: Self-Assessment Template



With the Normative Metrics, users can compare the metrics from each station to others within their place type. Transit zones that have lower transportation costs, higher transit ridership, and smaller block sizes than the norm for their place type will set different goals than places that do not perform as well as other stations areas in the same place type.

The Case Studies in Section 4 provide examples of transit zones in different place types and show how they compare to the Normative Metrics and where they can improve. Stakeholders, from elected officials to local advocates, can use these up-to-date, quantitative measures on population, travel behavior, and urban form to communicate clearly and with hard facts.

This Guidebook also shows how users can perform self-assessments on the transit zones in their communities. These self-assessments build the groundwork on which to enact specific policy, programmatic, and fiscal interventions in order to improve specific outcomes like reduced VMT.

## Bringing Together the Actors

Stakeholders often have different views on how to decrease reliance on autos, create more walkable communities, or advance climate change, transit and TOD goals, making policy decisions a sometimes daunting task. By creating a starting point for discussion, the Performance-Based TOD Typology can bring together a wide array of actors working at the full range of geographic scales to improve regional and local sustainability.

VMT and greenhouse gas reduction is usually analyzed at the city or regional scale, while land

use and transportation policy making generally happens at more local levels. Combining regional goals of VMT reduction with locally created land use policies has been a major challenge in the past. This tool helps bring together those geographies by using simple, specific, and tangible numbers to measure transit zone performance while creating a communication device for speaking about these complex issues in local public forums with a range of actors. This tool also helps identify how small changes in individual transit zones can result in significant benefits regionally.

The tools in this Guidebook can be used to augment policy decision-making on many important issues, including transportation planning, economic and community development, and urban design. For example, economic development strategies can fold in sustainability objectives, showing that the benefits of connecting jobs to transit can not only reduce congestion but also greenhouse gases.

Affordable housing advocates can come together with regional planners to understand that the benefits of locating more housing and employment near transit goes beyond convenience but will provide lower costs for families and fewer cars on crowded freeways. Bike and pedestrian planners and public health workers may use the tool as evidence

that walkable blocks and compact growth are important elements to improving sustainability.

## Audience/Users

The Performance-Based TOD Typology will be of use to policy makers, planners, employers, and residents who have interest in matters related to transit ridership, climate change, economic development, affordable housing, urban design, or any one of the countless other issues linked to transportation, employment, and place.

Whether working locally, regionally, or at another geographic scale, the Guidebook will provide critical and easy to understand information to help guide action aimed at creating high-quality TOD and reducing VMT in communities around the country.

While this tool could be useful in guiding future planning decisions by a variety of stakeholders, there are three specific groups at different levels of government that could most readily use it to affect decision-making:

- At the federal and state level, agencies can use the tool to inform funding and investment policies and in regional planning and decision-making;

- At the regional level, regional agencies, including Metropolitan Planning Organizations (MPOs), transit agencies, and other stakeholders can use this tool to guide corridor planning and regional investments in housing and transportation; and
- At the local and neighborhood level, cities, community-based organizations and other stakeholders can use this tool to inform local planning decisions from long range plans to affordable housing location.