



Designing Better Streets



**MICHIGAN ECONOMIC
DEVELOPMENT CORPORATION**

What you will learn:

How to evaluate an entire network of streets for better planning

Transportation planning terminology

How to evaluate street design alternatives

Municipalities spend a lot of time and effort developing master plans, downtown or corridor plans, and zoning. Many of these plans promote mixed land uses to increase the opportunities for people to walk, bicycle, use transit, or use new modes of travel.

However, these uses are often surrounded by an existing transportation system, built up over many years, that does not match the aspirations of the municipality. Too often, street design is prepared by the City Engineer or agencies who may not typically be engaged in the planning process. In some cases, the engineers and the planners have different objectives, or even opposing viewpoints on the design of the transportation system. In addition, other stakeholders like businesses and residents have their own perspectives.

The best outcomes are achieved when all parties come to a consensus on street design based upon safety, context, priorities, and funding. Collaboration can produce street designs that balance safety, travel needs, environmental considerations, and economic factors.

Traffic engineers often rely on the measurement of traffic operations or delay for the average vehicle during the peak two hours of the day, called Level of Service (LOS). While vehicle level of service is still important, it may be less critical than safety and the quality of service for pedestrians, bicycles, parking or other users. In recent years, with the increasing prevalence of multimodal street design and a complete streets approach, many communities have considered repurposing travel lanes or adding features that appeal to a wider range of users.

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What the Law Says:

The Michigan Planning Enabling Act states that a Master Plan include:

“All components of a transportation system and their interconnectivity including streets and bridges, public transit including public transportation facilities and routes, bicycle facilities, pedestrian ways, freight facilities and routes, port facilities, railroad facilities, and airports, to provide for the safe and efficient movement of people and goods in a manner that is appropriate to the context of the community and, as applicable, considers all legal users of the public right-of-way.”

If the master plan includes one or more elements listed above, the means for implementation shall also be specified and cooperation with those who have the jurisdiction over the roadways.

While some roads, such as expressways, prohibit pedestrians or bicycles altogether, most streets accommodate a wide variety of users. However, it is not always realistic or appropriate to design every street to accommodate every transportation mode equally. When there is competition between transportation users, priorities will need to be determined. If a community's entire street system is evaluated with this perspective, some streets will be more focused on bicycles, while others might prioritize freight, and the truck access and loading space needed to accommodate business. Pedestrians, as the most vulnerable users, should be given a priority on most streets.

For example, a main street within a downtown area should accommodate a wide range of travelers regardless of roadway classification. But if you can't fit everyone on one street, some uses, such as trucks, parking, bicycles or transit users, might be better accommodated on a parallel street, maintaining the walkable traditional downtown for pedestrian use. Instead of a one size fits all, the best practice today is to describe how different travel modes fit into different contexts.

It may seem daunting to start a street design project. Laying the groundwork with a master plan, a capital improvement plan and policies like a complete streets resolution that address goals and funding sources is a good place to start.

Early on, stakeholders should agree on how to select a final design including what the evaluation criteria will be and what tool will be used to simulate traffic. Cost can be one of the selection criteria, but it

should not be the main driver. Projected economic development, tax revenue, and job creation are other criteria to consider when evaluating alternatives. Maintenance is also an important consideration, especially during the winter months. How well future trends in mobility that may affect curbspace use, like EV charging and ride share services, are accommodated in the design could also be part of the selection criteria.

TIP: Try It On First

Sometimes you can test a project before you make an investment. Tactical Urbanism is an approach for testing a concept as a short-term solution using low-cost materials to determine if that concept can and should be implemented long-term at a higher cost. These can include removal of travel lanes using paint and bollards; creating pedestrian plazas on sidewalks or in parking lots; replacing a couple onstreet parking spaces with a parklet; pop-up bike lanes; and outside dining. It is important to consider ADA accessibility even when designing a pilot or temporary project.

An evaluation should also be conducted on the current street layout which considers not only existing, but also predicts future year traffic volumes. Is the evaluation giving you real world results? For example, if your tool shows major congestion, but that isn't occurring in the real world, the modeling assumptions need to be adjusted so that you can evaluate design alternatives more accurately. Typically turning movement counts are used

TERMS

Michigan Manual on Uniform Traffic Control Devices (MMUTCD)

National Association of City Transportation Officials (NACTO). NACTO's mission is to build cities as places for people, with safe, sustainable, accessible, and equitable transportation choices that support a strong economy and vibrant quality of life.

Tactical Urbanism uses flexible, short-term, low-cost, and scalable interventions to advance long-term goals related to street safety, public space, and more.

Level of service (LOS) is a qualitative measure used to relate the quality of motor vehicle traffic service. LOS is used to analyze roadways and intersections by categorizing traffic flow and assigning quality levels of traffic based on performance measure like vehicle speed, density, and congestion. There are six levels of (A through F) with A representing the most free flowing and F the most congested.

Complete Streets are streets designed and operated to enable safe use and support mobility for all users. Those include people of all ages and abilities, regardless of whether they are travelling as drivers, pedestrians, bicyclists, or public transportation riders.

Planning and Environmental Linkages (PEL) is an evaluation process that was developed by the Federal Highway Administration. It is often used by MDOT and other agencies, but a similar process can be used for local streets too. It is intended to efficiently integrate environmental, community, and economic goals into the process. Input from agencies, stakeholders, and the public during the development and evaluation can lead toward consensus on a final design.

to determine auto use by time period, the type and amount of trucks/buses, pedestrian, and bicycle counts. Traffic engineers often design to accommodate peak hour traffic volumes, but it is good to know what is happening the other 22 hours of the day to help balance the question of need versus desire. Streets in Michigan have different peak hours depending upon location and season. Some northern cities have greater peaks in the summer. Some cities with universities are busiest during the academic year. If there is only congestion for two hours for three days of the entire week, addressing this congestion may not outweigh safely accommodating other modes of travel on this roadway.

Major street projects are often designed to last well into the future, often 20-50 years. Some transportation and funding agencies require the design year be well into the future, too. While the projections can be important to meet future travel needs, they can also lead to extra costs and excess capacity that may not be needed. Recently, travel

patterns have changed significantly, as more people worked from home. How will these changes impact future needs? Along with being aware of global trends, a community can influence the future through changes to land uses and implement strategies to shift some travel from autos to other ways of travel.

It is important to know about all of the infrastructure within the right of way. Moving a curb line that has drainage infrastructure underneath could substantially increase the cost of a project. Knowing where underground water and sewer infrastructure is located helps inform the cost of changing the street.

When discussing options for street design, it matters who has jurisdiction over that street. Depending on the roadway owner, different design standards may be applicable for the preferred and minimum width of sidewalks, bike lanes, travel lanes, and on-street parking.

Resources:

Michigan Manual on Uniform Traffic Control Devices. Michigan Department of Transportation.

Streetmix.net

National Association of City Transportation Officials (NACTO)

English Road Design Manual. Michigan Department of Transportation.

Landscaping Guidelines in MDOT ROW. Michigan Department of Transportation.

Guidance for Installation of Pedestrian Crosswalks on Michigan State Trunkline Highways. Michigan Department of Transportation.

Best Design Practices for Walking and Bicycling in Michigan. by T.Y. Lin International at the direction of the Michigan Department of Transportation.

MDOT Local Agency Program

MDOT LAP National Environmental Policy Act (NEPA) Guidance and Information

Road Diet Checklist. Michigan Department of Transportation 1629 (02/15).

City of Atlanta Tactical Urbanism Guide. City of Atlanta Department of City Planning and City of Atlanta Department of Transportation. September 2020.

Tools to Diagnose and Solve the Problem. US Department of Transportation. Federal Highway Administration. Office of Safety Programs.

Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities. U.S. Architectural and Transportation Barriers Compliance Board (Access Board).

Special Report: Accessible Public Rights-of-Way Planning and Designing for Alterations. Public Rights-of-Way Access Advisory Committee.

A street owned by a state agency must follow certain guidelines, such as the AASHTO's "A Policy on Geometric Design of Highways and Street" or "Green Book" as well as the MUTCD. These publications have been updated to include more complete streets and allow more flexibility. MDOT also uses its own design guideline manual.

TIP

A recent construction project in mid-Michigan devoted the first 15 minutes of weekly meetings between the municipality and contractors to address stakeholder concerns. This approach increased transparency and allowed the contractor to directly address concerns about the project and was considered a win-win for all involved.

A city or county road jurisdiction may adhere to different standards. Some cities have recently adopted NACTO guidelines, which are often more flexible than state guidelines. Some cities have their own guidelines.

Preliminary street design alternatives can be created based on existing conditions, the goals of project, the assessment of existing planning documents, and any engagement completed up to this point. Depending upon the project and the municipality, more in-depth community engagement may be necessary.

At this point in the process, the design alternatives are evaluated based upon the criteria and factors agreed to early on. Remember to evaluate the alternatives not just against each other, but against the existing street

WHAT COMMUNITIES ARE DOING THIS?

Created their own Street Design Manuals or Guidelines:

Ann Arbor, Lansing, Kalamazoo, Traverse City, and Grand Rapids

Prioritizing different modes of travel through Street Design Toolkit:

Southeast Michigan Council of Governments and MDOT

design, too. Be sure to document how the alternatives were evaluated and selected.

Once an alternative has been chosen, it's time to move into the design phase. This may involve approvals from the planning commission, legislative body, road commission board, or MDOT. At this stage, any required environmental studies would be conducted. If federal or state funding is going to be used, the project may need to be added to the metropolitan planning organization's Transportation Improvement Plan (TIP) and/or the Long-Range Plan (LRP).

It is important during any kind of street redesign to keep stakeholders informed of design decisions and the management of traffic during construction.

After construction is complete, conduct post-project reviews: before and after traffic speeds, volumes of pedestrians and bicycles, changes in crashes or other factors. This data can be valuable for the next project.

A great street is one that serves the various modes and their needs as effectively and efficiently as possible. However, balancing the needs of the various modes can be difficult given that most streets have limited room available to properly serve everyone.

As we move to the next generation of our streets, we are already seeing changes in the way we travel. Communities have an opportunity and responsibility to plan for and to invest in more in non-motorized infrastructure, public transit, micro-mobility options, and flexible curbside uses that will include electric autonomous vehicles. Doing so in a thoughtful, comprehensive way will ensure that all modes are accommodated throughout a community's street network.

This tear sheet was developed by the Michigan Association of Planning (MAP) for the Michigan Economic Development Corporation (MEDC). The Michigan Association of Planning is a 501 c 3 organization, dedicated to promoting sound community planning that benefits the residents of Michigan. MAP was established in 1945 to achieve a desired quality of life through comprehensive community planning that includes opportunities for a variety of lifestyles and housing, employment, commercial activities, and cultural and recreational amenities.

