

# M2D2 – Multi Modal Development and Delivery

WORK PLAN

*January 2015*



**Smart Growth America**  
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... providing the highest quality integrated transportation services for economic benefit and improved quality of life...

## Executive Summary

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The Michigan Department of Transportation (MDOT) mission is “providing the highest quality integrated transportation services for economic benefit and improved quality of life.” To carry out its mission in the context of 21st Century economic and demographic reality, MDOT recognizes that its standards and approaches for planning, designing, constructing, maintaining and operating trunkline highway facilities need to be updated to consider the impacts and interactions of all potential modes of travel (automobile, transit, bicycle, pedestrian, truck, rail, etc.) from a capital investment, physical construction, and operational perspective.

MDOT trunk line guidelines and standards for planning, design and operations have historically centered around the provision of facilities that allow for the safe and efficient travel of motor vehicles (cars and trucks primarily) and are based on the performance of those vehicles and the behavior patterns, expectations and needs of the operators of vehicles. This guidance has evolved over time to provide more consideration for other surface transportation modes in some instances, but does not necessarily fully consider the cooperation of these modes in the same space, or how the modes need to interface at the human dimension to

facilitate the safe and efficient movement of people between the modes within the same space. In many situations, various modes have competing needs within the same space, and MDOT guidance and standards offer little guidance for how to resolve these conflicts effectively or how to prioritize which needs are most critical for a given situation.

MDOT staff need to have the knowledge and tools available to them to effectively plan, design, construct, maintain and operate facilities that move people and goods in the variety of ways that people and communities choose to utilize. To address this need, MDOT and Smart Growth America (SGA) have developed this Work Plan that addresses the needs and expectations for each transportation mode and identifies ways that MDOT can balance those needs and modes collectively when multiple modes coexist. A series of workshops with key department leadership has led to this process defining systematic revisions to MDOT procedures, practices, standards, guidance documents and manuals, as well as recommendations for ongoing training and development activities for MDOT staff to understand and utilize the revised practices. Implementing this plan will help to ensure that MDOT accomplishes

its mission for “the highest quality integrated transportation services.”

The Project has involved a MDOT staff project stakeholder group (PSG). They have worked with SGA in a series of workshops to understand barriers, gaps, and opportunities that exist in current MDOT practices, standards and guidance to address the needs of all modes in a variety of contexts: urban core, suburban, small urban, and rural; arterials and limited access/freeway. The PSG now has a state-of-the-art practice understanding of the capabilities and requirements of each transportation mode and the opportunities and trade-offs that exist in a multimodal environment.

The Project Stakeholder Group first received multimodal training in a series of five (5) one-day workshops between March and June 2014. A final two-day workshop was held in June 2014 to discuss integration of the various modes and how to address trade-offs in the integration process. The workshop topics were:

- Transportation and Land Use
- Active Transportation
- Public Transportation
- Intelligent Transportation Systems (ITS)
- Transportation Demand Management (TDM)
- Freight Logistics
- Multimodal Integration and Trade-Offs

Through the first five modal workshops a broad list of primary MDOT procedures, practices, standards, guidance documents and manuals were identified for possible revision or augmentation for multimodal integration benefits. After the individual modal workshops, the two-day Integration Workshop was held to discuss the identified documents and processes in detail and how they impact MDOT’s goal to become a more multimodal organization. Additional MDOT documents, processes and procedures that had been previously identified for future revision as a part of MDOT’s Complete Streets Implementation Plan (version 1.1) were also considered by the PSG. A thorough review of MDOT’s website by the SGA team yielded another group of documents (policies, standards, manuals, guidelines), processes and procedures of the Department that may provide additional

opportunities to help MDOT better achieve its goal to become a more multimodal focused organization.

An evaluation was conducted for these MDOT procedures, practices, standards, guidance documents and manuals identified through the workshop process. Each item was assessed to determine its potential to address the primary barriers, gaps and issues noted by the PSG through the workshop process. MDOT and SGA also evaluated how impactful these revisions and/or augmentation would be to advancing MDOT’s desire to become a more multimodal organization. The result is the identification of an initial primary group of documents, processes and procedures targeted for revision or augmentation as listed below.

- Road Design Manual & Guides
- Bridge Design Manual & Guides
- Sidewalk Participation Rules
- LAP Guidelines for Geometrics
- LAP Application
- Project Scoping Manual & Checklist
- Call for Projects Memo & Instructions
- Funding Template
- MDOT/FHWA Stewardship and Oversight Agreement
- Crosswalk Design Guidance (New)
- Bus Stop Design Guidance (New)

This Work Plan sets in place a process for MDOT to modify and/or augment practices, standards and guidance as appropriate. In addition to these recommended document and procedures revisions, this Work Plan also outlines an approach to:

- Manage the internal and external communication and collaboration necessary to effectively implement the revision process, and
- Conducting the internal and external training considered necessary to effectively integrate the recommended actions into the Department’s culture and operations.

Finally, these activities are to be communicated to other state agencies, regional and local government, the business community, advocacy groups, and the traveling public.

# M2D2 – Multi Modal Development and Delivery

Michigan Department of Transportation

WORK PLAN

January 2015

## Introduction

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M2D2 (Multi Modal Development and Delivery) is a project to support Michigan's economic recovery by improving MDOT's institutional capacity to plan, design, construct, operate and maintain Michigan's transportation system for Complete Streets and multiple modes.

The Michigan Department of Transportation (MDOT) mission is "providing the highest quality integrated transportation services for economic benefit and improved quality of life." To carry out its mission in the context of 21st Century economic and demographic reality, MDOT recognizes that its standards and approaches for planning, designing, constructing, maintaining and operating "trunkline" highway facilities need to be updated to consider the impacts and interactions of all potential modes of travel (automobile, transit, bicycle, pedestrian, truck, rail, aviation, etc.) from a capital investment, physical construction, and operational perspective. MDOT staff need to have the knowledge and tools available to them to effectively plan, design, construct, maintain and operate facilities that move people and goods in the variety of ways that people and communities choose to utilize.



... now has a state-of-the-art practice understanding of the capabilities and requirements of each transportation mode ...

## Project Purpose

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To address this compelling need, MDOT and Smart Growth America (SGA) partnered to explore the needs and expectations for each transportation mode and identify ways MDOT can balance those needs and modes collectively when multiple modes coexist. A series of modal workshops led to a systematic review of MDOT procedures, practices, standards, guidance documents and manuals, as well as recommendations for ongoing training and development activities for MDOT staff to understand and utilize the revised practices.

The Project has involved an MDOT staff project stakeholder group (PSG) who now has a state-of-the-art practice understanding of the capabilities and requirements of each transportation mode and the opportunities and tradeoffs that exist in a multimodal environment. They have worked with SGA in a series

of workshops to understand barriers, gaps, and opportunities that exist in current MDOT practices, standards and guidance to address the needs of all modes in a variety of contexts: urban core, suburban, small urban, and rural; arterials and limited access/freeway.

This Work Plan sets in place a process for MDOT to modify and/or augment practices, standards and guidance as appropriate. Continuing efforts will implement new practices, standards and guidance through a training program for MDOT staff, the staff of partner agencies in regional and local government, and design professionals in the private sector. Finally, these activities are to be communicated to other state agencies, regional and local government, the business community, advocacy groups, and the traveling public.

## Background

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MDOT trunkline standards and guidance for planning, design and operations have historically centered around the provision of facilities that allow for the safe and efficient travel of motor vehicles (cars and trucks primarily) and are based on the performance of those vehicles and the behavior patterns, expectations and needs of the operators of vehicles. These standards have evolved over time

to provide more consideration for other surface transportation modes in some instances, but do not necessarily fully consider the cooperation of these modes in the same space, or how the modes need to interface at the human dimension to facilitate the safe and efficient movement of people between the modes within the same space. At times, various modes have competing needs within the same

# ... connecting centers of economic and quality of life activities...



space, and MDOT guidance and standards offer little clarification as to how to resolve these conflicts effectively or how to prioritize which needs are most critical for a given situation.

Several policy and practical developments are converging in recent times that require a fresh look at MDOT standards and guidance for planning, designing and operating facilities in a comprehensive way to consider all modes and how state trunkline facilities make possible their safe and efficient operation within MDOT rights-of-way:

- The establishment of Complete Streets and Context Sensitive Design policies at both the state and local levels.
- The development of light rail, streetcar and bus rapid transit systems.
- The increased utilization of bicycles for non-recreational transport and the establishment of formal green ways, bike lanes, bike sharing services, regional and statewide trail systems and national bike route designations.
- The emphasis on place-making, transit oriented development and other land use changes to reflect demographic trends toward more urbanized living preferences of the population.
- The emergence of new technologies to provide traveler information for all modes and trip integration.
- The development of advanced freight logistics methodologies.

- The emergence and development of connected and autonomous or driverless vehicles.
- Michigan’s Toward Zero Death safety campaign.

Furthermore, state trunklines are often the main streets and arteries of Michigan communities, connecting centers of economic and quality of life

activities, as well as often being the host to many adjacent economic and commercial activities. They are inherently the focus of attention for the movement of people, the areas desired by people for multimodal access, and the areas where mode transfer needs to occur for a seamless transportation experience to exist.

## M2D2 Workshops

The Project Stakeholder Group first received multimodal training in a series of five (5) one-day workshops between March and June 2014. A final two-day workshop was held in June 2014 to discuss integration of the various modes and how to address tradeoffs in the integration process. The workshop schedule and the topic areas they addressed are listed in **Table 1**.

Through the first five modal workshops a broad list of primary MDOT procedures, practices, standards, guidance documents and manuals were identified for possible revision or augmentation for multimodal integration benefits. These included:

- Michigan Manual on Uniform Traffic Control Devices (MMUTCD)
- Geometric Design Guides
- Road Design Manual
- Bridge Design Manual
- Road/Bridge Standard Plans/Specifications
- Sidewalk Participation Rules
- Crosswalk Design Guidance Guide (GAP)
- Bus Stop Design Guidance (GAP)
- Highway Capacity Manual
- ITE Trip Generation Manual
- ITS Guidance documents

**Table 1. Workshop Schedule**

1	2	3	4	5	6	
March 10	April 14	May 1	May 19	June 9	June 16-17	
						
<b>Transportation and Land Use</b>	<b>Active Transportation</b>	<b>Public Transportation</b>	<b>Intelligent Transportation Systems (ITS)</b>	<b>Transportation Demand Management (TDM)</b>	<b>Freight Logistics</b>	<b>Multimodal Integration and Trade-Offs</b>
<ul style="list-style-type: none"> <li>• History and legal basis of planning and zoning</li> <li>• Planning</li> <li>• Zoning</li> <li>• Subdivision</li> <li>• Economic and Fiscal Health</li> <li>• Integrating land use and transportation</li> </ul>	<ul style="list-style-type: none"> <li>• History and trends</li> <li>• Walking</li> <li>• Bicycling</li> <li>• Complete Streets</li> </ul>	<ul style="list-style-type: none"> <li>• System Characteristics: Intercity, Regional, Trunkline, Local, Special Needs</li> <li>• Bus-based systems and technology</li> <li>• Rail-based systems and technology</li> <li>• Mobility management</li> </ul>	<ul style="list-style-type: none"> <li>• Overview of ITS</li> <li>• State of the ITS Practice in MDOT/Michigan</li> <li>• ITS strategies and applications for all modes</li> <li>• Integrated corridor management (ICM)</li> <li>• Advancing multimodal ITS in MDOT programs, processes, and projects</li> </ul>	<ul style="list-style-type: none"> <li>• What is TDM and why do it?</li> <li>• Typical (and atypical) tools for TDM &amp; Implementation</li> <li>• Setting up Success in Michigan</li> <li>• State role in TDM</li> <li>• How much? Measuring and reporting</li> <li>• Developing a TDM program</li> </ul>	<ul style="list-style-type: none"> <li>• System characteristics</li> <li>• Truck-based systems</li> <li>• Rail-based systems</li> <li>• Intermodal hubs: Ports, Airports, Distribution centers</li> </ul>	<ul style="list-style-type: none"> <li>• Summary of findings from past workshops</li> <li>• Planning considerations</li> <li>• Design considerations</li> <li>• Construction considerations</li> <li>• Operations and maintenance considerations</li> </ul>

# ... planning, designing and operating facilities in a comprehensive way ...

- Local Agency Program (LAP) Guidelines for Geometrics
- LAP Program Application
- Signalization Capacity Software
- State Transportation Commission Policy on Complete Streets
- Context Sensitive Solutions (CSS) Guidelines for Stakeholder Engagement
- Program and Project Management System: Preconstruction Process Documentation Manual
- Project Scoping Manual & Checklist
- Call for Projects Memo & Instructions
- Monitoring and Reporting Projects
- Funding template
- State Transportation Improvement Program (STIP)
- 2013 Strategic Plan/Transportation Scorecard (MI Transportation Scorecard )
- MI Transportation Plan (2035 Long Range Transportation Plan)
- Five-year Transportation Program
- MPO Long Range Plans/Work plans
- MDOT/FHWA Stewardship and Oversight Agreement
- Policy Plan for Michigan Air Service
- Michigan Aviation System Plan

## Multimodal Integration Workshop

After completion of the individual modal workshops, a two-day Integration Workshop was held to discuss the identified documents and processes in detail and how they impact MDOT's goal to become a more multimodal organization. Additional MDOT documents, processes and procedures that had been previously identified for future revision as a part of MDOT's *Complete Streets Implementation Plan (version 1.1)* were also considered by the PSG. The additional documents, processes and procedures that are included in the Complete Streets initiative include:

- Grade Inspection Checklist
- LAP Proposal Certification
- Road and Bridge Forms 0593 and 0594
- Design Process – Scope Verification Form
- Design Process – Base Plans
- Design Process – Plan Reviews/Grade Inspection
- Region Non-Motorized Plans
- NFC Classification
- Statewide and Metropolitan Planning Processes
- Monitoring and Reporting on Complete Streets Project Requirements
- Training Tools and Webinars
- MDOT Complete Streets Public Website
- ITS Guidance
- ROW Construction Permit System (CPS)
- ROW Construction Permit Public Website
- ROW Construction Permit Manual

Finally, a thorough review of MDOT’s website by the SGA team yielded another group of documents (policies, standards, manuals, guidelines), processes and procedures of the Department that may provide additional opportunities to help MDOT better achieve its goal to become a more multimodal focused organization. These additional documents, processes and procedures are listed in **Table 2**.

During the review and discussion all of these documents, processes and procedures at the workshop, a number of relevant observations, gaps and barriers were identified that should be considered as MDOT improves its plans for integrating multimodal transportation into its every day operations. The key findings from those PSG discussions listed in **Table 3**.

Table 2. Additional Documents & Procedures Identified in MDOT Website Review

<ul style="list-style-type: none"> <li>• MI Infrastructure Dashboard</li> <li>• MDOT Performance Tab Reports: Performance Measures</li> <li>• Michigan State Rail Plan</li> <li>• Michigan State Freight Plan</li> <li>• Michigan Strategic Highway Safety Plan</li> <li>• Applications/Projects for HSIPR Funds</li> <li>• MDOT Design Process Flowcharts</li> <li>• PPMS Scoping Preconstruction Task Checklist, Fillable (10/15/2012)</li> <li>• Index of Chargeable PPMS Tasks (1/16/2013)</li> <li>• Michigan Signal Optimization Guidelines 10208 (5th edition)</li> <li>• Work Zone Safety and Mobility Manual</li> <li>• Maintenance Work Zone Traffic Control Guidelines</li> <li>• Michigan Intersection Guide</li> <li>• Michigan Roundabout Guidance Document</li> <li>• Speed Limit Establishment Process (85th percentile)</li> <li>• Systems Operations Advisory TSA 200803, Right Turn on Red Signs</li> <li>• Questions and Answers for Establishing Realistic Speed Limits</li> <li>• Best Design Practices for Walking and Bicycling in Michigan</li> <li>• Vegetation Control For Safety A Guide for Local Highway and Street Maintenance Personnel (FHWA)</li> <li>• Stop-Controlled Intersection Safety: Through Route Activated Warning Systems (FHWA)</li> <li>• Highway Safety Manual (AASHTO)</li> <li>• Traffic and Safety Notes</li> <li>• Form 2913 Plan Review Material Submittal Order</li> </ul>	<ul style="list-style-type: none"> <li>• School Area Traffic Control Guidelines</li> <li>• Guidelines for Traffic Safety Planning in School Areas</li> <li>• Traffic Signals – A Guide For Their Use</li> <li>• Pavement Marking Standards</li> <li>• Suggested Traffic Signal Design Procedure</li> <li>• Guidelines for Traffic Regulations and Traffic Control Orders (speed studies/control)</li> <li>• Guidelines for Geometrics (4R, 3R, PM)</li> <li>• Guidelines for the Use and Operation of Pedestrian Signals</li> <li>• Sight Distance Guidelines</li> <li>• Traffic and Safety Note 211A: Procedure for Installing a Pedestrian Hybrid Beacon</li> <li>• Rumble Strips: Design Advisory, DA 200901</li> <li>• Posted Speed Design vs. MDOT Design Speed: Design Advisory DA 200705</li> <li>• Pedestrian Signal Guideline: Bureau of Highway Instructional Memorandum 200504</li> <li>• Local Agency Programs Section Federal Eligibility Guidelines</li> <li>• Program Application for Local Agency Projects Road and Safety Projects</li> <li>• Program Application for Local Agency Projects: Transportation Alternative Funds Enhancement and Safe Routes to Schools</li> <li>• Diagonal Parking Review Process for Local Agency Projects</li> <li>• Off-Road Vehicle Permits/Guidelines</li> <li>• Guidelines for Signing on State Trunkline Highways</li> <li>• Pedestrians in Work Zones</li> <li>• Guidelines for Highway Railroad Crossings</li> </ul>
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Table 3. Key Findings from PSG Workshop Discussions

## Observations

- Flexibility v. Standards – How do you have and use flexibility in standards? For example, in safety – safety for whom? Does it apply to all modes? Standards bring a level of expectation, i.e., good things, and we need to balance standards and flexibility.
- Traffic forecasts are driving subsequent designs.
- The department does have a major role in local federal aid projects.
- Underlying it all is how to prioritize limited funding.
- The six step process for complete streets is an important approach.
- The department does not necessarily have the staff to provide community assistance. Also, remember, MDOT only controls 10%
- of the system. We need to partner with locals, but getting information to locals is difficult – largely driven by specific projects.
- We need a document or checklist for local officials that includes one another in the decision making process.
- We need to measure the economic benefits from multimodal approaches, especially transit.
- Maybe we need a multimodal person in each region, instead of one in Lansing.
- There are many cross platform/intermodal challenges – we need to make seamless connections.
- The maintenance side needs to be addressed as well, including responsibility for sidewalks and BRT lanes.
- Do we want transit involved in TSC work?
- HOV, toll lanes and congestion pricing should be a part of the discussion.
- In the freight area, we must consider whether customers are willing to pay for faster delivery needs to be considered. Segregation of delivery is also important – home vs. centers. And government does not make modal decisions regarding freight – there is limited ability to influence modal decisions.
- Economic benefit is another important consideration and measure – making the case for a larger audience and not just transportation officials.
- One of the bigger challenges is everyone agreeing on a plan – that is where everything starts.

## Barriers

- Annual and long term funding – need more flexibility with templates, funding allocations
- Minimizing design exceptions
- Staffing/organizational structure
- Pavement and bridge condition goals
- Engaging innovation in regional offices
- CSS stakeholder engagement
- Pre-scoping process – asking modal questions
- Scope verification – time horizons, funding not at right time
- Internal and external permitting processes – need better communications
- Clarity of funding templates – flexibility and availability of multimodal as needed
- Call for projects
- Communications among Regions, TSCs, and Lansing
- Clearer goals aimed at multimodal outcomes
- Use of 85<sup>th</sup> percentile and posted speed for design

## Gaps

- Non-motorized performance measures
- Education – MDOT processes and constraints, how MDOT balances competing interests
- Prioritization for competing modes
- Access to staff expertise – MDOT and locals clearly defined roles and responsibilities
- Too much focus on roads
- Multimodal staff in regional offices
- Lack of focus on multimodal, not enough dollars to meet goals
- Regional management direction/ leadership/encouragement/support, lack of sharing best practices, collaboration within region offices and multimodal disciplinary teams
- Lack of expertise to facilitate multimodal decision
- Lack of network vision along corridors
- Federal guidance for access management
- Comprehensive corridor management plans
- Local permitting process – ensure MDOT has a seat at the table (land use, zoning, regional plans, utilities, access management plans)
- Unified vision across regions and uniform multimodal integration process
- Communication among Regions, TSCs, and Lansing
- Guidance on freight integration

# ... to help MDOT better achieve its goal to become a more multimodal focused organization ...

## *Evaluation of Documents, Processes and Procedures*

An evaluation has been conducted for the MDOT procedures, practices, standards, guidance documents and manuals identified through the workshop process. Each item was assessed to determine its potential to address the primary barriers, gaps and issues noted by the PSG through the workshop process.

A key part of this evaluation process involved the PSG's observations and insights into how the department's key internal decision-making processes (Highway Development & Field Services, Transportation Planning, Finance & Administration, Region Offices/TSCs, Modal Offices and Director's Office) and external stakeholders contribute to making, influencing and implementing modal decisions. Opportunities to improve these processes and coordination with partners were also identified and prioritized by the PSG.

Building upon the PSG input and guidance, SGA also evaluated how impactful these revisions and/or augmentation would be to advancing MDOT's desire to become a more multimodal organization. The result is the identification of an initial primary group of documents, processes and procedures targeted for revision or augmentation as listed in **Table 4**. In one instance a new document is proposed to address what are considered critical gaps in multimodal policy or guidance. The actions proposed for each item have been categorized in three areas as follows:

**REVISION** – The document, process or procedure needs revision to better reflect all modes and/or integration of the modes;

**AUGMENTATION** – The document, process or procedure is missing key guidance or considerations and needs to be augmented to better reflect all modes and/or integration of modes; and

**NEW** – There is a policy, guidance, standard or manual needed to address to a key gap or barrier in advancing multimodal thinking and integration.



Table 4. Multimodal Integration Action Plan – Recommended Documents/Processes

 Document/Process	 Type	 Primary Need(s)	 Responsible Lead Unit/Agency	 Considerations*
1. Road Design Manual & Guides	S/G	Revise/ Augment	Bureau of Highway Development/ Design Division	Requires coordination with Offices of Passenger Transportation and Rail, and Bureau of Field Services, Bureau of Transportation Planning, Regions and TSCs.
2. Bridge Design Manual & Guides	S/G	Revise/ Augment	Bureau of Highway Development/ Design Division	Requires coordination with Bureau of Transportation Planning, Offices of Passenger Transportation and Rail, Bureau of Field Services, Regions and TSCs, Modal Specialists.
3. Sidewalk Participation Rules	P	Revise	Bureau of Highway Development/ Development Services Division, Local Agency Programs	Involves Act 51 state law.
4. LAP Guidelines for Geometrics	G	Revise/ Augment	Bureau of Highway Development/ Development Services Division, Local Agency Programs	Requires coordination with Bureau of Transportation Planning, Offices of Passenger Transportation and Rail, Bureau of Field Services, Regions and TSCs, Modal Specialists.
5. LAP Application	PR	Revise/ Augment	Bureau of Highway Development/ Development Services Division, Local Agency Programs	Requires coordination with Bureau of Transportation Planning, Offices of Passenger Transportation and Rail, Bureau of Field Services, Regions and TSCs, Modal Specialists.
6. Project Scoping Manual & Checklist	PR	Revise/ Augment	Bureau of Highway Development/ Design Division	Requires coordination with Bureau of Transportation Planning, Offices of Passenger Transportation and Rail, Bureau of Field Services, Regions and TSCs, Modal Specialists.
7. Call for Projects Memo & Instructions	PR	Revise/ Augment	Chief Administrative Officer/ Chief Operations Officer/Bureau of Transportation Planning	Bureau of Highway Development, Regions and TSCs, Modal Specialists.
8. Funding Template	P/PR	Revise	Chief Administrative Officer/ Chief Operations Officer/Bureau of Transportation Planning	Drives funding available for multimodal investments.
9. MDOT/FHWA Stewardship and Oversight Agreement	P/G	Revise/ Augment	Chief Administrative Officer/Chief Operations Officer	Will require close coordination with FHWA.
10. Crosswalk Design Guidance	G	Revise	Bureau of Highway Development/ Design Division	Would address process, CSS Process and design guidelines. Include Modal Specialists.
11. Bus Stop Design Guidance	G	New	Bureau of Highway Development/ Design Division	Bureau of Field Services, Office of Passenger Transportation, Modal Specialists.

TYPE: P=Policy/Law, S=Standard, G=Guidance, PR=Practice/Process/Procedure

\*Statewide Alignment Teams could serve in facilitation roles

# ... address what are considered critical gaps in multimodal policy or guidance ...

## Work Plan

The purpose of this Report is to provide the Michigan Department of Transportation (MDOT) with a detailed Work Plan to guide the implementation, training and communication of changes to the department's practices, standards and guidance in Table 4. In addition to these recommended document and procedures revisions, this Work Plan also outlines an approach to:

- Managing internal and external communication and collaboration during the revision process, and

- Conducting the internal and external training considered necessary to effectively integrate the recommended actions into the Department's culture and operations.

This Report is the final deliverable of the M2D2 (Multi Modal Development and Delivery) project that is supporting Michigan's economic recovery by improving MDOT's institutional capacity to plan, design, construct, operate and maintain Michigan's transportation system for Complete Streets and multiple modes. Implementing this Work Plan as described below will assist MDOT in becoming a more multimodal-focused organization.

## Document and Procedures Revision Process

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The goal of the revision/augmentation process in this Work Plan is to ensure that these documents and processes consider and thoroughly address the inclusion of all modes and the integration of the modes where appropriate in Michigan's transportation system. The process should address any gaps, barriers and inconsistencies in these documents in order to advance MDOT in multimodal planning, design and integration. The changes implemented through these efforts should be effectively communicated throughout the department and with partner agencies in order to advance integrated, multimodal goals in the policy, planning, funding, design, operations and maintenance functions of the department.

The recommended revisions and augmentations to the eleven (11) selected documents and processes are outlined in **Appendix A**. Each document and process has been reviewed with specific sections and areas noted for revision or augmentation as described.

It is anticipated that MDOT will assign a Task Force or team of individuals guide the review and revision process for each of the identified documents or processes. This approach is consistent with the Complete Streets Policy Implementation Plan where many of the same documents have been noted for revision or updating. This M2D2 effort should be closely coordinated with the that Plan since many

# ... ensure that these documents and processes consider and thoroughly address the inclusion of all modes ...

of the goals, documents and desired outcomes are complimentary.

Overall there is a wide diversity of content in the eleven (11) identified documents ranging from the 2-page Funding Template to the 673-page *Road Design Manual*. Some items are very technical, such as the *Bridge Design Manual*, while others are more administrative and process focused such as the MDOT-FHWA *Stewardship and Oversight Agreement*. Yet others have significant legal, policy and funding implications such as the *Act 51 Sidewalk Participation Rules* and *Annual Call for Projects* guidelines and process. But regardless of their nature, advancing the awareness, understanding and competency of the department in multimodal matters will ultimately require advancements in all these areas.

It can be difficult for an organization, even one the size of MDOT, to identify the right staff and dedicate enough of their time to effectively implement a work effort and culture shift of this magnitude. Other DOT agencies have dedicated considerable resources and years to implement this level of desired change in their organization.

As an example, the Massachusetts Department of Transportation engaged a task force of 28 representatives (internal and external representatives) over a period of roughly three years to significantly revise and expand their Highway Design Manual. The 28-member Task Force was comprised of representatives from municipalities, regional planning agencies, professional organizations,

advocacy groups, and other state agencies. In this process their “highway design manual” evolved into their “*Project Development and Design Guidebook*” in order to accomplish four key goals: (1) expand flexibility in design requirements, (2) understanding and responding to Community Context, (3) understanding and advancing multimodal accommodation, and (4) developing transparent and clear project development guidelines. Several other state DOTs have undertaken similar efforts in the recent past.

The process to thoroughly evaluate each document, discuss and develop options for improvement, revise and augment the documents will be a significant effort. Like any successful project, MDOT should identify the necessary resources, adopt a plan and schedule, and manage the process to a successful completion. These elements are discussed in more detail later in the report.

# ... detailed Work Plan to guide the implementation, training and communication of changes ...

## Managing Internal and External Communication and Collaboration

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While the documents and processes being revised are predominantly internal to MDOT, there are numerous other internal and external stakeholders that are impacted by the use and application of these items. Any process to revise and augment these documents and processes at the level anticipated will be more readily understood, accepted and used appropriately by these stakeholders if they are meaningfully engaged in the revision process.

There are several categories of stakeholders that should be considered for engagement in the process, with some at different levels of engagement and at different times in the process. The list of stakeholder groups provided below will need to be carefully considered and refined to ensure that the appropriate agencies and entities are being engaged and communicated with in the most effective way and at the most appropriate point in the process.

**Group 1** – Internal department staff – Executive level, Management level, Statewide Alignment Teams, Engineering Operations Committee, project managers, lead designers and modal specialists

**Group 2** – Other impacted/interested state agencies (Governor’s Office, Legislature, State Transportation Commission, Economic & Rural Development,

Environmental Quality, State Housing Development Authority, Department of Natural Resources)

**Group 3** – FHWA ,FTA and FRA staff

**Group 4** – Regional agencies (MPOs, tribal, COGs, TMAs, rural planning agencies)

**Group 5** – Local governments (cities, villages, townships and counties) and their statewide organizations, such as MML and CMA.

**Group 6** – Other governmental/quasi-governmental agencies (Sense of Place Council, transit, railroads, economic development organizations, etc.)

**Group 7** – State chapters of associated professional organizations (ACEC, APA, APWA, ASCE, ITE, etc)

**Group 8** – Planning and Engineering Consultants and Contractors

**Group 9** – The Traveling Public, including statewide modal organizations (LMB, MTGA, TRANS4M)

The process for engaging, communicating with and training selected groups throughout the document and procedure revision process will vary by work plan element. SGA recommends that MDOT establish and empower a *M2D2 Implementation Task Force* whose

# ... ensure that the safety and mobility of all users of the transportation system are considered equally ...

responsibility it is to organize, lead and implement this Work Plan. The Task Force would be similar to the Complete Streets Internal Team (CSIT) that was established with the primary focus of developing a strategy for implementing the State Transportation Commission Policy on Complete Streets in a timely and consistent manner. It is only logical for MDOT to integrate, or at a minimum align, the M2D2 and CSIT groups since their missions are so closely related and both efforts include revisions to many of the same department documents and processes, followed by outreach and training to most of the same internal and external stakeholders.

Another example of a similar department coordination and communication effort involved the Context Sensitive Design initiative in 2006. MDOT partnered with the state chapter of the American Council of Engineering Companies (ACEC) to jointly plan for and deliver focused training not only to department staff but for their private sector partners as well.

A recommended first step in the Work Plan implementation process would be to establish a set of Guiding Goals for the M2D2 initiative. These principles would become the touchstone of the program and ensure a clear and consistent mission and vision that helps to guide all the efforts to be undertaken. Appropriate goals could include the following:

1. To ensure that the safety and mobility of all legal users of the surface transportation system

(vehicles, bicycles, pedestrians, transit providers/users, intermodal freight) are considered equally through all phases of a project or program, such that even the most vulnerable (e.g., children and the elderly) can feel safe within the public right of way where and when they are legally allowed to travel. Road safety audits are one tool to accomplish this.

2. To ensure that the overarching principles of Context Sensitive Solutions (a current department policy to ensure a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility for all users) are incorporated throughout project planning, development, design and construction.
3. To present a clear project development and design process that is transparent to all users in its intent, and can be administered consistently and flexibly to all levels of government who are MDOT's partners in delivering transportation services on Michigan infrastructure.

Additionally, the M2D2 efforts would seek to achieve or advance these goals as aligned with a set of guiding principles such as:

- Reflect current best practices which would establish MDOT as a national model for state DOTs in multimodal accommodation;

# ... a new level of staff awareness and understanding ...

- Provide better balance among local government, state and other project participants in terms of responsibilities and benefits;
- Provide a more transparent process and an improved project development process;
- Support technically sound, documented decisions;
- Provide more clarity and guidance on where and when certain standards apply, and what flexibility exists in applying those standards;
- Clearly define when design exception requests are required, and the process for obtaining, if necessary;
- Take into consideration maintenance and operations issues and their long-term costs and benefits;
- Streamline the project review process resulting in more timely and consistent results; and
- Ensure a consistent approach statewide.

As noted earlier, the Complete Streets Implementation Plan has identified for revision and/or augmentation several of the same documents and processes identified through the M2D2 process. Those items and the CSIT plan for the implementation of revisions by the department as of mid-2014 is noted in **Table 5**.

It is recommended that the M2D2 Implementation Team create a detailed schedule of activities and milestones similar to those developed for the Complete Streets Implementation Plan. This schedule would address document revisions, training and communications for the M2D2 initiative.

Table 5. Complete Streets Implementation Plan



Document/Process	Tentative Revision Schedule	Status	Lead Entity
Road Design Manual	Continuous	In process	Design
Bridge Design Manual	Continuous	Pending	Design
Project Scoping Manual/Scoping Checklist	2014	Pending	Statewide Alignment Team
Sidewalk Participation Rules	2014	Pending	Design (LAP)
LAP Program Application	2014	Pending	Design (LAP)
LAP Guidelines for Geometrics	2014	Pending	Design (LAP)
Call for Projects Memo/Instructions	2014	Pending	BTP
Crosswalk Design Guidance Guide	2014	Pending	Traffic & Safety

# ... establish a set of guiding principles for the M2D2 initiative ...



## Internal and External Training

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Effective implementation of the revised and augmented documents and process/procedures throughout MDOT requires a new level of staff awareness and understanding in the application of several key concepts, documents and processes. It is necessary, therefore, to provide early and ongoing training for all department staff who will be involved in interpreting and using these revised documents and processes.

This training should also be made available to key agencies and stakeholders who routinely partner with MDOT in the planning and design work of the department, particularly the local government and metropolitan planning organization (MPO) staff (and their consultants) who are frequently engaged with the department in planning, approving and designing state transportation facilities within their respective jurisdictions.

MDOT should consider partnering with professional organization state chapters to jointly develop and deliver the necessary training to all external partner stakeholders. There is currently a workforce development partnership with the state ACEC chapter and similar partnerships could be developed with the County Road Association, Michigan Municipal League, American Public Works

# Ongoing training, communication, and education efforts are critical . . .

Association, Transportation Planning Association, Institute of Transportation Engineers, American Public Transportation Association, Association of Metropolitan Planning Organizations and others. These training sessions can be delivered in a combination of learning methods including face-to-face workshop settings, live web-based webinars, web-based on-demand training modules, or some combination of these approaches.

Training provides a variety of benefits, including the following:

- Preparing managers, technical staff and consultants to address various challenges in planning, design, operations and maintenance, including methods of working with partner agencies and the public;
- Keeping staff and consultants up to date on policy and technical advances;
- Identifying implementation problems and ways to address them;
- Promoting good communication and dialogue within and across agencies involved in multimodal issues;
- Building interest in and support for a new level of multimodal provision and integration; and
- Improving consistency in the decision-making process.

Training provides an opportunity for closer interaction between department personnel and



# ... identifies ways that MDOT can balance those needs and modes collectively when multiple modes exist ...

those with different expertise in planning and design related issues. This interaction can be beneficial for addressing specific program objectives, such as balancing service to modes during design or coordinating with local governments. Outreach to those affected by the program will also clarify agency objectives and reduce misunderstandings.

Brochures, websites, regular newsletters, and videos describing the initiative can also be helpful for informing the public and policy makers about the purpose and benefit of improved multimodal accommodation as well as changes in the agency that may result from revisions to changes in policies, standards and procedures. The multimodal initiative will benefit greatly from continuous monitoring to identify and resolve administrative problems. This can be accomplished through quality assurance programs, as well as through periodic task team meetings or facilitated discussions during training.

Ongoing training, communication, and education efforts are critical in developing and enhancing the understanding of integrated, multimodal accommodation among all parties, particularly among state staff, municipal transportation and land use planning staff, and the engineering, architectural, and planning consultant community, as well as business owners and the general traveling public.

In summary, this training should provide a lasting reference and specific applications of techniques and practices that will enable MDOT personnel to implement successful multimodal planning,

design and integration strategies and programs. All participants should receive access to workshop materials and supporting documents for ongoing reference as needed.

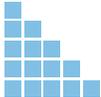
Specific goals to be achieved thru the training would include:

- Promote awareness of the revised documents, standards and processes;
- Develop knowledge & understanding of the benefits of multimodal accommodation and integration;
- Teach how to apply the revised documents and processes;
- Clarify the roles and responsibilities for multimodal implementation among state, county, city and other involved agencies; and
- Encourage institutional change & advocacy for the new and revised standards, guidelines and processes.

Training should be developed and provided at the participant levels listed in **Table 6**.

# Implementing this plan will help to ensure that MDOT accomplishes its mission . . .

Table 6. Levels, Attendees, Purpose, and Duration of Training

 Level	 Attendees	 Purpose	 Duration
<b>Level 1 – Executive Overview</b>	Upper management, region engineers, FHWA/FTA representatives, State Transportation Commission	Basic understanding of the new multimodal focus and the internal/external training to be conducted.	1 to 2 hours
<b>Level 2 – Manager’s Overview</b>	Bureau/Division managers, planners/design engineers, other key management staff	Understanding of the new multimodal focus and how it will impact staff responsibilities and activities.	2 to 3 hours
<b>Level 3 – Division and Region Full Training</b>	Frontline staff in affected bureaus/divisions/regions/TSCs	Thorough understanding of the new documents and processes and how to integrate them into routine activities.	8 hours – possibly held in conjunction with other MDOT meetings
<b>Level 4 – City, County, Urban/Rural Planning Organizations</b>	Management and frontline staff in cities, villages, and townships, counties, planning organizations, state organizations (CRA, MML, CRA, MTA, consultants, etc.)	Understanding of the new documents and processes and how local agencies will coordinate with MDOT on plans, projects and issues within their jurisdictions.	3 to 4 hours – possibly held in conjunction with routine MPO meetings

*The complete curriculum for the 8-hour Level 3 training will cover all aspects of the revised documents and procedures in the document/process work plan.*

# ... for the highest quality integrated transportation services.

## Summary

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Rebuilding our economy and creating new jobs is a key responsibility of this generation. Thriving local economies need access to workers, to materials, and to markets. Transportation investment is key to economic recovery and prosperity, and Michigan has much to gain by creating communities that attract and retain people and attract and retain jobs.

The Michigan Department of Transportation (MDOT) mission is “providing the highest quality integrated transportation services for economic benefit and improved quality of life.” To carry out its mission in the context of 21st Century economic and demographic reality, MDOT recognizes that its standards and approaches for planning, designing, constructing, maintaining and operating “trunk line” highway facilities need to be updated to consider the impacts and interactions of all potential modes of travel (automobile, transit, bicycle, pedestrian, truck, rail, air, etc.) from a capital investment, physical construction, and operational perspective. MDOT staff need to have the knowledge and tools available to them

to effectively plan, design, construct, maintain and operate facilities that move people and goods in the variety of ways that people and communities chose to utilize.

To address this compelling need, MDOT and Smart Growth America (SGA) have developed this Work Plan that addresses the needs and expectations for each transportation mode and identifies ways that MDOT can balance those needs and modes collectively when multiple modes coexist. A series of workshops with key department leadership has led to this process defining systematic revisions to MDOT procedures, practices, standards, guidance documents and manuals, as well as recommendations for ongoing training and development activities for MDOT staff to understand and utilize the revised practices. Implementing this plan will help to ensure that MDOT accomplishes its mission for “the highest quality integrated transportation services.”

# Appendix A – Priority Documents and Procedures for Recommended Revision and Augmentation

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## ROAD DESIGN MANUAL

The MDOT Road Design Manual (and its associated Design Advisories) establish policies, standards and guidance for the design of all new and retrofitted Michigan DOT road facilities. The Design Advisories generally provide updated guidance on design policies and promote uniformity in design practices. The Manual has 14 chapters and contains 673 pages.

In general, to achieve the goals of the M2D2 project several revisions and augmentation to existing sections are needed along with the addition of new sections. The sections below provide additional guidance on specific needs by chapter of the Manual.

**Responsible Unit/Agency/Person:** Lead: Bureau of Highway Development, Design Division; Support: Office of Passenger Transportation and Rail, Bureau of Field Services, and Modal Specialists.

 Document Sections	 Area/Issue	 Need and Recommended Revision	 Comments
Cover Page	Document Name: <i>"Road Design Manual"</i>	Changing document name will imply major changes to document necessary to address an integrated, multimodal approach to roadway design. Re-name document to <i>"Project Development and Design Manual."</i>	Useful reference for MassDOT Highway Design Manual can be found at:
Introduction	Statement of relationship of road design policies, standards, guidelines to integrated, multimodal design; no current Introduction chapter	Add "Introduction" chapter to establish design vision and principles that define and stress the need for integrated, multimodal consideration in the roadway design process. Add Introduction chapter which establishes the vision and guiding principles of an expanded, integrated, multimodal approach to the roadway design process.	<a href="http://www.massdot.state.ma.us/highway/DoingBusinessWithUs/ManualsPublicationsForms/ProjectDevelopmentDesignGuide.aspx">www.massdot.state.ma.us/highway/DoingBusinessWithUs/ManualsPublicationsForms/ProjectDevelopmentDesignGuide.aspx</a>
Project Development Process	Discussion of how geometric design relates to the overall project concept and implementation process; Not currently included	Provide standards and/or guidance that addresses how the roadway design process supports the overall project development process through application of design flexibility and context-sensitive design principles. Create new chapter on the "Project Development Process" that addresses the standards, guidelines and processes for consideration of all modes and their integration in the geometric design process.	
CHAPTER 1: Plan Preparation	1.02.01 – Required traffic data projections only includes vehicle mode.  1.02.01 – Design speeds and posted speeds discussed.  1.02.03 – Vicinity maps do not include land use information.  1.02.16 – Maintenance of traffic plans.	<ul style="list-style-type: none"> <li>Expand traffic data section to include guidance on estimation of pedestrian, bicycle, transit modes.</li> <li>Expand discussion of design &amp; posted speeds to include target speeds and traffic calming tied to area context.</li> <li>Expand project mapping to include land use and context surrounding the design area.</li> <li>Expand discussion to address provision of safe access &amp; travel of all existing modes during maintenance &amp; construction activities.</li> </ul> Revise or augment these sections of Chapter 1 to address all modes and context considerations in the Plan Preparation process.	

 Document Sections	 Area/Issue	 Need and Recommended Revision	 Comments
CHAPTER 2: Grades & Earthwork	Grade assessment and design considers typical vehicle mode users.	<ul style="list-style-type: none"> <li>Where existing or planned level of pedestrian, bicycle and transit use is considered significant, guidance should be provided regarding how grades can impact the operations and safety of non-motorized users.</li> </ul> Revise or augment this Chapter to address consideration of all modes and area context in the Plan Preparation process.	
CHAPTER 3: Alignment and Geometrics	3.06 – Design speed only addressed in vehicle terms 3.07.01 – Lane widths and roadway capacity 3.07.04 – Intersection design elements 3.09.02 – Minimum guidelines for controlling design elements <ul style="list-style-type: none"> <li>3R Minimum Guidelines</li> <li>Design exceptions process</li> </ul> 3.09.03 – Roadside obstacles Appendix 3A, Geometric Design Elements table	<ul style="list-style-type: none"> <li>Expand discussion in the 7 identified areas of this Chapter to more fully consider and address the convenience, safety and needs of all modes in project designs where appropriate. Context, target speed and other livability and community goals should be addressed where appropriate.</li> </ul> Revise or augment this Chapter to address consideration of all modes and area context in the evaluation and selection of alignment and geometric criteria. Discuss the need for design exceptions as a normal part of the design process.	
CHAPTER 4: Drainage	No identified issues		
CHAPTER 5: Right-of-Way	5.04 – ROW Widths 5.05 – Urban ROW Widths 5.05.02 – Consent to Construct Sidewalk 5.18 – Requirements for Preliminary ROW Plans 5.20 – Requirements for Final ROW Plans	Expand discussion in the 5 noted areas of this Chapter to consider and address the convenience, safety and other needs of all modes where appropriate. Context, target speed and other livability and community goals should be addressed where appropriate.	
CHAPTER 6: Surfacing and Shoulders	6.05 – Shoulders 6.05.11 – Corrugations 6.06 – Curb & Gutter 6.08.05(G) – Sidewalk Ramps 6.08.05(H) – Traffic & pedestrian Signals	Expand discussion in the 5 noted areas of this Chapter to consider and address the convenience, safety and other needs of all modes where appropriate. Context, target speed and other livability and community goals should be addressed where appropriate.	
CHAPTER 7: Appurtenances	<ul style="list-style-type: none"> <li>Chapter does not consider context of project area in setting clear zones and treatments.</li> <li>Clear zones are the same for all roads with design speeds 40 mph or less.</li> <li>Does not address urban areas specifically</li> </ul>	Revise and augment Chapter to consider and address the context (particularly urban areas) and roads with lower design speeds.	

 Document Sections	 Area/Issue	 Need and Recommended Revision	 Comments
CHAPTER 8: Maintaining Traffic	<ul style="list-style-type: none"> <li>Needs expanded discussion of bicycle service and transit service in work zones and traffic control planning.</li> <li>Needs discussion of work zone control in urban, low-speed settings.</li> <li>Minimal guidance on how to serve and balance design for modes in work zones.</li> </ul>	Revise and augment chapter to help determine what modes need to be served in work zone control and how to design those elements in the traffic control plans.	
CHAPTER 9: Utilities	<ul style="list-style-type: none"> <li>Information generally presented to address clearance and protection issues for above-ground utility fixed objects</li> <li>No discussion of utility accommodation in lower speed, urban areas</li> <li>No discussion of how utilities should be designed to minimize interference with pedestrian, bicycle and transit accessibility and movement</li> </ul>	Revise and augment chapter to address placement and design of utilities in urban areas and along lower-speed roadways, particularly as it relates to the safety of and coordination with non-motorized modes.	
CHAPTER 10: Environmental	No identified issues.		
CHAPTER 11: Specifications And Special Provisions	11.02.03 – In the Business Area listing for Location Codes, there is no area that addresses non-motorized road users	Consider adding a Business Area for Non-Motorized users	
CHAPTER 12: Miscellaneous Roads	<ul style="list-style-type: none"> <li>This chapter addresses sidewalk facilities for local roads and streets (12.02)</li> <li>This chapter contains a bicycle facilities section (12.12)</li> <li>This chapter does not address transit service (i.e., bus stops or bus shelters)</li> </ul>	In general, this chapter needs more discussion and guidance of providing and coordinating non-motorized facilities and transit service with the design process.	
CHAPTER 13: Miscellaneous Pay Items	No identified issues.		
CHAPTER 14: Procedures For Plan Preparation	14.05 – Project Study Team develops and analyzes design alternatives 14.41 – Participation Agreements section addresses Public Act 51 requirements, participating & non-participating project elements, turn-back projects and more.	In general, this chapter needs more discussion and guidance of providing and coordinating non-motorized facilities and transit service throughout the plan preparation process. Some aspects address major policy issues with funding and maintenance responsibilities.	

## Bridge Design Manual

The MDOT Bridge Design Manual (and its associated Design Advisories) addresses the procedures involved in preparing plans of bridges and other major structures on the interstate/freeway, arterial, collector and local road system governed by MDOT. The Design Advisories generally provide updated guidance on design policies and promote uniformity in design practices. The Manual has 15 chapters and contains 554 pages.

In general, to achieve the goals of the M2D2 project, several revisions and augmentation to existing sections are needed along with the addition of new sections. The sections below provide additional guidance on specific needs by chapter of the Manual.

**Responsible Unit/Agency/Person:** Lead: Bureau of Highway Development, Design Division; Support: Bureau of Transportation Planning, Office of Passenger Transportation and Rail, Bureau of Field Services, and Modal Specialists.

 Document Sections	 Current Situation	 Need and Recommended Revision	 Comments
1. Introduction	No statement of relationship of bridge design policies, standards, guidelines to integrated, multimodal design.	<ul style="list-style-type: none"> <li>• Add text to chapter to establish design vision and principles that define and stress the need for integrated, multimodal consideration in the bridge planning and design process.</li> <li>• Augment chapter to establish the vision and guiding principles of an expanded, integrated, multimodal approach to the bridge design process.</li> <li>• Reference other guides for design of pedestrian and bicycle facilities</li> </ul>	
2. Steps in Producing Plans	2.02.13 – Traffic and Safety Data – only addresses vehicular traffic and safety needs.	<ul style="list-style-type: none"> <li>• Expand text to require consideration of existing and future non-motorized modes where they are allowed.</li> <li>• Augment chapter to add guidance for estimating current and future multimodal traffic across bridges.</li> </ul>	
3. Plan Composition – New & Reconstruction Projects	3.01 – Traffic Data, Capacity Analysis and Maintenance of Traffic focus only on the vehicle mode.  3.02.05 – Municipal Participation Act 51 – No discussion of bridge improvement to address multimodal mobility or safety needs.	<ul style="list-style-type: none"> <li>• Expand text to ensure that designers consider the presence of all modes and their safety/mobility needs in the design, construction/ maintenance process and municipal participation.</li> <li>• Augment chapter to add guidance for estimating current and future multimodal traffic across bridges and how they are served during construction and maintenance activities. Also address funding participation for multimodal improvements.</li> </ul>	
4. Plan Composition – Rehabilitation Projects	4.02.01 – Traffic data requirement only address vehicle mode.	<ul style="list-style-type: none"> <li>• Expand text to require consideration of existing and future non-motorized modes where they are allowed.</li> <li>• Augment chapter to add guidance for estimating current and future multimodal traffic across bridges.</li> </ul>	
5. Consultant Contracts	No identified issues.		
6. Plan Sheet Examples	No identified issues.		

 Document Sections	 Current Situation	 Need and Recommended Revision	 Comments
7. LRFD Design Criteria – New & Reconstruction Projects	7.02.27 – Sidewalks, Curb & Gutter, Railing – General guidance is given based on whether pedestrians are to be accommodated and if they are, what minimum requirements are.  7.02.31 – Deck Replacements – Minimum widths provided for several roadway classifications, traffic loads, speeds and urban/rural settings. No discussion of how to consider and accommodate bicycle and/or pedestrian needs in setting deck widths.  7.05 – Pedestrian fencing	<ul style="list-style-type: none"> <li>Expand text (or reference other guidance) to address the full range of pedestrian accommodation needs and design guidance for all situations. Also address bicycle accommodation and the interrelationships between bicycle, pedestrian and vehicle accommodation.</li> <li>Augment chapter (or reference other guidance) to add guidance for providing pedestrian and bicycle facilities across bridges, their relationships to vehicle traffic, and relationships to curbs and bridge railings.</li> </ul>	
7. LFD Design Criteria – New & Reconstruction Projects	No additional issues.		
8. Plan Notes – LRFD	No identified issues.	Should possibly add general note regarding maintenance of pedestrian and bicycle traffic flow during construction.	
8. Plan Notes – LFD	No identified issues.	Should possibly add general note regarding maintenance of pedestrian and bicycle traffic flow during construction.	
9. Detailing Practices	No identified issues.		
10. Shop Drawing Review	No identified issues.		
11. Plan Revisions	No identified issues.		
12. Rehabilitation Projects	12.01.01 – Structures Carrying Pedestrian Traffic <ul style="list-style-type: none"> <li>Where pedestrian traffic exists across a structure having sidewalks less than 4’-0” wide, an evaluation must be made to determine the hazard involved and to consider practical improvements.</li> </ul> 12.03.01 – Requests for Traffic Volumes and Crash Histories – Only vehicular volumes are called for.	<ul style="list-style-type: none"> <li>Add text that also addresses bicycle lanes across structures.</li> <li>Revise 12.03.01 to require projections of traffic for all modes.</li> </ul>	
13. Railroad Crossings	No identified issues.		
14. Permit Applications	No identified issues.		
15. Specifications	No identified issues.		
Associated Material Exempted Bridges On Special Routes in Highly Urbanized Areas.	Unsure of the purpose of this listing of bridges in urbanized areas and its possible impact on providing for multimodal accommodation.	<ul style="list-style-type: none"> <li>Should be evaluated for multimodal impacts</li> </ul>	

### Sidewalk Participation Rules

Act 51 of 1951 as amended details the funding distribution formula for the Michigan Transportation Funds (MTF) to 616 road agencies in Michigan. The Act, as amended by PA 82 of 2006, provides that cities and villages having a population of 25,000 or more shall participate with the Department in the cost of opening, widening and improving, including construction and reconstruction of state trunkline highways within said cities and villages. These road agencies shall not spend not less than 1% of their MTF on non-motorized transportation services or facilities. Agencies need not meet the requirement annually but as an average over a period of 10 years. If a community is in non-compliance for not spending a minimum of 1% percent of their MTF on non-motorized services or facilities, they must: (1) Develop a plan stating how they intend to spend the necessary funds to return to compliance within 3 years, (2) Present the plan to MDOT to verify that the proposed projects are eligible expenditures, or (3) Adopt a resolution committing to those projects and expenditures.

**Responsible Unit/Agency/Person:** Lead: Bureau of Highway Development (Development Services Division, Local Agency Programs), Support: Modal Specialists.



Document Sections	Current Situation	Need and Recommended Revision	Comments
Act 51 Public Acts of 1951 as amended provides that cities and villages having a population of 25,000 or more shall participate with the Department in the cost of opening, widening and improving, including construction and reconstruction of state trunkline highways within said cities and villages.	Act 51 as amended appears to place all or partial burden for sidewalks and bicycle lanes on cities and villages over 25,000. The state may not participate fully, or at all, in providing these facilities on state highways in these cities and villages.	Consider change in participation policy and/or state law, as appropriate, to allow for state participation in non-motorized facilities on state highways.	
Participation is required in the construction of new bridges and grade separations and the reconstruction or modification of such structures for the purposes of increasing vehicular or pedestrian capacity, of strengthening, of widening or replacing of piers and abutments, of replacing the deck when such deck replacement is of one span or more in length, and other major modifications.	This provision of Act 51 as amended appears to require city or village participation in increasing pedestrian capacity across a state highway bridge.	Consider change in participation policy and/or state law, as appropriate, to allow for state participation in non-motorized facilities on state highway bridges.	
<p>Within these parameters, the following tabulation is a partial classification of those items of work which will require participation by cities and villages pursuant to Act 51 PA 1951, as amended.</p> <p>3. All items necessary for the construction, reconstruction and improvement of state trunkline highways, including: . . . (b) The removal and replacement of existing sidewalks and the construction of new sidewalk ramps where applicable; . . . (h) The construction of bicycle and other non-motorized paths.</p>	This provision of Act 51 as amended appears to require city or village participation in the removal and/or replacement of sidewalks, bicycle and other non-motorized paths.	Consider change in participation policy and/or state law, as appropriate, to allow for state funding of sidewalk and/or non-motorized facility construction and reconstruction on state highways.	

## Guidelines for Geometrics on Local Agency Projects (Local Agency Program)

This manual provides information and guidelines upon which to base the design of federal and state funded local agency road and bridge projects administered through Local Agency Programs (LAP) of the Michigan Department of Transportation (MDOT). Depending upon the type of project work, these guidelines allow some latitude from the road and bridge geometrics required by the American Association of State Highway and Transportation Officials (AASHTO).

A project may be designed based upon one of two different guidelines: 1) The AASHTO current edition of A Policy on Geometric Design of Highways and Streets, or applicable MDOT guidelines for new construction/reconstruction; or 2) this document, Michigan Department of Transportation Local Agency Programs Guidelines for Geometrics. The latter includes guidelines for New Construction/ Reconstruction (4R); Resurfacing, Restoration and Rehabilitation (3R); Preventive Maintenance; and Design Exceptions.

**Responsible Unit/Agency/Person:** Lead: Bureau of Highway Development (Development Services Division, Local Agency Programs); Support: Bureau of Transportation Planning, Offices of Passenger Transportation and Rail, Bureau of Field Services, and Modal Specialists.

 Document Sections	 Current Situation	 Need and Recommended Revision	 Comments
General	<p>A project may be designed based upon one of two different guidelines: 1) The AASHTO current edition of A Policy on Geometric Design of Highways and Streets, or applicable MDOT guidelines for new construction/ reconstruction; or 2) this document, Michigan Department of Transportation Local Agency Programs Guidelines for Geometrics.</p> <p>Design of projects on roads, streets, and bridges under local jurisdiction which are listed on the National Highway System (NHS), shall be in accordance with applicable AASHTO guidelines and MDOT Non-Freeway NHS 3R guidelines.</p>	<ul style="list-style-type: none"> <li>This provision should address the need for design flexibility generally required for roadway design in urban area and village contexts where multiple modes are present and/or right-of-way constraints exist, and it should direct the user to guidance for applying flexibility in design in these situations.</li> <li>Same as above.</li> </ul>	
New Construction/ Reconstruction (4R)	<p>The design of any federal or state funded new construction or reconstruction project on a road or bridge under local jurisdiction shall, at a minimum, be designed using AASHTO guidelines.</p> <p>The design speed selected for new construction or reconstruction projects shall be in accordance with the following criteria: (a) The recommended design speed is 5 mph over the posted or regulatory speed, or (b) The minimum design speed without a design exception is the posted or regulatory speed, or 55 mph if the road is not posted in rural areas, or 25 mph if the road is not posted in urban areas.</p> <p>The shoulder width for new construction or reconstruction should be in accordance with AASHTO and the following criteria: (a) If the approach roadway shoulder exceeds 4 ft., then a minimum 4 ft. (3 ft. paved) shoulder is acceptable adjacent to right turn lanes, (b) However, if AASHTO requirements are less than 4 ft., then the shoulder width adjacent to the right turn lane should meet the AASHTO requirements.</p>	<ul style="list-style-type: none"> <li>Same as above.</li> <li>This approach to setting design and posted speed is not always appropriate in urban and village settings where speeds should be kept low due to multimodal activity and contextual issues.</li> <li>This section should discuss the possible use of shoulders for bicycle and pedestrian use and consider those modes in the design process.</li> </ul>	



**Document Sections**



**Current Situation**



**Need and Recommended Revision**



**Comments**

<p>Resurfacing, Restoration &amp; Rehabilitation (3R)</p>	<p>These guidelines for Resurfacing, Restoration, and Rehabilitation (3R) are applicable to federal or state funded projects on roads and bridges under local agency jurisdiction which are not on the National Highway System (NHS) in Michigan. For features not addressed in these 3R guidelines, the requirements of AASHTO's current guide entitled A Policy on Geometric Design of Highways and Streets or applicable Michigan Department of Transportation guidelines will govern.</p> <p>When 3R guidelines are not met for any of these controlling elements, a formal request for an exception should be prepared during the scoping process by the local agency representative preparing the scope and sent to the appropriate Local Agency Programs Staff Engineer for approval. Each request for a design exception should be accompanied by a justification explaining why non-freeway 3R minimum guidelines are not being met. It should include a crash history evaluation, the estimated total cost required to attain non-freeway 3R guidelines, and a simple cost benefit analysis.</p> <p>Table for 3R Minimum Guidelines for Geometrics: Non-NHS</p> <p>CRASH ANALYSIS – A safety review (3-year period) shall be performed on each 3R project before starting design work. This review should include an analysis of available crash data to determine where safety enhancements are warranted.</p> <p>The 3R project should incorporate features that alleviate any excessive crash patterns identified during the review. This should be considered regardless of other minimum requirements shown elsewhere in this guideline.</p> <p>DESIGN TRAFFIC VOLUME (ADT) – According to Special Report 214 (recommendation 14, page 204), “The design traffic volume for a given highway feature should match the average traffic anticipated over the expected performance period of that feature.” Therefore, the design ADT for a given feature should match the average ADT anticipated over the service life of the affected feature such as alignment and widths. However, based on the type of proposed work, the ADT may range from the present design life to the anticipated design life.</p>	<ul style="list-style-type: none"> <li>• This provision should address the need for design flexibility generally required for roadway design in urban area and village contexts where multiple modes are present and/or right-of-way constraints exist, and it should direct the user to guidance for applying flexibility in design in these situations.</li> <li>• Need to consider developing guidelines for a process which minimizes the need for formal design exceptions.</li> <li>• The minimums in this table should be reevaluated for a range of contexts and multimodal considerations.</li> <li>• Any crash analysis should also consider potential crash risk to all modes able to use the facility.</li> <li>• Design volumes should be considered for all modes that are allowed to use the facility.</li> </ul>	
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**Document Sections**



**Current Situation**



**Need and Recommended Revision**



**Comments**

<p>Resurfacing, Restoration &amp; Rehabilitation (3R)</p>	<p><b>DESIGN SPEED</b> – There are two methods that can be used to select the design speed for 3R projects. These may be used alone or in combination. (a) Select an overall design speed greater than or equal to the posted regulatory or prima facie speed on the section being improved, or (b) Determine the 85th percentile speed for the feature being designed, such as horizontal curves or vertical curves. (Documented speed study is required to apply this method.)</p> <p><b>3R SAFETY CONSIDERATIONS</b> – The designer should consider site specific conditions to determine the appropriateness for making improvements to side slopes and/or clear zones. Considerations include an evaluation of the costs as well as the impacts of improvement alterations. Documentation of the decision making process should be placed in the project file.</p> <p><b>CLEAR ZONE</b> – A uniform clear zone (i.e., a uniform distance from the edge of pavement to the tree line, utility poles, etc.) is desirable for the project length. Special consideration should be given to the following: (a) Removing, relocating, and/or shielding isolated roadside obstacles on the fore-slope or roadside ditches, particularly in target areas and non-recoverable fore-slopes, (b) Removing, relocating and/or shielding roadside obstacles with recorded crash concentrations, (c) If run-off road crashes are not concentrated in any location, but there is a significant number distributed throughout the project, consider widening the average clear zone for the length of the project.</p> <p><b>TREE REMOVAL</b> – Tree removal will be selective and generally "fit" conditions within the existing right-of-way and character of the road. The AASHTO Roadside Design Guide presents ideal clear zone distance criteria; however, these distances are not always practical in Michigan. Consequently, trees within the clear zone should be considered for removal subject to a list of criteria.</p> <p><b>ROADSIDE OBSTACLES</b> – Roadside improvements should be considered to enhance safety. Improvements may include removal, relocation, redesign, or shielding of obstacles such as culvert headwalls, utility poles, and bridge supports that are within the clear zone as referenced in Michigan Design Manual Road Design Section 3.09.03C.</p>	<ul style="list-style-type: none"> <li>• The context of the area and presence and activity of all modes should be considered in this analysis. Guidelines should be developed for this consideration. The 85th percentile speed may not be appropriate in some settings. Traffic calming techniques may be appropriate in some settings.</li> <li>• Safety considerations should be assessed for all modes who can legally use the facility.</li> <li>• Any evaluation of clear zone for safety considerations of vehicular traffic should also include the safety considerations for other modes who can legally use the facility and the context of the area.</li> <li>• Context of the area should be considered in the tree evaluations process.</li> <li>• Any safety enhancement study regarding roadside obstacles should also consider the context of the area and the safety of any non-motorized modes that are present.</li> </ul>	
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**Document Sections**



**Current Situation**



**Need and Recommended Revision**



**Comments**

<p>Resurfacing, Restoration &amp; Rehabilitation (3R)</p>	<p>C-8 3R – A review of crash history will provide guidance for possible treatments. However, treatment of some obstacles such as large culverts can add significantly, perhaps prohibitively, to the cost of a project. This means that in most instances only those obstacles that can be cited as specifically related to crashes or can be improved at low-cost should be included in the project. Ends of culverts that are within the clear zone should be considered for blending into the slope.</p> <p>INTERSECTION DESIGN – Designers should evaluate existing intersections when design traffic volumes on either roadway exceed 1,500 vehicles per day or there is evidence of crashes related to existing conditions. Such intersections should be reviewed during design and safety improvements and should be included in the project where practical and feasible. All available crash data should be utilized in the field review of the intersection.</p> <p>Safety measures, as discussed in the Supplemental Safety Measures herein, can be utilized to mitigate safety concerns at intersections. Warning panels/ signs should be installed where appropriate.</p> <p>SUPPLEMENTAL SAFETY MEASURES – The design of highways provides a range of supplemental measures that can be utilized alone or in combination with others to mitigate deficiencies in controlling elements to provide for safer roadways. Where reconstruction of a roadway feature, such as a horizontal curve, vertical curve, intersection or bridge, is not feasible or prudent because of economic, social or environmental concerns, alternative safety measures should be considered.</p>	<ul style="list-style-type: none"> <li>• A crash study should include not only past crash history but also present and future crash potential for all modes that can legally use the facility.</li> <li>• Intersection design should be based on existing and future volumes of all legal users within the intersection, and the current and future context of the intersection area.</li> <li>• Supplemental safety measures should include techniques and methods for improving the safety of roadways and intersections for all users who may legally use the facility.</li> </ul>	
<p>Preventive Maintenance (PM)</p>	<p>Preventive maintenance projects are defined as cost-effective projects designed to preserve the existing pavement and base, and give extended life to a roadway without undertaking reconstruction or major rehabilitation. The intent of a preventive maintenance program is to implement a planned strategy of cost effective treatments to an existing roadway system and its appurtenances that preserve the system, retards future deterioration, and maintains or improves the functional condition of the system without increasing structural capacity.</p> <p>DESIGN EXCEPTIONS – Design exceptions are not required and are not allowed for preventive maintenance projects.</p>	<ul style="list-style-type: none"> <li>• Preventive maintenance activities may provide opportunities to address safety and/or service issues for non-motorized modes; i.e., re-stripping of roads to address multimodal needs.</li> <li>• There may need to be flexibility in the design exception area for PM projects when safety or service issues exist for any mode.</li> </ul>	



**Document Sections**



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**Need and Recommended Revision**



**Comments**

<p>Preventive Maintenance (PM)</p>	<p><b>SAFETY REVIEW</b> – A 3-year safety review is required for preventive maintenance projects. At a minimum, the safety review should contain the most recent 3 years of crash data and a letter signed by a licensed engineer that describes the crash history and determines if there is a correctable crash pattern in areas that the project could reasonably address.</p> <p>All preventive maintenance projects should consider appropriate ways to maintain or enhance the current level of safety and accessibility. Isolated or obvious deficiencies should always be addressed. Safety enhancements such as the removal or shielding of roadside obstacles, mitigation of edge drop-offs, addition of paved or stabilization of unpaved shoulders, or installation of milled rumble strips, should be encouraged and included in projects where they are determined to be a cost effective way to improve safety. MDOT may require these safety features to be added to a project at the time of the grade inspection meeting. To maintain preservation program flexibility and in accordance with 23 U.S.C. 109(q), safety enhancements can be deferred and included within an operative safety management system or included in a future project in the STIP. In no way shall preventive maintenance type projects adversely impact the safety of the traveled way or its users.</p> <p><b>FEDERAL HIGHWAY COMPLIANCE</b> – The majority of preventative maintenance projects are deemed “alterations” and must meet ADA requirements (for public rights of way) by including sidewalk ramps and all other ADA compliance within the scope of the project. The only exception for ADA compliance would be those projects that meet the definition of “maintenance” as defined by the DOJ. DOJ defines “maintenance” projects as projects that are exempt from ADA.</p>	<ul style="list-style-type: none"> <li>Any safety review should consider crash data and an assessment of crash potential for all modes.</li> <li>This provision should address the safety and accessibility of all modes who can legally use the facility, i.e., bicyclists using shoulders.</li> <li>The USDOT policy for bicycle and pedestrian accommodation in all Federally funded projects should be considered in addition to ADA.</li> </ul>	
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**Document Sections**



**Current Situation**



**Need and Recommended Revision**



**Comments**

Document Sections	Current Situation	Need and Recommended Revision	Comments
<p>Design Exception</p>	<p>Exceptions to particular design elements of AASHTO's A Policy on Geometric Design of Highways and Streets and Michigan's local agency 3R guidelines may be warranted on projects at individual locations. These design exceptions shall be submitted to MDOT Local Agency Programs by the project owner. A design exception must show the need for the exception and must demonstrate that it would not create or maintain a potential or existing crash situation. The need for a design exception should be discussed with Local Agency Programs during the early stages of the project's development. The design exception request form should be completed and submitted to Local Agency Programs along with the project program application. MDOT Form FC26 can be obtained at: <a href="http://mdotcf.state.mi.us/public/webforms/public/FC26.pdf">http://mdotcf.state.mi.us/public/webforms/public/FC26.pdf</a></p> <p>The following information must be included in a design exception request:</p> <ol style="list-style-type: none"> <li>1. Feature and location not meeting the minimum design guideline.</li> <li>2. Minimum design value that will be obtained.</li> <li>3. Estimated cost of meeting the design guideline.</li> <li>4. Environmental or physical constraints that prevent the design from meeting the design guideline.</li> <li>5. Past traffic crash analysis at the site specific location that might be related to this design element. (If such crashes have occurred, further analysis will be required to show why upgrading is not cost effective.)</li> <li>6. Discussion of whether some compromise design value could be used that would at least enhance the existing condition (include estimated cost of compromise solution).</li> <li>7. Discussion of mitigation measures being utilized for the design exception. Safety Features and Supplemental Safety Measures discussed herein should be considered.</li> </ol> <p>If any of the 13 controlling design elements listed on page C-2 are not satisfied for the applicable standards, then a design exception must be submitted.</p>	<ul style="list-style-type: none"> <li>• Design exception processes should consider all modes present and assess the safety and service issues of all modes and users of the facility, not just the vehicle mode.</li> </ul>	

### Local Agency Program Application

PROGRAM APPLICATION FOR LOCAL AGENCY PROJECTS - ROAD AND SAFETY PROJECTS. This 16-page form must be completed, signed, sealed, and certified by a Licensed, Registered Professional Engineer, prior to scheduling the grade inspection meeting.

**Responsible Unit/Agency/Person:** Lead: Bureau of Highway Development (Development Services Division, Local Agency Programs); Support: Bureau of Transportation Planning, Offices of passenger Transportation and Rail, Bureau of Field Services., and Modal Specialists.

 Document Sections	 Current Situation	 Need and Recommended Revision	 Comments
Project Location & Limits	Identifies if project is within urban limits or within a city/village.	Suggest adding information on area context.	
Route Type	Identifies urban/rural, functional classification, NHS or All Season Route	Suggest adding information regarding bike, pedestrian, transit or freight routes.	
Existing Cross Section	Identifies lanes, lane widths, shoulders, curb/gutter, sidewalks	Expand to include bicycle and transit information.	
Proposed Cross Section	Identifies lanes, lane widths, shoulders, curb/gutter, sidewalks	Expand to include bicycle and transit information.	
Design Guidelines	Identifies type of design guidelines, traffic volumes, posted/design speed, current/future traffic volumes	None.	
ITS	Identifies if ITS is included in project	Expand to identify what types of ITS are included	
Parking	Identifies existing/future type & location	None.	
Railroad Crossing	Identifies if crossing is within project limits	None.	
Bridge	Identifies if a bridge is within the project limits	Expand to ask if pedestrian and/or bicycle facilities exist on structure.	
Work Zone Safety & Mobility	Identifies if project is "significant" and if so has work zone safety/mobility policy been followed	Ensure that Work Zone Safety/Mobility Policy addresses all travel modes.	
Funding Sources & Cost Estimate	Identifies funding sources, amounts and Engineer's Estimate	None.	
Social, Economic and Environmental Evaluation	Identifies key environmental issues within project	Generally addresses other modes but could be expanded.	
Miscellaneous Certifications & Statements			

### Project Scoping Manual (March 2014)

This 479-page manual explains how to follow the scoping process defined by the Michigan Department of Transportation. “Scoping” is defined as “a multidisciplinary effort to analyze transportation system needs and define projects in alignment with MDOT policies and goals.” The process begins with an identified need, and ends with a selected project supported by a complete scoping package. The project analysis considers a variety of issues such as existing condition, strategy, mix of fixes, constraints, constructability, stakeholder input, project coordination, budget, special considerations, etc. This process is the result of collaboration of representatives from all seven MDOT regions (University, Bay, Southwest, Metro, Superior, North, and Grand), as well as from the Design Division, the Bureau of Transportation Planning (BTP) Statewide Planning Division, the Environmental Section, the Traffic Operations Section, the Construction & Technology (C&T) Division and Federal Highway Administration (FHWA). Also providing input were MDOT advocates for constructability, senior mobility and context sensitive solutions (stakeholder engagement). The collaboration was sponsored by the Performance Excellence Division.

**Responsible Unit/Agency/Person:** Lead: Bureau of Highway Development, Design Division; Support: Bureau of Transportation Planning, Office of Passenger Transportation and Rail, Bureau of Field Services, and Modal Specialists.

 Document Sections	 Current Situation	 Need and Recommended Revision	 Comments
CHAPTER 1 – Introduction	This leading chapter does not speak specifically to the need to consider the integration of all modes where appropriate.	Add text that speaks to the need to consider all modes in the needs analysis and project development process.	
CHAPTER 2 – Program Development	This chapter discusses the MDOT/FHWA relationship, the “mix of fixes” of project categories, strategic factors, the Call for Projects Process, and the Funding Template. There is no mention on multimodal considerations in the chapter.	Add text that speaks to the need to consider all modes and their integration throughout each of these steps in the program development process.	
CHAPTER 3 – Strategy Development For Roads & Bridges	The chapter begins with a definition of the four Department performance goals of Stewardship, Safety and Security, System Improvement and Efficient and Effective Operations, followed by a discussion of Road & Bridge Network Strategy Development and Other Strategies including public transportation, aviation and bike/pedestrian safety and accessibility as included in the MDOT State Long Range Transportation Plan. Road diets and roundabouts are specifically discussed.	Suggest adding network discussions for non-motorized modes and strategies for how all modes are integrated.	
CHAPTER 4 – Condition Rating & Measurement Systems	This chapter provides background information on Condition Rating and Measurement Systems for the primary physical facilities of pavements and bridges.	While the key asset management categories are road pavement and bridges, the condition and performance of non-motorized mode facilities should also be rated and measured.	
CHAPTER 5 – Signs of Pavement & Bridge Distress and Fix Selection Guidelines	This chapter presents general guidelines outlining which fixes are appropriate for the various distresses on Michigan’s road and bridge pavements.	While the key asset management categories are road pavement and bridges, the condition and performance of non-motorized mode facilities should also be analyzed to provide guidelines for how to address those specific needs.	



**Document Sections**



**Current Situation**



**Need and Recommended Revision**



**Comments**

Document Sections	Current Situation	Need and Recommended Revision	Comments
CHAPTER 6 – Items to Consider When Scoping A Project	This chapter addresses Project Scoping to Appropriate Design Standards (3R, 4R & CPM), Policies and the Flexibility of Design Guidelines, and almost 40 other items to consider when scoping projects, and items that may be considered when scoping some projects. Context sensitive solutions is briefly discussed as are Operations & Mobility goals of the Michigan Transportation Plan. These goals include basic mobility for all modes, intermodalism, transportation services coordination, and land use coordination. Safe Routes to School and Elderly Mobility are also included.	While this chapter mentions key elements of motorized and non-motorized modes and the importance of integrating those modes and coordinating them with land use, it is not a central theme of elements that need to be considered when scoping a project. These aspects of the chapter should be brought front and center in the scoping process.  The timing and process requirements of FHWA and FTA environmental and project development processes should be considered in these revisions. The processes are not currently aligned well.	
CHAPTER 7 – Project Scoping & Package Requirements	The purpose of this chapter is to help educate and create an understanding of the importance of a detailed scope and to give examples of items that are often overlooked in the scoping process.  In addition, the Scoping Report & Details Worksheet has been structured to allow the estimator to go through the scoping process in an organized fashion and collect or consider the information required for the cost estimate. To assist in the scoping process, several checklists are included. Sidewalks are addressed, as is Traffic Safety and Mobility for vehicles.	Considerable guidance is given in this chapter for use of scoping checklists, but very little attention is given to non-motorized modes other than the presence and condition of sidewalks.	
CHAPTER 8 – Cost Estimating	This chapter outlines the Estimating Process during the Scoping Phase. It includes determining the costs associated with all phases of a candidate project. The estimate developed, as part of the project scoping process, is used to program the funding of the design, Right of Way (ROW) and construction for the project.	None.	
CHAPTER 9 – Scoping Tasks and Timelines	This chapter defines the scoping steps, provides a timetable for reference and defines the responsibilities and outcomes of each step in the Call For Projects process. The steps of the scoping process must be completed in order as the information builds on each preceding step. Traffic and safety considerations are called out but only for vehicle modes.	Add text that speaks to the need to consider all modes and their integration throughout each step in the project scoping, final review and project selection process.  The timing and process requirements of FHWA and FTA environmental and project development processes should be considered in these revisions. The processes are not currently aligned well.	



**Document Sections**



**Current Situation**



**Need and Recommended Revision**



**Comments**

Document Sections	Current Situation	Need and Recommended Revision	Comments
CHAPTER 10 – Following Programming of the Job	This chapter contains information on the steps taken after a project has been scoped. After the proposed projects have been scoped and the estimates have been reviewed (QC and QA), the final selection process occurs. The projects are analyzed according to the following: overall pavement condition strategies, budget constraints, corridor plans, template coordination and etc. This process is done by the Region System Manager in consultation with the TSC Managers and any required support staff.	Add text that speaks to the need to consider all modes and their integration throughout the final selection process.	
CHAPTER 11 – Changing The Scoping Package	This chapter discusses the common types of change to MDOT projects and the effects of those changes. Additionally, this chapter identifies how to make, manage, and document those changes.	None.	
CHAPTER 12– Best Practices	This chapter lists Best Practices and sound ideas that are recommended and/or supported by MDOT. The Best Practices listed in this chapter have been proven to be helpful in the scoping process. It is intended that this chapter is refined as new ideas are shared and additional MDOT Best Practices are adopted.	None.	
APPENDICES	The appendix contains checklists and forms that support the processes outlines in the Manual chapters.	Many of these checklists and forms should be reviewed and updated to address an integrated, multimodal approach to the project scoping process in MDOT.	

## Annual Call for Projects (CFP) – Memo and Instructions

This annual memorandum initiates the Integrated Call for Projects for the upcoming 5 year period. Included are these categories: Road Rehabilitation and Reconstruction (R&R), Road Capital Preventive Maintenance (CPM), Bridge, Safety, Carpool Parking Lot, Congestion Mitigation and Air Quality (CMAQ), Pump Station Capital Rehabilitation, and Replacement of Existing Freeway Lighting. The purpose of the CFP is to identify, select, and approve highway projects that align with MDOT’s goals, policies, and strategic plan. The programs included in the integrated CFP must be coordinated to achieve an integrated approach to preserving MDOT’s road and bridge systems.

**Responsible Unit/Agency/Person:** Lead: Chief Administrative Officer and Chief Operations Officer/Bureau of Transportation Planning; Support: Bureau of Highway Development and Model Specialists.



### Document Sections



### Current Situation



### Need and Recommended Revision



### Comments

Document Sections	Current Situation	Need and Recommended Revision	Comments
General Information	<p>There is very little guidance in the CFP that addresses accommodation of all modes and their integration. The only elements that directly speaks to this area are the sections on Complete Streets and Context Sensitive Solutions.</p> <ul style="list-style-type: none"> <li>• P.A. 135 states that for any project that affects a roadway or transportation facility, the department shall consult with the municipality and agree on how to address the Complete Streets policies. In compliance with the STC’s policy on Complete Streets dated July 26, 2012, MDOT must adhere to the policy on all state trunkline projects.</li> <li>• As the scoping and project development phases of new projects begin, staff is encouraged to work to engage stakeholders utilizing MDOT’s Context Sensitive Solutions process to come to consensus with the municipality on how to address Complete Streets elements. All decisions or agreements reached as a result, including both formal agreements and informal design concepts, are to be documented.</li> <li>• Any instance where agreement cannot be reached will be included in an annual report to the State Transportation Commission, the Legislature, and the Governor, according to P.A. 135.</li> <li>• Complete streets policies aim to consider all legal users of the system within the context and function of the street. Elements that improve safety, access, transit corridors, meet ADA requirements, or contribute to bike and pedestrian movements are key components for documentation.</li> <li>• The goal of stakeholder engagement is to improve connectivity, expand access to transportation opportunities, and improve coordination between transportation decision making and land use planning, and leverage funding to maximize transportation investments.</li> </ul>	<p>The CSS and Complete Streets policies are well defined in the CFP but there appears to be little guidance on how to apply them in the project scoping, prioritization and selection process. MDOT would benefit from additional guidance in these areas.</p>	
Access Management			
Americans With Disabilities Act Requirements			
Approval Committee			
Complete Streets			
Context Sensitive Solutions			
Control Section and Physical Roadway Numbers			
Disadvantaged Business Enterprises			
Environmental Justice			
I-94 Project Coordination			
Impact to Existing Intelligent Transportation System Infrastructure			
Improvements to the Call For Projects			
Indirect Cost Rate			
Inflation			
Multi Modal Considerations			
Noise Abatement Program			
Permanent Traffic Recorders			
Program/Project Management System (P/PMS)			
Programming of Projects			
ProjectWise Paths			
Review and Analysis Form			
Road Quality Forecasting System (RQFS)			
Scoping Manual			
Sidewalk Policy			
Stakeholder Input			
Statewide Transportation Improvement Program (STIP) Requirements			
Congestion Mitigation and Air Quality (CMAQ)			
Pump Station Capital Rehabilitation			
Replacement of Existing Freeway Lighting			

## Funding Template

This is MDOT’s 5-Year “Preliminary Template / Investment Plan” across ten (10) funding categories that include Road, Bridge, Priority Roads Investment, Routine Maintenance, Capacity Improvements, Safety and Systems Operations, Transportation Alternatives, Roadside Facilities, Workforce Development, and Non-Federally Funded Programs.

**Responsible Unit/Agency/Person:** Lead: Chief Administrative Officer and Chief Operations Officer; Bureau of Transportation Planning

 Document Sections	 Current Situation	 Need and Recommended Revision	 Comments
Repair & Rebuild Road Program	Categories include: <ul style="list-style-type: none"> <li>• Rehabilitation &amp; Reconstruction</li> <li>• Capital Preventive Maintenance</li> <li>• Operations</li> <li>• Freeway Lighting</li> <li>• Trunkline Modernization</li> </ul>	There appears to be no guidance in the Repair & Rebuild Road Program regarding an approach to the accommodation of integrated, multimodal elements in these project categories.	
Repair & Rebuild Bridge Program	Categories include: <ul style="list-style-type: none"> <li>• Rehabilitation &amp; Reconstruction</li> <li>• Capital and Scheduled Preventive Maintenance</li> <li>• Big Bridges</li> <li>• Special Needs</li> <li>• Blue Water Bridge- Appropriated Capital Outlay Projects</li> </ul>	There appears to be no guidance in the Repair & Rebuild Bridge Program regarding an approach to the accommodation of integrated, multimodal elements in these project categories.	
Priority Roads Investment Program		There appears to be no guidance in this funding category regarding the accommodation of integrated, multimodal elements.	
Routine Maintenance		Routine maintenance projects can sometimes be used to cost-effectively address multimodal needs, such as re-striping roads.	
Capacity Improvements		Capacity projects can sometimes be used to cost-effectively address multimodal needs, such as adding sidewalks or bike lanes where planned and approved.	
Safety And System Operations (Safety, Signs, Signals, Markings, RR Xings, ITS, CMAQ, Pump Stations, Comm. Vehicle Enforcement)	Categories include: <ul style="list-style-type: none"> <li>• Safety Programs</li> <li>• Signs</li> <li>• Signals</li> <li>• Pavement Markings</li> <li>• RR Xings - Trunkline (Federal &amp; State)</li> <li>• Intelligent Transportation Systems (ITS)</li> <li>• Congestion Mitigation and Air Quality (CMAQ)</li> <li>• Pump Station</li> <li>• Commercial Vehicle Enforcement</li> </ul>	Several of these Safety and System Operations types of projects can be utilized to address multimodal needs.	

 Document Sections	 Current Situation	 Need and Recommended Revision	 Comments
Transportation Alternatives (Non-Motorized/Streetscape Improvements, Recreational Trails)	Categories include: <ul style="list-style-type: none"> <li>• Non-Motorized/Streetscape Improvements</li> <li>• Recreational Trails</li> </ul>	None identified.	
Roadside Facilities (Rest Areas, Wetlands, Noise, Carpool Facilities)	Categories include: <ul style="list-style-type: none"> <li>• Rest Areas</li> <li>• Wetland Pre-Mitigation</li> <li>• Noise Abatement</li> <li>• Carpool Parking Lot program</li> </ul>	None identified.	
Workforce Development		None identified.	
Non-Federally Funded Programs	Categories include: <ul style="list-style-type: none"> <li>• TEDF - Category A</li> <li>• State Funded Required Programs</li> <li>• Program Development/Scoping</li> </ul>	None identified.	

## MDOT/FHWA Stewardship and Oversight Agreement

This 122-page agreement was established to outline the parameters of the relationship between the Federal Highway Administration (FHWA) Michigan Division and the Michigan Department of Transportation (MDOT) and clarifies our respective roles and responsibilities in delivering all phases and aspects (planning through system operations) of the Federal aid Highway Program (FAHP) in Michigan. This Agreement formalizes these roles and responsibilities to address how the FAHP will be administered in the State of Michigan. Both agencies have been tasked with carrying out the FAHP efficiently and effectively to help accomplish national goals, as well as the mutual federal-state and/or local goals. Stewardship efforts include oversight and approval actions, as well as many day-to-day actions that are routinely performed to ensure that the FAHP is administered in regulatory compliance and in ways that enhance the value of the program funds authorized by Congress. This Agreement is intended to result in the efficient and effective management of public funds and to ensure that the FAHP is delivered consistent with laws, regulations, policies, and good business practices. This Agreement is intended to be a living document and supersedes all previous oversight agreements between FHWA and MDOT. In order to ensure that the Agreement stays current, FHWA and MDOT leadership will jointly review the document annually. Each organization will have the opportunity to suggest a change to the document at any time when there is mutual agreement that the change(s) is necessary.

**Responsible Unit/Agency/Person:** Lead: Chief Administrative Officer and Chief Operations Officer



### Document Sections



### Current Situation



### Need and Recommended Revision



### Comments

Document Sections	Current Situation	Need and Recommended Revision	Comments
Letter of Agreement	General, high-level stewardship and oversight agreement addressing working together for the benefit of safe and efficient transportation in Michigan consistent with Federal and State laws and regulations.	Consider addressing multimodal vision and goals in the formal agreement.	
SECTION I: Introduction	This Agreement is established to outline the parameters of the relationship between the FHWA Michigan Division and MDOT and clarifies their respective roles and responsibilities in delivering all phases and aspects (planning through system operations) of the Federal aid Highway Program (FAHP) in Michigan. This Agreement formalizes these roles and responsibilities to address how the FAHP will be administered in the State of Michigan.	Consider amending this section to address multimodal needs and approaches in all phases and aspects of the FAHP program in Michigan.	
SECTION II: Oversight Responsibilities	The FHWA expects, and MDOT agrees, to act on behalf of the U.S. Secretary of Transportation for those projects and programs delegated to MDOT. MDOT will exercise similar judgment as the FHWA based upon federal laws, regulations, and FHWA policies.		
SECTION III: Stewardship and Oversight Methods	Routine FAHP management is performed by the program area leaders from both agencies. The performance of the Agreement and health of the FAHP are evaluated through the use of various stewardship and oversight methodologies.  The stewardship and oversight methodologies include, but are not limited to: <ul style="list-style-type: none"> <li>• Program and Risk Assessments</li> <li>• Project Reviews</li> <li>• Program Reviews (FHWA)</li> <li>• Quality Assurance Reviews (MDOT)</li> <li>• Financial Integrity Review and Evaluation Program</li> <li>• Peer Reviews, Partnering and Task Force Activities</li> </ul>	Consider amending this section to address multimodal needs and approaches in the stewardship and oversight methodologies of the FAHP program in Michigan. MDOT may be able to increase its ability to influence federally-funded local projects to address multimodal needs.	
SECTION IV: Strategic Planning and Performance Management	In order to successfully achieve the mission, vision and goals of this agreement, as outlined in the introduction, both agencies are committed to perform a regular and collaborative process that will further the accomplishment of the high level, mutual goals of both agencies. This process will be carried out as part of the Program and Risk Assessment reviews conducted in January and February of each year and will further drive the strategic planning process of both agencies.	This process would be a good opportunity to discuss common elements of USDOT, FHWA, FTA FRA, and MDOT strategic goals related to multimodal accommodation and integration.	

 Document Sections	 Current Situation	 Need and Recommended Revision	 Comments
SECTION V: Control Documents	Internal controls are a critical piece of stewardship and oversight, and are an integral part of delivering the FAHP effectively and consistently. These will be constantly evaluated through the methodologies outlined in Section III of this Agreement. Deficiencies in management controls also may be addressed through the strategic planning process, FHWA Program of Oversight Initiatives (POI) or other such planning documents.	None identified.	
SECTION VI: Issue Resolution Process	It is the intent of both agencies that all issues should be resolved at the lowest working level between FHWA and MDOT staff, and where the issue originated. It is the intent of this section of the Agreement to provide a template for resolving issues that have reached an impasse at the normal operational level.	None identified.	
SECTION VII: Waste, Fraud, and Abuse	As stewards of public funds, MDOT and FHWA commit to remain vigilant because the consequence of fraud, waste, and abuse is less money available to meet program objectives.	None identified.	
Conclusion	This Agreement is considered a living document that is intended to result in the efficient and effective management of public funds and act as a guide for delivering the FAHP in Michigan. This Agreement also will ensure that the FAHP is delivered consistent with laws, regulations, policies, and good business practices.	None identified.	
APPENDIX A – Program Area Standards	This part of the agreement covers 19 program areas that address the main standards elements of the FAHP. They include: 2. Bridges And Structures Program Overview 5. Design Program Overview 9. Intelligent Transportation Systems Program Overview 13. Planning Program Overview 17. Traffic Operations Program Overview 18. Traffic Safety Program Overview	The noted program area standards should be evaluated for improved consideration and accommodation of multimodal needs and integration.	
APPENDIX B – Acronyms		None identified.	
APPENDIX C – Administrative Agreements		None identified.	
APPENDIX D – Key MDOT Policies on the Federal Aid Highway Program	Sixteen policies are listed. Transportation Enhancements and Context Sensitive Solutions are included.	MDOT should consider developing and including in this agreement a new policy on Multimodal Accommodation and Integration.	
APPENDIX E – Joint Issue Resolution Team		None identified.	
APPENDIX F – Program Performance Indicators	FHWA and MDOT have identified stewardship and oversight indicators that represent all program areas and will be used to track the effective administration of the FAHP. Each agency will gather measures and related input from existing sources to the extent possible, such as the FHWA quarterly data reports and MDOT Dashboard (COMET and Transportation Systems Performance Measures), to evaluate current performance of their respective program areas.	Multimodal performance indicators should be considered for this section. None exist now.	

## Crosswalk Design Guidance

A need for guidance regarding the location and design of pedestrian crossings was identified in the M2D2 workshop process. In July 2014, shortly after the M2D2 workshops concluded, a new 12-page document titled “Guidance for Installation of Pedestrian Crosswalks on Michigan State Trunkline Highways” was completed by MDOT.

**Responsible Unit/Agency/Person:** Lead: Bureau of Highway Development/Design Division; Support: Bureau of Field Services and Modal Specialists.

 Document Sections	 Current Situation	 Need and Recommended Revision	 Comments
Background	The objective of this guidance document is to establish a step-by-step procedure to evaluate the use of various pedestrian crossing treatments. This guidance is expected to provide crosswalk treatments that meet both motorist and pedestrian expectations and consistency on trunkline routes. Recent pedestrian research studies, existing crosswalk guidelines used by other governmental agencies, manuals on traffic control devices, and state statute were reviewed in order to establish this guidance document.	<ul style="list-style-type: none"> <li>Suggest a broader consideration of context sensitive design principles and Complete Streets Policy goals in this initial section.</li> </ul>	<i>Other useful references include:</i> <ul style="list-style-type: none"> <li><i>Designing Walkable Urban Thoroughfares: A Context Sensitive Approach, ITE 2010</i></li> <li><i>Guidelines for the Installation of Marked Crosswalks, Virginia DOT</i></li> <li><i>Portland (OR) Pedestrian Design Guide, 1998</i></li> <li><i>Designing Sidewalks and Trails for Access, Part II of II: Best Practices Design Guide, FHWA</i></li> </ul>
Crosswalk Location Evaluation Procedures	<ul style="list-style-type: none"> <li>Evaluation of a proposed crosswalk location for potential crossing treatments on state trunkline routes should include the following four basic steps:                             <ol style="list-style-type: none"> <li>Identification and Description of the Crossing Location</li> <li>Physical Data Collection</li> <li>Traffic Data Collection and Operational Observations</li> <li>Application of Data to Determine Appropriate Treatments</li> </ol> </li> <li>Four primary types of uncontrolled crossing treatments are discussed in regards to the physical roadway conditions, vehicle volumes, pedestrian volumes and posted speed limit at the potential crossing location. It's noted that additional crossing treatments for consideration can be found in Best Design Practices for Walking and Bicycling in Michigan.</li> <li>The guidance also provides guidance for (1) Minimum Vehicle Volume for Treatments, (2) Minimum Pedestrian Volume for Treatment at Uncontrolled Crossing Locations, (3) Definition of a Pedestrian Median Refuge and Minimum Median Refuge Width, (4) Distance to Nearest Marked or Protected Crossing, and (5) Pedestrian Crossing Treatments at Higher Speed Roadways with Rural Character.</li> </ul>	<ul style="list-style-type: none"> <li>This section may benefit from an expanded discussion of roadway context and how that should be considered in the evaluation process.</li> <li>It may also be good to discuss future changes in land use and projections for future traffic and pedestrian activity and how those elements are considered in the evaluation.</li> <li>Another potential improvement could be guidance for specific design techniques and considerations for crosswalk locations including raised crossings, curb extensions, median treatments, refuge islands, coordination with on-street parking, coordination with bike lanes, and so forth.</li> </ul>	<ul style="list-style-type: none"> <li><i>Wisconsin Guide to Pedestrian Best Practices, Wisconsin DOT 2010</i></li> <li><i>Complete Streets Planning and Design Guidelines, North Carolina Department of Transportation, 2012</i></li> <li><i>Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians, Caltrans, 2010</i></li> </ul>



**Document Sections**



**Current Situation**



**Need and Recommended Revision**



**Comments**

Document Sections	Current Situation	Need and Recommended Revision	Comments
Traffic Control Device Guidance	<ul style="list-style-type: none"> <li>Design guidance and resources are provided for: Crosswalk Pavement Marking, Crosswalk Markings For Established School Crossings and Mid-Block Locations, Pavement Marking Materials, Crosswalk Signing Guidance and Traffic Signal Guidance.</li> </ul>	<ul style="list-style-type: none"> <li>Additional guidance for use of traffic control devices at pedestrian crossings is provided in other reference documents identified in the comments section of this table.</li> </ul>	
References	<ul style="list-style-type: none"> <li>Seven (7) references are provided.</li> </ul>	<ul style="list-style-type: none"> <li>The additional documents noted and may be useful references in the updating and expansion of this guidance document.</li> </ul>	

## Bus Stop Design Guidance

There is often confusion and disagreement over the placement and design of bus stops, particularly bus stops on major trunkline facilities. The department needs a comprehensive policy established that identifies conditions for their use, placement and design for various facilities in various contexts. This also includes transit stops for BRT and rail services.

**Responsible Unit/Agency/Person:** Lead: Bureau of Highway Development, Design Division; Support: Bureau of Field Services, Office of Passenger Transportation and Modal Specialists



### Document Sections

No specific document exists for warranting, locating and designing bus stops on state highways.



### Current Situation

MDOT and partner agencies address needs on a case by case basis.



### Need and Recommended Revision

To develop and integrate into MDOT design/operations standards & guidance an approach to evaluating, locating and designing bus stops.

1. Develop MDOT Policy and Guidelines for evaluation, placement and design of bus stops on state highways;
2. Incorporate into MDOT design guidance by reference AASHTO's *Guide for Geometric Design of Transit Facilities on Highways and Streets*.
3. Identify process for coordination with transit agencies in locating and designing transit stops.



### Comments

Useful references include:

- *TCRP Report 19 - Guidelines for the Location and Design of Bus Stops, 1996*
- *Guidelines for the Design and Placement of Transit Stops for the Washington Metropolitan Area Transit Authority, 2009*
- *Bus Stop Guidelines, TRIMET (Portland OR), 2010*
- *Accessing Transit: Design Handbook for Florida Bus Passenger Facilities, Florida DOT, 2008*
- *Pedestrian facilities Guidebook, Washington DOT, 1997*
- *Wisconsin Guide to Pedestrian best Practices, Chapter 5: Designing Pedestrian Facilities, 2010*
- *Toolkit for the Assessment of Bus Stop Accessibility and Safety, available thru pedbikeinfo.org*
- *Roadway Design Guide, Chapter 14 Bicycle and Pedestrian Facilities, Colorado Department of Transportation, 2013*

## Appendix B – Master List of MDOT Documents/ Procedures from M2D2 Process

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### Recommended M2D2 Documents/Procedures for Revision/Augmentation

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- Road Design Manual & Guides
- Bridge Design Manual & Guides
- Sidewalk Participation Rules
- LAP Guidelines for Geometrics
- LAP Application
- Project Scoping Manual & Checklist
- Call for Projects Memo & Instructions
- Funding Template
- MDOT/FHWA Stewardship and Oversight Agreement
- Crosswalk Design Guidance
- Bus Stop Design Guidance

### Other Documents/Procedures Identified in M2D2 Process

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- Michigan Manual on Uniform Traffic Control Devices (MMUTCD)
- Geometric Design Guides
- Road Design Manual
- Bridge Design Manual
- Road/Bridge Standard Plans/Specifications
- Sidewalk Participation Rules
- Crosswalk Design Guidance Guide (GAP)
- Bus Stop Design Guidance (Gap)
- Highway Capacity Manual
- ITE Trip Generation Manual
- ITS Guidance documents
- Local Agency Program (LAP) Guidelines for Geometrics
- LAP Program Application
- Signalization Capacity Software
- State Transportation Policy on Complete Streets
- Context Sensitive Solutions (CSS) Guidelines for Stakeholder Engagement
- Program and Project Management System: Preconstruction Process Documentation Manual
- Project Scoping Manual & Checklist
- Call for Projects Memo & Instructions
- Monitoring and Reporting Projects
- Funding template
- State Transportation Improvement Program (STIP)
- 2013 Strategic Plan/Transportation Scorecard (MI Transportation Scorecard )
- MI Transportation Plan (2035 Long Range Transportation Plan)
- Five-year Transportation Program
- MPO Long Range Plans/Work plans
- MDOT/FHWA Stewardship and Oversight Agreement
- Policy Plan for Michigan Air Service
- Michigan Aviation System Plan

## Other Documents/Procedures Included in MDOT's Complete Streets Implementation Plan

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- Grade Inspection Checklist
- LAP Proposal Certification
- Road and Bridge Forms 0593 and 0594
- Design Process – Scope Verification Form
- Design Process – Base Plans
- Design Process – Plan Reviews/Grade Inspection
- Region Non-Motorized Plans
- NFC Classification
- Statewide and Metropolitan Planning Processes
- Monitoring and Reporting on Complete Streets Project Requirements
- Training Tools and Webinars
- MDOT Complete Streets Public Website
- ITS Guidance
- ROW Construction Permit System (CPS)
- ROW Construction Permit Public Website
- ROW Construction Permit Manual

## Other Documents/Procedures Identified in MDOT Website Review

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- MI Infrastructure Dashboard
- MDOT Performance Tab Reports: Performance Measures
- Michigan State Rail Plan
- Michigan State Freight Plan
- Applications/Projects for HSIPR Funds
- MDOT Design Process Flowcharts
- PPMS Scoping Preconstruction Task Checklist, Fillable (10/15/2012)
- Index of Chargeable PPMS Tasks (1/16/2013)
- Michigan Signal Optimization Guidelines 10208 (5th edition)
- Work Zone Safety and Mobility Manual
- Maintenance Work Zone Traffic Control Guidelines
- Michigan Intersection Guide
- Michigan Roundabout Guidance Document
- Speed Limit Establishment Process (85th percentile)
- Systems Operations Advisory TSA 200803, Right Turn on Red Signs
- Questions and Answers for Establishing Realistic Speed Limits
- Best Design Practices for Walking and Bicycling in Michigan
- Vegetation Control For Safety A Guide for Local Highway and Street Maintenance Personnel (FHWA)
- Stop-Controlled Intersection Safety: Through Route Activated Warning Systems (FHWA)
- Highway Safety Manual (AASHTO)
- Traffic and Safety Notes
- Form 2913 Plan Review Material Submittal Order
- Guidelines for Highway Railroad Crossings
- School Area Traffic Control Guidelines
- Guidelines for Traffic Safety Planning in School Areas
- Traffic Signals – A Guide For Their Use
- Pavement Marking Standards
- Suggested Traffic Signal Design Procedure
- Guidelines for Traffic Regulations and Traffic Control Orders (speed studies/control)
- Guidelines for Geometrics (4R, 3R, PM)
- Guidelines for the Use and Operation of Pedestrian Signals
- Sight Distance Guidelines
- Traffic and Safety Note 211A: Procedure for Installing a Pedestrian Hybrid Beacon
- Rumble Strips: Design Advisory, DA 200901
- Posted Speed Design vs. MDOT Design Speed: Design Advisory DA 200705
- Pedestrian Signal Guideline: Bureau of Highway Instructional Memorandum 200504
- Local Agency Programs Section Federal Eligibility Guidelines
- Program Application for Local Agency Projects Road and Safety Projects
- Program Application for Local Agency Projects: Transportation Alternative Funds Enhancement and Safe Routes to Schools

- Diagonal Parking Review Process for Local Agency Projects
- Off-Road Vehicle Permits/Guidelines
- Guidelines for Signing on State Trunkline Highways
- Pedestrians in Work Zones
- Michigan Strategic Highway Safety Plan