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**Date:** December 17, 2021

To: Lonnie Robbins, Chief Administrative Officer

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From: Bruce Gartner, Administrator, Howard County Office of Transportation

Subject: Staff Testimony for Council Resolution X-2022, Complete Streets Design Manual

Council Resolution X-2022 responds to requirements of the Howard County Complete Streets Policy, adopted by Council Resolution 120-2019. A key requirement of that policy is to update the current Design Manual to incorporate national best practices and context-appropriate Complete Streets design concepts. I am providing this testimony in support of the updated Design Manual Volumes III and IV as submitted to the County Council for their consideration. Attachment 1 is a summary of the proposed changes.

Design Manual Volume III has been revised with changes that will improve safety and accessibility for all modes, including drivers, bicyclists, pedestrians and transit users. New and updated design guidance draws on best practices from established sources and includes specifications for bicycle accommodations, shared use pathways, enhanced pedestrian crossings and speed management techniques. The name of Volume III has been also changed from *Roads and Bridges*, to *Complete Streets and Bridges* to best reflect the design standards it includes. Updates to Design Manual Volume IV *Standard Specifications and Details for Construction* include new typical sections for multimodal street types and updates to existing details to ensure consistency with new standards, such as the update in minimum sidewalk width from 4 feet to 5 feet.

The updates to these volumes reflect input from technical experts, stakeholders, and the broader community. The Complete Streets Implementation Team (CSIT), consisting of County staff and community stakeholders (listed in full in Attachment 2), worked together for two years to update the design manual content. Public workshops were held on October 14 and 21, 2021 to solicit feedback from the community. In addition, the design manual changes have been reviewed by both the County Public Works Board and the Multimodal Transportation Board (MTB). The Public Works Board endorsed the new manual on December 14, 2021 and the Multimodal Transportation Board (MTB) endorsed the manual on December 16, 2021. Attachment 3 includes the Public Works Board Resolution 21-2021. The MTB's official endorsement, as documented in its minutes, states:

"The Multimodal Transportation Board endorses the Complete Streets Design Manual that has been drafted by the Complete Streets Implementation Team and recommends its submission to the County Council for legislative review and adoption, where it will receive positive testimony from the Multimodal Transportation Board. We further recommend that it be reviewed and revised by a committee of balanced interests similar to the CSIT after revisions to APFO or Subdivision and Land Development Regulations, and every five years thereafter." Matrices comparing the previous version and the proposed version of the Design Manual volumes are included as reference on the Complete Streets Design Manual webpage at <u>https://www.howardcountymd.gov/DM-updates</u>. The recordings from the workshops, the materials used, and a written summary from the question-and-answer portions of both workshops are included there, as well.

Long term fiscal impacts of the updates to the Howard County Design Manual to implement Complete Streets are expected to be manageable. When all benefits are considered, a Complete Streets approach may have a net positive economic impact for Howard County, compared to the previous approach of expanding road capacity to accommodate assumed growth in the use of private automobiles. Benefits such as public health, improved air quality and reductions in fatalities, personal injuries and property damage all contribute to the fiscal advantages of a Complete Streets approach.

Design and construction costs of most Complete Streets projects are expected to be reasonable since changes will be made incrementally as opportunities arise, such as marking bike lanes and crosswalks when roads are resurfaced. Further, prioritization will allow projects to be implemented as funding and opportunities to couple them with related projects become available.

On behalf of the Office of Transportation, Department of Planning and Zoning, and the Department of Public Works I am pleased to submit Council Resolution X-2022 and recommend adoption by the County Council.

# Attachment 1

# Howard County Design Manual Volume III, Complete Streets and Bridges, Summary of Changes

This document includes a summary of changes to Howard County Design Manual Volume III. This volume is currently titled "Roads and Bridges." The proposed new name is "Complete Streets and Bridges," which reflects the fact that the revised manual complies with the Complete Streets policy by addressing traffic studies and design for all modes of travel, including pedestrian facilities, bicycle facilities, and transit facilities, in addition to motor vehicle facilities.

The below summary is organized by chapter and section number. Sections (i.e. 1.1, 1.2, 1.3...) are categorized based on status as **new**, **substantially revised**, or **no significant changes**. If an entire section has no significant changes, subsections (i.e. 1.1.A, 1.1.B, 1.1.c...) are not listed. For new or substantially revised sections, the subsections are also listed and categorized based on status.

The center column, "Rationale" explains why a section was created, revised, or left unchanged. Five categories were used as rationale:

- **Complete Streets policy**: This change or addition was explicitly required by the Complete Streets policy.
- **Multimodal**: This change or addition was made because the current Design Manual did not address all modes of travel. Revised or new text incorporates study and design considerations for other modes of travel including walking, bicycling, or transit, in addition to travel by motor vehicle.
- **User Friendly**: This change or addition was made to make the Design Manual more user friendly. Although the Design Manual is a technical document intended for a technical audience, the Complete Streets policy calls for transparency in the transportation planning and design process. Language was added where appropriate to make the document more user friendly for new technical users or members of the public.
- **Best Practice**: This change or addition was made to bring County practice into compliance with the current state of best practice according to national transportation guidance.
- **In Compliance**: This category is used when a section or subsection was already in compliance with the Complete Streets policy and is categorized as having "no significant changes."

Chapter 1 Section	Rationale	Status
1.1 <i>Introduction</i> This section was revised to include reference to all modes of travel and the Complete Streets police	Multimodal	Substantially Revised
1.1.A <i>How to Use This Manual</i> This subsection includes content from previous subsection 1.1.C, Purpose of the Manual. It wa multimodal considerations.	User Friendly	Substantially Revised and expanded to introduce
1.1.B <i>How This Manual Was Developed</i> This subsection provides background on the process followed to develop the draft Design Manual s revisions.	User Friendly since it substantially deviates from the	New approach taken for previous
1.1.C <i>Complete Streets Policy</i> This subsection provides a brief overview of the Complete Streets policy since it is the impetus for is included in its entirety as chapter 1 Appendix C.	Complete Streets policy r all revisions to the Design Manual. 1	New The Complete Streets policy
1.1.D Equity Emphasis Area The Complete Streets policy requires the County to measure equity using the Vulnerable Popula Council. Upon consultation with the Howard County Equity and Restorative Practices Manager, the Area" to reflect an asset based approach to transportation planning, instead of the deficit based ap the use of Equity Emphasis Areas for project prioritization and community engagement.	Vulnerable Population Index has been	renamed "Equity Emphasis
1.1.E <i>Authorization</i> This subsection was previously titled 1.1.B, Authorization. It was revised to include the new name	In Compliance of Volume III.	No Significant Changes
1.2 <i>Project Types and Delivery Process</i> This section consolidates previous sections 1.4, Projects Defined and 1.6, Project Development.	User Friendly	Substantially Revised
1.2.A Capital Projects This subsection consolidates previous subsections 1.4.A Capital Projects and 1.6.B Capital Project	User Friendly cts. This section describes the Capital	Substantially Revised Project process.
1.2.B <i>Land Development Projects</i> This subsection consolidates previous subsections 1.4.B Land Development Projects and 1.6. Development Project Process.	User Friendly A Land Development Projects. This	Substantially Revised section describes the Land
1.2.C <i>Project Prioritization for Capital Projects</i> The Complete Streets policy requires the County to establish a detailed project prioritization proo The Transportation Improvements Prioritization System (TIPS) cross referenced in the Design Transportation.		

# 1.2.D Community Engagement Plan

This Complete Streets policy requires the County to establish specific procedures for initiating public engagement, focusing on traditionally disenfranchised and underserved communities within 12 months of the date of the Complete Streets policy. A draft Community Engagement Plan was released to the public in October of 2020. The plan was revised based on staff feedback through the fall of 2021. This section provides an overview of the Community Engagement Plan. The revised version is included as chapter 1 Appendix D.

# 1.2.E Pedestrian and Bicycle Master Plan

This Complete Streets Design Manual is intended to provide design guidance that will aid in the implementation of the pedestrian and bicycle master plans, WalkHoward and BikeHoward. This section asks Designers to familiarize themselves with each document and incorporate relevant recommendations into their projects. New text brings this subsection in compliance with section 8 of the Complete Streets policy which outlines requirements for context sensitivity.

# 1.2.F Exceptions

This subsection includes content from previous section 1.1.D, Waivers. New text brings this subsection in compliance with section 3 of the Complete Streets policy which outlines the exceptions process.

### 1.3 Street Types Multimodal Substantially Revised This is a new section that includes content from previous section 1.5, Highway Classification System. In the current Design Manual, street design was loosely based on the functional classification of the street. The Complete Streets Design Manual notes that well-designed streets take into account both the land use context in which they are located and the transportation function they are designed to serve. The combination of the two creates a street "typology," or a compilation of street types.

# 1.3.A Land Use Context

Substantially Revised This subsection includes content from previous subsection 1.5.A, General. This section establishes four broad land use contexts that impact the selection of street types.

# 1.3.B Transportation Classification

Substantially Revised This subsection includes content from previous subsection 1.5, Highway Classification System. This section describes the existing transportation classification system and clarifies that the transportation classification system does not have a direct link to the new Street Types.

# 1.3.C Street Types

This subsection includes content from previous section 1.5.B, General Design Criteria. In the current Design Manual, basic design criteria for roads are summarized in Chapter 2. Appendix A and are based on the functional classification of a street and average daily traffic. The new Street Types outlined in the Complete Streets Design Manual will be selected based on land use and accommodations for all modes of travel. Features of each new Street Type are detailed in this section. Typical sections are provided in Volume IV of the Design Manual as design details.

# 1.3.D Scenic Roadways

This subsection includes content from previous section 1.5.A and the County Code and addresses how to accommodate pedestrian and bicycle facilities along scenic roads.

# 1.3.E Retrofit Projects

This subsection provides guidance on how to retrofit County streets with facilities for all road users when there is limited right of way or other constraints that may make the provision of the ideal street type less feasible.

# **Complete Streets policy**

**Complete Streets policy** 

Complete Streets policy

New

Substantially Revised

Substantially Revised

New

# Multimodal

# Multimodal

New

New

Multimodal

# **Best Practice**

# **Best Practice**

1.4 Engineering Reports	In Compliance	No Significant Changes
This section was previously titled 1.7, Engineering Reports. The entire section has no sign	nificant changes to content or subsection t	itles.
1.5 Control, Topographic and Construction Surveys	In Compliance	No Significant Changes
This section was previously titled 1.8, Control, Topographic and Construction Surveys. Th	e entire section has no significant change	s to content or subsection titles.
1.6 Preparation of Construction Plans	In Compliance	No Significant Changes
This section was previously titled 1.9, Preparation of Construction Plans. The entire section	on has no significant changes to content or	subsection titles.
1.7 Preparation of Construction Specifications	In Compliance	No Significant Changes
This section was previously titled 1.10, Preparation of Construction Specifications. The er	tire section has no significant changes to	content or subsection titles.
1.8 Record Drawings	In Compliance	No Significant Changes
This section was previously titled 1.11, Record Drawings. The entire section has no signif	icant changes to content or subsection title	
1.9 Definitions	In Compliance	No Significant Changes
This section was previously titled 1.3, Definitions.	•	<u>v</u>
1.10 Abbreviations	In Compliance	No Significant Changes
This section was previously titled 1.2, Abbreviations.	•	
1.11 References	Best Practice	New
This section provides references to external documents cited or cross-referenced in chapt		
Appendix A. Highway Classification Characteristics	In Compliance	Unobongod
<u>Appendix A - Highway Classification Characteristics</u> This appendix is identical to Chapter 1, Appendix A in the current Design Manual.	In Compliance	Unchanged
Appendix B - Standard Reference Plan This appendix is identical to Chapter 1, Appendix B in the current Design Manual.	In Compliance	Unchanged
Appendix C - Howard County Complete Streets Policy	Complete Streets policy	New
This Appendix includes the entire Complete Streets policy adopted by County Council		
Appendix D - Community Engagement Plan	Complete Streets policy	New
This Appendix includes the entire Community Engagement Plan required by the Complete	e Streets policy.	
Appendix E - Transportation Classification Map	User Friendly	New
This Appendix includes the Transportation Classification Map.		
Appendix F- Street Type – Functional Classification Correlation Chart	Multimodal	New
This Appendix provides guidance on a preliminary functional classification assumption for r	new streets based on the selected Street Ty	pe. The Office of Transportation

will ultimately assign Functional Classifications.

Chapter 2 Section		Status
2.1         General           This section does not include any text, it is just a heading.	Multimodal	No Significant Changes
2.1.A <i>Introduction</i> This subsection includes content from previous subsection 2.1.A, Introduction, with a focus of criteria, and guidelines for the design of streets, shared use paths, walking facilities, and bicy		· · ·
2.1.B <i>Street Classifications and Functions</i> This subsection provides a cross reference to Section 1.3.C, Street Types.	Multimodal	Substantially Revised
2.1.C <i>Network Connectivity</i> This subsection was previously titled 2.1.C, Traditional Neighborhood Design. Network Con design," since the focus of this section is on the transportation network as opposed to the design.		No Significant Changes the phrase "traditional neighborhood
2.1.D <i>Design Controls</i> This subsection includes content from previous subsection 2.1.D, Design Controls. This section design hourly traffic volumes and projected or anticipated average daily traffic for all modes or users representing all modes, design and control vehicles, future multimodal traffic volumes, section focused on motor vehicle design controls.	of travel, target speed for multimo	dal safety, design speed, design
2.1.E <i>Sight Distance</i> This subsection includes content from previous subsection 2.2.D, Sight Distance and subs presentation of information on stopping, passing and intersection sight distance.	Best Practice section 2.5.B.9, Intersection Sight	Substantially Revised t Distance. This section consolidates
2.1.F <i>Maintenance of Traffic</i> This subsection was previously titled 2.2.F, Maintenance of Traffic.	In Compliance	No Significant Changes
2.2 <i>Typical Section Elements</i> This section does not include any text, it is just a heading.	Multimodal	Substantially Revised
2.2.A <i>General</i> This subsection includes content from previous subsection 2.4.A, General. It reviews the Stre facilities for all modes of travel.	Multimodal et Types include in section 1.3 ar	Substantially Revised nd defines typical section elements as
2.2.B <i>Sidewalks</i> This subsection includes content from previous subsection 2.4.G, Sidewalks/Sidewalk Rar sidewalk expansion policy, which is included as chapter 2 Appendix I.	Multimodal nps. It includes updated nationa	Substantially Revised I guidance and cross references the
2.2.C <i>Shared Use Paths</i> This subsection includes content from previous subsection 2.4.J, Pathways and Bikeways. I cross section, target speed, horizontal alignment, vertical alignment, structures, intersections		

calming measures, lane narrowing, and road diets. 2.2.F Street Trees In Compliance No Significant Changes This subsection was previous titled 2.11, Road Trees. 2.2.G Minimum Edge Distance to Any Roadside Appurtenance In Compliance No Significant Changes This subsection was previously titled 2.4.L. Minimum Edge Distance to Any Roadside Appurtenance. In Compliance 2.2.H Accommodation of Utilities in Typical Sections No Significant Changes This section was previously titled 2.4.K, Utility Location. Guidance regarding location of utility surface features outside of pathways and in locations where sight distance will not be obstructed has been added. 2.2.1 Accommodation of Stormwater Management in Typical Sections User Friendly New This subsection provides a cross reference to stormwater management guidance provided in Volume I of the Howard County Design Manual. 2.3 Geometric Design In Compliance No Significant Changes This section was previously titled 2.3, Geometric Design. The entire section has no significant changes to content or subsection titles. 2.4 Intersection Design Multimodal Substantially Revised This section does not include any text, it is just a heading. 2.4.A General Multimodal Substantially Revised This subsection includes content from previous subsection 2.5.A, General. It clarifies that intersections must be designed to safely and efficiently accommodate all modes of travel. Multimodal 2.4.B Geometric Design Substantially Revised This subsection includes content from previous subsection 2.5.B, Geometric Design. Significantly revised subsections include 2.4.B.4, Minimum Curvature for Turning Movements, which has new curb radii based on the new Street Types and the design and control vehicles established in section 2.1.D.3, as well as substantial guidance on intersection radii evaluation requirements. New section 2.4.B.6, Auxiliary lanes, replaces previous section 2.5.B.5, and now defines auxiliary lane types, auxiliary lane requirements, auxiliary lane widths, and auxiliary lane length. This section also states that auxiliary lanes should be minimized to the extent possible, as they result in wider streets with faster motor vehicle traffic, leading to conditions that are less comfortable for people walking, bicycling, and accessing transit vehicles. The section provides updated guidance on traffic islands, discouraging channelizing islands and providing updated guidance on

# 2.2.E Travel Lanes

2.2.D Bicycle Facilities

User Friendly Substantially Revised This subsection includes content from previous subsections 2.4.B, Pavement and Right-Of-Way Width; 2.4.C, Paving Section; 2.4.E, Shoulders; 2.4.F, Medians; 2.4.M, Crossing Locations; and 2.14, Speed Control Devices. It includes updated national guidance on issues including the determination of typical section, modification of typical section or design criteria, right of way, pavement width and cross slope, paving section, shoulders, medians, golf cart crossing locations, and speed management. The speed management section includes significant new guidance on the application of tools to manage speeds including roundabouts, traffic

This subsection includes content from previous subsection 2.4.J, Pathways and Bikeways. It includes updated national guidance on issues including bicycle facility

types, the selection of appropriate bicycle facility types, transitions along bicycle facilities, and bicycle facility pavement markings.

preferred geometric design of these islands when they are beneficial, and requiring analysis to assess that they are needed.

Multimodal

Substantially Revised

6 of 19

2.4.E Pedestrian Design Elements at Intersections and Midblock Locations Multimodal Multimodal 2.4.G Bicycle Facilities at Intersections Multimodal 2.4.H Transit Facilities at Intersections Multimodal New Right-of-Way In Compliance No Significant Changes This subsection was previously titled 2.5.C, Right-of-Way. Major Intersection Design Procedures In Compliance No Significant Changes This subsection was previously titled 2.5.E, Major Intersection Design Procedures. 2.4.K Minor Intersection Design Procedures In Compliance No Significant Changes This subsection was previously titled 2.5.D, Minor Intersection Design Procedures. 2.4.L Intersections with State Highways In Compliance No Significant Changes

2.4.D Alternative Intersection Types

should handle bicycle and pedestrian facilities in conjunction with roundabouts.

2.4.C Roundabouts

This section notes that the evaluation of alternative traffic control devices shall be conducted only at the discretion and under the direction of the Department of Public Works.

New This section addresses crossings both at controlled and uncontrolled intersections and at midblock locations since intersections frequently provide the greatest number of potential conflict points between pedestrians and motorists. This section includes design guidance on crosswalks, curb ramps, signalized intersections, midblock crossings, uncontrolled crossings, and geometric design treatments.

## 2.4.F Shared Use Paths at Intersections

This section provides a cross reference to section 2.4.G.2, Two-Way Separated Bike Lanes and the AASHTO "Bike Guide."

New This section notes the primary principle for design of bicycle facilities at intersections is to minimize the exposure of people bicycling to motor vehicle traffic. This section includes design guidance for bicycle facilities identified in section 2.2.D, including one-way separated bike lanes, two-way separated bike lanes, buffered bike lanes, conventional bike lanes, shoulders, bicycle boulevards, shared lanes, and traffic signal considerations for bicycling.

This section cross references the Maryland Department of Transportation Maryland Transit Administration (MDOT MTA) "Bus Stop Design Guide."

2.4.M Intersections with Existing Streets This subsection was previously titled 2.5.G, Intersections with Existing Roads.

This subsection was previously titled 2.5.F, Intersections with State Highways.

This section was previously titled 2.6, Driveways.

### 2.5 Drivewavs

2.4.1

2.4.J

7 of 19

No Significant Changes

No Significant Changes

### Multimodal

**Best Practice** 

In Compliance

In Compliance

New

New

This section replaces previous section 2.14.C.1 and provides additional design guidelines on roundabouts and mini-roundabouts, and guidance on how designers

New

2.5.A <i>General</i> This subsection was previously titled 2.6.A, General.	In Compliance	No Significant Changes
2.5.B <i>Residential</i> This subsection was previously titled 2.6.B, Residential.	In Compliance	No Significant Changes
2.5.C <i>Commercial – Industrial and Multi-family</i> This subsection was previously titled 2.6.C, Commercial.	In Compliance	No Significant Changes
2.5.D <i>Spacing and Corner Clearance</i> This subsection was previously titled 2.5.D, Spacing and Corner Clearance.	In Compliance	No Significant Changes
2.5.E <i>Sight Distance</i> This subsection was previously titled 2.6.E, Sight Distance.	In Compliance	No Significant Changes
2.5.F <i>Grade</i> This subsection was previously titled 2.6.F, Grade.	In Compliance	No Significant Changes
2.5.G <i>Auxiliary Lanes</i> This subsection was previously titled 2.6.G, Auxiliary Lanes. Text added to discourage use of	In Compliance	No Significant Changes
2.5.H Sidewalks and Shared Use Paths This subsection provides guidance on how shared use paths and sidewalks are designed whe	Multimodal	New
2.5.H Sidewalks and Shared Use Paths	Multimodal en they pass over driveways. Multimodal Markings. It provides guidance o	Substantially Revised
<ul> <li>2.5.H Sidewalks and Shared Use Paths</li> <li>This subsection provides guidance on how shared use paths and sidewalks are designed whe</li> <li>2.5.I Pavement Markings</li> <li>This subsection includes content from previous section 2.12, Signals, Signs, and Pavement</li> </ul>	Multimodal en they pass over driveways. Multimodal Markings. It provides guidance o	Substantially Revised
<ul> <li>2.5.H Sidewalks and Shared Use Paths This subsection provides guidance on how shared use paths and sidewalks are designed whee </li> <li>2.5.1 Pavement Markings This subsection includes content from previous section 2.12, Signals, Signs, and Pavement commercial, industrial, retail, and high-density housing guidelines, cross referencing national to 2.6 Parking Requirements &amp; Off-Street Parking Lots</li></ul>	Multimodal en they pass over driveways. Multimodal Markings. It provides guidance o transportation guidance.	Substantially Revised n pavement markings through major
<ul> <li>2.5.H Sidewalks and Shared Use Paths This subsection provides guidance on how shared use paths and sidewalks are designed whe 2.5.1 Pavement Markings This subsection includes content from previous section 2.12, Signals, Signs, and Pavement commercial, industrial, retail, and high-density housing guidelines, cross referencing national to 2.6 Parking Requirements &amp; Off-Street Parking Lots This section was previously titled 2.9, Parking lot Requirements &amp; Off-Street Parking Lots. 2.6.A General</li></ul>	Multimodal en they pass over driveways. Multimodal Markings. It provides guidance o transportation guidance. In Compliance In Compliance Multimodal	Substantially Revised n pavement markings through major <u>No Significant Changes</u> No Significant Changes Substantially Revised

2.6.D <i>Bicycle Parking</i> This section provides a cross reference to national transportation guidance.	Multimodal	New
2.6.E <i>Perpendicular Parking</i> This subsection was previously titled 2.9.D, Perpendicular Parking.	In Compliance	No Significant Changes
2.7 Street Lighting This section was previously titled 2.13, Roadway Lighting. The entire section has no significan	In Compliance t changes to content or subsection til	No Significant Changes tles.
2.8 Detailed Design Elements This section does not include any text, it is just a heading. This section includes design guidan	ce for miscellaneous design element	New s.
2.8.A <i>Alleys</i> This subsection was previously titled 2.7, Alleys.	In Compliance	No Significant Changes
2.8.B <i>Private Streets</i> This subsection was previously titled 2.8, Private Roads.	In Compliance	No Significant Changes
2.8.C <i>Curb and Gutter</i> This subsection was previously titled 2.4.D Curb and Gutter.	In Compliance	No Significant Changes
2.8.D <i>Side Slope</i> This subsection was previously titled 2.4.H, Side Slopes	In Compliance	No Significant Changes
2.8.E <i>Traffic Barrier</i> This subsection includes content from previous subsection 2.4.I, Traffic Barrier. It is updated and provided regarding design of traffic barrier relative to pedestrian and bicycle facilities.	Best practices d includes cross-references to establi	Substantially Revised shed design guidance. Guidance
2.8.F <i>Underdrain</i> This subsection was previously titled 2.4.N, Underdrain.	In Compliance	No Significant Changes
2.8.G <i>Ditches</i> This subsection was previously titled 2.4.O, Ditches.	In Compliance	No Significant Changes
2.8.H Staged Construction This subsection was previously titled 2.4.P, Staged Construction.	In Compliance	No Significant Changes
2.8.1 <i>Bus Stops</i> This subsection includes content from previous subsection 2.2.E, Bus Stops. It also includes detailed in section 1.3. Cross-references to external guidance are provided.	Multimodal s new guidance on bus stop configur	Substantially Revised rations for the new Street Types

2.8.J Scenic Road Maintenance This subsection was previously titled 2.15, Standard for Maintenance of Scenic Roads. C permissible if they do not alter the character of the road.	In Compliance larification provided that localize	No Significant Changes d modifications to scenic roads are
2.8.K <i>Mailbox Placement</i> This subsection provides guidance on mailbox placement based on established guidance and	Multimodal I in consideration of people walkir	New ng and bicycling.
2.8.L Solid Waste Containerization This subsection was previously titled 2.10, Solid Waste Containerization.	In Compliance	No Significant Changes
2.9 References	Best Practice	New
This section provides references to external documents cited or cross-referenced in chapter 2	2	
Appendix A - Public Roadway Design Criteria	Multimodal	Substantially Revised
This appendix includes a note that is only to be used for retrofits w approval of DPW. Design associated design criteria in Volume IV.		
Appendix B - Horizontal Circular Curve	In Compliance	No Significant Changes
This appendix is identical to chapter 2, Appendix B in the current Design Manual.	·	
Appendix C - Vertical Curve This appendix is identical to chapter 2, Appendix C in the current Design Manual.	In Compliance	No Significant Changes
Appendix D - Types of Vertical Curves	In Compliance	No Significant Changes
This appendix is identical to chapter 2, Appendix D in the current Design Manual.		
Appendix E.1 - Methods of Attaining Superelevation	In Compliance	No Significant Changes
This appendix is identical to chapter 2, Appendix E.1 in the current Design Manual.		
Appendix E.2 - Methods of Attaining Superelevation	In Compliance	No Significant Changes
This appendix is identical to chapter 2, Appendix E.2 in the current Design Manual.		
Appendix F - Traffic Barrier Required for Embankment Geometry	In Compliance	No Significant Changes
This appendix is identical to chapter 2, Appendix F in the current Design Manual.		
Appendix G - Parking Stall Layout Elements	Best Practice	Substantially Revised
This appendix includes content from previous appendix A but was modified in accordance to o	current best practice.	
Appendix H - <i>Intersection Sight Distance</i> This appendix is identical to chapter 2, Appendix H in the current Design Manual.	In Compliance	No Significant Changes
Appendix I - Sidewalk Expansion Policy	Best Practice	New
This appendix includes the sidewalk expansion policy referenced in section 2.2.B, Sidewalks.		
Summary of Changes to Howard County Design Manual Volume III		10 of 19

3.1 Introduction	In Compliance	No Significant Changes
This section was previously titled section 3.1, Introduction. The entire section has no signific		
3.2 General Features of Design This section was previously titled 3.2, General.	In Compliance	No Significant Changes
3.2.A <i>Coordination with Road and Street Planning</i> This subsection was previously titled 3.2.A, Coordination with Road and Street Planning.	In Compliance	No Significant Changes
3.2.B <i>Design Specifications</i> This subsection was previously titled 3.2.B, Design Specifications.	In Compliance	No Significant Changes
3.2.C <i>Technical Reference for Design</i> This subsection was previously titled 3.2.C, Technical Reference for Design.	In Compliance	No Significant Changes
3.2.D Basic Information Required for Design This subsection was previously titled 3.2.D, Basic Information Required for Design.	In Compliance	No Significant Changes
3.2.E Selection of Retaining Wall Type This subsection includes content from previous subsection 3.2.E, Selection of Retaining Wa their rough surface, gabions are not to be used where people may be walking or bicycling ac		Substantially Revised late that due to
3.2.F Selection of Bridge Type This subsection was previously titled 3.2.F, Selection of Bridge Type.	In Compliance	No Significant Changes
3.2.G Selection of Culverts This subsection was previously titled 3.2.G, Selection of Culverts.	In Compliance	No Significant Changes
3.2.H Structures Over Waterways This subsection includes content from previous subsection 3.2.H, Structures Over Waterway that consideration shall be given to making provisions for walking and bicycling under structu		Substantially Revised icycling Use was added to ensure
3.2.1 <i>Clearances</i> Multimodal Substantially Revised This subsection includes content from previous subsection 3.2.1, Clearances. Subsection 3.2.1.1.a, Bridge Roadway Width, includes language nothing that if sidewalks and/or bicycle facilities exist on either approach roadway section, or are anticipated within the bridge's service life, those sidewalks and/or bicycle facilities shall be carried across the bridge. If sidewalks and/or bicycle facilities are not anticipated within the bridge's service life, an eight-foot shoulder shall be provided on each side of the bridge to provide accommodation for people walking and bicycling. Similar language was added to subsection 3.2.1.1.b, Underpass Clearance. Subsection 3.2.1.3.c, relates to Vertical Clearances for Shared Use Path Bridges instead of pedestrian bridges.		
3.2.J <i>Bridge Roadway Section</i> This subsection includes content from previous subsection 3.2.J. Subsection 3.2.J.3, Barrier type of pedestrian and bicycle facilities on the bridge and be designed in accordance with th		

# **Chapter 3 Section**

## Status

11 of 19

3.2.K <i>Horizontal and Vertical Alignment</i> This subsection was previously titled 3.2.K, Horizontal and Vertical Alignment.	In Compliance	No Significant Changes
3.2.L Subsurface Investigations This subsection includes content from previous subsection 3.2.L, Subsurface Investigations. It w	Best Practices was updated to include reference	Substantially Revised s to updated external guidance.
3.2.M <i>Foundation Reports</i> This subsection was previously titled 3.2.M, Foundation Reports.	In Compliance	No Significant Changes
3.2.N <i>Scour Reports</i> This subsection was previously titled 3.2.N, Scour Reports.	In Compliance	No Significant Changes
3.2.O <i>Bridge Inspection</i> This subsection was previously titled 3.2.O, Bridge Inspection.	In Compliance	No Significant Changes
3.2.P <i>Design Life</i> This section clarifies that all bridges must be designed to achieve a minimum service life of 75 y of the Bureau of Engineering, for applicable capital projects.	Best Practices years or a longer period (e.g., 10	New 0 years), if so directed by the Chief
3.3 Design Loading – Highway Structures This section was previously titled 3.3, Design Loading – Highway Structures.	In Compliance	No Significant Changes
3.3.A <i>General</i> This subsection was previously titled 3.3.A, General.	In Compliance	No Significant Changes
3.3.B <i>Dead Load</i> This subsection was previously titled 3.3.B, Dead Load.	In Compliance	No Significant Changes
3.3.C <i>Live Load</i> This subsection includes content from previous subsection 3.3.C, Live Load. It was updated guidance.	Best Practices to include updated guidance and	Substantially Revised d new cross-references to external
3.3.D <i>Wind Loads</i> This subsection was previously titled 3.3.D, Wind Loads.	In Compliance	No Significant Changes
3.3.E <i>Thermal Forces</i> This subsection was previously titled 3.3.E, Thermal Forces.	In Compliance	No Significant Changes
3.3.F <i>Force of Stream Flow</i> This subsection was previously titled 3.3.F, Force of Stream Flow.	In Compliance	No Significant Changes
3.3.G <i>Earth Pressure</i> This subsection was previously titled 3.3.G, Earth Pressure.	In Compliance	No Significant Changes

3.3.H <i>Earthquake Forces</i> This subsection was previously titled 3.3.H, Earthquake Forces.	In Compliance	No Significant Changes
3.3.1 <i>Distribution of Loads</i> This subsection was previously titled 3.3.1, Distribution of Loads.	In Compliance	No Significant Changes
3.3.J <i>Constructability</i> This section provides guidance for constructability in keeping with new external guidance.	Best Practice	New
3.4 Substructures and Retaining Walls This section was previously titled 3.4, Substructures and Retaining Walls. This section was revise bicycling.	In Compliance In Compliance In Where appropriate to reference prov	No Significant Changes visions for people walking and
3.4.A <i>Retaining Walls</i> This subsection includes content from previous subsection 3.4.A, Retaining Walls. This section grading so a retaining wall is not needed. To the extent feasible, if a wall is required, any pedes foot to maintain an offset between facility users and the face of the wall.		
3.4.B <i>Abutments</i> This subsection was previously titled 3.4.B, Abutments.	In Compliance	No Significant Changes
3.4.C <i>Piers</i> This subsection was previously titled 3.4.C, Piers.	In Compliance	No Significant Changes
3.4.D <i>Foundations</i> This subsection includes content from previous subsection 3.4.D, Foundations. It was updated t guidance.	Best Practice to include updated guidance and new	Substantially Revised cross-references to external
3.4.E <i>Substructure Protection</i> This subsection was previously titled 3.4.E, Substructure Protection.	In Compliance	No Significant Changes
3.4.F Slope and Bank Protection This subsection was previously titled 3.4.F, Slope and Bank Protection	In Compliance	No Significant Changes
3.5 Bridge Superstructure This section was previously titled 3.5, Bridge Superstructure.	In Compliance	No Significant Changes
3.5.A Slab on Beams and Girders This subsection was previously titled 3.5.A, Slab on Beams and Girders.	In Compliance	No Significant Changes
3.5.B <i>Beams and Girders</i> This subsection was previously titled 3.5.B, Beams and Girders.	In Compliance	No Significant Changes

3.5.C Steel Beams and Girders This subsection was previously titled 3.5.C, Steel Beams and Girders.	In Compliance	No Significant Changes
3.5.D <i>Prestressed Concrete Beams</i> This subsection was previously titled 3.5.D, Prestress Concrete Beams.	In Compliance	No Significant Changes
3.5.E <i>Bridge Drainage</i> This subsection was previously titled 3.5.E, Bridge Drainage.	In Compliance	No Significant Changes
3.5.F <i>Expansion Joints</i> This subsection includes content from previous subsection 3.5.F, Expansion Joints. This sec minimal irregularities and/or gaps to facilitate safe operation of motorcyclists and bicyclists.	Multimodal ction notes that if joints are requir	Substantially Revised red, they shall be selected to provide
3.5.G <i>Bearings</i> This subsection was previously titled 3.5.G, Bearings.	In Compliance	No Significant Changes
3.5.H <i>Drainage Troughs</i> This subsection was previously titled 3.5.H, Drainage Troughs.	In Compliance	No Significant Changes
3.5.1 <i>Elevations</i> This subsection was previously titled 3.5.I, Elevations.	In Compliance	No Significant Changes
3.5.J Sidewalks This section notes that any surface features in the sidewalk shall be smooth, slip-resistant, an	Multimodal ad level with the sidewalk to main	New tain ADA compliance.
3.6 Shared Use Paths Bridges		
	Multimodal	New
This section provides guidance on the design of Shared Use Path Bridges for use by bicyclist		
This section provides guidance on the design of Shared Use Path Bridges for use by bicyclists 3.6.A <i>General</i> This subsection provides information on design specifications from AASHTO and ADA.		
3.6.A General	s, pedestrians, equestrian riders,	and light maintenance vehicles.
<ul> <li>3.6.A <i>General</i></li> <li>This subsection provides information on design specifications from AASHTO and ADA.</li> <li>3.6.B <i>Loading</i></li> </ul>	s, pedestrians, equestrian riders, Multimodal	and light maintenance vehicles. New
<ul> <li>3.6.A <i>General</i></li> <li>This subsection provides information on design specifications from AASHTO and ADA.</li> <li>3.6.B <i>Loading</i></li> <li>This subsection provides loading requirements.</li> <li>3.6.C <i>Clearances</i></li> </ul>	s, pedestrians, equestrian riders, Multimodal Multimodal	and light maintenance vehicles. New New

3.6.F <i>Lighting</i> This subsection provides lighting requirements.	Multimodal	New
3.6.G <i>Aesthetics/Structure Type</i> This subsection cross-references aesthetic recommendations.	Multimodal	New
3.6.H <i>Hydraulics</i> This subsection cross-references hydraulic requirements.	Multimodal	New
3.7 Shared Use Path Underpasses This section provides guidance on the design of Shared Use Path Underpasses for use by	Multimodal y bicyclists, pedestrians, equestrian ri	New ders, and maintenance vehicles.
3.7.A <i>General</i> This subsection provides information on design specifications from AASHTO and ADA.	Multimodal	New
3.7.B <i>Clearances</i> This subsection provides clearance requirements.	Multimodal	New
3.7.C <i>Profile and Grade</i> This subsection provides profile and grade requirements.	Multimodal	New
3.7.D <i>Fencing</i> This subsection cross-references fencing requirements.	Multimodal	New
3.7.E <i>Lighting</i> This subsection provides lighting requirements.	Multimodal	New
3.7.F <i>Aesthetics</i> This subsection cross-references aesthetic recommendations.	Multimodal	New
3.7.G <i>Drainage</i> This subsection provides drainage requirements.	Multimodal	New
3.8 Box Culverts This section was previously titled section 3.6, Box Culverts. The entire section has no sign	In Compliance ificant changes to content or subsec	No Significant Changes tion titles.
3.9 <i>Pipe Culverts</i> This section was previously titled section 3.7, Pipe Culverts. The entire section has no sign	In Compliance nificant changes to content or subsec	No Significant Changes tion titles.
3.10 <i>Utilities on Bridges</i> This section was previously titled section 3.8, Utilities on Bridges. The entire section has n	In Compliance	No Significant Changes
This section was previously uter section 5.0, oundes on Druges. The entite section has n	o significant changes to content of si	

This subsection includes content from previous subsection 3.9.D, Retaining Walls.		No olgrinoarit orialigoo
3.11.E <i>Maintenance of Traffic</i> This subsection includes content from previous subsection 3.9.E, Maintenance of Traffic.	In Compliance	No Significant Changes
3.12 Load Ratings	In Compliance	No Significant Changes

Load Ratings This section was previously titled section 3.10, Load Ratings. The entire section has no significant changes to content or subsection titles.

3.13	Plan Preparation Guidelines	In Compliance	No Significant Changes		
This section was previously titled section 3.11, Plan Preparation Guidelines. The entire section has no significant changes to content or subsection titles.					

<u>3.14</u>	References	Best Practice	No Significant Changes
This section provides references to external documents cited or cross-referenced in chapter 3.			

## 3.11 Rehabilitation of Existing Structures

This subsection includes content from previous subsection, 3.9.C Substructure Repairs.

This section was previously titled section 3.9, Rehabilitation of Existing Structures. This section was revised where appropriate to reference provisions for people walking and bicvcling.

3.11.A Introduction Multimodal Substantially Revised This subsection includes content from previous subsection 3.9.A, Introduction. This section notes that Bridge widths, including travel lanes, shoulders, and pedestrian and bicycle facilities, shall conform to Section 3.2.1 to the extent practical. If the scope of the project does not allow for the full width of those facilities, consideration should be given to retrofits that provide additional space for pedestrian and bicycle travel. In constrained conditions on bridges with inadequate pedestrian and bicycle facilities, priority should be given to narrowing or reconfiguring motor vehicle lanes or medians to provide additional space for pedestrians and bicyclists. Priority should also be given to adding some separation (if feasible) between the travel lanes and the adjacent pedestrian/bicycle facility, such as a curb, a concrete barrier, or flexible delineators. Separation is a particular need on bridges with motor vehicle operating speeds over 35 mph that are more than 100 feet long. Figure 3-4 shows Potential Separation Options on Bridges.

This subsection includes content from previous subsection, 3.9.B Superstructure Repairs. This section was updated in keeping with new external guidance.

3.11.B Superstructure Repairs

3.11.C Substructure Repairs

3.11.D Retaining Walls

In Compliance

**Best Practices** 

In Compliance

In Compliance

Substantially Revised

No Significant Changes

No Significant Changes

# Chapter 4

The only change to Chapter 4 was to the background growth rate.

Language in current Design Manual, section 4.3.C.3:

Background traffic growth of 3% per year compounded for up to three years or other rate if adequate traffic data exists to support a change. Comprehensive or phased projects will use a background traffic growth of 6% compounded per year beyond year three in the study. The developer may propose or the Department may require different background traffic growth rates if validated field counts and other traffic data about the intersection support a different rate.

Language in Complete Streets Design Manual, section 4.3.C.3:

Background traffic growth of 2% per year compounded shall be used unless adequate traffic data exists to support a different growth rate. The developer may propose or the Department may require different background traffic growth rates if validated field counts and other traffic data about the intersection support a different rate.

Further revisions to Chapter 4 will be considered in conjunction with changes to the Adequate Public Facilities Test Ordinance and the Subdivision Regulations.

transit, driving cars, and delivering goods.		<u> </u>		
5.2.A <i>General</i> This section includes content from previous section 5.2.A, General. This section out ensure that roadways and intersections, whether designed as part of a capital project and efficiently and will become a part of a balanced and coordinated transportation sy	ct or a subdivision, will be capable of perfo			
5.2.B <i>Level of Service Studies</i> Multimodal Substantially Revised This section includes content from previous section 5.2.B, Level of Service Studies. The most significant change to this section is to the background motor vehicle traffic growth rate from 3% for the first three years of a project and 6% compounded per year beyond year three in the study, to a background motor vehicle traffic growth rate of 2% per year compounded for the first three years of a project.				
5.2.C <i>Pedestrian Studies</i> Multimodal Substantially Revised This section includes content from previous section 5.2.D, Pedestrian/Bicyclist Studies. This section includes significantly more guidance than the previous pedestrian studies section, and includes evaluation requirements for midblock crosswalks and pedestrian overpasses and underpasses. It also requires an analysis of land uses that may generate significant pedestrian activity, including schools, libraries, community centers, churches, meeting halls, and transit stops.				
	minumery centers, charches, meeting hans,			
5.2.D <i>Bicyclist Studies</i> This section includes content from previous section 5.2.D, Pedestrian/Bicyclist Studie studies section. It introduces the Level of Traffic stress methodology which uses read parking lane width, speed limit or prevailing speed, and motor vehicle traffic volum experience. The section details how to use the Level of Traffic Stress methodology to of bicycle facilities.	Multimodal es. This section includes significantly more ily available criteria including number of la me to evaluate the generalized stress le	New guidance than the previous bicyclist nes, shoulder width, bike lane width, vels that bicyclists are expected to		
5.2.D <i>Bicyclist Studies</i> This section includes content from previous section 5.2.D, Pedestrian/Bicyclist Studie studies section. It introduces the Level of Traffic stress methodology which uses read parking lane width, speed limit or prevailing speed, and motor vehicle traffic volu experience. The section details how to use the Level of Traffic Stress methodology to	Multimodal es. This section includes significantly more ily available criteria including number of la me to evaluate the generalized stress le o analyze existing streets and proposed de Multimodal n clarifies that a safety evaluation must con for all modes of travel. These evaluations	New guidance than the previous bicyclist nes, shoulder width, bike lane width, vels that bicyclists are expected to esigns for the selection and inclusion Substantially Revised nsider not only crash history but also a make possible the incorporation of		
<ul> <li>5.2.D Bicyclist Studies</li> <li>This section includes content from previous section 5.2.D, Pedestrian/Bicyclist Studies studies section. It introduces the Level of Traffic stress methodology which uses read parking lane width, speed limit or prevailing speed, and motor vehicle traffic volumexperience. The section details how to use the Level of Traffic Stress methodology to of bicycle facilities.</li> <li>5.2.E Safety Evaluations</li> <li>This section includes content from previous section 5.2.C, Safety Studies. This section conflicts as observed in the field, as well as absence of adequate accommodations</li> </ul>	Multimodal es. This section includes significantly more ily available criteria including number of la me to evaluate the generalized stress le o analyze existing streets and proposed de Multimodal n clarifies that a safety evaluation must con for all modes of travel. These evaluations	New guidance than the previous bicyclist nes, shoulder width, bike lane width, vels that bicyclists are expected to esigns for the selection and inclusion Substantially Revised nsider not only crash history but also a make possible the incorporation of		

This section includes content from previous section 5.1, Introduction. This section has been revised to provide principles and guidelines for the analysis of the transportation network to support the design of safe, efficient, and coordinated transportation facilities for all modes, in accordance with the County's Complete

This section includes content from previous section 5.2, Traffic Studies. This section clarifies that the term "traffic" refers to all modes of travel: walking, bicycling,

Chapter 5 Section

Streets policy.

Introduction

Multimodal Traffic Studies

5.1

5.2

This section includes content from previous section 5.2.F, Noise Studies.

### 5.3 Intersection Traffic Control Devices

This section was previously titled section 5.3, Intersection Traffic Control Devices. The entire section has no significant changes to content or subsection titles, although complete streets considerations for roundabouts have been added.

# 18 of 19

No Significant Changes

# Status

Substantially Revised

Substantially Revised

# Multimodal

In Compliance

Multimodal

5.4	Traffic Signing and Pavement Marking	In Compliance	No Significant Changes	
This section was previously titled section 5.4, Traffic Signing and Pavement Marking. The entire section has no significant changes to content or subsection titles.				
<u>5.5</u> This s	Maintenance of Traffic During Construction section was previously titled section 5.5, Maintenance of Traffic During Construction	In Compliance	No Significant Changes	
<u>5.6</u> This s	At-Grade Railroad Crossings section was previously titled 5.6, At-Grade Railroad Crossings.	In Compliance	No Significant Changes	
<u>5.7</u>	References	Best Practice	New	

This section provides references to external documents cited or cross-referenced in chapter 5.

# Attachment 2

# **Complete Streets Implementation Team**

# Howard County Government Representatives

Christiana Rigby, Howard County Council Sam Sidh, Howard County Executive's Office Chad Edmondson, Howard County Department of Planning and Zoning Chris Eatough, Howard County Office of Transportation Kris Jagarapu, Howard County Department of Public Works, Highways Paul Walsky, Howard County Department of Recreation and Parks Tom Auyeung, Howard County Department of Public Works, Engineering

# Community Representatives

Brian Nevin, Howard County Public School System, Transportation Carl Gutschick, Private Sector Engineer Cory Summerson, Public Works Board David Nitkin, Howard County General Hospital Jennifer White, Horizon Foundation Jessica Bellah, Columbia Association Larry Schoen, Multimodal Transportation Board

# Attachment 3

### PUBLIC WORKS BOARD FOR HOWARD COUNTY, MARYLAND

### **DECEMBER 14, 2021**

### **RESOLUTION NO. PWB-21-2021**

WHEREAS, Howard County Code Section 18.210 specifies that the Director of Public Works shall be empowered to develop regulations and specifications affecting the design and construction of roads and highways to be used in Howard County and shall publish them in a code to be made available by the Howard County Department of Public Works and Department of Planning and Zoning.

WHEREAS, Howard County Code Section 18.210(b) requires a public hearing before the Public Works Board to consider and make a recommendation on the proposed code or amendments to the code; and

WHEREAS, the Department of Public Works, in accordance with Section 18.210(b) of the Howard County Code, by publishing a notice in the Howard County Times on December 2, 2021 and December 9, 2021 as well as by publishing a notice in the Baltimore Sun on December 12, 2021, did notify the public of the December 14, 2021, hearing; and

WHEREAS, the Office of Transportation, on behalf of the Department of Public Works, in accordance with Section 18.210(b), prepared and presented to the Public Works Board at a public hearing on December 14, 2021, the amendments to the Howard County Design Manual, Volumes III and IV – Complete Streets, and received public testimony at a public hearing before the Public Works Board on December 14, 2021, on the amendments to the Howard County Design Manual, Volumes III and IV – Complete Streets; and

THEREFORE, BE IT RESOLVED this 14th day of December, 2021, that after due consideration of the testimony presented at the public hearing by the Department of Public Works and the public, the Public Works Board recommends that the Department of Public Works submit the amendments to the Howard County Design Manual, Volumes III and IV – Complete Streets for the legislative process with the Howard County Council.

WITNESS

Rachel Roehrich Recording Secretary

this 32 day of 2021

Gary W. Kuc County Solicitor

**Reviewing Attorney** 

Kristen K. Haskins Senior Assistant County Solicitor

BOARD OF PUBLIC WORKS HOWARD COUNTY

Summerson Cory

Chairperson