

# FHWA's Future Plans for the Interactive Highway Safety Design Model (IHSDM)



# IHSDM



## IHSDM Technical Support

The Federal Highway Administration (FHWA) has discontinued IHSDM software development. However, FHWA will continue to provide free technical support via Geometric Design Laboratory (GDL) staff through **at least** September 2024, but essentially as long as agencies are still using the IHSDM 2021 (version 17.0.0) software.

Based on the current schedule, it is likely that the American Association of State Highway and Transportation Officials (AASHTO) will not publish the *Highway Safety Manual (HSM)* second edition (*HSM2*) until at least 2024. Even after publication, agencies might need some time to transition from using *HSM* first edition (*HSM1*) methods/models to the new and/or recalibrated *HSM2* models (e.g., to calibrate the new *HSM2* models; to “vet” the new models for their use).<sup>(1)</sup> During that transition period (which will vary by agency), FHWA will continue to provide IHSDM/*HSM* support.

Since the *HSM2* will include models for some facility types and/or crash types that differ significantly from the *HSM1* form (e.g., new pedestrian and bicycle crash models), some parts of the IHSDM Crash Prediction Module (CPM) will become obsolete over time. At some point, the entire IHSDM CPM may become obsolete. Again, FHWA will provide IHSDM technical support to users until then.

## FHWA's IHSDM-Related Activities Beyond the 2021 Release

Although FHWA will no longer carry out IHSDM software development, it will continue to provide the following:

- Free **technical support** via GDL staff through at least September 2024 (contact IHSDM technical support staff via email at [IHSDM.Support@dot.gov](mailto:IHSDM.Support@dot.gov) or the Help Line at 202-493-3407). The FHWA Resource Center (RC) will also continue to provide IHSDM and *HSM* related technical assistance to agencies.
- **Training** sessions for IHSDM users via the FHWA RC (contact David Petrucci at [david.petrucci@dot.gov](mailto:david.petrucci@dot.gov)) and the National Highway Institute (contact Thomas Elliott at [thomas.elliott@dot.gov](mailto:thomas.elliott@dot.gov)).
- **IHSDM user group** meetings and webinars, with a focus on agency applications and IHSDM case studies.
- Maintenance of the current FHWA **IHSDM website** (<https://highways.dot.gov/research/safety/interactive-highway-safety-design-model/interactive-highway-safety-design-model-ihsdm-overview>), which provides a means for users to download the IHSDM 2021 release and to obtain other information of interest.<sup>(9)</sup>

**For More Information**  
Visit <https://bit.ly/IHSDM-Overview>.



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## IHSDM 2021 (Version 17.0.0)— CPM Capabilities

IHSDM version 17.0.0 (i.e., “IHSDM 2021”)—made available in September 2021—marked the end of FHWA’s IHSDM software development effort. Capabilities related to the CPM and the *HSM* are as follows:

- CPM includes implementation of *HSM1* part C predictive methods for the following:
  - Rural two-lane highways (*HSM* chapter 10).<sup>(1)</sup>
  - Rural multilane highways (*HSM* chapter 11).<sup>(1)</sup>
  - Urban/suburban arterials (five or fewer lanes) (*HSM* chapter 12).<sup>(1)</sup>
  - Freeway segments (*HSM* chapter 18).<sup>(1)</sup>
  - Freeway ramps/interchange components (*HSM* chapter 19).<sup>(1)</sup>
- CPM also includes the following predictive methods developed via the National Cooperative Highway Research Program (NCHRP) for inclusion in *HSM2*:
  - Urban/suburban arterials (six or more lanes and one-way) (NCHRP 17-58).<sup>(2)</sup>
  - Roundabouts (NCHRP 17-70).<sup>(3)</sup>
  - Intersection types not in *HSM1* (NCHRP 17-68).<sup>(4)</sup>
- CPM utilizes user-defined crash modification factors (UDCMF).
- IHSDM Economic Analyses Tool uses CPM evaluation results (crash frequency/severity).
- IHSDM Administration Tool includes a Calibration Utility/Tool to assist agencies in implementing the calibration procedures described in the appendix to *HSM* part C. Through the Administration Tool, users can also modify the crash distribution dataset and model dataset values (e.g., safety performance function (SPF) coefficients and exponents).

The following future *HSM2* methods were not completed by the end of IHSDM software development in September 2021 and so will **not** be implemented in IHSDM:

- Pedestrian and bicycle crashes (NCHRP 17-84).<sup>(5)</sup>
- Improved prediction models for crash types and crash severities (NCHRP 17-62).<sup>(6)</sup>
- Part-time shoulder use (PTSU) on freeways (NCHRP 17-89).<sup>(7)</sup>
- High-occupancy vehicle (HOV)/high-occupancy toll (HOT) lanes on freeways (NCHRP 17-89A).<sup>(8)</sup>

## Future IHSDM Software Maintenance

Although the IHSDM software development contract has ended, FHWA/GDL will continue to provide certain types of software maintenance, such as the following:

- Track potential “bugs” in the IHSDM software; catalog and post information regarding known “bugs”—and workarounds (when applicable).
- Maintain a list of desired software enhancements users requested.

FHWA will also consider creating IHSDM configuration files to represent updates to existing *HSM* models, where possible (i.e., for updated *HSM2* part C models that have the same structural form as *HSM1* models). Through NCHRP 17-72<sup>(10)</sup> and 17-71A<sup>(11)</sup>, some existing models will be “recalibrated” for *HSM2* using single-state calibration. Existing IHSDM configuration files for *HSM* default models can be updated to reflect the recalibrated models (changing coefficients and exponents). These configuration files may be made available to IHSDM/*HSM2* users via the IHSDM website. (Users can also do this on their own, but FHWA might provide the updated files to assist users/agencies.)

GDL may also provide updated configuration files for Economic Analysis Model Data Sets on an annual basis.



## Future *HSM*-Related Activities

The GDL will continue to provide services related to *HSM*-related research and activities.

### *HSM*-Related Research

The GDL's significant experience with *HSM* methods, from both the research and practitioner perspectives, supports a host of potential *HSM*-related research activities. Main focus areas include the following:

- Quality of the *HSM* predictive method, which includes reviewing all *HSM2* draft materials.
- Guidance in applying *HSM* part C methods.
- Identification of and response to gaps in *HSM* part C methods.

### Other *HSM*-Related Activities

FHWA/GDL will continue to provide the following:

- Support to agencies as they seek to understand, apply, and implement the new *HSM2* methods.
- Assistance to AASHTO in providing technical support to *HSM* users (including investigating potential errors in *HSM1/HSM2*) and to promote data-driven safety analysis through application of *HSM* methods. In some cases, this assistance might include support for using IHSDM to apply *HSM* part C methods.

FHWA/GDL can provide input on gaps/research needs for the future third edition *HSM* (e.g., identify gaps in the *HSM2*) and examine how the *HSM* fits with the Safe System Approach and the forthcoming AASHTO *Green Book* eighth edition.<sup>(12)</sup>

The AASHTO Committee on Safety and the Transportation Research Board (TRB) Safety Performance and Analysis Committee (ACS20) are collaborating on “restarting” an *HSM* User Discussion Forum. Although the future format and structure are unknown at this time, there is agreement that the discussions need to be moderated (e.g., to ensure that information shared on the forum is accurate). FHWA envisions a potential GDL role as one of the moderators of the restarted forum.

FHWA has shifted priorities away from IHSDM software development activities. However, technical support and knowledge transfer will still be provided for a range of IHSDM- and *HSM*-related activities well into the future.

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