APPENDIX C: IMPLEMETING THE CALIBRATED INDIANA PARAMETERS IN THE IHSDM

The SPFs, CMFs, and crash proportions included in the HSM predictive method have been calibrated for Indiana conditions. These components may be incorporated in the IHSDM using the Administration Tool, shown in Figure C.1 below. The crash proportions are implemented under the "Crash Distribution Data Sets" module, while the SPF and CMF parameters are implemented under the "Model Data Sets" module.

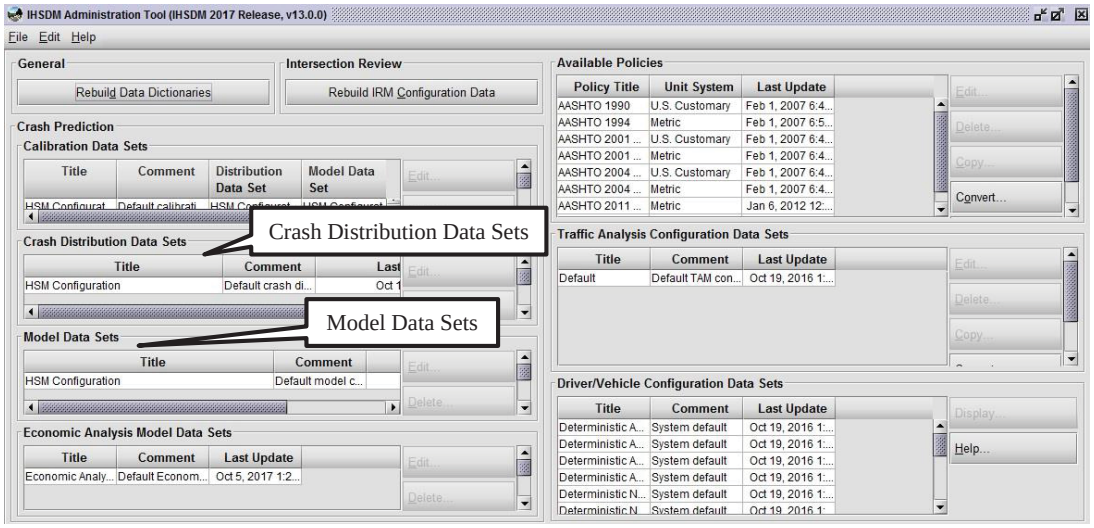

Figure C.1 IHSDM Administration Tool

114

This appendix illustrates how the Indiana-specific parameters may be implemented in the IHSDM Administration Tool and how this configuration is selected for use in the IHSDM crash prediction tool. The step-by-step procedures are detailed here for two cases. The first case involves transferring the prepared files containing the Indiana configuration to the Administration Tool interface. This case is applicable if the Administration Tool is in the default configuration (in other words, the HSM default is the only configuration available in the tool). In the second case, the user inputs the Indiana-specific parameters directly into the Administration Tool. This case is applicable if the Administration Tool is not in the default configuration (there are user-specified custom configurations already entered in the tool in addition to the HSM default).

Case 1 – Transferring the Indiana Configuration Files to the Administration Tool

Step 1: Locate and copy the files with the Indiana configuration.

Two files that contain the Indiana configuration have been prepared, one that includes the updated crash proportions and the other which has the parameters of the SPFs and CMFs. These files are named “config.cd.cpm.local_1” and “config.md.cpm.local_1”, respectively, as shown in Figure C.2.

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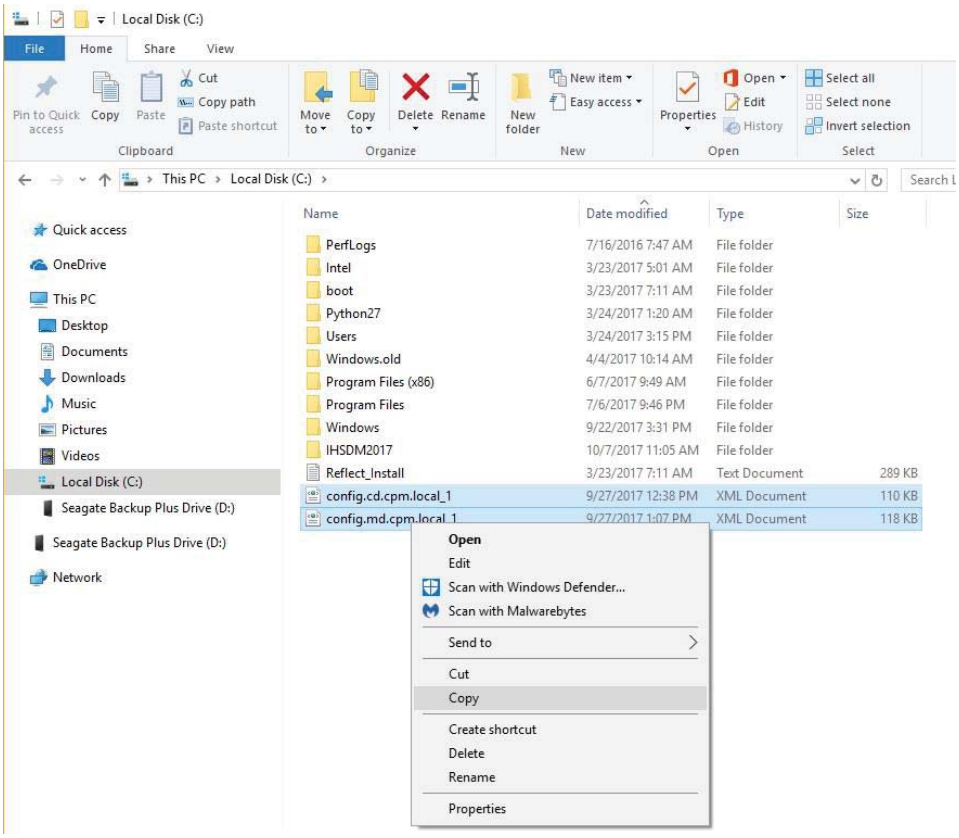

Figure C.2 Files with Indiana-specific parameters

116

Step 2: Navigate to the IHSDM configuration folder.

As displayed in Figure C.3, in this case, the folder is located in the C: drive under the following path: C: > IHSDM2017 > config

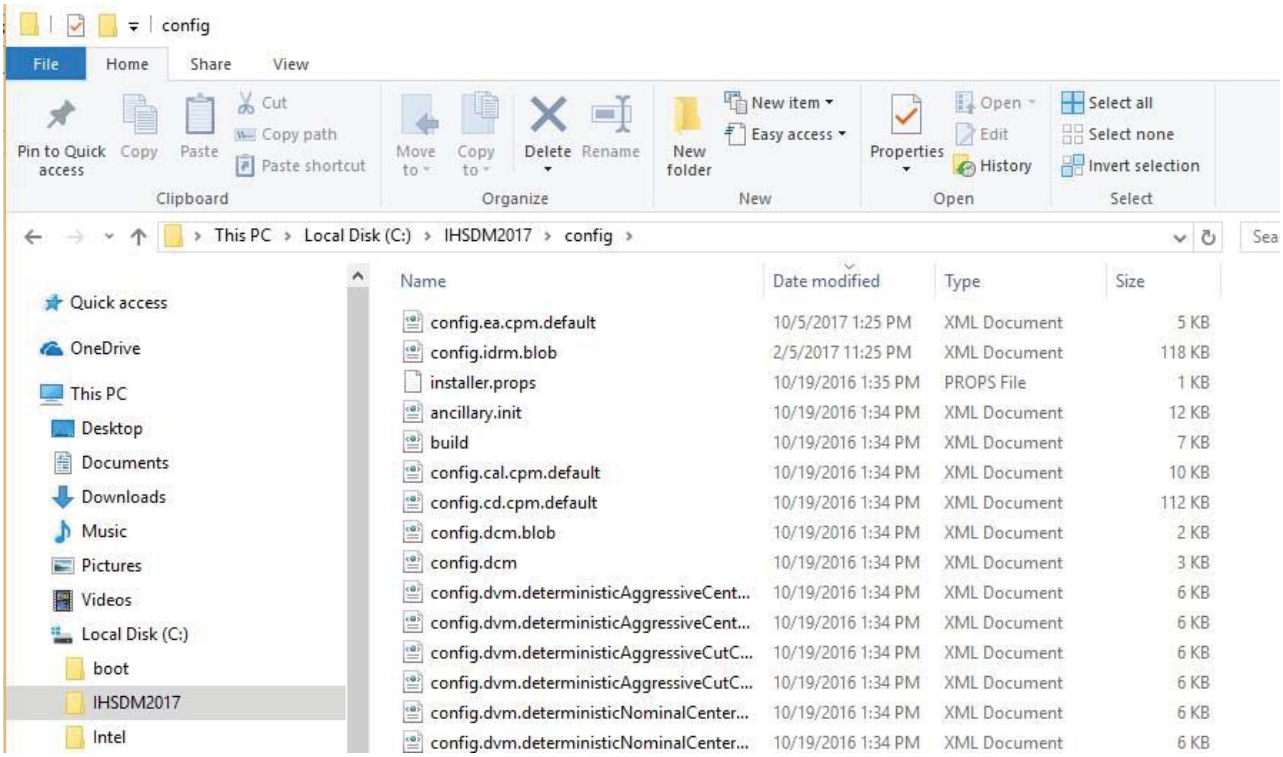

Figure C.3 IHSDM configuration folder

117

Step 3: Paste the files with the Indiana configuration in the IHSDM configuration folder.

This step is shown in Figure C.4. The configuration folder may then be closed.

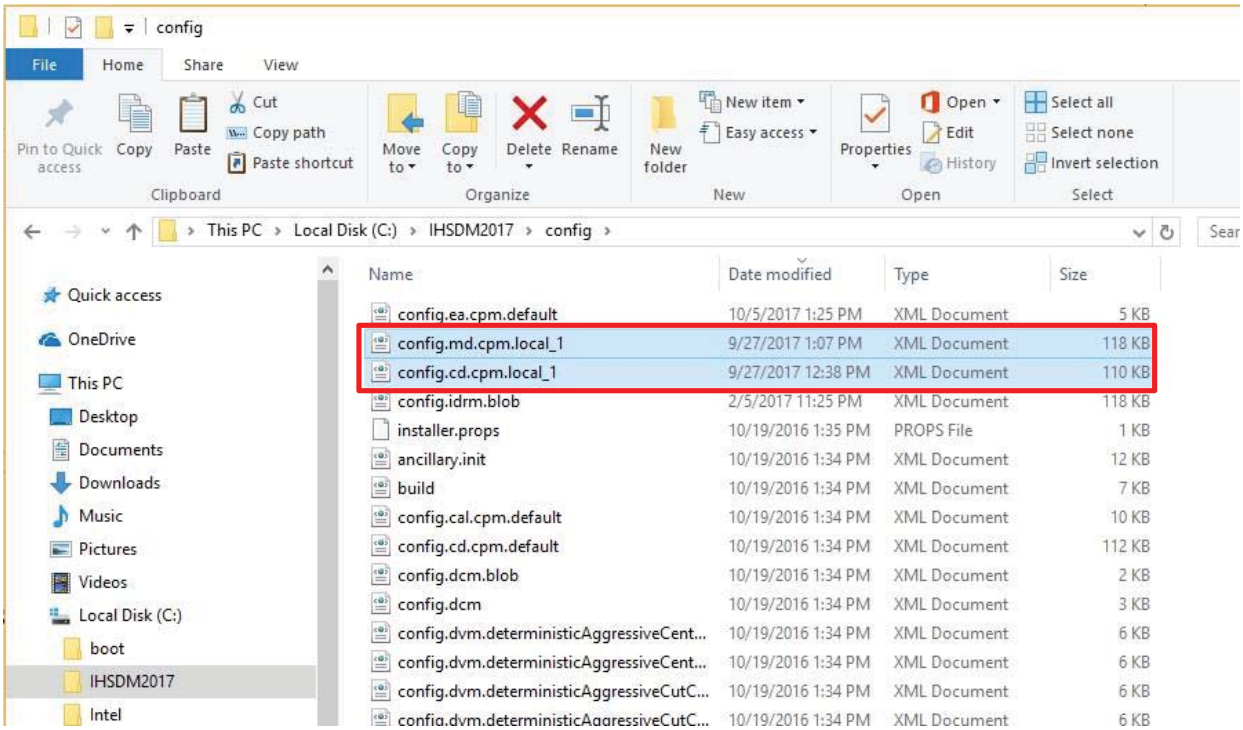

Figure C.4 Indiana configuration files in the IHSDM configuration folder

118

Step 4: Open the IHSDM Administration Tool from the Start menu (Figure C.5).

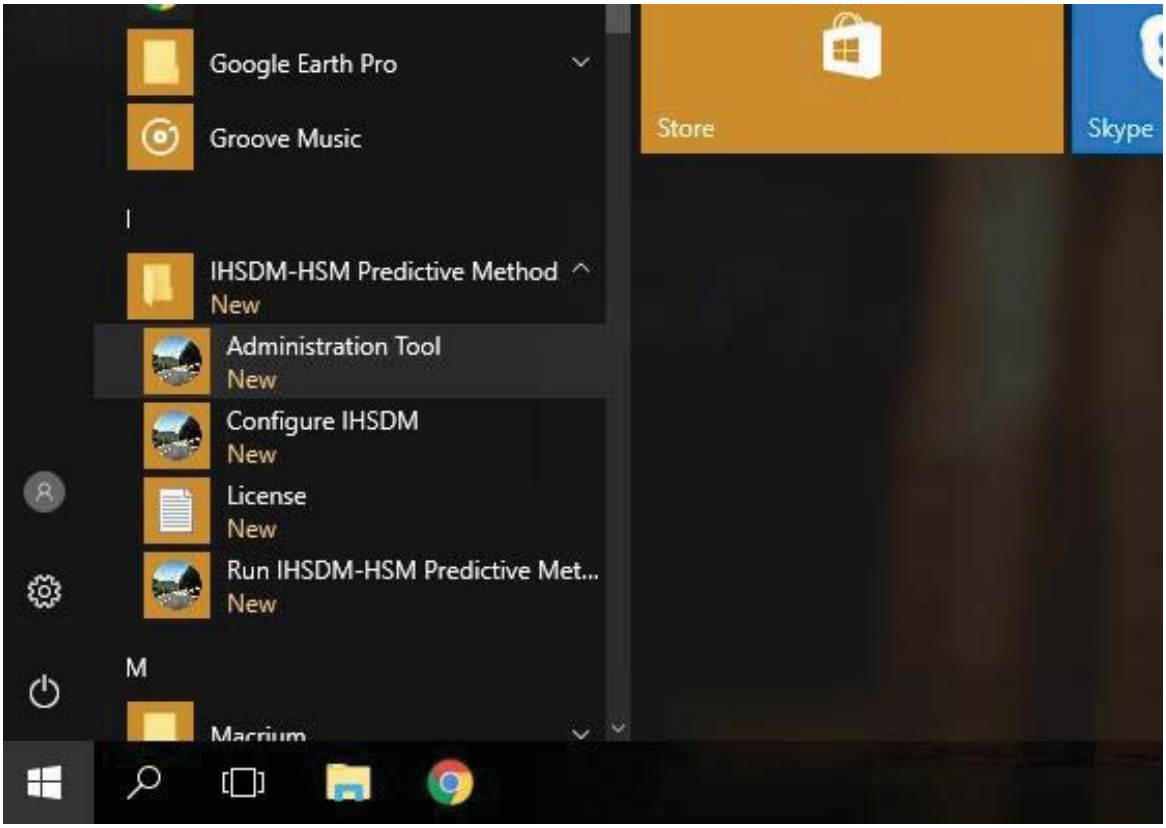

Figure C.5 Opening the IHSDM Administration Tool

119

The software should open with both the default HSM configuration and Indiana configuration appearing under the “Crash Distribution Data Sets” and “Model Data Sets” (Figure C.6).

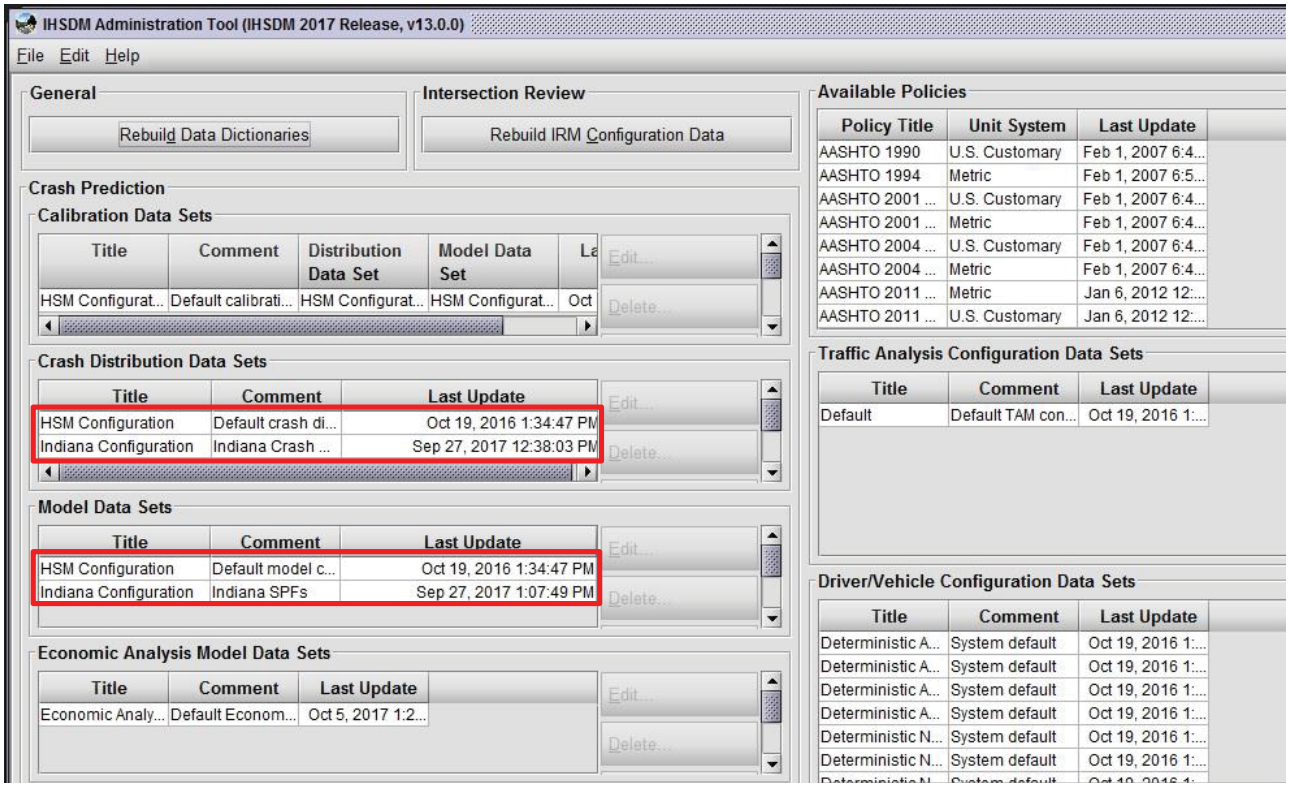

Figure C.6 IHSDM Administration Tool with HSM and Indiana configuration

120

Step 5: Save backup copies of the Indiana configuration files.

In order for the Indiana configuration to work properly and be compatible with any other custom configurations that the user may decide to add later, backup copies of the Indiana configuration files should be saved. Under the "Crash Distribution Data Sets" module, select the Indiana configuration and click the "Edit" button as displayed in Figure C.7.

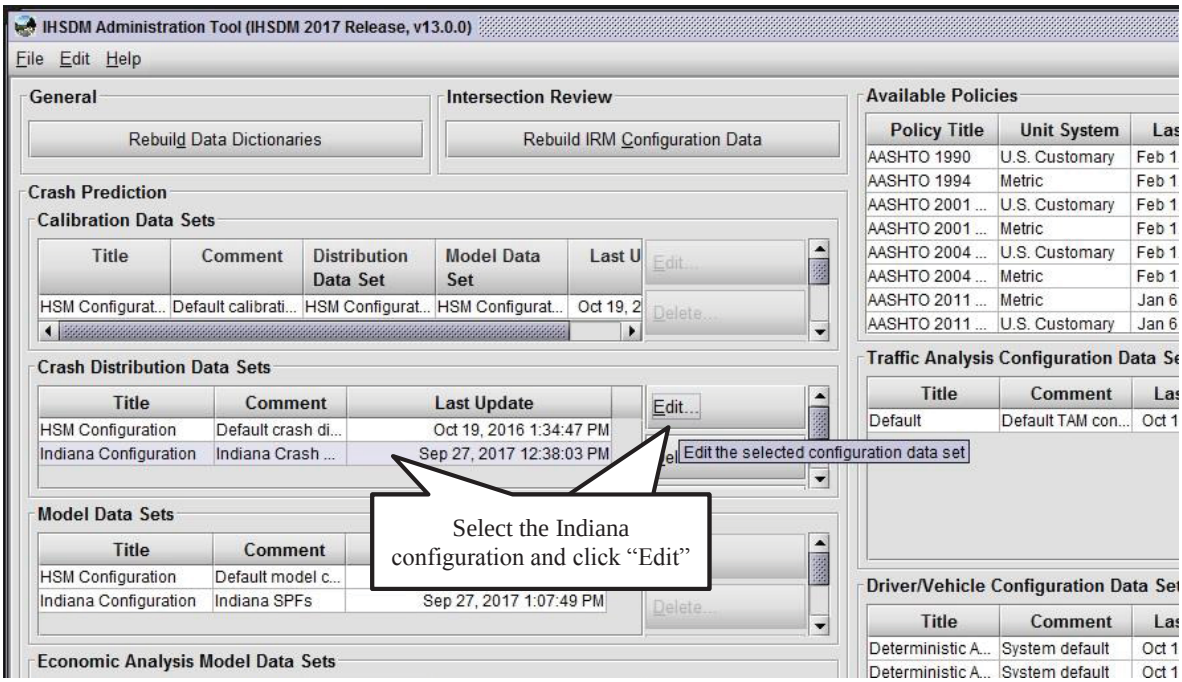

Figure C.7 Saving backup copy of the Indiana configuration for "Crash Distribution Data Sets"

121

The following dialogue box appears (Figure C.8). No changes need to be made in this box, as the appropriate Indiana crash proportions have already been entered. Simply click “Ok”.

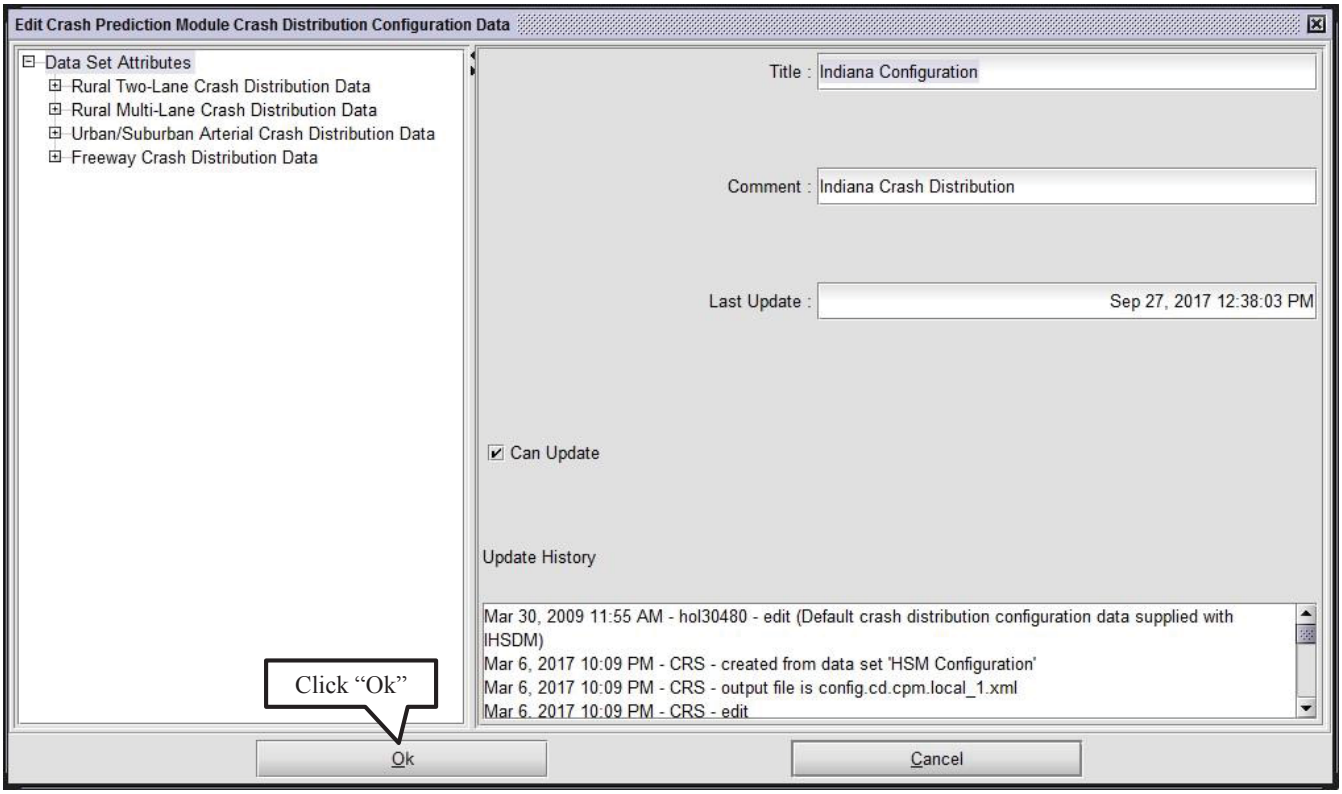

Figure C.8 Dialogue box for “Crash Distribution Data Sets” module

122

Even though no changes were made in the configuration, a backup configuration file was automatically created, in this case under the file path "C: > IHSDM2017 > users > ihsdm_admin > backup". The same procedure is followed for the Indiana configuration file containing the SPF and CMF parameters (located in the "Model Data Sets" module). Figure C.9 shows what the Administration Tool should look like when finished.

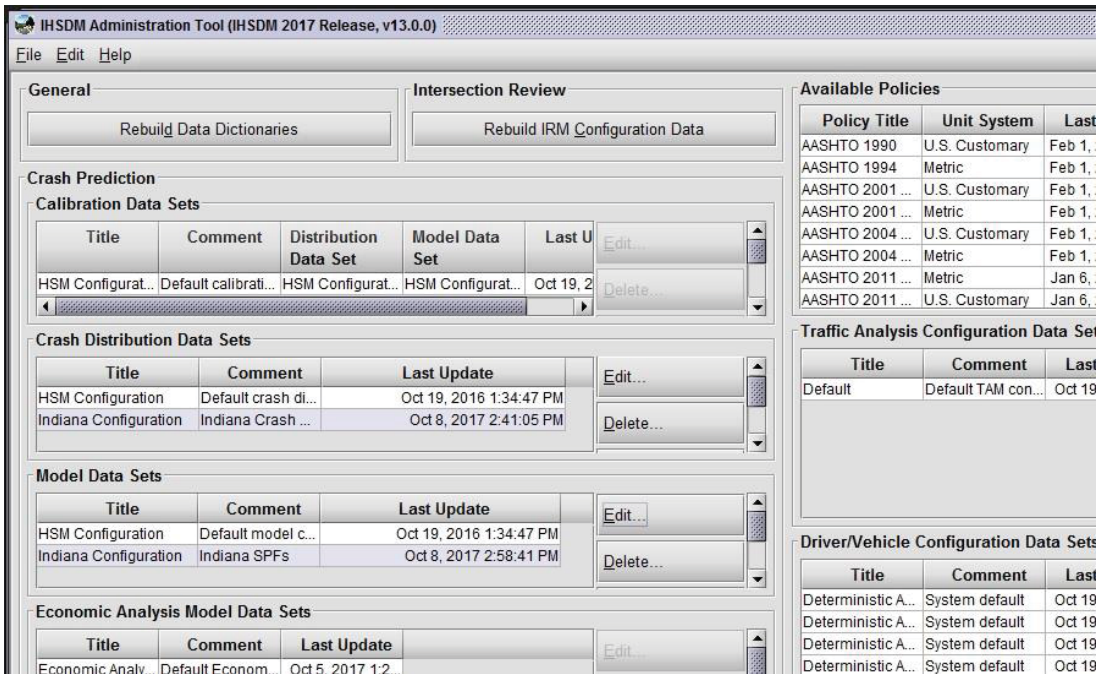

Figure C.9 IHSDM Administration Tool after saving backup files

123

Case 2 – Inputting the Indiana-specific Parameters directly into the Administration Tool

In this case, the user may have their own previously-created custom configuration already entered in the Administration Tool in addition to the HSM configuration. The Indiana crash proportions and SPF and CMF parameters may be entered by the user into the IHSDM Administration Tool by creating a new custom configuration for Indiana.

Step 1: Open the IHSDM Administration Tool from the Start menu (Figure C.10).

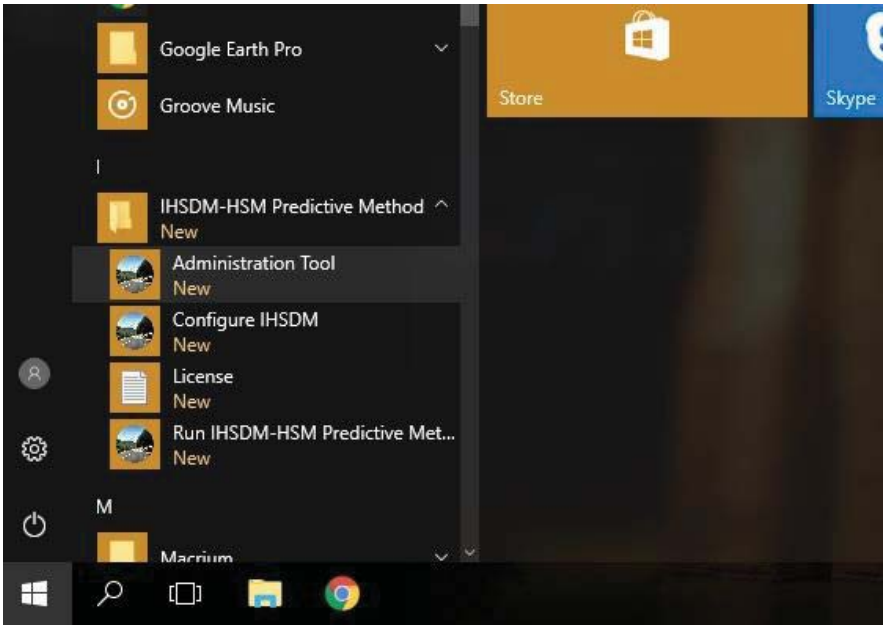

Figure C.10 Opening the IHSDM Administration Tool

124

As shown in Figure C.11, the software should open with the HSM configuration and previously-saved custom configuration appearing under the “Crash Distribution Data Sets” and “Model Data Sets”.

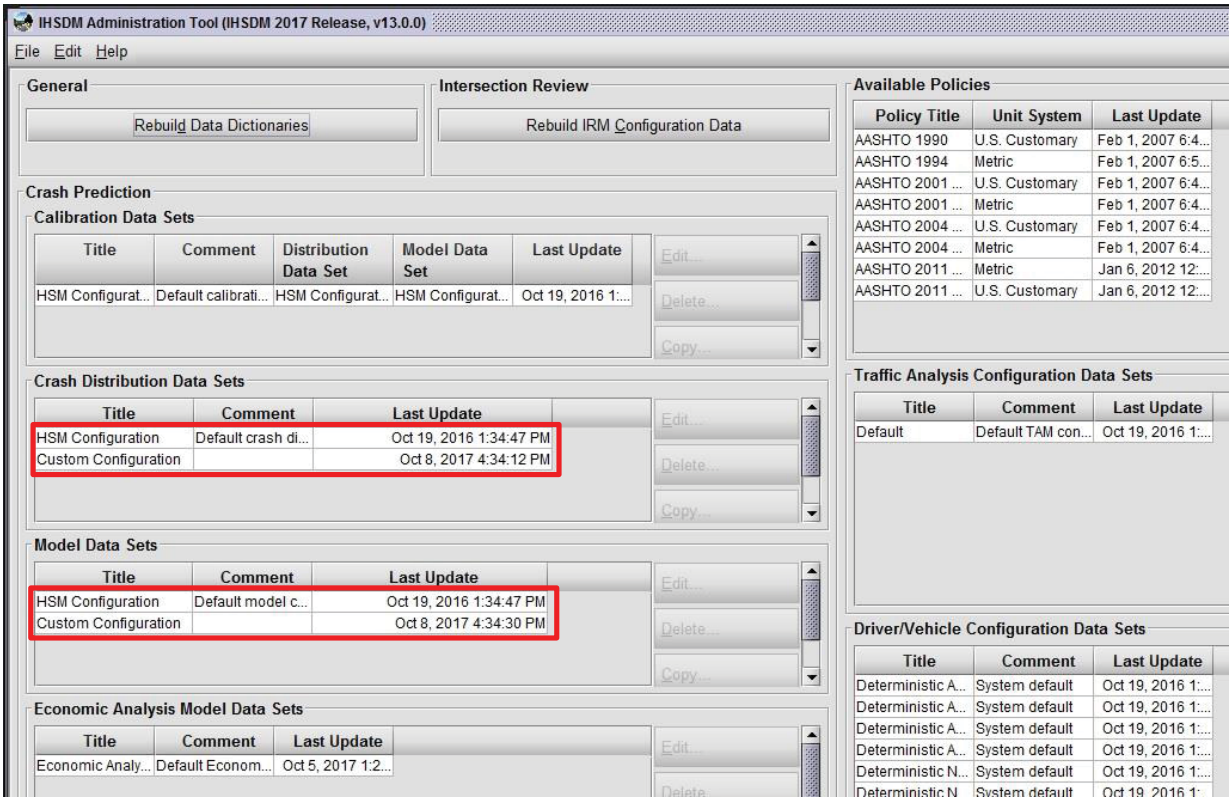

Figure C.11 IHSDM Administration Tool with HSM and custom configurations

125

Step 2: Create the Indiana configuration under the "Crash Distribution Data Sets" module.

This is most easily done by creating a copy of the HSM configuration and updating the crash proportions in this copy. Select the HSM configuration and click the "Copy" button (Figure C.12).

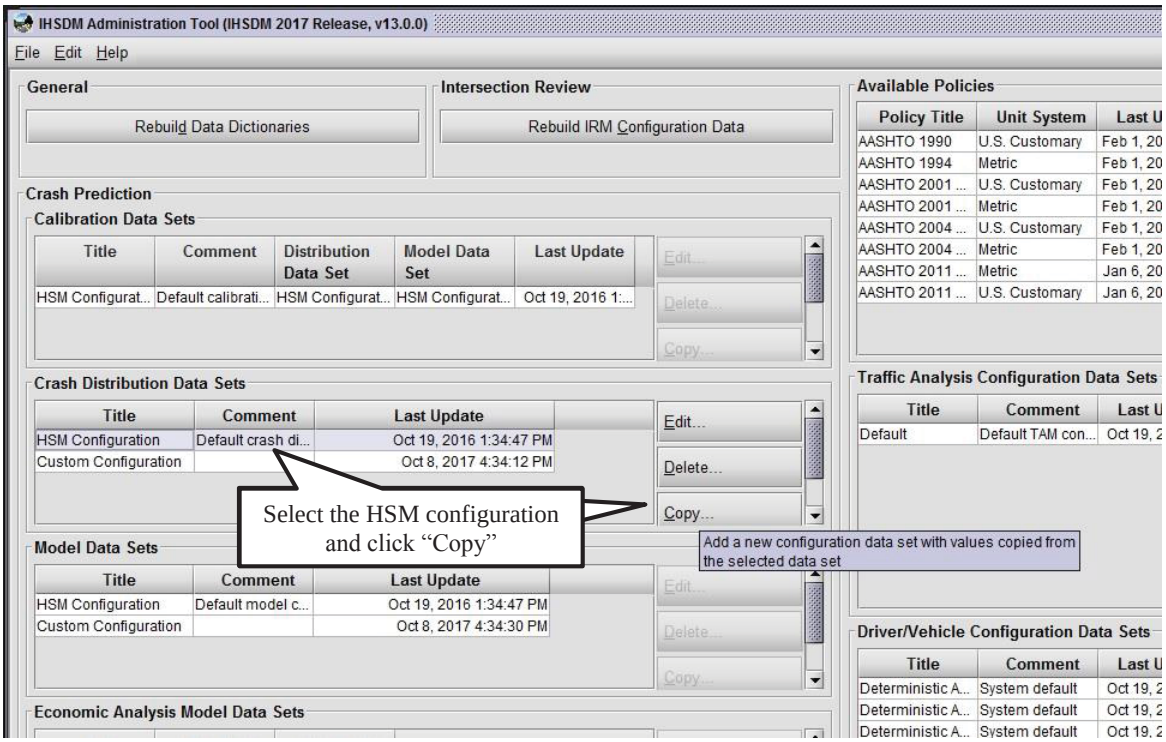

Figure C.12 Creating a copy of the HSM configuration for "Crash Distribution Data Sets"

126

The dialogue box displayed in Figure C.13 appears. For the "Title", the user may enter "Indiana Configuration" (or another name of personal preference). Similarly, under "Comment", the user may enter "Indiana Crash Distribution".

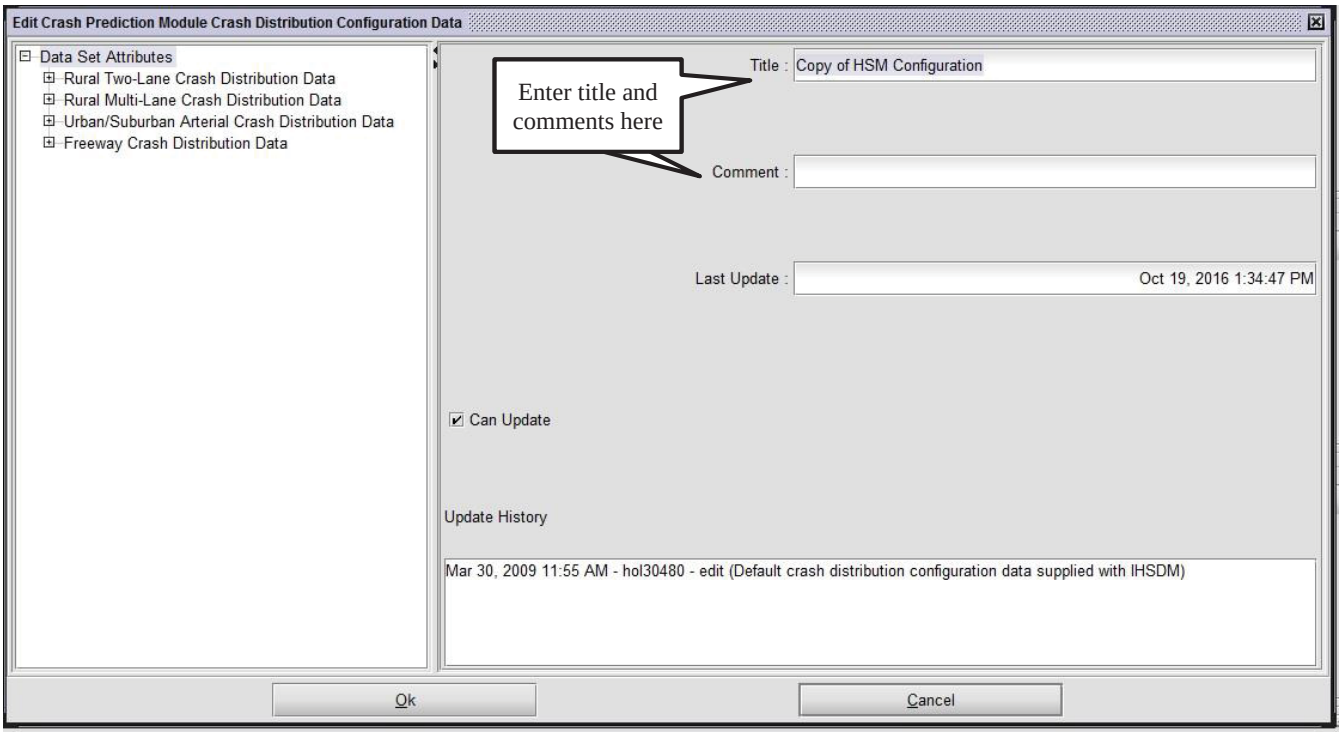

Figure C.13 Dialogue box for "Crash Distribution Data Sets" module

127

Step 3: Input the Indiana crash proportions into the tool.

Under the dropdown “Data Set Attributes” on the left side of the screen, the “Rural Two-Lane Crash Distribution Data” is opened. The general crash distributions to be entered for segments may be found in Table B.4. This data is typed by the user into the appropriate boxes shown in Figure C.14 below.

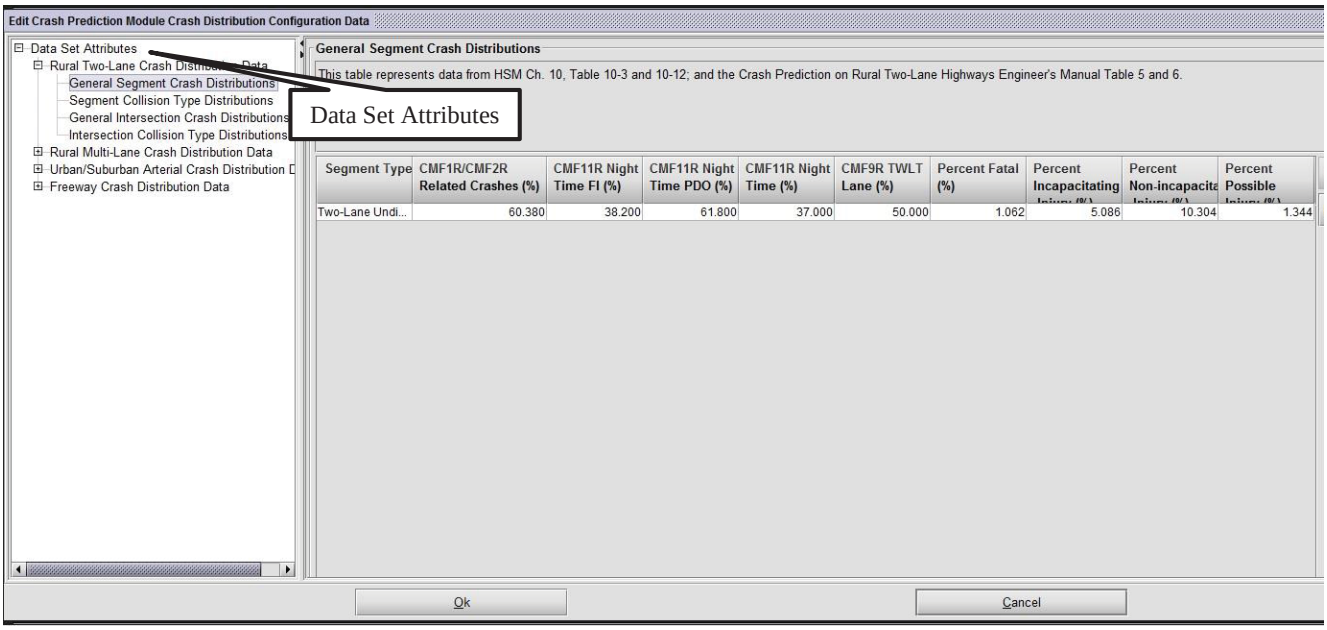

Figure C.14 Indiana general crash distributions for rural two-lane segments

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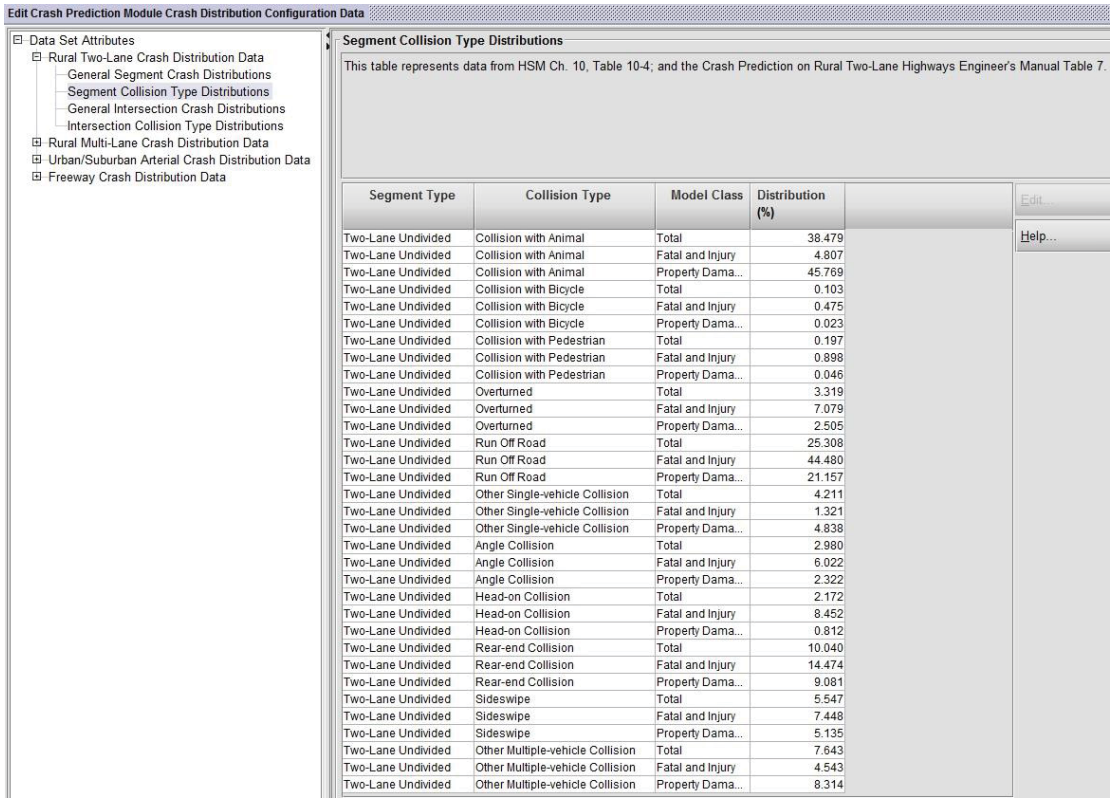
The crash type proportions to be entered for rural two-lane segments may be found in Table B.5. This data is input by the user into the appropriate boxes displayed in Figure C.15.



Segment Type	Collision Type	Model Class	Distribution (%)
Two-Lane Undivided	Collision with Animal	Total	38.479
Two-Lane Undivided	Collision with Animal	Fatal and Injury	4.807
Two-Lane Undivided	Collision with Animal	Property Dama...	45.769
Two-Lane Undivided	Collision with Bicycle	Total	0.103
Two-Lane Undivided	Collision with Bicycle	Fatal and Injury	0.475
Two-Lane Undivided	Collision with Bicycle	Property Dama...	0.023
Two-Lane Undivided	Collision with Pedestrian	Total	0.197
Two-Lane Undivided	Collision with Pedestrian	Fatal and Injury	0.898
Two-Lane Undivided	Collision with Pedestrian	Property Dama...	0.046
Two-Lane Undivided	Overturned	Total	3.319
Two-Lane Undivided	Overturned	Fatal and Injury	7.079
Two-Lane Undivided	Overturned	Property Dama...	2.505
Two-Lane Undivided	Run Off Road	Total	25.308
Two-Lane Undivided	Run Off Road	Fatal and Injury	44.480
Two-Lane Undivided	Run Off Road	Property Dama...	21.157
Two-Lane Undivided	Other Single-vehicle Collision	Total	4.211
Two-Lane Undivided	Other Single-vehicle Collision	Fatal and Injury	1.321
Two-Lane Undivided	Other Single-vehicle Collision	Property Dama...	4.838
Two-Lane Undivided	Angle Collision	Total	2.980
Two-Lane Undivided	Angle Collision	Fatal and Injury	6.022
Two-Lane Undivided	Angle Collision	Property Dama...	2.322
Two-Lane Undivided	Head-on Collision	Total	2.172
Two-Lane Undivided	Head-on Collision	Fatal and Injury	8.452
Two-Lane Undivided	Head-on Collision	Property Dama...	0.812
Two-Lane Undivided	Rear-end Collision	Total	10.040
Two-Lane Undivided	Rear-end Collision	Fatal and Injury	14.474
Two-Lane Undivided	Rear-end Collision	Property Dama...	9.081
Two-Lane Undivided	Sideswipe	Total	5.547
Two-Lane Undivided	Sideswipe	Fatal and Injury	7.448
Two-Lane Undivided	Sideswipe	Property Dama...	5.135
Two-Lane Undivided	Other Multiple-vehicle Collision	Total	7.643
Two-Lane Undivided	Other Multiple-vehicle Collision	Fatal and Injury	4.543
Two-Lane Undivided	Other Multiple-vehicle Collision	Property Dama...	8.314

Figure C.15 Indiana crash type proportions for rural two-lane segments

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A similar procedure is followed for rural divided multilane segments and urban/suburban arterial segments using data from Table B.6 and Table B.7, respectively. Once the user has entered all of the crash proportions, click “Ok” to save the changes and return to the Administration Tool.

Step 4: Create the Indiana configuration under the “Model Data Sets” module.

Again, this is most easily done be creating a copy of the HSM configuration and updating the SPF and CMF parameters in this copy. Once this has been done, the dialogue box in Figure C.16 appears.

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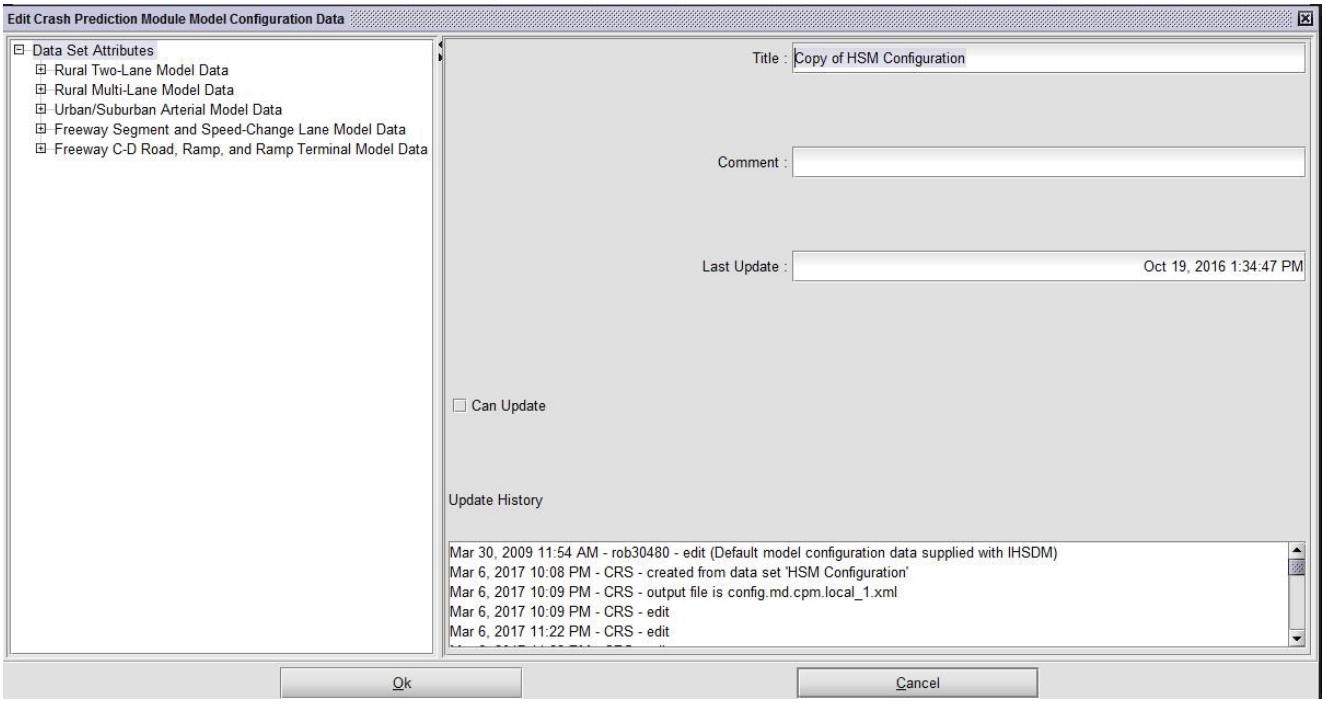

Figure C.16 Dialogue box for “Model Data Sets” module

131

Step 5: Input the Indiana SPF and CMF parameters into the tool.

The "Rural Two-Lane Model Data" is opened under the "Data Set Attributes" from the dropdown menu. The SPF parameters to be entered for rural two-lane segments (as well as rural divided multilane and urban/suburban arterial segments) are found in Table B.3. The parameters for rural two-lane segments are input by the user into the boxes shown in Figure C.17.

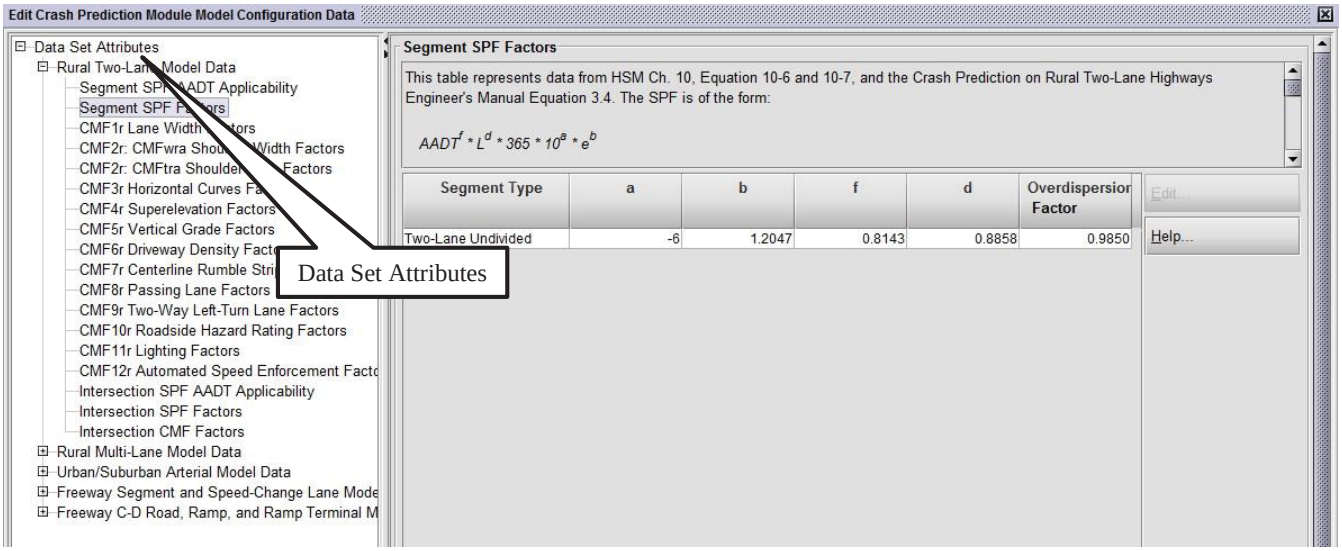

Figure C.17 Indiana SPF parameters for rural two-lane segments

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The CMF parameters to be entered for lane width and shoulder width on rural two-lane segments (as well as for lane width on rural divided multilane segments) are found in Table B.1. Figure C.18 and C.19 display the boxes where the user may input the Indiana CMF parameters for lane width and shoulder width, respectively, on rural two-lane segments.

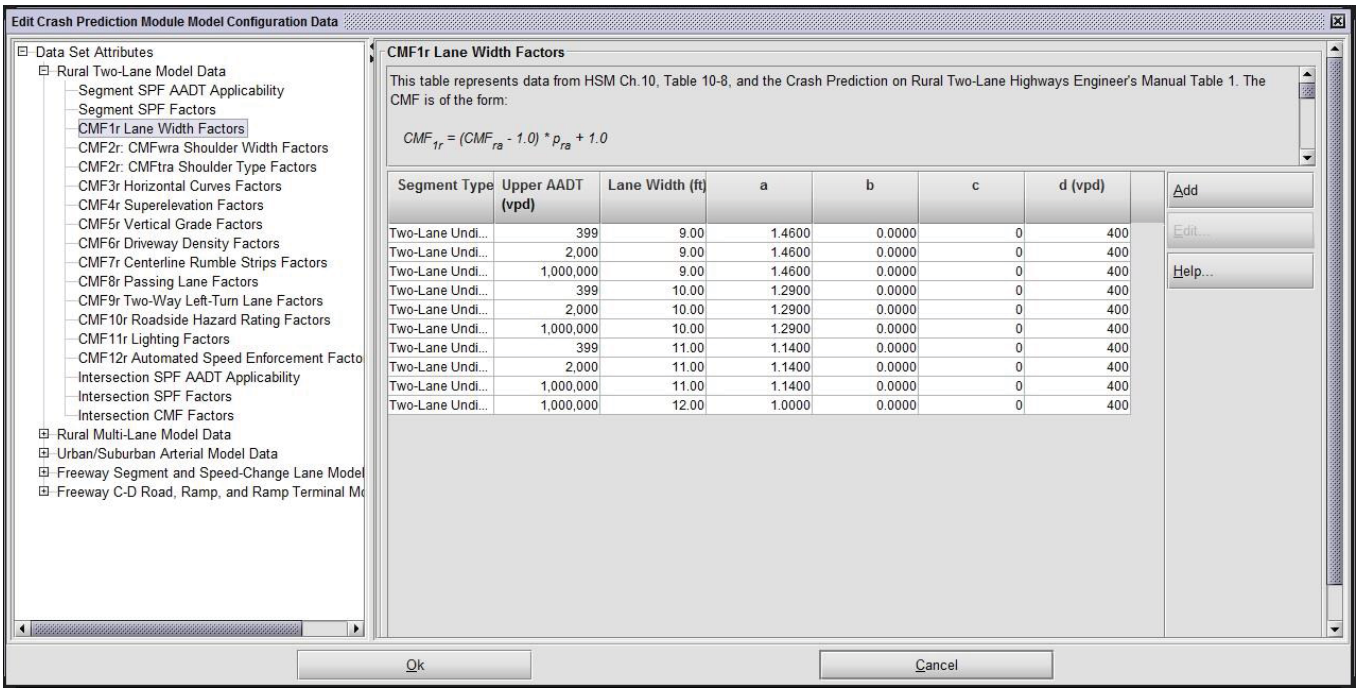

Figure C.18 Indiana CMF parameters for lane width on rural two-lane segments

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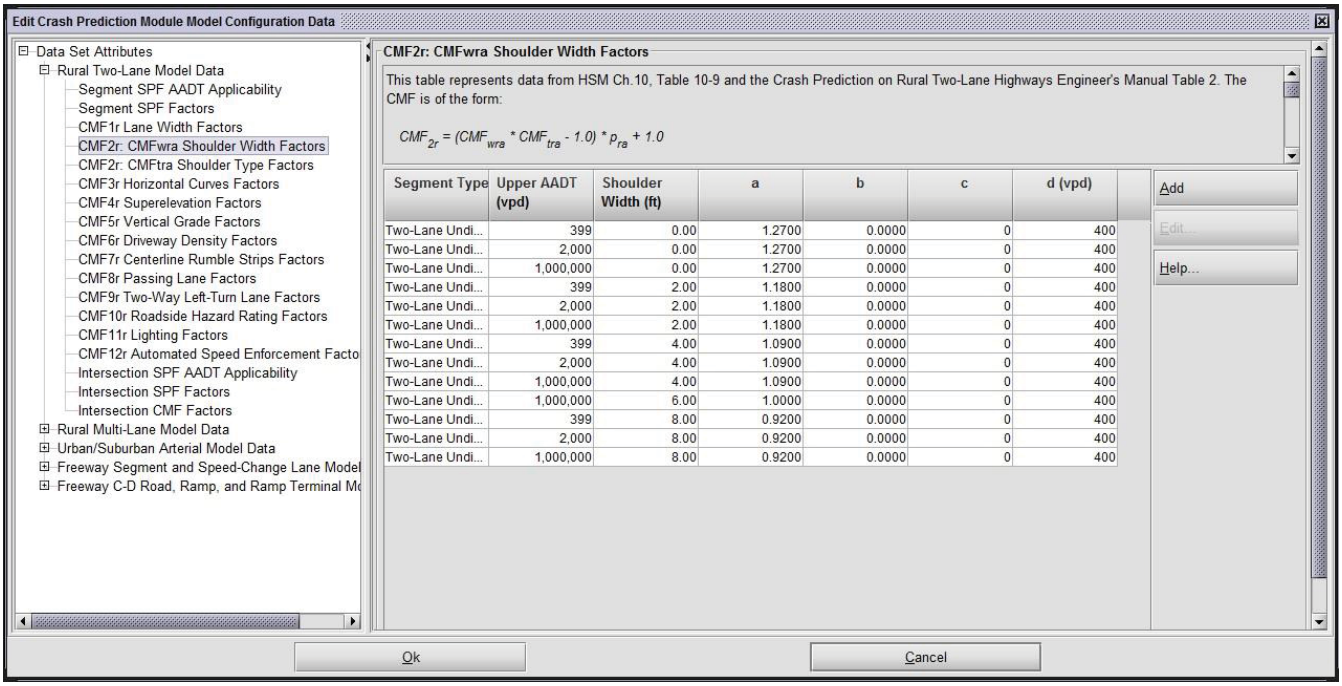

Figure C.19 Indiana CMF parameters for shoulder width on rural two-lane segments

134

Utilizing the data from Appendix B, a similar procedure is followed for inputting the available SPF and CMF parameters for rural divided multilane segments and urban/suburban arterial segments. Once the user is finished, click “Ok” to save the changes and return to the Administration Tool. It should now look as shown in Figure C.20.

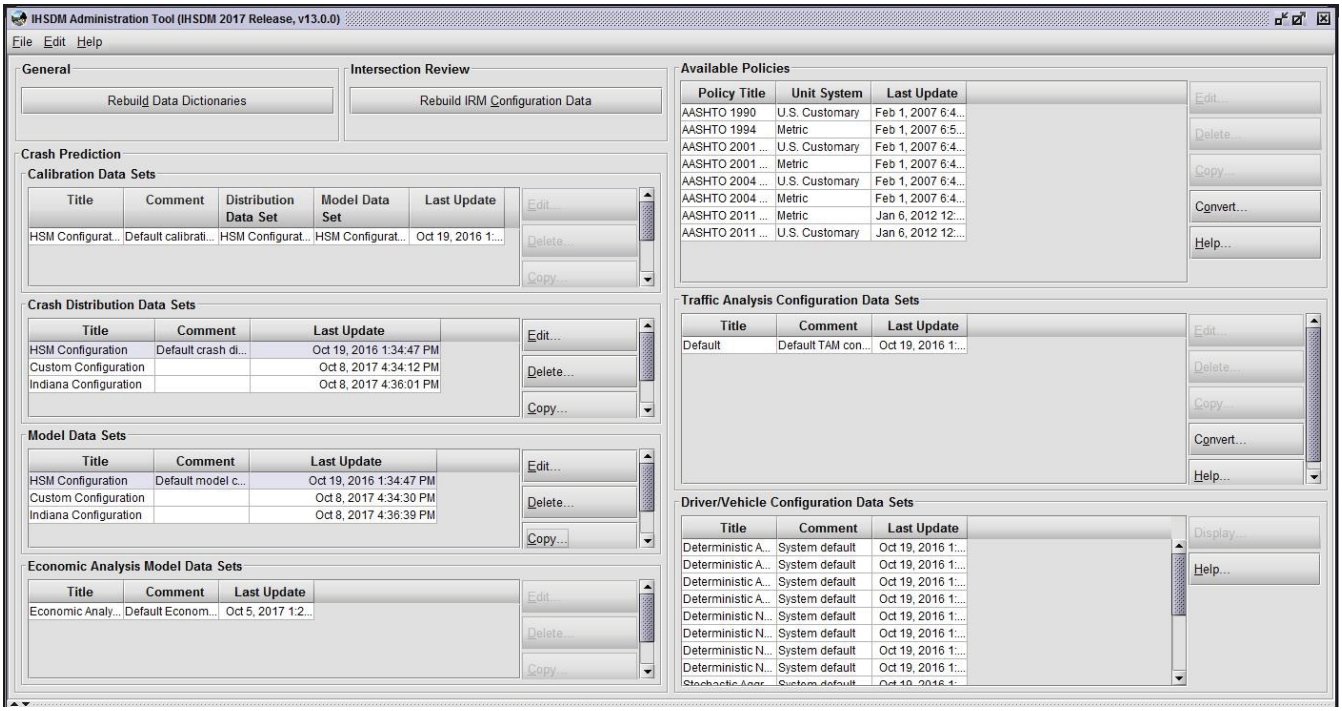

Figure C.20 IHSDM Administration Tool after creating Indiana configuration

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Selecting the Indiana Configuration for use in the IHSDM Crash Prediction Tool.

The final part of this appendix shows how the Indiana configuration is utilized for crash prediction in the IHSDM. It is assumed that the user has knowledge of the crash prediction tool, the IHSDM-HSM Predictive Method, and has created or input a rural or urban/suburban highway segment and initiated a crash prediction evaluation. Under the "Set crash prediction attributes" dialogue box, the user is prompted to select the desired "Crash Distribution" and "Model/CMF" configurations. As seen in Figure C.21, the Indiana configuration is selected.

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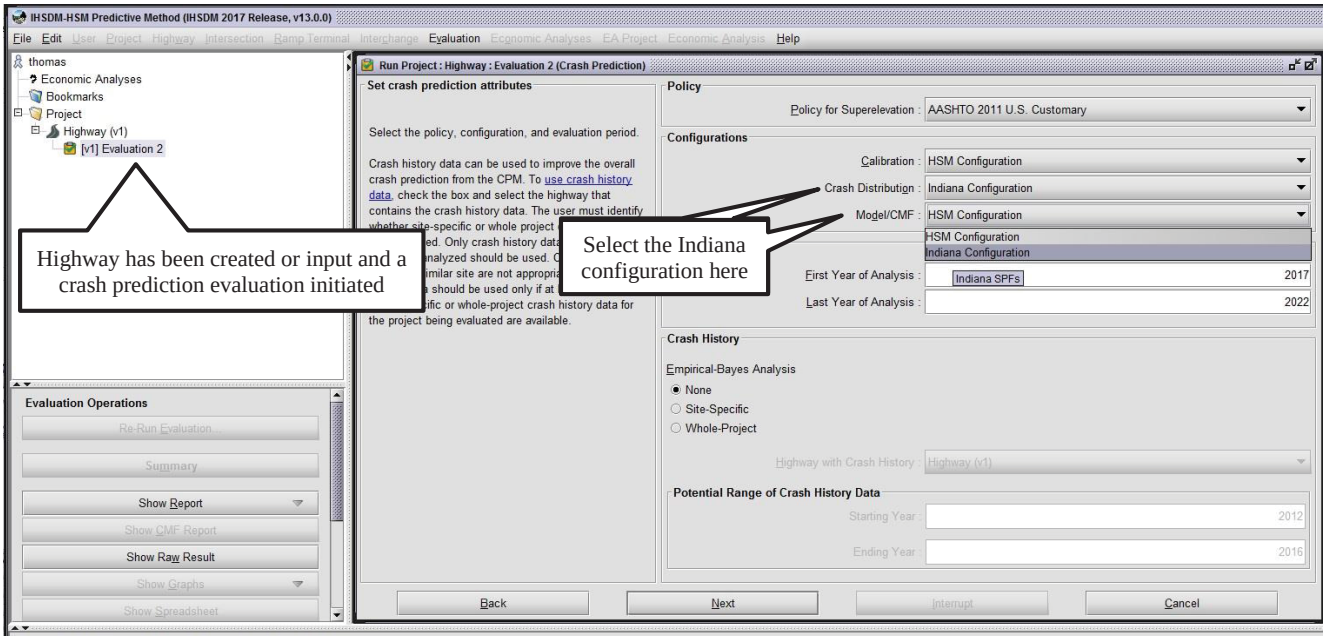

Figure C.21 Selecting the Indiana configuration in a crash prediction evaluation

137

After the user has progressed through the setup for the crash prediction evaluation, the evaluation summary (Figure C.22) appears. The "Crash Distribution Configuration" and "Model/CMF Configuration" provide confirmation that the Indiana configuration has been selected.

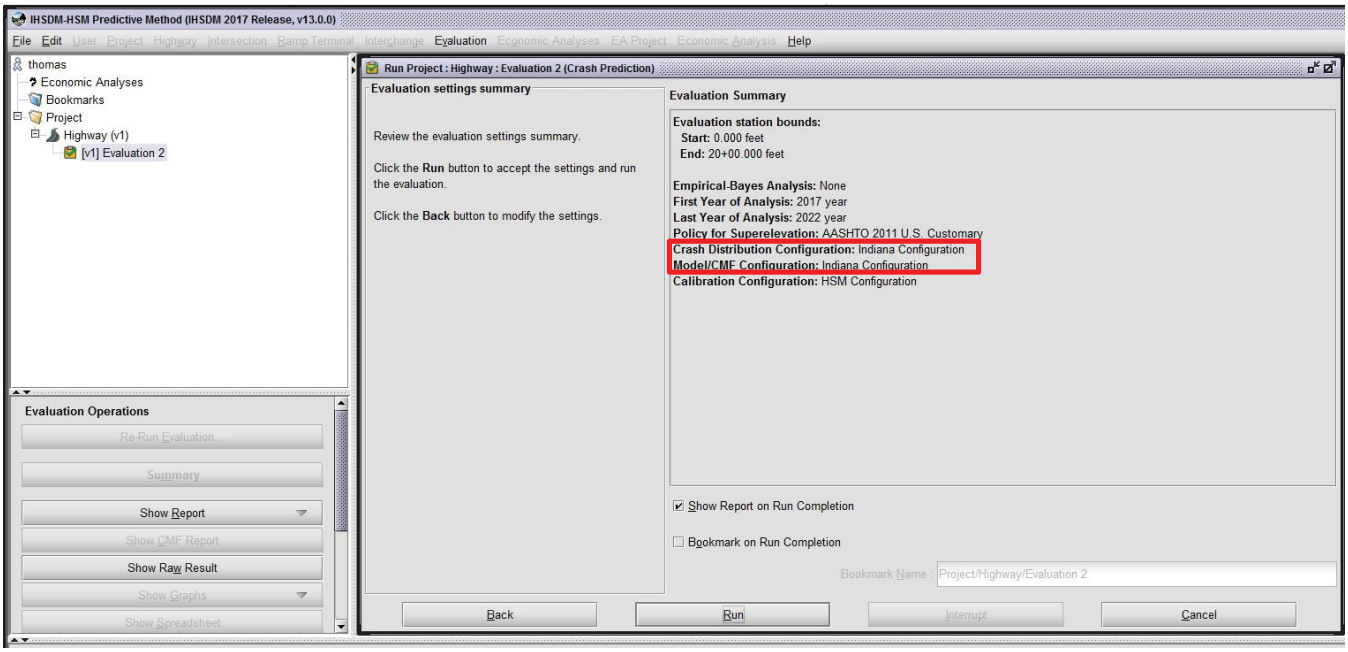

Figure C.22 Crash prediction evaluation summary

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