CMF Clearinghouse Data Dictionary

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This data dictionary is intended to accompany the data extracts of the CMF Clearinghouse that are provided to the public. Each field is listed and described. Where applicable, the coding of the data in the field is discussed.

Field Name	Description	Coding Notes
crfid	Unique ID assigned to each CMF	
cmid	Unique ID assigned to each countermeasure	
cmName	Countermeasure name	
cmDesc	Countermeasure description	
cmCostRange	Countermeasure cost	
catname	Countermeasure category	
subcatname	Countermeasure subcategory	
cmImageFile	File name of countermeasure illustration, if available	
qualRating	Star quality rating	0,1,2,3,4,5 = star ratings as assigned through the technical review process -2 = Cannot be rated. This CMF is derived from a survey of one or more state transportation agencies to determine what CMF values were being used by states for particular countermeasures at that time. The resulting responses were averaged or summarized to arrive at a "most commonly used" value. The star rating review process cannot be applied to this CMF since the estimate was not the result of evaluation-based research -3 = Cannot be rated (HSM). This CMF cannot be rated in the Clearinghouse because it appears in the 1st Edition of the Highway Safety Manual without an adjusted standard error. The Clearinghouse uses the adjusted standard error to provide a surrogate star quality rating for all

		CMFs that were imported from the HSM, so without this value, a star rating is not possible. In the HSM, there is a notation for these CMFs that "the standard error of the CMF is unknown". This is generally because the CMF was developed either through an expert panel or was obtained from an older study for which the standard error was unknown -4 = Cannot be rated (insufficient information). This CMF cannot be rated due to insufficient information provided in the source document. The most common reason for this is that the source document was an extended abstract that was submitted to the Transportation Research Board Annual Meeting. This shortened format typically does not typically provide enough detail about the study and the CMF development to allow the Clearinghouse team to confidently provide a star quality rating
priorCondition	Prior condition of the site	
crfactor	Crash reduction factor (CRF)	This value is the percent change. The unit is whole percent values, so 20 indicates a 20% reduction in crashes
crfunction	File name for crash reduction function	If the CRF is conveyed as a function (equation), the function image name is provided
accModFactor	Crash modification factor (CMF)	This value is the multiplicative change. So, 0.80 indicates a 20% reduction in crashes
accModFunction	File name for crash modification function	If the CMF is conveyed as a function (equation), the function image name is provided
adjStanErrorCrf	Standard error of the CRF, adjusted by the authors of the Highway Safety Manual 1st Edition	Standard errors in the Highway Safety Manual 1st Edition were adjusted (increased) to reflect quality concerns with the

		development of the CMF. More information on the development of the Highway Safety Manual is available at www.highwaysafetymanual.org
unAdjStanErrorCrf	Standard error of the CRF, unadjusted	
adjStanErrorAmf	Standard error of the CMF, adjusted by the authors of the Highway Safety Manual 1st Edition	Standard errors in the Highway Safety Manual 1st Edition were adjusted (increased) to reflect quality concerns with the development of the CMF. More information on the development of the Highway Safety Manual is available at www.highwaysafetymanual.org
unAdjStanErrorAmf	Standard error of the CMF, unadjusted	
inFirstHSM	Indicator whether CMF was included in the Highway Safety Manual 1st Edition	
typeMethod	Type of methodology used to produce the CMF	
state	State for data origin	
municipality	Municipality for data origin	
bai_1	Number of miles/sites of reference/comparison group for SPF estimation and trend analysis (for analysis based on "segments", number of miles should be used; for analysis based on intersections or similar units, sites should be used)	Rating input for Before/After studies
bai_1a	Exact number of miles/sites of reference/comparison group if known	Rating input for Before/After studies
bai_1b	unknown (bai_1a)	Rating input for Before/After studies
bai_2	Number of crashes in reference/comparison sites for SPF estimation and trend analysis	Rating input for Before/After studies
bai_3	Reference/comparison group is appropriate to account for any spillover/crash migration	Rating input for Before/After studies
bai_4	Number of miles/sites for treatment group (for analysis based on "segments", number of miles	Rating input for Before/After studies

	should be used; for analysis based on intersections or similar units, sites should be used)	
bai_5	Reference Group Crashes/Year	Rating input for Before/After studies
bai_6	Number of miles/sites for treatment group (for analysis based on "segments", number of miles should be used; for analysis based on intersections or similar units, sites should be used)	Rating input for Before/After studies
bai_6a	Exact number of miles/sites of treatment group if known	Rating input for Before/After studies
bai_6b	unknown (bai_6a)	Rating input for Before/After studies
bai_7	Number of crashes in the before period, for treatment group	Rating input for Before/After studies
bai_7a	unknown (bai_7a)	Rating input for Before/After studies
bai_8	Number of crashes in the after period, for treatment group	Rating input for Before/After studies
bai_8a	unknown (bai_8)	Rating input for Before/After studies
bai_9	Number of crashes expected in the after period, for treatment group	Rating input for Before/After studies
bai_9a	unknown (bai_9)	Rating input for Before/After studies
bai_10	Number of crashes expected in the after period, for treatment group - calculated	Rating input for Before/After studies
bai_11	Number of before plus expected after crashes	Rating input for Before/After studies
bai_12	At least one traffic volume count in the before period?	Rating input for Before/After studies
bai_13	At least one traffic volume count in the after period?	Rating input for Before/After studies
bai_14	Possible bias due to RTM is addressed or the treatment was a systemwide implementation?	Rating input for Before/After studies
bai_15	Accounts for changes in traffic volume during the study period?	Rating input for Before/After studies
bai_16	Accounts for time trends and other changes during the study period?	Rating input for Before/After studies
bai_17	Reference/comparison group is similar to treatment group in terms of AADT, i.e., the AADT range for the reference group overlaps the	Rating input for Before/After studies

	AADT range for the treatment group, and the mean AADT for the reference and treatment groups are similar to each other?	
bai_18	The reference/comparison group and treatment groups belong to the same roadway type (e.g., rural two-lane roads) and site type (e.g., horizontal curve). In addition, the reference/comparison groups are similar to treatment group in terms of other important site characteristics	Rating input for Before/After studies
bai_19	CMF is statistically significant at 0.05, 0.10, or 0.15 levels	Rating input for Before/After studies
bai_20	The SPFs were estimated using appropriate statistical procedures and functional form is reasonable?	Rating input for Before/After studies
bao_1	Rating for number of miles/sites of ref/comp group	Rating output for Before/After studies
bao_2	Rating for number of crashes in reference/comparison group	Rating output for Before/After studies
bao_3	Rating for accounting for spillover/crash migration	Rating output for Before/After studies
bao_4	Rating for number of miles/sites of treatment group	Rating output for Before/After studies
bao_5	Rating for providing at least one traffic volume count in before and after periods	Rating output for Before/After studies
bao_6	Rating for reference/comparison and treatment groups having similar AADT	Rating output for Before/After studies
bao_7	Rating for reference/comparison and treatment groups having same roadway characteristics	Rating output for Before/After studies
bao_9	Rating for addressing RTM	Rating output for Before/After studies
bao_10	Rating for accounting for changes in traffic volume	Rating output for Before/After studies
bao_11	Rating for accounting for time trends/other changes	Rating output for Before/After studies
bao_12	Rating for appropriate SPF	Rating output for Before/After studies
bao_13	Rating for CMF significance level	Rating output for Before/After studies
csi_1	Number of miles/sites. Depending on the treatment being evaluated,	Rating input for Cross-Sectional studies

	this may include sites with and without the treatment. In other cases, the range of each independent variable of interest should be adequate (for analysis based on "segments", number of mi	
csi_1a	Exact number of miles/sites if known	Rating input for Cross-Sectional studies
csi_1b	unknown (csi_1a)	Rating input for Cross-Sectional studies
csi_2	Number of crashes for all sites combined	Rating input for Cross-Sectional studies
csi_2a	Actual number of crashes for all sites combined if known.	Rating input for Cross-Sectional studies
csi_2b	unknown (csi_2a)	Rating input for Cross-Sectional studies
csi_3	At least two years with actual/estimated traffic volume counts in the study period	Rating input for Cross-Sectional studies
csi_4	Selection bias (similarity of site with and without the treatment)	Rating input for Cross-Sectional studies
csi_5	Appropriate model form (including error terms)	Rating input for Cross-Sectional studies
csi_6	Appropriate functional form (including possibility of non-traditional non-GLM forms)	Rating input for Cross-Sectional studies
csi_7	Appropriate consideration of omitted variable bias (i.e., variables known to influence safety were considered as terms in the model or controlled through study design)	Rating input for Cross-Sectional studies
csi_8	Appropriate consideration of correlation between independent variables (with significant correlation, the coefficient of variables may have the wrong sign)	Rating input for Cross-Sectional studies
csi_9	Appropriate consideration of spatial and temporal correlation	Rating input for Cross-Sectional studies
csi_10	CMF is statistically significant at 0.05, 0.10, or 0.15 levels	Rating input for Cross-Sectional studies
cso_1	Rating for number of miles/sites	Rating output for Cross-Sectional studies
cso_2	Rating for number of crashes for all sites combined	Rating output for Cross-Sectional studies
cso_3	Rating for traffic volume counts in study period	Rating output for Cross-Sectional studies

cso_4	Rating for selection bias	Rating output for Cross-Sectional studies
cso_5	Rating for appropriate model form	Rating output for Cross-Sectional studies
cso_6	Rating for appropriate functional form	Rating output for Cross-Sectional studies
cso_7	Rating for appropriate consideration of omitted variable bias	Rating output for Cross-Sectional studies
cso_8	Rating for appropriate consideration of correlation between independent variables	Rating output for Cross-Sectional studies
cso_9	Rating for appropriate consideration of spatial and temporal correlation	Rating output for Cross-Sectional studies
cso_10	Rating for CMF significance level	Rating output for Cross-Sectional studies
mai_1	Included studies applied the same methodology and accounted for the same confounding factors, including RTM, traffic volume changes, time trends, and crash migration/spillover effects, if applicable	Rating input for Meta-Analysis studies
mai_2	Crash type and severity definitions consistent between outcome measures of studies	Rating input for Meta-Analysis studies
mai_3	Individual estimates exhibit consistency in the direction of effect	Rating input for Meta-Analysis studies
mai_4	Publication bias was tested for and addressed if present	Rating input for Meta-Analysis studies
mai_5	A majority of studies used are deemed acceptable by the NCHRP 17-72 rating scheme	Rating input for Meta-Analysis studies
mai_6	The standard error of at least one of the CMFs is less than or equal to 0.10	Rating input for Meta-Analysis studies
mai_7	A test of homogeneity indicates that the CMF estimates can be combined	Rating input for Meta-Analysis studies
mai_8	Appropriate method used to estimate the combined CMF	Rating input for Meta-Analysis studies
mai_9	Overall CMF is statistically significant at 0.05, 0.10, or 0.15 levels	Rating input for Meta-Analysis studies

mao_1	Rating for consistency in study methodologies	Rating output for Meta-Analysis studies
mao_2	Rating for consistency in crash type and severity definitions	Rating output for Meta-Analysis studies
mao_3	Rating for estimate consistency	Rating output for Meta-Analysis studies
mao_4	Rating for publication bias	Rating output for Meta-Analysis studies
mao_5	Rating for majority of studies being acceptable under NCHRP 17-72 rating scheme	Rating output for Meta-Analysis studies
mao_6	Rating for standard error value	Rating output for Meta-Analysis studies
mao_7	Rating for test of homogeneity	Rating output for Meta-Analysis studies
mao_8	Rating for using appropriate method for combining CMFs	Rating output for Meta-Analysis studies
mao_9	Rating for CMF significance level	Rating output for Meta-Analysis studies
mri_1	Included studies applied the same methodology and accounted for the same confounding factors, including RTM, traffic volume changes, time trends, and crash migration/spillover effects, if applicable	Rating input for Meta-Regression studies
mri_2	Crash type and severity definitions consistent between outcome measures of studies	Rating input for Meta-Regression studies
mri_3	Treatment was applied similarly between locations or accounted for in the model	Rating input for Meta-Regression studies
mri_4	Publication bias was tested for and addressed if present	Rating input for Meta-Regression studies
mri_5	A majority of studies used are deemed acceptable by the NCHRP 17-72 rating scheme	Rating input for Meta-Regression studies
mri_6	The standard error of at least one of the CMFs is less than or equal to 0.10	Rating input for Meta-Regression studies
mri_7	A test of homogeneity indicates that the CMF estimates can be combined	Rating input for Meta-Regression studies
mri_8	Appropriate model form including error terms applied	Rating input for Meta-Regression studies
mri_9	Appropriate functional form applied	Rating input for Meta-Regression studies

mri_10	Consideration of omitted variable bias, considered through design or included in model	Rating input for Meta-Regression studies
mri_11	Consideration of correlation between independent variables	Rating input for Meta-Regression studies
mri_12	Considered the possible impacts of country of study origin and year	Rating input for Meta-Regression studies
mro_1	Rating for consistency in study methodologies	Rating output for Meta-Regression studies
mro_2	Rating for consistency in crash type and severity definitions	Rating output for Meta-Regression studies
mro_3	Rating for estimate consistency	Rating output for Meta-Regression studies
mro_4	Rating for publication bias tested	Rating output for Meta-Regression studies
mro_5	Rating for majority of studies being acceptable under NCHRP 17-72 rating scheme	Rating output for Meta-Regression studies
mro_6	Rating for standard error of CMFs	Rating output for Meta-Regression studies
mro_7	Rating for test of homogeneity	Rating output for Meta-Regression studies
mro_8	Rating for appropriate model form	Rating output for Meta-Regression studies
mro_9	Rating for appropriate functional form.	Rating output for Meta-Regression studies
mro_10	Rating for consideration of omitted variable bias	Rating output for Meta-Regression studies
mro_11	Rating for consideration of correlation	Rating output for Meta-Regression studies
mro_12	Rating for possible impacts of country of study	Rating output for Meta-Regression studies
totalrating	Rating total	Sum of the rating outputs
yearsOfDataFrom	Start year of study period	
yearsOfDataTo	End year of study period	
intersectionRelated	Indicator of whether the CMF is related to intersections	
trafVolUnit	Unit of traffic volume	
minTrafficVol	Minimum traffic volume across the sites used to develop the CMF	
maxTrafficVol	Maximum traffic volume across the sites used to develop the CMF	
minMajorRoadVol	Minimum major road traffic volume across the sites used to develop the CMF (if intersection related)	

maxMajorRoadVol	Maximum major road traffic volume across the sites used to develop the CMF (if intersection related)	
minMinorRoadVol	Minimum minor road traffic volume across the sites used to develop the CMF (if intersection related)	
maxMinorRoadVol	Maximum minor road traffic volume across the sites used to develop the CMF (if intersection related)	
avgTrafVol	Average traffic volume across the sites used to develop the CMF	
majorAvgTrafVol	Average major road traffic volume across the sites used to develop the CMF (if intersection related)	
minorAvgTrafVol	Average minor road traffic volume across the sites used to develop the CMF (if intersection related)	
roadwayType	Roadway type	
numLanes	Number of lanes	
intersecType	Intersection type	
intersecGeometry	Intersection geometry	
trafficControl	Type of traffic control	
speedLimit	Speed limit	
areaType	Area type	
crashType	Crash type addressed by the CMF	
crashSeverityKABCO	Crash severity addressed by the CMF (provided in KABCO severity scale)	
crashTOD	Crash time of day	
roadDivType	Road division type	
country	Country of data origin	
comments	Public comments to communicate any relevant information about the CMF not otherwise captured in another field	
chTeamDerived	Indicator of whether the CMF was derived by the contractor team	
chTeamDerivedStanErr	Indicator of whether the standard error was derived by the contractor team	
studyid	Unique ID assigned to each study	
title	Study title	

pubMonth	Month of study publication	
pubYear	Year of study publication	
potentialBias	Any potential biases noted by the reviewer	
abstract	Study abstract as provided by the authors	
citation	Full study citation	
relatedCitations	Citations for other publications which stem from the same study/dataset	
authors	Short notation of authors	
studyLink	Link to full study text (if available)	
publicComment	Notes on how the study was reviewed for the Clearinghouse	
reviewPeriod	Review period of the study	I.e., “2019 Q1” indicates that the study was identified during the first quarter of 2019
webReleaseDate	Date when the study was released live to the public site	YYYY-MM-DD
approved	Indicator whether the study is approved for release to public site	