APPENDIX C. SUMMARY OF CMF PROTOCOLS DOCUMENTATION REQUIREMENTS

In summary form, here are the documentation requirements detailed in the CMF Protocols:

General Documentation (knowing where the CMF can be appropriately applied)

- CMF and Countermeasure
    - Countermeasure Name and Description
    - Crash Modification Factor or Function
    - Measures of Precision for the CMF
    - Prior Conditions
- Site Characteristics
    - Roadway Class
    - Road Division Type
    - State
    - Municipality
    - Area Type
    - Number of Through Lanes
    - Speed Limit
    - Traffic Volume Range
    - Traffic Control (if applicable)
    - Intersection Type
    - Intersection Geometry
    - Other Relevant Details
- Crash Characteristics
    - Crash Type
    - Crash Severity
    - Time of Day
- Study Details
    - Years of Data
    - Type of Methodology
    - Site Selection Criteria
    - Sample Size Used (Crashes)
    - Sample Size Used (Sites)

Biases Documentation (knowing how potential biases were addressed)

- Potential Biases for Cross-sectional Studies
  - o Control of confounders
  - o Unobserved heterogeneity and omitted variable bias
  - o Accounting for state-to-state differences if using multiple states
  - o Selection of appropriate functional form
  - o Correlation or collinearity among the independent variables
  - o Overfitting of prediction models
  - o Low sample mean and small sample size
  - o Bias due to aggregation, averaging, or incompleteness in data
  - o Temporal and spatial correlation
  - o Endogenous independent variables
  - o Misspecification of structure of systematic variation and residual terms
  - o Correlation between crash types and injury severities
- Potential Biases for Before-After Studies
  - o Regression-to-the-mean
  - o Changes in traffic volumes
  - o History trends
  - o Other safety treatments
  - o Changes in crash reporting
  - o Accounting for state-to-state differences if using multiple states
  - o Suitability of comparison or reference groups
  - o Other biases for before-after studies from cross-sectional list