Implementation Guidelines
Performance Measure: Incident Duration

Guidance on issues related to obtaining quality incident duration data:
Quality incident duration performance measures are a byproduct of an effective incident management system. Keys to developing effective performance measures are primarily clearly defined and well-documented definitions for the various events, descriptors, and milestones involved in responding to a roadway incident. These include:

- Start time and end time of an event
- Incident location and roadway type
- Type of incident
- Responder information (who, when, and from where)
- Lane closure status and other measures of severity

Such attributes are recorded in a data management system by agency personnel. Methods for tracking data quality and completeness, as well as the periodic reporting of duration measures for all aspects of incident management are keys to developing and maintaining a data system that can reflect the effectiveness of the overall incident management system.

Below are points to consider:

1. **Define incident duration start time, end time, events, and descriptors:**
   Clearly articulate incident milestones:
   - START TIME - Incident notification includes receipt of the fact that an incident has occurred by any public agency personnel. Detection of an incident may come from numerous sources; however, notification begins at the time an incident is confirmed via a trusted source such as police, highway patrol, traffic operations personnel, CCTV, or other mean. Key fields include:

     Time of notification
     Notification source
     Detection source (if different)
     Confirmation source (if different)
     Operator ID
     Location of incident (route, mile marker, direction, lane)
     Type of incident (collision, disabled vehicle, debris, etc.)

   - END TIME – The end of the incident is defined as the time when all evidence of the incident has been removed or all response vehicles have left the incident scene, which ever is less. The objective is to mark the time when traffic flow is no longer obstructed due to any activity related to the incident. Key fields include:

     Time of incident clearance as defined above

- EVENTS AND DESCRIPTORS – The time and order of events such as dispatch & arrival of emergency responders, traffic control, and lane status should be updated throughout the course of the incident by the operator. Event descriptors, such as location, type and severity should also be updated as information becomes available. Key fields include:
  - Time and type of dispatch
  - Arrival time of any emergency responders
  - Departure time of any emergency responders
  - Severity of incident (injury, fatality, non-injury accident)
  - Lane and shoulder closure status

2. **Reporting**
Consistent and periodic reporting of incident duration provides feedback on effectiveness of the system, the responders, the operators, and management policy. Average incident duration can be aggregated or displayed by:
- Type and/or severity of incident
- Type and/or location of facility
- Time of day / day of week / season
- Roadway authority / agency
- By responder type or unit

3. **Assess Data Quality.**
Quality of reporting is limited by the quality of the base data. Data should be monitored for completeness and spot-checked for accuracy. Methods include reporting the percentage of records with complete attribute information such as:
- Location
- Type and severity
- Lane blockage
- Incident timeline (detection, confirmation, dispatch, arrival, clearance)
- Responder/s
- Activation of DMS, messages displayed, and other ATIS related services

This information can be used to assess performance of specific operators, operations centers, and agencies.

4. **Uses of performance measure.**
Incident duration performance measures are used to:
- Evaluate effectiveness of incident management systems to decrease average incident duration
- Evaluate effectiveness of incident management systems to decrease secondary incidents
- Examine cost/benefits of incident management systems
- Calculate hours of delay averted due to incident management systems
- Conduct incident timeline analysis for improving the system and related policies

Additional Resources:

National Traffic Incident Management Coalition (NTIMC) and its associated effort of the National Unified Goal (NUG). NUG is a unified national policy developed by major national organizations representing traffic incident responders, under the leadership of the NTIMC. The NUG encourages state and local transportation and public safety agencies to adopt unified, multi-disciplinary policies, procedures and practices that will dramatically improve the way traffic incidents are managed on U.S. roadways. Additional information is available at www.timcoalition.org.

The FHWA in cooperation with NTIMC sponsored a focus-state initiative on traffic incident management (TIM) performance measures. The focus state initiative is ongoing at the time of this writing. Once complete, a comprehensive set of recommendations and lessons-learned reports for use by all agencies involved in traffic incident management will be made available. Additional information is available at the FHWA Traffic Incident Management Program website at http://www.ops.fhwa.dot.gov/incidentmgmt/index.htm.