CLEAR Updates
(Crash Location & Engineering Analysis & Reporting)

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Office of Traffic Safety and Mobility
Outline

1. CLEAR overview
2. Site-Specific Safety Planning
3. Application Overview (Site-Specific)
4. Application Demo (Site-Specific)
5. Performance Measures
CLEAR Overview

All Users
- CLEAR Crash Data Viewer (CDV)
- CLEAR Safety (CS)
- CLEAR Interactive Crash Editor (ICE)

DMV Users only
- Interactive Crash Locator (ICL)

DOT Users only
- Intersection Inventory Maintenance (IIM)

CLEAR Crash Data Viewer (CDV)
CLEAR Safety (CS)
Interactive Crash Editor (ICE)
Interactive Crash Locator (ICL)
Intersection Inventory Maintenance (IIM)
CLEAR Crash Data Viewer (CDV)

https://clear.dot.ny.gov/clear/cdv/query
CLEAR Safety (CS)

https://clear.dot.ny.gov/CLEAR/CS/home
CLEAR Interactive Crash Editor (ICE)

https://clear.dot.ny.gov/clear/ice/crash-editor/home
Site-Specific Safety Planning

- Identify high crash locations to address site-specific safety issues
# Site-Specific Network Screening

<table>
<thead>
<tr>
<th></th>
<th>Crash</th>
<th>Roadway</th>
<th>Traffic</th>
<th>SPF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Crash Frequency</td>
<td>⛺</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected Average Crash Frequency</td>
<td>⛺</td>
<td>⛺</td>
<td>⛺</td>
<td>⛺</td>
</tr>
<tr>
<td>Excess Expected Average Crash Frequency</td>
<td>⛺</td>
<td>⛺</td>
<td>⛺</td>
<td>⛺</td>
</tr>
<tr>
<td>Level of Service of Safety</td>
<td>⛺</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Site-Specific Network Screening

<table>
<thead>
<tr>
<th>Measure of Safety</th>
<th>Int. A</th>
<th>Int. B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Crash Frequency</td>
<td>10.1</td>
<td>6.8</td>
</tr>
</tbody>
</table>
# Site-Specific Network Screening

<table>
<thead>
<tr>
<th>Measure of Safety</th>
<th>Int. A</th>
<th>Int. B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Crash Frequency (crashes/year)</td>
<td>10.1</td>
<td>6.8</td>
</tr>
<tr>
<td>Total Entering Volume (vehicles/day)</td>
<td>10,000</td>
<td>2,500</td>
</tr>
<tr>
<td>Crash Rate (crashes/million-vehicles)</td>
<td>2.8</td>
<td>7.5</td>
</tr>
</tbody>
</table>
Site-Specific Network Screening

1. Establish Focus
2. Identify Network
3. Select Performance Measures
4. Select Screening Method
5. Screen and evaluate results
1. Site-Specific – Establish Focus
2. Site-Specific – Identify Network

[Image of CLEAR Safety software interface]

- Network Screening
  - Network Details: Network Location
  - Year Range: From 2019 to 2022, # of years: 4
  - Facility Types: Road System
- Identify Network
  - Select facility types to screen: All Facility Types, Specified Facility Types
2. Site-Specific – Identify Network
3. Site-Specific – Performance Measures
4. Site-Specific – Screening Method
# Site-Specific – Summary

<table>
<thead>
<tr>
<th>Step</th>
<th>Parameter(s) Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish Focus</td>
<td>• City of Syracuse</td>
</tr>
<tr>
<td>Identify Network</td>
<td>• 2019-2022</td>
</tr>
<tr>
<td></td>
<td>• All crashes</td>
</tr>
<tr>
<td>Select Performance Measures</td>
<td>• All Available</td>
</tr>
<tr>
<td>Select Screening Method</td>
<td>• Best available (Simple Ranking or Sliding Window)</td>
</tr>
</tbody>
</table>
5. Site-Specific – Screen and evaluate results

<table>
<thead>
<tr>
<th>Site Description</th>
<th>PSI</th>
<th>Rank</th>
<th>Score</th>
<th>Expected Crash Frequency</th>
<th>Rank</th>
<th>Score</th>
<th>Excess Expected Crash Frequency</th>
<th>Rank</th>
<th>Score</th>
<th>Level of Service of Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lodg Street from 1:05 to 1:57</td>
<td>1.087</td>
<td>8</td>
<td>34.750</td>
<td>8</td>
<td>30.619</td>
<td>6</td>
<td>27.751</td>
<td>1</td>
<td>4.000</td>
<td>Urban Two-Lane Undivided Free Access Two-Lane Two-Way</td>
</tr>
<tr>
<td>US 11 NB from 16.92 to 17.81</td>
<td>0.832</td>
<td>3</td>
<td>58.800</td>
<td>3</td>
<td>55.447</td>
<td>4</td>
<td>47.448</td>
<td>1</td>
<td>4.000</td>
<td>Urban Two-Lane Undivided Free Access Two-Lane Two-Way</td>
</tr>
<tr>
<td>Butternut Street from 0.23 to 0.44</td>
<td>0.784</td>
<td>10</td>
<td>28.750</td>
<td>11</td>
<td>26.778</td>
<td>11</td>
<td>23.691</td>
<td>1</td>
<td>4.000</td>
<td>Urban Multi-Lane Undivided Free Access Five or More Lane Two-Way</td>
</tr>
</tbody>
</table>
5. Site-Specific – Screen and evaluate results
Network Screening Performance Measures

1. Average Crash Frequency
2. Expected Average Crash Frequency
3. Excess Expected Average Crash Frequency
4. Level of Service of Safety
1. Average Crash Frequency

Between 2019-2022, there were 32 KABCO crashes

\[
\text{Average Crash Frequency} = \frac{\text{Number of Crashes}}{\text{Number of Years}}
\]

\[
\text{Average Crash Frequency} = \frac{32 \text{ crashes}}{4 \text{ years}} = 8 \text{ crashes/year}
\]

Source: Highway Safety Manual (HSM), Chapter 4, Section 4.4.2.1
2. Expected Average Crash Frequency

1. Calculate the Predicted Average Crash Frequency from an SPF
2. Calculate Annual Correction Factor
3. Calculate Weighted Adjustment
4. Calculate First Year EB-adjusted Expected Average Crash Frequency
5. Calculate Final Year EB-adjusted Expected Average Crash Frequency
6. Calculate the Variance of the EB-Adjusted Average Crash Frequency (Optional)
7. Rank Sites

Source: Highway Safety Manual (HSM), Chapter 4, Section 4.4.2.
3. Excess Expected Average Crash Frequency

1. Calculate the Expected Average Crash Frequency with Empirical Bayes (EB) Adjustment
2. Calculate the Excess Expected Average Crash Frequency
3. Calculate Severity Weighted Excess (Optional)
4. Rank Sites (PSI)

Source: Highway Safety Manual (HSM), Chapter 4, Section 4.4.2.13
3. Potential for Safety Improvement (PSI)

Observed # at a location
Corrected # at this location by EB method
Predicted # from SPF

Potential for Safety Improvement (PSI)

Annual Average Daily Traffic (AADT)
## 4. Level of Service of Safety

<table>
<thead>
<tr>
<th>Level of Service of Safety</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>• Indicates a low potential for crash reduction</td>
</tr>
<tr>
<td>II</td>
<td>• Indicates low to moderate potential for crash reduction</td>
</tr>
<tr>
<td>III</td>
<td>• Indicates moderate to high potential for crash reduction</td>
</tr>
<tr>
<td>IV</td>
<td>• Indicates a high potential for crash reduction</td>
</tr>
</tbody>
</table>

Source: Highway Safety Manual (HSM), Chapter 4, Section 4.4.2.7
How do I get access to CLEAR?

Government workers: https://forms.office.com/g/0fviPbtxDd
Consultants working on NYSDOT or MPO projects https://forms.office.com/g/q132qpcNfr
What CLEAR resources are available?

https://www.dot.ny.gov/divisions/operating/osss/highway/crash-analysis-toolbox
Contacts

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