TRANSPORTATION SAFETY & SECURITY

TRANSPORTATION SAFETY

INTRODUCTION

The 2016 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS) prioritizes ensuring the safety and mobility of the region’s residents, including drivers and passengers, transit riders, pedestrians, and bicyclists. In 2012, the most recent date for which complete data is available, about 1,300 people died and more than 6,000 were severely injured on roadways throughout the SCAG region. Put a different way, the SCAG region had a fatality rate of 0.83 per 100 million Vehicle Miles Traveled (VMT), which is slightly lower than the California fatality rate of 0.91 per 100 million VMT and significantly lower than the national rate of 1.09. Although both fatalities and injuries have declined over the last 10 years, the emotional and financial toll as a result are still far too high. Average costs for each traffic death, traffic injury or property damage were:

- Death - $1,410,000
- Severe Injury - $78,900
- Property Damage - $8,900

Safety is defined as the protection of persons and property from unintentional damage or destruction caused by a collision or natural events. A crucial aspect of any transportation system is to ensure the safety of people and goods throughout the course of their travels. Transportation and law enforcement agencies at all levels understand the importance of providing a safe transportation system and have recognized ensuring safety as one of their chief responsibilities.

In 2015, the California Department of Transportation released an update to the Strategic Highway Safety Plan (SHSP). The SHSP is a federal requirement under the Moving Ahead for Progress in the 21st Century Act (MAP-21) (P.L. 112-141; 2012) and serves as a component of the federal Highway Safety Improvement Program (HSIP). The SHSP is a comprehensive, data-driven effort that establishes targets and strategies for reducing serious injuries and fatalities on all public roads in California.

The development of SHSPs was initiated in 2005 following the enactment of the federal Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). With the enactment of subsequent legislation, MAP-21, the HSIP continues to serve as a core federal-aid program and states are required to develop, implement, evaluate and regularly update an SHSP. Additional requirements were mandated under MAP-21 to strengthen the overall SHSP, which include:

- Regular plan updates (at least every five years);
- Increased stakeholder involvement;
- Consideration of other safety factors (i.e., locations with risk factors, high-collision locations, rural roads and road safety audit findings) when updating the SHSP;
- Integration with other state and regional transportation plans;
- Focus on use of proven effective strategies and countermeasures; and
- Identification of methods to evaluate the SHSP.

California is now working toward a long-term goal of Toward Zero Deaths. The state’s short-term goals are to reduce the number and rate of fatalities by three percent per year and to reduce the number and rate of severe injuries by 1.5 percent per year. The updated SHSP includes 15 challenge areas (e.g., impaired driving, bicycling and older drivers), which function as categories for improvement. The updated plan and accompanying action plan are intended to provide the state with a roadmap for effective implementation.

At the local level, jurisdictions such as the City of Los Angeles are implementing Vision Zero initiatives. Essentially, Vision Zero is a road safety policy that promotes smart behaviors and roadway design that anticipates mistakes, so that collisions do not result in severe injury or death.

SCAG supports and embraces the efforts of the state and local jurisdictions to improve transportation safety. Ensuring the safety of people and goods as they traverse our transportation network remains an enduring priority for the state and our region. The importance of providing a safe and secure transportation system is emphasized by transportation and law enforcement agencies at all levels, and is recognized as one of the chief responsibilities of transportation planners. SCAG’s adopted safety goal is to ensure transportation safety, security and reliability for all people and goods in the region.
The Statewide Integrated Traffic Reporting System (SWITRS) serves as the primary source for collecting collision data reflected within the California SHSP. Data collected for 2012 in the SCAG region is summarized in Figures 2-3 and Tables 1-8.

**CONSEQUENCES OF COLLISIONS IN THE SCAG REGION**

Though fatalities and injuries in the SCAG region increased marginally between 2011 and 2012, by about 8 percent and 2 percent, respectively, these rates are still significantly lower when compared to 2002 levels.

The National Safety Council reports that the calculable costs of motor-vehicle crashes are wage and productivity losses, medical expenses, administrative expenses, motor vehicle damage, and employers' uninsured costs. The average costs for each traffic death, traffic injury or property damage crash were (in 2012):

- Death – $1,410,000
- Nonfatal Disabling Injury – $78,900
- Property Damage, including non-disabling injuries – $8,900

While the California SHSP focuses on activities at the state level, local governments can supplement these activities to provide additional benefits.

**TABLE 1 Traffic Fatalities in the SCAG Region (2012)**

<table>
<thead>
<tr>
<th>County</th>
<th>Driver Killed</th>
<th>Passenger Killed</th>
<th>Pedestrian Killed</th>
<th>Cyclist Killed</th>
<th>Motorcyclist Killed</th>
<th>Total Killed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imperial</td>
<td>16</td>
<td>8</td>
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<td>Los Angeles</td>
<td>296</td>
<td>102</td>
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<tr>
<td>Orange</td>
<td>73</td>
<td>20</td>
<td>47</td>
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<td>23</td>
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<td>Riverside</td>
<td>121</td>
<td>37</td>
<td>47</td>
<td>10</td>
<td>23</td>
<td>215</td>
</tr>
<tr>
<td>San Bernardino</td>
<td>128</td>
<td>58</td>
<td>51</td>
<td>7</td>
<td>28</td>
<td>244</td>
</tr>
<tr>
<td>Ventura</td>
<td>29</td>
<td>7</td>
<td>8</td>
<td>4</td>
<td>12</td>
<td>49</td>
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<tr>
<td>SCAG Region</td>
<td>663</td>
<td>232</td>
<td>363</td>
<td>62</td>
<td>201</td>
<td>1,321</td>
</tr>
<tr>
<td>Statewide Totals</td>
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<td>563</td>
<td>702</td>
<td>147</td>
<td>451</td>
<td>2,995</td>
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**Source:** The Statewide Integrated Traffic Records System (SWITRS)
<table>
<thead>
<tr>
<th>County</th>
<th>Driver Injured</th>
<th>Passenger Injured</th>
<th>Pedestrian Injured</th>
<th>Cyclist Injured</th>
<th>Motorcyclist Injured</th>
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<td>11,472</td>
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Source: The Statewide Integrated Traffic Records System (SWITRS)

<table>
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<th>County</th>
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<th>2004</th>
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<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
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</thead>
<tbody>
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<td>46</td>
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<td>568</td>
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<td>210</td>
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<td>162</td>
<td>154</td>
<td>106</td>
<td>140</td>
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<td>Riverside</td>
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<td>333</td>
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<td>253</td>
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<td>203</td>
<td>203</td>
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<tr>
<td>San Bernardino</td>
<td>334</td>
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<td>409</td>
<td>425</td>
<td>397</td>
<td>354</td>
<td>290</td>
<td>236</td>
<td>221</td>
<td>240</td>
<td>244</td>
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<tr>
<td>Ventura</td>
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<td>71</td>
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<td>1,297</td>
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<td>2,835</td>
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Source: The Statewide Integrated Traffic Records System (SWITRS)
**TABLE 4** Traffic Severe Injury Summary (2002 -2012)

<table>
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<th>County</th>
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<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
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<td>Imperial</td>
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<td>90</td>
<td>85</td>
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<td>4,604</td>
<td>4,558</td>
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<td>3,924</td>
<td>3,763</td>
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<td>999</td>
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<td>889</td>
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<td>990</td>
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<td>Riverside</td>
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<td>1,221</td>
<td>1,165</td>
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<td>973</td>
<td>899</td>
<td>910</td>
<td>903</td>
<td>900</td>
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<tr>
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<td>1,227</td>
<td>1,432</td>
<td>1,317</td>
<td>1,279</td>
<td>1,371</td>
<td>1,176</td>
<td>1,008</td>
<td>886</td>
<td>893</td>
<td>849</td>
<td>874</td>
</tr>
<tr>
<td>Ventura</td>
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<td>376</td>
<td>412</td>
<td>400</td>
<td>435</td>
<td>360</td>
<td>336</td>
<td>299</td>
<td>353</td>
<td>298</td>
<td>380</td>
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<tr>
<td>SCAG Region</td>
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<td>8,779</td>
<td>8,761</td>
<td>8,289</td>
<td>8,471</td>
<td>8,248</td>
<td>7,332</td>
<td>6,815</td>
<td>6,454</td>
<td>6,529</td>
<td>6,810</td>
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<tr>
<td>Statewide Totals</td>
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<td>18,977</td>
<td>19,602</td>
<td>18,507</td>
<td>18,681</td>
<td>18,346</td>
<td>16,514</td>
<td>15,264</td>
<td>14,483</td>
<td>14,629</td>
<td>14,847</td>
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</table>

**TABLE 5** Traffic Injury Summary 2002–2012

<table>
<thead>
<tr>
<th>County</th>
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<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imperial</td>
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<td>1,133</td>
<td>963</td>
<td>775</td>
<td>680</td>
<td>752</td>
<td>763</td>
<td>797</td>
</tr>
<tr>
<td>Los Angeles</td>
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<td>92,557</td>
<td>90,042</td>
<td>86,582</td>
<td>83,941</td>
<td>82,480</td>
<td>74,893</td>
<td>73,107</td>
<td>71,866</td>
<td>72,056</td>
<td>72,451</td>
</tr>
<tr>
<td>Orange</td>
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<td>23,917</td>
<td>23,028</td>
<td>21,671</td>
<td>20,082</td>
<td>18,891</td>
<td>18,735</td>
<td>19,043</td>
<td>19,323</td>
<td>20,072</td>
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<td>4,747</td>
<td>4,932</td>
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<td>SCAG Region</td>
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<td>154,809</td>
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<td>120,709</td>
<td>119,655</td>
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<td>232,777</td>
<td>229,354</td>
<td>225,602</td>
<td>226,544</td>
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</table>

FHWA uses the latest definition in MMUCC (Model Minimum Uniform Crash Criteria) guidelines: “serious injury” or “suspected serious injury” (A): any injury, other than fatal, which results in one or more of the following: Severe laceration resulting in exposure of underlying tissues, muscle, organs, or resulting in significant loss of blood; Broken or distorted extremity (arm or leg) Crash injuries: Suspected skull, chest, or abdominal injury other than bruises or minor lacerations; Significant burns (second and third degree burns over 10 percent or more of the body); Show citation box, Unconsciousness when taken from the crash scene; or Paralysis. Source: The Statewide Integrated Traffic Records System (SWITRS)
TABLE 6 Drivers in Fatal Collisions by type of Collision by Movement Preceding Collision (2002 -2012)

<table>
<thead>
<tr>
<th>MOVEMENT PRECEDING COLLISION</th>
<th>Head-On</th>
<th>Sideswipe</th>
<th>Rear End</th>
<th>Broadside</th>
<th>Hit Object</th>
<th>Overturned</th>
<th>Auto/Pedestrian</th>
<th>Other</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
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<td>Stopped</td>
<td>4</td>
<td>6</td>
<td>93</td>
<td>38</td>
<td>7</td>
<td>2</td>
<td>9</td>
<td>3</td>
<td>162</td>
</tr>
<tr>
<td>Proceeding straight</td>
<td>310</td>
<td>107</td>
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<td>578</td>
<td>216</td>
<td>89</td>
<td>623</td>
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<td>Making right turn</td>
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<td>Making U turn</td>
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<td>Slowing/stopping</td>
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<td>1</td>
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<td>Passing other vehicle</td>
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<td>5</td>
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<td>Changing lanes</td>
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<td>6</td>
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<td>5</td>
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<td>Other unsafe turning</td>
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<td>125</td>
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<tr>
<td>Crossed into opposing lane</td>
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<td></td>
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<td>3</td>
</tr>
<tr>
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<td>2</td>
<td></td>
<td>1</td>
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<tr>
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<td>9</td>
<td>120</td>
<td>45</td>
<td>9</td>
<td>2</td>
<td>215</td>
</tr>
<tr>
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<td>3</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Total</td>
<td>548</td>
<td>184</td>
<td>423</td>
<td>873</td>
<td>806</td>
<td>262</td>
<td>743</td>
<td>168</td>
<td>4,007</td>
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</tbody>
</table>

*Anomalies are due to re-engineering of SWITRS beginning with 2002 data.
Source: The Statewide Integrated Traffic Records System (SWITRS)
<table>
<thead>
<tr>
<th>Movement Preceding Collision</th>
<th>Head-On</th>
<th>Sideswipe</th>
<th>Rear End</th>
<th>Broadside</th>
<th>Hit Object</th>
<th>Overturned</th>
<th>Auto/Pedestrian</th>
<th>Other</th>
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<td>Stopped</td>
<td>849</td>
<td>1,502</td>
<td>40,734</td>
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<td>90</td>
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<td>47,232</td>
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<tr>
<td>Proceeding straight</td>
<td>8,728</td>
<td>14,291</td>
<td>54,319</td>
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<td>2,914</td>
<td>5,322</td>
<td>3,554</td>
<td>144,176</td>
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<tr>
<td>Ran off road</td>
<td>178</td>
<td>122</td>
<td>123</td>
<td>121</td>
<td>5,017</td>
<td>1,620</td>
<td>50</td>
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<td>Making right turn</td>
<td>437</td>
<td>1,232</td>
<td>1,003</td>
<td>3,291</td>
<td>549</td>
<td>165</td>
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<td>996</td>
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<td>Making left turn</td>
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<td>1,686</td>
<td>808</td>
<td>16,885</td>
<td>726</td>
<td>276</td>
<td>2,335</td>
<td>1,083</td>
<td>28,288</td>
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<td>Making U turn</td>
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<td>213</td>
<td>119</td>
<td>1,455</td>
<td>57</td>
<td>36</td>
<td>26</td>
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<td>Backing</td>
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<td>83</td>
<td>352</td>
<td>304</td>
<td>62</td>
<td>14</td>
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<tr>
<td>Slowing/stoping</td>
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<td>387</td>
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<td>200</td>
<td>127</td>
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<td>Passing other vehicle</td>
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<td>576</td>
<td>134</td>
<td>262</td>
<td>88</td>
<td>81</td>
<td>32</td>
<td>50</td>
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</tr>
<tr>
<td>Changing lanes</td>
<td>51</td>
<td>4,196</td>
<td>1,833</td>
<td>431</td>
<td>585</td>
<td>295</td>
<td>31</td>
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<td>Parking maneuver</td>
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<td>65</td>
<td>65</td>
<td>35</td>
<td>24</td>
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<td>Entering traffic</td>
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<td>54</td>
<td>54</td>
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<td>582</td>
<td>441</td>
<td>268</td>
<td>2,355</td>
<td>779</td>
<td>96</td>
<td>101</td>
<td>4,890</td>
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<tr>
<td>Crossed into opposing lane</td>
<td>769</td>
<td>454</td>
<td>45</td>
<td>186</td>
<td>117</td>
<td>53</td>
<td>10</td>
<td>25</td>
<td>1,659</td>
</tr>
<tr>
<td>Parked*</td>
<td>16</td>
<td>115</td>
<td>100</td>
<td>28</td>
<td>22</td>
<td>2</td>
<td>11</td>
<td>84</td>
<td>378</td>
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<tr>
<td>Merging</td>
<td>12</td>
<td>155</td>
<td>136</td>
<td>60</td>
<td>26</td>
<td>14</td>
<td>7</td>
<td>22</td>
<td>432</td>
</tr>
<tr>
<td>Traveling wrong way</td>
<td>263</td>
<td>78</td>
<td>7</td>
<td>79</td>
<td>41</td>
<td>3</td>
<td>11</td>
<td>10</td>
<td>489</td>
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<tr>
<td>Other</td>
<td>94</td>
<td>908</td>
<td>451</td>
<td>328</td>
<td>4,113</td>
<td>1,135</td>
<td>80</td>
<td>97</td>
<td>7,206</td>
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<td>192</td>
<td>634</td>
<td>329</td>
<td>103</td>
<td>22</td>
<td>179</td>
<td>318</td>
<td>1,889</td>
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<td><strong>Total</strong></td>
<td>16,743</td>
<td>27,428</td>
<td>116,820</td>
<td>77,985</td>
<td>21,712</td>
<td>7,757</td>
<td>11,072</td>
<td>7,987</td>
<td>287,504</td>
</tr>
</tbody>
</table>

*Anomalies are due to re-engineering of SWITRS beginning with 2002 data.
### TABLE 8  Persons Killed and Injured by Primary Collision Factor

<table>
<thead>
<tr>
<th>PRIMARY COLLISION FACTOR 1/</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Killed</td>
<td>Injured</td>
<td>Killed</td>
<td>Injured</td>
<td>Killed</td>
</tr>
<tr>
<td>Driving Or Bicycling Under Influence Of Alcohol Or Drug</td>
<td>790</td>
<td>21,680</td>
<td>709</td>
<td>19,805</td>
<td>545</td>
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<tr>
<td>Pedestrian Or “Other” Under Influence Of Alcohol Or Drug</td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>Impeding Traffic</td>
<td>137</td>
<td>6</td>
<td>105</td>
<td>2</td>
<td>107</td>
</tr>
<tr>
<td>Unsafe Speed</td>
<td>563</td>
<td>70,560</td>
<td>462</td>
<td>69,817</td>
<td>435</td>
</tr>
<tr>
<td>Following Too Closely</td>
<td>4</td>
<td>5,658</td>
<td>4</td>
<td>5,757</td>
<td>3</td>
</tr>
<tr>
<td>Wrong Side Of Road</td>
<td>233</td>
<td>7,683</td>
<td>179</td>
<td>7,323</td>
<td>192</td>
</tr>
<tr>
<td>Improper Passing</td>
<td>24</td>
<td>1,377</td>
<td>29</td>
<td>1,337</td>
<td>22</td>
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<tr>
<td>Unsafe Lane Change</td>
<td>73</td>
<td>9,451</td>
<td>92</td>
<td>8,870</td>
<td>49</td>
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<tr>
<td>Improper Turning</td>
<td>652</td>
<td>31,048</td>
<td>612</td>
<td>30,575</td>
<td>545</td>
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<tr>
<td>Automobile Right-Of-Way</td>
<td>211</td>
<td>41,782</td>
<td>181</td>
<td>40,073</td>
<td>171</td>
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<tr>
<td>Pedestrian Right-Of-Way</td>
<td>92</td>
<td>4,728</td>
<td>80</td>
<td>4,709</td>
<td>86</td>
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<tr>
<td>Pedestrian Violation</td>
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<td>4,395</td>
<td>315</td>
<td>4,283</td>
<td>365</td>
</tr>
<tr>
<td>Traffic Signals And Signs</td>
<td>151</td>
<td>22,756</td>
<td>167</td>
<td>21,217</td>
<td>125</td>
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<tr>
<td>Unsafe Starting Or Backing</td>
<td>16</td>
<td>3,981</td>
<td>10</td>
<td>3,944</td>
<td>11</td>
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<tr>
<td>Hazardous Parking</td>
<td>4</td>
<td>120</td>
<td>2</td>
<td>116</td>
<td>3</td>
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<tr>
<td>Lights</td>
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<td>55</td>
<td>2</td>
<td>52</td>
<td>3</td>
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<td>Brakes</td>
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<td>Other Equipment</td>
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<td>123</td>
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<td>Other Hazardous Violation</td>
<td>27</td>
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<td>12</td>
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<td>Other Improper Driving</td>
<td>7</td>
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<td>Fell Asleep 2/</td>
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<td></td>
<td>18</td>
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<tr>
<td>Other Than Driver</td>
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<td>3,398</td>
<td>69</td>
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<td>4,352</td>
<td>83</td>
<td>4,026</td>
<td>62</td>
</tr>
<tr>
<td>Not Stated*</td>
<td>72</td>
<td>4,823</td>
<td>50</td>
<td>4,204</td>
<td>59</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>3,401</strong></td>
<td><strong>241,673</strong></td>
<td><strong>3,076</strong></td>
<td><strong>232,777</strong></td>
<td><strong>2,739</strong></td>
</tr>
</tbody>
</table>

1/ Anomalies are due to re-engineering of SWTRIS beginning with 2002 data.  
2/ See Glossary for definition.  
3/ Fell Asleep is no longer a Primary Collision Factor since July 2003 Traffic Collision Form revision.
This document provides a guidance on how jurisdictions can help in the implementation of each strategy laid out in the SHSP. Because SCAG is a planning agency and does not coordinate enforcement, education or emergency response this document will focus on engineering improvements. Where funding information is available for education, enforcement or emergency response, that information is provided.

**MEASURABLE OBJECTIVES**

The overarching goal of the California SHSP is Toward Zero Deaths. Under MAP-21, states are mandated to develop performance measures on the number of and rate of fatalities and severe injuries. However, as part of the proposed National Proposed Rulemakings (NPRMs) for Safety Performance Measures, State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) have yet to establish exact targets for the reduction of the numbers of traffic fatalities and severe injuries on all public roads. However, the SHSP includes the following goals:

- A three percent per year reduction for the number and rate of fatalities; and
- A 1.5 percent per year reduction for the number and rate of severe injuries.

To improve safety and security on the transportation network, SCAG recommends the region implement the strategies discussed below. These strategies are largely based upon the updated SHSP and are in line with the 15 challenge areas discussed within the SHSP.

**CHALLENGE AREAS & SAFETY STRATEGIES**

**CHALLENGE AREA 1: ROADWAY DEPARTURE & HEAD-ON COLLISIONS**

Roadway departure and head-on collisions occur when the collision is head-on or the movement preceding is a roadway departure (i.e., leaving the road or crossing into the opposing lane). According to the SHSP, roadway departures and head-on collisions account for almost a quarter (23.3 percent) of the total traffic fatalities and severe injuries in California. In addition, trends from 2010 and 2012, show that a majority of the crashes occur on local roads and in rural areas with the largest numbers involving males age 15 to 24. They also tend to occur at night and on weekends.

California intends to employ the following strategies to reduce the occurrence of roadway departure and head-on collisions:

- Address systemic risks on non-state roads with low cost safety countermeasures.
- Ensure funding strategies reflect unique local needs.
• Improve the dissemination of crash data at the jurisdiction level.
• Target highest risk jurisdictions for funding and technical assistance.
• Implement an effective, consistent, and coordinated traffic incident management (TIM) program at the state and local level to reduce the duration and impacts of traffic incidents and improve the safety for motorists, crash victims and emergency responders.

SCAG STRATEGIES
SCAG supports and encourages the strategies California intends to employ toward reducing the occurrence of roadway departure and head-on collisions. SCAG will continue to work with County Transportation Commissions (CTCs), Caltrans and sub-regions toward incorporating highway construction/reconstruction methods to warn drivers they are leaving the highway or crossing into the opposing lane. SCAG will also continue its ongoing support for the implementation of high visibility signage and road striping that enhance driver awareness and ability to detect, recognize and react to warning signs during the night-time and periods of inclement weather.

CHALLENGE AREA 2: INTERSECTIONS, INTERCHANGES AND OTHER ROADWAY ACCESS
Intersections are the most prominent areas for potential collisions since various modes (i.e., bicyclists, motorists and pedestrians) tend to intersect at such locations. According to the SHSP, as of 2012 more than 45 percent of all fatalities and severe injuries were related to crossing and left-turn movements at intersections and the merging, weaving and lane changing movements generated by freeway, expressway and carpool lane entrances and exits. Over the decade of 2003 to 2012, 15,917 people died and 56,143 were severely injured at intersections and between closely-spaced freeway interchanges and other access points. California intends to implement the following strategies to help reduce fatalities and severe injuries within intersections, interchanges and other roadway access points:

• Mainstream and accelerate the deployment of innovative solutions that have been proven to be highly effective and cost-effective.
• Pursue programmatic application of low-cost and high-impact strategies, countermeasures and activities.
• Focus on continuous improvement and collaboration by building on the foundational work products and findings generated by previous strategic safety and other statewide initiatives.
• Emphasize the role and importance of visibility among road users and workers (especially during hours of darkness).

• Minimize or avoid safety performance degradation resulting from land use and highway infrastructure investment proposals.
• Increase understanding and collaboration among transportation system owners, operators, investors and regional agencies regarding the effect of access-related decisions on safety and overall system performance.

SCAG STRATEGIES
SCAG encourages and supports the strategies California intends to employ toward reducing fatalities and severe injuries within intersections, interchanges and other roadway access points. For its part, SCAG will continue working with communities to develop transit oriented development and active transportation plans as part of its Sustainability Planning Grant program. SCAG would encourage that these plans:

• Incorporate intersection safety into the planning grant strategy.
• Incorporate Intelligent Transportation Systems (ITS) at high incident intersections to reduce red-light violations causing collisions.
• Encourage clearly marked, visible crosswalks.
• Encourage the installation of improved visibility traffic signals as part of the normal traffic signal replacement cycle.
• Encourage the development of median sanctuaries for pedestrians.
• Support signalization at problem non-signalized intersections.
• Encourage changing intersection geometries to improve safety, where applicable (offset intersection to aligned intersection, intersection to interchange and intersection to roundabout).

CHALLENGE AREA 3: WORK ZONES
Construction work zones are areas of the road where maintenance or construction occurs and may involve lane closures, detours, shoulder work and moving equipment. In the SCAG region, work zones can be any time of year. On many of SCAG roadways, the work often occurs at night. Many fatalities occur because of excessive speed, impaired and distracted driving. As of 2012, work zones accounted for 1.7 percent of all traffic fatalities and severe injuries in the state, according to the SHSP. Between 2003 and 2012, 658 people died as a result of work zone crashes and 1,760 were severely injured.

California intends to implement the following strategies to reduce fatalities and severe injuries within work zones:

• Improve the dissemination of crash data at the jurisdiction level.
• Target highest risk jurisdictions for funding and technical assistance.
• Implement an effective, consistent, and coordinated traffic incident management (TIM) program at the state and local level to reduce the duration and impacts of traffic incidents and improve the safety for motorists, crash victims and emergency responders.

• Minimize or avoid safety performance degradation resulting from land use and highway infrastructure investment proposals.
• Increase understanding and collaboration among transportation system owners, operators, investors and regional agencies regarding the effect of access-related decisions on safety and overall system performance.

SCAG STRATEGIES
SCAG encourages and supports the strategies California intends to employ toward reducing fatalities and severe injuries within intersections, interchanges and other roadway access points. For its part, SCAG will continue working with communities to develop transit oriented development and active transportation plans as part of its Sustainability Planning Grant program. SCAG would encourage that these plans:

• Incorporate intersection safety into the planning grant strategy.
• Incorporate Intelligent Transportation Systems (ITS) at high incident intersections to reduce red-light violations causing collisions.
• Encourage clearly marked, visible crosswalks.
• Encourage the installation of improved visibility traffic signals as part of the normal traffic signal replacement cycle.
• Encourage the development of median sanctuaries for pedestrians.
• Support signalization at problem non-signalized intersections.
• Encourage changing intersection geometries to improve safety, where applicable (offset intersection to aligned intersection, intersection to interchange and intersection to roundabout).

CHALLENGE AREA 2: INTERSECTIONS, INTERCHANGES AND OTHER ROADWAY ACCESS
Intersections are the most prominent areas for potential collisions since various modes (i.e., bicyclists, motorists and pedestrians) tend to intersect at such locations. According to the SHSP, as of 2012 more than 45 percent of all fatalities and severe injuries were related to crossing and left-turn movements at intersections and the merging, weaving and lane changing movements generated by freeway, expressway and carpool lane entrances and exits. Over the decade of 2003 to 2012, 15,917 people died and 56,143 were severely injured at intersections and between closely-spaced freeway interchanges and other access points. California intends to implement the following strategies to help reduce fatalities and severe injuries within intersections, interchanges and other roadway access points:

• Mainstream and accelerate the deployment of innovative solutions that have been proven to be highly effective and cost-effective.
• Pursue programmatic application of low-cost and high-impact strategies, countermeasures and activities.
• Focus on continuous improvement and collaboration by building on the foundational work products and findings generated by previous strategic safety and other statewide initiatives.
• Emphasize the role and importance of visibility among road users and workers (especially during hours of darkness).

• Minimize or avoid safety performance degradation resulting from land use and highway infrastructure investment proposals.
• Increase understanding and collaboration among transportation system owners, operators, investors and regional agencies regarding the effect of access-related decisions on safety and overall system performance.

SCAG STRATEGIES
SCAG encourages and supports the strategies California intends to employ toward reducing fatalities and severe injuries within intersections, interchanges and other roadway access points. For its part, SCAG will continue working with communities to develop transit oriented development and active transportation plans as part of its Sustainability Planning Grant program. SCAG would encourage that these plans:

• Incorporate intersection safety into the planning grant strategy.
• Incorporate Intelligent Transportation Systems (ITS) at high incident intersections to reduce red-light violations causing collisions.
• Encourage clearly marked, visible crosswalks.
• Encourage the installation of improved visibility traffic signals as part of the normal traffic signal replacement cycle.
• Encourage the development of median sanctuaries for pedestrians.
• Support signalization at problem non-signalized intersections.
• Encourage changing intersection geometries to improve safety, where applicable (offset intersection to aligned intersection, intersection to interchange and intersection to roundabout).

CHALLENGE AREA 3: WORK ZONES
Construction work zones are areas of the road where maintenance or construction occurs and may involve lane closures, detours, shoulder work and moving equipment. In the SCAG region, work zones can be any time of year. On many of SCAG roadways, the work often occurs at night. Many fatalities occur because of excessive speed, impaired and distracted driving. As of 2012, work zones accounted for 1.7 percent of all traffic fatalities and severe injuries in the state, according to the SHSP. Between 2003 and 2012, 658 people died as a result of work zone crashes and 1,760 were severely injured.

California intends to implement the following strategies to reduce fatalities and severe injuries within work zones:

• Improve the dissemination of crash data at the jurisdiction level.
• Target highest risk jurisdictions for funding and technical assistance.
• Implement an effective, consistent, and coordinated traffic incident management (TIM) program at the state and local level to reduce the duration and impacts of traffic incidents and improve the safety for motorists, crash victims and emergency responders.
- Evaluate and promote strategies for best work zone practices.
- Improve safe driving through work zones with education and enforcement.
- Apply advanced technology to improve work zone safety.
- Improve work zone data collection and analysis.

**SCAG STRATEGIES**

SCAG encourages and supports the above strategies that California intends to employ toward reducing fatalities and severe injuries in work zones.

SCAG will continue to encourage work zone safety training and proficiency for all transportation modes at city and county governments. In addition, SCAG will encourage local agencies to provide safe alternate routes or appropriate countermeasures to ensure that bicyclists and pedestrians can safely access their destinations when their routes are affected by work zones.

**CHALLENGE AREA 4: ALCOHOL AND DRUG IMPAIRMENT**

Alcohol and drug-related collisions include all instances where a driver, pedestrian, bicyclist or motorcyclist is under the influence of alcohol or drugs, whether prescribed or over the counter medication. According to the SHSP, as of 2012, more than one-third or 34.2 percent of all fatalities and severe injuries in California involved an impaired person. Between 2003 and 2012, 17,624 fatalities and 34,666 severe injuries were a result of impaired individuals. As shown in Table 9, within the SCAG region there was a total of 633 traffic deaths as related to alcohol or drugs as of 2012. Figure 4 shows the distribution in ages of victims of alcohol involved collisions.

<table>
<thead>
<tr>
<th>County</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
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</tr>
<tr>
<td>Los Angeles</td>
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<td>240</td>
<td>276</td>
<td>268</td>
<td>258</td>
<td>204</td>
<td>259</td>
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<tr>
<td>Orange</td>
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<td>78</td>
<td>80</td>
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<td>62</td>
<td>62</td>
<td>62</td>
<td>63</td>
<td>74</td>
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<tr>
<td>Riverside</td>
<td>116</td>
<td>112</td>
<td>136</td>
<td>129</td>
<td>101</td>
<td>87</td>
<td>87</td>
<td>95</td>
<td>119</td>
</tr>
<tr>
<td>San Bernardino</td>
<td>138</td>
<td>120</td>
<td>133</td>
<td>105</td>
<td>94</td>
<td>98</td>
<td>106</td>
<td>115</td>
<td>127</td>
</tr>
<tr>
<td>Ventura</td>
<td>19</td>
<td>16</td>
<td>31</td>
<td>28</td>
<td>27</td>
<td>23</td>
<td>28</td>
<td>42</td>
<td>24</td>
</tr>
<tr>
<td>SCAG Region</td>
<td>619</td>
<td>577</td>
<td>660</td>
<td>618</td>
<td>548</td>
<td>481</td>
<td>548</td>
<td>559</td>
<td>633</td>
</tr>
</tbody>
</table>
California intends to implement the following strategies to help reduce fatalities and severe injuries resulting from alcohol and drug impairment:

- Enhance state laws, local ordinances and programs intended to reduce alcohol and/or drug impaired driving.
- Enhance the utilization of Driving Under the Influence (DUI) treatment programs, emerging innovations, and system monitoring to reduce DUI offenses among highest risk offenders, including repeat or high-BAC (Blood Alcohol Content) offenders, and in areas where the risk of DUI is highest.
- Improve consistent, timely DUI adjudication and broaden and/or improve application of administrative sanctions of impaired drivers.
- Conduct education/social norming and other programs to change behaviors related to impaired driving.
- Enhance knowledge of the impacts of legal and illegal drug use on safe driving using empirical evidence and implement effective, data-driven methods to identify and reduce drug-impaired driving or roadway use.
- Enhance DUI enforcement, training and tools for improved detection and enforcement of impaired roadway users.
- Enhance the collection, management and accessibility of data related to the consequences of impaired driving and the effectiveness of the DUI countermeasure system.

**SCAG STRATEGIES**

Though SCAG has no implementation authority and can do little to enforce traffic laws, educate travelers or provide Emergency Medical Services (EMS), SCAG will continue to work with the state, CTCs and its local jurisdictions to develop projects that promote the goals of the SHSP, specifically as they relate to alcohol and drug impaired driving. SCAG urges local governments to consider the following strategies from the SHSP Implementation Plan:

- Consider increasing frequency, consistency and publicity of sobriety checkpoint operations by law enforcement agencies in areas with the highest fatality rates.
- Encourage and increase statewide crime laboratory support and distribution of portable evidential breath testing devices to allow for increased use by law enforcement personnel.
- Implement and maintain the Traffic Safety Resource Prosecutor program including specialized DUI prosecution training statewide and DUI prosecutor mentoring.
- Promote implementation of vertical prosecution of DUI offenders.
- Institute programs that provide intense monitoring of “worst of the worst” repeat DUI offenders.
- Develop uniform and consistent system for hospital staff to notify law enforcement upon the arrival of a person who has been involved in a traffic collision in which alcohol may have been involved.
- Design and develop a study to identify discrepancies in county DUI rates and develop recommendations for system improvements.
- Increase by 15 percent the number of law enforcement officers who are trained and certified as Drug Recognition Evaluator officers.
- Develop protocol and staffing to expand use of Screening and Brief Intervention Programs in hospitals and trauma centers, and encourage courts to obtain presentence alcohol and drug screening investigations as authorized in Vehicle Code Section 23249.50 and include resulting recommended treatments in sentencing of convicted DUI offenders.
- Track and report in the Department of Motor Vehicles (DMV) DUI Management Information System annual report the enrollment and completion rates of DUI offenders into alcohol programs.
- Increase the use of Minor Decoy and Decoy Shoulder Tap Programs to detect and deter the furnishing of alcohol to minors.
- DUI countermeasure evaluations including an increase in the use of home arrest (electronic confinement) for nonviolent DUI offenders.
- Develop and distribute a “tool kit” identifying programs, providers, and resources that will assist communities in implementing effective community based, comprehensive, multijurisdictional DUI task forces.
- Encourage Licensee Education on Alcohol and Drugs training to retail licensees and their employees.
- Encourage full law enforcement, forensic laboratory and DMV compliance and application of the administrative license suspension law provisions, through ongoing administrative training and outreach to law enforcement agencies, and by continuously tracking and reporting statewide and regional administrative operation trends.
- Facilitate the development and distribution of reference materials for use by judicial officers in court at entry of plea and sentencing proceedings to include mandatory sentencing requirements for license suspension, treatment programs, ignition interlock requirements, enhancements for elevated BAC levels and open container laws.
- Increase publicity of the DUI Management Information System annual report to law enforcement, alcohol program providers and the courts.
CHALLENGE AREA 5: OCCUPANT PROTECTION

The combination of air bags and lap and shoulder safety belts offers the most effective safety protection available for passenger vehicle occupants. According to the SHSP, between 2003 and 2012, 8,263 individuals died in unrestrained crashes and 16,623 were severely injured. Unrestrained crashes include all collisions in which victims did not use or improperly used a safety belt or child restraint. In 2012, unrestrained crashes accounted for 12 percent of the total traffic fatalities and severe injuries in California. Research and statistics have shown that the best defense in a collision is a seat belt or properly installed child restraint. FIGURE 5 shows the distribution in ages of persons killed in collisions where safety equipment was not used. TABLE 10 provides a breakdown of passenger victims five and under across the region.

California intends to implement the following strategies towards reducing fatalities and severe injuries resulting from the lack of or improper use of a safety belt or child restraint:

- Target high risk populations with education and enforcement to increase occupant protection use.
- Improve occupant protection educational outreach.
- Increase occupant protection enforcement and improve adjudication of violations.
- Improve occupant protection data collection processes.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Imperial</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>7</td>
<td>8</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>6</td>
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<tr>
<td>Orange</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Riverside</td>
<td>9</td>
<td>6</td>
<td>3</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>San Bernardino</td>
<td>8</td>
<td>7</td>
<td>10</td>
<td>11</td>
<td>6</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Ventura</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>27</td>
<td>19</td>
<td>28</td>
<td>22</td>
<td>20</td>
<td>7</td>
<td>5</td>
<td>15</td>
</tr>
</tbody>
</table>

FIGURE 5  Persons Killed Safety Equipment Not Used by Age (2012)
SCAG STRATEGIES

SCAG encourages and supports the above strategies and is interested in ensuring vehicle safety equipment is used. SCAG urges local governments to consider the following strategies from the SHSP Implementation Plan:

- Implement occupant protection programs targeted at ages 15–24 years.
- Encourage increased enforcement and education campaigns for occupant protection programs.
- Implement education campaigns for child passenger safety usage.
- Develop and implement a social norms (media) campaign targeted to ages 15–24 years to influence or promote seat belt usage.
- Initiate a project to develop a system that links the California Emergency Medical Services Information System (CEMSIS), SWITRS and medical data (for example, data on injuries treated in hospitals and emergency departments).
- Encourage prioritization of child passenger safety enforcement statewide.
- Enhance occupant protection curriculum and oversight in all traffic related education programs.
- Incorporate child passenger safety training (from certified child passenger safety trainers) into firefighter, health care, law enforcement, community-based organizations, and child care curricula/training for both initial and continuing education.
- Promote the establishment of permanent child passenger safety fitting stations with paid staff, targeting counties based on need.
- Develop a program that increases the accuracy of California child safety occupant protection misuse data.
- Improve the child passenger safety violator process.
- Implement substantially more child passenger violator educational programs statewide.

CHALLENGE AREA 6: SPEEDING AND AGGRESSIVE DRIVING

According to the SHSP, speeding and aggressive driving accounted for nearly 20 percent of all traffic-related fatalities and severe injuries in California. Also, between 2003 and 2012, 5,675 people died while 21,330 were severely injured as a result of speeding and aggressive driving. The age group with the highest representation in speed-related collisions is age 15 to 24 with the majority being male.

California intends to employ the following strategies to help reduce fatalities and severe injuries as a result of speeding and aggressive driving:

- Increase targeted enforcement at locations prone to speeding and other forms of aggressive driving.
- Improve the consistency of adjudication of drivers cited for speeding and other forms of aggressive driving.
- Increase use of technology and engineering methods to reduce speeding and other forms of aggressive driving.
- Conduct outreach and education about the safety risks of speeding.

SCAG STRATEGIES

SCAG encourages and supports the strategies that California intends to employ toward reducing fatalities and severe injuries resulting from speeding and aggressive driving. In addition, SCAG will continue to work with the state, CTCs and its local jurisdictions to determine whether proposed projects have potential benefits to safety in this particular challenge area. SCAG urges local governments to consider the following strategies from the SHSP Implementation Plan:

- Develop a statewide definition for aggressive driving.
- Conduct public information and education media outreach campaigns.
- Develop and encourage implementation of a systematic approach to identify and improve safety in high-collision concentration locations involving speeding and aggressive driving.
- Form multijurisdictional traffic enforcement teams to address speeding and aggressive driving.
- Employ vehicle impounding as a potential deterrent to speeding and aggressive driving.
- Educate traffic commissioners and judges with consistent training programs on speeding and aggressive driving.
- Develop a pilot re-education program to assess the effectiveness of behavior modification training on recidivism rates of repeat aggressive driving offenders.

CHALLENGE AREA 7: DISTRACTED DRIVING

Distracted driving includes an activity that detracts or diverts a driver’s attention away from the task of driving and includes hands off the wheel, eyes off the road, and mental distraction from the task of driving. Given today’s modern times, cellphones, tablets and navigation devices have contributed to distracted driving. According to the SHSP, from 2008 through
2012, approximately 100 people died and 11,000 were injured on an annual basis due to distracted driving as shown in TABLE 11.

California intends to employ the following strategies toward reducing collisions as a result of distracted driving:

- Improve data quality on distracted driving.
- Increase enforcement and improve adjudication of current distracted driving laws.
- Conduct education on the risks of distracted driving using evidence-based strategies to create a culture of traffic safety.
- Strengthen laws on distracted driving.

**SCAG STRATEGIES**

The focus of this challenge area is primarily enforcement and education. SCAG encourages local jurisdictions to continue to develop enforcement and education programs designed to discourage distracted driving.

### CHALLENGE AREA 8: DRIVER LICENSING AND COMPETENCY

According to the SHSP, improper licensing continues to be a critical issue within the state of California. Fortunately, it may be proven to be less of an issue because in 2015, California enacted Assembly Bill 60, which grants all undocumented immigrants access to a driver’s license. According to the SHSP, drivers with suspended or revoked driver’s licenses are three times more likely to be involved in or cause a fatal crash.

California intends to employ the following strategies to help reduce collisions as a result of driver licensing issues:

- Improve the initial driver licensing process.
- Improve the competency of licensed drivers.
- Assess and improve policies for managing unlicensed drivers, negligent operators and suspended/revoked drivers.
- Improve data systems, including quality control measures, for driver and vehicle records, citations issued, court adjudication reporting and DMV license actions.
- Improve training of law enforcement and related local agencies regarding licensing, DMV license actions and DMV data systems.

### TABLE 11  Distracted Drivers in Fatal and Injury Collisions 2008-2012

<table>
<thead>
<tr>
<th>INATTENTION</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fatal</td>
<td>Injury</td>
<td>Fatal</td>
<td>Injury</td>
<td>Fatal</td>
</tr>
<tr>
<td>Cell Phone Handheld (7/03)</td>
<td>9</td>
<td>363</td>
<td>7</td>
<td>262</td>
<td>3</td>
</tr>
<tr>
<td>Cell Phone Hands Free (7/03)</td>
<td>1</td>
<td>35</td>
<td>54</td>
<td>53</td>
<td>1</td>
</tr>
<tr>
<td>Electronic Equipment</td>
<td>2</td>
<td>105</td>
<td>1</td>
<td>182</td>
<td>1</td>
</tr>
<tr>
<td>Radio/CD</td>
<td>7</td>
<td>288</td>
<td>2</td>
<td>341</td>
<td>1</td>
</tr>
<tr>
<td>Smoking</td>
<td>1</td>
<td>40</td>
<td>1</td>
<td>36</td>
<td>1</td>
</tr>
<tr>
<td>Eating</td>
<td>3</td>
<td>158</td>
<td>3</td>
<td>151</td>
<td>1</td>
</tr>
<tr>
<td>Children</td>
<td>2</td>
<td>171</td>
<td>3</td>
<td>193</td>
<td>1</td>
</tr>
<tr>
<td>Animal</td>
<td>1</td>
<td>58</td>
<td>59</td>
<td>58</td>
<td>73</td>
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<tr>
<td>Hygiene</td>
<td>24</td>
<td>22</td>
<td>13</td>
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</tr>
<tr>
<td>Reading</td>
<td>1</td>
<td>70</td>
<td>1</td>
<td>57</td>
<td>65</td>
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<tr>
<td>Other</td>
<td>29</td>
<td>2,214</td>
<td>30</td>
<td>2,183</td>
<td>19</td>
</tr>
<tr>
<td>Cell Phone (prior to 7/03 form rev.)</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Inattention not stated</td>
<td>63</td>
<td>8,588</td>
<td>44</td>
<td>8,058</td>
<td>55</td>
</tr>
<tr>
<td>Total</td>
<td>119</td>
<td>12,122</td>
<td>92</td>
<td>11,602</td>
<td>82</td>
</tr>
</tbody>
</table>
SCAG STRATEGIES

While SCAG is interested in ensuring that drivers are properly licensed, SCAG has no authority over implementation. For reference, the implementation strategies from the SHSP are listed below.

- Improve driver competency assessment tools to improve the renewal driver licensing process.
- Improve educational components to inform the public about the new laws as new initial licensing and renewal licensing laws are implemented and established.
- Encourage and increase vehicle impoundment for drivers whose licenses are suspended or revoked, or who are unlicensed.
- Create a public awareness campaign addressing the consequences of driving without a valid license.
- Improve driver competency assessment tools to improve the initial driver licensing process.
- Examine the reasons why some individuals choose to drive without a proper license rather than reinstate licensing privileges when eligible and based on this information propose ways to increase the reinstatement rate.
- Increase the integrity of the written testing process for driver license.

TABLE 12 Pedestrians Killed and Injured by Age – 2012

<table>
<thead>
<tr>
<th>PEDESTRIAN AGE</th>
<th>0-4</th>
<th>5-14</th>
<th>15-24</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65 and over</th>
<th>Not Stated</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crossing in crosswalk - at intersection</td>
<td>135</td>
<td>715</td>
<td>1,536</td>
<td>889</td>
<td>700</td>
<td>820</td>
<td>847</td>
<td>854</td>
<td>24</td>
<td>6,520</td>
</tr>
<tr>
<td>Crossing in crosswalk - not at intersection</td>
<td>3</td>
<td>48</td>
<td>73</td>
<td>49</td>
<td>28</td>
<td>33</td>
<td>30</td>
<td>36</td>
<td>1</td>
<td>301</td>
</tr>
<tr>
<td>Crossing - not in crosswalk</td>
<td>144</td>
<td>665</td>
<td>700</td>
<td>386</td>
<td>343</td>
<td>493</td>
<td>373</td>
<td>366</td>
<td>30</td>
<td>3,500</td>
</tr>
<tr>
<td>In roadway - includes shoulder</td>
<td>55</td>
<td>170</td>
<td>537</td>
<td>424</td>
<td>340</td>
<td>361</td>
<td>230</td>
<td>163</td>
<td>14</td>
<td>2,294</td>
</tr>
<tr>
<td>Not in roadway</td>
<td>40</td>
<td>107</td>
<td>207</td>
<td>163</td>
<td>138</td>
<td>184</td>
<td>143</td>
<td>163</td>
<td>5</td>
<td>1,150</td>
</tr>
<tr>
<td>Approaching/leaving school bus</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Not Stated</td>
<td>6</td>
<td>17</td>
<td>53</td>
<td>35</td>
<td>29</td>
<td>34</td>
<td>18</td>
<td>19</td>
<td>211</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>383</td>
<td>1,724</td>
<td>3,107</td>
<td>1,946</td>
<td>1,578</td>
<td>1,926</td>
<td>1,642</td>
<td>1,602</td>
<td>74</td>
<td>13,982</td>
</tr>
</tbody>
</table>
**CHALLENGE AREA 9: PEDESTRIANS**

As of 2012, pedestrian fatalities and severe injuries accounted for 17 percent of the total number of traffic fatalities and severe injuries in California, according to the SHSP. Between 2003 and 2012, 6,775 pedestrians were killed and 17,504 were severely injured. It should also be noted that between 2010 and 2012, the number of pedestrian fatalities and severe injuries slightly increased. FIGURE 6 shows pedestrians killed in traffic collisions distributed by age for one year, 2012, and TABLE 12 provides more details on collision types.

California intends to employ the following strategies toward reducing the number of pedestrian fatalities and severe injuries:

- Improve the safety of pedestrian crossings by using proven effective countermeasures.
- Expand effective enforcement and education of all roadway users to improve pedestrian safety based on known risk factors and data trends.
- Increase funding for pedestrian safety infrastructure and non-infrastructure projects.
- Improve collection, use and analysis of data needed for pedestrian safety planning and programming.
- Increase pedestrian safety-focused coordination among State, regional and local agencies including on transportation planning and land use efforts.
- Encourage cities and counties to develop funding mechanisms to maintain and improve sidewalks and intersections to make them ADA compliant.
- Encourage every city to develop Safe Routes to School policies and plans.
- Encourage cities and counties to consider the needs of elderly and persons with disabilities crossing streets and develop appropriate countermeasures for their safety.
- Encourage cities and counties to integrate pedestrian safety into general & specific plans, non-motorized transportation plans and other land use policy documents.
- Encourage the development of Pedestrian Safety Action Plans in all urban and rural communities.
- Incorporate applicable Complete Streets policies—providing safe access for all modes—as fundamental principles of transportation plans.
- Encourage safe, convenient, high visibility pedestrian crossings at mid-block and intersection locations on urban thoroughfares and rural highways.
- Encourage clearly marked, visible crosswalks at intersections and mid-block locations.
- Encourage the use of advanced signalization at intersections.
- Encourage pedestrian and bicycle safety in all maintenance projects where new striping will be required or existing striping is to be replaced.

**SCAG STRATEGIES**

SCAG encourages and supports the above strategies toward improving the overall safety of pedestrians. In addition, SCAG urges local governments to consider the following strategies:

- Continue to work with local jurisdictions to provide comprehensive education for all road users.
- Continue to work with local jurisdictions to help direct enforcement agencies to focus on bicycling and walking safety to reduce multi-modal conflicts.
- Support improvements to roadway design standards and Intelligent Transportation Systems (ITS) that increase bicyclists and pedestrians safety.
- Facilitate the planning, development and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption and air pollution in the vicinity (approximately 2 miles) of primary and middle schools (Grade K-8).

Fortunately, work is already underway in the region to improve the safety of pedestrians. In 2014, SCAG received a $2.3 million grant from California’s Active Transportation Program to implement a Safety and Encouragement Campaign targeted at all road users, including bicyclists, pedestrians and drivers, and focused on improving intersections. In 2015, in coordination with the CTCs, county departments of public health and stakeholders, SCAG kicked off the campaign. It will focus on the following initiatives to improve safety for bicyclists and pedestrians throughout the region:

- Advertising Campaign targeting more than 100 million impressions or ad views regionally with memorable encouragement and safety messages.
- Community Outreach/Tactical Urbanism Campaign attracting between 100,000 - 500,000 people, and millions more media impressions, to open street events and other temporary bicycle-related improvements or “pop-ups” that bring greater opportunity and awareness of the use of streets for people, not just cars.
- Active Transportation Training and Training Toolkits for four target audiences—Employers, Elected Officials, Transportation/Public Health Professionals and Community Members—to create and empower at least 1,000 local champions in key sectors to lead education and encouragement programs in their communities.

The focus of the campaign will be on disadvantaged communities, high-risk populations, and key opportunity areas (locations where trip lengths, urban form, and demographics are aligned to facilitate a significant shift in mode-share toward active transportation).
In addition to its work on this campaign, SCAG is also responsible for administering its own Sustainability Grant Program which has been used to provide funding for active transportation planning. Through these programs, SCAG supports local jurisdictions in planning for and building infrastructure that makes walking safer.

**CHALLENGE AREA 10: BICYCLING**

Within the SCAG region, active transportation—specifically bicycling—has grown in popularity. Between 2008 and 2012, the number of bicycle trips within the SCAG region grew by about 12.5 percent. Given the growing number of bicyclists within the region, improving safety for all users is a large concern. Between 2003 and 2012, 1,294 bicyclists were killed and 8,421 were severely injured in California, according to the SHSP. Fatalities and severe injuries involving bicyclists have increased since 2006. It is important to recognize that there is a positive correlation between increases in bicycling trips and severe injuries and fatalities. That is, as one increases, often so does the other. Collisions involving bicyclists tend to peak in late summer and fall, decline after October and rise again in March. **FIGURES 7 AND 8** provide additional detail on bicycle collisions. In addition, SCAG recommends the following strategies:

- Continue to work with local jurisdictions to provide comprehensive education for all road users.
- Continue to work with local jurisdictions to help direct enforcement agencies to focus on bicycling and walking safety to reduce multi-modal conflicts.

**SCAG STRATEGIES**

SCAG understands the importance of improving safety for bicyclists and ultimately all users of the transportation network, and therefore supports and encourages the implementation of the previously referenced strategies. In addition, SCAG recommends the following strategies:

- Support improvements to roadway design standards and Intelligent Transportation Systems (ITS) that increase bicyclists and pedestrians safety.
- Facilitate the planning, development and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption and air pollution in the vicinity (approximately 2 miles) of primary and middle schools (Grade K-8).

California intends to employ the following strategies to help reduce the number of bicyclist fatalities and severe injuries:

- Improve roadway and bikeway planning, design, operations and connectivity to enhance bicycling safety and mobility to all destinations.
- Improve data collection regarding bicyclist trips, injuries and fatalities on California roadways and bicycle paths.
- Improve education and enforcement to promote safe multi-modal travel.
- Encourage more bicycle travel by improving public attitudes about bicycling as a safe mode of transportation.
- Develop safe, direct and connected routes for bicycling.

**FIGURE 7** Bicyclist Killed Collisions and Injured (2008-2012)

**FIGURE 8** Percentage of Bicyclist Collisions by Month

0%
5%
10%
15%
20%
25%

2008 2009 2010 2011 2012

Killed Injured

0% 2% 4% 6% 8% 10% 12% 14% 16%

January March May July September November

Fatal Injury
California intends to employ the following strategies toward reducing the number of fatalities and severe injuries involving young drivers:

- Increase awareness of and compliance with graduated driver licensing laws.
- Promote social norming and behavior change on youth-related traffic safety issues.
- Promote the use of evidenced-based programs and outreach methods.
- Improve school policies and procedures relating to young driver safety.
- Improve enforcement and adjudication of young offenders.

**SCAG STRATEGIES**

SCAG supports and encourages the above strategies to help reduce fatalities and severe injuries involving young drivers. In addition, SCAG supports for the following SHSP implementation strategies:

- Implement the Driver Performance Evaluation drive test, as originally developed, to include freeway driving.
- Establish a task force to resolve issues and make recommendations related to improving driver education and training.
- Increase the use of law enforcement for graduated driver licensing outreach programs and proactive enforcement.

**CHALLENGE AREA 11: YOUNG DRIVERS**

According to the SHSP, young drivers tend to have less driving experience and as a result are less likely to identify hazardous conditions and react to them. In addition, young drivers are more prone to be involved in risky driving behaviors resulting in more collisions. Young drivers are classified as individuals who are between the ages of 15 and 20. As of 2012, fatalities and severe injuries involving young drivers accounted for 15 percent of all fatalities and severe injuries. Between 2003 and 2012, 6,000 young drivers died and 22,726 were severely injured in California. **FIGURE 9** shows the age distribution of collision victims.
California intends to employ the following strategies to help reduce the number of fatalities and severe injuries involving aging road users:

- Develop and disseminate education materials, programs and tools that explain how the aging process may affect safe driving.
- Promote awareness of the impact of prescription and non-prescription medications and supplements on the safety of aging road users.
- Promote implementation of multi-modal guidance for aging road users, which is included in the California Manual on Uniform Traffic Control Devices.
- Promote knowledge and increased application by transportation professionals of preferred roadway design elements friendly to aging road users.

SCAG STRATEGIES

SCAG supports and encourages the above strategies towards reducing fatalities and severe injuries involving aging road users. This matter is especially important since by 2040, the number of seniors will increase to 18 percent - nearly one in five people in the region. SCAG also urges local jurisdictions to consider implementing the following strategies:

- Support roadway, intersection and interchange improvements that support improving rights of way decision by older drivers.
- Encourage formation and expanded use of Supplemental Transportation Systems (STPs), particularly in locations where standard public transit is sparse or unavailable.
- Support signage and striping that enhance a driver’s ability to notice, recognize and respond to warning signs during nighttime and/or inclement weather conditions.

CHALLENGE AREA 12: AGING ROAD USERS

Aging road users include drivers, pedestrians, bicyclists and motorcyclists who are 65 years of age and over. As of 2012, fatalities and severe injuries involving aging road users accounted for 15 percent of all traffic fatalities and severe injuries, and between 2003 and 2012, 6,172 aging road users died and 14,034 were severely injured.

Older drivers tend to self-regulate, driving less and avoiding rush hour and nighttime driving unless necessary. The frailty associated with their advancing years means that older drivers are more likely to succumb to injuries in a minor collision than a younger person. Intersections pose a particular safety problem for older drivers. Navigating through intersections requires the ability to make rapid decisions, react quickly and accurately judge speed and distance. Because these abilities can diminish as people age, older drivers tend to have more difficulties at intersections and are more likely to be involved in a fatal collision at these locations. Research shows that 37 percent of traffic-related fatalities involving drivers aged 65 and older occur at intersections compared with 18 percent for drivers aged 26 to 64.

CHALLENGE AREA 13: MOTORCYCLISTS

The greatest primary collision factor with motorcycle collisions is unsafe speed. According to the SHSP, motorcycle riding has increased over recent years which has led to increases in fatalities and severe injuries. As of 2012, motorcyclist fatalities and severe injuries accounted for 18.3 percent of the total traffic fatalities and severe injuries in California. Between 2003 and 2012, 4,146 motorcyclists were killed and 19,046 were severely injured. **FIGURE 10** shows the number of fatal motorcyclist collisions over a four-year period.
California intends to employ the following strategies towards reducing the number of fatalities and severe injuries involving aging road users:

- Improve education on motorcycle safety.
- Improve motorcycle licensure.
- Improve motorcycle exposure and crash data.
- Improve motorcycle rider training.
- Enhance roadway design to improve motorcycle safety.

**SCAG STRATEGIES**

SCAG supports and encourages the above strategies to help reduce fatalities and severe injuries involving motorcyclists. In addition, SCAG would like to reiterate our support for the following strategies:

- Work with the state and CTCs to determine if proposed projects have potential benefits to safety in this challenge area.
- Work with local governments to help identify motorcycle high-collision concentration locations and help develop plans to mitigate possible causes.

**CHALLENGE AREA 14: COMMERCIAL VEHICLES**

The movement of goods and people throughout the SCAG region is crucial to our economy. The SCAG region is home to the Ports of Long Beach and Los Angeles that serve as gateways for the distribution of goods throughout the nation. Between 2003 and 2012, 3,693 fatalities and 7,284 severe injuries involving commercial vehicles occurred.

California intends to employ the following strategies toward reducing the number of fatalities and severe injuries involving commercial vehicles:

- Improve training and education of commercial vehicle safety stakeholders.
- Increase the use of effective enforcement strategies to improve commercial vehicle safety.
- Identify and implement engineering features that reduce commercial vehicle-related crashes.
- Improve commercial vehicle safety data.
- Identify and promote use of technology for improving commercial vehicle safety.

**SCAG STRATEGIES**

SCAG supports and encourages the above strategies to help reduce fatalities and severe injuries involving commercial vehicles. In addition, SCAG would like to reiterate our support for the following strategies:

- Work with the state and CTCs to determine if proposed projects have potential benefits to safety in this challenge area.
- Work with local governments to help identify motorcycle high-collision concentration locations and help develop plans to mitigate possible causes.

**CHALLENGE AREA 15: EMERGENCY MEDICAL VEHICLES**

This specific challenge area focuses on the person that survives a serious motor vehicle collision. Improving Emergency Medical System (EMS) response time to the collision, transport time, and inter-facility transfer time (when appropriate) will result in achieving the targeted “Golden Hour” (the time period from the incident until the victim receives definitive specialized trauma care; ideally no longer than 60 minutes). Adherence to the “Golden Hour” concept is critical to survival and optimum outcome.

The first peak in post-collision deaths is within seconds or minutes of injury. If the number of these deaths is to be reduced, it must be through effective prevention programs. The second peak in deaths occurs within the first four hours after an incident and is due to undiagnosed and untreated injuries. These patients, whose numbers are significant, would benefit most from an appropriate level of trauma care. Regionalized trauma care facilitates rapid transport to the nearest trauma center appropriate for the severity of injury. These complications can be positively affected by prompt initial resuscitation efforts in an appropriate level trauma center.
California intends to employ the following strategies to help improve post-crash survivability:

- Increase involvement by EMS leaders in the California SHSP.
- Develop strategies to improve the time to definitive care.
- Improve data from the time of the crash.
- Improve access to information to enable interoperability of communications systems between all responders to crash sites.
- Develop guidance documents to share with EMS responders to increase crash scene safety.

**SCAG STRATEGIES**

SCAG supports and encourages the above strategies to help improve post-crash survivability rates. In addition, SCAG encourages local jurisdictions to consider implementing the following strategy:

- Use ITS technology to improve response time for EMS to and from collision sites.

**TRANSPORTATION SECURITY INTRODUCTION**

Catastrophic events ranging from earthquakes, floods and fires to hazardous material incidents, dam failures and acts of terrorism within the SCAG region can occur at any given moment. The need for adequate preparation is critical as these events are not a matter of if but when. While we cannot eliminate the threat of disasters, good planning can help minimize their impacts. SCAG is committed to working with local governments to ensure that our region is as prepared as it can be. Since 1950, about 379 state or federally declared disasters have occurred. There was a steady increase in disaster incidents through 2007, after which there has been a general decline. Within the SCAG region, the two most frequent disasters include floods (151 incidents since 1950) and fires (131 incidents since 1950).

**DISASTER IMPACTS ON INFRASTRUCTURE**

Disasters can have devastating impacts on our infrastructure and on our region’s livelihood. Our infrastructure is not only critical to the welfare of our residents, but is vital to our region’s economy. Infrastructure in the form of transportation, utilities, communications, fuel and water all provide services essential to the welfare and quality of life of residents. More specifically, transportation infrastructure is vital because it allows people and goods to reach necessary destinations. Compromised infrastructure as a result of a disaster may have impacts beyond the immediate SCAG region. In addition, the failure of multiple infrastructure elements may result in a catastrophic impact to our mobility needs. Ways in which infrastructure can be affected in a disaster or emergency are shown in the following tables.5

Each instance of infrastructure damage may severely restrict the abilities of emergency responders to provide service following a disaster. Some types of damage and their effects on emergency services are included in TABLE 14.

Basic assessments of the impacted areas are needed to produce an adequate emergency response to a disaster. An assessment of vulnerabilities to security and safety also may prevent or limit effects of a catastrophic incident as shown in TABLE 13.

Numerous agencies participate in the response to incidents and assist with hazard preparedness for individual jurisdictions. Collaboration occurs between many of these agencies. The Federal Emergency Management Agency (FEMA) oversees coordination. However, FEMA defines metropolitan areas and coordination different than the US Department of Transportation, limiting SCAG’s ability to participate at an agency level. SCAG aims to utilize its strengths and organization to assist planners, first responders and recovery teams in a supporting role.

<table>
<thead>
<tr>
<th>Service</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation</td>
<td>Inability to get emergency service personnel into the affected area</td>
</tr>
<tr>
<td></td>
<td>Inability to transport victims away from the area</td>
</tr>
<tr>
<td>Electrical</td>
<td>Increased risk of fire and electrical shock</td>
</tr>
<tr>
<td></td>
<td>Possible disruption to transportation system if downed lines are across roads</td>
</tr>
<tr>
<td>Water</td>
<td>Disruption of service to homes, businesses, and medical providers</td>
</tr>
<tr>
<td></td>
<td>Increased risk to public health if there is extensive damage or contamination to supply</td>
</tr>
<tr>
<td></td>
<td>Inadequate water supply for firefighting.</td>
</tr>
<tr>
<td>Fuel Supplies</td>
<td>Increased risk of fire or explosion from ruptured fuel lines</td>
</tr>
<tr>
<td></td>
<td>Risk of asphyxiation from natural gas leaks in confined areas</td>
</tr>
</tbody>
</table>
While SCAG does not have a direct role as a first responder or emergency management, SCAG can play a role in:

- Providing a policy forum to help develop regional consensus and education on security policies and emergency responses.
- Assisting in expediting the planning and programming of transportation infrastructure repairs from major disasters.
- Leveraging projects and planning functions (including ITS) that can enhance or provide benefits to transportation security efforts and those responsible for planning and responding to emergencies.
  - Integrating security into the regional ITS architecture.
  - Becoming a central repository/mirror for regional geo-data that can be used for planning, training, response and relief efforts of law enforcement personnel and emergency responders.

### TABLE 14  Possible Impact of Damage on Emergency Services Providers

<table>
<thead>
<tr>
<th>Type of Damage</th>
<th>Impact on Emergency Services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Roadways, Bridges, Tunnels, Interchanges</strong></td>
<td>Inability to assess damage accurately</td>
</tr>
<tr>
<td></td>
<td>Ambulances prevented from reaching victims and/or victims prevented from reaching emergency medical services</td>
</tr>
<tr>
<td></td>
<td>Police prevented from reaching areas of civil unrest</td>
</tr>
<tr>
<td></td>
<td>Fire departments prevented from getting to fires</td>
</tr>
<tr>
<td></td>
<td>Flow of needed supplies is interrupted</td>
</tr>
<tr>
<td></td>
<td>Inability to deploy assets as part of incident response and to manage transportation flows</td>
</tr>
<tr>
<td></td>
<td>Inability for emergency service providers to manage an evacuation</td>
</tr>
<tr>
<td><strong>Structural</strong></td>
<td>Damaged hospitals unable to receive patients</td>
</tr>
<tr>
<td></td>
<td>Increased risk of damage from falling debris</td>
</tr>
<tr>
<td><strong>Disrupted Communication</strong></td>
<td>Victims unable to call for help</td>
</tr>
<tr>
<td></td>
<td>Coordination of services is hampered</td>
</tr>
<tr>
<td></td>
<td>Inability for incident command structure to receive real time situational information, reducing its effectiveness</td>
</tr>
<tr>
<td><strong>Fuel Line Damage</strong></td>
<td>Fire and paramedic services overburdened</td>
</tr>
<tr>
<td></td>
<td>Inability to sustain emergency response and recovery</td>
</tr>
<tr>
<td><strong>Disrupted Water Service</strong></td>
<td>Firefighting capabilities restricted</td>
</tr>
<tr>
<td></td>
<td>Medical facilities hampered</td>
</tr>
</tbody>
</table>

### TABLE 15  System Statistics Overview

<table>
<thead>
<tr>
<th>System Statistics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ROADWAYS AND FREEWAYS</strong></td>
<td></td>
</tr>
<tr>
<td>Freeway Lanes Miles (excluding carpool)</td>
<td>11,017 miles</td>
</tr>
<tr>
<td>Carpool Lanes Miles (including HOT lanes)</td>
<td>938 miles</td>
</tr>
<tr>
<td>Road Lane Miles (arterials)</td>
<td>58,573 miles</td>
</tr>
<tr>
<td><strong>PUBLIC TRANSIT</strong></td>
<td></td>
</tr>
<tr>
<td>Buses</td>
<td>5,549 of vehicles</td>
</tr>
<tr>
<td>Metro Rail</td>
<td>87 miles and 80 stations</td>
</tr>
<tr>
<td>Metrolink</td>
<td>512 miles and 56 stations</td>
</tr>
<tr>
<td><strong>AVIATION/PORTS</strong></td>
<td></td>
</tr>
<tr>
<td>Commercial/General Aviation Ports</td>
<td>57</td>
</tr>
<tr>
<td>LAX ranks among world’s airports</td>
<td>5th in passengers and 14th in cargo</td>
</tr>
<tr>
<td>Long Beach/Los Angeles ranks among world’s container ports</td>
<td>5th</td>
</tr>
</tbody>
</table>
BACKGROUND CONDITIONS

REGIONAL SYSTEM DESCRIPTION
The United States has nearly 3.8 million square miles and has a population of nearly 320 million people. Its transportation systems continue to evolve and expand to accommodate its population, workforce and economy. Security of the nation’s transportation systems and the lives of the people who use these systems are a top priority of government agencies at all levels. Transportation systems include airports, ports, waterways, rail, highways and pipelines. According to the Bureau of Transportation Statistics, the United States maintains more than four million miles of roadway (streets, roads, highways), nearly 600 thousand bridges, 150 thousand miles of railway, more than 5,000 public airports, 1.5 million miles of gas pipelines, and more than 150 thousand miles of oil pipeline.

The SCAG region covers more than 38,000 square miles and has a population of more than 18 million persons. In addition our region’s highway and arterial system covers 70,000 lane miles as shown in TABLE 15. The region endures as one of the largest economic engines in the United States and the world. In 2012, the region had a Gross Regional Product of more than $800 billion. Southern California faces numerous challenges in maintaining its important role in the country and the world, including the ability to prevent or recover from catastrophic events. In the SCAG region, transportation infrastructure also encompasses a vast system.

Given the vast size of our region’s transportation infrastructure, it would be physically and financially impossible to protect all transportation systems from natural disaster or human-caused incidents. Consequently, there is a subset of transportation infrastructure that is of specific interest to national, state and regional leaders. These critical facilities vary in degree of importance. In the risk assessment section, critical facilities are examined for the Southern California region.

CRITICAL INFRASTRUCTURE
Critical infrastructure, under the USA PATRIOT Act of 2001 (P.L. 107-56; 2001), is defined as follows:

“SYSTEMS AND ASSETS, WHETHER PHYSICAL OR VIRTUAL, SO VITAL TO THE UNITED STATES THAT THE INCAPACITY OR DESTRUCTION OF SUCH SYSTEMS AND ASSETS WOULD HAVE A DEBILITATING IMPACT ON SECURITY, NATIONAL ECONOMIC SECURITY, NATIONAL PUBLIC HEALTH OR SAFETY, OR ANY COMBINATION OF THOSE MATTERS (SEC. 1016(E)).”

<table>
<thead>
<tr>
<th>TABLE 16 Critical Infrastructure Sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
</tr>
<tr>
<td>Food</td>
</tr>
<tr>
<td>Water</td>
</tr>
<tr>
<td>Public Health</td>
</tr>
<tr>
<td>Emergency Services</td>
</tr>
<tr>
<td>Government</td>
</tr>
<tr>
<td>Defense Industrial Base</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TABLE 17 Critical Transportation Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Major arterial highways and bridges comprising the National Highway System (NHS), including Strategic Highway Network (STRAHNET) and National Intermodal Connectors.</td>
</tr>
<tr>
<td>2. International marine harbors, ports, airports and border crossings.</td>
</tr>
<tr>
<td>3. Major railroads, including depots, terminals and stations.</td>
</tr>
<tr>
<td>4. Oil and natural gas pipelines.</td>
</tr>
<tr>
<td>5. Transportation Control Systems (e.g., air traffic control centers, national control center).</td>
</tr>
</tbody>
</table>
There have also been several assessments of the critical state transportation infrastructure, which include identification of the key transportation facilities. Assessments have been conducted by the following bodies:

- California Governor’s Office of Emergency Services (CalOES)
- The California Attorney General’s Office
- The California Highway Patrol (CHP)

The results of such assessments have been shared with the transportation system operators and incorporated into their security planning in an effort to improve the overall safety and security of transportation infrastructure.

UNITED STATES DEPARTMENT OF DEFENSE

The Department of Defense (DOD) has several installations within the SCAG region. In the case of a large scale emergency, the DOD is authorized to provide resources when response and recovery requirements are beyond the capabilities of civilian authorities, and these efforts do not interfere with the DOD’s core mission or ability to respond to operational contingencies.

Requests for Defense Support to Civilian Authorities (DSCA) are made through the local, county and State authorities as a request for assistance to the federal coordinating official in the appropriate lead federal agency and is normally accompanied by, or submitted after a request from the Governor for a disaster declaration from the President. The Defense Coordinating Officer coordinates the DOD resources to be provided. The California National Guard may be activated as part of the DSCA and can provide law enforcement support, crisis management and consequence management services. Activation of the National Guard for local support during emergencies is done by the Governor via the CalOES.

INTERNATIONAL BORDER CROSSINGS

Within the SCAG region, there are three international ports of entry along the Mexico-Imperial County border: Two at Calexico (Calexico and Calexico-East), and one at Andrade (near Yuma, Arizona). Traffic from these ports enters California on the I-8 corridor. U.S. Customs and the Border Protection Agency within the federal Department of Homeland Security (DHS) are charged with the management and control of the official ports of entry. Security planning includes local emergency services as well as the CHP.
Caltrans District 11 has developed Border Master Planning collaboration with local, state and federal stakeholders in the United States and Mexico. The plan established criteria to be used in future studies to coordinate and prioritize projects related to existing and new Ports of Entry (POE) as well as roads leading to the California Mexico POE. As part of the constrained portion of the 2016 RTP/SCS, improvements to the Calexico East Port of Entry are proposed including increasing the number of Commercial Vehicle inspection lanes and booths in an effort to ease border congestion.

In addition, as part of Caltrans Border Infrastructure Needs Assessment, safety is identified as an evaluation criterion amongst other variables to help prioritize projects along the Mexico-Imperial County border.

Future projects will consider operational improvements, design and retrofitting of border crossings, as well as roadway improvements designed to ease congestion at border crossings.

**SEAPORTS**

DHS has designated the seaports of Long Beach, Los Angeles and Port Hueneme as at risk for potential terrorist actions. Security at the ports is the joint responsibility of the U.S. Coast Guard, the U.S. Customs and Border Protection Agency, federal and state Homeland Security offices, Port police agencies, Harbor Patrols and emergency service agencies. The U.S. Coast Guard leads the local Area Maritime Security Commission which coordinates activities and resources for all port stakeholders.

The Port of Los Angeles is unique in that it has a dedicated police force, the Los Angeles Port Police, to patrol the area within the jurisdiction of the Port of Los Angeles. The Port Police enforces federal, state and local public safety statutes as well as environmental and maritime safety regulations in order to maintain the free flow of commerce and produce a safe, secure environment that promotes uninterrupted Port operations. In addition, the Port Police partners with other law enforcement agencies such as the Los Angeles Police Department, California Highway Patrol, and Customs and Border Protection in the Cargo Theft Interdiction Program (CTIP), which investigates cargo theft, and the High Intensity Drug Trafficking Area, which targets drug trafficking at the Ports of Los Angeles and Long Beach. Furthermore, per the Maritime Transportation Security Act of 2002, the Port of Los Angeles works with the Coast Guard to develop security plans for facilities at the port.

Similar to the Port of Los Angeles, security at the Port of Long Beach entails physical security enhancements, police patrols, coordination with federal, state and local agencies to develop security plans for the port area and investigate suspicious incidents, and obtaining federal funding to pay for these enhancements. As with the Port of Los Angeles, the Port of Long Beach works with the Coast Guard to develop security plans for facilities at the port.

In contrast to the Port of Los Angeles, however, the Port of Long Beach does not have its own dedicated police force. Instead, the Long Beach Police Department is responsible for patrolling the port area. In doing so, the Port reimburses the Long Beach Police and Fire Departments for their port-related activities and expenses. The Port also funds its own Harbor Patrol to supplement law enforcement work conducted by other agencies such as the Coast Guard.

In addition, several programs are in place to effectively monitor and screen seaport cargo. They include:

- **Investigations:** The federal Container Security Initiative (CSI) directs Customs agents, working with host governments, to inspect and examine all cargo containers deemed high-risk before they are loaded on U.S.-bound vessels. The CSI contains four core elements: Identifying high-risk containers; pre-screening containers before they reach U.S. ports of entry; using technology to pre-screen high-risk containers; and developing and using smart and secure containers.
- **Inspections:** The 24-hour rule requires manifest information on cargo containers to be delivered to U.S. Customs 24 hours before the container is loaded onto a vessel in a foreign port. Customs has the right to stop any container from being loaded, for any reason, while the container is still overseas.
- **Partnerships:** Most of the largest U.S. importers and their trading partners participate in the Customs-Trade Partnership Against Terrorism (C-TPAT), a public-private partnership designed to improve security standards throughout the cargo supply chain.
- **Technology:** U.S. Customs uses X-ray, gamma ray and radiation-detection devices to screen incoming cargo at U.S. ports.

**AIRPORTS**

Airport security planning is the joint responsibility of the federal Transportation Security Administration (TSA), the airlines and the individual airports. There are ten airports in the SCAG region offering commercial service, and two offering commuter service. In addition, over 50 general aviation airports in the region are available for public use, including some of the most active general aviation airports in the country. Airports in the SCAG region have upgraded their security systems since the September 11, 2001 terrorist attacks using a variety of strategies in conjunction with local, state and federal law enforcement.

In addition, airports serve a vital role in recovery efforts. Airports can serve as evacuation centers, and if in working order after an incident, can serve as staging centers for relief efforts. Large flat areas at airports provide excellent staging areas for emergency relief including supplies and equipment, in addition to the staging of aerial relief fleets such as helicopters.
TRANSPORTATION MANAGEMENT CENTERS

Caltrans, in conjunction with the California Highway Patrol (CHP), has created Transportation Management Centers (TMCs) to rapidly detect and respond to incidents while managing the resulting congestion. TMCs serve as the nerve center for our urban freeway and highway systems. Real-time information is gathered from many sources such as electronic sensors in the pavement, freeway call boxes, video cameras, 911 calls, officers on patrol, Caltrans highway crews, ramp meter sensors, earthquake monitors, motorist cellular calls, and commercial traffic reporters, which is sent to the TMC 24-hours a day, seven days a week.

With the help of ITS technologies such as electronic sensors in the pavement, freeway call boxes, video cameras, ramp meter sensors, earthquake monitors, motorist cellular calls, and commercial traffic reports, as well as Caltrans highway crews, 9-1-1 calls and officers on patrol, the TMC provides coordinated transportation management for general commutes, special events and incidents affecting traffic.

The TMCs are operated within each Caltrans district. For the SCAG region, Districts 7, 8, 11 and 12 all have TMCs.

RAIL AND MASS TRANSIT SECURITY

Rail and mass transit systems have long been an attractive target for terrorists and criminals. Since the early 1990s, the California Public Utilities Commission has required that transit agencies operating rail systems prepare a comprehensive System Safety Program Plan (SSPP) that also included a security component.

Most transit agencies have a security and emergency management plan, which details how the agency would coordinate with first responder (law enforcement and fire) agencies, their respective County Office of Emergency Services and the statewide Standardized Emergency Management System (SEMS).

Transit agencies that apply for DHS Transit Security Grants Program (TSGP) funds are required to develop a regional transit security strategy. Several transit agencies within the SCAG region have worked together to develop a regional transit security strategy. The Federal Highway Administration and Federal Transit Administration (FHWA/FTA) require Metropolitan Planning Organizations, such as SCAG, to be consistent with transit safety and security planning and to review processes, plans and programs, as appropriate.

After the Chatsworth Metrolink train crash, the federal government initiated a requirement for train operators to develop and implement Positive Train Control (PTC) on their locomotives. PTC is an automated system that can stop a locomotive if the engineer does not respond to warning signals. Fortunately, since the 2012 RTP/SCS was adopted, Metrolink became the first commuter railroad in the nation to implement PTC. SCAG anticipates this will eventually expand to light rail and integration of PTC into the regional ITS Architecture.

THREATS AND HAZARDS

As part of this section, an overview of local plans as related to threats and hazards resulting from disasters affecting transportation infrastructure will be presented. The list of threats/hazards that can disrupt regional continuity has been divided into three categories:

- Natural
- Accidental Technological / Infrastructure Failure
- Terrorism and Behavioral

The Transportation Research Board has classified emergency events that affect transportation agencies into several categories as shown in Table 18.

ASSET CATEGORIES AND DESCRIPTIONS

As previously mentioned, the United States’ transportation network is vast and expansive. Because millions of passengers and goods use some aspect of the transportation sector each year, critical transportation assets have become highly attractive targets for terrorist attacks.

As outlined in the Transportation Systems Sector-Specific Plan, the transportation systems sector has been divided into six key sub-sectors: aviation, freight rail, highway, maritime, mass transit and pipeline. Identified below are fifteen critical transportation assets found within the SCAG region that fall within one of the sub-sectors:

- Public roads/highways
- Bridges/interchanges/overpasses/tunnels
- Traffic management and operations centers
- Intelligent Transportation Systems
- Airports
- Mass transit bus and rail facilities (public)
- Mass transit bus and rail facilities (operations and maintenance)
- Bus and rail transit vehicles
<table>
<thead>
<tr>
<th>Naturally Occurring</th>
<th>Human Caused</th>
<th>Intentional</th>
<th>Accidental/Non-Intentional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earthquake</td>
<td>Bomb threat/other threat of violence</td>
<td>Accidental contamination or hazardous materials spills</td>
<td></td>
</tr>
<tr>
<td>Flood</td>
<td>Fire/arson</td>
<td>Accidental damage to or destruction of physical plant and asset(s)</td>
<td></td>
</tr>
<tr>
<td>Storm surge</td>
<td>Riot/civil disorder</td>
<td>Accident that affects transportation system</td>
<td></td>
</tr>
<tr>
<td>Hurricane/typhoon</td>
<td>Sabotage (external and/or internal actors)</td>
<td>Gas outage</td>
<td></td>
</tr>
<tr>
<td>Ice storms</td>
<td>Security breach</td>
<td>HVAC system failure or malfunction</td>
<td></td>
</tr>
<tr>
<td>Snow storm/blizzard</td>
<td>Cyber attack</td>
<td>Inappropriate training on emergency procedures</td>
<td></td>
</tr>
<tr>
<td>Landslide/mudslide</td>
<td>Terrorist assault using explosives, firearms, or conventional weapons</td>
<td>Power outage</td>
<td></td>
</tr>
<tr>
<td>Naturally occurring epidemic/pandemic</td>
<td>War</td>
<td>Software/hardware failure or malfunction</td>
<td></td>
</tr>
<tr>
<td>Tornadoes</td>
<td>Workplace violence</td>
<td>Unavailability of key personnel</td>
<td></td>
</tr>
<tr>
<td>Tsunamis</td>
<td></td>
<td>Uninterruptible power supply (UPS) failure or malfunction</td>
<td></td>
</tr>
<tr>
<td>Volcanic eruptions</td>
<td></td>
<td>Voice and data telecommunications failure or malfunction</td>
<td></td>
</tr>
<tr>
<td>Wildfires</td>
<td></td>
<td>Water outage</td>
<td></td>
</tr>
</tbody>
</table>

As concerns about the threat of terrorism have grown, government agencies at all levels have taken new measures to secure the welfare of its citizens. Hurricanes Katrina and Sandy and other natural disasters have also brought attention to how critical emergency preparedness is to the response and recovery of a catastrophic event. Transportation and transit agencies throughout the United States are taking increased steps to protect their facilities against the threats of crime, terrorist activity, and natural disasters.

As stated earlier, there are numerous agencies that have been developed to participate in the response of a disastrous event and assist with hazard preparedness for individual jurisdictions.

**CALIFORNIA EMERGENCY MANAGEMENT AGENCY**

Domestic security at the state government level in California is primarily handled by the California Emergency Management Agency (EMA). The role of EMA is to coordinate overall state agency responses to major disasters in support of local government. The office is responsible for assuring the state’s readiness to respond to and recover from natural, man-made, and war-caused emergencies, and for assisting local governments in their emergency preparedness, response and recovery efforts. The EMA serves as the central contact point in the state for any emergency or imminent disaster. It coordinates the notification of appropriate state administering agencies that may be required to respond, as well as the emergency activities of all state agencies in the event of an emergency.

In doing so, the EMA does not focus on security specifically, but rather more broadly on addressing all potential incidents that could impact the state, such as earthquakes, fires, floods, and terrorist attacks. Furthermore, EMA coordinates with federal agencies such as the Department of Homeland Security and Federal Emergency Management Agency, as well as other state and local agencies such as the California Highway Patrol.

The EMA released the 2010–2015 Statewide Emergency Management Strategic Plan, which outlines California’s vision, mission, principles for emergency management, as well as goals and objectives for the period of 2010–2015. In addition to the strategic plan, EMA has released a local planning guide on terrorism, which provides guidance to local cities in planning for potential terrorist acts.

The EMA is required to develop model guidelines for local government agencies and community based organizations to develop a (voluntary) disaster registry program for long-term and community health facilities and for individuals that are disabled or elderly. Individuals registered in the program should be prepared to be self-sufficient for at least 72 hours. 

As all of these different critical transportation assets located throughout the SCAG region and which people depend upon for continuity of life, it can be a difficult task to determine which ones are most vulnerable to threats / hazards.

As can be seen by performing risk assessments, the critical transportation assets that become the most important to protect are the ones that are used by the greatest number of people, contribute significantly to the economic well-being of the region, and provide the greatest connectivity between all of the different transportation components.

**APPLICABILITY OF THREATS TO ASSETS**

Based on review of local and state documents, including hazard mitigation plans, the potential threats/hazards within the SCAG region have been pre-identified. As mentioned earlier, SCAG is in a great position to coordinate the cooperation of relevant agencies, particularly transportation and emergency management, throughout the six counties of the SCAG region. Coordination throughout the SCAG region is vital due to the interconnectedness of transportation critical infrastructure located throughout the SCAG region.

**SECURITY AND EMERGENCY PREPAREDNESS**

SCAG’s Regional Preparedness Goal is stated as, “to achieve and sustain at risk target levels of capability to prevent, protect against, respond to, and recover from major human-caused or natural events in order to minimize the threat and impact to lives, property and the region.”

Prior to the September 11, 2001 terrorist attacks on the United States, there was not a single incident that impacted transportation facilities as result of a national consequence. Prior aircraft incidents involved hostage taking or placing explosives on the plane. The use of passenger aircraft as missiles, and recent transit related terrorism in other countries created a new awareness of the vulnerabilities of transportation facilities.
TRANSPORTATION SYSTEM | TRANSPORTATION SAFETY & SECURITY

MULTI-HAZARD MITIGATION PLANS
Mitigating hazards before the occurrence of a disaster is the primary step in preparing for emergencies, rather than the final step of recovery. The goal of hazard mitigation plans is to guide implementation activities in order to achieve the greatest reduction of vulnerability, which will result in saved lives, reduced injuries, reduced property damage, and greater protection of the environment.

FEMA requires state and local governments to develop hazard mitigation plans and update them every three years. The Disaster Mitigation Act of 2000 (DMA 2000), Section 322 (a-d) requires that local governments, as a condition of receiving federal disaster mitigation funds, have a mitigation plan that describes the process for identifying hazards, risks and vulnerabilities; identifies and prioritizes mitigation actions; encourages the development of local mitigation; and provides technical support for those efforts. “Local Governments” are defined in the DMA 2000 to typically include counties, local municipalities, and tribal governments; but can also include other local agencies and organizations, including Councils of Governments, schools and other special districts.

California updated its State of California Multi-Hazard Mitigation Plan in 2013. The state is required to adopt a federally-approved State Multi-Hazard Mitigation Plan to be eligible for certain disaster assistance and mitigation funding. The Plan is an evaluation of the hazards California faces and the strategies, goals and activities the state will pursue to address these hazards. The Plan:
- Documents statewide hazard mitigation planning in California;
- Describes strategies and priorities for future mitigation activities;
- Facilitates the integration of local and tribal hazard mitigation planning activities into statewide efforts; and
- Meets state and federal statutory and regulatory requirements.

All six SCAG counties and a number of cities within the SCAG region have completed Hazard Mitigation Plans. EMA dictates that these plans must also be updated every three years.

COUNTY OFFICES OF EMERGENCY SERVICES
Counties and cities are the first responders to any security or emergency situation. These responders include fire departments, police and sheriff department, hospitals, ambulance services and transportation agencies. Coordination among public and private agencies within various cities and counties makes the most use of all available resources in the event of any emergency.

While each city and county has their own security procedures, the policies are generally similar. Mutual Aid agreements between cities, counties and private organizations help to maximize resources and reduce the human suffering associated with disaster situations. Each SCAG county has a department in charge of security and emergency response.

NATIONAL INCIDENT MANAGEMENT SYSTEM / STANDARDIZED EMERGENCY MANAGEMENT SYSTEM
The National Incident Management System (NIMS) is a tool for states, counties and local jurisdictions to respond to catastrophic events through better communication and coordination.

NIMS provides a consistent nationwide template to enable federal, state, local and tribal governments, and private-sector and nongovernmental organizations to work together effectively and efficiently to prepare for, prevent, respond to and recover from domestic incidents, regardless of cause, size or complexity, including acts of catastrophic terrorism.

California has a similar management system called the Standard Emergency Management System (SEMS) which is mandated under California Government Code Section §8607(a).

State of California Executive Order S-2-05 requires the state to integrate, to the extent appropriate, the NIMS, into the State’s SEMS.

The NIMS Integration Center strongly recommends that all elected officials who will be interacting with multiple jurisdictions and agencies during an emergency incident to take the following NIMS courses, at a minimum:
- FEMA IS-700: NIMS, an Introduction
- ICS-100: Introduction to Incident Command System (ICS) or equivalent

(Note: FEMA IS-700 “NIMS, and Introduction” and ICS-100 are used extensively in the development of this section)

All federal, state, local, tribal, private sector and non-governmental personnel with a direct role in emergency management and response must be NIMS and ICS trained. This includes all emergency service related disciplines such as Emergency Medical Technicians (EMTs), hospitals, public health, fire service, law enforcement, public works/utilities, skilled support personnel, and other emergency management response, support and volunteer personnel.

The NIMS employs two levels of incident management, depending upon the type of incident.

Incident Command System (ICS) is a standard, on scene, all-hazard incident management system. ICS allows users to adopt an integrated organizational structure to match the needs of single or multiple incidents.
Multi-Agency Coordination Systems are a combination of facilities, equipment, personnel, procedures and communications integrated into a common framework for coordinating and supporting incident management.

ICS has been in use for over 30 years and is used for planned events, fires, earthquakes, hurricanes, acts of terrorism, etc. ICS helps all responders communicate and effectuate logistics.

NIMS requires all emergency plans and standard operating procedures to incorporate NIMS components, principles and policies; include emergency planning, training, response, exercises, equipment, evaluation and corrective actions. Chief elected and appointed officials in a community need to be directly involved in these NIMS preparedness elements, especially the elements that deal with exercising community emergency management policies, plans, procedures and resources. It is important to recognize that the NIMS is a dynamic system, and the doctrine as well as the implementation requirements will continue to evolve as emergency management capabilities change.

MUTUAL AID AGREEMENTS (MAA)

Immediately following the 1994 Northridge earthquake, city and county emergency managers in the Governor’s Office of Emergency Services (EMA) Coastal, Southern, and Inland Regions developed a coordinated emergency management concept called the Emergency Managers Mutual Aid (EMMA) system. EMMA provided a valuable service in the emergency response and recovery efforts at the Southern Regional Emergency Operations Center (REOC), local Emergency Operations Centers (EOCs), the Disaster Field Office (DFO), and community service centers. The purpose of Emergency Managers Mutual Aid (EMMA) is to support disaster operations in affected jurisdictions by providing professional emergency management personnel. In accordance with the Master Mutual Aid Agreement, local and state emergency managers have responded in support of each other under a variety of plans and procedures.

The objectives of the EMMA Plan include:

- Providing emergency management personnel from unaffected areas to support local jurisdictions, Operational Areas, and regional emergency operations during proclaimed emergencies.
- Providing a system, including an organization, information and forms necessary to coordinate the formal request, reception, assignment and training of assigned personnel.
- Establishing a structure to maintain this document (the Emergency Managers Mutual Aid Plan) and its procedures.

- Providing for the coordination of training for emergency managers, including Standardized Emergency Management System (SEMS/NIMS) training, emergency management course work, exercises, and disaster response procedures.
- Promoting professionalism in emergency management.15

The transportation sector, as are other critical sectors of the country, is continuously striving to improve prevention, preparedness, response, recovery and mitigation capabilities at all levels of society. As is discussed below, MPOs can play a significant role in promoting preparedness and recovery capabilities.

INTELLIGENT TRANSPORTATION SYSTEMS RELATED TO SECURITY

Effective in April 2001, FHWA required the integration of the deployment of regional ITS systems through a Final Rule and Policy mandate. In the development of an ITS architecture, "agencies that own and operate transportation systems must collaborate and consider current and future needs to ensure that today’s processes and projects are compatible with future ITS projects." Under federal mandate, responsible transportation agencies had four years to comply with the ITS law. In 2005, SCAG completed the regional ITS architecture in compliance with the federal rulings. The regional ITS architecture has been regularly updated on a modular basis since 2005. The Regional ITS Architecture covers the following user needs of Critical ITS elements:

- Maintenance and management by the ITS Working Group made up of Caltrans and County Transportation Commission (CTC) representatives;
- Limited ITS Maintenance Resources;
- Communications standards – XML Regional Approach; and
- Did not fully examine ITS use for Emergency Management.

The SCAG Regional ITS Architecture includes all six counties within its jurisdiction: Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura. The region’s ITS architecture is a framework for ensuring institutional agreement and technical integration of technologies for the implementation of projects or groups of projects under an ITS strategy. All ITS related projects must be consistent with the SCAG Regional ITS architecture in order to be eligible for federal funds. These projects also must comply with federal system engineering requirements and applicable federal standards. Local components to the ITS architecture exist for Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura Counties.
Currently, traffic incidents are responsible for a large proportion of the congestion delay on the region’s freeways. In order to mitigate non-recurring congestion, such as traffic collisions, Transportation Management Centers (TMCs) have been established throughout the region. Sensors, closed circuit cameras, news reports and traveler tips are relayed to TMCs who initiate a response, often within the first minute of an incident. Freeway Service Patrols are pre-positioned to further reduce the response time.

The region needs to reduce the number of incidents that occur as well as to continue to reduce the amount of time it takes to clear incidents when they do occur. Special attention should be directed to clearing major incidents including those involving injuries, fatalities, hazardous materials, or large trucks. A regional 5-1-1 system alerts travelers to dangerous road conditions, incidents and general congestion. In the event of an emergency, a reverse 9-1-1 system can notify households of staging locations for evacuations.

In the SCAG Region, ITS systems may be able to assist in case of emergencies by managing road closures, evacuation management, public transportation security, dissemination of real-time information to motorists and first responder agencies, allocation of resources for responders’ ingress and evacuation egress, and provide routing information for out-of-area responders.

In 2008, SCAG updated the region’s ITS architecture for areas related to security. These systems are considered as a resource and are defined into eight security areas:

- Disaster Response and Evacuation;
- Freight and Commercial Vehicle Security;
- HAZMAT Security;
- ITS Wide Area Alert;
- Rail Security;
- Transit Security;
- Transportation Infrastructure Security; and
- Traveler Security.

In 2011, SCAG updated the ITS Architecture again, in part to incorporate Positive Train Control into the regional Architecture in order to increase rail safety and security.

**FEDERAL REQUIREMENTS**

On December 4, 2015, President Obama signed into law the Fixing America’s Surface Transportation Act (FAST Act), which authorized federal surface transportation programs for highways, highway safety, and transit for a 5-year period (2016-2020). Like MAP-21, the previous transportation authorization law, the FAST Act included an emphasis on safety and security. Though rulemaking is not yet available for the FAST Act, we anticipate that it may be similar to MAP-21 and require that MPOs develop a metropolitan planning process that provides for consideration of projects and strategies that are consistent with the Highway Safety Improvement Program (HSIP). Under MAP-21, the metropolitan transportation planning process needed to be consistent with the Strategic Highway Safety Plan and other transit safety and security planning and review processes, plans, and programs, as appropriate.

**SCAG’S ROLE IN SECURITY**

SCAG does not have a direct role in first response or emergency management. As an MPO, SCAG can potentially play a role in providing a coordinating forum working with the region’s transportation agencies and planning agencies. In this role, SCAG could offer the capacity to identify policy directions and conduct planning regarding resource needs. In addition, the agency’s Geographic Information Systems and transportation modeling expertise offers a regional tool that may support security and emergency management planning and deployment and evacuation preparedness and response.

**INFORMATION SHARING ROLE**

The region’s transportation system is both an asset that needs to be protected from catastrophic events, as well as a resource used to respond to such events. SCAG’s primary focus is on planning for this transportation system. As the regional planning agency for transportation, SCAG houses a wealth of transportation related data and information that could be brought to bear in planning for and preparing for emergency events. Thus, SCAG should be viewed as a resource agency that can provide meaningful assistance in preparing emergency preparedness, prevention and evacuation plans.

**REGIONAL SECURITY PLANNING**

While there are a number of agencies that have direct roles in safety and security operations, there is no single entity that focuses on broad policies related to disaster prevention and response within the region. SCAG could partially fill this void in conjunction with its role in security planning as part of its broader transportation planning responsibilities.

SCAG could help bring situational awareness of security to the region for the array of potential disasters. This recognizes the fact that the region’s ITS planning and deployments provide an opportunity for the region to leverage this investment to enhance situational awareness and further the efforts of the emergency management community.
SCAG’s active role in the security planning process (within the policy arena) would require:

- Emphasizing transportation as a resource and itself as a stakeholder in security planning and operations.
- Educating officials about transportation-related issues with regards to safety and security.
- Participating in a regional security working group.
- Assisting with the identification of opportunities and resources that support emergency management.
- Leveraging federal funds to support security preparedness.
- Increasing its knowledge of best practices and how to implement them, and then identifying its role with regard to their implementation.
- SCAG would also increase its role as a data source and further serve as a clearinghouse for various types of data sets.16
- SCAG would play a role in supporting situational awareness for safety and security purposes by using geospatial data.

REGIONAL PREPAREDNESS

SCAG’s regional preparedness goal is to prevent, protect, respond and recover from major human-caused or natural events in order to minimize the threat and impact to lives, property, the transportation network and the regional economy. Its transportation security plans will help ensure that there is a productive movement of persons and goods when a disastrous event strikes the region. SCAG has the following opportunities to elevate its role in the region and its ability to provide a policy forum and serve as a data clearinghouse:

- Develop proactive transportation security strategies that support economic vitality in the region.
- Enhance the effectiveness of agencies responsible for security preparedness and emergency response.
- Ensure that regional transportation technology investments meet the needs of emergency responders through interoperable, robust and strategically redundant ITS and communications infrastructure.
- Provide a regional forum for members of the transportation and emergency management communities to coordinate transportation and security initiatives, and to reach agreement on how to work more closely together during the decision notification process prior to and following an event.

- Update the regional ITS architecture and associated County architectures, describing specific systems interoperability requirements to support regional safety and security objectives.17

In 2008, SCAG participated in the development of the (draft) Southern California Catastrophic Earthquake Preparedness Plan18. The Plan, finalized by Cal EMA and FEMA in 2010, looked at possible damage from a major earthquake and the resources the region would need and have available to both respond and recover. The Plan examines the initial impacts, inventory of resources, care for those wounded and homeless and developed a long-term recovery process. The process of Long-Term Regional Recovery (LTRR) provides a mechanism for coordinating federal support to state, tribal, regional, and local governments, nongovernmental organizations (NGOs), and the private sector to enable recovery from the long-term consequences of extraordinary disasters. The LTRR process accomplishes this by identifying and facilitating the availability and use of sources of recovery funding, and providing technical assistance (such as impact analyses) for recovery and recovery planning support. “Long-Term” refers to the need to re-establish a healthy, functioning region that will sustain itself over time. Long-term recovery is NOT debris removal and restoration of utilities, which are considered immediate or short-term recovery actions.

Once a disaster has been proclaimed, the LTRR process may be activated for incidents that require a coordinated federal, state, tribal, regional and local government response to address significant long-term impacts (e.g., impacts on housing, government operations, agriculture, businesses, employment, regional infrastructure, the environment, human health, and social services) to foster sustainable recovery. The three main focus areas of LTRR are:

- Housing
- Infrastructure (including transportation); and
- Economic Development.

When a disaster occurs, the initial operational focus is centered on response activities. This effort may last from a few hours to an extended period of time (several days or longer) depending on the situation. SCAG’s response during this period is to coordinate the funding of regionally significant transportation infrastructure repairs. As response activities begin to taper off and non-life safety issues begin to be addressed, the operational focus begins to shift from response to recovery. Federal and state support will be heaviest during the beginning phase of the recovery effort when:

- Long-term impact analyses are performed;
- When necessary technical support to establish local long-term recovery strategies and/or plans is provided; and
When coordination of long-term recovery resources needed by the region to launch its recovery efforts are complete.

State and federal support lessens in the later stages of the LTRR process once the region has sufficient capacity to implement its long term recovery plan. \(^\text{19}\)

**PROMOTER OF REGIONAL ITS SOLUTION**

SCAG also envisions developing a comprehensive ITS, as SCAG controls the regional ITS architecture, funding, and programming. Major elements of SCAG’s role include:

- Identifying more command and control for Critical Transportation Infrastructure (CTI);
- Developing mechanisms to make data available through Traffic Management Centers (TMC) to assist first responders and training first responders to take advantages of these resources;
- Identifying system detection gaps and using this to prioritize funding;
- Prioritizing command and control infrastructure through funding; and
- Supporting County Office of Emergency Services through the programming and planning of funding to TMCs and other activities.

Continuity of government is another area SCAG may be able to provide leadership within the region. There is a lack of agreement between agencies for mutual aid (in many cases, especially in the transportation arena). SCAG could play a role in facilitating this process and identifying needs and prioritizing agreements and planning at the regional and sub-regional level between agencies, particularly for long-term recovery after events.

**REGIONAL PROVIDER OF DATA AND INFORMATION**

SCAG has a strong desire and commitment to be a major data repository. However, SCAG will undertake this role where and if appropriate to facilitate the planning processes and activities of local and regional stakeholders. SCAG’s goal is to be an acquirer and source for regional level data and information. This role is consistent with the one mentioned earlier in this section.

Several relevant transportation and security planning documents illustrate that SCAG has a challenging task in serving the region. It also has a tremendous opportunity to not only serve the region in transportation security planning efforts, but to serve as an example for the rest of the nation. As mentioned above, federal mandates have recently passed to make security planning part of the purview of MPOs. However, the mandates do not clearly delineate the roles and steps of MPOs. Essentially, SCAG will be breaking new ground in shaping its role in the arena of transportation security planning.

**POLICIES AND RECOMMENDATIONS**

SCAG has developed an action plan and policies detailing eight measures that the agency will undertake in the regional transportation security planning.

1. **SCAG should help ensure the rapid repair of transportation infrastructure in the event of an emergency.**
   - SCAG, in cooperation with local and state agencies, should identify critical infrastructure needs necessary for emergency responders to enter the region, the evacuation of affected facilities and the restoration of utilities.
   - SCAG, in cooperation with CTCs, state and federal agencies should develop a transportation recovery plan for the emergency awarding of contracts to rapidly and efficiently repair damaged infrastructure.

2. **SCAG should continue to deploy and promote the use of ITS technologies that enhance transportation security.**
   - SCAG should work to expand the use of ITS to improve surveillance, monitoring and distress notification systems and to assist in the rapid evacuation of disaster areas.
   - SCAG should incorporate security into the Regional ITS Architecture.
   - Transit operators should incorporate ITS technologies as part of their security and emergency preparedness and share that information with other operators.
   - Aside from deploying ITS technologies for advanced customer information, transit agencies should work intensely with ethnic, local and disenfranchised communities through public information/outreach sessions ensuring public participation is used to its fullest. In case of evacuation, these transit dependent persons may need additional assistance to evacuate to safety.

3. **SCAG should establish transportation infrastructure practices that promote and enhance security.**
   - SCAG should work with transportation operators to plan and coordinate transportation projects, as appropriate, with the Department of Homeland Security grant projects, to enhance the regional transit security strategy (RTSS).
SCAG should establish transportation infrastructure practices that identify and prioritize the design, retrofit, hardening and stabilization of critical transportation infrastructure to prevent failure, to minimize loss of life and property, injuries and avoid long term economic disruption.

4. SCAG should establish a forum where policy-makers can be educated and regional policy can be developed.

   - SCAG should work with local officials to develop regional consensus on regional transportation safety, security and safety/security policies.

5. SCAG will help enhance the region’s ability to deter and respond to acts of terrorism and human-caused or natural disasters through regionally cooperative and collaborative strategies.

   - SCAG should work with local officials to develop regional consensus on regional transportation safety, security and safety/security policies.
   - SCAG should encourage all SCAG elected officials to be educated in National Incident Management System (NIMS).
   - SCAG should work with partner agencies, federal, state and local jurisdictions to improve communications and interoperability and to find opportunities to leverage and effectively use transportation and public safety/security resources in support of this effort.

6. SCAG will work to enhance emergency preparedness awareness among public agencies and with the public at large.

   - SCAG should work with local officials to develop regional consensus on regional transportation safety, security and safety/security policies.
   - SCAG should work to improve the effectiveness of regional plans by maximizing the sharing and coordination of resources that would allow for proper response by public agencies. SCAG should encourage and provide a forum for local jurisdictions to develop mutual aid agreements for essential government services (including in the transportation arena) during any incident recovery.

7. SCAG will help to enhance the capabilities of local and regional organizations, including first responders, through provision and sharing of information.

   - SCAG should work with local agencies to collect regional GeoData in a common format, and provide access to the GeoData for emergency planning, training and response.
   - SCAG should develop and establish a regional information sharing strategy, linking SCAG and its member jurisdictions for ongoing sharing and provision of information pertaining to the region’s transportation system and other critical infrastructure.

8. SCAG should provide the means for collaboration in planning, communication and information sharing before, during or after a regional emergency.

   - SCAG should develop and incorporate strategies and actions pertaining to response and prevention of security incidents and events as part of the ongoing regional planning activities.
   - SCAG should work with partner agencies, federal, state and local jurisdictions to improve communications and interoperability and to find opportunities to leverage and effectively use transportation and public safety/security resources in support of this effort.
   - SCAG should offer a regional repository of GIS data for use by local agencies in emergency planning, and response, in a standardized format.
NOTES

1 Unless otherwise noted, all data referenced is from 2012, the most recent year that complete data was available
2 2012 National Safety Council
3 2012 Statewide Integrated Traffic Reporting System (SWITRS)
4 2012 National Safety Council
5 Federal Emergency Management Agency: Community Emergency Response Team (IG-317) Student’s Guide
6 The American transportation sector is dependent on foreign oil sources; in fact 51.5 percent of petroleum used in the United States is currently imported (Bureau of Transportation Statistics 2009)
7 United States Census Bureau
10 http://hazardmitigation.calema.ca.gov/docs/ESA-all8-06-final.pdf
11 http://hazardmitigation.calema.ca.gov/plan/state_multi-hazard_mitigation_plan_shmp
12 https://www.fema.gov/national-incident-management-system
13 https://training.fema.gov/is/courseoverview.aspx?code=IS-700.a
14 http://www.training.fema.gov/is/courseoverview.aspx?code=IS-100.b
16 In its Ten Year Strategic Plan, SCAG has indicated that it wished to be a central source for data and information about the southern California Region. SCAG has a strong desire and commitment to be a major data repository. However, SCAG will undertake this role where and if appropriate to facilitate the planning processes and activities of local and regional stakeholders. SCAG goal is to be an acquirer and source for regional level data and information.
17 The ongoing investment in ITS region-wide provides a resource that needs to be recognized and leveraged for enhancing situational awareness and analysis capabilities. The ongoing investment in ITS region-wide provides a resource that needs to be recognized and leveraged for enhancing situational awareness and analysis capabilities.
18 http://www.caloes.ca.gov/PlanningPreparednessSite/Documents/SoCalCatastrophicConops(Public)2010.pdf
19 Adapted from Draft Southern California Catastrophic Preparedness Plan, IWG 14 – Staff Estimate.