Road User Behavior

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Towards Zero Deaths by Reducing Crashes for a Safer Arizona

Arizona
2014 Strategic Highway Safety Plan

4 E's
- Engineering
- Education
- Enforcement
- Emergency Medical Services
Risky Behavior

- Speeding and Aggressive Driving
- Impaired Driving
- Occupant Protection
- Motorcycles
- Distracted Driving

Roadway Infrastructure and Operations
- Age Related
- Heavy Vehicles / Buses / Transit
- Nonmotorized Users
- Natural Risks
- Traffic Incident Management
- Interjurisdictional
Rupture phase
an unexpected event
demand to the driver
exceeds
normal or acceptable
ability to respond

Crash phase
(impact, collision or roll over)

Driving phase
normal situation
no unexpected demands
upon the driver

Emergency phase
space and time between
rupture and collision
A MODEL for Human Information Processing

1. Sensory Processing
2. Perception
3. Memory and Cognition
4. Response Selection and Execution
5. Feedback
6. Attention
Figure 1: Interactions within the elementary Human-Vehicle-Environment system
### Figure 7: Delineation of functional failures found in In-depth accident data

<table>
<thead>
<tr>
<th>Detection</th>
<th>Diagnosis</th>
<th>Prognosis</th>
<th>Decision</th>
<th>Action</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure to detect in visibility constraints</td>
<td>Incorrect evaluation of a road difficulty</td>
<td>Not expecting (by default) manoeuvre by another user</td>
<td>Directed violation</td>
<td>Poor control of a difficulty</td>
<td>Lost of psycho-physiological ability</td>
</tr>
<tr>
<td>Focalised acquisition of information</td>
<td>Incorrect evaluation of a gap</td>
<td>Expecting adjustment by another user</td>
<td>Deliberate violation</td>
<td>Guidance problem</td>
<td>Impairment of sensorimotor and cognitive abilities</td>
</tr>
<tr>
<td>Cursory information acquisition</td>
<td>Incorrect understanding of how site functions</td>
<td>Expecting no perturbation ahead</td>
<td>Violation - error</td>
<td>Violation - error</td>
<td>Exceeding cognitive abilities</td>
</tr>
<tr>
<td>Interruption in information acquisition</td>
<td>Incorrect understanding of manoeuvre undertaken by another user</td>
<td></td>
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<tr>
<td>Neglecting information acquisition demands</td>
<td></td>
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</tbody>
</table>
SPEEDING AND AGGRESSIVE DRIVING
IMPAIRED DRIVING
OCCUPANT PROTECTION
DISTRACTED DRIVING