

## APPENDIX B

### *Informed Consent to Participate in TRAVTEK*

#### **Visitors' Study**

I understand that I have the opportunity to be one of the first people to drive a vehicle equipped with an in-car navigation and travel information system known as TravTek. TravTek has been developed by the American Automobile Association, the Federal Highway Administration, the Florida Department of Transportation, the General Motors Corporation, with the participation by the City of Orlando.

I also understand that the TravTek system is being developed to assist motorists in urban navigation and that the data developed as a result of my test of the TravTek system may lead to savings in fuel and time, a reduction in road congestion and increased traffic safety.

I understand that the TravTek car I am driving will contain a computer system and display screen, which in addition to the usual functions, will display navigation and other travel information. I also understand the information is provided to help me plan my trips and find my way more easily. The system could be distracting, but is in my control. I have the responsibility to operate the vehicle safely, in the same manner as I operate any vehicle, obeying all traffic signs, signals and laws. Because this is a new technology, the systems may not function perfectly. Some of the navigation and travel information may be out of date or contain other errors.

I understand that as part of the traffic management system, my car will report its position and progress to the TravTek Traffic Management Center. This information and my interaction with and operation of the TravTek system will be recorded. The data collected will be used to evaluate the potential of this system for improving automotive travel. Although the results of this research will be published, the data generated from my individual use of the vehicle will be kept confidential.

I understand that as part of this evaluation process, I will drive for approximately six hours in a TravTek car which will also record video of my drive. The purpose of this video is to analyze driver behavior while using advanced automotive systems. The video data as well as all other data will remain strictly confidential. For this drive, I will receive \$100 after the completion of the study.

I have been given an opportunity to ask questions about TravTek, the procedures to be used, the operating instructions, and I believe that I have sufficient information to give this informed consent.

I understand that I may withdraw this consent at any time and discontinue my participation in this project. However, until I do, I consent to the procedures described above.

PRINT NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

PHONE \_\_\_\_\_

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

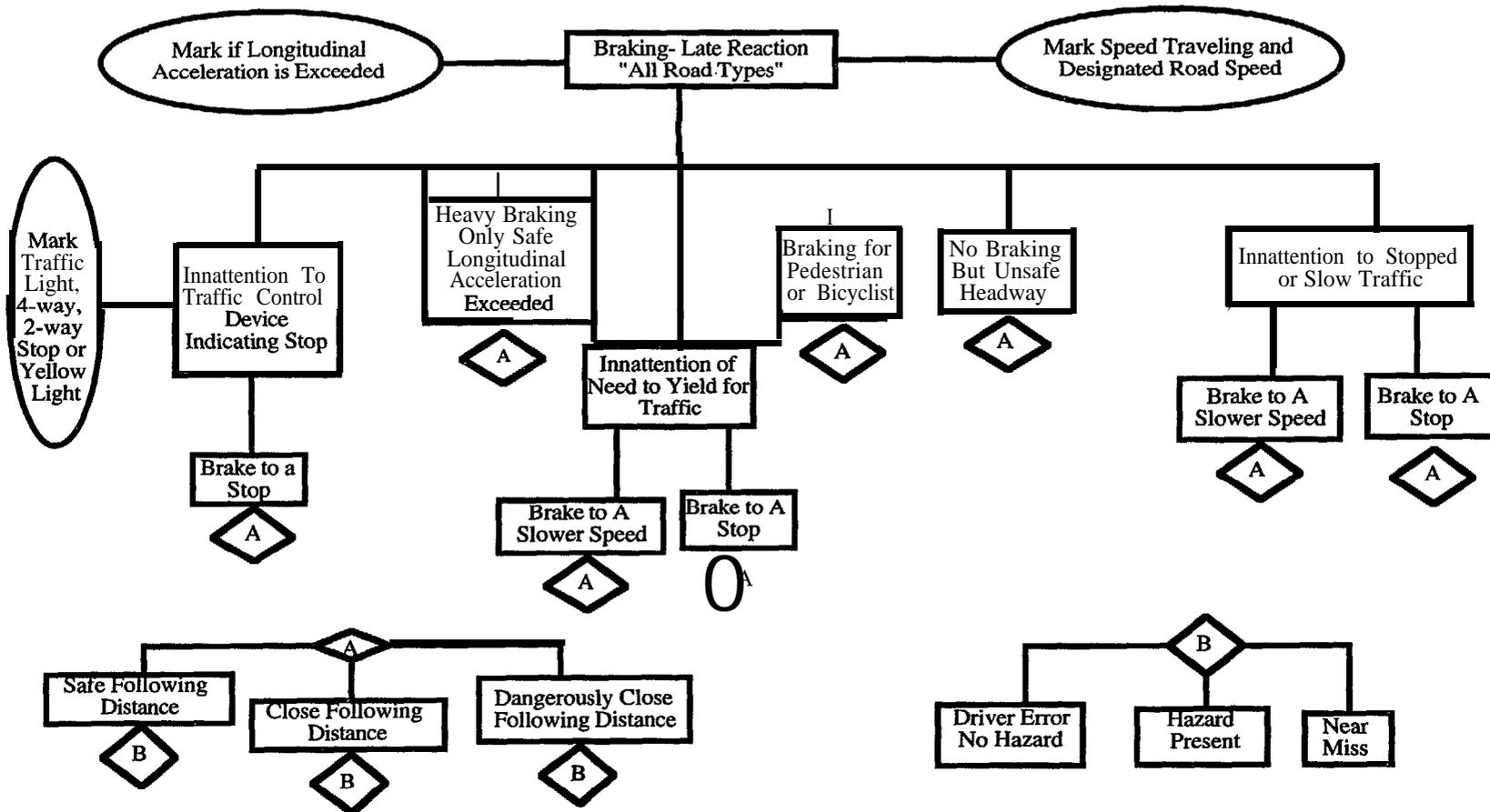


Figure 145. Event classification tool for all braking events.

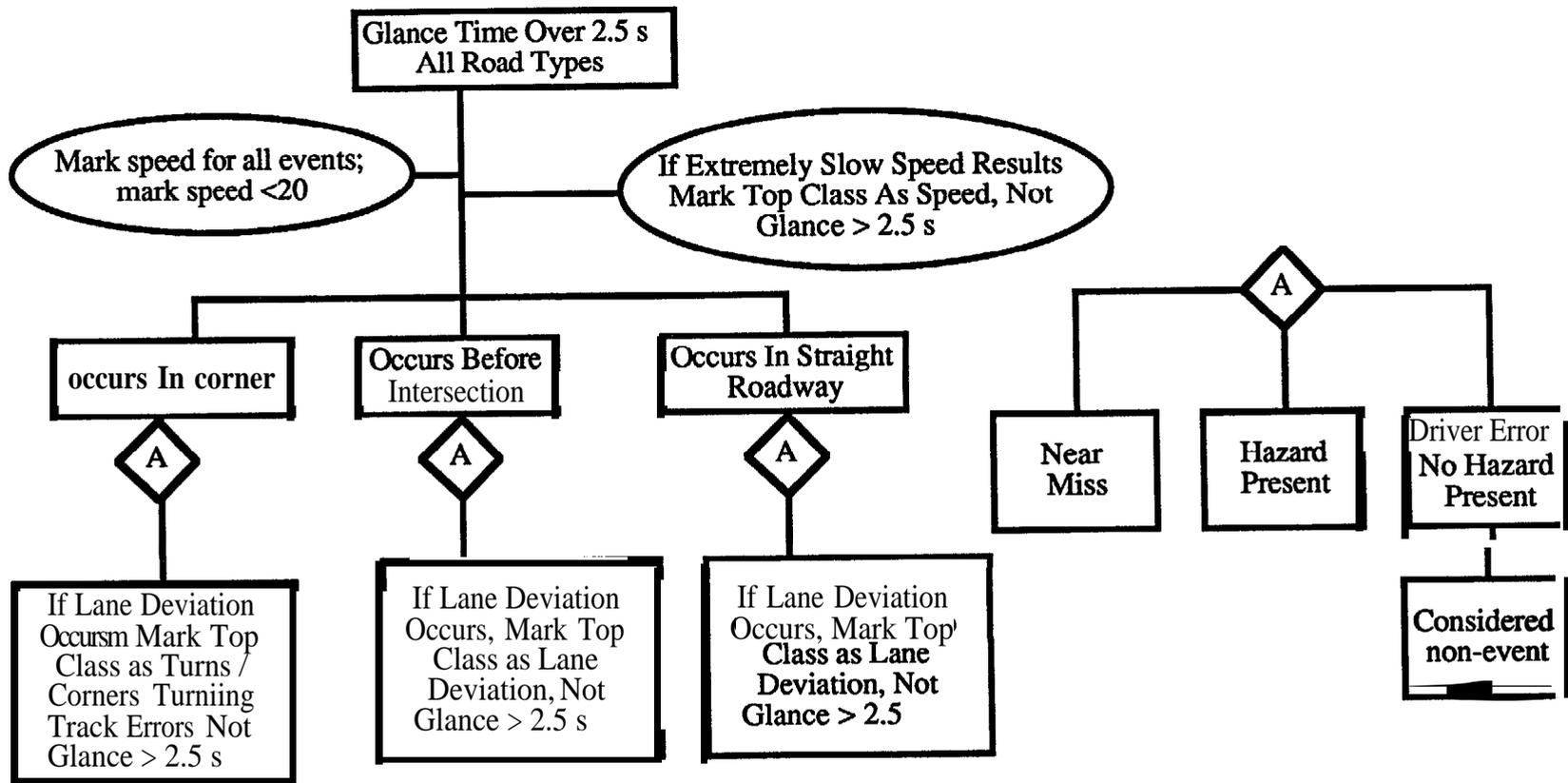


Figure 146. Event classification tool for all glance > 2.5 s events.



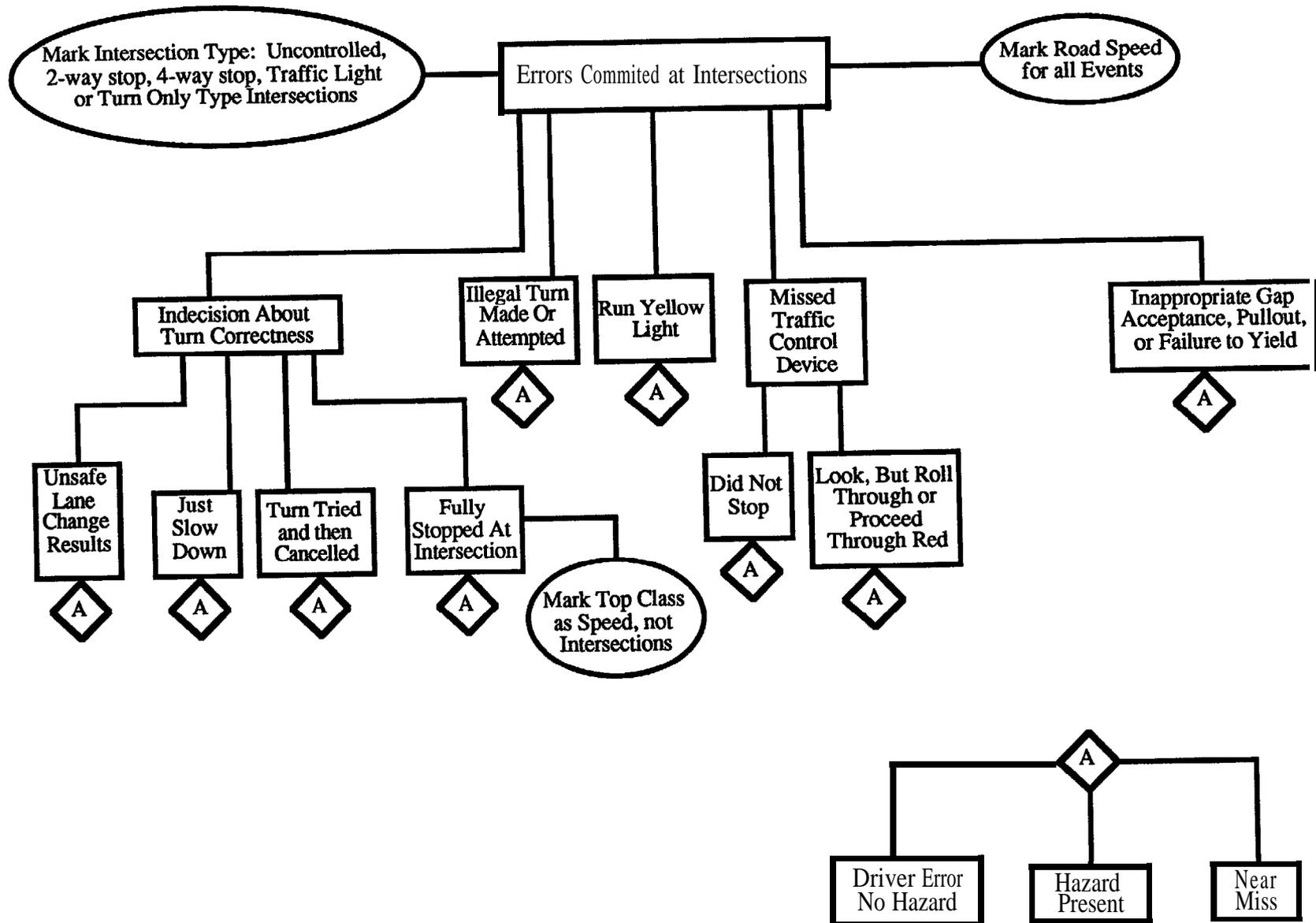


Figure 148. Event classification tool for all intersection error events.

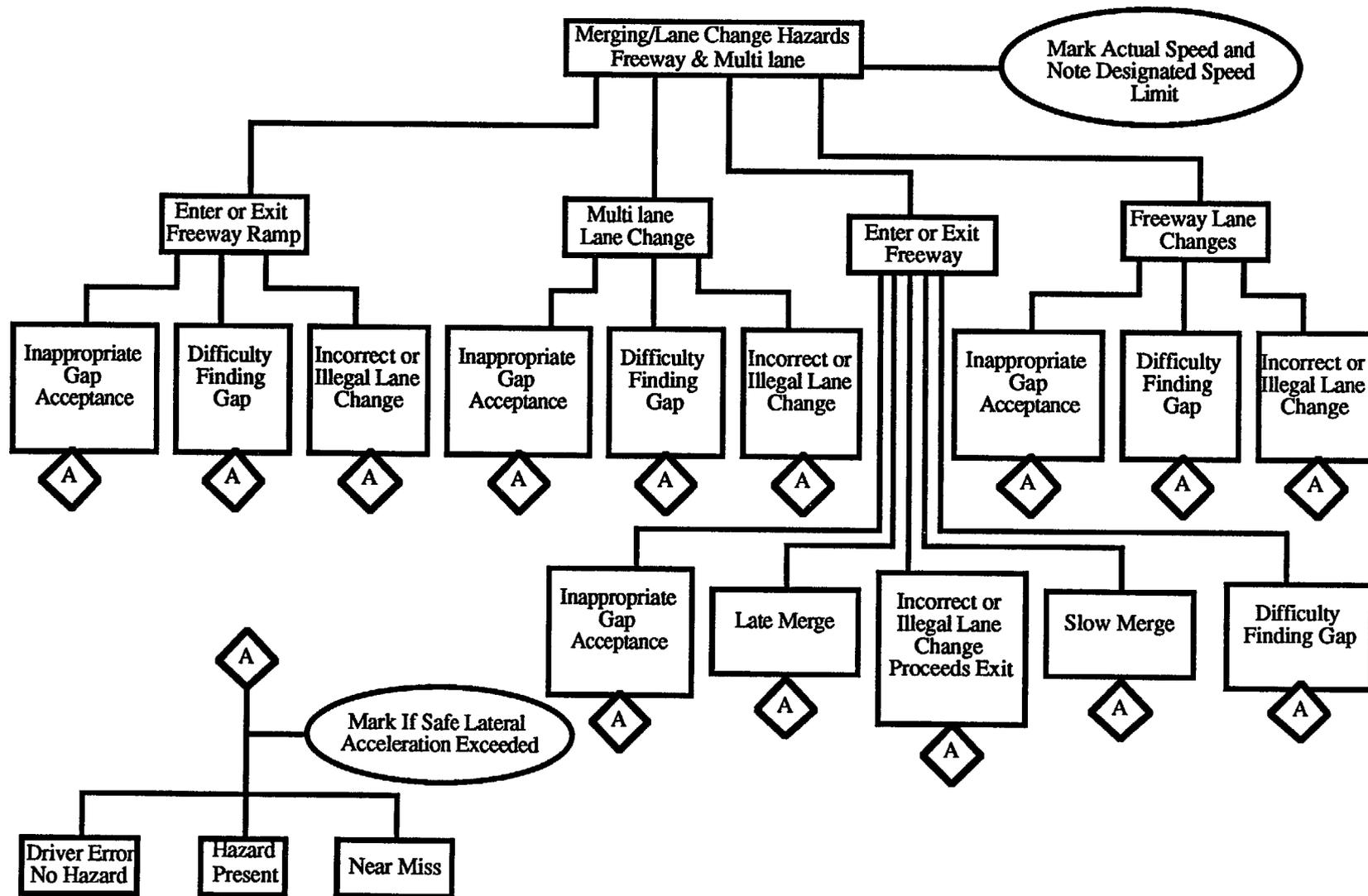


Figure 149. Event classification tool for all merging / lane change events.

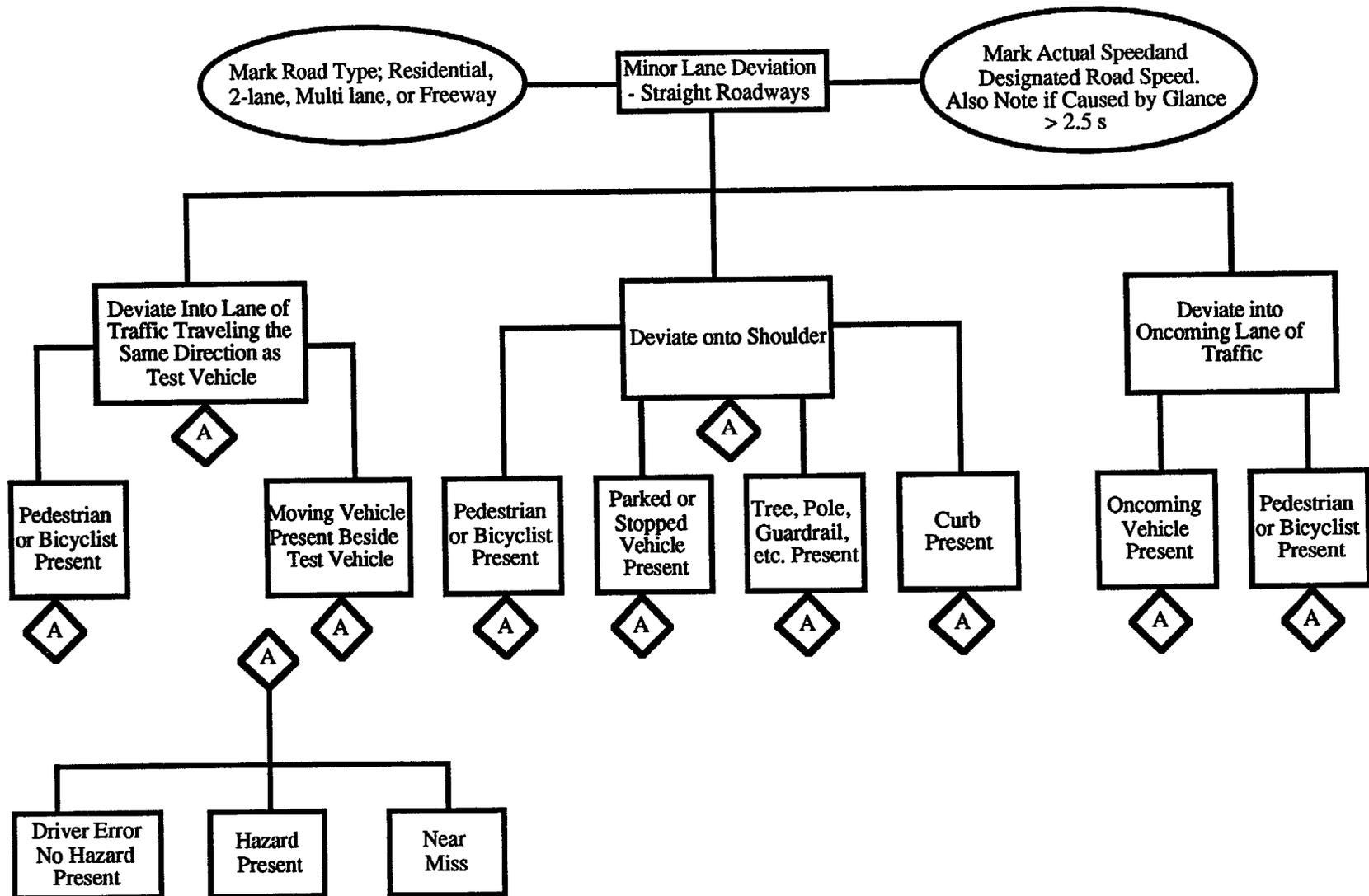


Figure 150. Event classification tool for all lane deviation events.

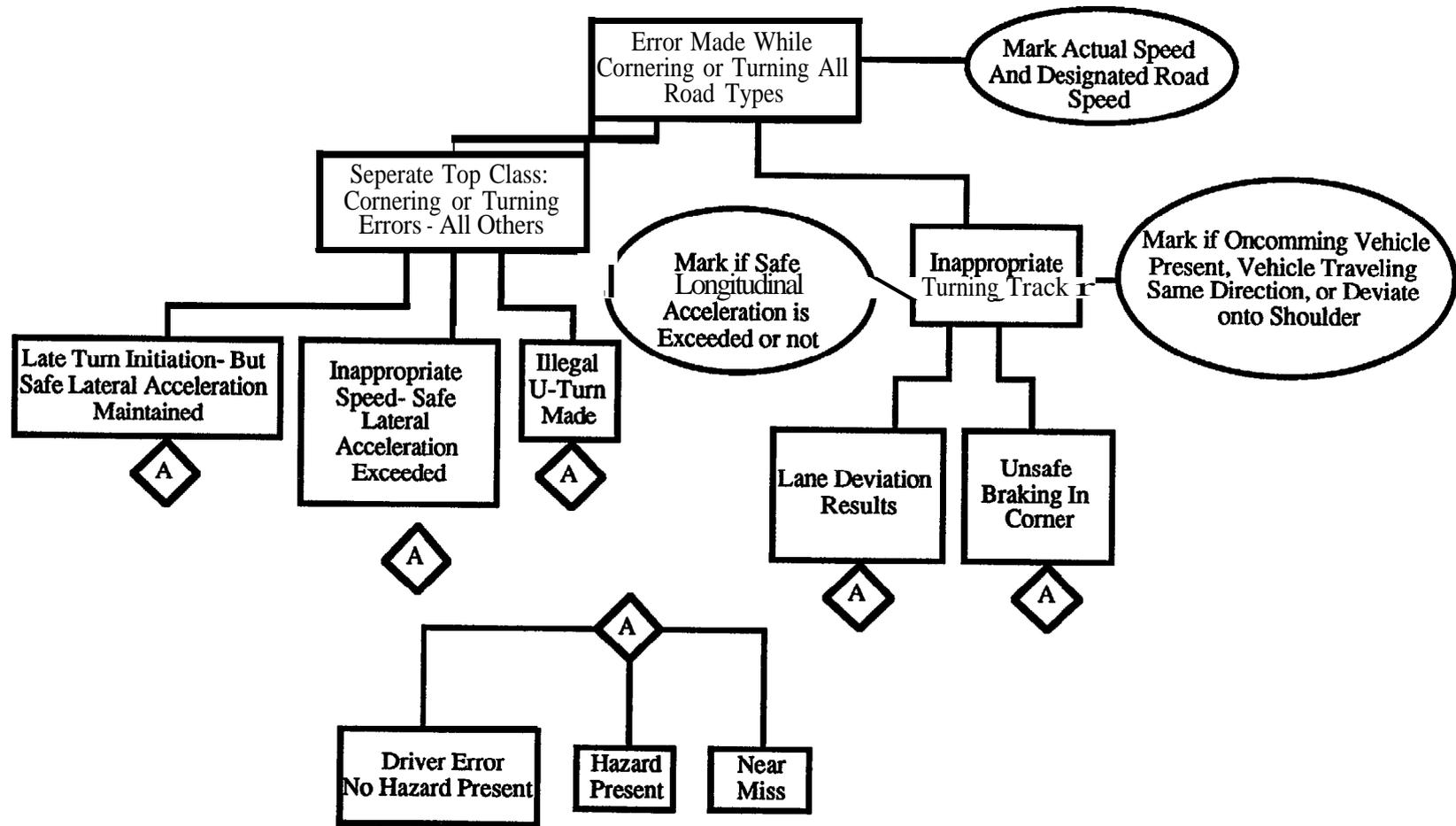


Figure 151. Event classification tool for all cornering / turn events.

**APPENDIX D. DETAILED ERROR NUMBER DESCRIPTION AND  
ASSIGNED POTENTIAL SEVERITY**

Table 27. Detailed error number description and assigned potential severity.  
1 mi/h = 1.61 km/h

<b>Braking</b>	<b>Potential Severity Value</b>
# 01 Braking for pedestrian or bicyclist Safe longitudinal deceleration maintained	≈ 25 mi/h = catastrophic - 4 ≈ 35 mi/h = catastrophic - 4 ≈ 45 mi/h = catastrophic - 4
# 02 Braking for pedestrian or bicyclist Exceed safe longitudinal deceleration	≈ 25 mi/h = catastrophic - 4 ≈ 35 mi/h = catastrophic - 4 ≈ 45 mi/h = catastrophic - 4
# 03 Inattention to traffic control device indicating stop - Traffic Light Late or heavy brake to a stop Safe longitudinal deceleration maintained	≈ 25 mi/h = critical - 3 ≈ 35 mi/h = critical - 3 ≈ 45 mi/h = catastrophic - 4
# 04 Inattention to traffic control device indicating stop Traffic Light Late or heavy brake to a stop Exceed safe longitudinal deceleration	≈ 25 mi/h = critical - 3 = 35 mi/h = critical - 3 = 45 mi/h = catastrophic - 4
# 05 Inattention to traffic control device Indicating stop - 2-way stop Late or heavy brake to a stop Safe longitudinal deceleration maintained	≈ 25 mi/h = critical - 3 = 35 mi/h = critical - 3 = 45 mi/h = catastrophic - 4
# 06 Inattention to traffic control device indicating stop 2-way stop Late or heavy brake to a stop Exceed safe longitudinal deceleration	≈ 25 mi/h = critical - 3 ≈ 35 mi/h = critical - 3 = 45 mi/h = catastrophic - 4
# 07 Inattention to traffic control device indicating stop - 4-way stop Late or heavy brake to a stop Safe longitudinal deceleration maintained	≈ 25 mi/h = marginal - 2 ≈ 35 mi/h = marginal - 2 ≈ 45 mi/h = critical - 3
# 08 Inattention to traffic control device indicating stop 4-way stop Late or heavy brake to a stop Exceed safe longitudinal deceleration	≈ 25 mi/h = marginal - 2 ≈ 35 mi/h = marginal - 2 ≈ 45 mi/h = critical - 3
# 09 Inattention to traffic control device indicating stop - Late or heavy brake for yellow light Safe longitudinal deceleration maintained	≈ 25 mi/h = minor - 1 ≈ 35 mi/h = minor - 1 ≈ 45 mi/h = marginal - 2
# 10 Inattention to traffic control device indicating stop Late or heavy brake for yellow light Exceed safe longitudinal deceleration	≈ 25 mi/h = minor - 1 = 35 mi/h = minor - 1 = 45 mi/h = marginal - 2

Table 27. Detailed error number description and assigned potential severity (continued).  
1 mi/h = 1.61 km/h

<b>Braking</b>	<b>Potential Severity Value</b>
#11 Inattention of need to yield for traffic - Late or heavy brake to a stop Safe longitudinal deceleration maintained	=25mi/h=marginal-2 =35mi/h=critical-3 =45mi/h=critical-3
# 12 Inattention of need to yield for traffic - Late or heavy brake to a stop Exceed safe longitudinal deceleration	=25mi/h=marginal-2 =35mi/h=critical-3 =45mi/h=critical-3
# 13 Inattention of need to yield for traffic - Late or heavy brake to a slower speed Safe longitudinal deceleration maintained	=25mi/h=marginal-2 =35mi/h=critical-3 =45mi/h=critical-3
# 14 Inattention of need to yield for traffic - Late or heavy brake to a slower speed Exceed safe longitudinal deceleration	=25mi/h=marginal-2 =35mi/h=critical-3 =45mi/h=critical-3
# 15 Inattention to stopped or slow traffic - Late or heavy brake to a stop Safe longitudinal deceleration maintained Initial safe following distance	=25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4
# 16 Inattention to stopped or slow traffic - Late or heavy brake to a stop Safe longitudinal deceleration maintained Initial close following distance	=25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4
# 17 Inattention to stopped or slow traffic - Late or heavy brake to a stop Safe longitudinal deceleration maintained Initial dangerously close following distance	=25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4
# 18 Inattention to stopped or slow traffic - Late or heavy brake to a stop Exceed safe longitudinal deceleration Initial safe following distance	=25mi/h=critical-3 = 35 mi/h = critical - 3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4
# 19 Inattention to stopped or slow traffic - Late or heavy brake to a stop Exceed safe longitudinal deceleration Initial close following distance	=25mi/h=critical-3 = 35 mi/h = critical - 3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4
#20 Inattention to stopped or slow traffic - Late or heavy brake to a stop Exceed safe longitudinal deceleration Initial dangerously close following distance	= 25 mi/h = critical - 3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4

Table 27. Detailed error number description and potential severity (continued).  
 1 mi/h = 1.61 Km/h100

<b>Braking</b>	<b>Potential Severity Value</b>
# 21 Inattention to stopped or slow traffic - Late or heavy brake to a slower speed Safe longitudinal deceleration maintained Initial safe following distance	≈ 25 mi/h = marginal - 2 ≈ 35 mi/h = marginal - 2 ≈ 45 mi/h = critical - 3 ≈ 55 mi/h = critical - 3
# 22 Inattention to stopped or slow traffic - Late or heavy brake to a slower speed Safe longitudinal deceleration maintained Initial close following distance	≈ 25 mi/h = marginal - 2 =35mi/h=marginal-2 =45mi/h=critical-3 =55mi/h=critical-3
# 23 Inattention to stopped or slow traffic - Late or heavy brake to a slower speed Safe longitudinal deceleration maintained Initial dangerously close following distance	≈ 25 mi/h = marginal - 2 ≈ 35 mi/h = marginal - 2 ≈ 45 mi/h = critical - 3 ≈ 55 mi/h = critical - 3
# 24 Inattention to stopped or slow traffic - Late or heavy brake to a slower speed Exceed safe longitudinal deceleration Initial safe following distance	≈ 25 mi/h = marginal - 2 ≈ 35 mi/h = marginal - 2 ≈ 45 mi/h = critical - 3 =55mi/h=critical-3
# 25 Inattention to stopped or slow traffic - Late or heavy brake to a slower speed Exceed safe longitudinal deceleration Initial close following distance	≈ 25 mi/h = marginal - 2 ≈ 35 mi/h = marginal - 2 ≈ 45 mi/h = critical - 3 ≈ 55 mi/h = critical - 3
# 26 Inattention to stopped or slow traffic - Late or heavy brake to a slower speed Exceed safe longitudinal deceleration Initial dangerously close following distance	≈ 25 mi/h = marginal - 2 =35mi/h=marginal-2 =45mi/h=critical-3 = 55 mi/h = critical - 3
# 27 Heavy braking only Just longitudinal deceleration exceeded Initial safe following distance	≈ 25 mi/h = marginal - 2 ≈ 35 mi/h = marginal - 2 ≈ 45 mi/h = critical - 3 ≈ 55 mi/h = critical - 3
# 31 No braking - but unsafe headway Initial close following distance	≈ 25 mi/h = marginal - 2 ≈ 35 mi/h = marginal - 2 ≈ 45 mi/h = critical - 3 ≈ 55 mi/h = critical - 3
# 32 No braking - but unsafe headway Initial dangerously close following distance	≈ 25 mi/h = marginal - 2 ≈ 35 mi/h = marginal - 2 ≈ 45 mi/h = critical - 3 ≈ 55 mi/h = critical - 3

Table 27. Detailed error number description and assigned potential severity (continued).  
 1 mi/h= 1.61 km/h

<b><u>Glance Time Over 2.5 s</u></b>	<b><u>Potential Severity Value</u></b>
# 33 Occurs in corner Hazard Present	=25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4
# 34 Occurs in corner No hazard present	Considered Non-Safety-related Event
# 35 Occurs in or before intersection Hazard present	< 20 mi/h = marginal - 2 =25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4
#36 Occurs in or before intersection No hazard present	Considered Non-Safety-related Event
#37 Occurs in straight roadway Hazard present	=25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4
#38 Occurs in straight roadway No hazard present	Considered Non-Safety-related Event

<b><u>Merging or Lane Change Errors</u></b>	<b><u>Potential Severity Value</u></b>
#48 Enter of exit freeway ramp from main street Inappropriate gap acceptance	=25mi/h=marginal-2 =35mi/h=marginal-2
#49 Enter of exit freeway ramp from main street Difficulty finding gap	=25mi/h=marginal-2 =35mi/h=marginal-2
#50 Enter of exit freeway ramp from main street Incorrect or illegal lane change	=25mi/h=marginal-2 =35mi/h=marginal-2
#51 Enter or exit freeway Inappropriate gap acceptance	= 25 mi/h = catastrophic - 4 =35mi/h=critical-3 =45mi/h=critical-3 =55mi/h=critical-3
# 52 Enter or exit freeway Difficulty finding gap	=25mi/h=critical-3 =35mi/h=marginal-2 =45mi/h=marginal-2 =55mi/h=marginal-2
# 53 Enter or exit freeway Incorrect or illegal lane change proceeds exit	= 25 mi/h = catastrophic - 4 =35mi/h=critical-3 =45mi/h=critical-3 =55mi/h=critical-3

Table 27. Detailed error number description and assigned potential severity (continued).  
1 mi/h = 1.61 km/h

# 54 Enter or exit freeway Slow merge	= 25 mi/h = catastrophic - 4 =35mi/h=critical-3 =45mi/h=critical-3 =55mi/h=critical-3
#55 Enter or exit freeway Late Merge	= 25 mi/h = catastrophic - 4 =35mi/h=critical-3 =45mi/h=critical-3 =55mi/h=critical-3
#56 Freeway lane change Inappropriate gap acceptance	= 25 mi/h = catastrophic - 4 =35mi/h=critical-3 =45mi/h=critical-3 =55mi/h=critical-3
#57 Freeway lane change Difficulty finding gap	=25mi/h=critical-3 =35mi/h=marginal-2 =45mi/h=marginal-2 =55mi/h=marginal-2
#58 Freeway lane change Incorrect or illegal lane change	= 25 mi/h = catastrophic - 4 = 35 mi/h = critical - 3 =45mi/h=critical-3 =55mi/h=critical-3
#59 Multilane lane change Inappropriate gap acceptance	=25mi/h=marginal-2 =35mi/h=marginal-2 = 45 mi/h = marginal - 2
#60 Multilane lane change Difficulty finding gap	=25mi/h=minor- 1 =35mi/h=minor- 1 =45mi/h=minor- 1

<b>Merging or Lane Change Errors</b>	<b>Potential Severity Value</b>
#61 Multilane lane change Incorrect or illegal lane change	= 25 mi/h = marginal - 2 =35mi/h=marginal-2 =45mi/h=marginal-2

<b>Speed</b>	<b>Potential Severity Value</b>
#62 Too slow less than 10 mi/h under limit Due to indecision	minor - 1
#63 Too slow 10 to 20 mi/h under limit Due to indecision	marginal - 2
#64 Too slow Greater than 20 mi/h under limit Due to indecision	critical - 3

Table 27. Detailed error number description and assigned potential severity (continued).  
1 mi/h = 1.61 km/h

#66 Too fast 10 mi/h over limit	marginal - 2
#67 Too fast 10 to 20 mi/h over limit	critical - 3
# 68 Too fast Greater than 20 mi/h over limit	catastrophic - 4
# 33 Glance time > 2.5 s results in extreme slow speed Occurs in comer Hazard present	Extreme Slow = critical - 3
# 34 Glance time > 2.5 s results in extreme slow speed Occurs in comer No hazard present - but extreme slow speed results	Extreme Slow = critical - 3
# 35 Glance time > 2.5 s results in extreme slow speed Occurs in or before intersection Hazard present	Extreme Slow = critical - 3
#36 Glance time > 2.5 s results in extreme slow speed Occurs in or before intersection No hazard present - but extreme slow speed results	Extreme Slow = critical - 3
# 37 Glance time > 2.5 s results in extreme slow speed Occurs in straight roadway Hazard present	Extreme Slow = critical - 3
# 38 Glance time > 2.5 s results in extreme slow speed Occurs in straight roadway No hazard present - but extreme slow speed results	Extreme Slow = critical - 3

<b><u>Corners / Turn Errors - All Others</u></b>	<b><u>Potential Severity Value</u></b>
# 69 Late turn initiation- safe lateral acceleration maintained Hazard present	=25mi/h=marginal-2 =35mi/h=critical-3 =45mi/h=critical-3 = 55 mi/h = catastrophic - 4
#70 Late turn initiation- safe lateral acceleration maintained No hazard present	Considered non - safety- related event
#71 Inappropriate speed - exceed safe lateral acceleration Hazard present	=25mi/h=marginal-2 =35mi/h=critical-3 =45mi/h=critical-3 = 55 mi/h = catastrophic - 4

Table 27. Detailed error number description and assigned potential severity (continued).  
1 mi/h = 1.61 km/h

#72 Inappropriate speed - exceed safe lateral acceleration No hazard present	Considered non - safety-related event
# 83 Inappropriate turning track - Illegal U-turn Safe lateral acceleration maintained Hazard present	Road Speed: = 25 mi/h = marginal - 2 = 35 mi/h = critical - 3 =45mi/h=critical-3
# 84 Inappropriate turning track - Illegal U-turn Safe lateral acceleration maintained No hazard present	Road Speed: =25mi/h=marginal-2 =35mi/h=critical-3 =45mi/h=critical-3
# 85 Inappropriate turning track - Illegal U-turn Exceed safe lateral acceleration Hazard present	Road Speed: =25mi/h=marginal-2 =35mi/h=critical-3 =45mi/h=critical-3
# 86 Inappropriate turning track - Illegal U-turn Exceed safe lateral acceleration No hazard present	Road Speed: = 25 mi/h = marginal - 2 =35mi/h=critical-3 =45mi/h=critical-3
# 87 Unsafe braking in comer - safe longitudinal acceleration exceeded Maintain lane position	=25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4

<b><u>Intersections - Missed Control Devices</u></b>	<b><u>Potential Severity Value</u></b>
#91 Failure to yield at uncontrolled intersection	=25mi/h=marginal-2
# 92 4-way stop sign Missed traffic control device	= 25 mi/h = marginal - 2 =35mi/h=critical-3 =45mi/h=critical-3
#93 4-way stop sign Look but roll through stop without fully stopping	= 25 mi/h = marginal - 2 =35mi/h=critical-3 =45mi/h=critical-3
#94 2-way stop sign Missed traffic control device	= 25 mi/h = critical - 3 = 35 mi/h = catastrophic - 4 = 45 mi/h = catastrophic - 4

Table 27. Detailed error number description and assigned potential severity (continued).  
1 mi/h = 1.61 km/h

#95 2-way stop sign Look but roll through stop without fully stopping	=25mi/h=critical-3 = 35 mi/h = catastrophic - 4 = 45 mi/h = catastrophic - 4
#96 Traffic light Missed traffic control device	=25mi/h=critical-3 = 35 mi/h = catastrophic - 4 = 45 mi/h = catastrophic - 4
# 97 Traffic light Look but roll through stop without fully stopping	=25mi/h=critical-3 = 35 mi/h = catastrophic - 4 = 45 mi/h = catastrophic - 4
#98 Traffic light Run yellow light	=25mi/h=marginal-2 =35mi/h=critical-3 =45mi/h=critical-3

<b><u>Intersections - Uncontrolled Intersections</u></b>	<b><u>Potential Severity Value</u></b>
#99 Uncontrolled intersections Indecision about turn correctness Unsafe or illegal lane change results	=25mi/h=marginal-2
# 100 Uncontrolled intersections Indecision about turn correctness Slow speed results Traffic present	= 25 mi/h = marginal - 2
# 101 Uncontrolled intersections Indecision about turn correctness Slow speed results No traffic present	=25mi/h=minor- 1
# 102 Uncontrolled intersections Indecision about turn correctness Turn tried then canceled Traffic present	=25mi/h=marginal-2
# 103 Uncontrolled intersections Indecision about turn correctness Turn tried then canceled No traffic present	= 25 mi/h = marginal - 2

Table 27. Detailed error number description and assigned potential severity (continued).  
 1mi/h =1.61km/h

# 106 Uncontrolled intersections Illegal turn made or attempted	=25mi/h=marginal-2
# 107 Uncontrolled intersections Inappropriate gap acceptance, pullout, or failure to yield	=25mi/h=marginal-2

<b><u>Intersections - 4-way Stop Intersections</u></b>	<b><u>Potential Severity Value</u></b>
# 108 4 - way stops Indecision about turn correctness Unsafe or illegal lane change results	=25mi/h=marginal-2 =35mi/h=critical-3
# 109 4 - way stops Indecision about turn correctness Slow speed results Traffic present	=25mi/h=marginal-2 =35mi/h=critical-3
# 110 4 - way stops Indecision about turn correctness Slow speed results No traffic present	=25mi/h=marginal-2 =35mi/h=critical-3
# 111 4 - way stops Indecision about turn correctness Turn tried then canceled Traffic present	=25mi/h=marginal-2 =35 mi/h = critical - 3
# 112 4 - way stops Indecision about turn correctness Turn tried then canceled No traffic present	=25mi/h=marginal-2 =35mi/h=critical-3
# 115 4 - way stops Illegal turn made or attempted	=25mi/h=marginal-2 =35mi/h=critical-3
# 116 4 way stops Inappropriate gap acceptance, pullout, or failure to yield	=25mi/h=marginal-2 =35mi/h=critical-3

Table 27. Detailed error number description and assigned potential severity (continued).  
 1 mi/h = 1.61 km/h

<b><u>Intersections - 2-way Stop Intersections</u></b>	<b><u>Potential Severity Value</u></b>
# 117 2 - way stops Indecision about turn correctness Unsafe or illegal lane change results	=25mi/h=marginal-2 =35mi/h=critical-3 =45mi/h=critical-3
# 118 2 - way stops Indecision about turn correctness Slow speed results Traffic present	= 25 mi/h = marginal - 2 =35mi/h=critical-3 =45mi/h=critical-3
# 119 2 - way stops Indecision about turn correctness Slow speed results No traffic present	=25mi/h=marginal-2 =35mi/h=critical-3 =45mi/h=critical-3
# 120 2 - way stops Indecision about turn correctness Turn tried then canceled Traffic present	= 25 mi/h = marginal - 2 =35mi/h=critical-3 =45mi/h=critical-3
# 121 2 - way stops Indecision about turn correctness Turn tried then canceled No traffic present	= 25 mi/h = marginal - 2 =35mi/h=critical-3 =45mi/h=critical-3
# 124 2 - way stops Illegal turn made or attempted	=25mifh=marginal-2 =35mi/h=critical-3 =45mi/h=critical-3
# 125 2 - way stops Inappropriate gap acceptance, pullout, or failure to yield	= 25 mi/h = marginal - 2 =35mi/h=critical-3 = 45 mi/h = critical - 3

Table 27. Detailed error number description and assigned potential severity (continued).  
 1 mi/h = 1.61 km/h

<b><u>Intersections - Traffic Light Intersections</u></b>	<b><u>Potential Severity Value</u></b>
# 126 Traffic lights Indecision about turn correctness Unsafe or illegal lane change results	= 25 mi/h = critical - 3 = 35mi/h=critical-3 = 45 mi/h = catastrophic - 4
# 127 Traffic lights Indecision about turn correctness Slow speed results Traffic present	=25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4
# 128 Traffic lights Indecision about turn correctness Slow speed results No traffic present	=25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4
# 129 Traffic lights Indecision about turn correctness Turn tried then canceled Traffic present	=25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4
# 130 Traffic lights Indecision about turn correctness Turn tried then canceled No traffic present	=25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4
# 133 Traffic lights Illegal turn made or attempted	= 25 mi/h = critical - 3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4
# 134 Traffic lights Inappropriate gap acceptance, pullout, or failure to yield	= 25 mi/h = critical - 3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4

Table 27. Detailed error number description and assigned potential severity (continued).  
 1 mi/h = 1.61 km/h

<b><u>Intersections - Entrance Or Exit To Freeway                      Intersections. Or Turn Only Type Intersections With                      No Control Device</u></b>	<b><u>Potential Severity Value</u></b>
# 135 Entrance or exit to freeway intersections, or turn only type intersections with no control device Indecision about turn correctness Unsafe or illegal lane change results	=25mi/h=marginal-2 =35mi/h=marginal-2 =45mi/h=critical-3
# 136 Entrance or exit to freeway intersections, or turn only type intersections with no control device Indecision about turn correctness Slow speed results Traffic present	=25mi/h=marginal-2 =35mi/h=marginal-2 =45mi/h=critical-3
# 137 Entrance or exit to freeway intersections, or turn only type intersections with no control device Indecision about turn correctness Slow speed results No traffic present	=25mi/h=marginal-2 =35mi/h=marginal-2 =45mi/h=critical-3
# 138 Entrance or exit to freeway intersections, or turn only type intersections with no control device Indecision about turn correctness Turn tried then canceled Traffic present	= 25 mi/h = marginal - 2 = 35 mi/h = marginal - 2 =45mi/h=critical-3
# 139 Entrance or exit to freeway intersections, or turn only type intersections with no control device Indecision about turn correctness Turn tried then canceled No traffic present	=25mi/h=marginal-2 = 35 mi/h = marginal - 2 =45mi/h=critical-3
# 142 Entrance or exit to freeway intersections, or turn only type intersections with no control device Illegal turn made or attempted	=25mi/h=marginal-2 =35mi/h=marginal-2 =45mi/h=critical-3
# 143 Entrance or exit to freeway intersections, or turn only type intersections with no control device Inappropriate gap acceptance, pullout, or failure to yield	= 25 mi/h = marginal - 2 =35mi/h=marginal-2 =45mi/h=critical-3

Table 27. Detailed error number description and assigned potential severity (continued).  
1mi/h=1.61km/h

<b><u>Lane Deviations - Straights (Residential Street)</u></b>	<b><u>Potential Severity Value</u></b>
# 144 Residential street Deviate into oncoming lane of traffic or into dual direction turn-only lane No danger present	=25mi/h=critical-3
# 145 Residential street Deviate into oncoming lane of traffic or into dual direction turn-only lane Moving object present Oncoming vehicle	=25mi/h=critical-3
# 146 Residential street Deviate into oncoming lane of traffic or into dual direction turn-only lane Moving object present Pedestrian or bicycle	= 25 mi/h = catastrophic - 4
# 147 Residential street Deviate into oncoming lane of traffic or dual direction turn only lane- Stationary object present Non-moving vehicle	=25mi/h=marginal-2
# 148 Residential street Deviate onto shoulder of roadway - No danger present	=25mi/h=minor- 1
# 149 Residential street Deviate onto shoulder of roadway - Moving object present Pedestrian or bicycle	= 25 mi/h = catastrophic - 4
# 150 Residential street Deviate onto shoulder of roadway - Stationary object present Non-moving vehicle	= 25 rmi/h = marginal - 2
# 151 Residential street Deviate onto shoulder of roadway - Stationary object present Tree, sign, guardrail, etc.:	=25mi/h=marginal-2
# 152 Residential street Deviate onto shoulder of roadway - Stationary object present curb	= 25 mi/h = minor - 1

Table 27. Detailed error number description and assigned potential severity (continued).  
 1 mi/h=1.61km/h

<b><u>Lane Deviations - Straights (2-lane road)</u></b>	<b><u>Potential Severity Value</u></b>
# 153 2 - lane road Deviat into oncoming lane of traffic or into dual direction turn-only lane No danger present	=25mi/h=critical-3 = 35 mi/h = catastrophic - 4
# 154 2 - lane road Deviat into oncoming lane of traffic or into dual direction turn-only lane Moving object present Oncoming Vehicle	=25mi/h=critical-3 = 35 mi/h = catastrophic - 4
# 155 2 - lane road Deviat into oncoming lane of traffic or into dual direction turn-only lane Moving object present Pedestrian or bicycle	= 25 mi/h = catastrophic - 4 = 35 mi/h = catastrophic - 4
# 156 2 - lane road Deviat into oncoming lane of traffic or into dual direction turn-only lane Stationary object present Non-moving vehicle	=25mi/h=marginal-2 =35mi/h=critical-3
# 157 2 - lane road Deviat onto shoulder of roadway - No danger present	=25mi/h=minor- 1 =35mi/h=minor- 1
# 158 2 - lane road Deviat onto shoulder of roadway - Moving object present Pedestrian or bicycle	= 25 mi/h = catastrophic - 4 = 35 mi/h = catastrophic - 4
# 159 2 - lane road Deviat onto shoulder of roadway - Stationary object present Non-moving vehicle	=25mi/h=marginal-2 =35mi/h=critical-3
# 160 2 - lane road Deviat onto shoulder of roadway - Stationary object present Tree, sign, guardrail, etc.	= 25 mi/h = marginal - 2 =35mi/h=critical-3
# 161 2 - lane road Deviat onto shoulder of roadway - Stationary object present curb	=25mi/h=minor- 1 =35mi/h=minor- 1

Table 27. Detailed error number description and assigned potential severity (continued).  
1 mi/h = 1.61 km/h

<b><u>Lane Deviations - Straights (Multilane road)</u></b>	<b><u>Potential Severity Value</u></b>
#162 Multilane road (all types, all lanes) Deviate into oncoming lane of traffic or into dual direction turn-only lane No danger present	=25mi/h=critical-3 = 35 mi/h = catastrophic - 4 = 45 mi/h = catastrophic - 4
#163 Multilane road (all types, all lanes) Deviate into oncoming lane of traffic or into dual direction turn-only lane Moving object present Oncoming vehicle	=25mi/h=critical-3 = 35 mi/h = catastrophic - 4 = 45 mi/h = catastrophic - 4
# 164 Multilane road (all types, all lanes) Deviate into oncoming lane of traffic or into dual direction turn-only lane Moving object present Pedestrian or bicycle	= 25 mi/h = catastrophic - 4 = 35 mi/h = catastrophic - 4 = 45 mi/h = catastrophic - 4
# 165 Multilane road (all types, all lanes) Deviate into oncoming lane of traffic or into dual direction turn-only lane Stationary object present Non-moving vehicle	=25mi/h=marginal-2 = 35 mi/h = critical - 3 =45mi/h=critical-3
# 166 Multilane road (all types, all lanes) Deviate into lane of traffic traveling the same direction - No danger present	=25mi/h=marginal-2 =35mi/h=marginal-2 =45mi/h=critical-3
# 167 Multilane road (all types, all lanes) Deviate into lane of traffic traveling the same direction - Moving object present Vehicle present next to test vehicle	=25mi/h=marginal-2 = 35 mi/h = marginal - 2 =45mi/h=critical-3
# 168 Multilane road (all types, all lanes) Deviate into lane of traffic traveling the same direction - Moving object present Pedestrian or bicycle	= 25 mi/h = catastrophic - 4 = 35 mi/h = catastrophic - 4 = 45 mi/h = catastrophic - 4
# 169 Multilane road (all types, all lanes) Deviate into lane of traffic traveling the same direction - Stationary object present Non-moving vehicle	= 25 mi/h = marginal - 2 = 35 mi/h = critical - 3 = 45 mi/h = critical - 3
# 170 Multilane road (all types, all lanes) Deviate onto shoulder of roadway - No danger present	=25mi/h=minor- 1 =35mi/h=minor- 1 =45mi/h=minor- 1

Table 27. Detailed error number description and assigned potential severity (continued).  
 1 mi/h = 1.61 km/h

<b><u>Lane Deviations - Straights (Multilane Road)</u></b>	<b><u>Potential Severity Value</u></b>
# 171 Multilane road (all types, all lanes) Deviate onto shoulder of roadway - Moving object present Pedestrian or bicycle	= 25 mi/h = catastrophic - 4 = 35 mi/h = catastrophic - 4 = 45 mi/h = catastrophic - 4
# 172 Multilane road (all types, all lanes) Deviate onto shoulder of roadway - Stationary object present Non-moving vehicle	=25mi/h=marginal-2 =35mi/h=critical-3 =45mi/h=critical-3
# 173 Multilane road (all types, all lanes) Deviate onto shoulder of roadway - Stationary object present Tree, sign, guardrail, etc.	=25mi/h=marginal-2 =35mi/h=critical-3 =45mi/h=critical-3
# 174 Multilane road (all types, all lanes) Deviate onto shoulder of roadway - Stationary object present curb	=25mi/h=minor- 1 =35mi/h=minor- 1 =45mi/h=minor- 1

<b><u>Lane Deviations - Straights(Freeway)</u></b>	<b><u>Potential Severity Value</u></b>
# 175 Freeway (all lanes) Deviate into lane of traffic traveling the same direction - No danger present	= 25 mi/h = catastrophic - 4 =35mi/h=critical-3 =45mi/h=ctritical-3 = 55 mi/h = catastrophic - 4
# 176 Freeway (all lanes) Deviate into lane of traffic traveling the same direction - Moving object present vehicle present next to test vehicle	= 25 mi/h = catastrophic - 4 =35mi/h=critical-3 =45mi/h=critical-3 = 55 mi/h = catastrophic - 4
# 177 Freeway (all lanes) Deviate into lane of traffic traveling the same direction - Stationary object present Non-moving vehicle	=25mi/h=marginal-2 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4

Table 27. Detailed error number description and assigned potential severity (continued).  
1mi/h=1.61km/h

# 178 Freeway (all lanes) Deviate onto shoulder of roadway - No danger present	=25mi/h=minor- 1 =35mi/h=minor- 1 =45mi/h=minor- 1 =55mi/h=minor- 1
# 179 Freeway (all lanes) Deviate onto shoulder of roadway - Stationary object present Non-moving vehicle	=25mi/h=marginal-2 = 35 mi/h = critical - 3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4
# 180 Freeway (all lanes) Deviate onto shoulder of roadway - Stationary object present Tree, sign, guardrail, etc.	= 25 mi/h = critical - 3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4

<b>Lane Deviations - Straights Due to Glance Time Over <u>2.5S</u></b>	<b>Potential Severity Value</b>
# 239 Lane deviation results because of glance >2.5 S in comer Hazard present	Extreme Slow = critical - 3 =25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastro&ic - 4
# 240 Lane deviation results because of glance >2.5 S in comer No hazard present	Extreme Slow = critical - 3 =25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4
#241 Lane deviation results because of glance >2.5 s in or before intersection Hazard present	Extreme Slow = critical - 3 <20mi/h=marginal-2 =25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4
# 242 Lane deviation results because of glance >2.5S in or before intersection No hazard present	Extreme Slow = critical - 3 <20mi/h=marginal-2 = 25 mi/h = critical - 3 =35mi/h=critical-3 = 45 mi/h = catastrophhc - 4

Table 27. Detailed error number description and assigned potential severity (continued).  
 1 mi/h = 1.61 km/h

# 243 Lane deviation results because of glance >2.5 s in straight roadway Hazard present	Extreme Slow = critical - 3 =25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4
# 244 Lane deviation results because of glance >2.5 s in straight roadway No hazard present	Extreme Slow = critical - 3 =25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4

<u>Reaction to External Event</u>	<u>Potential Severity Value</u>
# 181 Debris in path Good avoidance behavior	Considered non-safety-related event
# 182 Debris in path Inappropriate or late avoidance behavior	=25mi/h=minor- 1 =35mi/h=minor- 1 =45mi/h=minor- 1 = 55 mi/h = marginal - 2
# 183 Inappropriate or illegal action by another vehicle Good avoidance behavior	Considered non-safety-related event
# 184 Inappropriate or illegal action by another vehicle Inappropriate or late avoidance behavior	=25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4
# 185 Inappropriate or illegal action by pedestrian or bicyclist Good avoidance behavior	Considered non-safety-related event
# 186 Inappropriate or illegal action by pedestrian or bicyclist Inappropriate or late avoidance behavior	= 25 mi/h = catastrophic - 4 = 35 mi/h = catastrophic - 4 = 45 mi/h = catastrophic - 4 ≈ 55 mi/h = catastrophic - 4

Table 27. Detailed error number description and assigned notional severity (continued).  
1 mi/h=1.61km/h

<u>Turning / Corner Tracking Errors</u>	<u>Potential Severity Value</u>
# 273 Inappropriate turning track Lane deviation results Deviates into oncoming lane of traffic Hazard present	=25mi/h=critical-3 = 35 mi/h = critical - 3 = 45 mi/h = catastrophic - 4
# 274 Inappropriate turning track Lane deviation results Deviates into oncoming lane of traffic No hazard present	= 25 mi/h = critical - 3 = 35 mi/h = critical-3 = 45 mi/h = catastrophic - 4
# 275 Inappropriate turning track Lane deviation results Deviates into lane of traffic traveling same direction Hazard present	=25mi/h=marginal-2 =35mi/h=marginal-2 = 45 mi/h= critical - 3 = 55 mi/h = catastrophic - 4
# 276 Inappropriate turning track Lane deviation results Deviates into lane of traffic traveling same direction No hazard present	= 25 mi/h = marginal - 2 = 35 mi/h = marginal - 2 =45mi/h=critical-3 = 55 mi/h = catastrophic - 4
# 277 Inappropriate turning track Lane deviation results Deviates onto shoulder Hazard present	= 25 mi/h = marginal - 2 = 35 mi/h = marginal - 2 =45mi/h=critical-3 = 55 mi/h= catastrophic - 4
#278 Inappropriate turning track Lane deviation results Deviates onto shoulder No hazard present	= 25 mi/h = marginal - 2 = 35 mi/h = marginal - 2 =45 mi/h = critical - 3 = 55 mi/h = catastrophic - 4
# 288 Unsafe braking in corner - safe longitudinal acceleration exceeded Lane deviation results Potential to slide into oncoming vehicle	=25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4
# 289 Unsafe braking in corner - safe longitudinal acceleration exceeded Lane deviation results Potential to slide into vehicle traveling same direction	=25mi/h=marginal-2 =35mi/h=marginal-2 =45mi/h=critical-3 = 55 mi/h = catastrophic - 4
# 290 Unsafe braking in corner - safe longitudinal acceleration exceeded Lane deviation results Potential to slide into curb, guardrail, etc.	=25mi/h=critical-3 = 35 mi/h = critical - 3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4

Table 27. Detailed error number description and assigned potential severity (continued).  
 1 mi/h = 1.61 km/h

<b><u>Inappropriate stops</u></b>	<b><u>Potential Severity Value</u></b>
#65 Safely slow to a stop (not in intersections) Inappropriate place to stop	=25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4
# 104 Uncontrolled intersections Indecision about turn correctness Fully stopped at intersection Traffic present	=25mi/h=marginal-2
# 105 Uncontrolledintersections Indecision about turn correctness Fully stopped at intersection No forward traffic present	=25mi/h=marginal-2
# 113 4 - way stops Indecision about turn correctness Fully stopped at intersection Traffic present	= 25 mi/h = marginal - 2 =35mi/h=critical-3
# 114 4 - way stops Indecision about turn correctness Fully stopped at intersection No forward traffic present	=25mi/h=marginal-2 =35mi/h=critical-3
# 122 2 - way stops Indecision about turn correctness Fully stopped at intersection Traffic present	=25mi/h=marginal-2 =35mi/h=critical-3 =45mi/h=critical-3
# 123 2 - way stops Indecision about turn correctness Fully stopped at intersection No forward traffic present	=25mi/h=marginal-2 =35mi/h=critical-3 =45mi/h=critical-3
# 131 Traffic lights Indecision about turn correctness Fully stopped at intersection Traffic present	=25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4
# 132 Traffic lights Indecision about turn correctness Fully stopped at intersection No forward traffic present	=25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4
# 140 Entrance or exit to freeway intersections, or turn only type intersections with no control device Indecision about turn correctness Fully stopped at intersection Traffic present	=25mi/h=marginal-2 = 35 mi/h = marginal - 2 =45mi/h=critical-3
# 141 Entrance or exit to freeway intersections, or turn only type intersections with no control device Indecision about turn correctness Fully stopped at intersection No forward traffic present	=25mi/h=marginal-2 =35mi/h=marginal-2 =45mi/h=critical-3

Table 27. Detailed error number description and assigned potential severity (continued).  
 1 mi/h = 1.61 km/h

<u>Appropriate Reaction to External Event</u>	<u>Potential Severity Value (Non-Events)</u>
# 181 Debris in path Good avoidance behavior	=25mi/h=minor- 1 =35mi/h=minor- 1 =45mi/h=minor- 1 ≈ 55 mi/h = marginal - 2
# 183 Inappropriate or illegal action by another vehicle Good avoidance behavior	=25mi/h=critical-3 =35mi/h=critical-3 = 45 mi/h = catastrophic - 4 = 55 mi/h = catastrophic - 4
# 185 Inappropriate or illegal action by pedestrian or bicyclist Good avoidance behavior	=25mi/h=critical-4 =35mi/h=critical-4 = 45 mi/h = catastrophic - 4