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National Highway Traffic Safety Administration



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October 1994

Final Report

Run-Off-Road Collision Avoidance Countermeasures Using IVHS Countermeasures

TASK 1 Volume 2: Support Volume

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Contracting Officer's Technical Representative's Precis

This report provides a basis for disseminating the preliminary contract results on a timely basis resulting in the information being available before the contract final reports are produced. Research performed during the remainder of the contract may support and/or modify the results, therefore, the material contained in this report should not be consider to be final. The current schedule calls for the completion of this research project by the third quarter of 1999.

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address the sing and/or reduce th This report cont The data was ex were selected fr Each case is dea crash, a narrativ	oad Collision Avoidance Usingle vehicle crash problem throme severity of these crashes. tains a summary of data used stracted from the NASS CDS to the 1993 NASS CDS dat scribed by a data summary shore of what occurred in the crase's trajectory, and a situation t	ugh application of technolog in the clinical analysis condu cases selected for analysis. a file. eet, which contains description sh, a scene diagram illustration ree summarizing the crash se	y to prevent acted in Task 1. All NASS cases we data on the ng the crash site
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INTRODUCTION

This volume contains a summary of data used in the clinical analysis conducted for the Run-Off-Road Collision Avoidance program. The data was extracted from the NASS CDS cases selected for the analysis. All NASS cases were selected form the 1993 NASS CDS data file.

Each case is described by a data summary sheet, which contains descriptive data on the crash, a narrative of what occurred in the crash, a scene diagram illustrating the crash site with the vehicle crash sequence, and a situation tree demonstrating the crash scenario. The descriptive data listed in each case is drawn from the NASS CDS hard copy case report. The narrative for each case was prepared by Calspan analysts. It is a result of the careful consideration by the analyst and takes into account police reports, witness statements (when available) as well as photographs of the scene. The scene diagram is included to allow a better visualization of the crash scene. This diagram goes beyond the scene diagram in the NASS case including details that are apparent to the analyst from photographs of the crash scene.

This volume was assembled to act as a reference for later tasks in this program. Additional detailed questions about the crashes that arise upon selection of a countermeasure technology may be addressed by the data contained in this volume.

CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Opposite Travel Direction

ROADSIDE DEPARTURE: Left

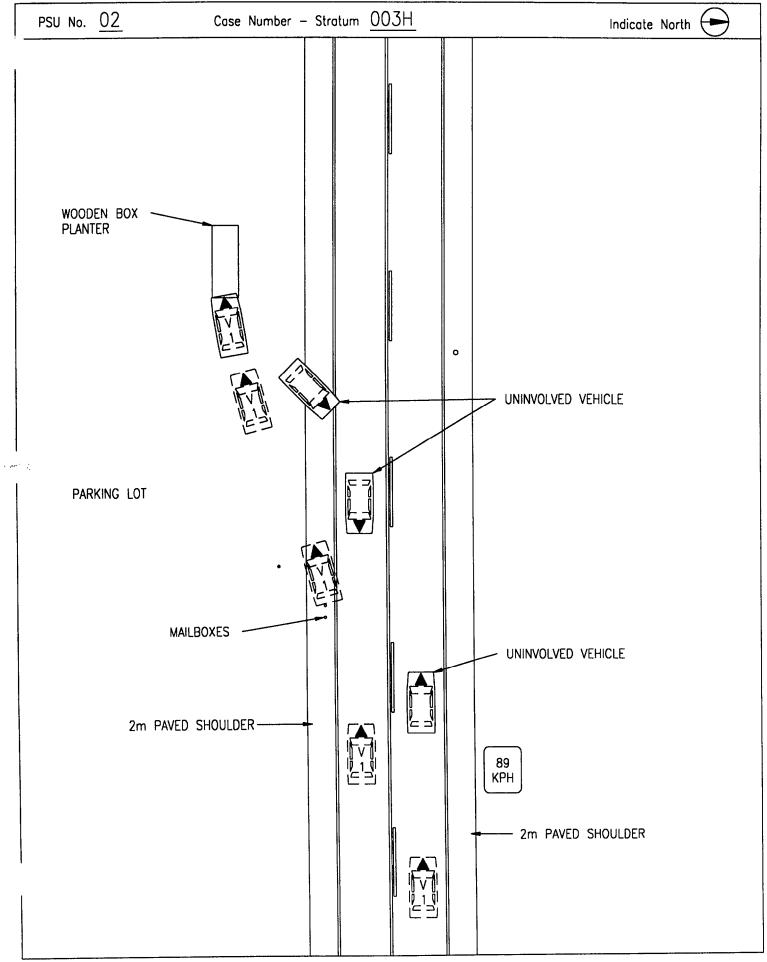
		General Acci	dent Information	
Date:		1-6-93	Weather:	Clear/Cloudy
Time:		1000	Surface Condition:	Dry
Accident 1	Гуре:	Avoid Collision	Lighting:	Daylight
Accident S	Severi	ity: 0(O)	Land Use:	Urban
Drive	r/Occ	upant Information	Vehicle Info	rmation
Driver Age	ə:	16	Year:	1987
Driver Sex		Male	Vehicle Make:	Chrysler
Impairmer	nt:	None	Vehicle Model:	LeBaron
Familiarity with Road		Unknown	ABS:	No
No. of Occupants	s:	1	Defects:	No
		Roadway	Information	
Trafficway			Alignment:	Straight
(Mediai	n):	Not divided	Slope:	Level
No. of Lai	nes:	2	Speed Limit:	89 km/h
		Cluster	Variables	
GV14:	06 5	Steering left		
GV64:	05 H	Passing or overtaking another vel	nicle	
GV65:	53 (Other motor vehicle in lane trave	ling in opposite direction	
GV66:	1	Fracking		
GV67:	4	Vehicle departed roadway		

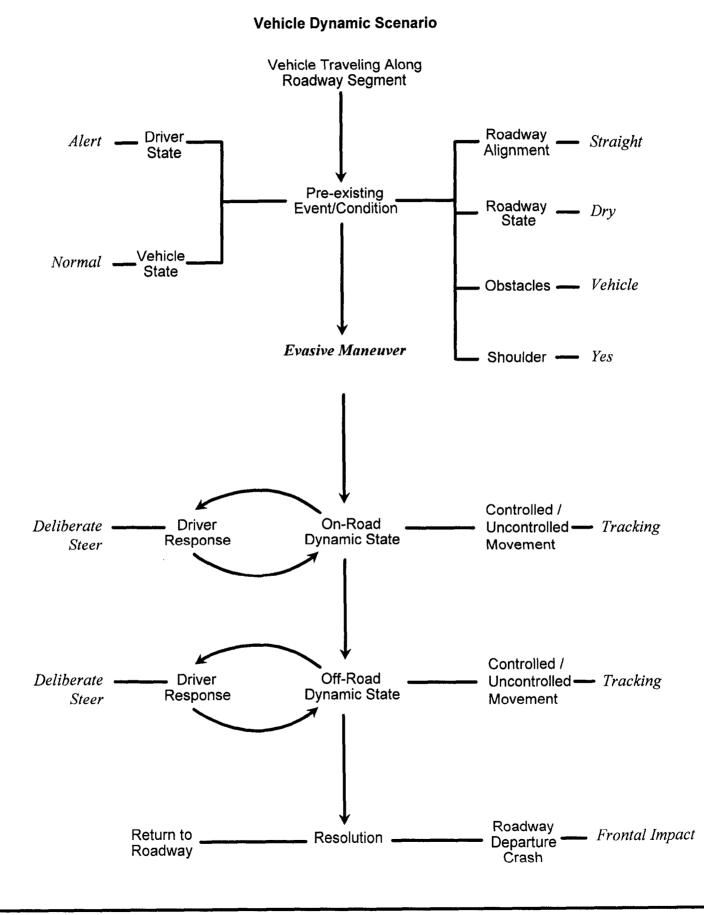
CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Opposite Travel Direction

ROADSIDE DEPARTURE: Left

The subject vehicle was traveling in a westerly direction on a dry, straight, level, two-lane, rural, asphalt roadway during daylight hours in an 89 km/h (55 mph) speed zone. The subject vehicle was following a non-contact vehicle in the westbound lane and initiated a passing maneuver into the eastbound lane. A second non-contact vehicle exited a parking lot at the south road edge and initiated a left turn into the eastbound travel lane. The subject driver steered left to avoid the left turning vehicle and departed the left road edge. The vehicle traversed the parking lot and impacted several mailboxes and a retaining wall. The road surface was marked with white edge lines and yellow center lines which permitted passing in the westbound direction. All lines were in poor condition. The right (north) shoulder was covered with a frozen snow bank while the left (south) shoulder was plowed, paved, and approximately 2 m wide. There were no roadside reflective markers or delineators.





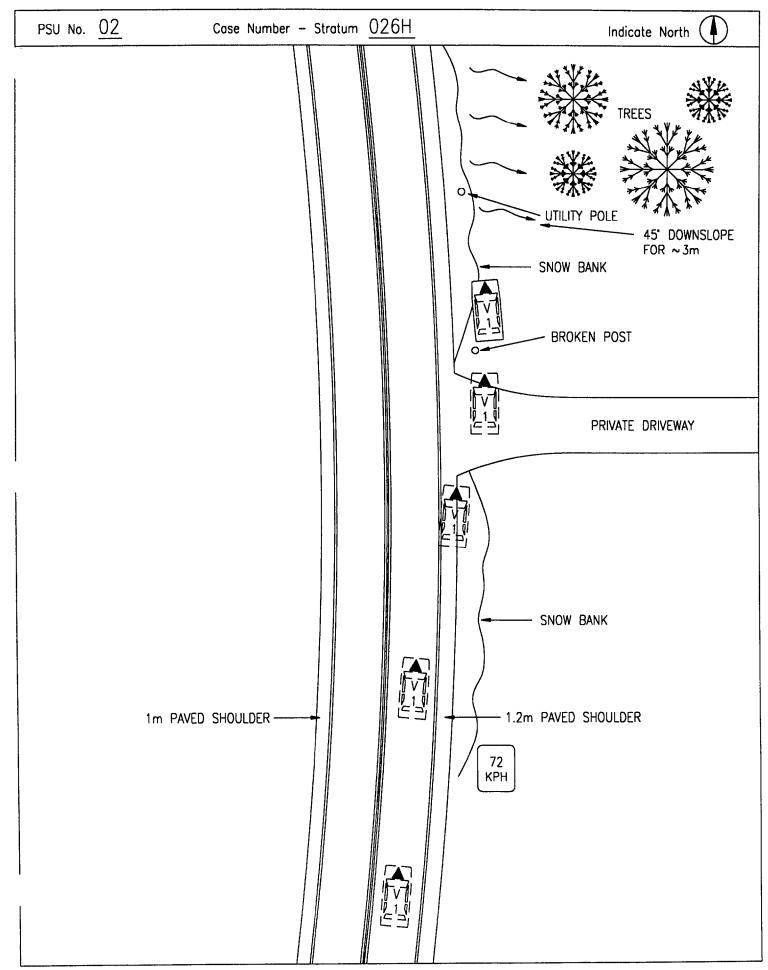
Calspan Corporation Carnegie Mellon University

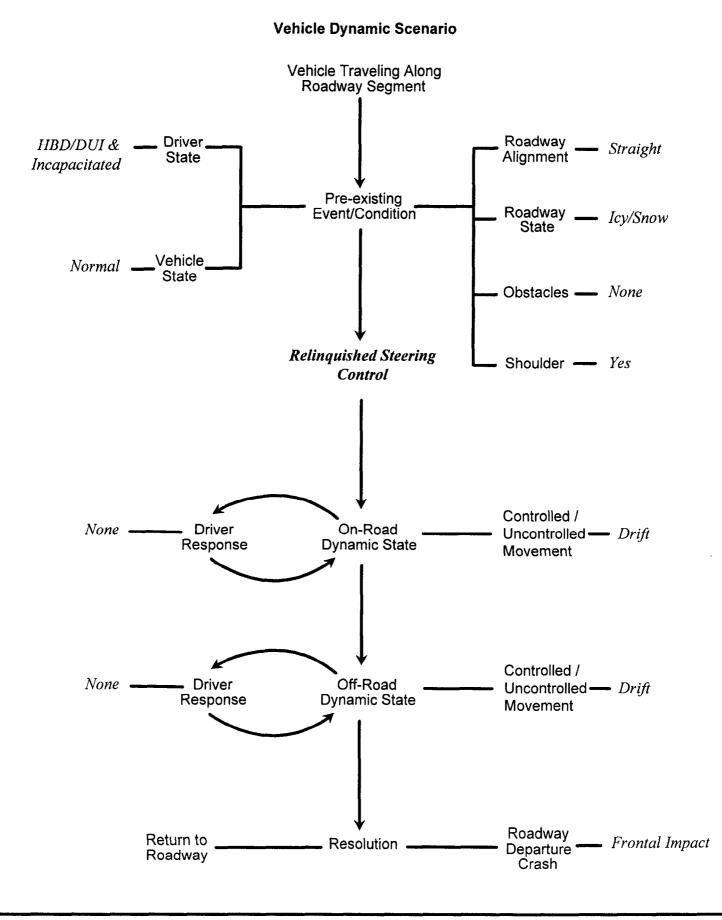
CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

		General Accid	ent Information	
Date:		2-1-93	Weather:	Snow/Sleet/Hai
Time:		1838	Surface Condition:	Ice/Snow
Accident	Type:	Control/Traction Loss	Lighting:	None
Accident S	Severity:	0 (O)	Land Use:	Rural
Drive	r/Occup	oant Information	Vehicle Infor	mation
Driver Age	e:	38	Year:	1987
Driver Sex	<i>c:</i>	Female	Vehicle Make:	Subaru
Impairmer		Intoxicated (alcohol/drugs)	Vehicle Model:	DL/FE/G/GF/ GLF/STD
Familiarity with Road		Unknown	ABS:	No
No. of Occupant	s:	1	Defects:	No
		Roadway I	nformation	
Trafficway			Alignment:	Curve Left
(Media	n):	Not divided	Slope:	Grade
No. of La	nes:	2	Speed Limit:	72 km/h
		Cluster	/ariables	
GV14:	99 Unk	nown		
GV64:	01 Goi	ng straight		
GV65:	13 This	s vehicle traveling off the edge	of the road on the right side	
GV66:	9 Prec	crash stability unknown		
GV67:	9 Dire	ectional consequences unknow	-	

CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

The subject vehicle was traveling in a northerly direction on a two-lane rural road in a 72 km/h (45 mph) speed zone. The roadway was snow covered and curved slightly to the left. The driver was intoxicated (BAC=0.19) and allowed the subject vehicle to drift off the right road edge where it impacted a mailbox and overrode a snowbank before coming to rest on the opposite side of the snowbank. The asphalt roadway was snow-covered and the white edge lines were in poor condition. There were no reflective markers or delineators along the roadside. There were no large scale terrain features or visual obstructions.





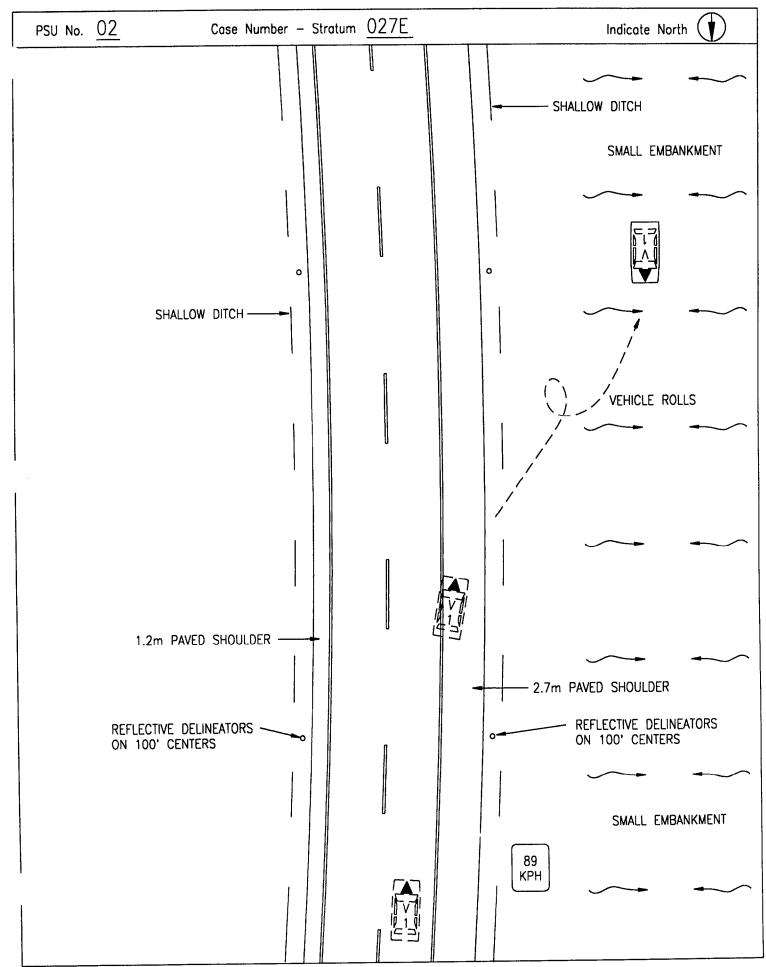
CAUSAL FACTOR: ROADSIDE DEPARTURE: Vehicle Speed - Unsafe Driving Act

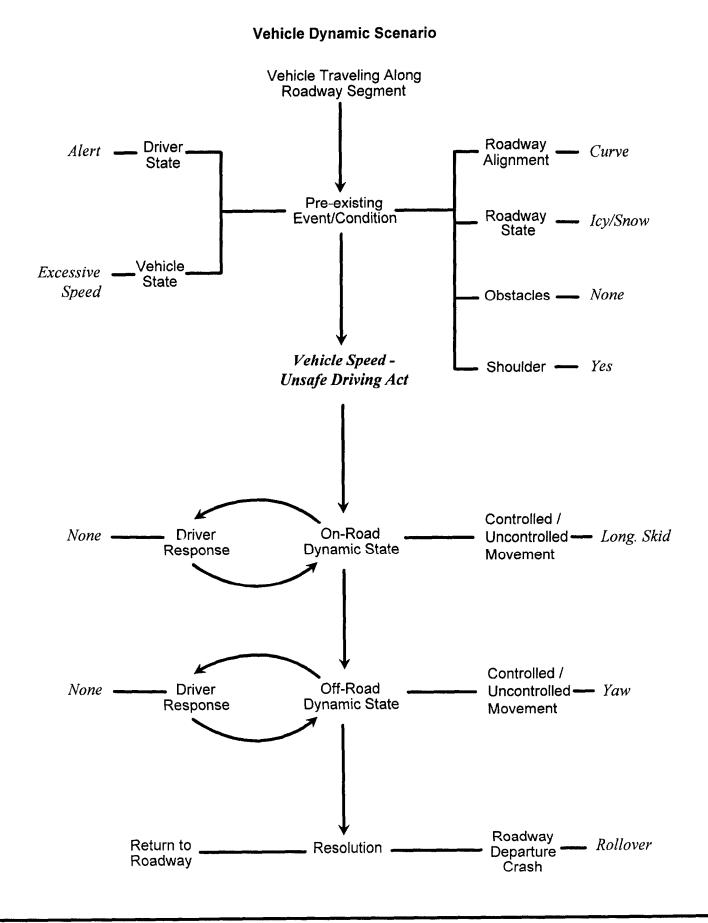
Right

		General Accid	ent Information	······································
Date:		2-3-93	Weather:	Snow/Sleet/Hail
Time:		1430	Surface Condition:	Ice/Snow
Accident	Туре	: Control/Traction Loss	Lighting:	Daylight
Accident	Seve	erity: 1 (C)	Land Use:	Rural
Drive	r/Oc	ccupant Information	Vehicle Info	rmation
Driver Ag	e:	22	Year:	1991
Driver Sex	<i>c:</i>	Male	Vehicle Make:	Ford
Impairmei	nt:	None	Vehicle Model:	Probe
Familiarity with Road		Unknown	ABS:	Unknown
No. of Occupant	s:	1	Defects:	No
		Roadway I	nformation	
Trafficwa (Media		9e Flush or curb	Alignment: Slope:	Curve Left Grade
No. of La	nes:	2	Speed Limit:	89 km/h
		Cluster	Variables	
GV14:	99	Unknown		
GV64:	01	Going straight		
GV65:	13	This vehicle traveling off the edge	of the road on the right side	
GV66:	9	Precrash stability unknown		
GV67:	9	Directional consequences unknow	n	

CAUSAL FACTOR:Vehicle Speed - Unsafe Driving ActROADSIDE DEPARTURE:Right

The subject vehicle was traveling in a northerly direction on a curved (left), two-lane, rural roadway during daytime hours. The ambient weather condition was snow and the roadway consisted of snow-covered asphalt with a broken centerline. There were reflective delineators distributed along the roadside. The speed limit was 89 km/h. The subject driver was traveling at a high rate of speed and allowed the vehicle to exit the right edge of the roadway. The subject vehicle subsequently rolled side-over-side to the right (one complete roll) and came to rest on it's wheels, facing in a southerly direction. The causal factor was vehicle speed, unsafe driving act.





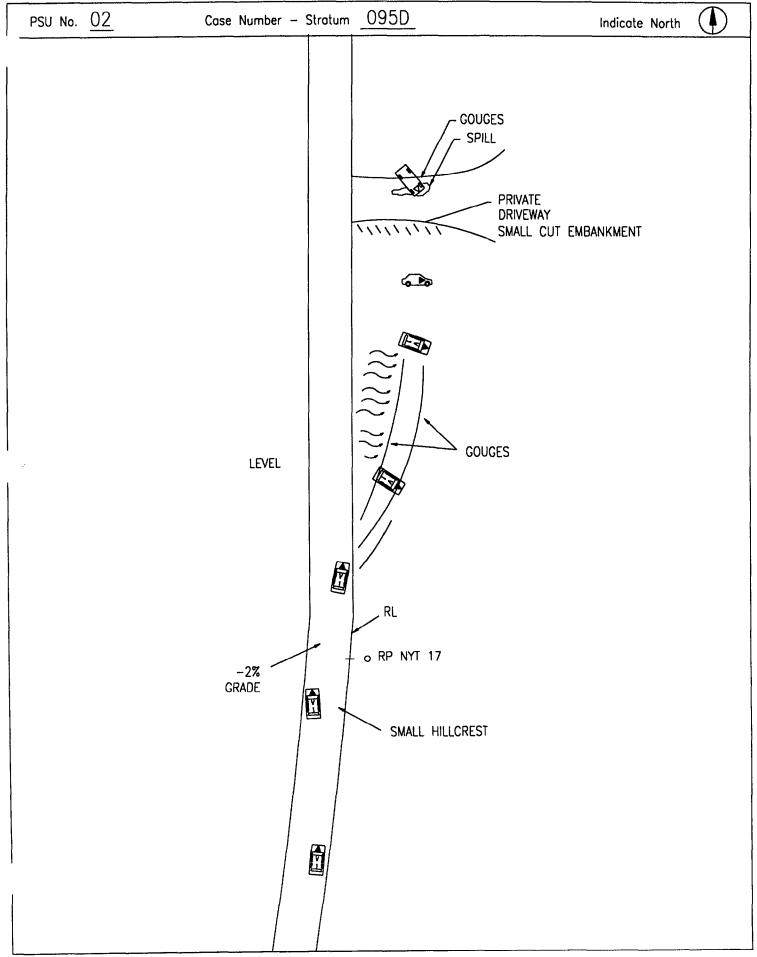
Calspan Corporation Carnegie Mellon University

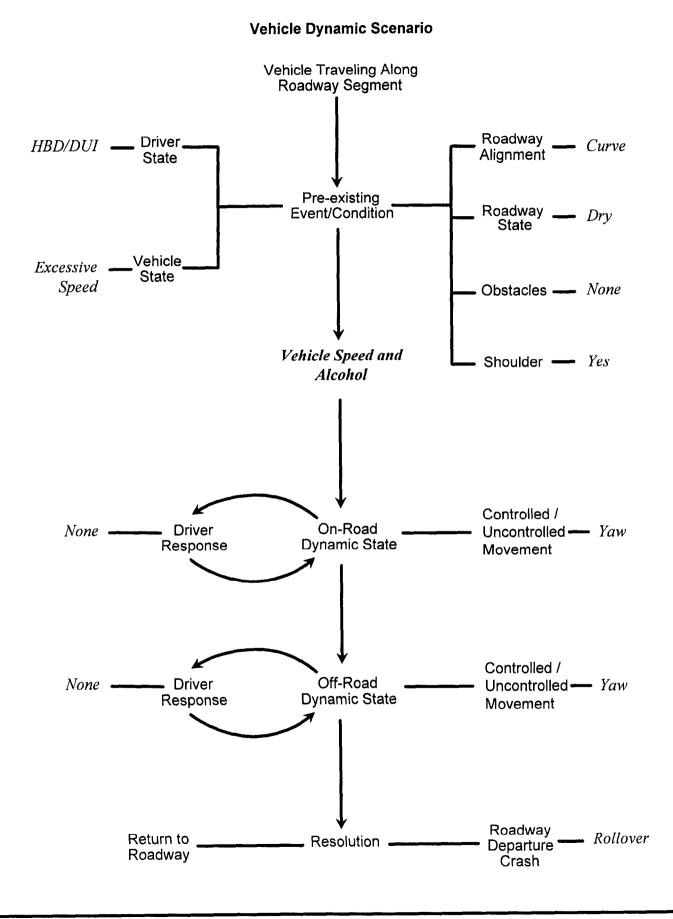
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

		General Accide	nt Information	
Date:		7-2-93	Weather:	Clear/Cloudy
Time:		0130	Surface Condition:	Dry
Accident Typ	e:	Control/Traction Loss	Lighting:	None
Accident Sev	erity:	3 (A)	Land Use:	Rural
Driver/O	ссира	Int Information	Vehicle Infor	mation
Driver Age:		17	Year:	1981
Driver Sex:		Male	Vehicle Make:	Ford
Impairment:		Intoxicated (alcohol/drugs)	Vehicle Model:	Escort/EXP
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		2	Defects:	No
		Roadway In	Information	
Trafficway Ty	/pe		Alignment:	Curve Left
(Median):		Unknown	Slope:	Grade
No. of Lanes	:	2	Speed Limit:	56 km/h
		Cluster V	ariables	
GV14: 99	Unkn	own		
GV64: 13	Nego	tiating a curve		
	This	vehicle traveling off the edge of	of the road on the right side	
GV65: 13				
GV65: 13 GV66: 9		ash stability unknown		

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

The subject vehicle was traveling in a northerly direction on a dry, two-lane, rural, asphalt roadway in a 56 km/h (35 mph) speed zone. The roadway curved to the left with a \pm 1% slope at the apex of the curve. The driver was intoxicated and attempted to negotiate the left curve at an unsafe speed. The vehicle broke traction and yawed in a clockwise direction. The vehicle departed the right road edge and yawed 90 degrees counterclockwise before overturning onto an embankment. (The embankment would have prevented the vehicle from returning to the roadway.) The vertical alignment of the road along the subject vehicle's path of travel began with a slight positive grade followed by a hillcrest transition point at the apex of the curve, and a \pm 1% slope at the point of departure. The road was 5.7 m in width with 0.6 m stone shoulders adjacent to both road edges.





CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Left

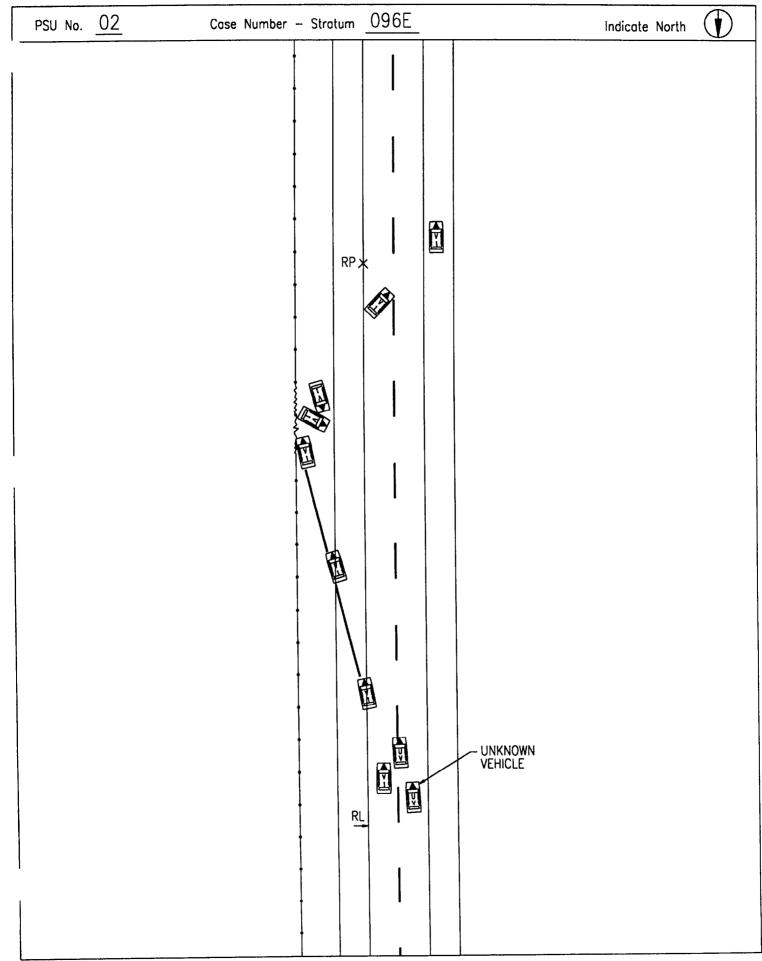
	General Accio	lent Information	
Date:	7-6-93	Weather:	Clear/Cloudy
Time:	1330	Surface Condition:	Dry
Accident Type	Avoid Collision	Lighting:	Daylight
Accident Seve	ri ty: 1 (C)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Info	rmation
Driver Age:	33	Year:	1992
Driver Sex:	Male	Vehicle Make:	Toyota
Impairment:	None	Vehicle Model:	Camry
Familiarity with Road:	Unknown	ABS:	Unknown
No. of Occupants:	3	Defects:	No
	Roadway	Information	······································
Trafficway Typ		Alignment:	Straight
(Median):	Physical barrier	Slope:	Grade
No. of Lanes:	2	Speed Limit:	89 km/h
	Cluster	Variables	
GV14: 08	Braking and steering left		
GV64 : 01	Going straight		
GV65 : 60	Other vehicle encroaching into la	ne from adjacent lane (same direct	tion) over left la
GV66: 1	Tracking		
GV67 : 4	Vehicle departed roadway		

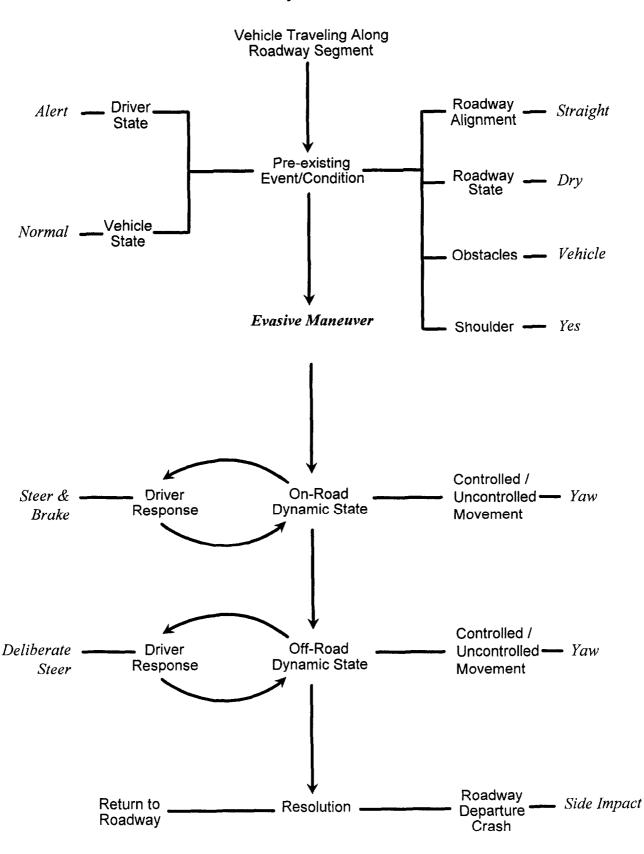
CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Left

The subject vehicle was traveling south on the inboard lane of a dry, four-lane, asphalt interstate divided by a median barrier guardrail and was approaching a construction zone. The road surface had a -3% slope to the south and was straight with no superelevation. The driver observed a non-contact vehicle encroaching from the right lane, swerved to the left, and braked with sufficient force to lock the wheels of the vehicle. The vehicle rotated in a counterclockwise direction across the inboard shoulder and grass median and impacted the median barrier guardrail. At impact with the guardrail, the vehicle rotated 90 degrees in a counterclockwise direction. The vehicle continued to rotate counterclockwise and subsequently impacted the barrier with the right rear area. Scene physical evidence consisted of four counterclockwise yaw marks across the shoulder and grass median. The two southbound travel lanes were 3.7 m in width with a 3.2 m wide right shoulder and a 3.8 m inboard paved shoulder. The painted edge lines and broken white lane lines were in good condition. There were reflective delineators located along the outboard edges of both shoulders.





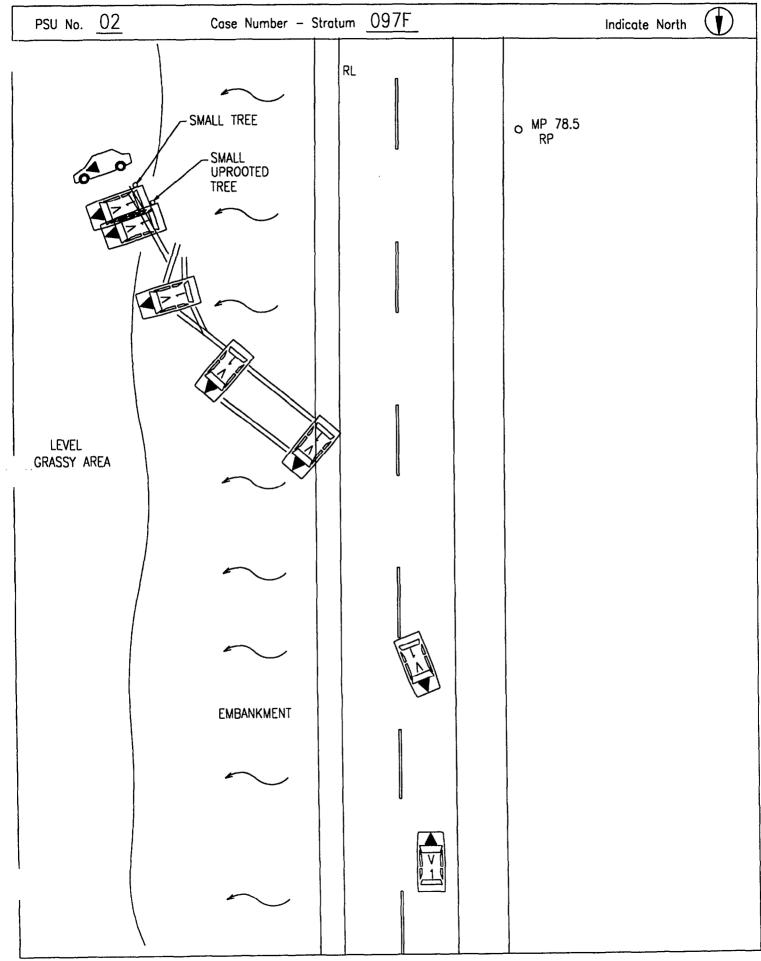
Vehicle Dynamic Scenario

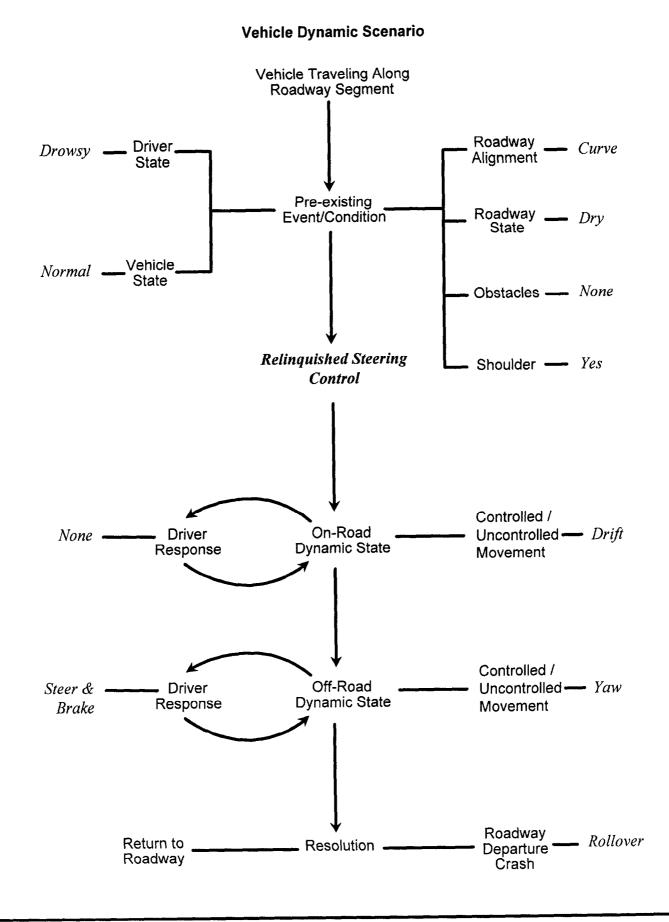
CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Left

	General Ac	cident Information	<u></u>
Date:	7-2-93	Weather:	Clear/Cloudy
Time:	0045	Surface Condition:	Dry
Accident Typ	Drive Off Road	Lighting:	None
Accident Sev	verity: 2 (B)	Land Use:	Rural
Driver/C	Occupant Information	Vehicle Infor	mation
Driver Age:	67	Year:	1986
Driver Sex:	Male	Vehicle Make:	Oldsmobile
Impairment:	Fell Asleep	Vehicle Model:	Cutlass
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadwa	ay Information	
Trafficway Ty		Alignment:	Curve Right
(Median):	Flush or curb	Slope:	Level
No. of Lanes	s: 2	Speed Limit:	89 km/h
	Clust	er Variables	
GV14: 07	7 Steering right		
GV64 : 01	l Going straight		
GV65: 12	2 This vehicle traveling off the e	edge of the road on the left side	
	Skidding laterally - counterclo	ckwise rotation	
GV66 : 4			

CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Left

The subject vehicle was traveling on the outboard southbound lane of a dry, level, rural, four-lane, divided, asphalt interstate roadway during nighttime hours. The southbound travel lanes curved slightly to the right and were divided from the northbound lanes by a grass median with a shallow ditch and small diameter trees. The vehicle was traveling at a driver estimated speed of 97-105 km/h (60-65 mph) in an 89 km/h (55 mph) speed zone. The driver apparently fell asleep and relinquished control of the vehicle. The vehicle drifted across the inboard lane and departed the inboard shoulder onto the grass median. The driver induced rapid steering maneuvers which resulted in a 90 degree counterclockwise yaw onto the median. The vehicle traversed a ditch and overturned. The outboard southbound travel lane was 3.7 m in width and the inboard lane was 3.8 m wide. The outboard (right) shoulder was paved and was with the travel lane, and was 3.3 m wide. The inboard (left) shoulder was flush, was paved, and was 1.6 m Located outboard of both shoulders were reflective delineators which were in width. approximately 30 m apart. The roadway and all pavement markings (edge lines and lane lines) were in good condition.



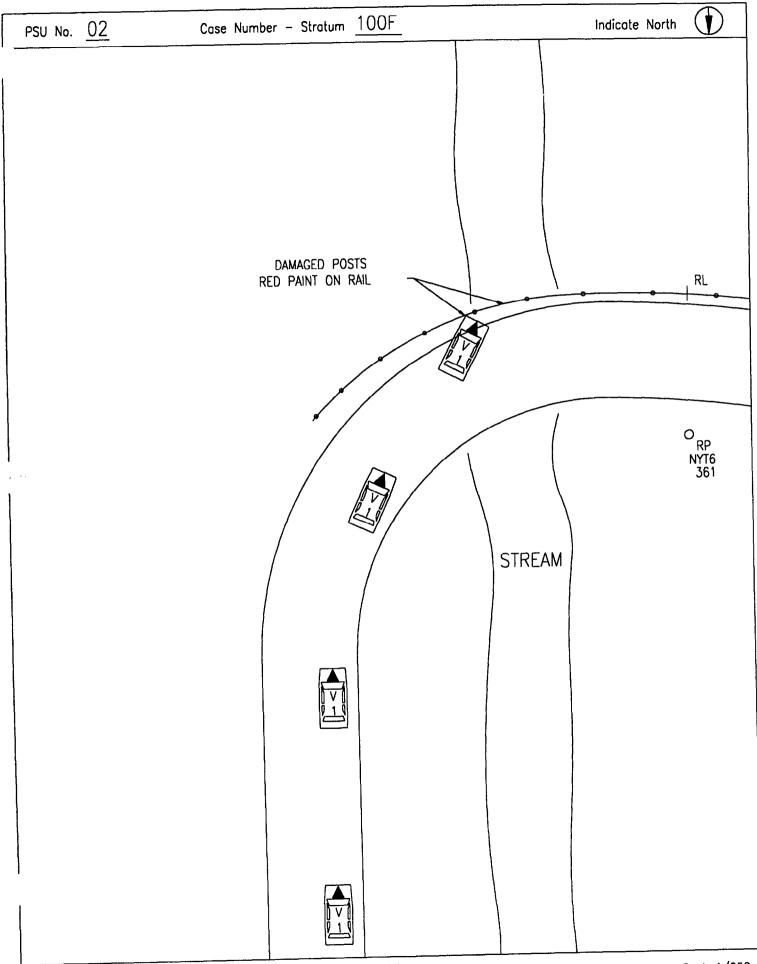


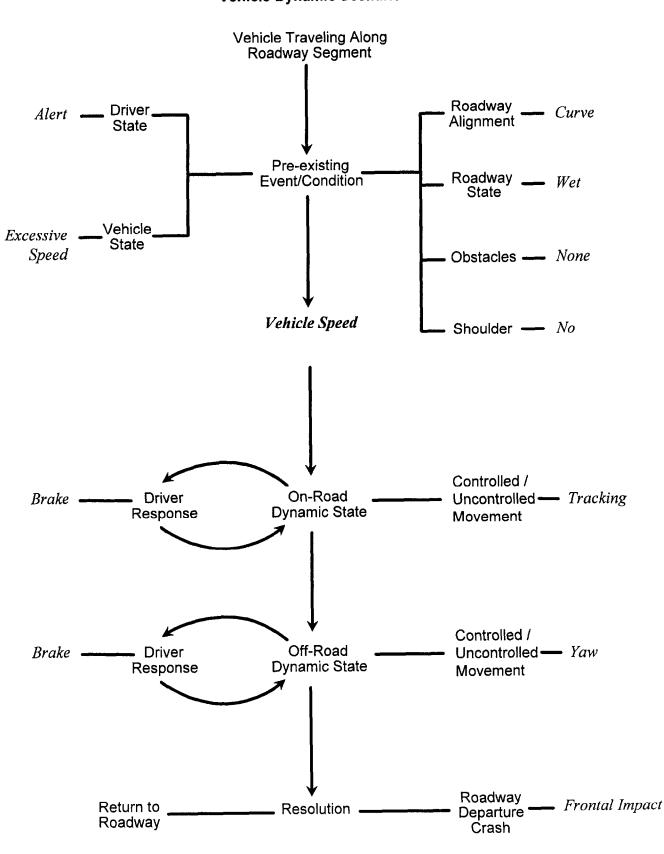
CAUSAL FACTOR:Vehicle Speed - Attempted to Initiate a 90 Degree TurnROADSIDE DEPARTURE:Left

	General Accid	lent Information	
Date:	7-2-93	Weather:	Clear/Cloudy
Time:	1240	Surface Condition:	Wet
Accident Type	Control/Traction Loss	Lighting:	Daylight
Accident Seve	erity: 2 (B)	Land Use:	Rural
Driver/O	ccupant Information	Vehicle Info	mation
Driver Age:	47	Year:	1983
Driver Sex:	Male	Vehicle Make:	Cadillac
Impairment:	None	Vehicle Model:	DeVille/ Fleetwood
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Ty		Alignment:	Curve Right
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	56 km/h
	Cluster	Variables	
GV14: 02	Braking (no lockup)		
GV64: 13	Negotiating a curve		
GV65: 12	This vehicle traveling off the edg	e of the road on the left side	
GV66: 1	Tracking		
GV00. 1			

CAUSAL FACTOR:Vehicle Speed - Attempted to Initiate a 90 Degree TurnROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a southerly direction on a wet, rural, two-lane, asphalt roadway with a -2% slope on an approach to a 90 degree right curve. The posted speed limit was 56 km/h (35 mph). There were no shoulders, pavement markings, or reflective reflectors/ delineators in the area of the scene. Both edges of the road were bordered by W-beam guardrails that extended across a small bridge. The vehicle approached the right curve at a police reported unsafe speed. The driver braked (no lock-up) on the approach to the curve, however, the vehicle broke traction and the driver backed-off the brake application. The driver again applied a braking force and the vehicle yawed slightly in a clockwise direction and departed the left road edge. The left frontal area of the vehicle impacted the W-beam guardrail. There was a 3 m left front tire mark across the loose stones at the left edge of the road immediately prior to the impact.





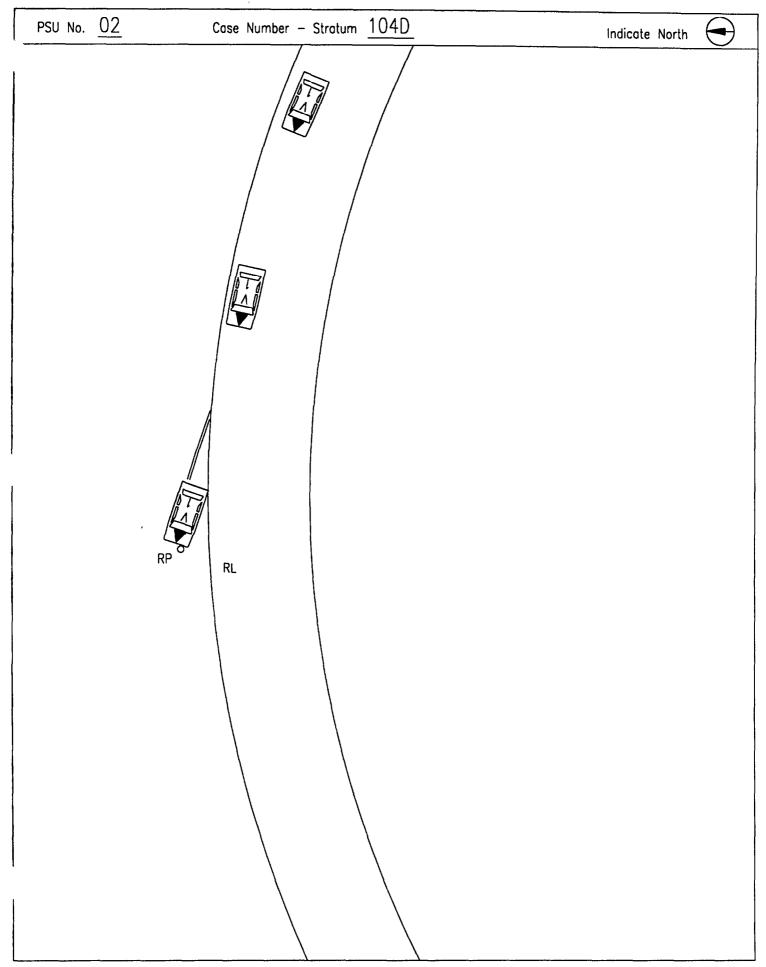
Vehicle Dynamic Scenario

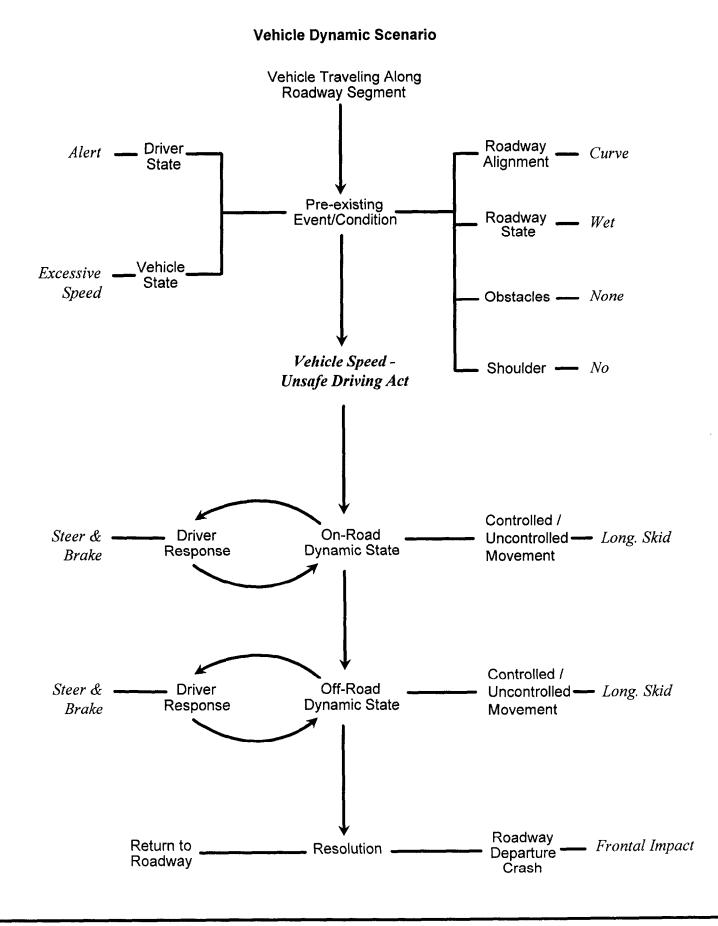
CAUSAL FACTOR:Vehicle Speed - Unsafe Driving ActROADSIDE DEPARTURE:Right

	General Accide	nt Information	
Date:	7-2-93	Weather:	Rain
Time:	2000	Surface Condition:	Wet
Accident Type	Control/Traction Loss	Lighting:	None
Accident Seve	<i>rity</i> : 3 (A)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Infor	mation
Driver Age:	20	Year:	1977
Driver Sex:	Male	Vehicle Make:	Toyota
Impairment:	None	Vehicle Model:	Pickup
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
·····	Roadway Ir	nformation	
Trafficway Typ		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	48 km/h
	Cluster V	/ariables	
GV14: 08	Braking and steering left		
GV64: 13	Negotiating a curve		
GV65 : 13	This vehicle traveling off the edge	of the road on the right side	
GV66: 2	Skidding longitudinally - less than	30 degrees rotation	
GV67: 4	Vehicle departed roadway		

CAUSAL FACTOR:Vehicle Speed - Unsafe Driving ActROADSIDE DEPARTURE:Right

The subject vehicle was traveling in a westerly direction on a wet, rural, two-lane, asphalt roadway during dark, unlighted conditions. The roadway curved left with a reported -2% slope, straightened for approximately 15 m, and then began to curve to the right. The driver exited the left curve and lost control due to unsafe speed on the wet road and departed the right road edge. The center frontal area of the vehicle impacted a 0.3 m diameter tree which resulted in a 43 km/h (27 mph) change in velocity. Scene evidence indicated braking with lockup prior to the crash. There were 7.9 m of skid marks that extended on the asphalt and wet grass surfaces. The road surface was 6.7 m in width with no shoulders on either side. White edge lines marked both road edges, but there were no center lines. There were no reflective markers or delineators at the road edge. The speed limit was 48 km/h (30 mph). The PAR noted speed as a contributing factor to the crash.





CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

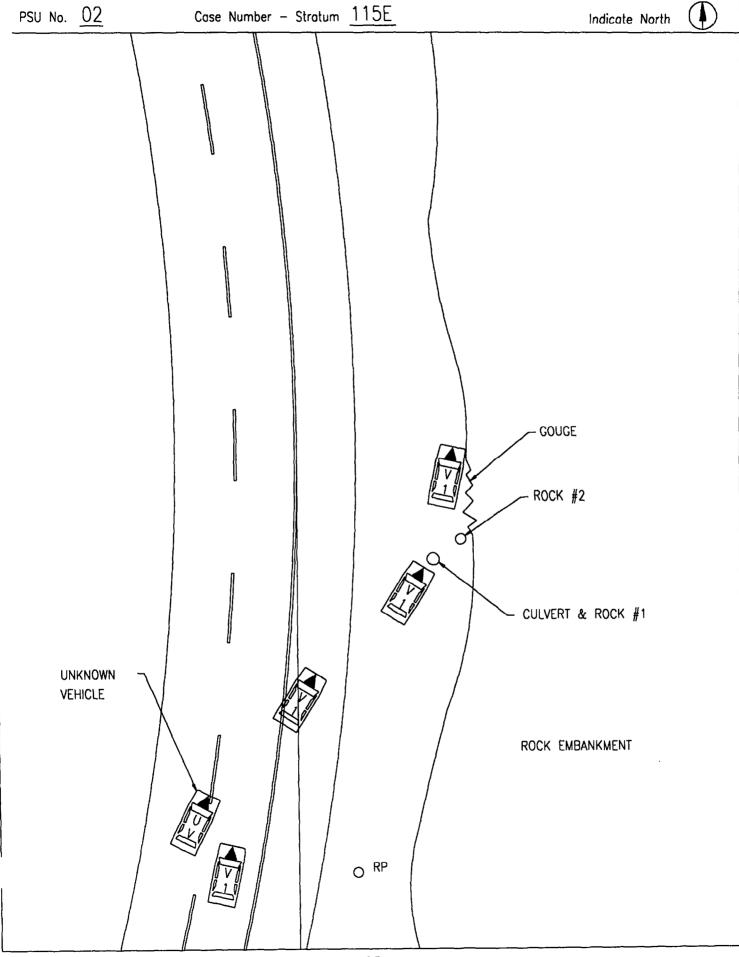
ROADSIDE DEPARTURE: Right

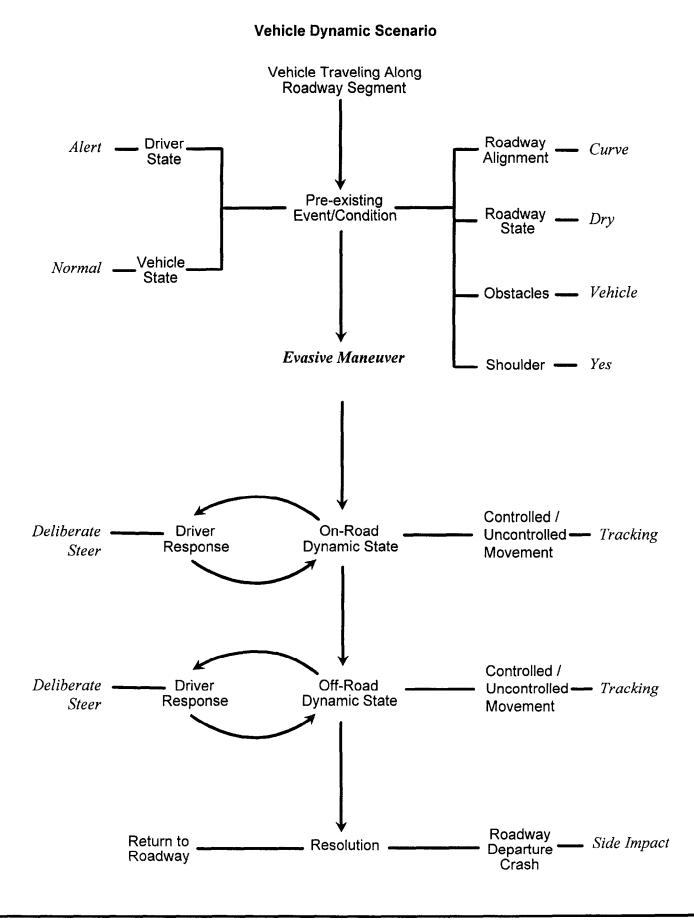
	General Acci	dent Information	
Date:	8-1-93	Weather:	Clear/Cloudy
Time:	0835	Surface Condition:	Dry
Accident Type:	Avoid Collision	Lighting:	Daylight
Accident Severi	y: 2 (B)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Infor	mation
Driver Age:	58	Year:	1992
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	None	Vehicle Model:	Unknown (automobile)
Familiarity with Road:	Unknown	ABS:	Unknown
No. of Occupants:	3	Defects:	No
	Roadway	Information	
Trafficway Type		Alignment:	Curve Left
(Median):	Physical barrier	Slope:	Grade
No. of Lanes:	2	Speed Limit:	89 km/h
	Cluster	^v Variables	
GV14: 07 S	eering right		
GV64: 01 G	oing straight		
GV65: 60 O	ther vehicle encroaching into la	ne from adjacent lane (same direct	ion) over left lane
GV66: 1 T	racking		
GV67: 4 V	ehicle departed roadway		

CAUSAL FACTOR: Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Right

The subject vehicle was proceeding on a left curve segment of a dry, four-lane, divided, interstate roadway during daylight hours. The roadway consisted of two lanes in each direction that were divided by a W-beam guardrail median barrier. The subject vehicle was traveling on the outboard northbound lane when a non-contact vehicle initiated a lane change maneuver from the left lane into the right outboard lane. The subject driver steered onto the right shoulder to avoid the encroaching vehicle. The subject vehicle departed the shoulder and impacted an embankment with the right front side area of the vehicle. The northbound travel lanes were each 3.8 m in width, with a 3.8 m outboard shoulder, and a 2.9 m wide left shoulder. Both shoulders were paved and were flush with the travel lanes. The road edges were marked with solid edge lines that were in new condition, while the lane lines were white broken lines that were also in new condition. There were reflective delineators outboard of the shoulders along each side of the northbound lanes.



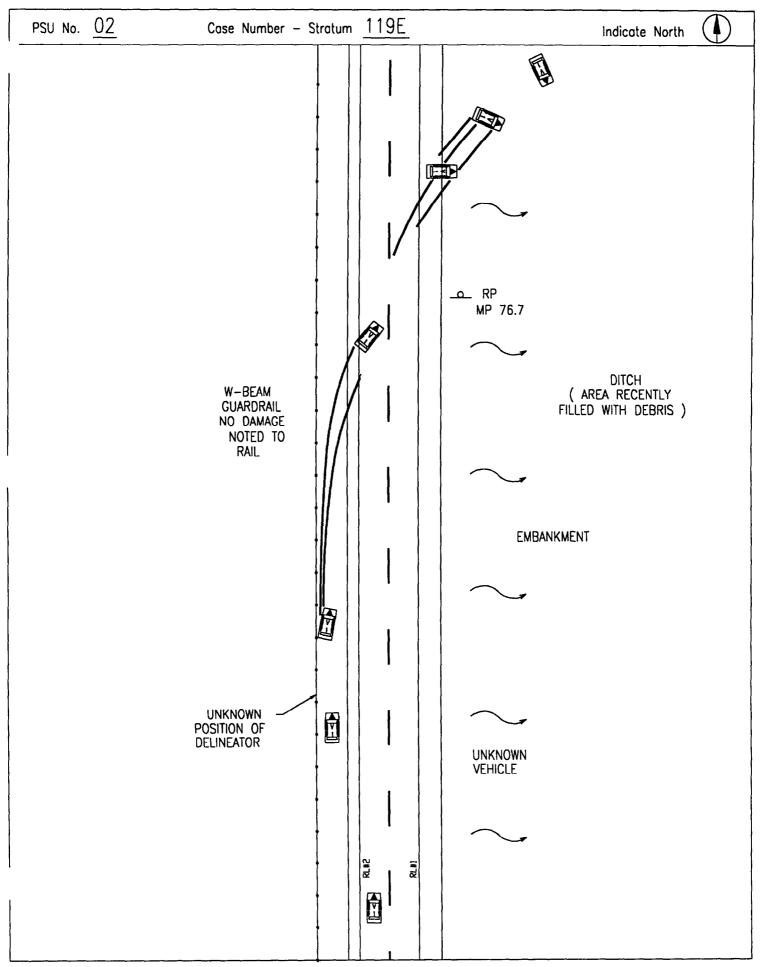


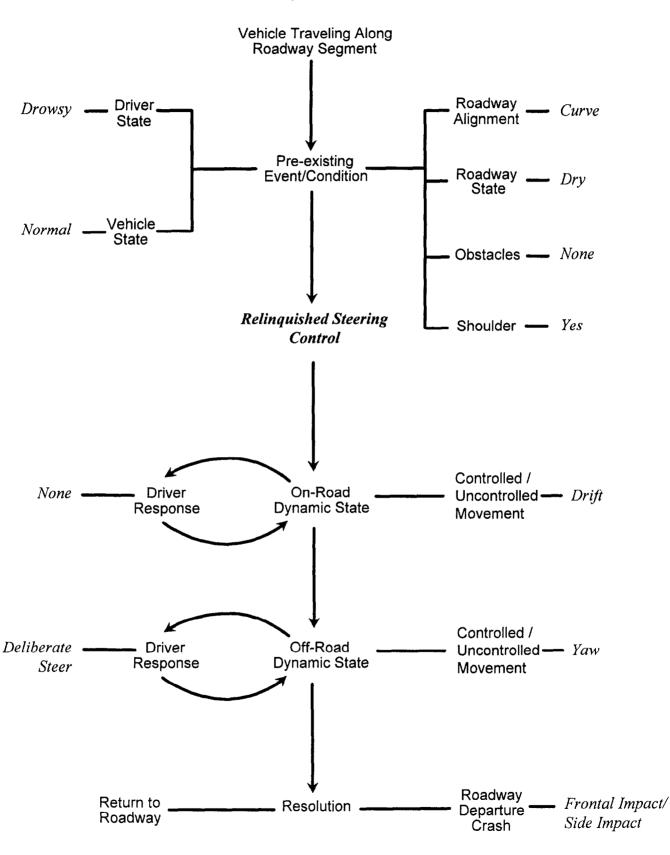
CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Left

	<u> </u>	General Accid	dent Information	
Date:		8-1-93	Weather:	Fog
Time:		0625	Surface Condition:	Dry
Accident T	ype:	Drive Off Road	Lighting:	Daylight
Accident S	everity	: 1 (C)	Land Use:	Rural
Driver	/Occuj	pant Information	Vehicle Infor	rmation
Driver Age	:	27	Year:	1992
Driver Sex:		Male	Vehicle Make:	Mazda
mpairmen		Fell Asleep	Vehicle Model:	GLC/323/ Protege
Familiarity with Road:		No	ABS:	No
No. of Occupants		3	Defects:	No
		Roadway	Information	
Trafficway			Alignment:	Curve Right
(Median	ı):	Physical barrier	Slope:	Level
No. of Lan	ies:	2	Speed Limit:	89 km/h
		Cluster	· Variables	
GV14:	01 No	avoidance actions		
GV64:	01 Go	ing straight		
GV65:	12 Th	is vehicle traveling off the edg	e of the road on the left side	
	0 No	avoidance maneuver		
GV66:				

CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a northerly direction on a foggy, dry, rural, four-lane, divided, asphalt interstate during the early morning daylight hours. The roadway curved slightly to the right and was level with paved shoulders adjacent to each road edge. A W-beam median barrier guardrail was located 5.5 m west of the inboard road edge line. A ditch paralleled the outboard shoulder approximately 6 m out. The vehicle was traveling on the inboard lane at a driver estimated speed of 101-105 km/h (63-65 mph) in a posted 89 km/h (55 mph) speed zone. The driver fell asleep and as a result, the vehicle drifted off the left road edge. The vehicle impacted a reflective delineator post with the center frontal area. The driver subsequently initiated a clockwise steering input as the left side of the vehicle sideswiped the W-beam median barrier guardrail. The vehicle yawed in a clockwise direction and reentered the roadway crossing both travel lanes before departing the right shoulder. The left side of the vehicle impacted the ditch before coming to rest adjacent to the ditch. The edge lines were painted and were in good condition. Reflective delineators were set at 30 m intervals along the outboard edges of both shoulders. There were no reflective markers on the pavement. There were no other terrain features or obstacles.





Vehicle Dynamic Scenario

CAUSAL FACTOR:Vehicle Speed - ExcessiveROADSIDE DEPARTURE:Left

		General Accid	ent Information	<u></u>
Date:		8-3-93	Weather:	Clear/Cloudy
Time:		1430	Surface Condition:	Dry
Accident Ty	oe:	Control/Traction Loss	Lighting:	Daylight
Accident Se	verity:	0 (O)	Land Use:	Rural
Driver/C	Occup	ant Information	Vehicle Infor	mation
Driver Age:		46	Year:	1985
Driver Sex:		Female	Vehicle Make:	Lincoln
Impairment:		None	Vehicle Model:	Unknown (automobile)
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		1	Defects:	No
		Roadway	Information	
Trafficway T			Alignment:	Straight
(Median):		Physical barrier	Slope:	Level
No. of Lane	s:	4	Speed Limit:	89 km/h
<u> </u>		Cluster	Variables	
GV14: 0	4 Brak	ing (lockup unknown)		
GV64 : 0	1 Goin	ng straight		
GV65: 5	0 Othe	er motor vehicle in lane, stopp	ed	
GV66: 4	Skid	ding laterally - counterclockw	vise rotation	

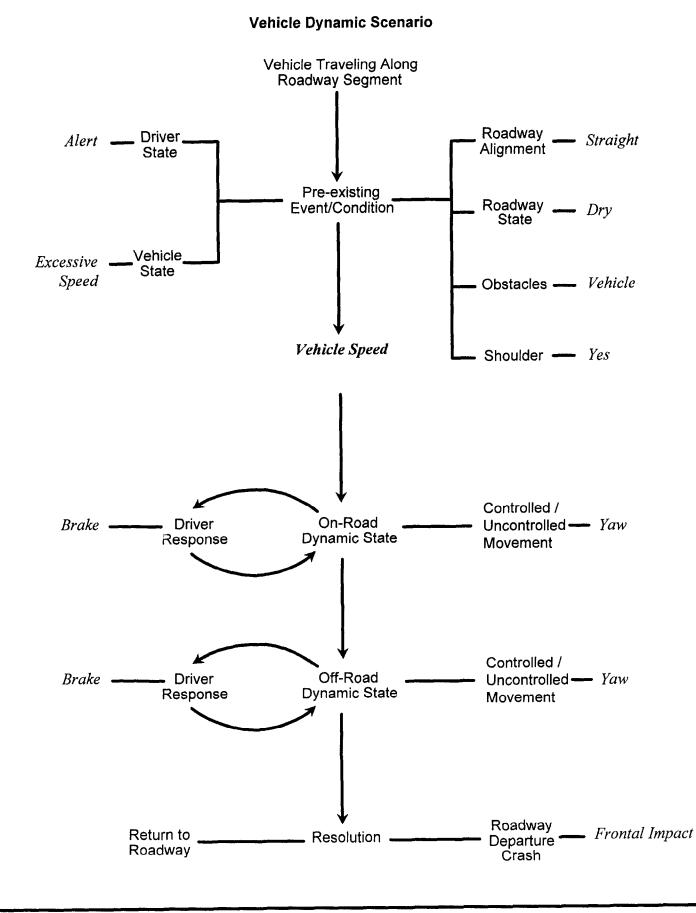
CAUSAL FACTOR:Vehicle Speed - ExcessiveROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a northerly direction on the inboard lane of a dry, straight, four-lane, divided, asphalt interstate with an estimated -1.5% slope and posted speed limit of 89 km/h (55 mph). The driver was traveling at a police reported unsafe speed and noted stopped traffic ahead due to a previous accident. The driver braked and the vehicle subsequently skidded off the left (inboard) road edge onto the grass median and impacted a W-beam median barrier guardrail. Both shoulders were paved and reflective delineators were present on the outboard sides of the shoulders.

PSU No. 02

Case Number - Stratum <u>122H</u>

ACCIDENT COLLISION DIAGRAM NOT AVAILABLE AT THE TIME OF THIS PRINTING

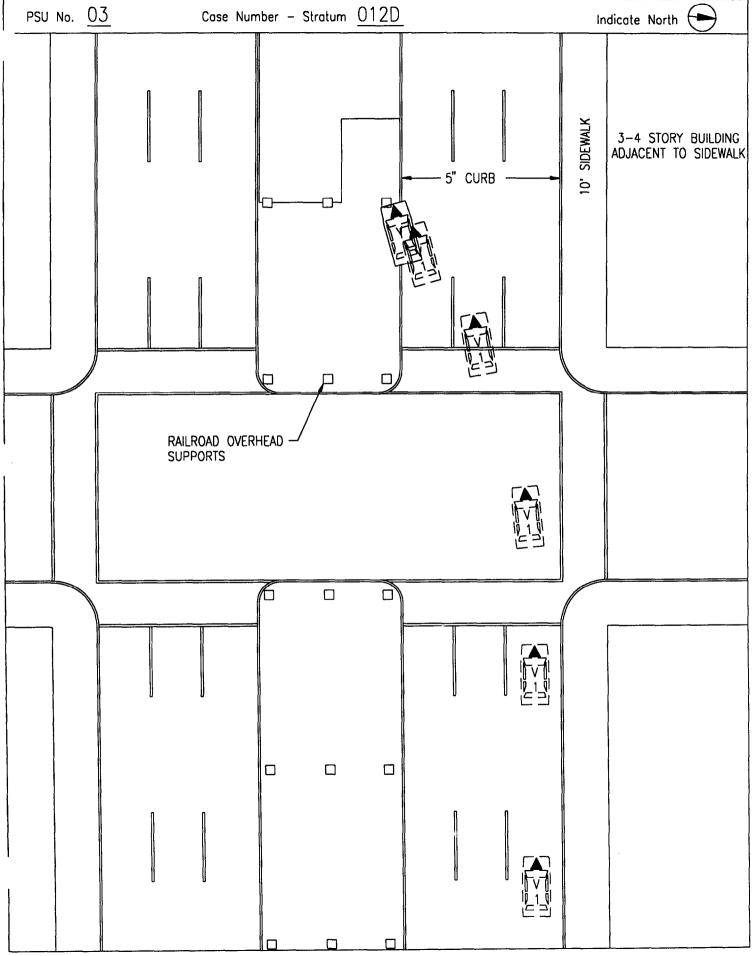


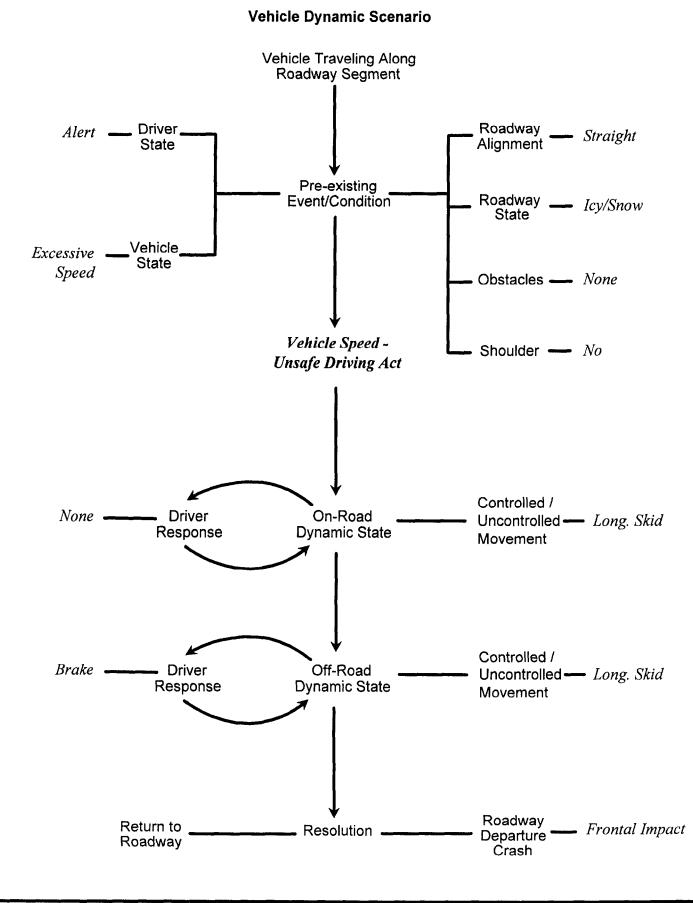
Calspan Corporation Carneaie Mellon Universitv CAUSAL FACTOR:Vehicle Speed - Unsafe Driving ActROADSIDE DEPARTURE:Left

·····		General Accide	ent Information	
Date:	2-	1-93	Weather:	Clear/Cloudy
Time:	23	35	Surface Condition:	Ice/Snow
Accident Ty	De: Co	ontrol/Traction Loss	Lighting:	Artificial lighting
Accident Sev	/ erity: 3 ((A)	Land Use:	Urban
Driver/C	Occupant	Information	Vehicle Info	rmation
Driver Age:	22		Year:	1979
Driver Sex:	M	ale	Vehicle Make:	Ford
Impairment:	No	one	Vehicle Model:	Mustang/ Mustang II
Familiarity with Road:	Ur	ıknown	ABS:	No
No. of Occupants:	1		Defects:	No
·····		Roadway Ir	Iformation	
Trafficway T			Alignment:	Straight
(Median):	Ph	ysical barrier	Slope:	Level
No. of Lane:	5 : 3		Speed Limit:	56 km/h
		Cluster V	/ariables	······
GV14 : 0	1 No avoid	ance actions		
GV64 : 0	1 Going str	aight		
GV65: 0:	5 This vehi	cle loss of control due to p	ooor road conditions	
GV66: 1	Tracking			
GV67 : 1	Vahialaa	tariad in traval lana whara	avoidance maneuver was initiat	ad

CAUSAL FACTOR:Vehicle Speed - Unsafe Driving ActROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a westerly direction on an icy, urban, six-lane, divided, asphalt roadway approaching a four-leg intersection that was controlled by a traffic signal. The driver estimated the vehicle's speed at 16-24 km/h (10-15 mph) as it traversed the intersection. The vehicle broke traction on the icy road surface, yawed in a counterclockwise direction, and departed the left (inboard) road edge. The left frontal area of the vehicle impacted a bridge support pillar. The estimated maximum crush was 72 cm. There was no measured crush profile. The causal factor was driver traveling at an unsafe speed for the icy road conditions.





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CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE:

Left

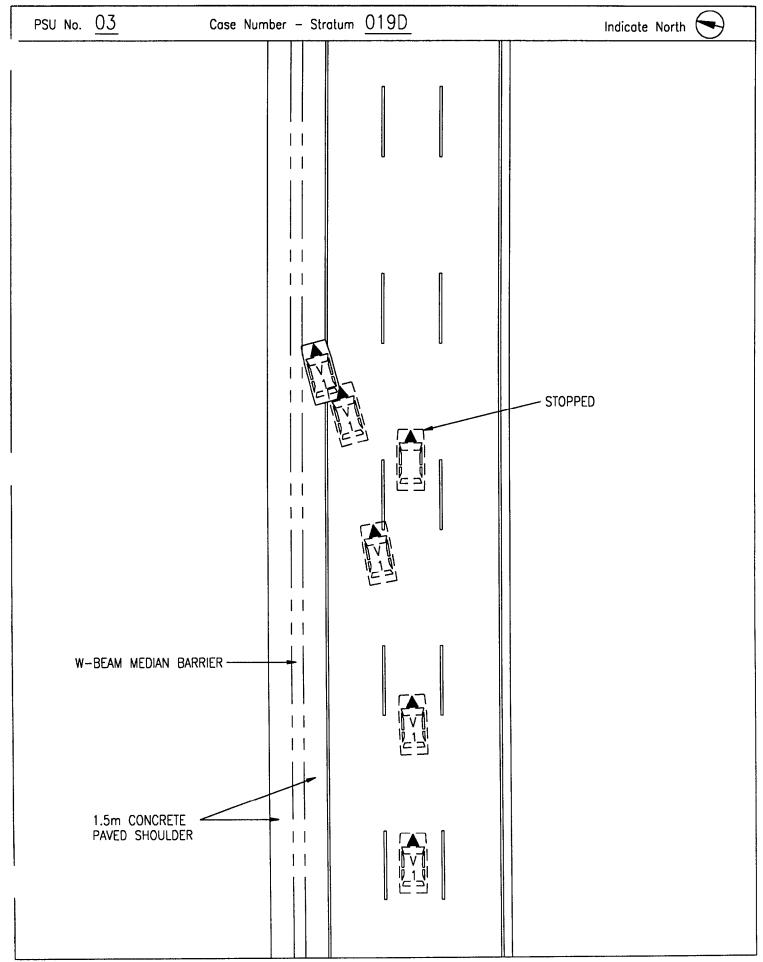
	General Accide	nt Information	
Date:	3-2-93	Weather:	Clear/Cloudy
Time:	1457	Surface Condition:	Dry
Accident Type	: Control/Traction Loss	Lighting:	Daylight
Accident Seve	rity: 3 (A)	Land Use:	Urban
Driver/Oc	cupant Information	Vehicle Infor	mation
Driver Age:	35	Year:	1983
Driver Sex:	Female	Vehicle Make:	Chevrolet
Impairment:	None	Vehicle Model:	G-series van
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	2	Defects:	No
	Roadway Ir	Iformation	
Trafficway Typ		Alignment:	Straight
(Median):	Physical barrier	Slope:	Level
No. of Lanes:	3	Speed Limit:	89 km/h
	Cluster V	ariables	
GV14: 08	Braking and steering left		
GV64: 01	Going straight		
GV65: 51	Other motor vehicle in lane travelin	g in same direction with lower s	peed
GV66: 1	Tracking		
GV67 : 4	Vehicle departed roadway		

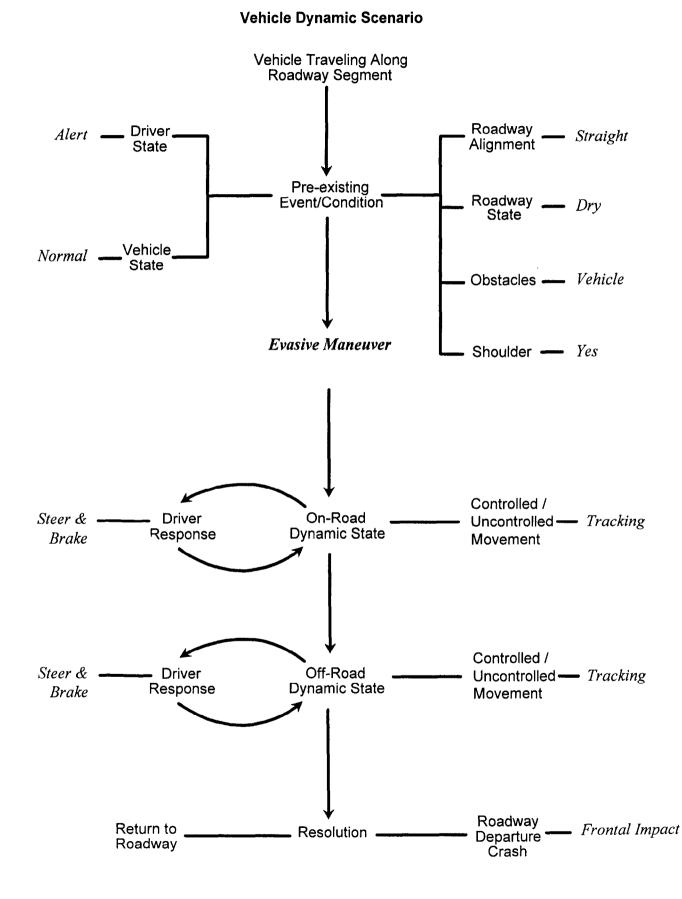
CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Left

The subject vehicle was traveling in the center lane of an urban, straight, level, six-lane, divided, asphalt expressway during daylight hours at a driver estimated speed of 72 km/h (45 mph). A non-contact lead vehicle stopped suddenly in the center lane. The subject driver braked and steered left to avoid the non-contact vehicle. The subject vehicle yawed in a counterclockwise direction and departed the left (inboard) shoulder and impacted the W-beam median barrier guardrail. The causal factor was reported as an evasive action to avoid the stopped vehicle.





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CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE:

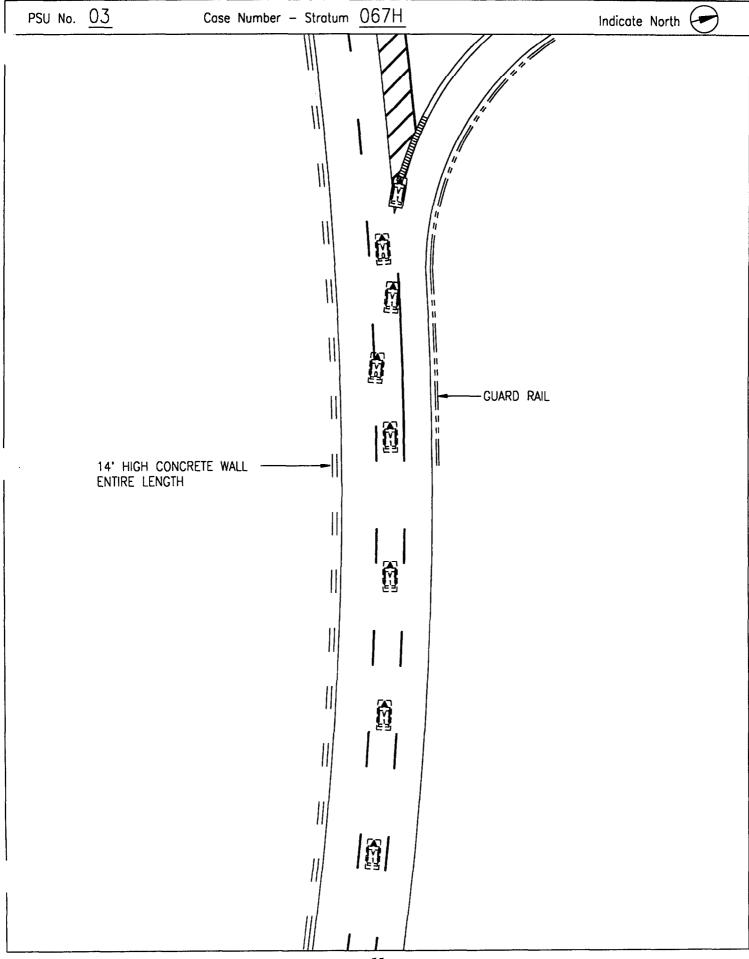
Right

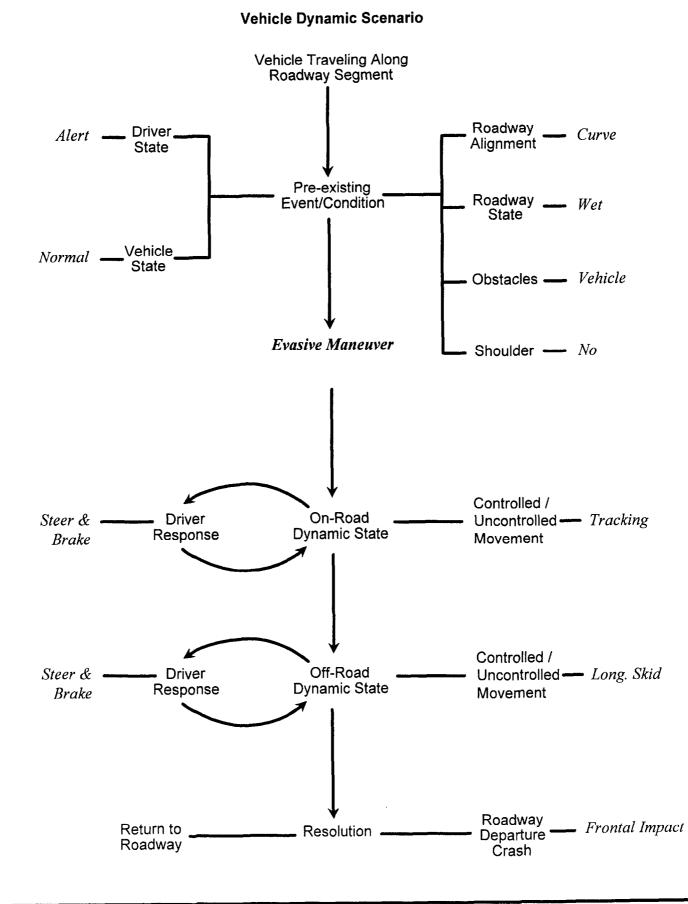
	General Accid	dent Information	
Date:	8-3-93	Weather:	Rain
Time:	0745	Surface Condition:	Wet
Accident Type:	Avoid Collision	Lighting:	Daylight
Accident Severi	ty: 1 (C)	Land Use:	Urban
Driver/Occ	upant Information	Vehicle Infor	mation
Driver Age:	28	Year:	1987
Driver Sex:	Male	Vehicle Make:	Toyota
Impairment:	None	Vehicle Model:	Camry
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
······································	Roadway	Information	
Trafficway Type		Alignment:	Curve Left
(Median):	Physical barrier	Slope:	Grade
No. of Lanes:	3	Speed Limit:	89 km/h
	Cluster	Variables	
GV14: 09 1	Braking and steering right		
GV64: 01 (Going straight		
GV65 : 60 (Other vehicle encroaching into la	ne from adjacent lane (same direct	ion) over left lane li
GV66: 1	Fracking		
GV67: 4	Vehicle departed roadway		

CAUSAL FACTOR: Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Right

The subject vehicle was traveling in the first westbound travel lane of an urban, four-lane, divided, asphalt roadway (five lanes with exit ramp) during daylight and raining conditions. The roadway had a negative slope and curved to the left. The driver stated that a non-contact truck traveling in the second westbound lane passed the vehicle and then pulled into the first westbound lane, cutting off the subject vehicle. The subject driver apparently steered to the right to avoid contact with the truck traveling in the same direction. The subject vehicle exited the roadway to the right and struck the terminal end of a Fitch energy absorbing barrier treatment located in the gore area between the travel lanes and exit ramp.





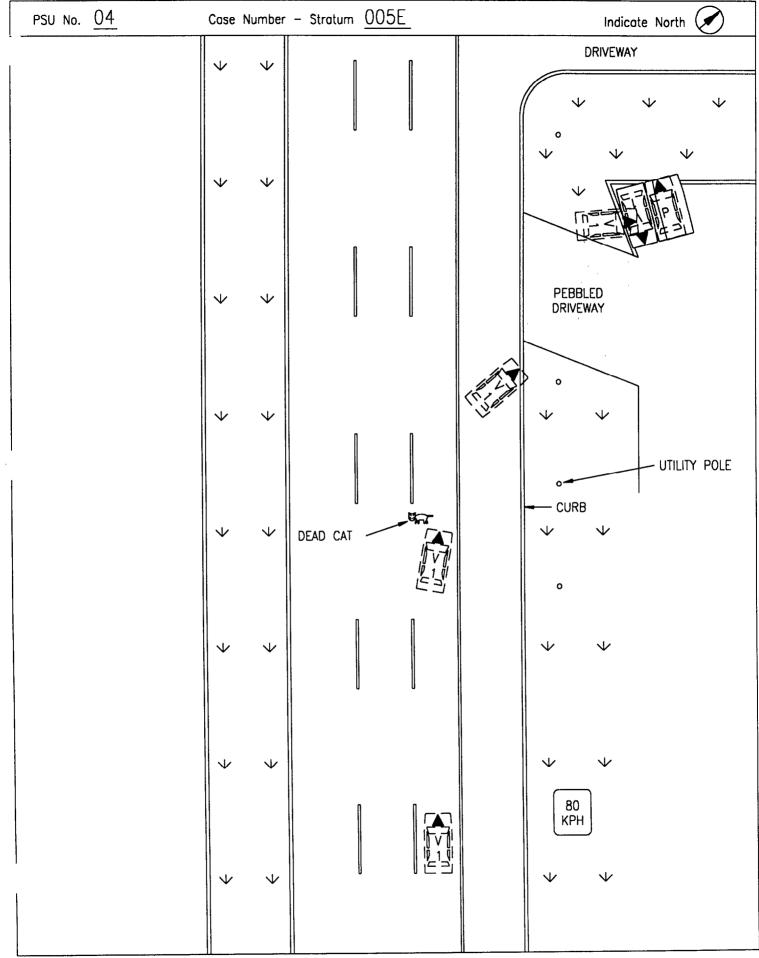
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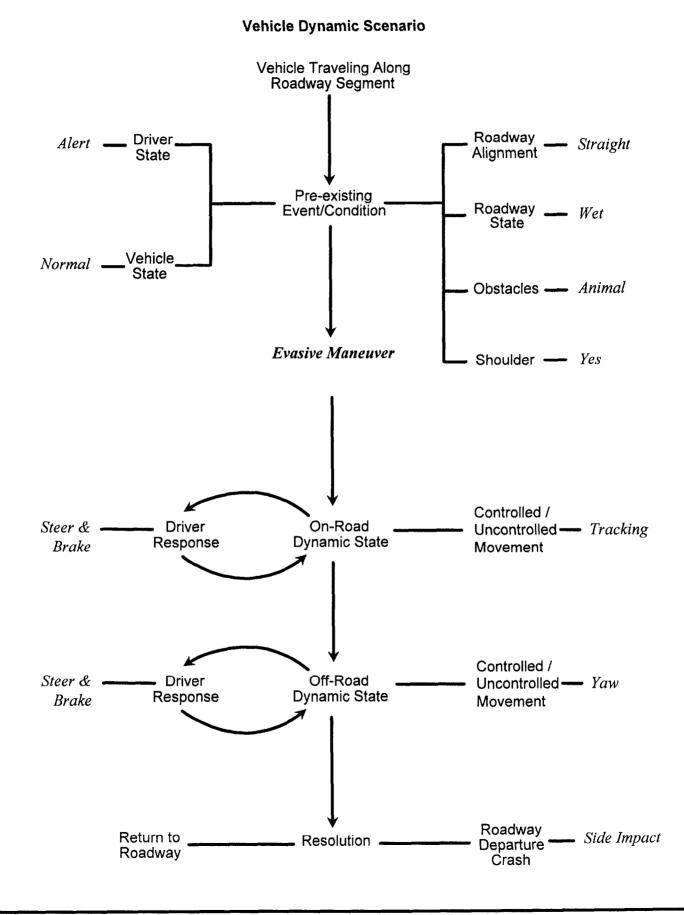
CAUSAL FACTOR:Evasive Maneuver - Avoid Animal or PedestrianROADSIDE DEPARTURE:Right

	General Accid	ent Information	
Date:	1-6-93	Weather:	Clear/Cloudy
Time:	7003	Surface Condition:	Wet
Accident Type:	Avoid Collision	Lighting:	Daylight
Accident Severit	y: 2 (B)	Land Use:	Urban
Driver/Occ	upant Information	Vehicle Infor	mation
Driver Age:	56	Year:	1990
Driver Sex:	Female	Vehicle Make:	Acura
Impairment:	None	Vehicle Model:	Integra
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	nformation	
Trafficway Type		Alignment:	Straight
(Median):	Flush or curb	Slope:	Level
No. of Lanes:	3	Speed Limit:	80 km/h
	Cluster	Variables	·······
GV14: 09 B	raking and steering right		
	oing straight		
GV64 : 01 G			
GV64: 01 G GV65: 87 A	oing straight		

CAUSAL FACTOR:Evasive Maneuver - Avoid Animal or PedestrianROADSIDE DEPARTURE:Right

The subject vehicle was traveling in the outboard lane of a wet, straight, level, divided, asphalt roadway. The driver was traveling at an estimated speed of 72 km/h (45 mph) approaching a left curve. Prior to the curve, the driver swerved to avoid striking a dead animal in the travel lane. The vehicle broke traction on the wet road surface and yawed in a clockwise direction. The vehicle mounted the right barrier curb and traversed a grassy lawn area as it continued to rotate in a clockwise direction. The left side of the vehicle impacted a parked vehicle at an auto dealer's lot. Evasive action to avoid an animal was the primary causal factor.





CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Left

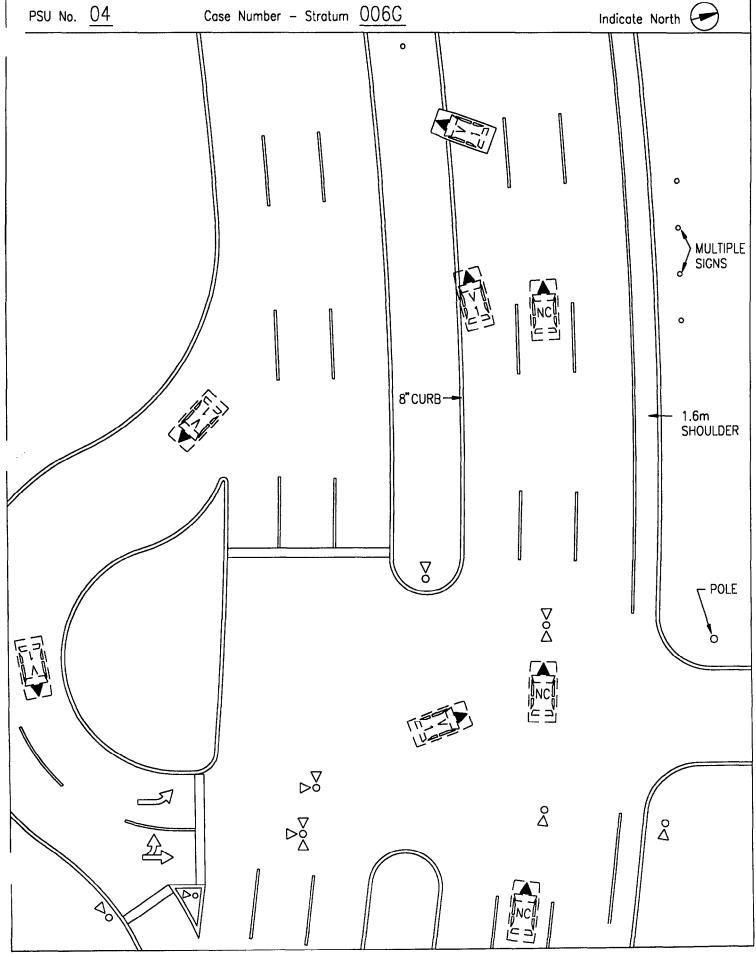
	General Accide	nt Information	
Date:	1-4-93	Weather:	Rain
Time:	1553	Surface Condition:	Wet
Accident Type	: Control/Traction Loss	Lighting:	Daylight
Accident Seve	rity: 0(0)	Land Use:	Urban
Driver/Oc	cupant Information	Vehicle Infor	mation
Driver Age:	34	Year:	1990
Driver Sex:	Male	Vehicle Make:	Nissan/Datsun
Impairment:	None	Vehicle Model:	Z-car, ZX
Familiarity with Road:	Unknown	ABS:	Yes
No. of Occupants:	1	Defects:	No
	Roadway In	formation	
Trafficway Typ		Alignment:	Curve Left
(Median):	Flush or curb	Slope:	Level
No. of Lanes:	3	Speed Limit:	80 km/h
	Cluster V	ariables	
GV14: 06	Steering left		
GV64 : 03	Starting in traffic lane		
GV65: 15	This vehicle turning left at intersect	ion	
GV66: 1	Tracking		

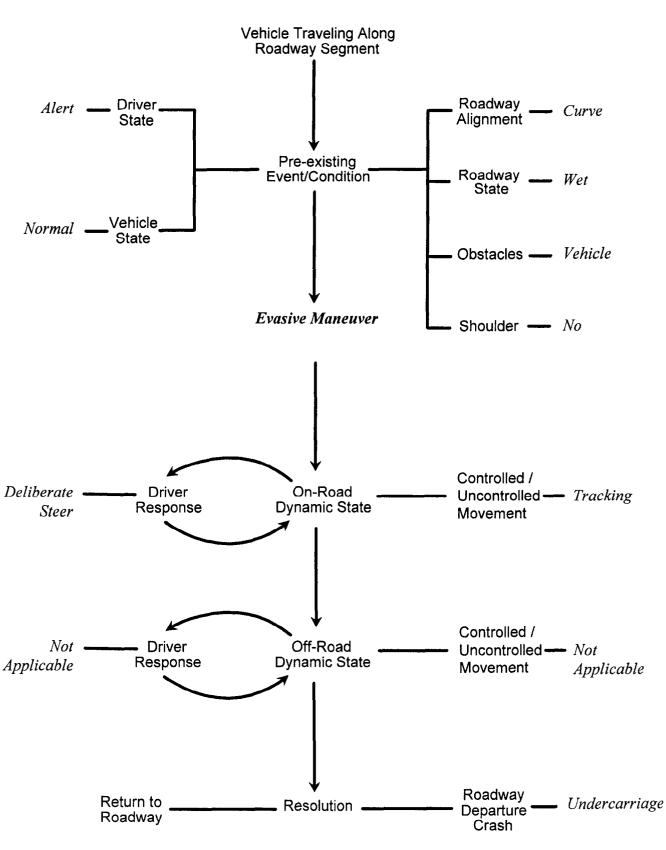
CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Left

The subject vehicle was initiating a left turn from a jug handle onto a divided roadway at a signalized intersection. As the driver accelerated in the center of three lanes, a non-contact vehicle ran the red signal phase and encroached into the subject vehicle's path of travel. The subject driver steered in a counterclockwise direction to avoid the non-contact vehicle and departed the inboard road edge. The subject vehicle impacted and drove over a 20 cm high barrier curb before coming to rest on the grass median. The causal factor was evasive action to avoid impact with an encroaching vehicle that was traveling in the same westerly direction.





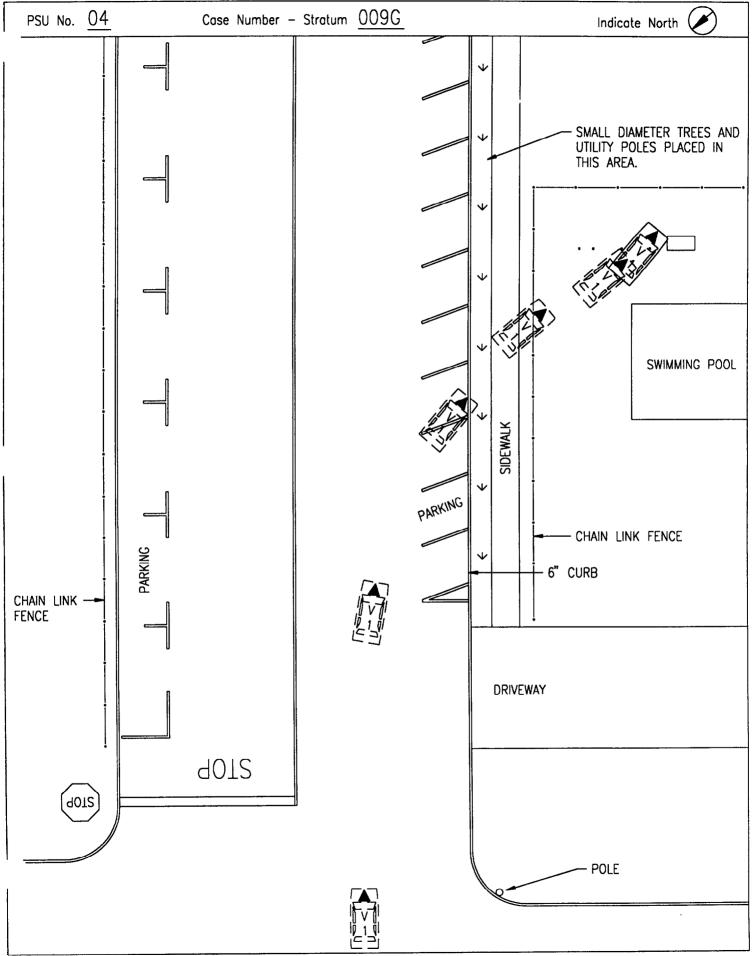
Vehicle Dynamic Scenario

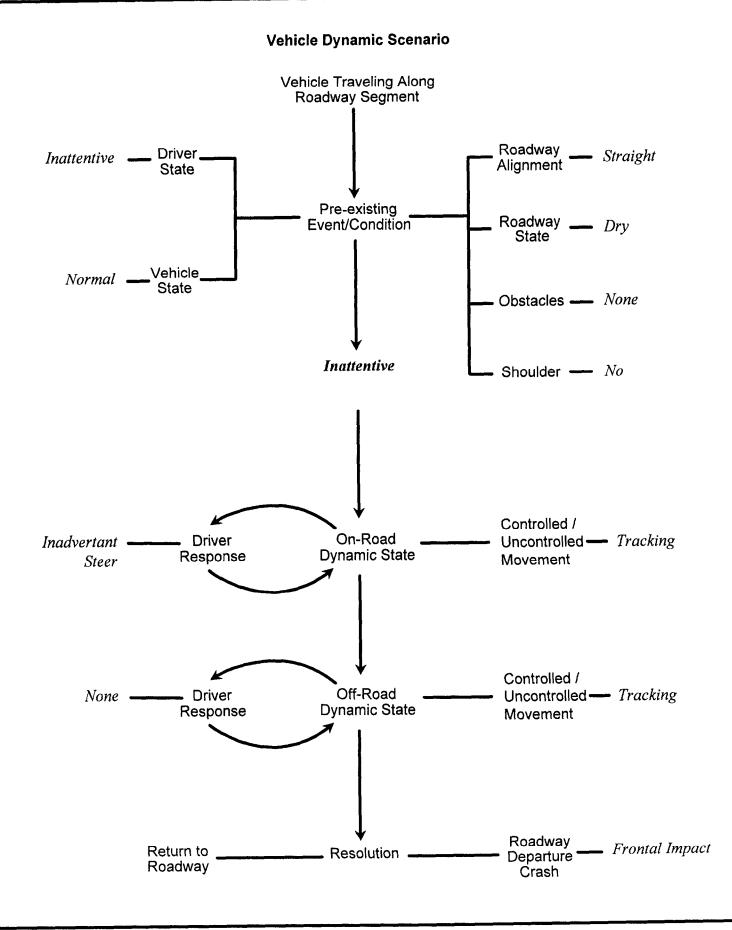
CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

	General Accid	ent Information	<u> </u>
Date:	1-1-93	Weather:	Clear/Cloudy
Time:	1629	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	Daylight
Accident Severi	ty: 0(O)	Land Use:	Urban
Driver/Occ	upant Information	Vehicle Infor	mation
Driver Age:	44	Year:	1991
Driver Sex:	Female	Vehicle Make:	Chevrolet
Impairment:	None	Vehicle Model:	Cavalier
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway I	Information	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	6	Speed Limit:	40 km/h
	Cluster	Variables	
GV14: 99 (Jnknown		
GV64: 01 (Going straight		
GV65: 09	This vehicle loss of control due to	unknown	
GV66: 9	Precrash stability unknown		

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

The subject vehicle was traveling in a southeasterly direction on a straight and level asphalt road surface during daylight hours. The driver was inattentive and allowed the vehicle to drift to the right and depart the right curb line. The vehicle drove over the barrier curb and impacted a chain-link fence. The vehicle penetrated the fence and came to rest against a building. There were multiple roadside obstacles adjacent to each curb line including small diameter trees, utility poles, and a chain-link fence. The posted speed limit was 40 km/h (25 mph).





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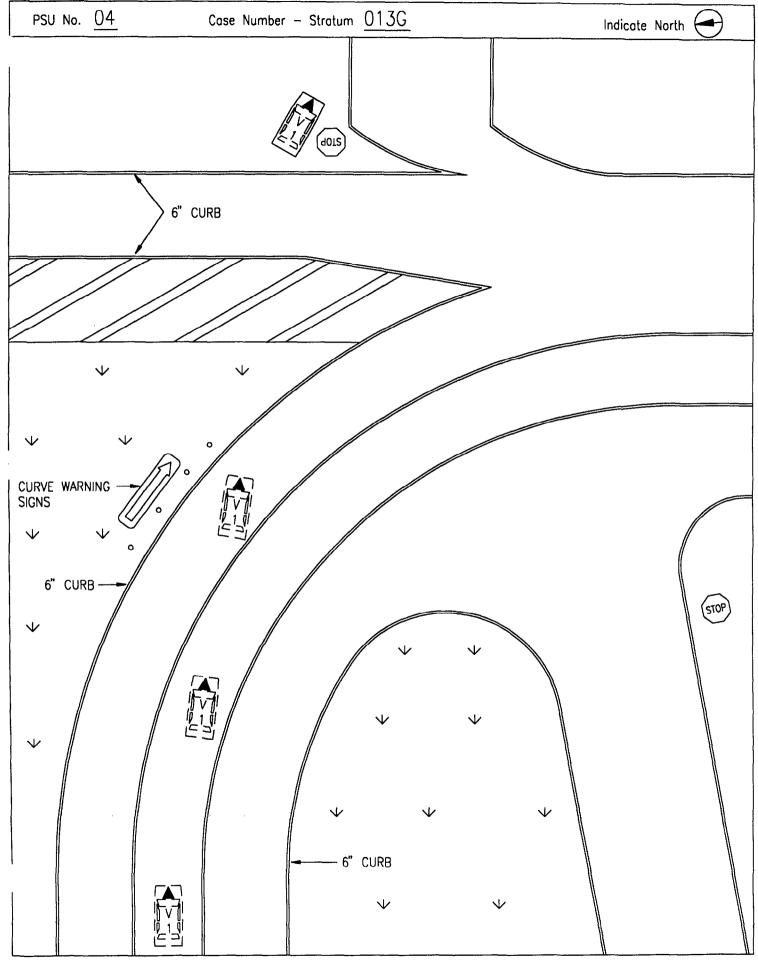
CAUSAL FACTOR: Vehicle Speed - Excessive

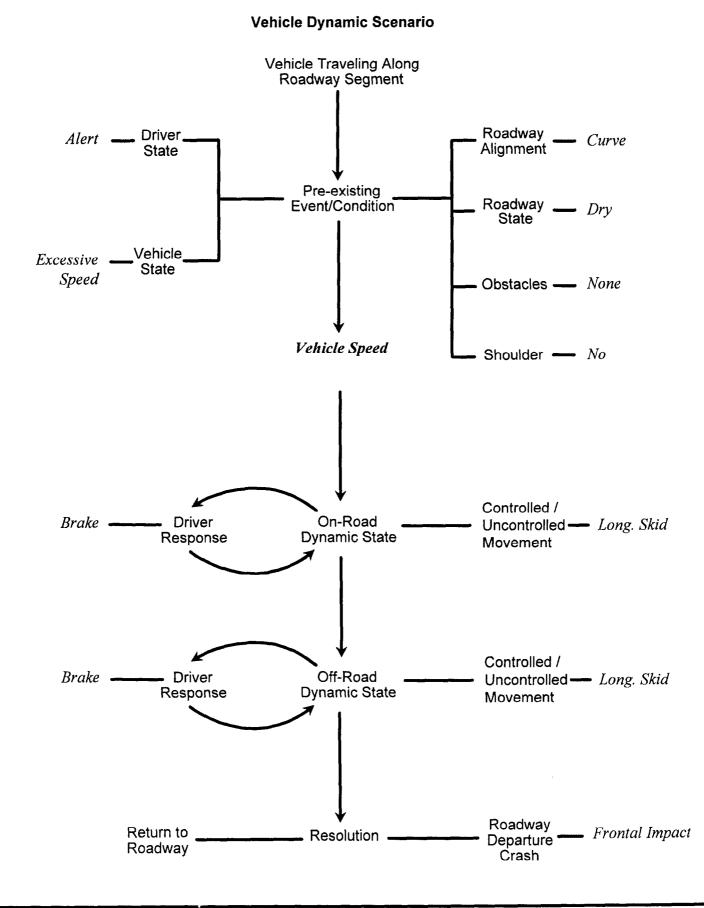
ROADSIDE DEPARTURE: Left

	General Acci	dent Information	
Date:	1-5-93	Weather:	Clear/Cloudy
Time:	Unknown	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	None
Accident Sever	ity: 0(O)	Land Use:	Urban
Driver/Oc	cupant Information	Vehicle Info	mation
Driver Age:	27	Year:	1989
Driver Sex:	Female	Vehicle Make:	Mazda
Impairment:	None	Vehicle Model:	626
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Typ		Alignment:	Curve Right
(Median):	Flush or curb	Slope:	Level
No. of Lanes:	3	Speed Limit:	80 km/h
	Cluster	r Variables	
GV14: 03	Braking (lockup)		
GV64 : 13	Negotiating a curve		
GV65: 06	This vehicle loss of control due t	o traveling too fast for conditions	
GV66: 2	Skidding longitudinally - less that	an 30 degrees rotation	
GV67: 4	Vehicle departed roadway		

CAUSAL FACTOR:Vehicle Speed - ExcessiveROADSIDE DEPARTURE:Left

The subject vehicle was traveling in an easterly direction in a divided three-lane roadway that curved sharply to the right. Both edges of the road were bordered by 15 cm barrier curbs. The driver entered the curve at an excessive rate of speed and drifted from the center lane across the left inboard lane. The driver braked with sufficient force to lock the front wheels of the vehicle causing it to skid in a tracking mode across the median and across another intersecting roadway. The vehicle drove over several barrier curbs before coming to rest.





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CAUSAL FACTOR:

Driver Relinquishes Steering Control - Physical (seizure/passed out)

ROADSIDE DEPARTURE:

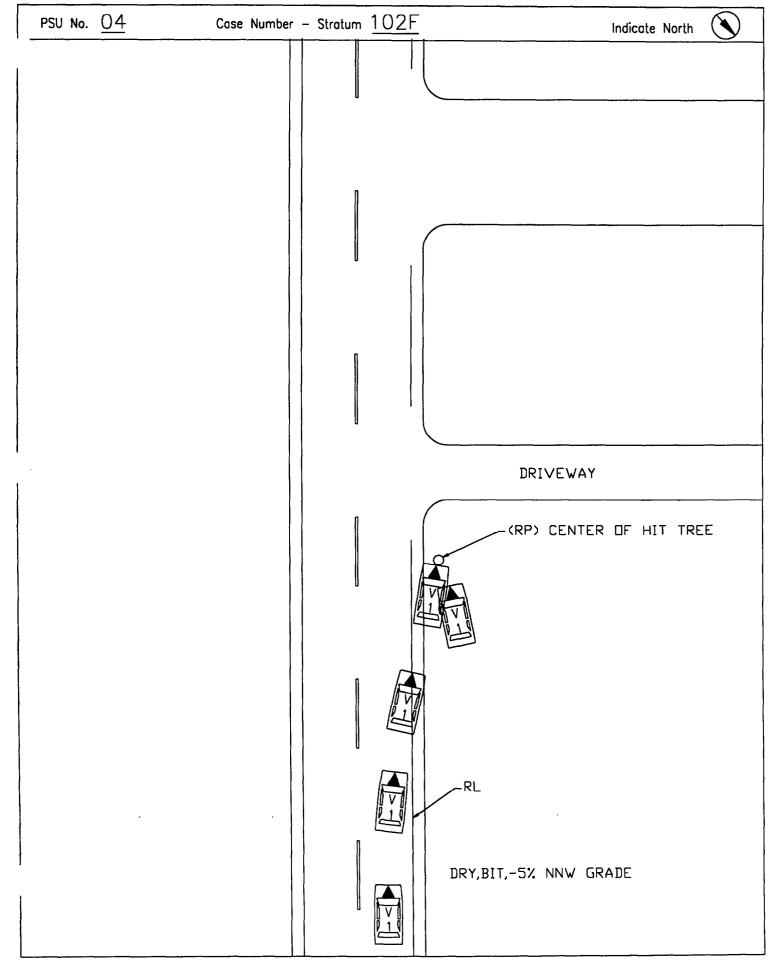
Right

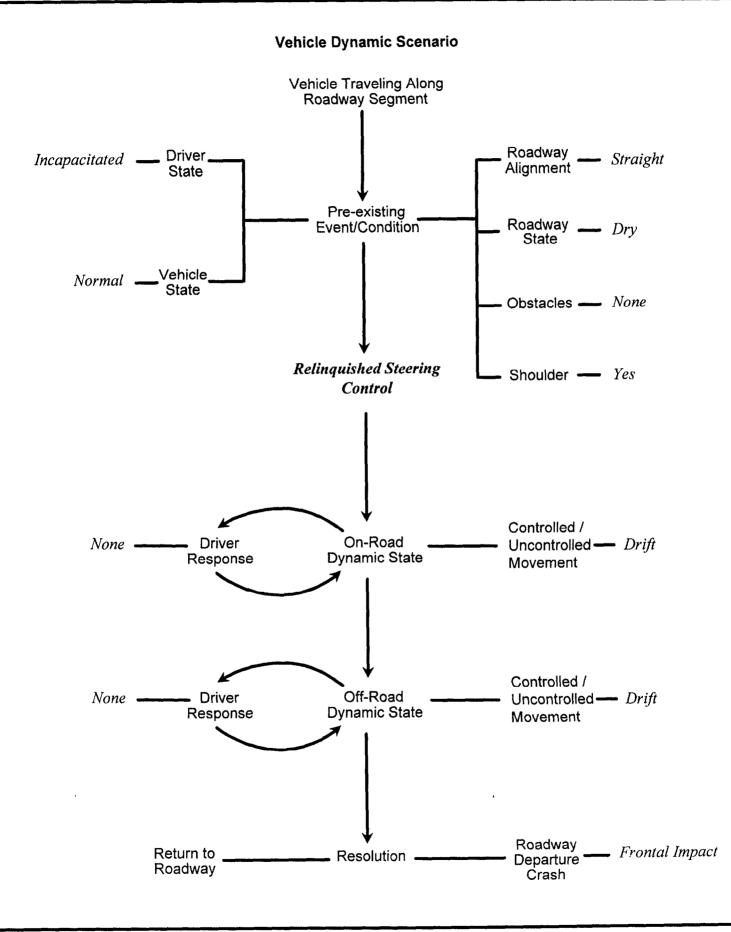
	General Accide	ent Information	
Date:	7-2-93	Weather:	Clear/Cloudy
Time:	1625	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	None
Accident Sever	ty: 2 (B)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Infor	mation
Driver Age:	39	Year:	1980
Driver Sex:	Male	Vehicle Make:	Pontiac
Impairment:	Physical (seizure/passed out)	Vehicle Model:	Sunbird
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway Ir	nformation	·····
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	56 km/h
	Cluster V	ariables	
GV14: 01 1	Io avoidance actions		
OV64 . 01 (Going straight		
GV64: 01 (This vehicle loss of control due to c	other	
	his vehicle loss of control due to c		
GV65: 08	No avoidance maneuver		

CAUSAL FACTOR: Driver Relinquishes Steering Control - Physical (seizure/passed out)

ROADSIDE DEPARTURE: Right

The subject vehicle was traveling in a southwesterly direction on a straight and level two-lane asphalt road when the driver suffered a diabetic seizure. The vehicle drifted off the right road edge in a tracking mode leaving a rotating tire mark on the grass. The center frontal area of the vehicle impacted a large diameter tree resulting in a 24 km/h (15 mph) Delta V. The posted speed limit was 56 km/h (35 mph). Narrow paved shoulders bordered the travel lanes with grass and trees adjacent to the shoulders. The edge lines and center lines were in poor condition and there were no reflective delineators.



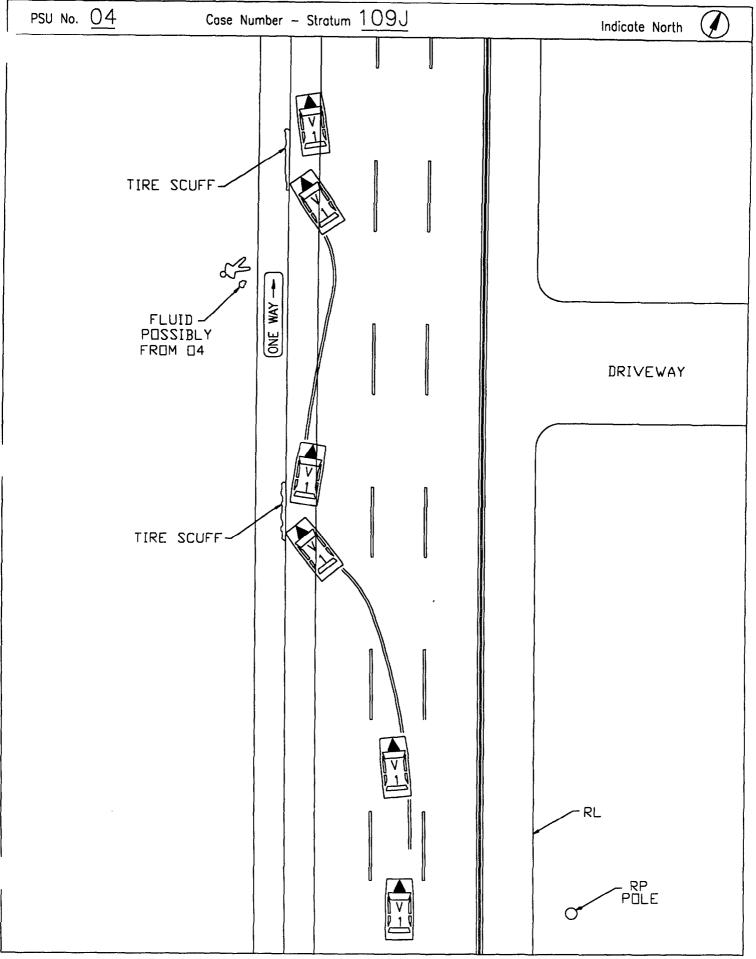


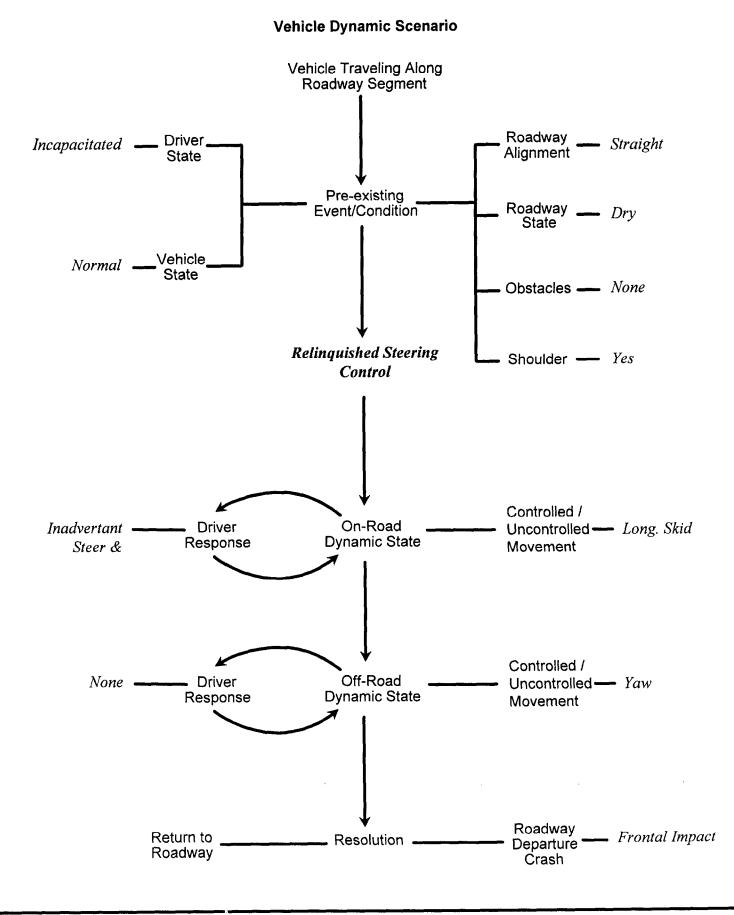
CAUSAL FACTOR:Driver Relinquishes Steering Control - OtherROADSIDE DEPARTURE:Left

		General Accide	ent Information	
Date:		7-4-93	Weather:	Clear/Cloudy
Time:		0058	Surface Condition:	Dry
Accident Ty	oe:	Control/Traction Loss	Lighting:	None
Accident Se	verity:	3 (A)	Land Use:	Urban
Driver/C	Occup	ant Information	Vehicle Infor	mation
Driver Age:		17	Year:	1991
Driver Sex:		Male	Vehicle Make:	Jeep
Impairment:		None	Vehicle Model:	YJ Series
Familiarity with Road:		Yes	ABS:	No
No. of Occupants:		4	Defects:	No
		Roadway I	nformation	
Trafficway T			Alignment:	Straight
(Median):		Physical barrier	Slope:	Level
No. of Lane	s:	3	Speed Limit:	80 km/h
······		Cluster \	/ariables	
GV14: 0	8 Brak	ing and steering left		
	1 Goin	g straight		
GV64: 0			other	
	8 This	vehicle loss of control due to		
		vehicle loss of control due to ding longitudinally - less than		

CAUSAL FACTOR:Driver Relinquishes Steering Control - OtherROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a westerly direction on a dry, six-lane, divided, asphalt roadway in a 80 km/h (50 mph) speed zone. The vehicle was traveling in the center westbound lane at a driver estimated speed of 56 km/h (35 mph). The right rear occupant reached forward and hit the driver in the eye which caused the driver to lose control of the vehicle. The vehicle yawed in a counterclockwise direction across the paved shoulder of the inboard travel lane. The left front area of the vehicle impacted a concrete jersey median barrier. The vehicle was redirected in a clockwise direction and traveled along the inboard shoulder, contacting the barrier again before coming to rest, facing west. The road surface was clearly marked with broken white lane lines and solid painted edge lines. There were no reflective roadside delineators or markers.





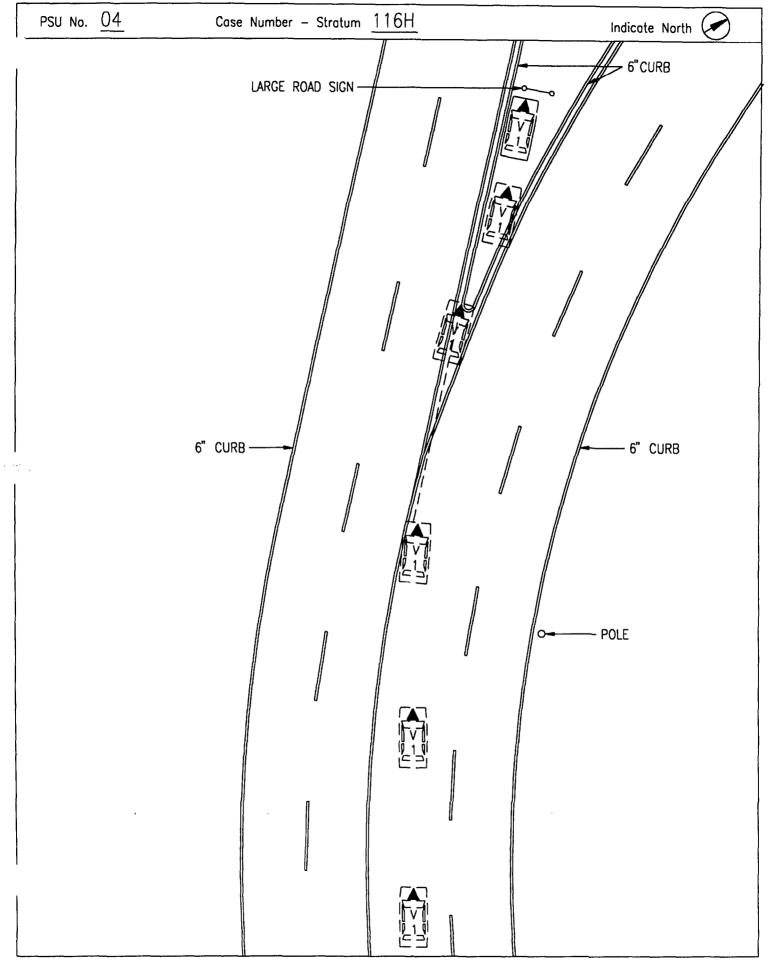
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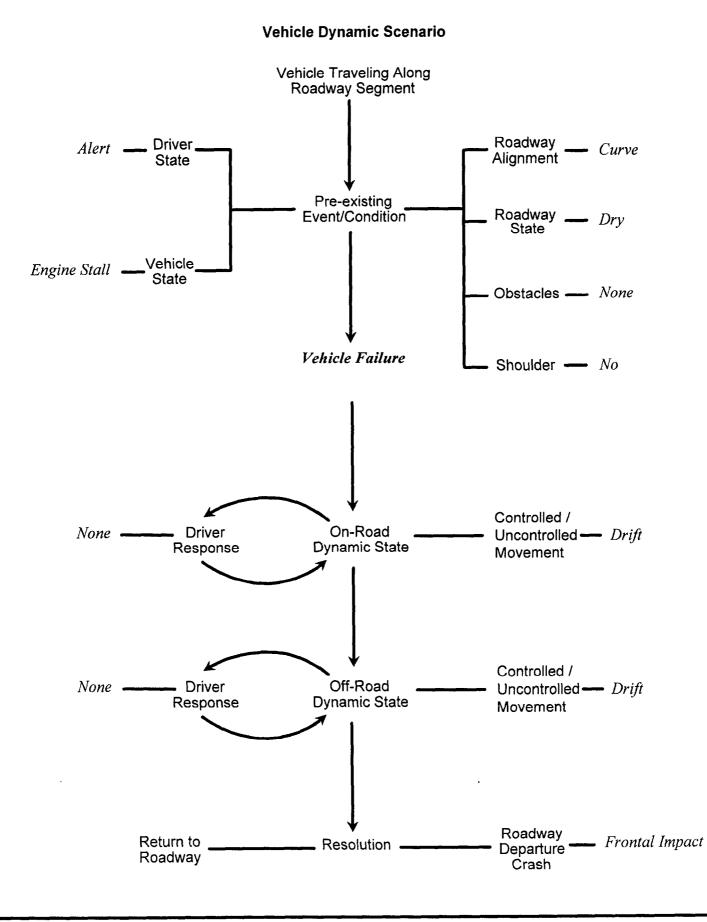
CAUSAL FACTOR:Vehicle FailureROADSIDE DEPARTURE:Left

	General Accide	nt Information	
Date:	8-6-93	Weather:	Clear
Time:	1341	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	Daylight
Accident Severity:	• 0 (O)	Land Use:	Urban
Driver/Occup	pant Information	Vehicle Infor	mation
Driver Age:	17	Year:	1987
Driver Sex:	Female	Vehicle Make:	Ford
Impairment:	None	Vehicle Model:	Escort/EXP
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	Engine Stall
	Roadway Ir	Iformation	
Trafficway Type		Alignment:	Curve Right
(Median):	Flush or curb	Slope:	Grade
No. of Lanes:	4	Speed Limit:	32 km/h
	Cluster V	ariables	
GV14: 01 No	avoidance actions		
GV64: 13 Neg	gotiating a curve		
GV65: 02 Thi	s vehicle loss of control due to s	talled engine	
GV66: 0 No	avoidance maneuver		
GV67: 0 No	avoidance maneuver		

CAUSAL FACTOR:Vehicle FailureROADSIDE DEPARTURE:Left

The subject driver was attempting to negotiate a right curve on a four-lane, one-way road that separated into a Y-configuration. As the vehicle approached the junction, the engine stalled and the driver was unable to steer the vehicle through the curve. The vehicle impacted the barrier curb at the island area with the right front tire and skidded to a stop on the grassy surface. There was no evidence of pre-impact braking, however, the driver braked during or after the impact. The asphalt road surface was dry and open and afforded the driver a clear line of sight. All road markings were in good condition and there were no roadside reflective markers/delineators.



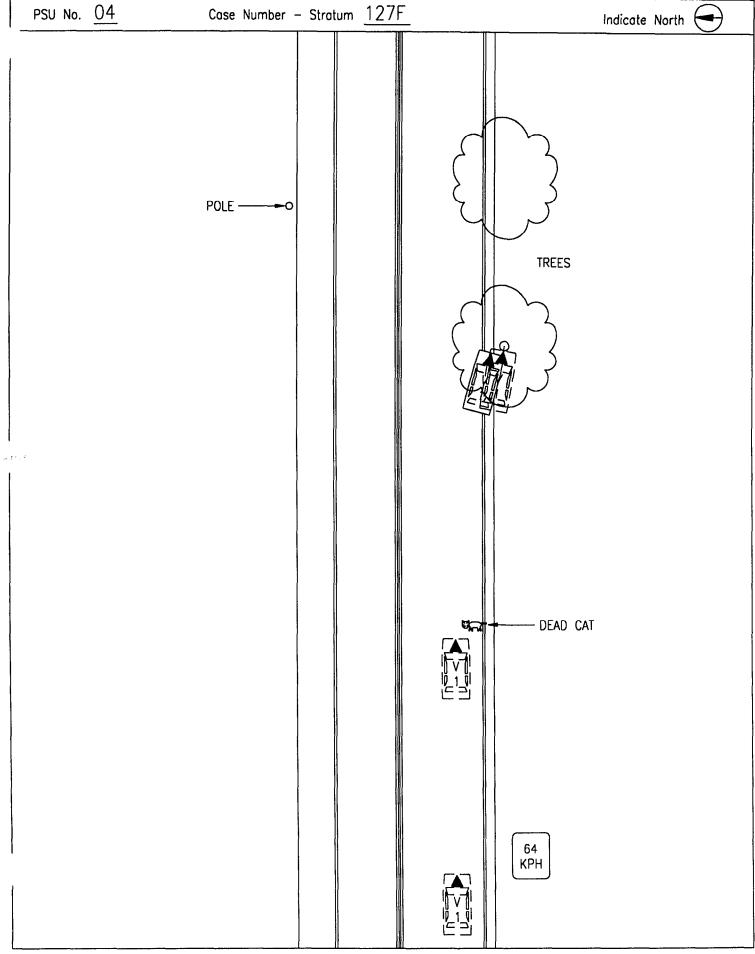


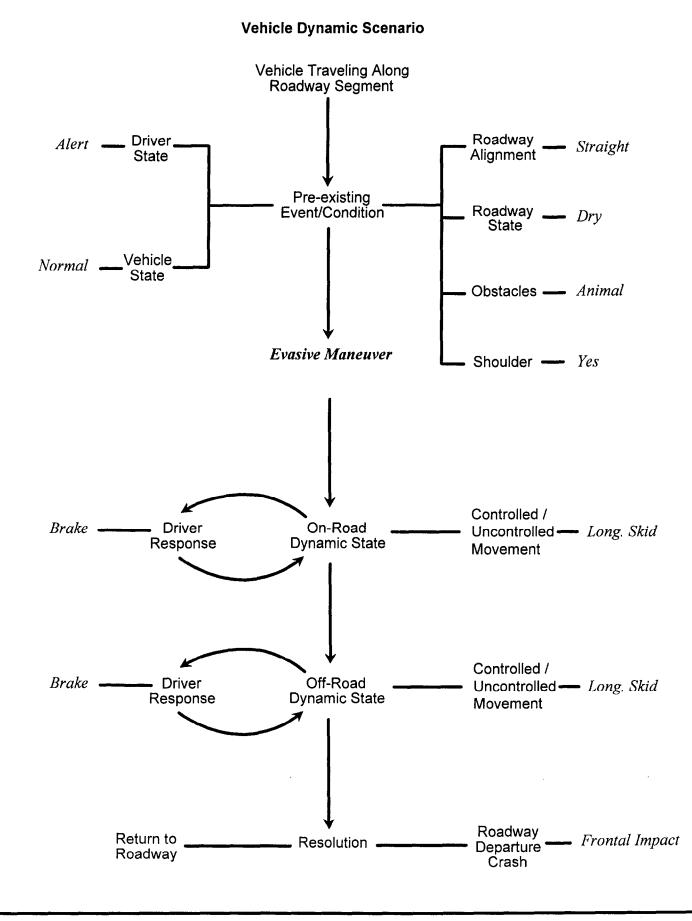
CAUSAL FACTOR:Evasive Maneuver - Avoid Animal or PedestrianROADSIDE DEPARTURE:Right

<u></u>	General Acc	ident Information	
Date:	8-2-93	Weather:	Clear/Cloudy
Time:	2341	Surface Condition:	Dry
Accident Type:	Avoid Collision	Lighting:	Artificial lightin
Accident Severity:	2 (B)	Land Use:	Urban
Driver/Occup	ant Information	Vehicle Infor	mation
Driver Age:	27	Year:	1988
Driver Sex:	Male	Vehicle Make:	Pontiac
Impairment:	None	Vehicle Model:	Firebird/ Trans Am
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	3	Defects:	No
	Roadwa	y Information	······································
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	64 km/h
· · · · · · · · · · · · · · · · · · ·	Cluste	er Variables	
GV14: 03 Brak	ing (lockup)		
GV64: 01 Goin	g straight		
GV65: 87 Anin	nal in roadway		
GV66: 2 Skid	ding longitudinally - less th	an 30 degrees rotation	
GV00: 2 Skiu			

CAUSAL FACTOR:Evasive Maneuver - Avoid Animal or PedestrianROADSIDE DEPARTURE:Right

The subject vehicle was traveling on an dry, straight, level, urban, asphalt roadway that decreased from four lanes to two lanes in a 64 km/h (40 mph) speed zone. The road was dark but lighted and the driver was traveling within the speed limit when a small animal entered the travel lane. The driver swerved to the right and braked in an attempt to avoid the animal. The vehicle skidded in a tracking orientation off the right road edge and the right frontal area of the vehicle impacted a large diameter tree. Approximately 17 m of right front skid marks and 8 m of left front skid marks were documented. The vehicle was traveling at 63.3 km/h (39.3 mph), based on a calculated Delta V of 17 km/h (11 mph) and measured skid distance. Both edges of the roadway were bordered by large diameter trees which limited the driver's escape routes. The solid white edge lines and the double yellow center lines were in good condition, however, there were no reflective markers or delineators.





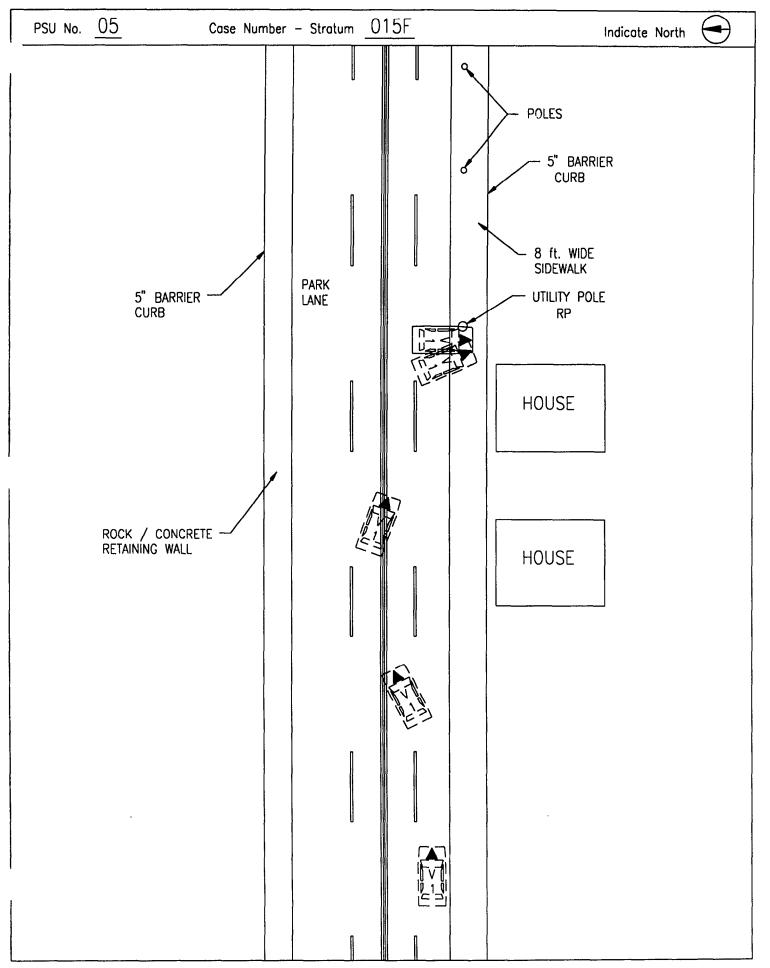
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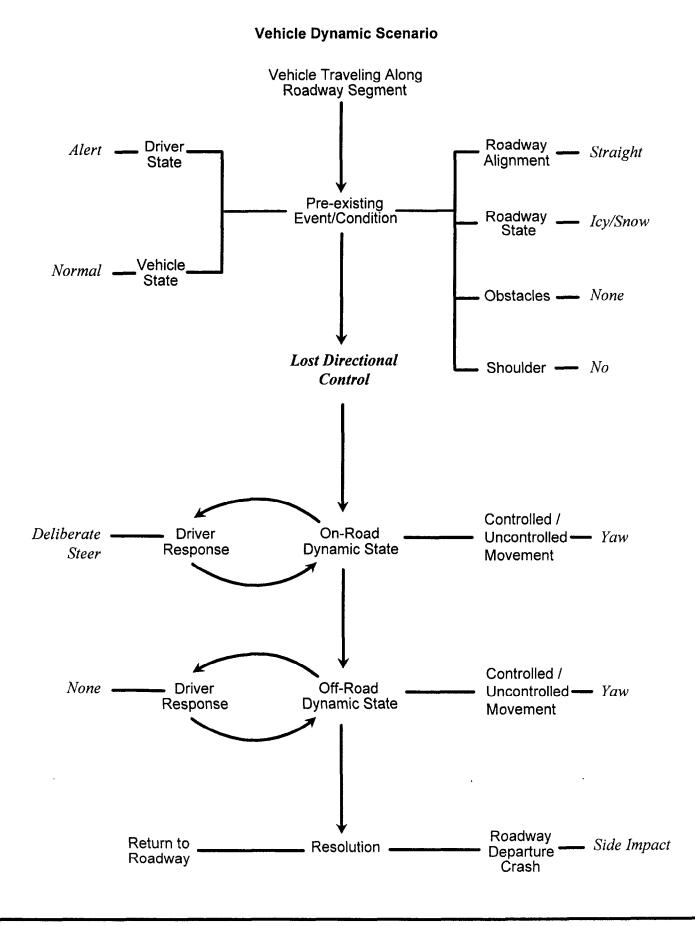
CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

- <u></u>	General Accide	ent Information	
Date:	2-7-93	Weather:	Snow/Sleet/Hai
Time:	1037	Surface Condition:	Ice/Snow
Accident Type:	Control/Traction Loss	Lighting:	Daylight
Accident Severity	2 (B)	Land Use:	Urban
Driver/Occu	pant Information	Vehicle Info	rmation
Driver Age:	32	Year:	1984
Driver Sex:	Female	Vehicle Make:	Chevrolet
Impairment:	None	Vehicle Model:	Celebrity
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	4	Defects:	No
	Roadway Ir	nformation	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	5	Speed Limit:	56 km/h
	Cluster V	/ariables	
GV14: 07 Ste	ering right		
GV64: 01 Go	ng straight		
GV65: 05 Th	s vehicle loss of control due to p	ooor road conditions	
GV66: 3 Ski	dding laterally - clockwise rotat	ion	
GV67: 4 Ve	nicle departed roadway		

CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

The subject vehicle was traveling in the outboard lane of a snow- and ice-covered, straight, level, five-lane undivided, asphalt roadway at a driver estimated speed of 32-48 km/h (20-30 mph). The driver lost control of the vehicle when it overrode the ice which initiated a clockwise yaw. The vehicle departed the right road edge in a near broadside orientation and impacted a utility pole with the left front fender area.





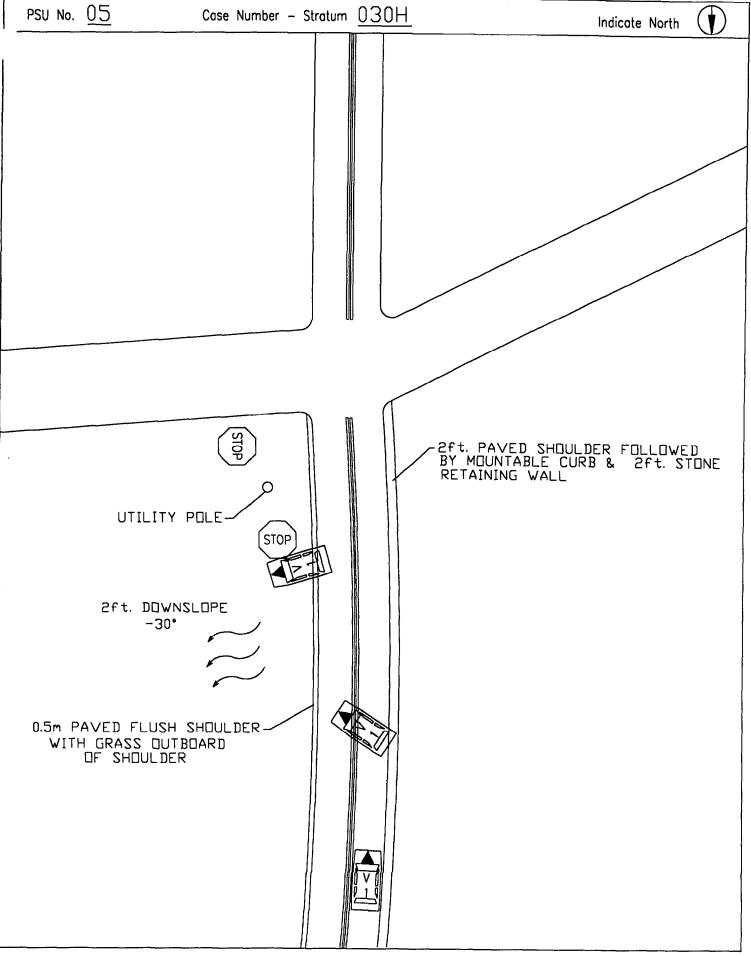
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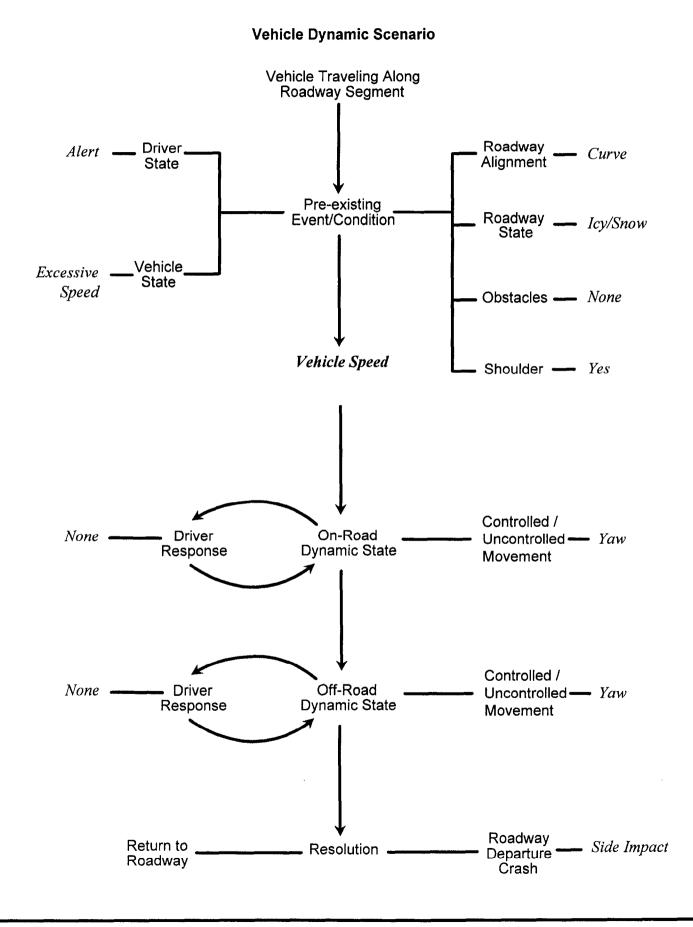
CAUSAL FACTOR:Vehicle Speed - Unsafe Driving ActROADSIDE DEPARTURE:Left

	General Ac	cident Information	
Date:	2-1-93	Weather:	Snow/Sleet/Hai
Time:	1610	Surface Condition:	Ice/Snow
Accident Typ	e: Control/Traction Loss	Lighting:	Daylight
Accident Sev	erity: 0(O)	Land Use:	Urban
Driver/O	ccupant Information	Vehicle Info	rmation
Driver Age:	48	Year:	1985
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	None	Vehicle Model:	Tempo
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	2	Defects:	No
	Roadwa	ay Information	
Trafficway Ty		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes	: 2	Speed Limit:	72 km/h
	Clust	ter Variables	
GV14: 01	No avoidance actions		
GV64: 01	Going straight		
GV65: 05	This vehicle loss of control du	e to poor road conditions	
GV66: 0	No avoidance maneuver		
GV67: 0	No avoidance maneuver		

CAUSAL FACTOR:Vehicle Speed - Unsafe Driving ActROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a southerly direction on a snow-covered, two-lane asphalt roadway that curved slightly to the left with an estimated +2% slope. The driver estimated the vehicle's travel speed at 72 km/h (45 mph). The vehicle broke traction on the icy surface and rotated in a counterclockwise direction. The vehicle departed the left road edge and impacted a speed limit sign with the right front side area. The vehicle continued in a broadside orientation onto an intersecting street where it came to rest. The causal factor was an unsafe driving act with excessive speed on a snow-covered road surface.





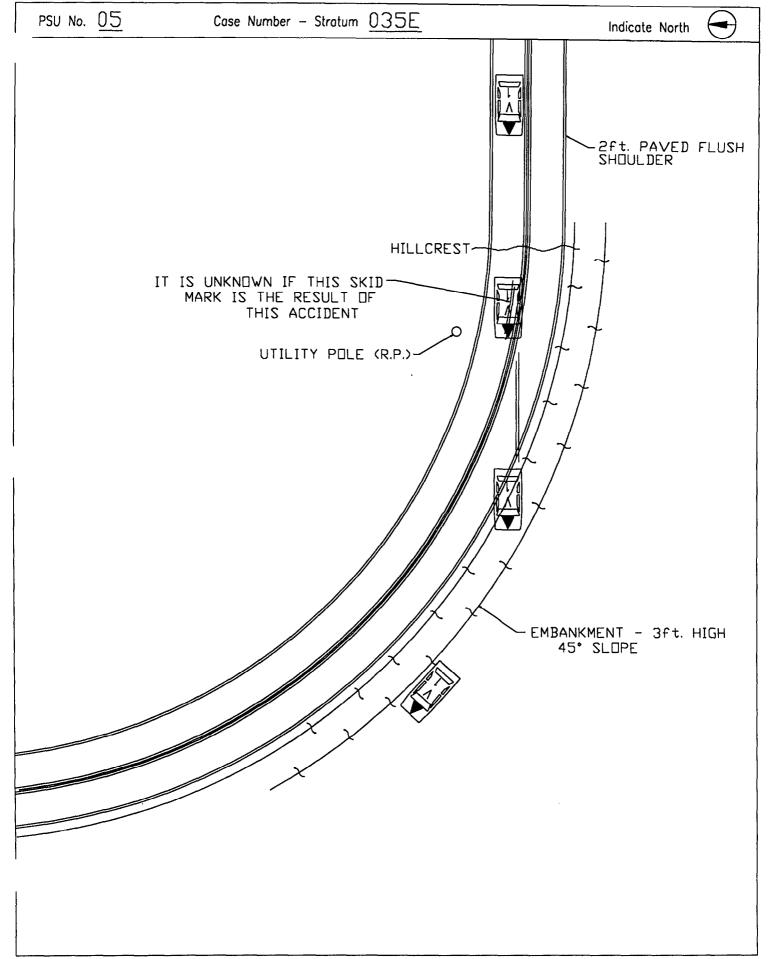
CAUSAL FACTOR: Vehicle Speed - Excessive

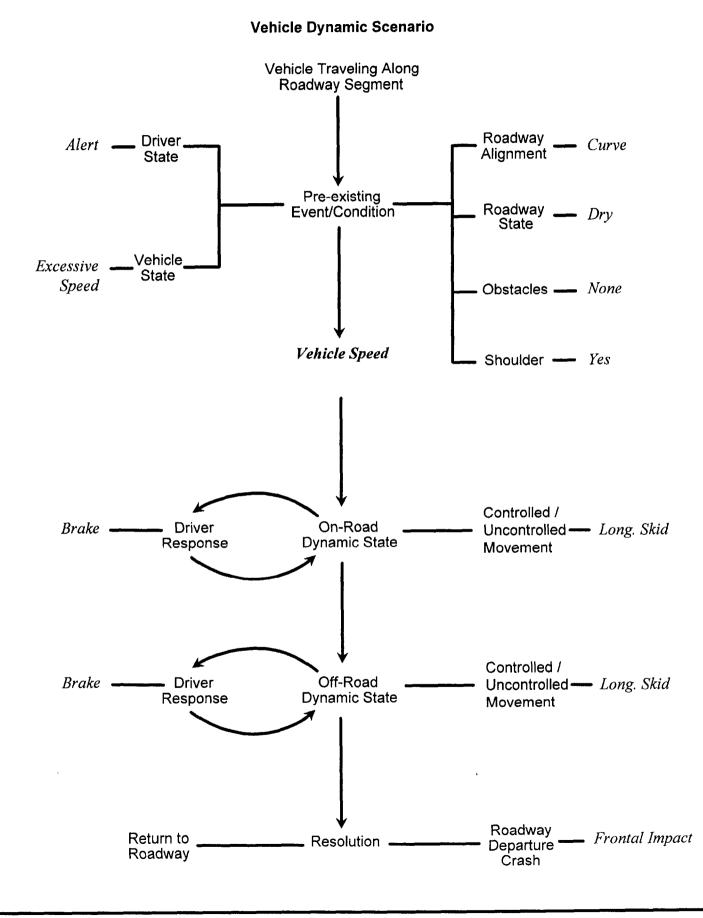
ROADSIDE DEPARTURE: Left

	General Accid	ent Information	A
Date:	3-5-93	Weather:	Clear/Cloudy
Time:	2058	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	None
Accident Seve	<i>ity:</i> 1 (C)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Infor	mation
Driver Age:	19	Year:	1990
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	None	Vehicle Model:	Taurus
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	3	Defects:	No
	Roadway I	nformation	
Trafficway Typ		Alignment:	Curve Right
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	64 km/h
	Cluster	Variables	
GV14: 03	Braking (lockup)		
GV64: 13	Negotiating a curve		
GV65: 12	This vehicle traveling off the edge	of the road on the left side	
GV66: 2	Skidding longitudinally - less than	30 degrees rotation	

CAUSAL FACTOR:Vehicle Speed - ExcessiveROADSIDE DEPARTURE:Left

The subject vehicle was traveling in westerly direction on a two-lane, rural roadway on an approach to a moderate right curve. The driver attempted to negotiate the curve at an unsafe speed and drifted across the center line. The driver subsequently braked with sufficient force to lock the left front wheel of the vehicle. The vehicle skidded off the left road edge and impacted an earth embankment with the frontal area of the vehicle. There was a positive-sloped earth embankment adjacent to the left shoulder. The area outboard of the right road edge was level.



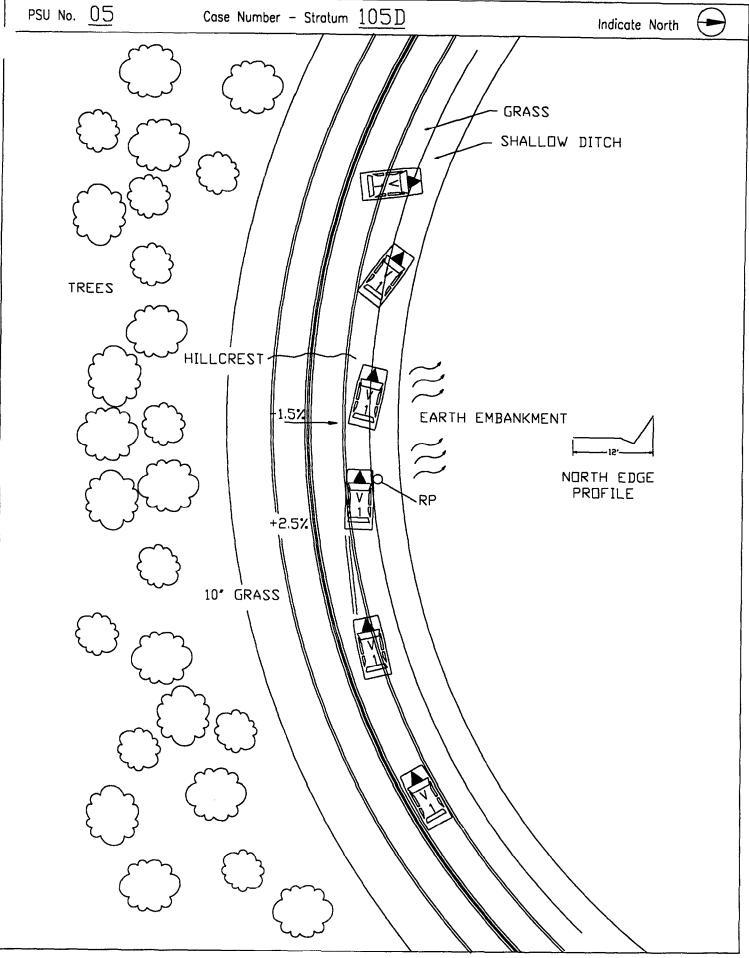


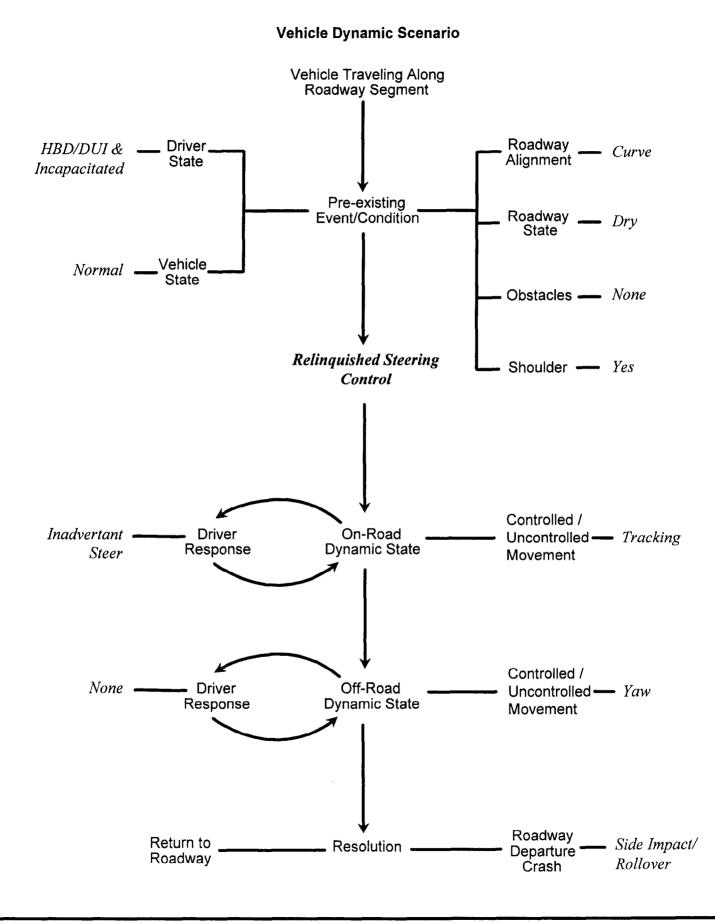
Calspan Corporation Carnegie Mellon University CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

	General Accid	ent Information	
Date:	7-7-93	Weather:	Clear/Cloudy
Time:	0045	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	None
Accident Severi	ty: 3 (A)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Info	rmation
Driver Age:	41	Year:	1986
Driver Sex:	Male	Vehicle Make:	Buick
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Somerset/ Skylark
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway I	nformation	
Trafficway Type		Alignment:	Curve Right
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	56 km/h
	Cluster	/ariables	
GV14: 99 t	Inknown		
GV64: 13 N	legotiating a curve		
GV65: 13 T	his vehicle traveling off the edge	of the road on the right side	
	recrash stability unknown		

CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

The subject vehicle was traveling in a westerly direction on a dry two-lane, rural, asphalt roadway in a 56 km/h (35 mph) speed zone. The road curved to the right and had a +2.5% slope. The driver failed to negotiate the right curve and departed the right road edge in a tracking mode. The vehicle traversed a grassy shoulder and sideswiped a wooden utility pole with the right side area. The vehicle subsequently yawed in a clockwise direction as it contacted a shallow ditch and earth embankment. As a result, the vehicle overturned onto its roof. The driver was intoxicated with a BAC of 0.22. The surface was marked with solid white edge lines and double yellow center lines.



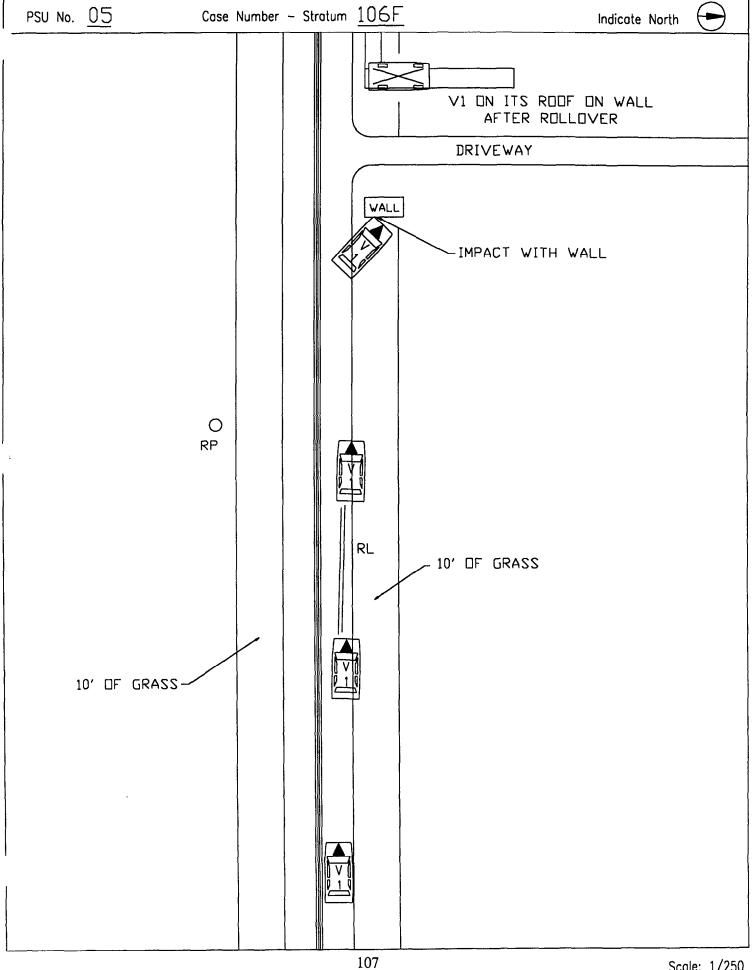


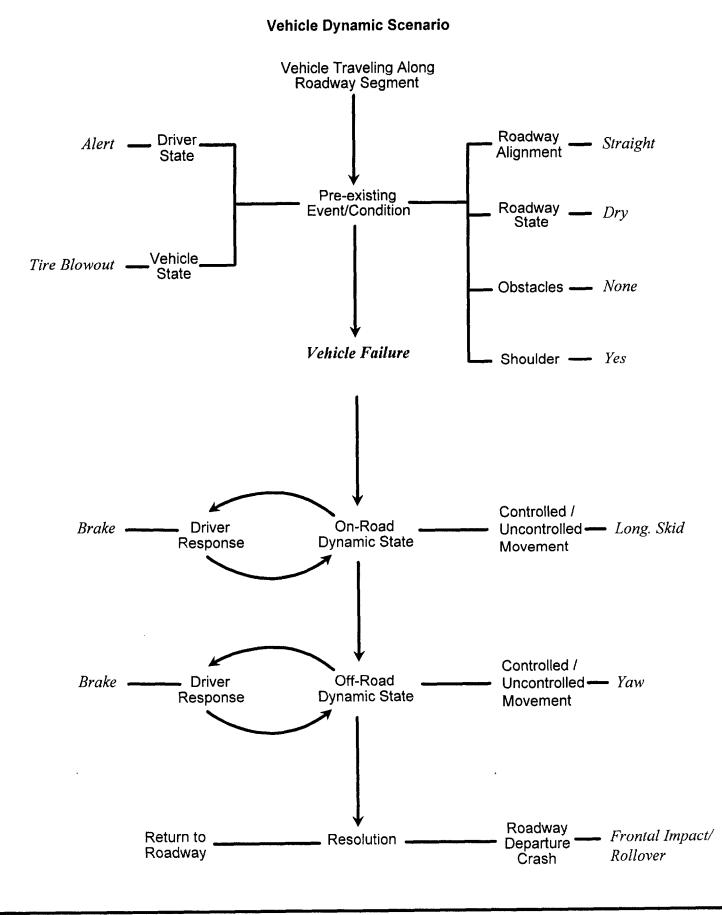
CAUSAL FACTOR:Vehicle FailureROADSIDE DEPARTURE:Right

	General Accid	ent Information	
Date:	7-5-93	Weather:	Clear/Cloudy
Time:	1815	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	Daylight
Accident Severi	ty: 1 (C)	Land Use:	Urban
Driver/Occ	upant Information	Vehicle Info	mation
Driver Age:	41	Year:	1990
Driver Sex:	Female	Vehicle Make:	Toyota
Impairment:	None	Vehicle Model:	Corolla
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	Tire Blowout
	Roadway	Information	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	56 km/h
	Cluster	Variables	
GV14: 03 H	Braking (lockup)		
GV64: 01 (Going straight		
GV65: 01 7	This vehicle loss of control due to	blow out or flat tire	
	Skidding longitudinally - less thar	1 30 degrees rotation	
GV66: 2 5			

CAUSAL FACTOR:Vehicle FailureROADSIDE DEPARTURE:Right

The subject vehicle was westbound on an urban, two-lane asphalt roadway during daylight hours. The road surface was dry and straight with an estimated +1.5% slope. The driver was traveling at 56 km/h (35 mph) when the left front tire failed. The vehicle yawed in a clockwise direction and departed the right road edge. The vehicle impacted a stone wall at the mouth of a private driveway and overturned, coming to rest on a second wall that was located on the opposite side of the driveway. Both edges were marked with solid white lines and the center was marked with double yellow center lines. There were no shoulders adjacent to the road edges. The primary causal factor was a vehicle related failure, left front tire blowout.



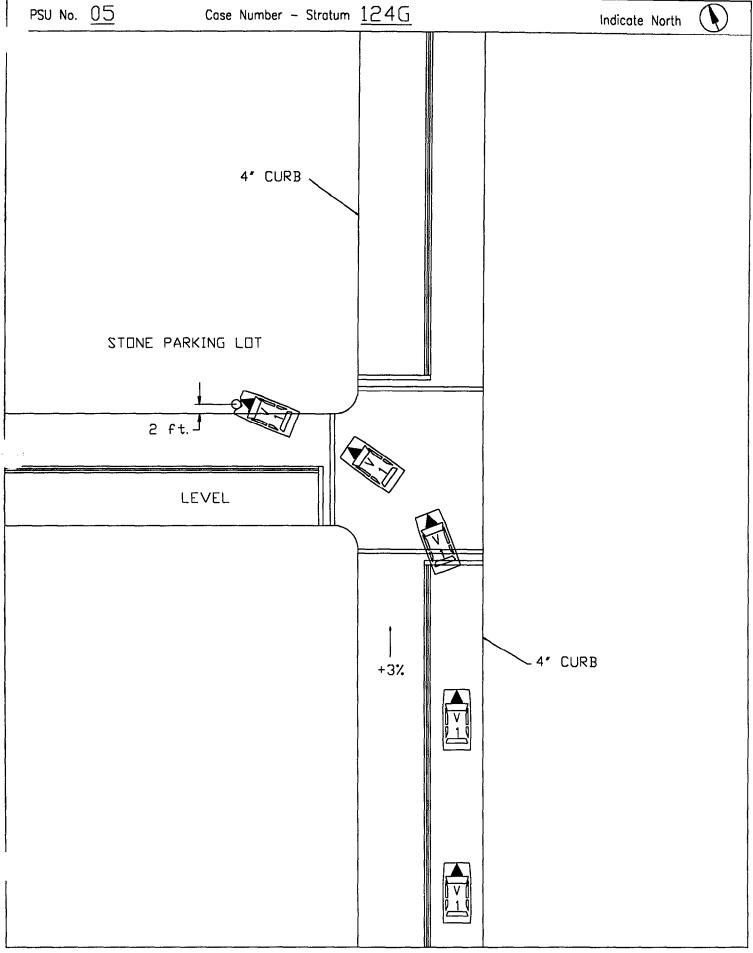


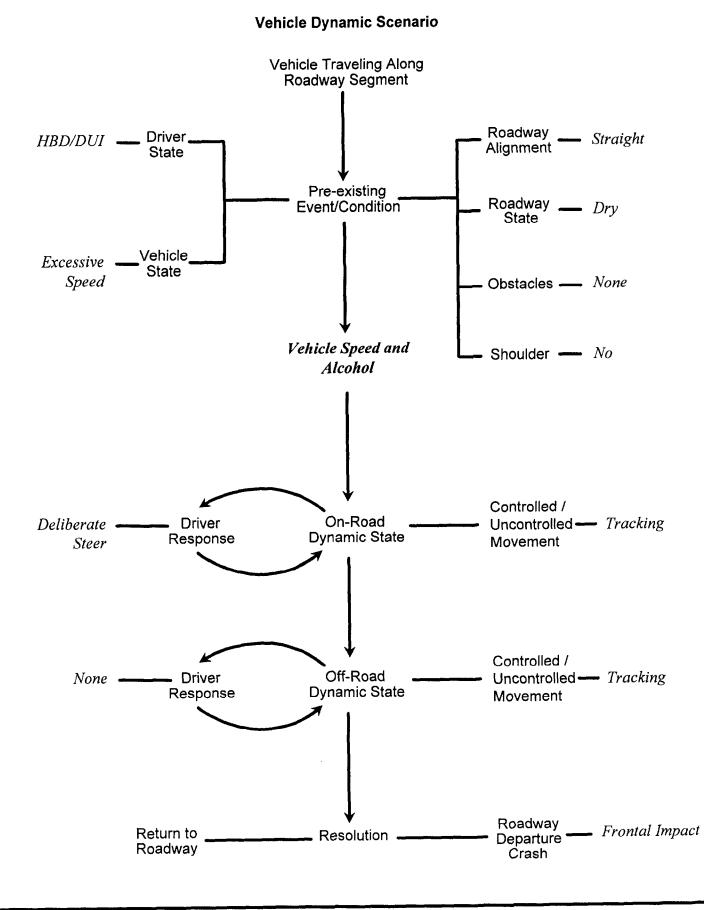
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

	General Accide	nt Information	
Date:	8-4-93	Weather:	Clear/Cloudy
Time:	0305	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	Artificial lightin
Accident Severity:	0 (O)	Land Use:	Urban
Driver/Occup	ant Information	Vehicle Infor	mation
Driver Age:	50	Year:	1990
Driver Sex:	Male	Vehicle Make:	Mazda
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	MPV
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway Ir	nformation	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	56 km/h
	Cluster V	/ariables	
GV14: 06 Steer	ring left		
GV64: 10 Turn	ing left		
GV65: 13 This	vehicle traveling off the edge	of the road on the right side	
GV66: 1 Trac	king		
GV67: 4 Veh	icle departed roadway		

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

The subject vehicle was traveling in a northerly direction on a two-lane roadway on an approach to a 3-leg T-intersection. Traffic flow through the intersection was controlled by an overhead signal system. The driver initiated a left turn through the intersection on a green signal phase at an unsafe speed and drove off the right edge of the intersecting roadway. The frontal area of the vehicle impacted a wooden utility pole that was located 0.6 m outboard of the road edge. The driver was intoxicated (BAC unknown).





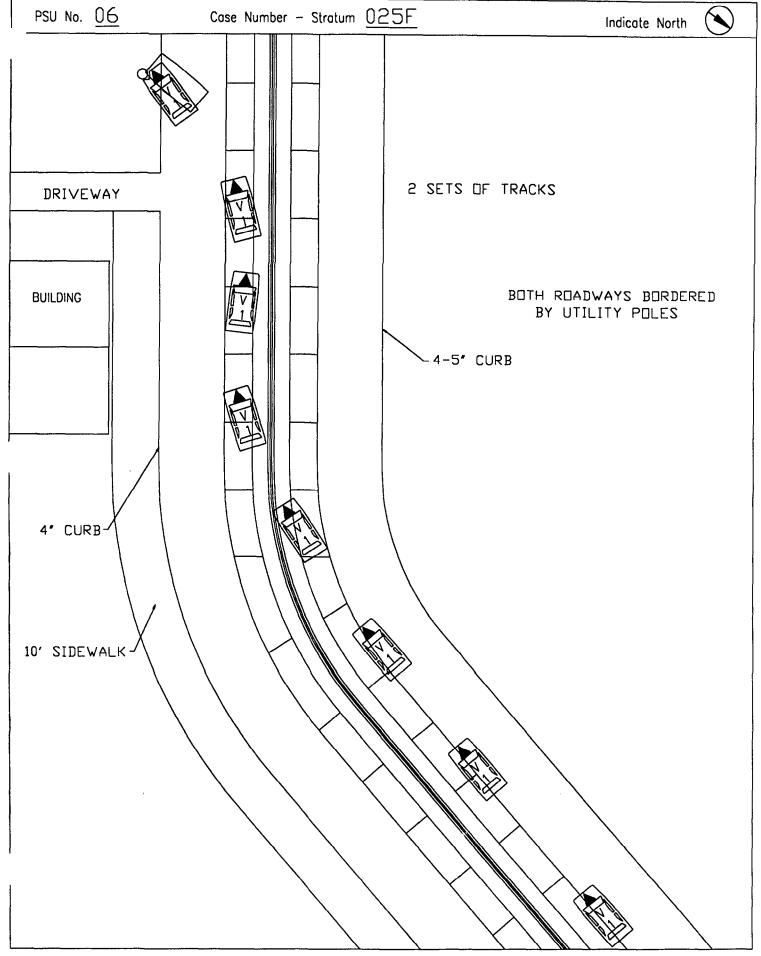
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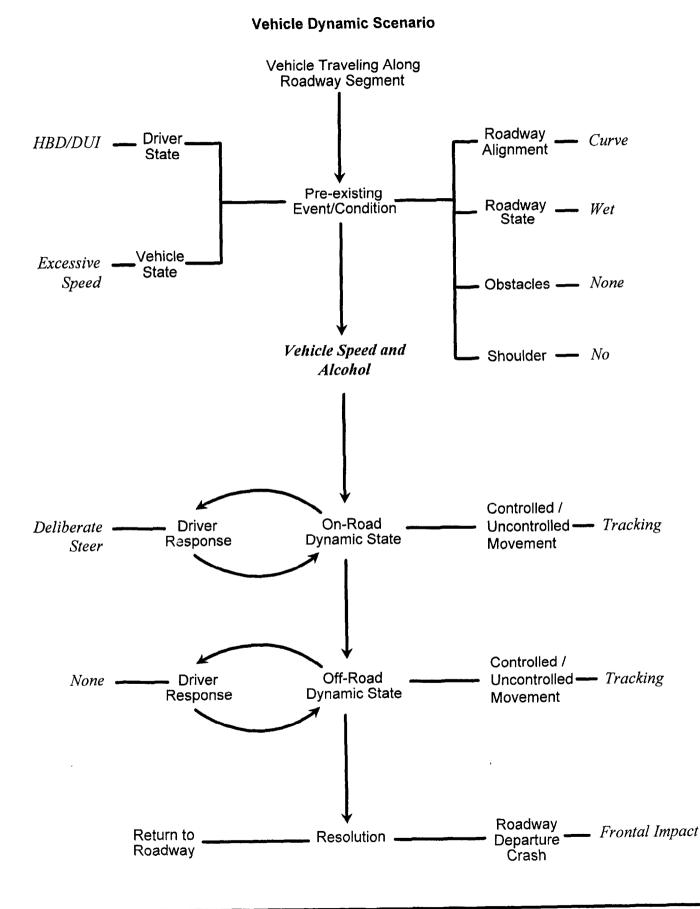
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

		General Accident	Information	·····
Date:		3-4-93	Weather:	Rain
Time:		2330	Surface Condition:	Wet
Accident Ty	/pe:	Control/Traction Loss	Lighting:	Artificial lighting
Accident Se	everity:	1 (C)	Land Use:	Urban
Driver/	Occup	ant Information	Vehicle Infor	mation
Driver Age:		19	Year:	1980
Driver Sex:		Male	Vehicle Make:	Chevrolet
Impairment	-	Other (alcoh. consumption - BAC .06)	Vehicle Model:	Camaro
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		1	Defects:	No
		Roadway Info	ormation	
Trafficway			Alignment:	Curve Right
(Median)	:	Not divided	Slope:	Level
No. of Lane	95:	4	Speed Limit:	89 km/h
		Cluster Var	iables	
GV14:	07 Steer	ing right		
GV64:	13 Nego	otiating a curve		
GV65:	12 This	vehicle traveling off the edge of t	the road on the left side	
GV66:	1 Trac	king		
GV67:		cle departed roadway		

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a southerly direction on a level, four-lane, urban roadway that contained two sets of railroad tracks within the inboard travel lanes. The driver had a BAC of 0.06 and entered a moderate right curve at an excessive speed. The driver allowed the vehicle to drift across the center line while attempting to negotiate the curve. The vehicle continued across the opposing travel lanes and departed the left road edge. The left frontal area of the vehicle impacted and fractured a wooden utility pole that was located approximately 0.6 m outboard of the road edge.





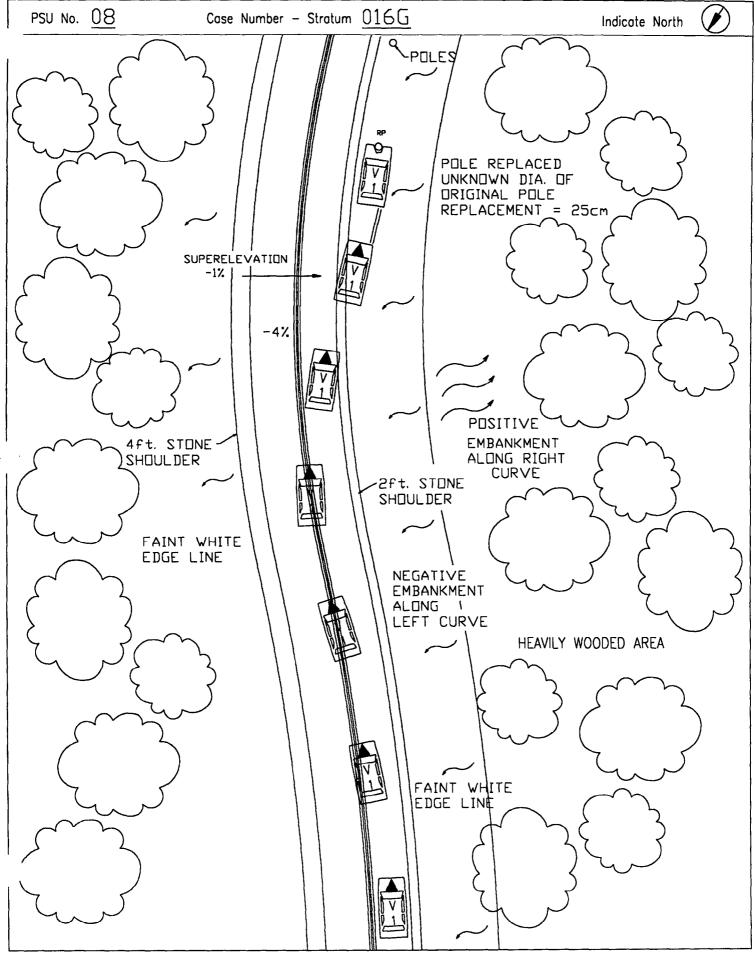
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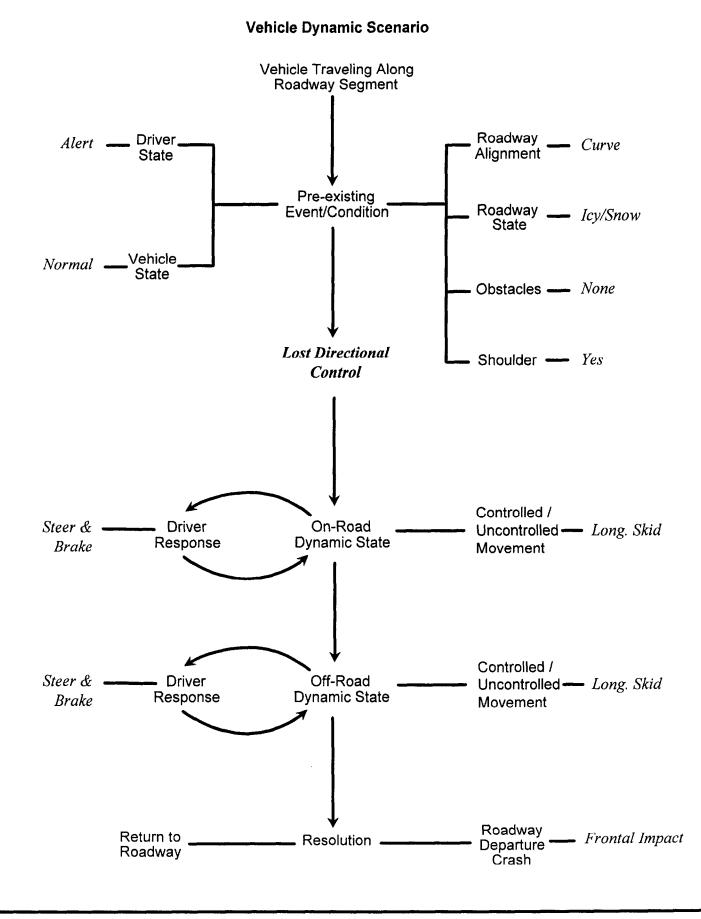
CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

		General Accid	ent Information	
Date:		1-5-93	Weather:	Snow/Sleet/Hai
Time:		0937	Surface Condition:	Ice/Snow
Accident	Type:	Control/Traction Loss	Lighting:	Daylight
Accident	Severity:	0 (O)	Land Use:	Rural
Drive	er/Occupa	ant Information	Vehicle Info	rmation
Driver Ag	ie:	22	Year:	1989
Driver Se	x:	Male	Vehicle Make:	Ford
Impairme	ent:	None	Vehicle Model:	Explorer
Familiarit with Road		Yes	ABS:	Yes
No. of Occupan	ts:	1	Defects:	No
<u></u>		Roadway	Information	
Trafficwa			Alignment:	Curve Right
(Media	an):	Not divided	Slope:	Grade
No. of La	anes:	2	Speed Limit:	72 km/h
		Cluster	Variables	
GV14:	09 Brak	ing and steering right		
GV64:	13 Nego	otiating a curve		
GV65:	13 This	vehicle traveling off the edge	e of the road on the right side	
GV66:	7 Othe	r vehicle loss-of-control		
GV67:	4 Vehi	cle departed roadway		

CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

The subject vehicle was traveling through sleet and freezing rain in a southeasterly direction on an icy, two-lane, undivided, asphalt roadway with a long downhill grade. As the driver entered a left curve at an estimate speed of 40 km/h (25 mph), the vehicle drifted across the center line. The driver applied a clockwise steering input and pumped the brakes as the road switched to the right curve of a lazy S-curve configuration. The vehicle departed the right road edge in a slight counterclockwise yaw and impacted a utility pole that was approximately 1.5 m outboard of the road edge.





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CAUSAL FACTOR: Vehicle Speed - Excessive

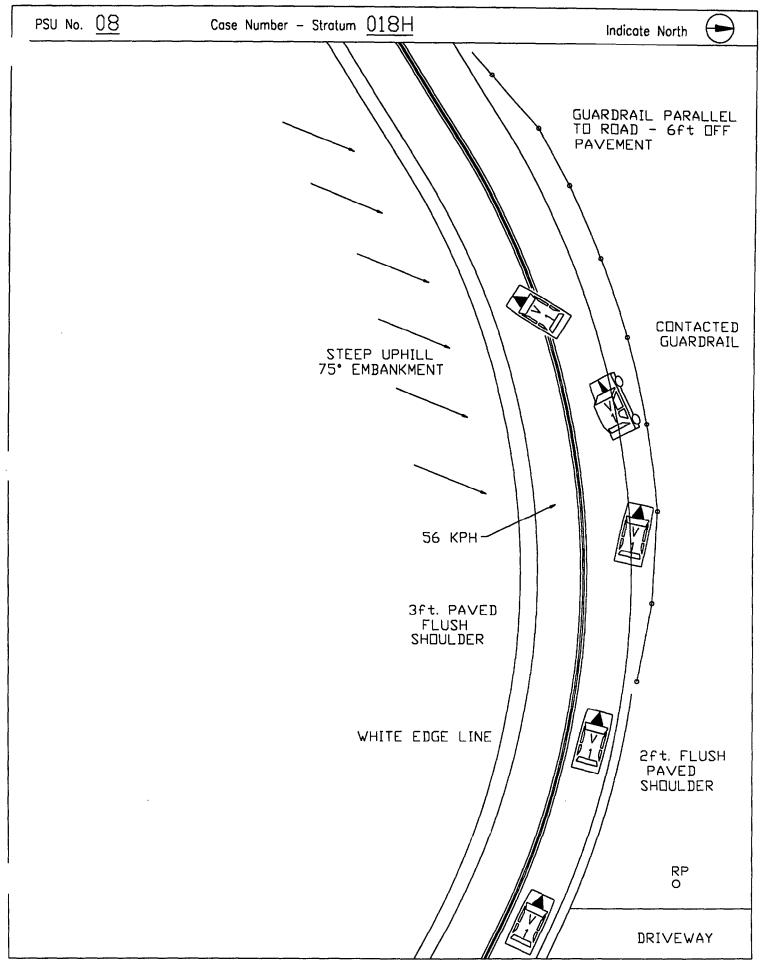
Right

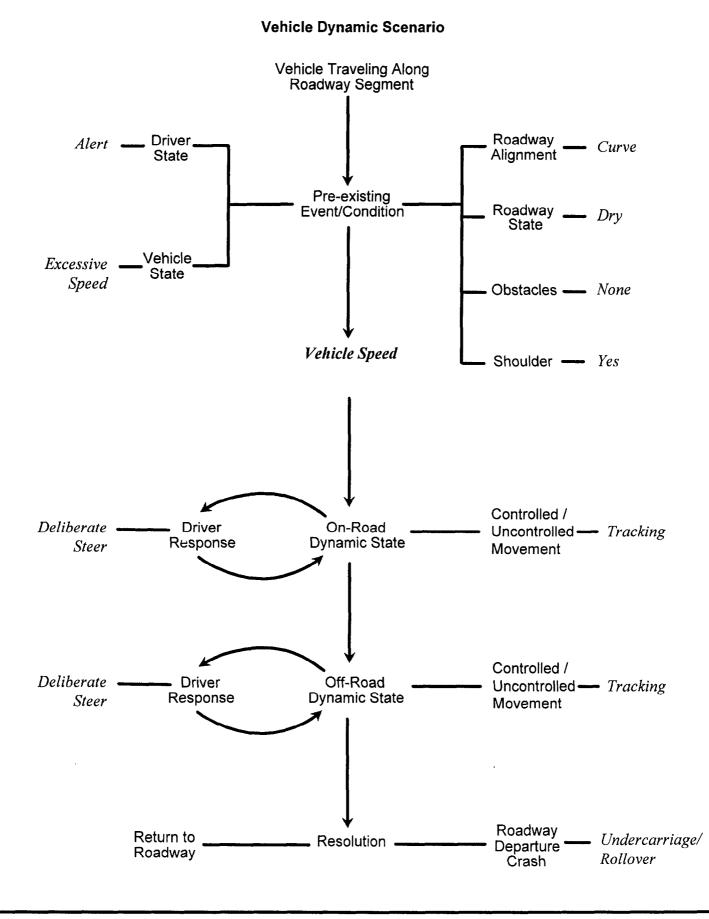
ROADSIDE DEPARTURE:

	General Accide	nt Information	
Date:	1-3-93	Weather:	Clear/Cloudy
Time:	1742	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	Daylight
Accident Severity.	0 (O)	Land Use:	Rural
Driver/Occu	pant Information	Vehicle Infor	mation
Driver Age:	16	Year:	1975
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	None	Vehicle Model:	Mustang/ Mustang II
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway Ir	nformation	
Trafficway Type		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	56 km/h
	Cluster V	/ariables	
GV14: 06 Stee	ering left		
GV64: 13 Neg	gotiating a curve		
GV65: 06 Thi	s vehicle loss of control due to t	raveling too fast for conditions	
GV66: 1 Tra	cking		
GV67: 4 Vel	nicle departed roadway		

CAUSAL FACTOR:Vehicle Speed - ExcessiveROADSIDE DEPARTURE:Right

The subject vehicle was traveling in a westerly direction on a two-lane road in a posted 56 km/h (35 mph) speed zone. The driver attempted to negotiate a moderate left curve at an unsafe speed. The vehicle drifted off the right road edge and impacted the end of a W-beam guardrail system that paralleled the right road edge. The vehicle ramped up the guardrail and overturned onto the asphalt road surface. The left edge of the roadway was bordered by a steep embankment.





CAUSAL FACTOR:

Driver Relinquishes Steering Control - Physical (seizure/passed out) Right

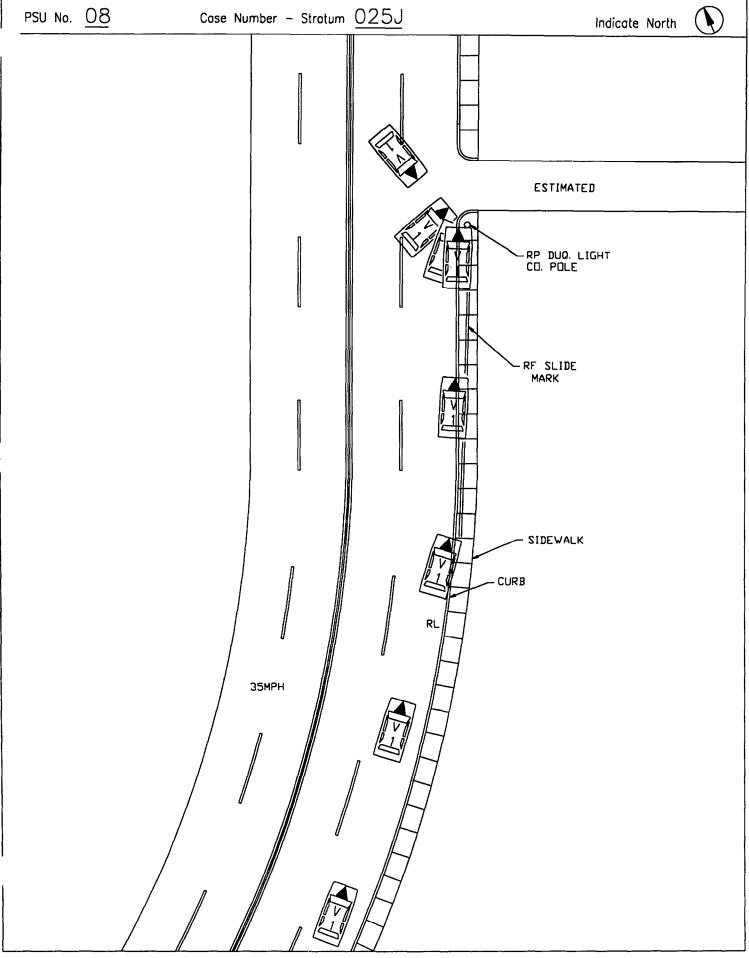
ROADSIDE DEPARTURE:

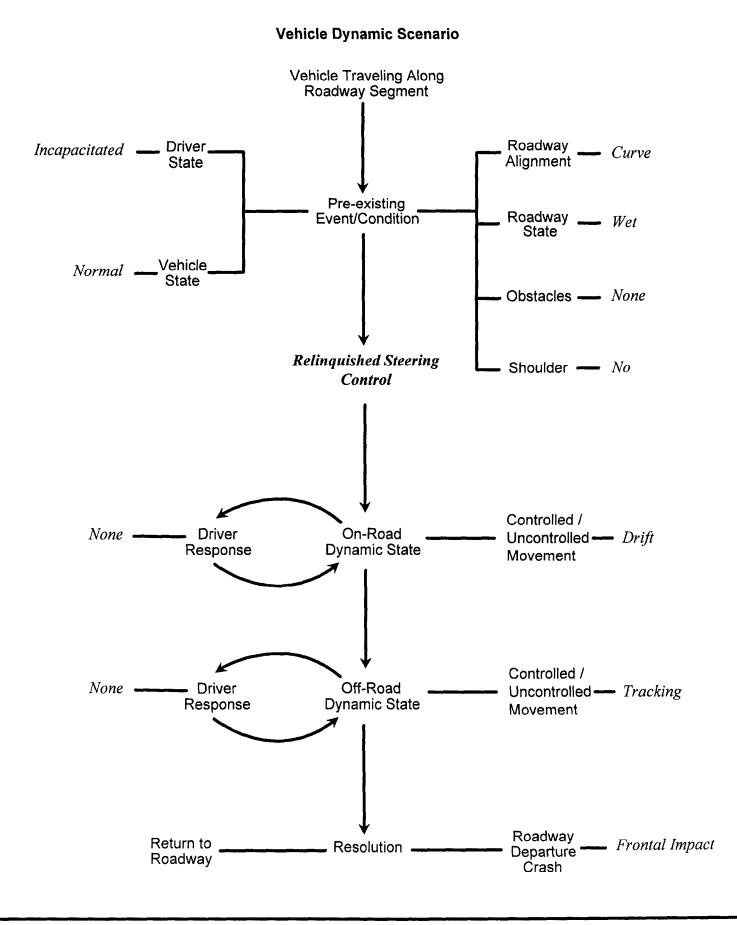
		General Accide	nt Information	
Date:		2-3-93	Weather:	Snow/Sleet/Hail
Time:		1322	Surface Condition:	Wet
Accident Ty	vpe:	Control/Traction Loss	Lighting:	Daylight
Accident Se	everity:	3 (A)	Land Use:	Urban
Driver/	Occup	ant Information	Vehicle Infor	mation
Driver Age:		80	Year:	1989
Driver Sex:		Male	Vehicle Make:	Oldsmobile
Impairment.	:	Physical (seizure/passed out)	Vehicle Model:	Ninety-Eight
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		1	Defects:	No
·		Roadway Ir	nformation	·
Trafficway			Alignment:	Curve Left
(Median)	:	Not divided	Slope:	Grade
No. of Lane	es:	4	Speed Limit:	56 km/h
		Cluster V	ariables	
GV14: ()1 No :	avoidance actions		
GV64:	13 Neg	otiating a curve		
GV65: (08 This	vehicle loss of control due to o	other	
GV66:) No	avoidance maneuver		

CAUSAL FACTOR: Driver Relinquishes Steering Control - Physical (seizure/passed out)

ROADSIDE DEPARTURE: Right

The subject vehicle was traveling during daylight hours in a northerly direction on the outboard lane of a four-lane roadway with a -2% slope. The driver passed out while attempting to negotiate a moderate left curve. The vehicle departed the right road edge and mounted a barrier and traveled along a concrete sidewalk that paralleled the roadway. The frontal area of the vehicle impacted a utility pole that was located several feet outboard of the curb line. The vehicle rotated approximately 120 degrees in a clockwise direction before coming to rest across the northbound travel lanes. The negative slope afforded the driver good visibility.



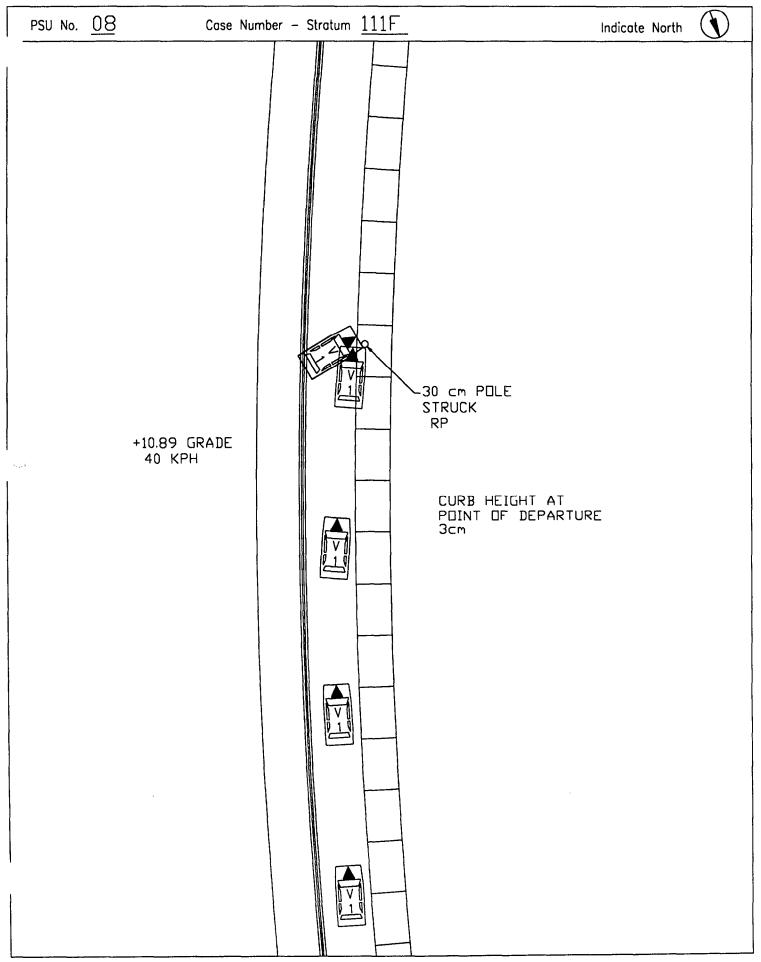


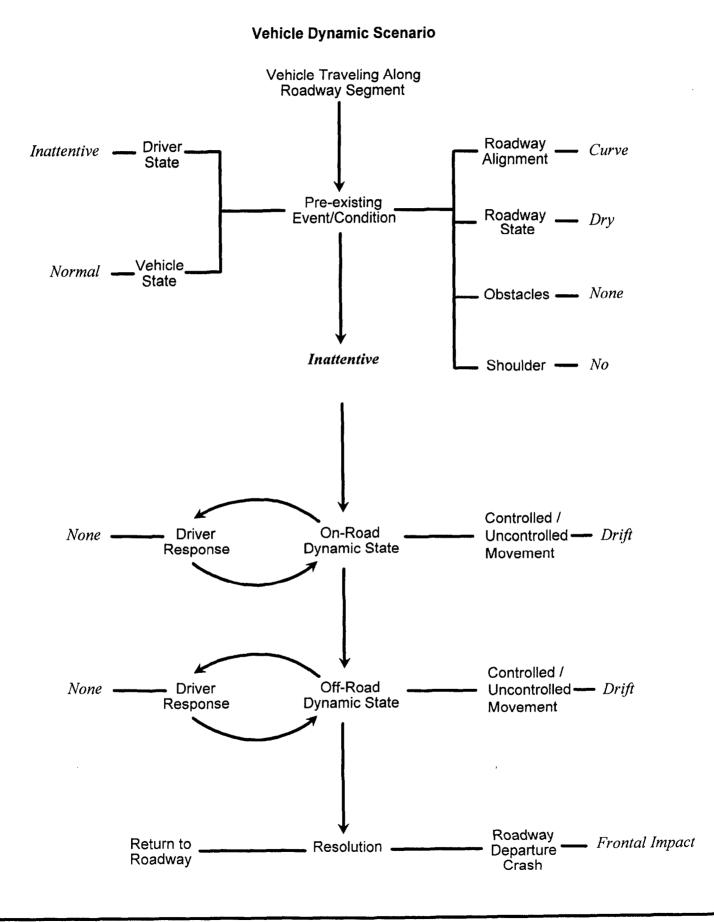
CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

	General Accident	Information	
Date:	7-1-93	Weather:	Clear/Cloudy
Time:	0511	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	Daylight
Accident Severi	ty: 2 (B)	Land Use:	Urban
Driver/Occ	upant Information	Vehicle Infor	mation
Driver Age:	36	Year:	1981
Driver Sex:	Male	Vehicle Make:	Plymouth
Impairment:	Other (alcoh. consumption - BAC unknown)	Vehicle Model:	Horizon
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	1	Defects:	No
· · · · · · · · · · · · · · · · · · ·	Roadway Info	ormation	
Trafficway Type		Alignment:	Curve Right
(Median):	Flush or curb	Slope:	Grade
No. of Lanes:	2	Speed Limit:	40 km/h
	Cluster Va	riables	<u> </u>
GV14: 01 1	No avoidance actions		
GV64: 09	furning right		
GV65: 13	This vehicle traveling off the edge of	the road on the right side	
GV66: 0 1	No avoidance maneuver		

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

The subject vehicle was proceeding in a southerly direction on a dry, two-lane, urban, asphalt roadway at dawn. The roadway curved slightly to the right, was bounded by 2.5 cm curbs, and had a +11% slope. The driver was inattentive to the driving task and attempted to light a cigarette, allowing the vehicle to drift off the right edge of the roadway. The right front corner area of the vehicle struck a utility pole. The vehicle rotated approximately 45 degrees around the pole in a clockwise direction and came to rest in contact with the pole.





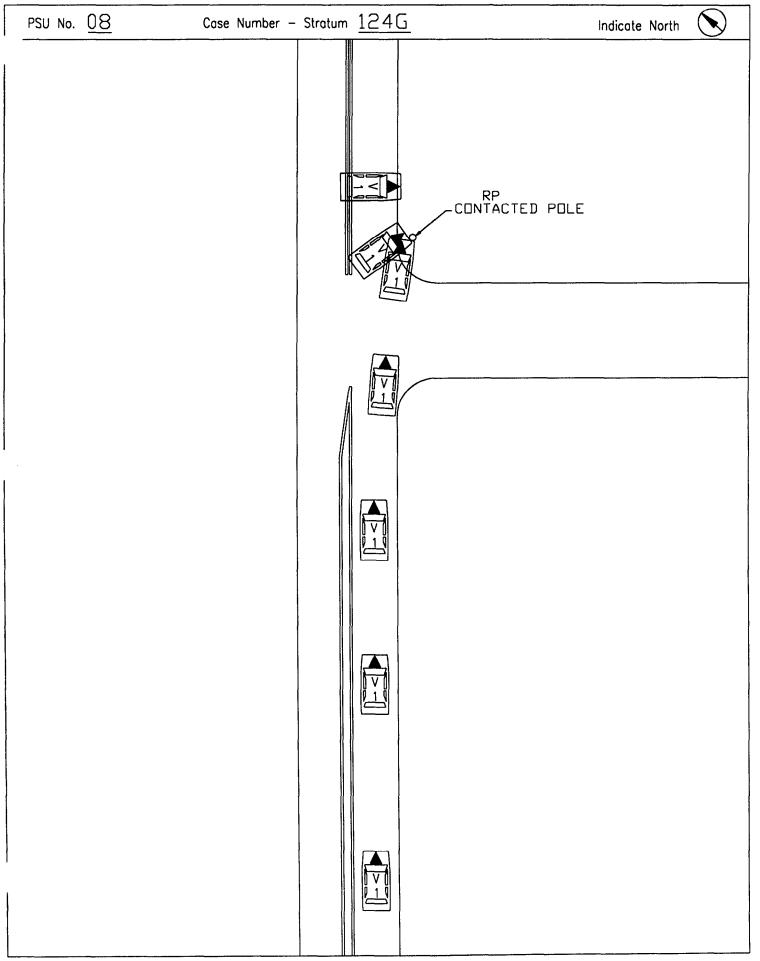
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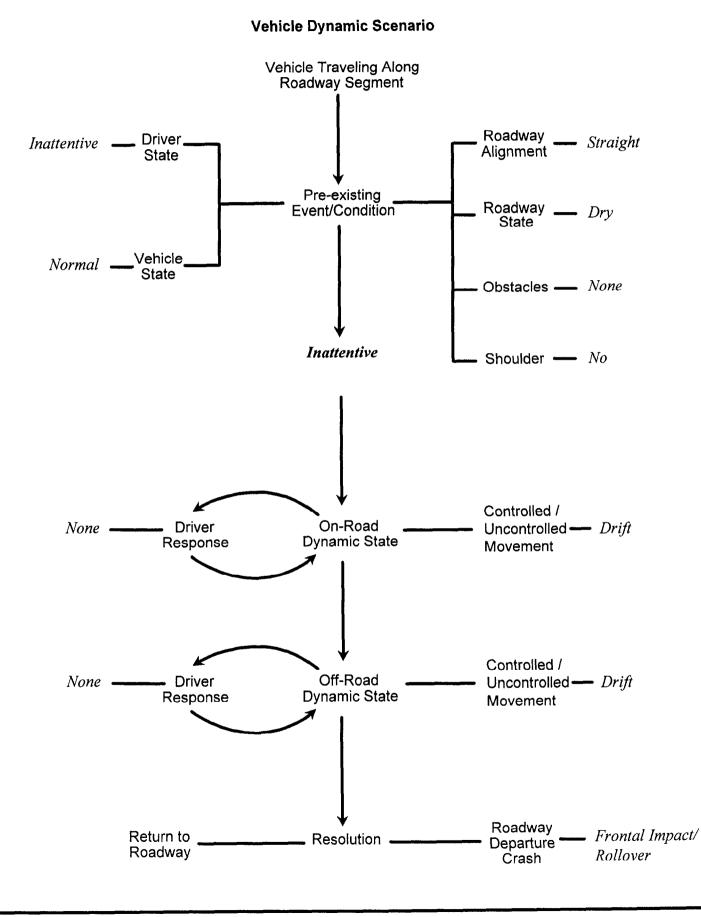
CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

<u> </u>		General Accie	dent Information	
Date:		7-6-93	Weather:	Clear/Cloudy
Time:		2227	Surface Condition:	Dry
Accident	Type:	Drive Off Road	Lighting:	Artificial lighting
Accident	Sevei	rity: 0(O)	Land Use:	Urban
Drive	er/Oc	cupant Information	Vehicle Infor	mation
Driver Ag	ie:	40	Year:	1989
Driver Se	x:	Female	Vehicle Make:	Dodge
Impairme	nt:	None	Vehicle Model:	Caravan
Familiarit with Road		Unknown	ABS:	No
No. of Occupan	ts:	3	Defects:	No
		Roadway	Information	·····
Trafficwa			Alignment:	Straight
(Media	nn):	Flush or curb	Slope:	Grade
No. of La	anes:	2	Speed Limit:	40 km/h
		Cluster	Variables	
GV14:	01	No avoidance actions		
GV64:	01	Going straight		
GV65:	13	This vehicle traveling off the edg	e of the road on the right side	
GV66:	0	No avoidance maneuver		
GV67:	0	No avoidance maneuver		

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

The subject vehicle was traveling in an easterly direction on a dry, two-lane, divided, asphalt roadway that channeled to an undivided roadway at the mouth of a 3-leg T-intersection. The vehicle was traveling at an estimated speed of 40 km/h (25 mph) on the approach toward the intersection. The driver was inattentive and allowed the vehicle to drift to the right and depart the southeast corner of the intersection. The right front tire mounted the barrier curb and the right frontal area of the vehicle impacted a utility pole. The vehicle rotated in a clockwise direction and overturned. The road had solid white edge lines and barrier curbs outboard of the edge line. There were no shoulders on either side of the road.



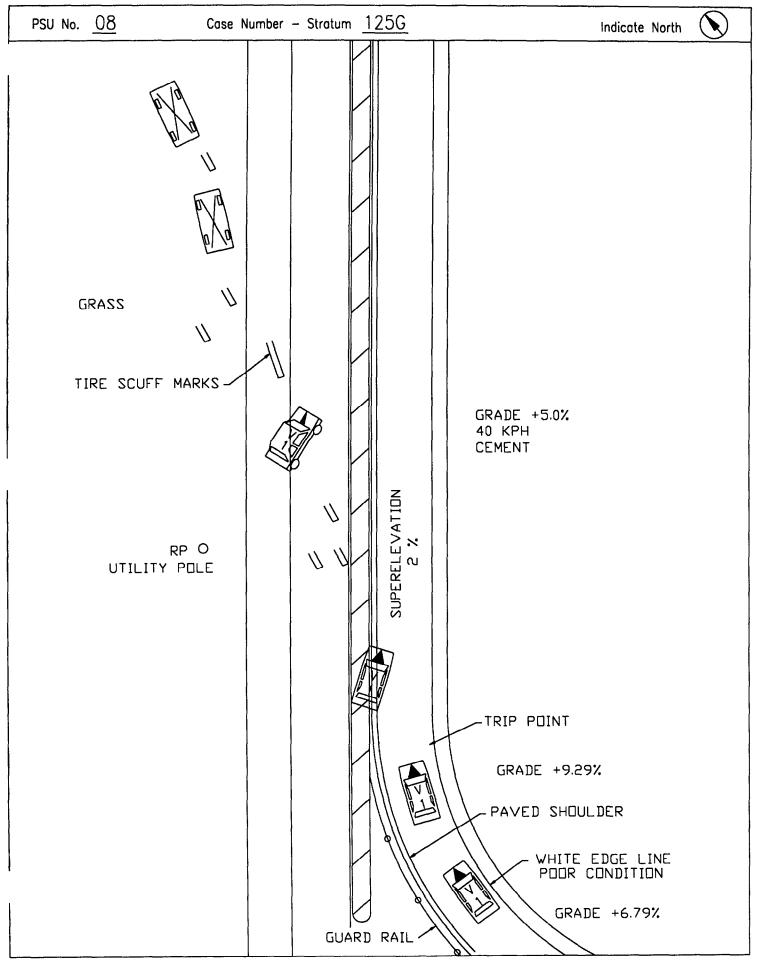


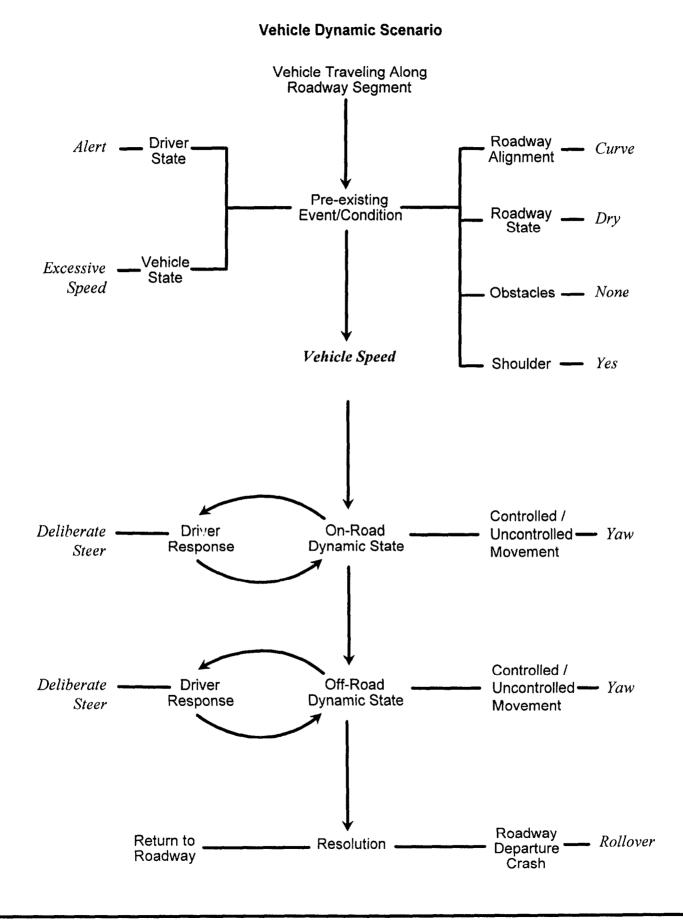
CAUSAL FACTOR:Vehicle Speed - ExcessiveROADSIDE DEPARTURE:Left

<u></u>	General Accide	nt Information	
Date:	7-7-93	Weather:	Clear/Cloudy
Time:	0350	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	Artificial lighting
Accident Severity:	• 0 (O)	Land Use:	Urban
Driver/Occup	pant Information	Vehicle Infor	mation
Driver Age:	Unknown	Year:	1990
Driver Sex:	Male	Vehicle Make:	Mitsubishi
Impairment:	Unknown	Vehicle Model:	Eclipse
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway Ir	Iformation	
Trafficway Type		Alignment:	Curve Right
(Median):	Not divided	Slope:	Grade
No. of Lanes:	1	Speed Limit:	40 km/h
	Cluster V	/ariables	
GV14: 07 Ste	ering right		
GV64: 13 Neg	gotiating a curve		
GV65 : 06 Thi	s vehicle loss of control due to t	raveling too fast for conditions	
GV66: 3 Ski	dding laterally - clockwise rotat	ion	
GV67: 4 Vel	hicle departed roadway		

CAUSAL FACTOR:Vehicle Speed - ExcessiveROADSIDE DEPARTURE:Left

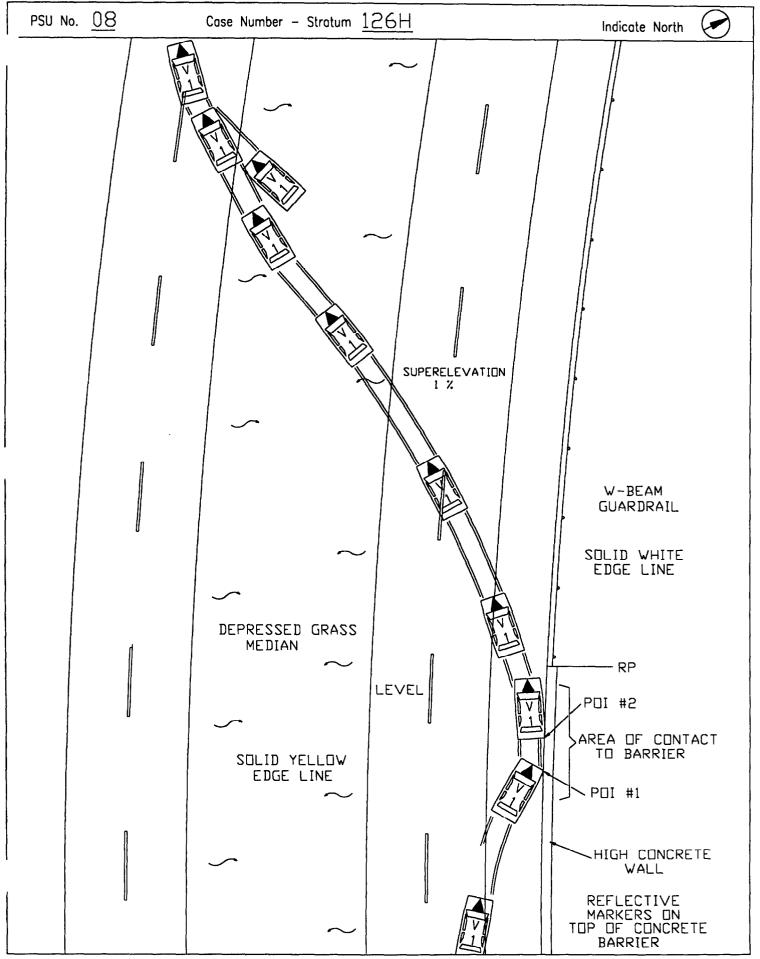
The subject vehicle was traveling on a one-lane concrete ramp with a positive slope that curved moderately to the right. As the driver attempted to negotiate the curve, the vehicle apparently yawed in a clockwise direction and departed the left road edge. The vehicle ramped up onto a curbed median and subsequently overturned. Roadway edge lines were faint. Excessive speed was the causal factor based on the travel distance of the vehicle during the rollover sequence.

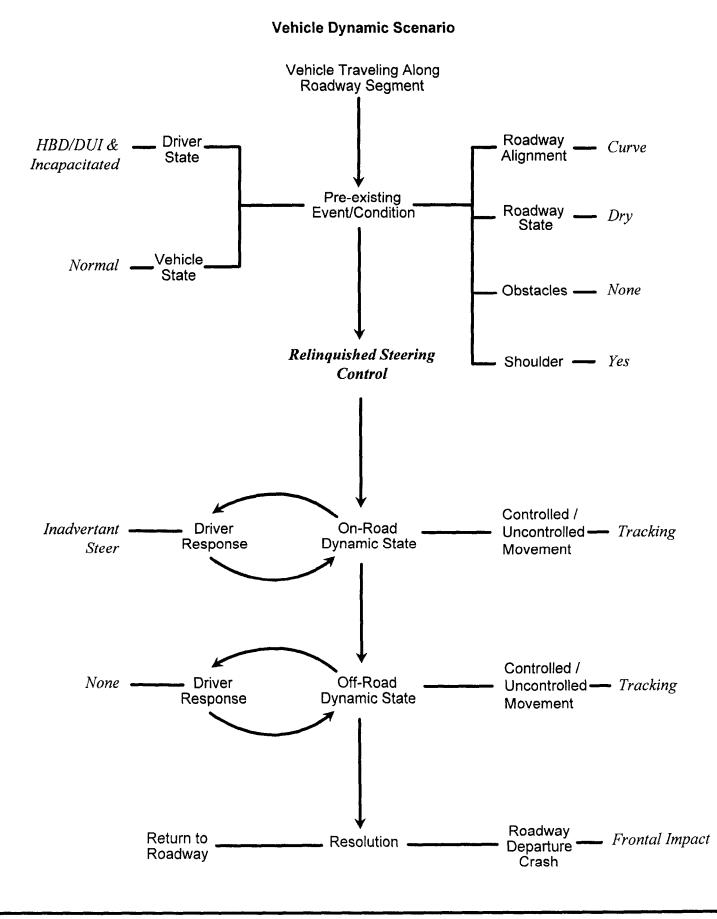




	General Accid	ent Information	<u> </u>
Date:	7-7-93	Weather:	Clear/Cloudy
Time:	0150	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	None
Accident Seven	<i>ty:</i> 0(O)	Land Use:	Urban
Driver/Occ	upant Information	Vehicle Info	rmation
Driver Age:	28	Year:	1984
Driver Sex:	Male	Vehicle Make:	Audi
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	5000
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	nformation	······································
Trafficway Type		Alignment:	Curve Right
(Median):	Flush or curb	Slope:	Level
No. of Lanes:	2	Speed Limit:	89 km/h
	Cluster	Variables	
GV14: 01 1	lo avoidance actions		
	No avoidance actions Negotiating a curve		
GV64: 13 1		of the road on the right side	
GV64: 13 1 GV65: 13	legotiating a curve	of the road on the right side	

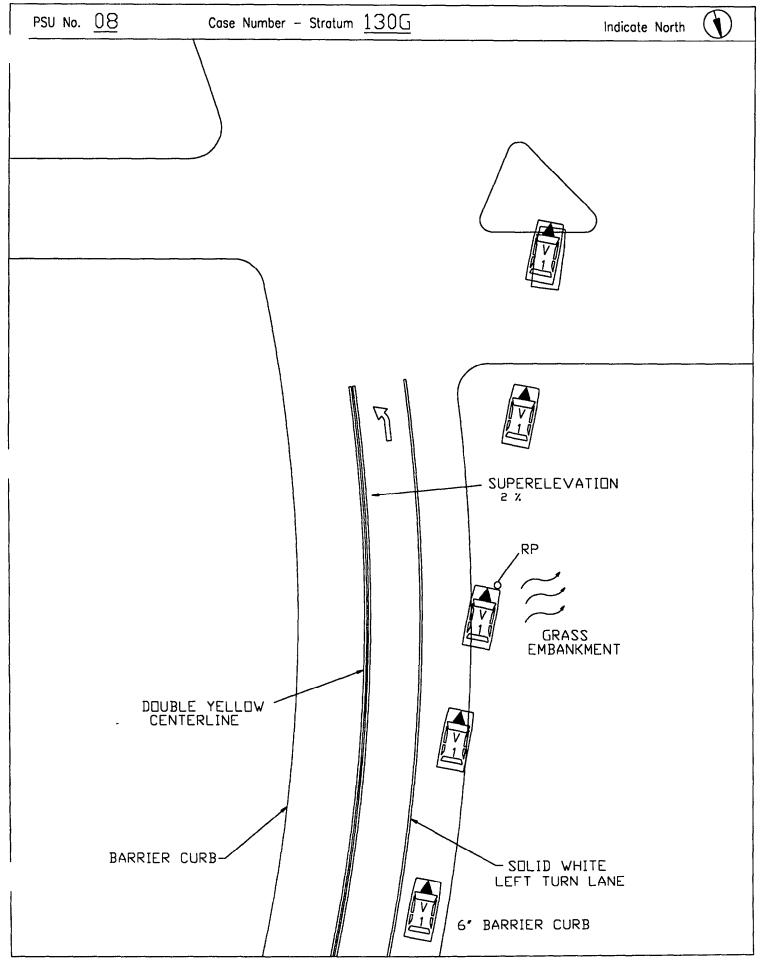
The subject vehicle was traveling at night in a westerly direction in the outboard lane of an unlighted, dry, level, four-lane, divided, concrete interstate that curved to the right with a slight superelevation. Police reported the vehicle's speed at 89 km/h (55 mph). The driver was intoxicated (BAC=0.27) and relinquished control of the vehicle. As a result, the vehicle drifted across the right outboard road edge and the driver braked or steered in an attempt to regain control. Tire marks were left on the paved shoulder before the vehicle impacted a concrete barrier which protected a high concrete retaining wall. The barrier redirected the vehicle across the westbound travel lanes and across the median before it came to rest diagonal to the eastbound travel lanes.

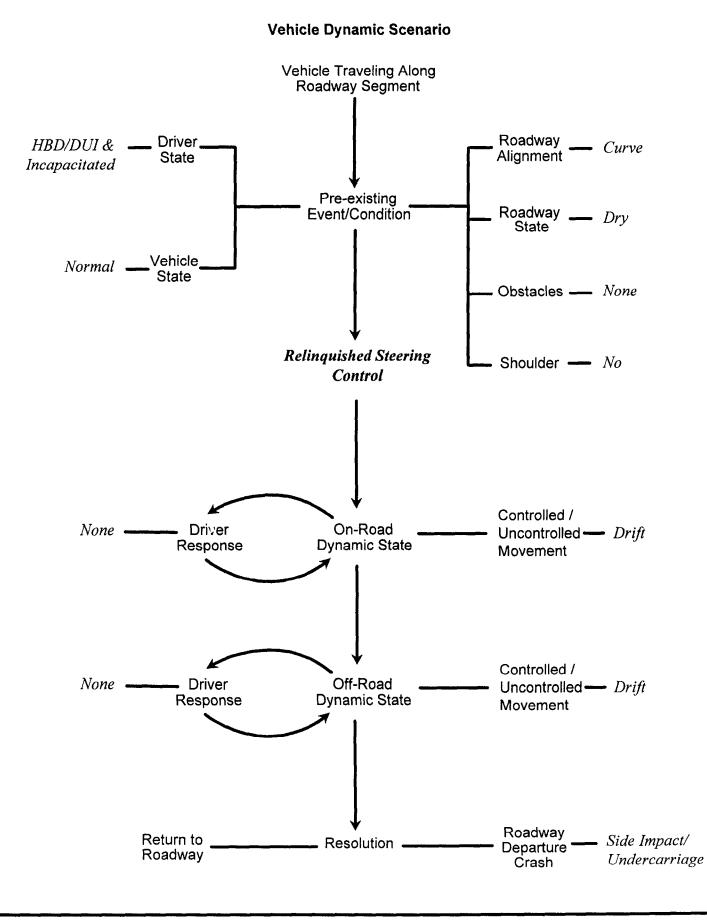




	General Ac	ccident Information	
Date:	7-3-93	Weather:	Clear/Cloudy
Time:	2204	Surface Condition:	Dry
Accident Typ	control/Traction Loss	Lighting:	Artificial lightin
Accident Sev	verity: 0(O)	Land Use:	Urban
Driver/C	Occupant Information	Vehicle Infor	rmation
Driver Age:	37	Year:	1989
Driver Sex:	Male	Vehicle Make:	Chevrolet
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Cavalier
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadw	vay Information	
Trafficway T		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes	s: 3	Speed Limit:	56 km/h
	Clus	ster Variables	
GV14 : 0	1 No avoidance actions		
GV64: 13	3 Negotiating a curve		
GV65: 13	3 This vehicle traveling off the	edge of the road on the right side	
GV66: 0	No avoidance maneuver		
GV67 : 0	No avoidance maneuver		

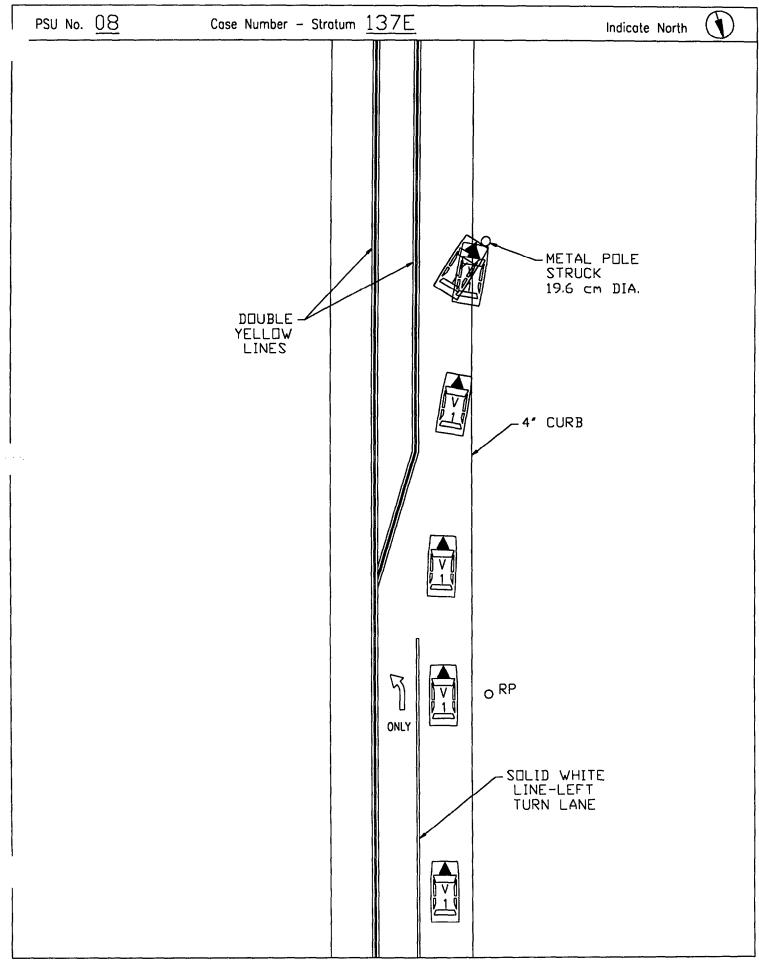
The subject vehicle was traveling in the outboard lane of a dry, three-lane, undivided, asphalt roadway that curved left with a +5% slope. Both edges of the roadway were bordered by barrier curbs and a grass embankment paralleled the west edge. The driver was intoxicated (BAC=0.17) and failed to negotiate the left curve. The vehicle departed the right road edge, sideswiped a utility pole, and traversed a grassy area. The vehicle continued for approximately 35 m across the grass before crossing an intersecting street and coming to rest at a traffic island.

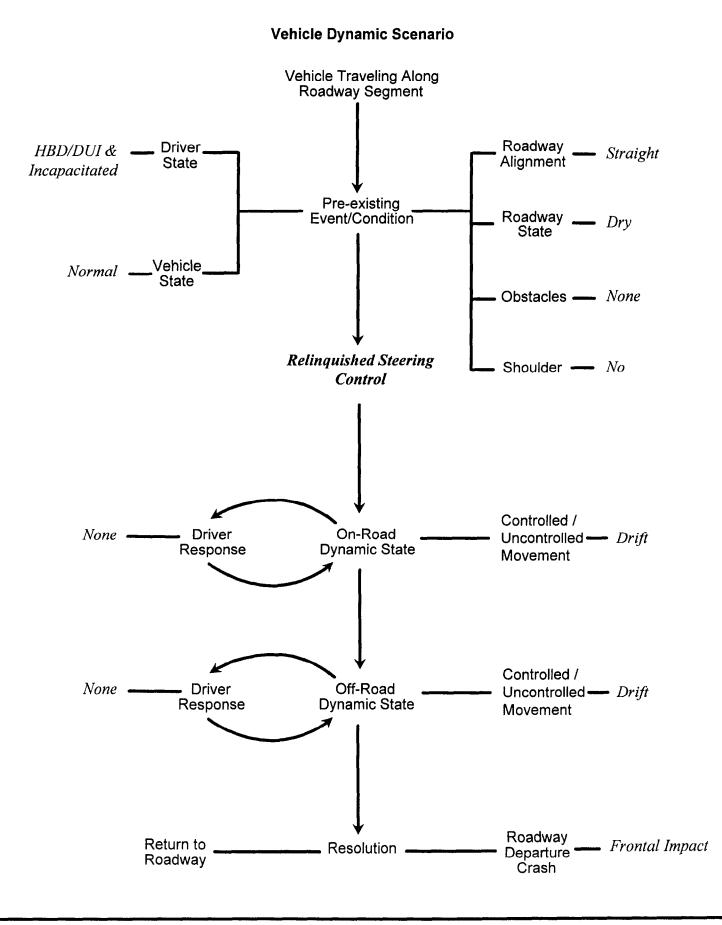




<u></u>	General Acci	dent Information	
Date:	8-1-93	Weather:	Clear/Cloudy
Time:	0425	Surface Condition:	Dry
Accident Type	: Drive Off Road	Lighting:	Artificial lighting
Accident Seve	erity: 2 (B)	Land Use:	Urban
Driver/O	ccupant Information	Vehicle Info	rmation
Driver Age:	33	Year:	1989
Driver Sex:	Female	Vehicle Make:	Nissan/Datsun
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Pulsar
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Ty		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes.	3	Speed Limit:	40 km/h
	Cluste	r Variables	
GV14 : 01	No avoidance actions		
OV/04 01	Going straight		
GV64 : 01	This vehicle traveling off the edu	ge of the road on the right side	
GV64: 01 GV65: 13	This vehicle travening off the edg		
	No avoidance maneuver		

The subject vehicle was traveling after dark in the outboard lane of a lighted, straight, three-lane, urban, asphalt roadway with a +7.5% slope in a 40 km/h (25 mph) speed zone. Both edges of the road were bordered by barrier curbs with numerous trees, poles, and signs placed along the curb, approximately 0.3 m off the road. As the driver ascended the grade, the vehicle drifted to the right and mounted the barrier curb. The right frontal area impacted a small diameter tree resulting in a change in velocity of 35 km/h (22 mph). The vehicle rotated 12 degrees in a clockwise direction and came to rest against the struck tree. The driver was intoxicated (BAC unknown).



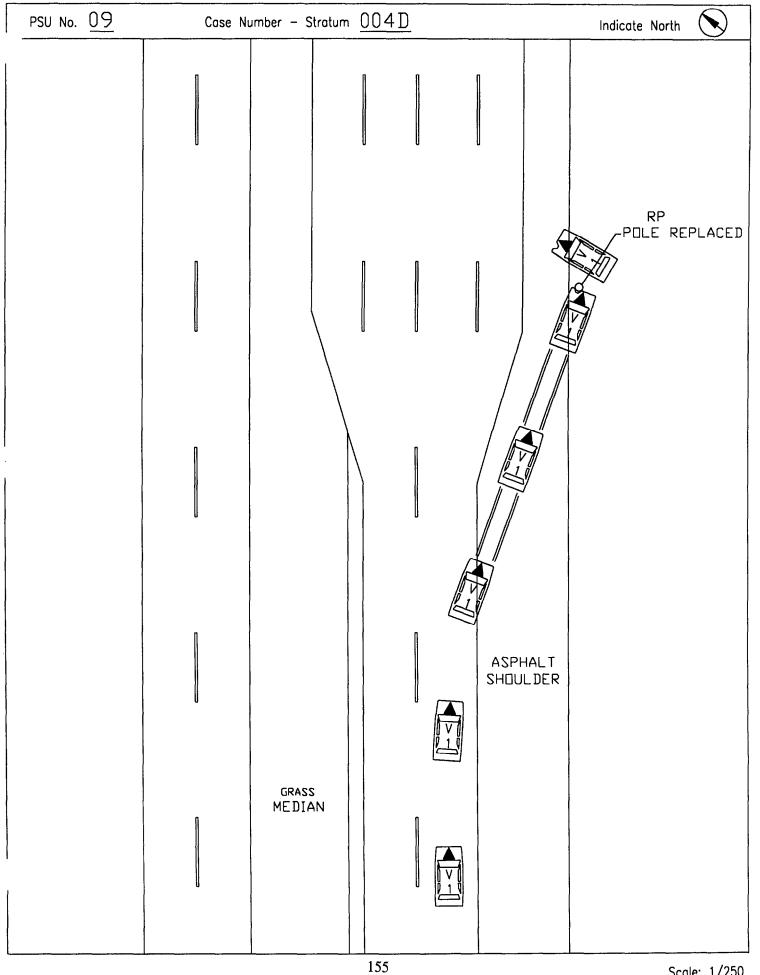


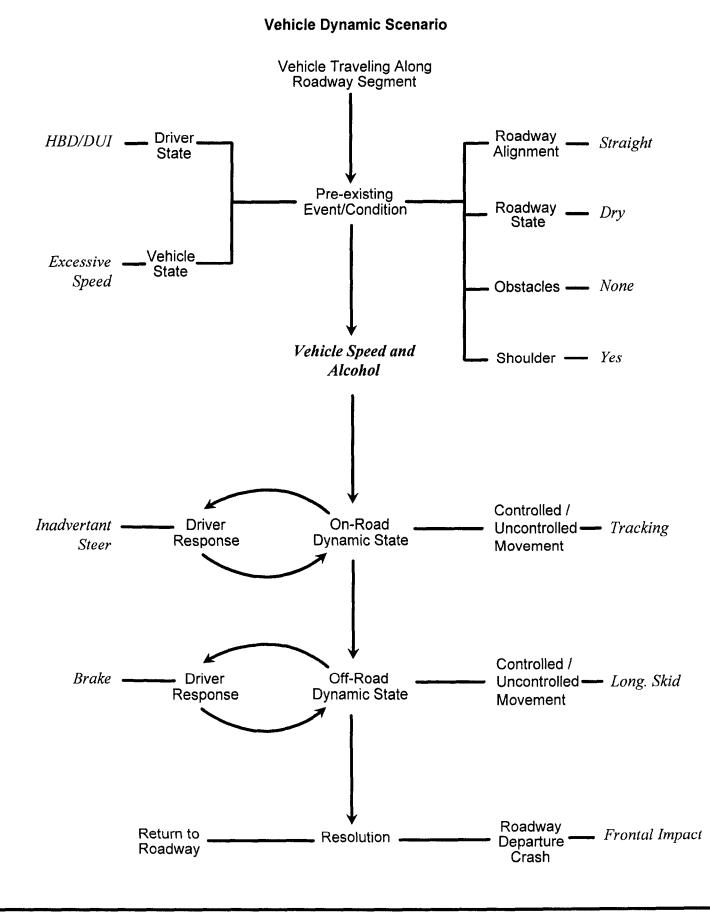
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

	General Accie	dent Information	
Date:	1-1-93	Weather:	Clear/Cloudy
Time:	0235	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	None
Accident Severi	ty: 3 (A)	Land Use:	Urban
Driver/Occ	upant Information	Vehicle Info	mation
Driver Age:	20	Year:	1989
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	F-series pickup
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Type		Alignment:	Straight
(Median):	Flush or curb	Slope:	Level
No. of Lanes:	4	Speed Limit:	80 km/h
	Cluster	Variables	· · · · · · · · · · · · · · · · · · ·
GV14: 01 N	o avoidance actions		
	oing straight		
GV64: 01 C		e of the road on the right side	
	his vehicle traveling off the edg	6	
GV65: 13 T	his vehicle traveling off the edg to avoidance maneuver	U U	

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

The subject vehicle was traveling east on a straight, six-lane, divided, highway when the driver departed the right edge of the road as the result of being under the influence of alcohol and driving at a high rate of speed. The driver locked the brakes in an attempt to avoid striking a utility pole located on the grassy area adjacent to the asphalt shoulder. The pole sheared at the base and the vehicle rotated in counterclockwise direction before coming to rest heading in a northerly direction. The causal factor was vehicle speed and alcohol consumption.





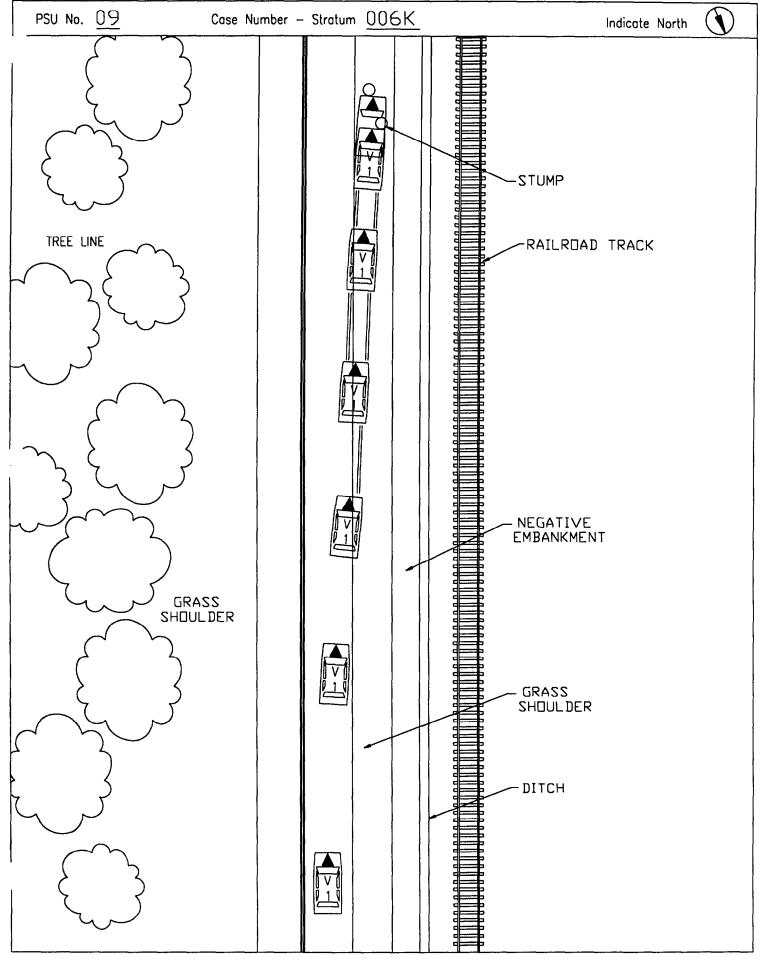
Calspan Corporation Carnegie Mellon University

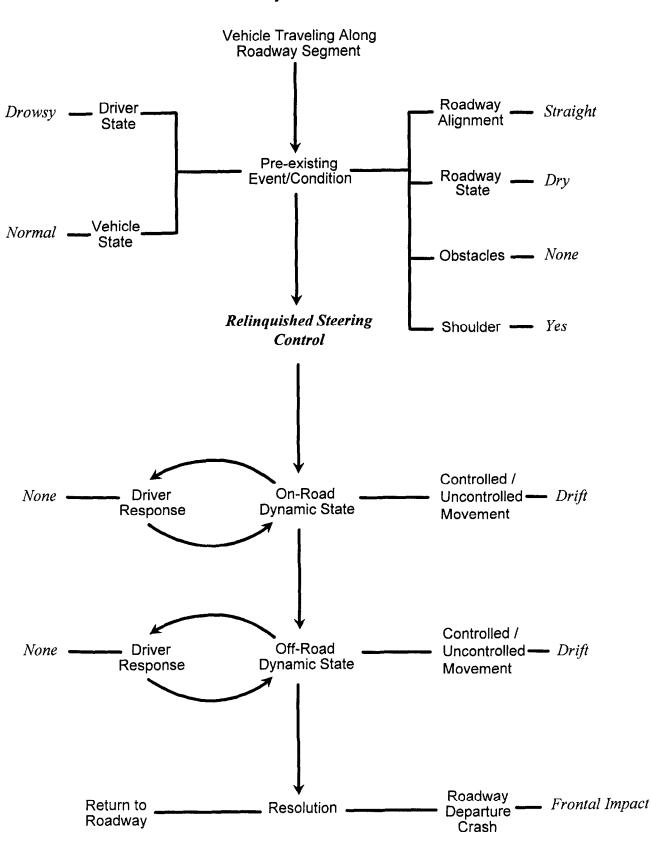
CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Right

	General Acci	dent Information	
Date:	1-1-93	Weather:	Clear/Cloudy
Time:	0220	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	None
Accident Seve	<i>rity:</i> 3 (A)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Info	rmation
Driver Age:	19	Year:	1984
Driver Sex:	Female	Vehicle Make:	Ford
Impairment:	Fell Asleep	Vehicle Model:	Tempo
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	/ Information	
Trafficway Typ		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	80 km/h
	Cluste	r Variables	
GV14: 01	No avoidance actions		
GV64: 01	Going straight		
GV65: 13	This vehicle traveling off the edg	ge of the road on the right side	
	No avoidance maneuver		
GV66: 0			

CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Right

The subject vehicle drifted off the right road edge of a dry, straight, two-lane, undivided, asphalt roadway with a +2% slope. The roadway was dark and not illuminated by street lights. The vehicle traveled 36 m along the grassy shoulder before striking a tree with its frontal plane. The driver fell asleep prior to the roadway departure. The causal factor was that the driver fell asleep and relinquished control of the vehicle.



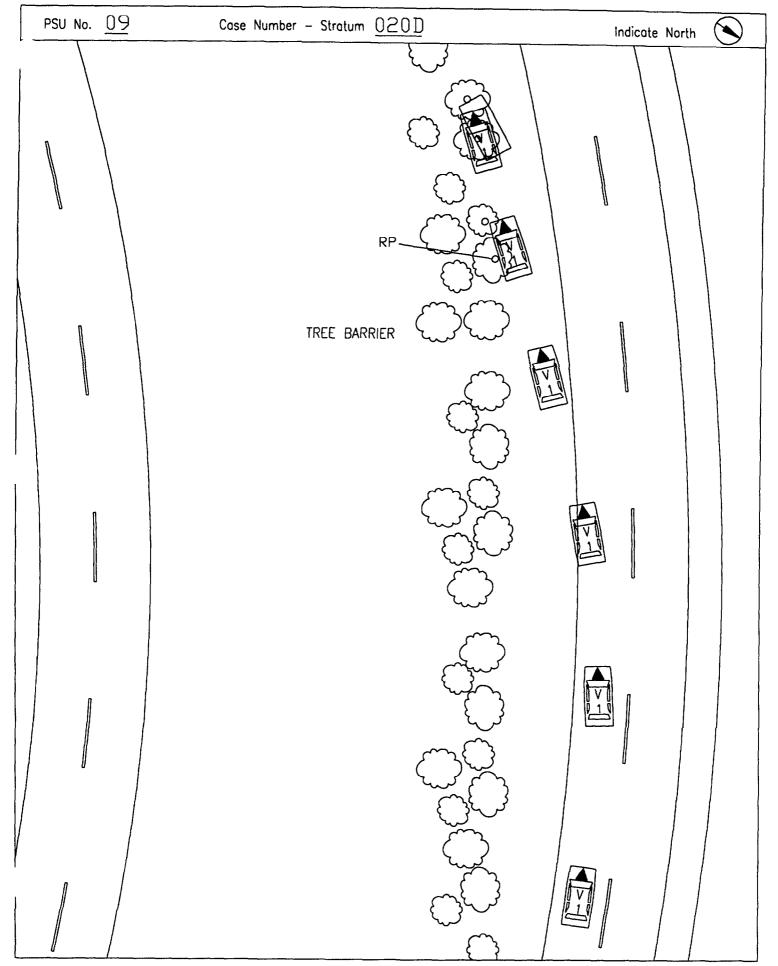


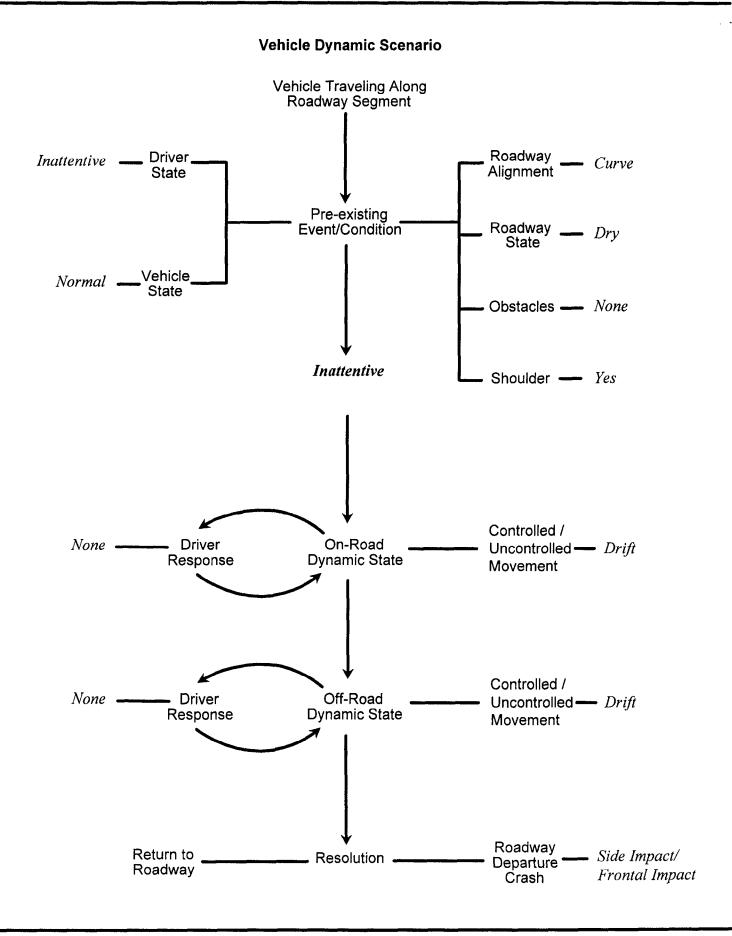
CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

	General Accio	lent Information	
Date:	2-1-93	Weather:	Clear/Cloudy
Time:	0720	Surface Condition:	Dry
Accident Type	Drive Off Road	Lighting:	Daylight
Accident Seve	rity: 3 (A)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Infor	rmation
Driver Age:	31	Year:	1982
Driver Sex:	Male	Vehicle Make:	Plymouth
Impairment:	None	Vehicle Model:	Gran Fury
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Typ		Alignment:	Curve Left
(Median):	Physical barrier	Slope:	Grade
No. of Lanes:	4	Speed Limit:	64 km/h
	Cluster	Variables	
GV14 : 99	Unknown		
GV64: 13	Negotiating a curve		
GV65 : 12	This vehicle traveling off the edg	e of the road on the left side	
GV66: 9	Precrash stability unknown		
	Directional consequences unknow		

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

The subject vehicle was traveling westbound in the left lane during daylight on a dry, four-lane, divided, asphalt roadway that curved to the left. The driver was inattentive to the driving task and drifted off the left roadway edge. The vehicle traveled approximately 20 m along the 2.5 m wide median grassy shoulder prior to striking a tree with the vehicle's left side plane. The vehicle continued along the shoulder and struck three additional trees. The driver did not apply the brakes prior to the final impact. There were no sight line restrictions or roadway obstructions. The causal factor was that the driver was inattentive to the driving task and drifted off the left side of the roadway.





CAUSAL FACTOR: Driver Inattention

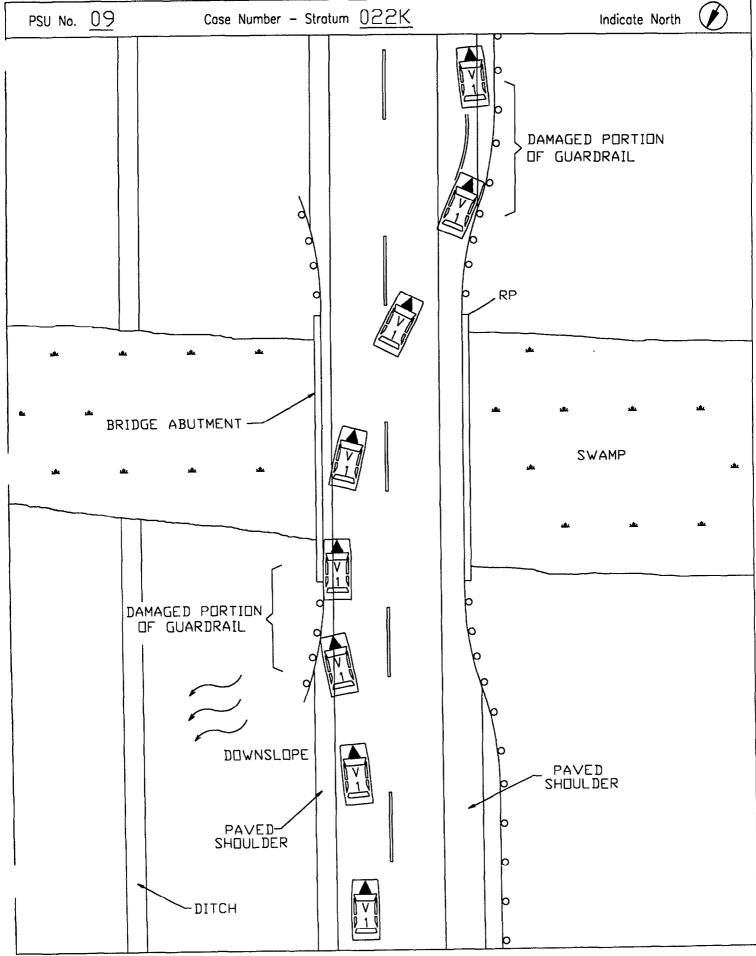
Left

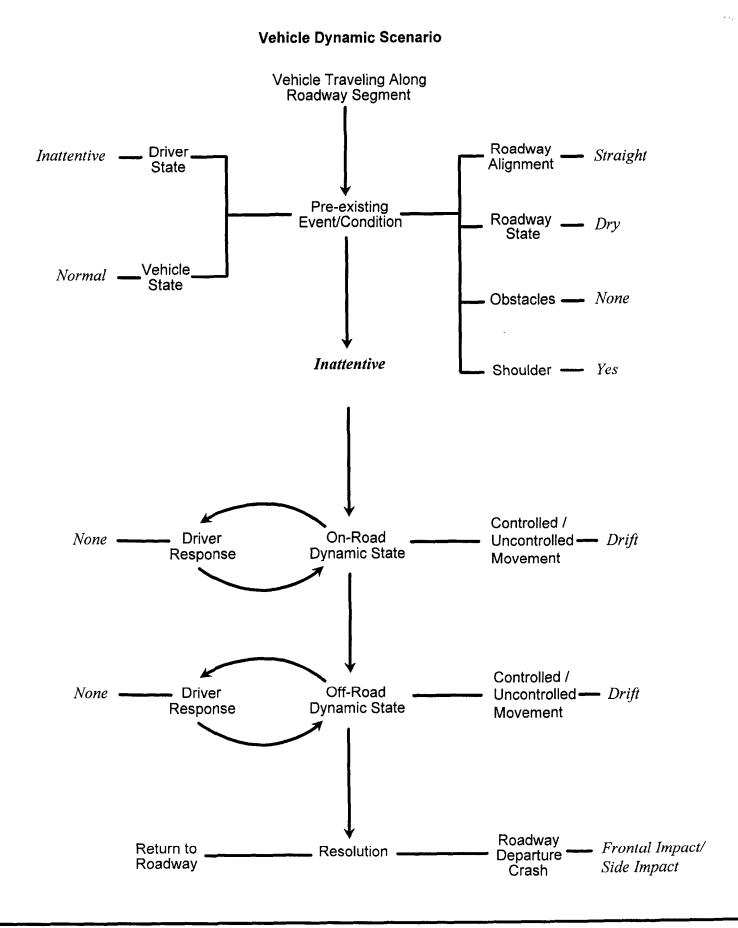
ROADSIDE DEPARTURE:

	General Acci	dent Information	
Date:	2-6-93	Weather:	Clear/Cloudy
Time:	1446	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	Daylight
Accident Severi	y: 3 (A)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Info	rmation
Driver Age:	17	Year:	1975
Driver Sex:	Female	Vehicle Make:	Nissan/Datsun
Impairment:	None	Vehicle Model:	Z-car, ZX
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	2	Defects:	No
····	Roadway	Information	······
Trafficway Type		Alignment:	Straight
(Median):	Physical barrier	Slope:	Level
No. of Lanes:	4	Speed Limit:	89 km/h
	Cluster	Variables	
GV14: 99 U	nknown		
GV64: 01 C	oing straight		
GV65: 10 T	his vehicle traveling over the la	ne line on left side of travel lane	
GV66: 9 P	recrash stability unknown		
GV67: 9 D	virectional consequences unknow	avn	

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

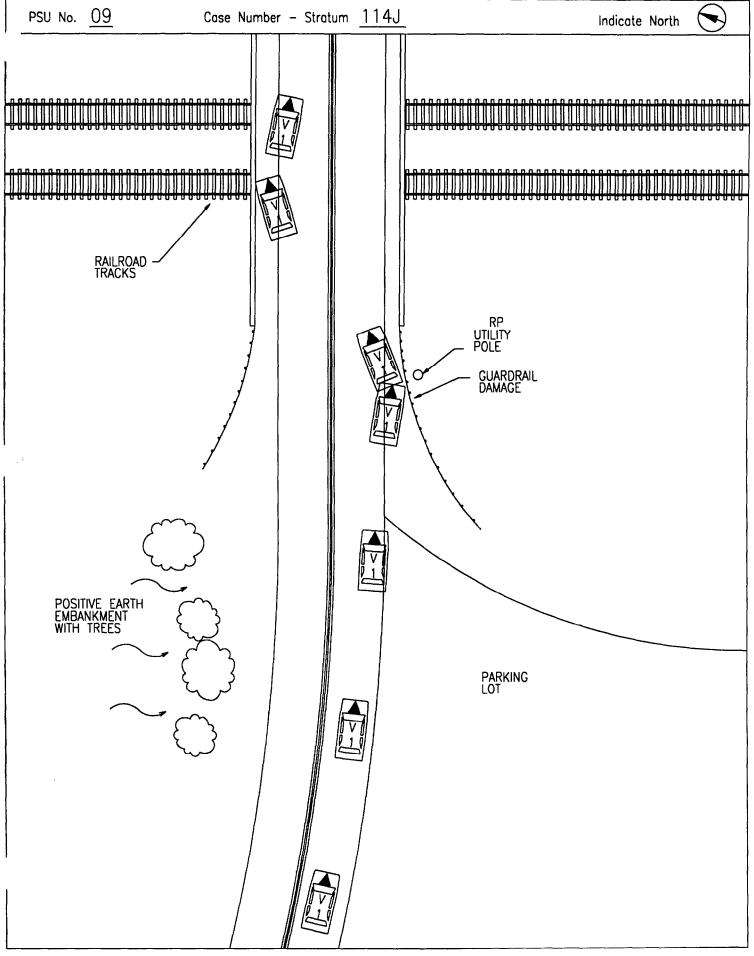
The subject vehicle was traveling during daylight hours on a dry, straight, level, four-lane, divided, asphalt roadway when the driver became inattentive to the driving task and drifted off the inboard road edge. The vehicle traveled approximately 20 m on the 1.3 m wide asphalt shoulder before impacting a W-beam guardrail. The vehicle returned to the travel lanes and departed the right roadway edge line striking another guardrail. The vehicle separated from this guardrail and came to rest on the shoulder next to the guardrail. There were no adverse weather conditions and no sight line restrictions. The causal factor was driver inattention.

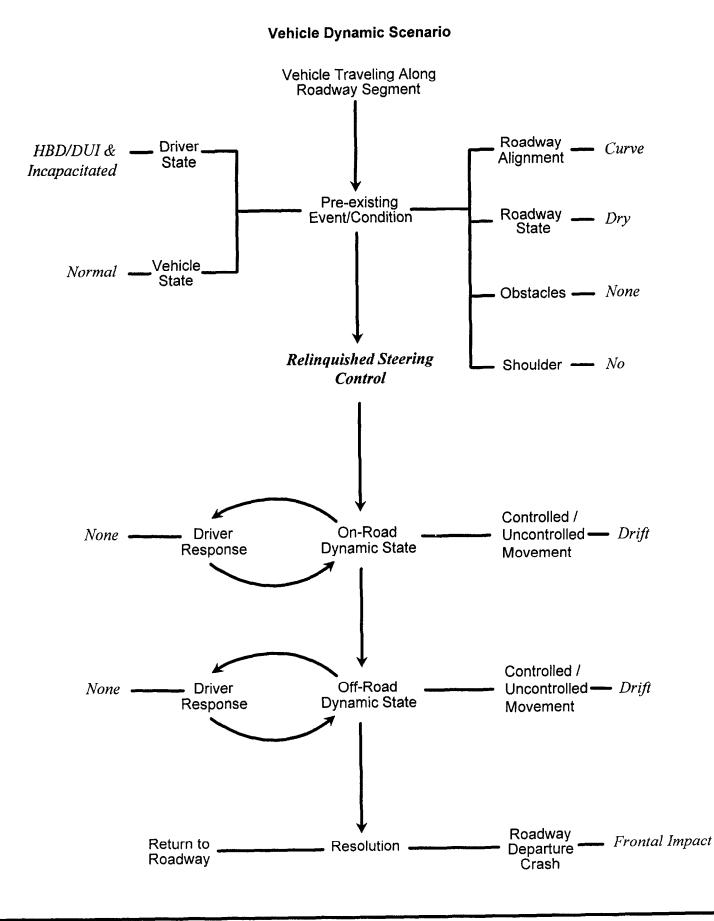




		General Accid	lent Information	
Date:		7-6-93	Weather:	Clear/Cloudy
Time:		0008	Surface Condition:	Dry
Accident Ty	pe:	Drive Off Road	Lighting:	None
Accident Se	verity:	3 (A)	Land Use:	Urban
Driver/	Occup	ant Information	Vehicle Info	mation
Driver Age:		25	Year:	1993
Driver Sex:		Male	Vehicle Make:	Ford
Impairment:		Intoxicated (alcohol/drugs)	Vehicle Model:	Mustang/ Mustang II
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		1	Defects:	No
······································		Roadway	Information	
Trafficway 1			Alignment:	Curve Left
(Median):		Not divided	Slope:	Grade
No. of Lane	s:	2	Speed Limit:	56 km/h
		Cluster	Variables	
GV14: 0	1 Noa	voidance actions		
GV64: 1	3 Nego	voidance actions otiating a curve	e of the road on the right side	
GV64 : 1	3 Nego 3 This	voidance actions otiating a curve	e of the road on the right side	

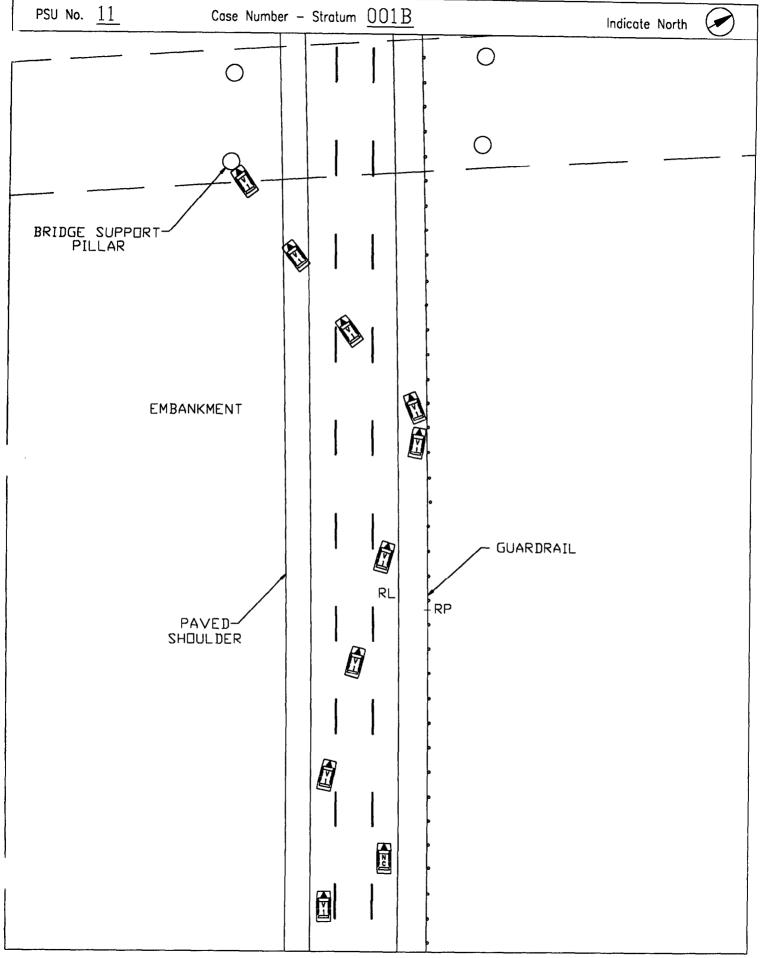
The subject vehicle was traveling in an easterly direction on a dry, two-lane, asphalt roadway during nighttime hours. The driver was intoxicated (BAC=0.29) and attempted to negotiate a moderate left curve at an unknown, but reasonable rate of speed. The vehicle drifted off the right road edge in a tracking mode and impacted a W-beam guardrail in a right sideswipe configuration. The guardrail redirected the vehicle across the roadway where it impacted a bridge rail. There was no edge line in the area of the initial road departure and no reflective markers or delineators.

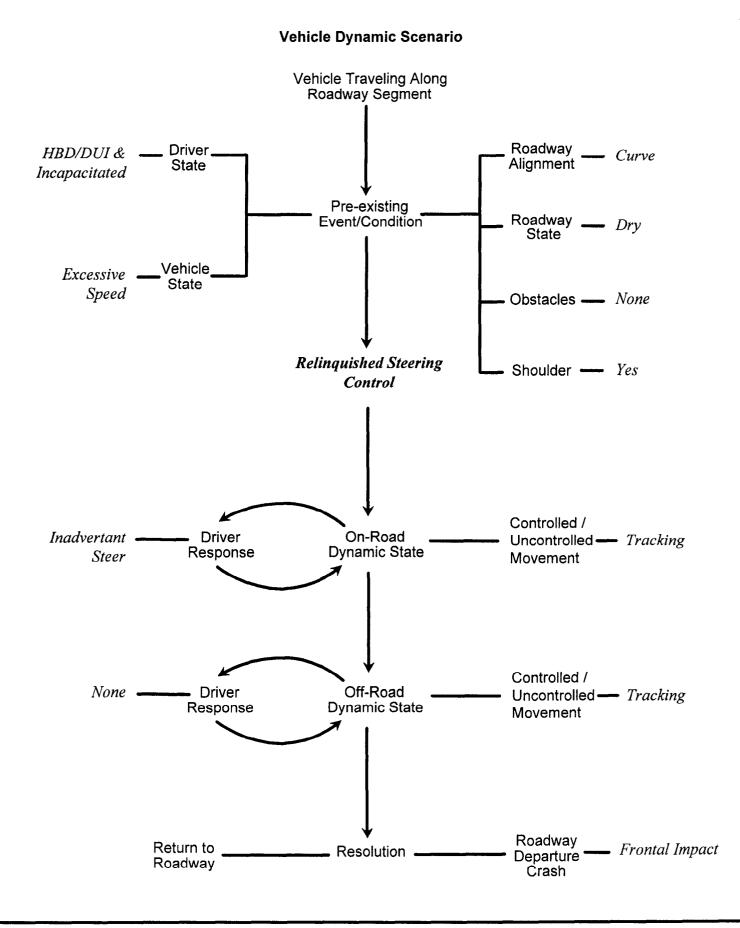




	General Acci	dent Information	
Date:	1-6-93	Weather:	Clear/Cloudy
Time:	0205	Surface Condition:	Dry
Accident Typ	e: Drive Off Road	Lighting:	None
Accident Sev	erity: 4(K)	Land Use:	Rural
Driver/O	ccupant Information	Vehicle Infor	mation
Driver Age:	23	Year:	1988
Driver Sex:	Male	Vehicle Make:	Buick
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Regal
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	2	Defects:	No
	Roadway	Information	······································
Trafficway Ty		Alignment:	Curve Left
(Median):	Physical barrier	Slope:	Level
No. of Lanes	: 6	Speed Limit:	89 km/h
	Cluste	r Variables	
GV14 : 01	No avoidance actions		
	Negotiating a curve		
GV64: 13		ane line on right side of travel lane	
GV64: 13 GV65: 11	This vehicle traveling over the la	and find off fight side of traver fand	
	This vehicle traveling over the la No avoidance maneuver		

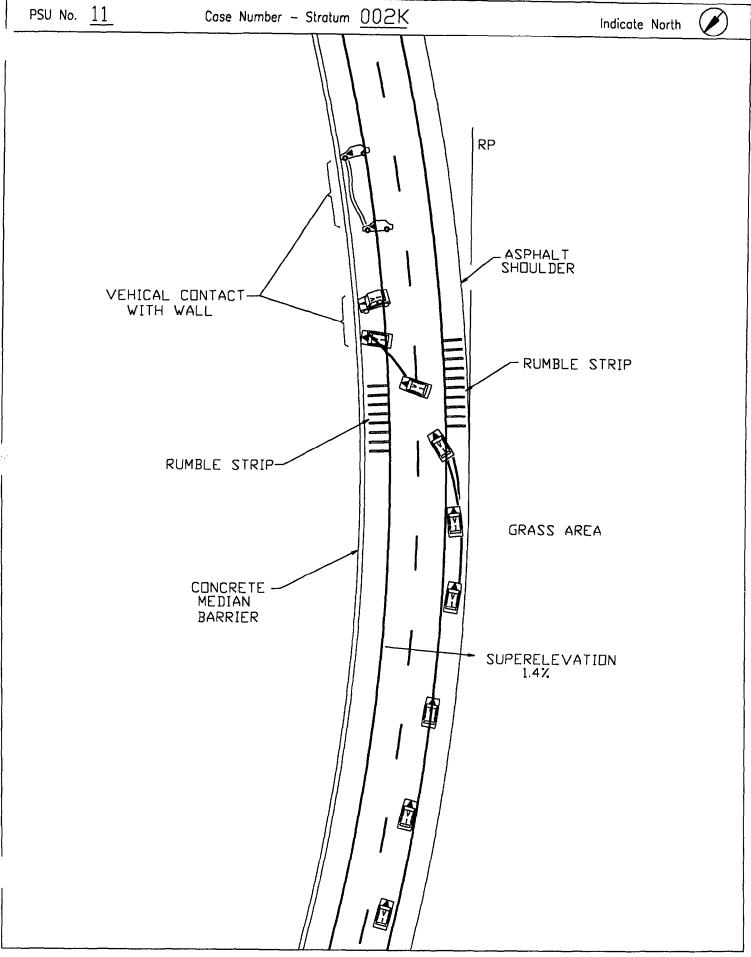
The subject vehicle was westbound on a level, six-lane, divided, concrete roadway which curved left. The roadway was dark with no artificial illumination. The driver had consumed alcohol and was swerving from lane to lane, traveling at a high rate of speed. The vehicle drifted off the right side of the roadway and struck a guardrail. The vehicle was redirected onto the roadway, where it crossed the three travel lanes and struck a bridge support post in the median. The driver did not apply brakes prior to the guardrail impact. The right roadway edge was striped with a solid white edge line which was in good condition. A rumble strip was present on the shoulder adjacent to the roadway edge line. The causal factor was excessive vehicle speed in combination with alcohol consumption.

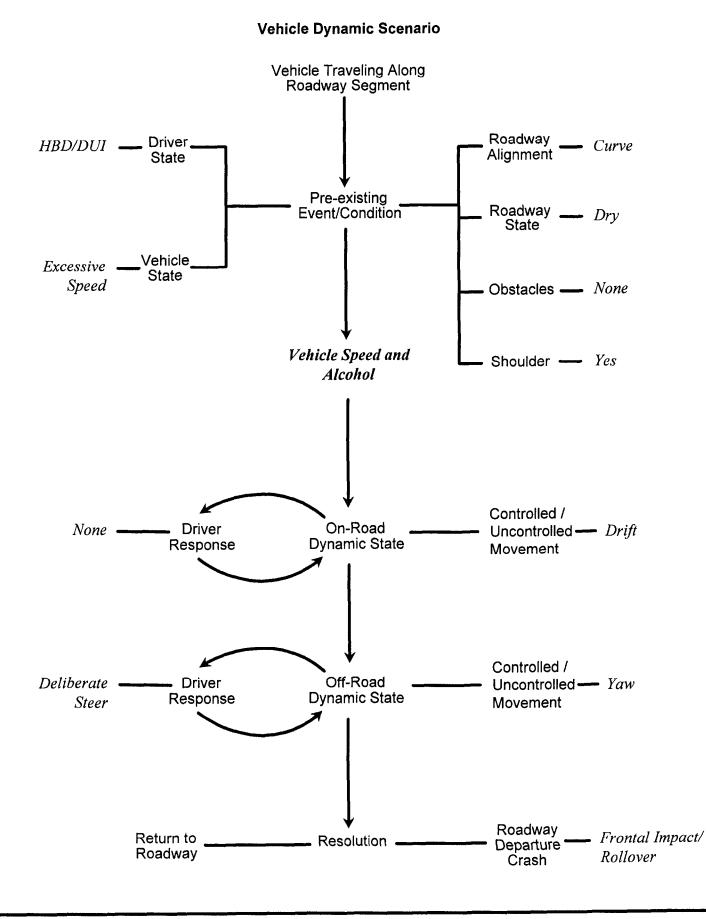




<u></u>	General Acci	dent Information	
Date:	1-7-93	Weather:	Clear/Cloudy
Time:	1845	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	None
Accident Severit	y: 3 (A)	Land Use:	Rural
Driver/Occu	pant Information	Vehicle Infor	mation
Driver Age:	47	Year:	1978
Driver Sex:	Male	Vehicle Make:	Buick
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	LeSabre
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	I	Defects:	No
	Roadway	Information	
Trafficway Type		Alignment:	Curve Left
(Median):	Physical barrier	Slope:	Level
No. of Lanes:	4	Speed Limit:	89 km/h
	Cluster	Variables	
GV14: 01 N	o avoidance actions		
GV64: 14 Cl	nanging lanes		
GV65: 13 Th	is vehicle traveling off the edg	ge of the road on the right side	
GV66: 0 N	o avoidance maneuver		

The subject vehicle was traveling eastbound in the left lane of a dry, level, unlit, superelevated, four-lane divided asphalt roadway that curved left. The driver swerved to the right departing the right roadway edge line and then counter-steered to the left. The vehicle subsequently rotated counterclockwise and re-entered the travel lanes striking the concrete median barrier with the frontal plane. The driver was intoxicated with a 0.2 BAC. The causal factor was roadway departure due to driver intoxication.



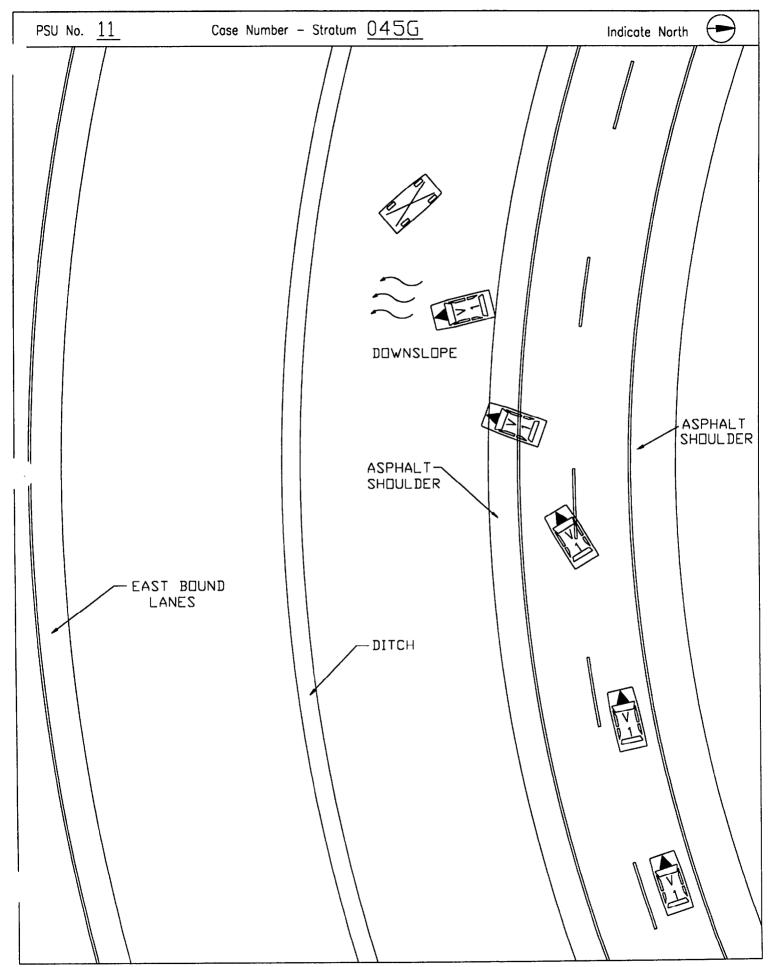


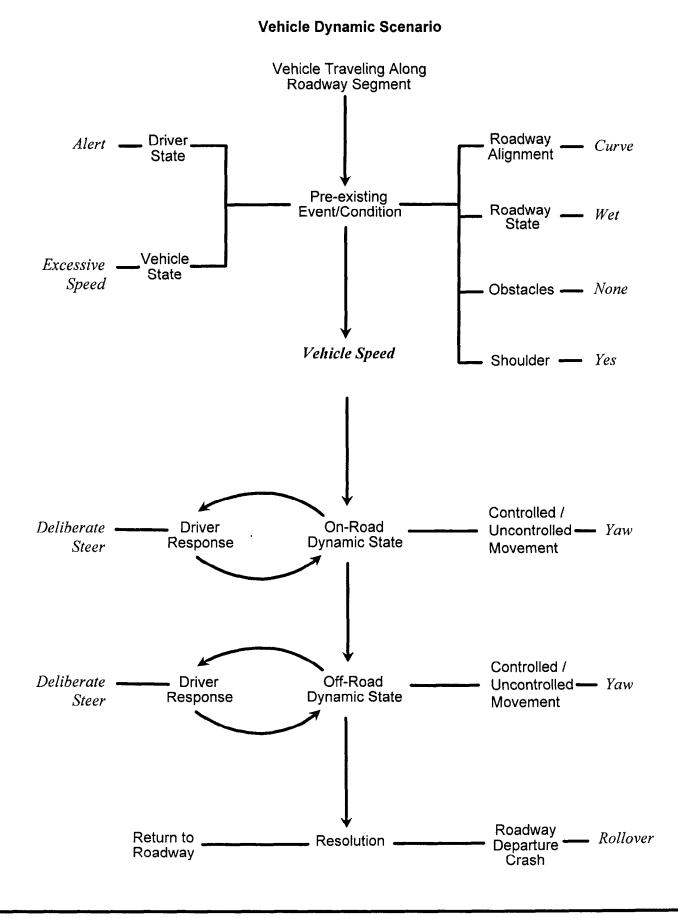
CAUSAL FACTOR: Vehicle Speed - Other ROADSIDE DEPARTURE: Left

		General Accide	ent Information	
Date:		2-3-93	Weather:	Snow/Sleet/Hai
Time:		0650	Surface Condition:	Wet
Accident T	ype:	Control/Traction Loss	Lighting:	Daylight
Accident S	everity:	0 (O)	Land Use:	Rural
Driver	/Occupa	ant Information	Vehicle Infor	mation
Driver Age	:	27	Year:	1991
Driver Sex:	;	Female	Vehicle Make:	Chevrolet
Impairmen	t:	None	Vehicle Model:	Geo Tracker
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants	:	1	Defects:	No
		Roadway I	nformation	
Trafficway			Alignment:	Curve Right
(Median):	Physical barrier	Slope:	Level
No. of Lan	es:	4	Speed Limit:	105 km/h
		Cluster \	/ariables	
GV14:	06 Steer	ing left		
GV64:	13 Nego	tiating a curve		
GV65:	05 This	vehicle loss of control due to p	ooor road conditions	
GV66:	4 Skide	ding laterally - counterclockwi	se rotation	
GV67:	4 Vehi	cle departed roadway		

CAUSAL FACTOR:Vehicle Speed - OtherROADSIDE DEPARTURE:Left

The subject vehicle was traveling at dawn on a wet (snowing), four-lane, divided, concrete interstate roadway that curved to the right. The driver was traveling too fast for conditions in the right lane and lost control. The vehicle rotated counterclockwise and departed the left roadside. The vehicle continued onto the grass median and rolled over. The driver, after attempting to counter-steer when initially losing control, let go of the steering wheel, relinquishing control of the vehicle. The causal factor was speed to fast for conditions.



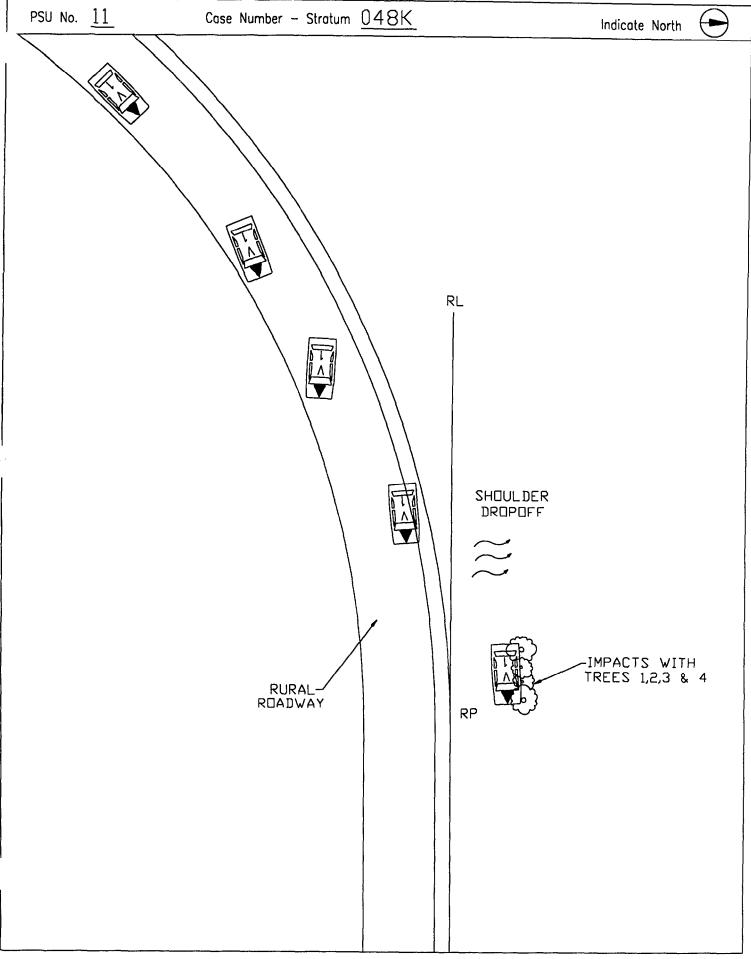


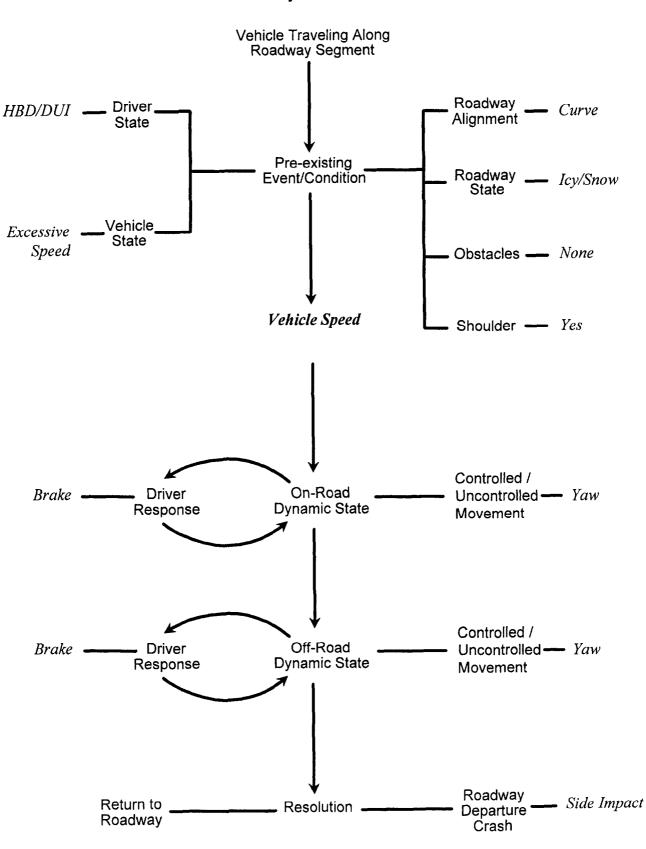
CAUSAL FACTOR:Vehicle Speed - ExcessiveROADSIDE DEPARTURE:Left

······································	General Acci	dent Information	
Date:	2-7-93	Weather:	Clear/Cloudy
Time:	0313	Surface Condition:	Ice/Snow
Accident Type:	Drive Off Road	Lighting:	None
Accident Severity	: 3 (A)	Land Use:	Rural
Driver/Occupant Information		Vehicle Info	rmation
Driver Age:	20	Year:	1986
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Escort/EXP
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	5	Defects:	No
······	Roadway	Information	·····
Trafficway Type		Alignment:	Curve Right
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	40 km/h
	Cluste	r Variables	
GV14: 03 Br	king (lockup)		
GV64: 13 Ne	gotiating a curve		
GV65: 05 Th	is vehicle loss of control due t	o poor road conditions	
GV66: 3 Sk	dding laterally - clockwise ro	tation	
GV67: 4 Ve	hicle departed roadway		

CAUSAL FACTOR:Vehicle Speed - ExcessiveROADSIDE DEPARTURE:Left

The subject vehicle was traveling east in a right curve section of an icy, rural, two-lane, dirt roadway with a -6.5% slope. The driver lost directional control. The vehicle departed the left side of the roadway and struck trees with its left side plane. The roadside afforded minimal lateral recovery distance due to the drop off beyond the shoulder which was approximately 1 m wide. The driver had been drinking which contributed to the crash. The causal factor was a combination of the vehicle traveling too fast for conditions and alcohol consumption.

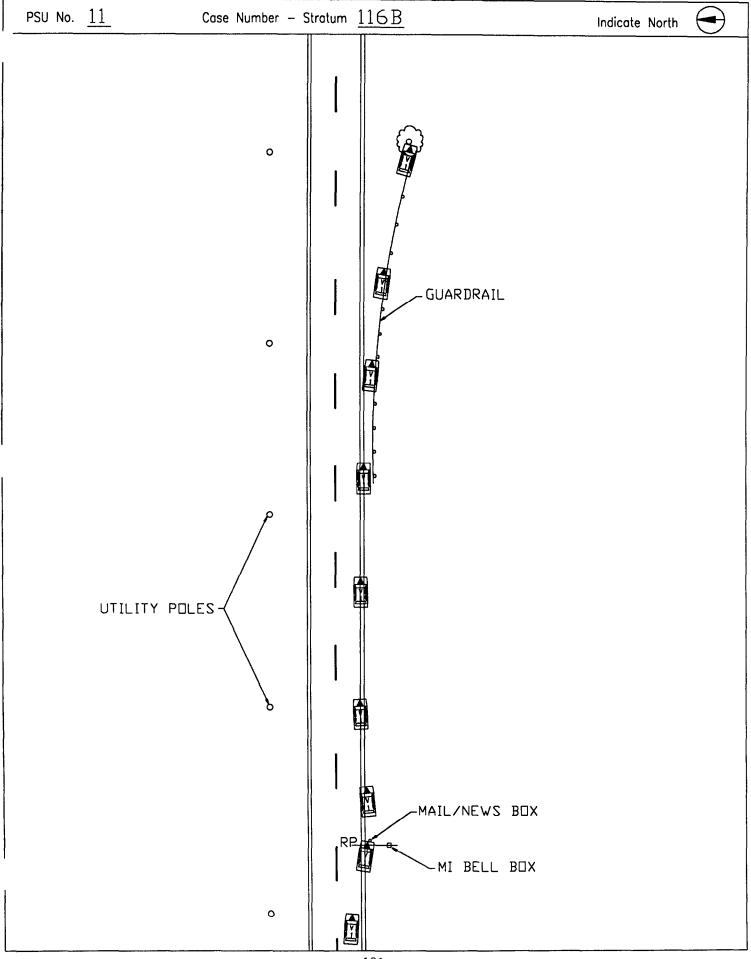


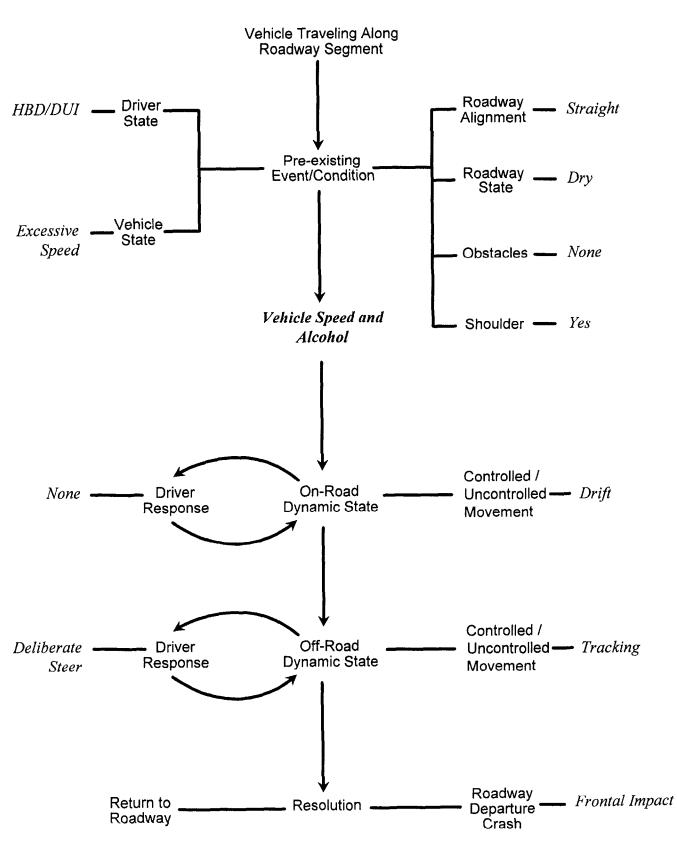


	General Acci	dent Information	
Date:	7-6-93	Weather:	Clear/Cloudy
Time:	1650	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	Daylight
Accident Severi	ty: 4 (K)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Infor	mation
Driver Age:	47	Year:	1984
Driver Sex:	Female	Vehicle Make:	Lincoln
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Continental/ Town Car
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	80 km/h
	Cluster	Variables	
GV14: 01 M	lo avoidance actions		
GV64: 01 C	oing straight		
	This vehicle traveling off the edg	e of the road on the right side	
GV65: 13 T			
	lo avoidance maneuver		

 $\sim \kappa_{e_1}$

The subject vehicle was traveling in an easterly direction on a dry, straight, level, rural, two-lane, asphalt roadway. The vehicle drifted off the right road edge in a tracking mode, impacted a mailbox post, and continued traveling along the right road edge for 90 m until the center frontal area impacted a large diameter tree. The roadway's solid white edge lines and broken yellow center line were in poor condition. The speed limit of the roadway was 80 km/h (50 mph). The Delta V was computed at 121 km/h (75 mph). The driver was intoxicated (BAC=0.20) and, according to witnesses, swerving from lane to lane.





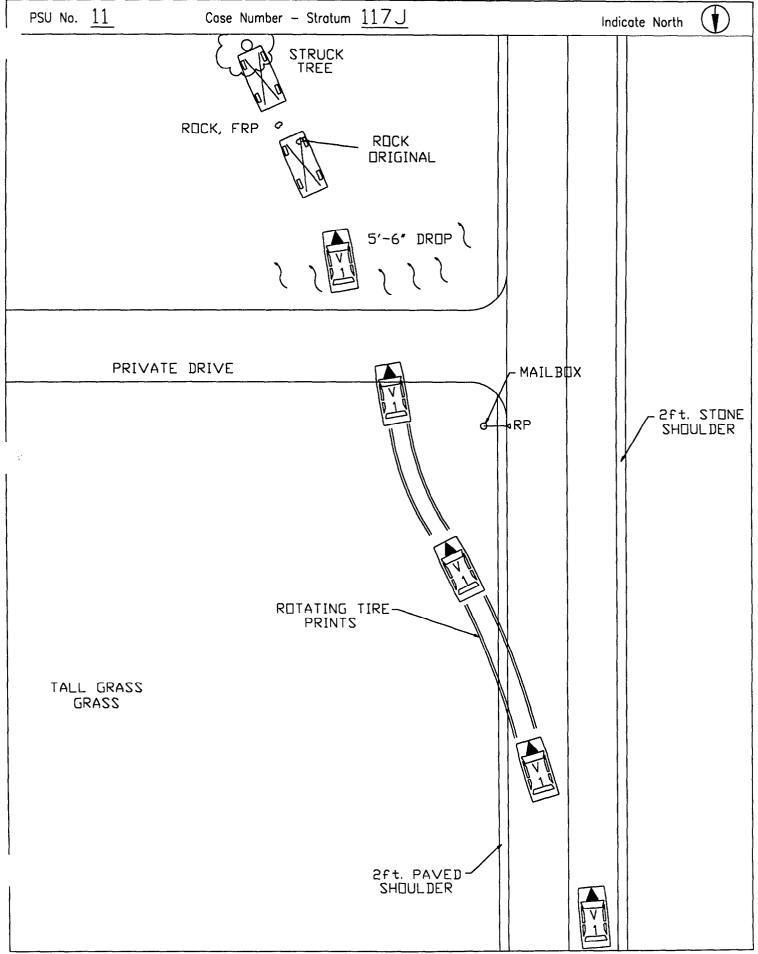
Vehicle Dynamic Scenario

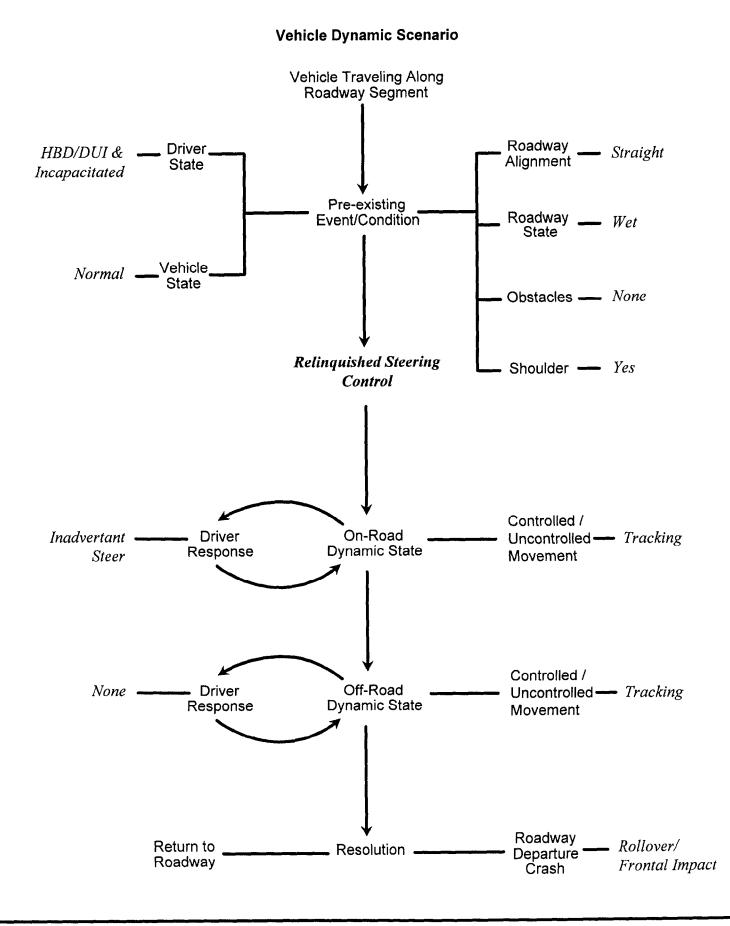
CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Left

<u> </u>	General Acci	dent Information	
Date:	7-5-93	Weather:	Rain
Time:	1550	Surface Condition:	Wet
Accident Type:	Drive Off Road	Lighting:	Daylight
Accident Severity:	3 (A)	Land Use:	Rural
Driver/Occup	pant Information	Vehicle Infor	mation
Driver Age:	62	Year:	1989
Driver Sex:	Male	Vehicle Make:	Chevrolet
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Baretta/Corsica
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	89 km/h
	Cluster	Variables	
GV14: 01 No	avoidance actions		
GV64: 01 Goi	ng straight		
GV65: 12 Thi	s vehicle traveling off the edg	e of the road on the left side	
GV66: 0 No	avoidance maneuver		
GV67: 0 No	avoidance maneuver		

CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Left

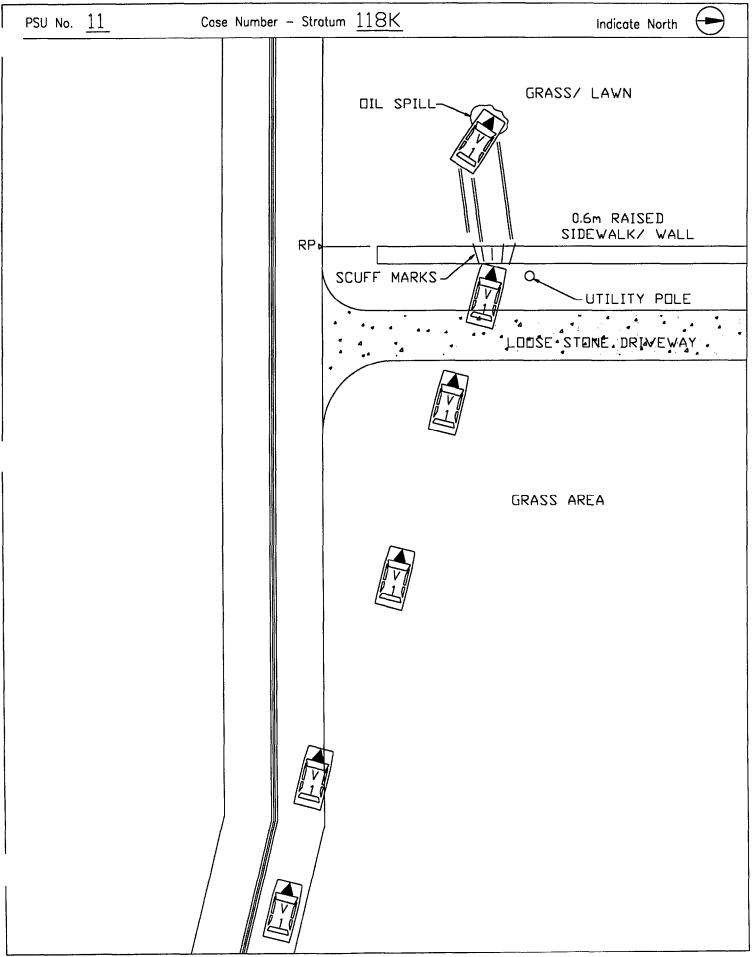
The subject vehicle was traveling in a southerly direction on a rural two-lane roadway during daylight hours. The road was straight and level but the surface was wet due to rain. The vehicle drifted off the left road edge, traversed a tall grassy area, and traveled up a shallow embankment at the side of a private driveway. The vehicle vaulted the driveway and overturned onto a large rock before coming to rest against a tree. The roadway had white edge lines and a broken yellow center line. The driver was highly intoxicated (BAC=0.33) and allowed the vehicle to gradually depart the left road edge.

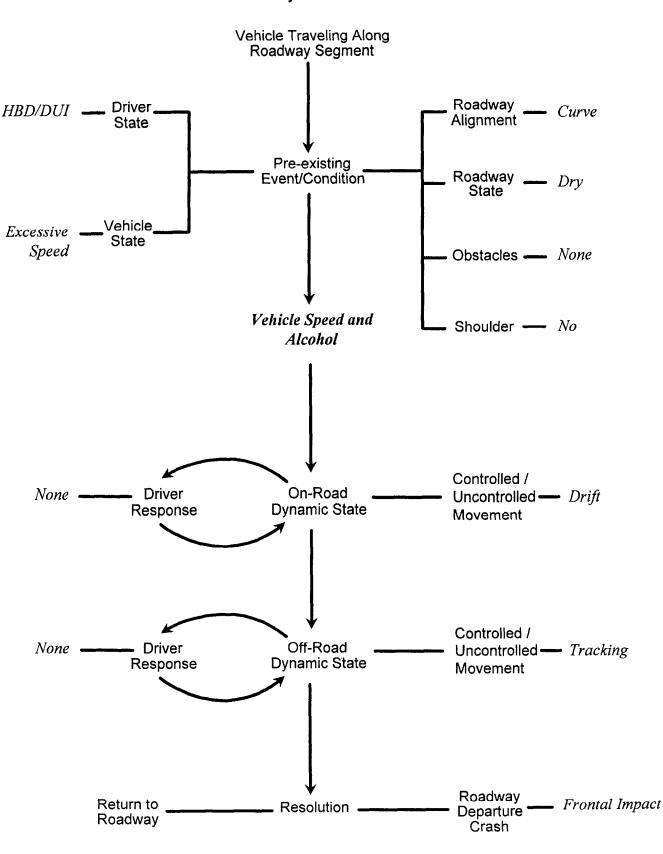




	General Acci	dent Information	
Date:	7-7-93	Weather:	Clear/Cloudy
Time:	0017	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	None
Accident Sevei	<i>ity:</i> 3 (A)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Infor	mation
Driver Age:	20	Year:	1988
Driver Sex:	Male	Vehicle Make:	Toyota
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Pickup
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Typ		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	89 km/h
	Cluster	v Variables	<u> </u>
GV14: 01	No avoidance actions		
GV64: 13	Negotiating a curve		
GV65: 06	This vehicle loss of control due t	o traveling too fast for conditions	
	No avoidance maneuver		
GV66: 0			

The subject vehicle was traveling west on a dry, dark and unlit, two-lane, undivided, asphalt roadway with a +3% slope. The roadway segment curved to the left. The subject vehicle departed the right roadway edge, traveled across a grassy lawn, crossed a private gravel driveway, struck a 0.6 m high raised sidewalk/wall, and came to rest on the lawn beyond the sidewalk. The roadway was delineated by full barrier yellow center lines which were in good condition and a white roadway edge line along the departure side which was extremely worn and rated in poor condition. There were no off-road obstacles with the exception of the raised sidewalk to impede vehicle recovery. The driver was intoxicated with a 0.22 BAC and traveling at 113 km/h (70 mph). The causal factor was excessive vehicle speed and alcohol consumption.





Vehicle Dynamic Scenario

CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE:

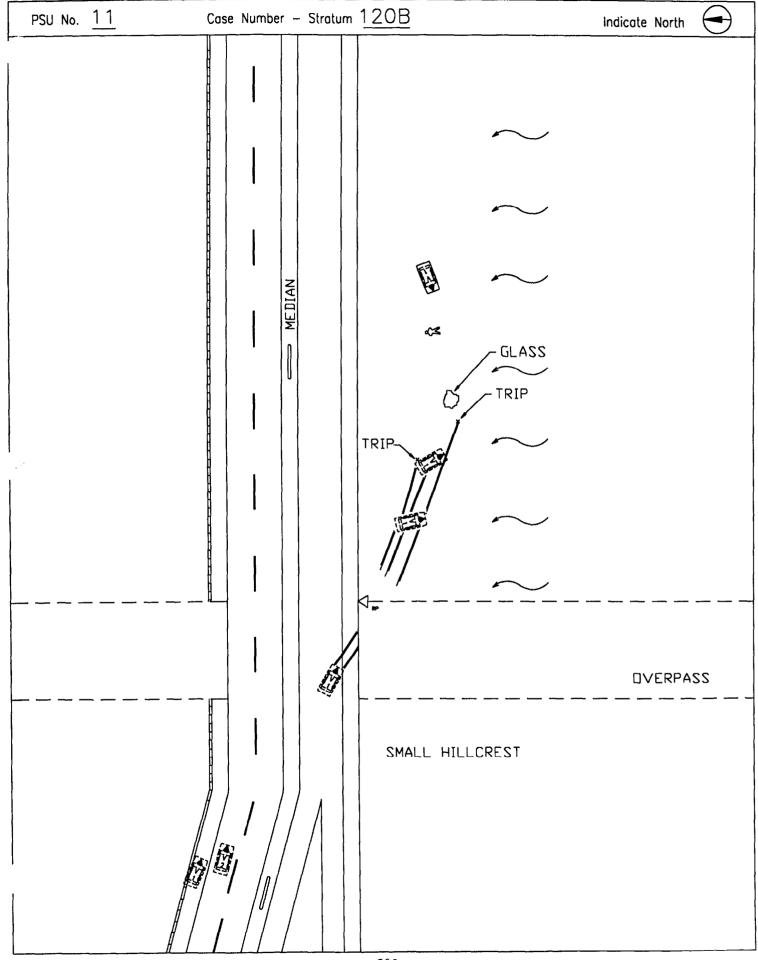
Left

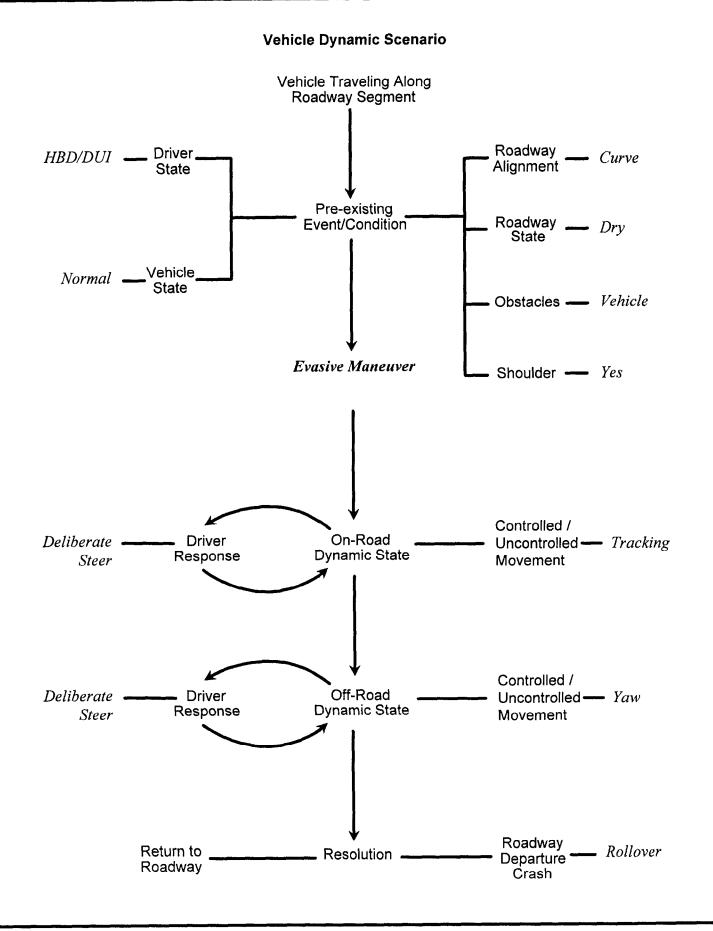
		General Accid	lent Information	
Date:		7-4-93	Weather:	Clear/Cloudy
Time:		1335	Surface Condition:	Dry
Accident	Туре	: Control/Traction Loss	Lighting:	Daylight
Accident	Seve	<i>rity:</i> 4 (K)	Land Use:	Rural
Drive	er/Oc	cupant Information	Vehicle Info	rmation
Driver Ag	le:	22	Year:	1987
Driver Se	x:	Male	Vehicle Make:	Mercury
Impairme		Intoxicated (alcohol/drugs)	Vehicle Model:	Topaz
Familiaria with Roa		Unknown	ABS:	No
No. of Occupan	ts:	1	Defects:	No
		Roadway	Information	
Trafficway Type			Alignment:	Curve Left
(Media	an):	Physical barrier	Slope:	Level
No. of La	anes:	2	Speed Limit:	89 km/h
		Cluster	Variables	<u> </u>
GV14:	06	Steering left		
GV64:	13	Negotiating a curve		
GV65:	52	Other motor vehicle in lane travel	ing in same direction with higher	speed
GV66:	1	Tracking		
GV67:	4	Vehicle departed roadway		

CAUSAL FACTOR: Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Left

The subject vehicle was traveling eastbound in the left lane of a dry, level, four-lane, divided, asphalt interstate highway during daylight hours. As the driver approached a two-lane entrance ramp junction, the driver became engaged in a confrontation with another motorist traveling in the right lane. The subject driver crossed the left roadway edge line and traveled on the 1 m wide paved median shoulder before veering to the right in an attempt to avoid the concrete median barrier. The vehicle re-entered the eastbound travel lanes, rotated in a clockwise direction across three lanes, departed the right roadway edge, crossed the adjacent paved median/gore area, crossed the two entrance ramp lanes, departed the right side of the adjacent grass area and subsequently rolled over.



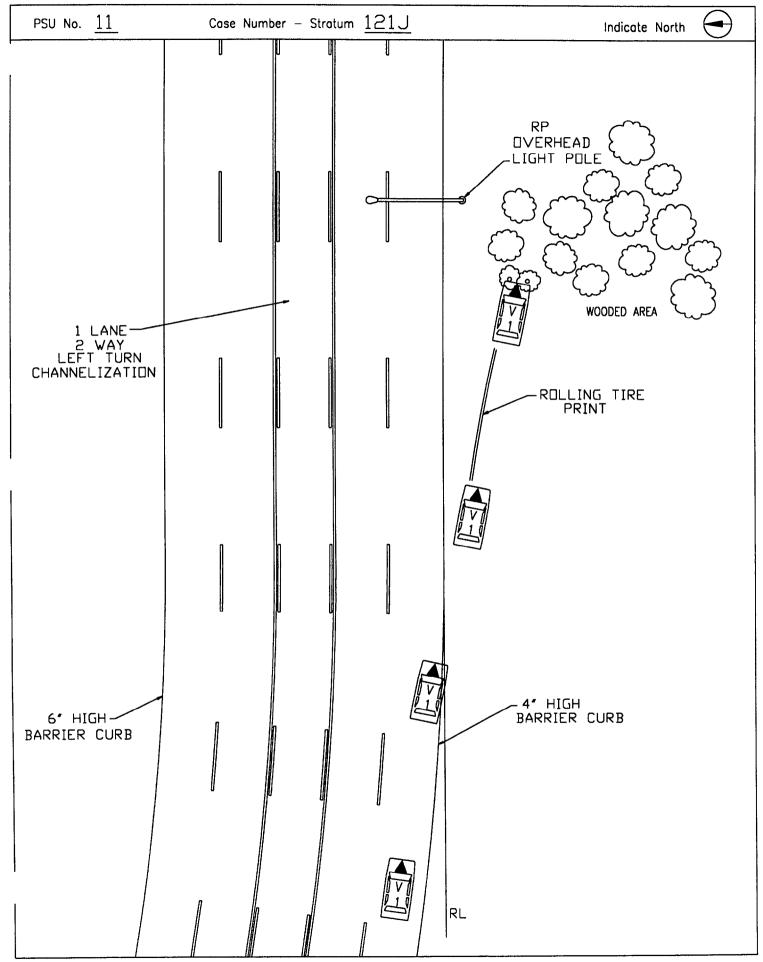


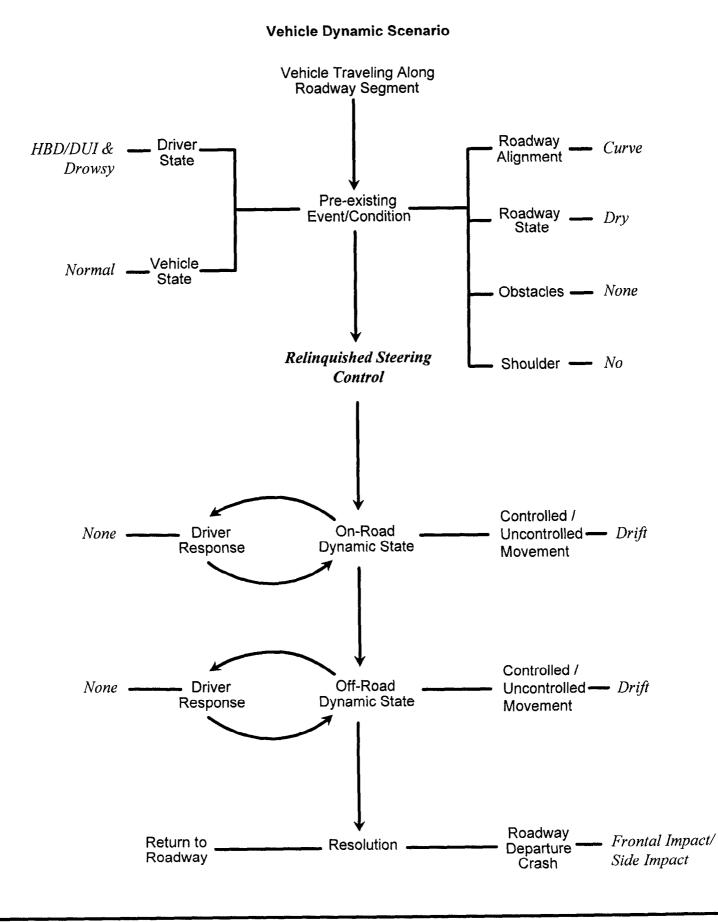
CAUSAL FACTOR:Driver Relinquishes Steering Control - OtherROADSIDE DEPARTURE:Right

		General Acc	ident Information	·
Date:		7-7-93	Weather:	Clear/Cloudy
Time:		2226	Surface Condition:	Dry
Accident Ty	oe:	Drive Off Road	Lighting:	Artificial lighting
Accident Se	verity:	3 (A)	Land Use:	Urban
Driver/C	Decup	ant Information	Vehicle Info	rmation
Driver Age:		42	Year:	1993
Driver Sex:		Male	Vehicle Make:	Chevrolet
Impairment:		None	Vehicle Model:	Baretta/Corsica
Familiarity with Road:		Unknown	ABS:	Yes
No. of Occupants:		2	Defects:	No
	<u> </u>	Roadway	y Information	
Trafficway T			Alignment:	Curve Left
(Median):		Not divided	Slope:	Grade
No. of Lane	s <i>:</i>	5	Speed Limit:	64 km/h
		Cluste	r Variables	
GV14: 0	I No a	voidance actions		
GV64: 1	3 Nego	otiating a curve		
GV65: 1	3 This	vehicle traveling off the ed	ge of the road on the right side	
GV05 . 1		voidance maneuver		
GV66: 0	No a	voldance maneuver		

CAUSAL FACTOR:Driver Relinquishes Steering Control - OtherROADSIDE DEPARTURE:Right

The subject vehicle was traveling eastbound on a dry, five-lane, asphalt roadway which curved to the left with a -2% slope. The vehicle departed the right side of the roadway, mounted a 10 cm high barrier curb, crossed a grassy area and struck two trees with the left side and frontal planes. The driver had consumed alcohol and illicit drugs prior to the accident, and had apparently fallen asleep and drifted off the roadway. The roadway was dark with illumination provided by overhead street lights. The roadway edge was noted only by a barrier curb without a supplemental painted road edge line. The two eastbound lanes were defined by broken white lane lines. The center of the roadway was marked with solid yellow and broken lines to define the boundaries of a two way, left turn channelization lane. The causal factor for the accident was driver relinquished steering control after falling asleep. Contributing factors were the consumption of alcohol and other illicit drugs.



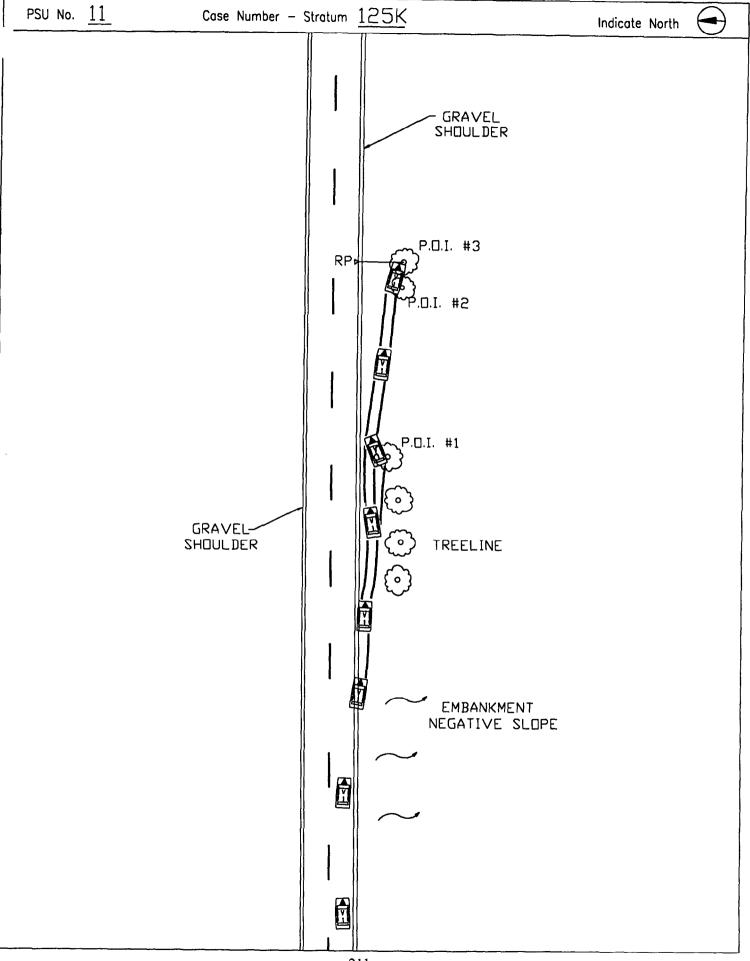


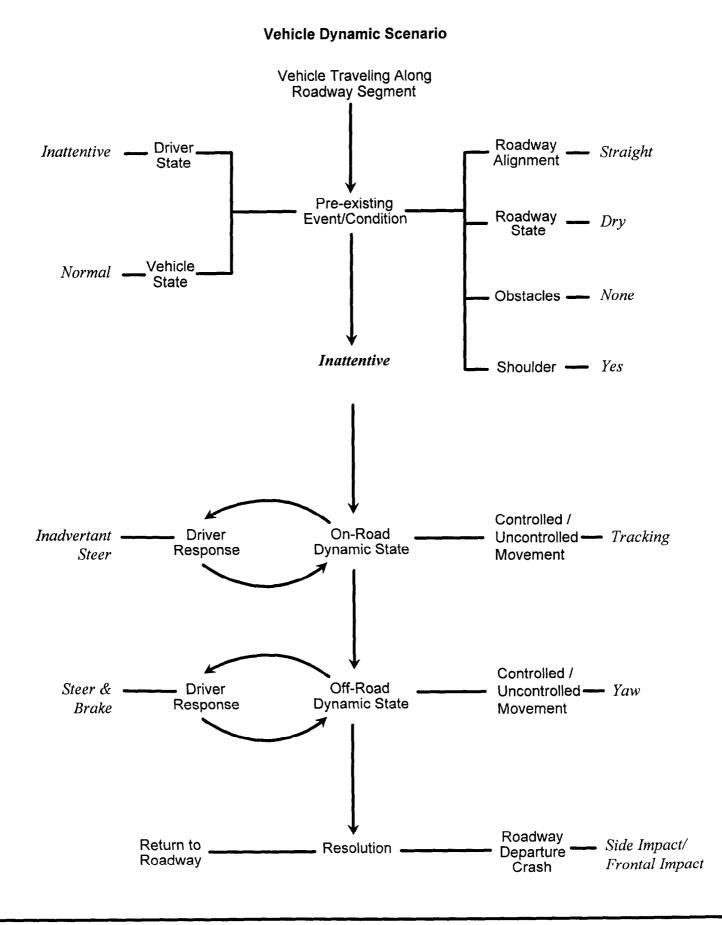
CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

	General Acc	ident Information	
Date:	7-2-93	Weather:	Clear/Cloudy
Time:	0920	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	Daylight
Accident Sever	i ty: 3 (A)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Infor	mation
Driver Age:	33	Year:	1988
Driver Sex:	Female	Vehicle Make:	Mazda
Impairment:	None	Vehicle Model:	MX-6
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	2	Defects:	No
	Roadwa	y Information	
Trafficway Typ		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	89 km/h
	Cluste	er Variables	
GV14: 01	No avoidance actions		
GV64: 02	Slowing or stopping in traffic la	ne	
	This vehicle traveling off the ed	ge of the road on the right side	
GV65: 13	8		
	No avoidance maneuver		

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

This subject vehicle was traveling east on a dry, rural, two-lane, undivided, asphalt roadway with a -2% slope. The vehicle drifted off the right side of the roadway, crossed the 0.3 m gravel shoulder, traveled along a negative-sloped grass embankment, sideswiped a tree with its right side, and struck another tree with its frontal plane. The driver was distracted when a pet dog sitting in the right front seat became ill and the driver reached in the rear seat for paper towels. The roadway was marked with a new broken/solid yellow center line (i.e., passing allowed for eastbound traffic), however, there were no road edge lines on either side of the roadway. The roadway boundary included a 0.3 m gravel shoulder followed by a negative-sloped embankment and a tree line barrier located 3.4 m laterally from the roadway edge. The causal factor was driver inattentive to the driving task (steered off roadway while retrieving an object from the rear seat).



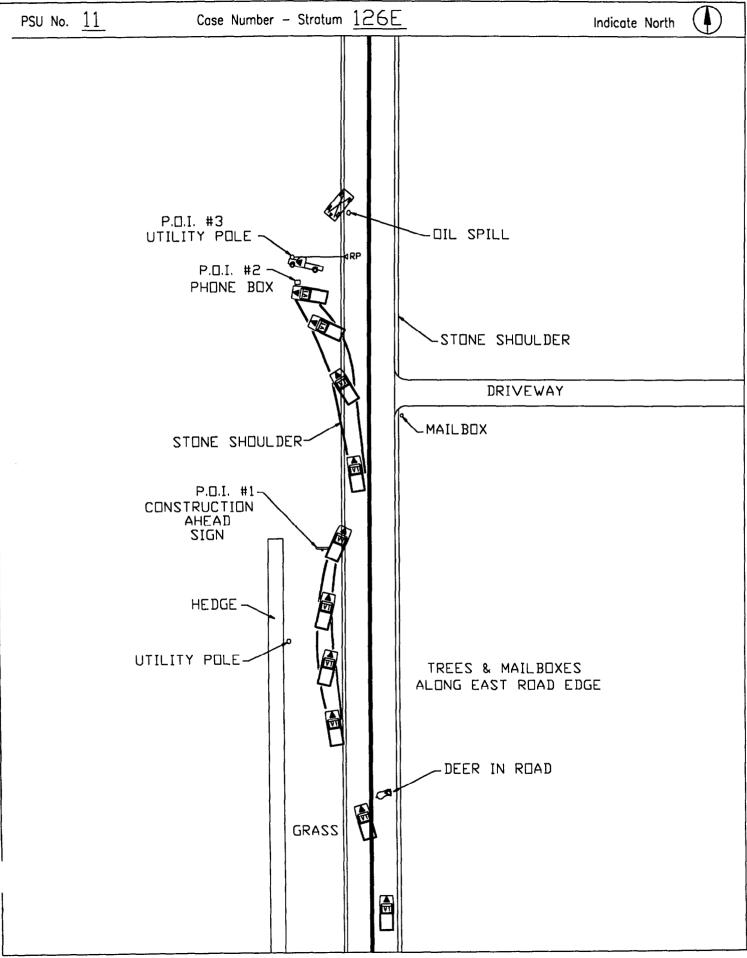


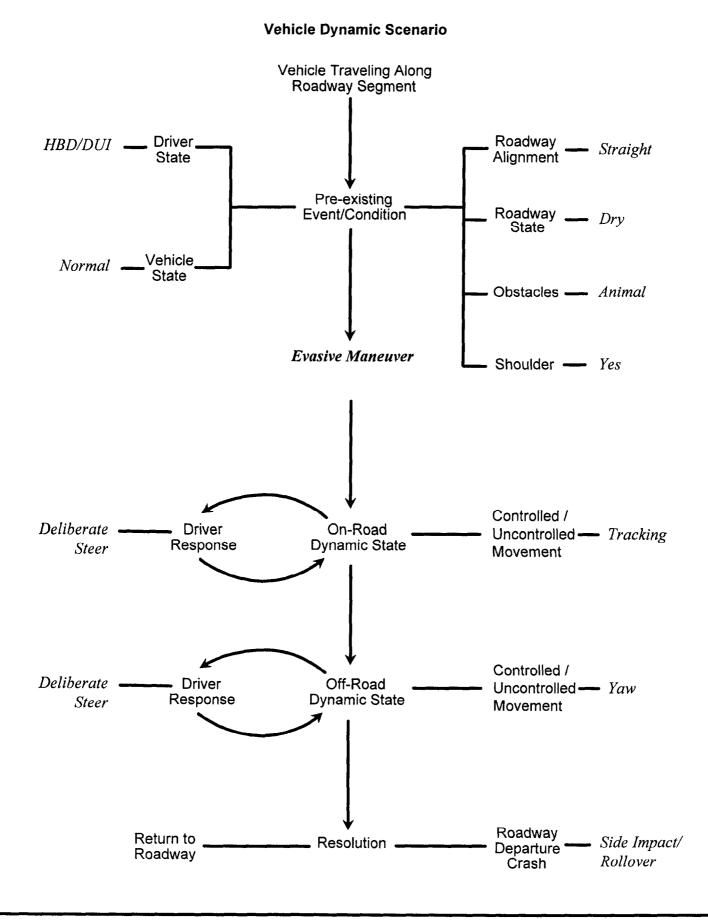
CAUSAL FACTOR:Evasive Maneuver - Avoid Animal or PedestrianROADSIDE DEPARTURE:Left

<u></u>	General Ac	cident Information	<u> </u>	
Date:	7-4-93	Weather:	Clear/Cloudy	
Time:	0252	Surface Condition:	Dry	
Accident Typ	e: Drive Off Road	Lighting:	None	
Accident Seve	erity: 2 (B)	Land Use:	Urban	
Driver/O	ccupant Information	Vehicle Info	rmation	
Driver Age:	38	Year:	1992	
Driver Sex:	Male	Vehicle Make:	Chevrolet	
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	C, K, R, V-serie	
Familiarity with Road:	Unknown	ABS:	Yes	
No. of Occupants:	1	Defects:	No	
	Roadwa	ay Information		
Trafficway Ty		Alignment:	Straight	
(Median):	Not divided	Slope:	Level	
No. of Lanes	: 2	Speed Limit:	72 km/h	
	Clust	ter Variables		
GV14: 06	Steering left			
GV64 : 01	Going straight			
GV65: 12	This vehicle traveling off the e	edge of the road on the left side		
•••• ••	Tracking	king		
GV66 : 1	U	GV67: 4 Vehicle departed roadway		

CAUSAL FACTOR: Evasive Maneuver - Avoid Animal or Pedestrian ROADSIDE DEPARTURE: Left

The subject vehicle was traveling in a northerly direction on a two-lane roadway in a 72 km/h (45 mph) speed zone. The driver swerved to the left to avoid a deer that was entering the roadway, and the vehicle departed the left road edge. The driver subsequently swerved back to the right to avoid a utility pole and a construction sign. As the vehicle re-entered the road, the driver again swerved to the left which induced a counterclockwise yaw. The driver braked and braced against the steering wheel as the vehicle yawed off the left road edge. As the vehicle rotated to a near broadside orientation, it pitched to the right and overturned onto its right side. The hood area impacted a utility pole and a utility box. The vehicle rotated counterclockwise off the struck pole and overturned onto the roof where it came to rest. The primary causal factor involved evasive action by the driver to avoid a deer in the road. The driver had a BAC of 0.17 and intoxication was a secondary causal factor.



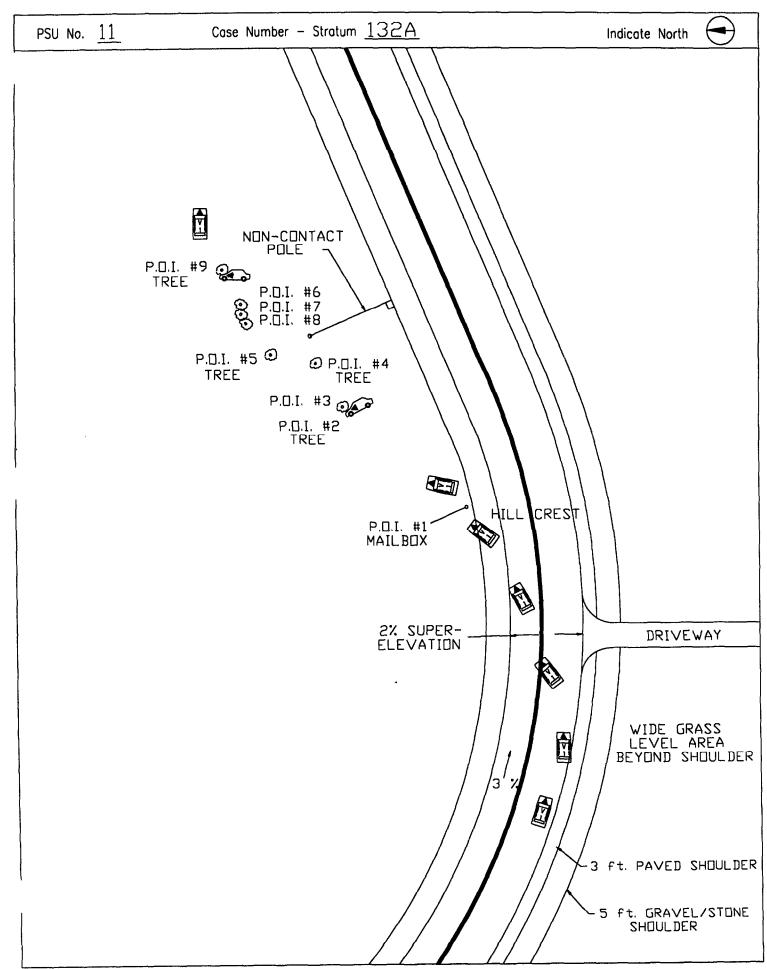


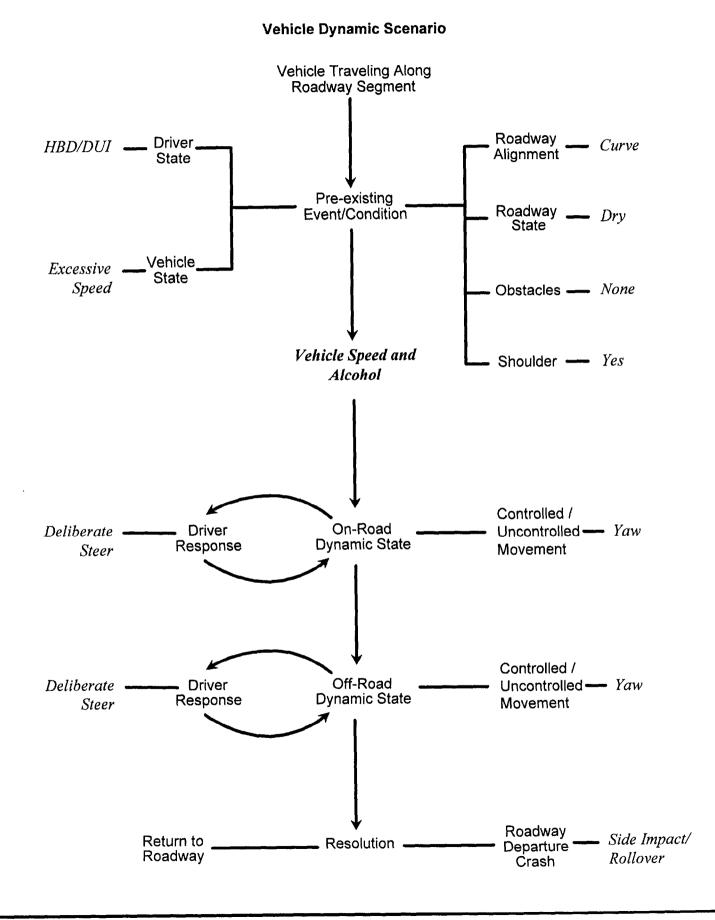
CAUSAL FACTOR:Vehicle Speed - Unsafe Driving ActROADSIDE DEPARTURE:Right

	General Accie	dent Information	
Date:	7-2-93	Weather:	Clear/Cloudy
Time:	0415	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	None
Accident Sever	ity: 4(K)	Land Use:	Rural
Driver/Occ	cupant Information	Vehicle Infor	mation
Driver Age:	21	Year:	1993
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Mustang/ Mustang II
Familiarity with Road:	Yes	ABS:	Unknown
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Type		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	89 km/h
	Cluster	Variables	
GV14: 06	Steering left		
GV64: 13	Negotiating a curve		
GV65: 13	This vehicle traveling off the edg	e of the road on the right side	
GV66: 4	Skidding laterally - counterclock	wise rotation	
GV67: 4 Vehicle departed roadway			

CAUSAL FACTOR:Vehicle Speed - Unsafe Driving ActROADSIDE DEPARTURE:Right

The subject vehicle was traveling in an easterly direction on a rural two-lane roadway that curved to the left and had a positive slope. As the driver attempted to negotiate the left curve, the vehicle drifted off the right road edge onto the paved and gravel shoulder. The driver applied a rapid counterclockwise steering input in an attempt to steer the vehicle back onto the travel lane. The vehicle broke traction and yawed approximately 90 degrees counterclockwise across the roadway and departed the left shoulder. The right rear area of the vehicle impacted a mail box post. The vehicle subsequently pitched to the right and became airborne, traveling approximately 55 m in the air. The vehicle impacted several trees before coming to rest in heavy brush in a ditch, approximately 21 m off-road. Both road edge lines and the center lines were in poor condition. There were no reflective markers/delineators along the dark asphalt roadway. The driver was traveling at a high rate of speed, in excess of 161 km/h (100 mph), and was under the influence of alcohol (BAC=0.10) and marijuana. The driver was operating the vehicle in a reckless manner (unsafe driving act) while intoxicated.



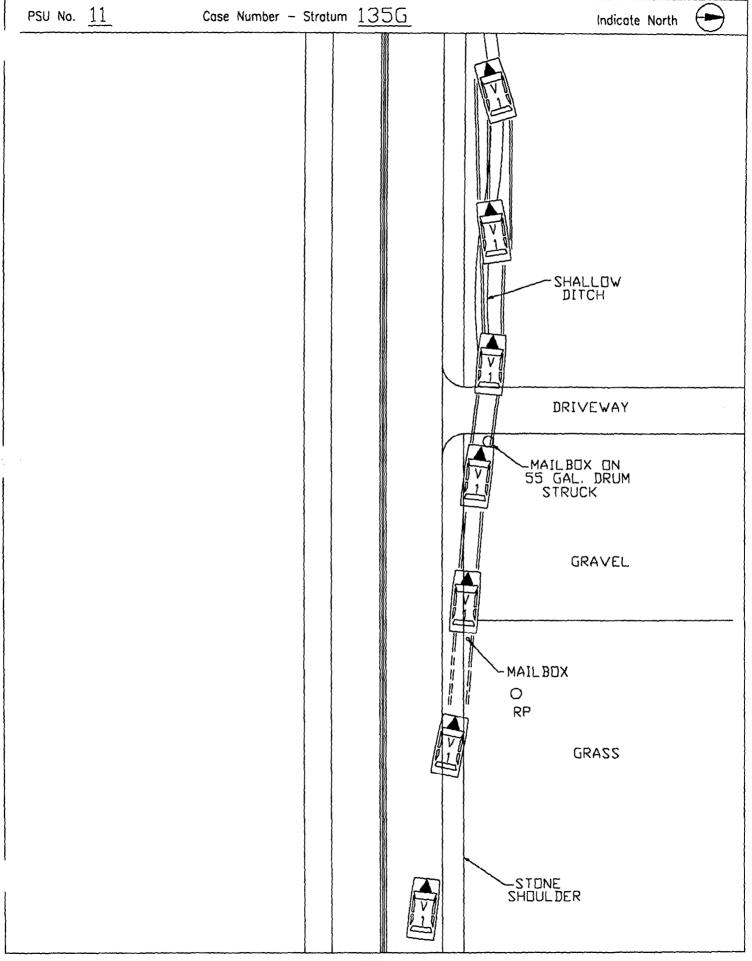


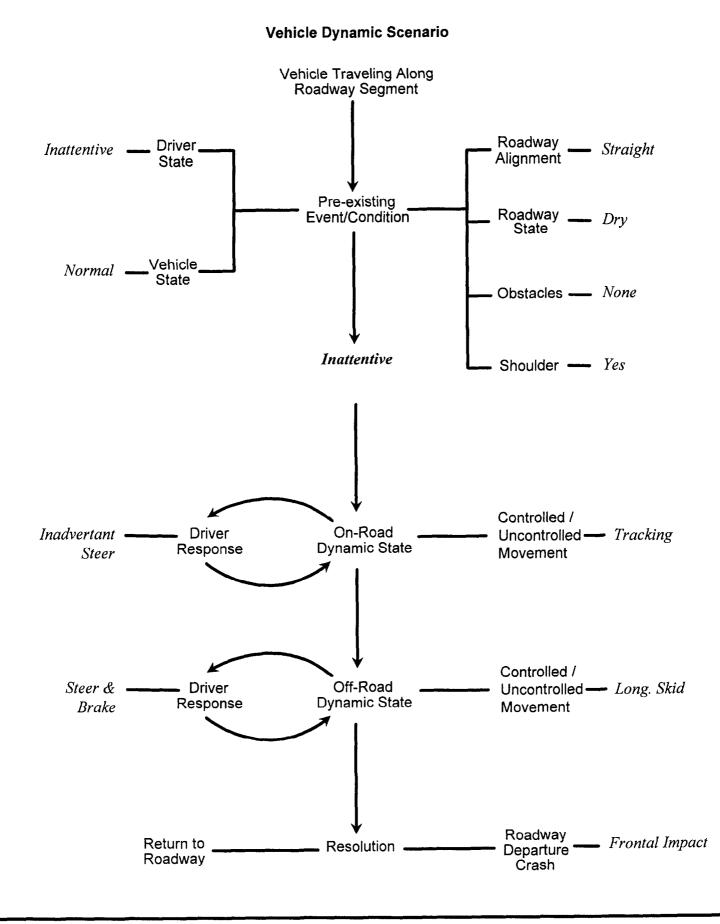
CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

	General Acc	ident Information	
Date:	7-3-93	Weather:	Clear/Cloudy
Time:	1510	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	Daylight
Accident Severity:	0 (O)	Land Use:	Urban
Driver/Occup	ant Information	Vehicle Infor	mation
Driver Age:	38	Year:	1988
Driver Sex:	Female	Vehicle Make:	Dodge
Impairment:	None	Vehicle Model:	Caravan
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	5	Defects:	No
	Roadway	/ Information	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	64 km/h
	Cluste	r Variables	
GV14: 01 No a	voidance actions		
GV64: 01 Goir	ng straight		
GV65: 13 This	vehicle traveling off the edg	ge of the road on the right side	
GV66: 0 No a	voidance maneuver		
GV00. 0 NO2	GV67: 0 No avoidance maneuver		

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

The subject vehicle was westbound on a two-lane roadway during clear, daylight hours. The driver turned around to check on a crying child passenger and inadvertently steered off the right road edge. The right front corner area of the vehicle impacted a mailbox as the driver braked and steered in a counterclockwise direction. The vehicle traversed a driveway and a lawn area as it yawed slightly in a counterclockwise direction. The right side of the vehicle sideswiped a utility pole as it straddled a shallow ditch. The driver regained control of the vehicle and redirected it back onto the roadway. The outboard edges of the road were in poor (worn) condition, without edge lines. Gravel shoulders were bordered by lawn. The causal factor was inattention to the driving task.





CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane - Other

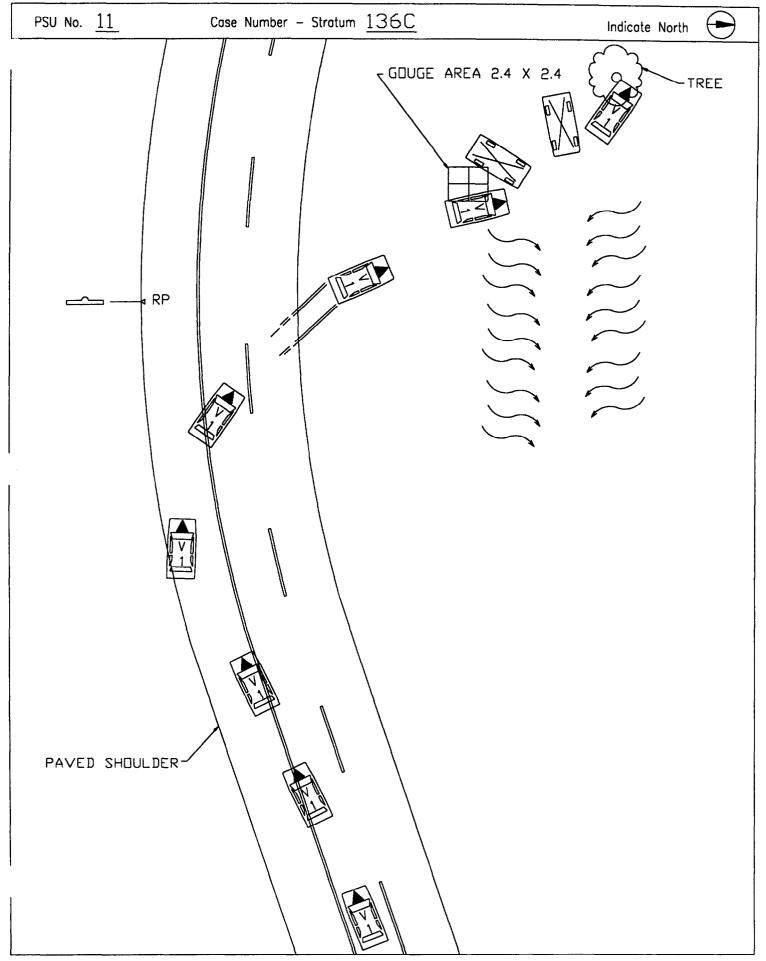
ROADSIDE DEPARTURE: Left

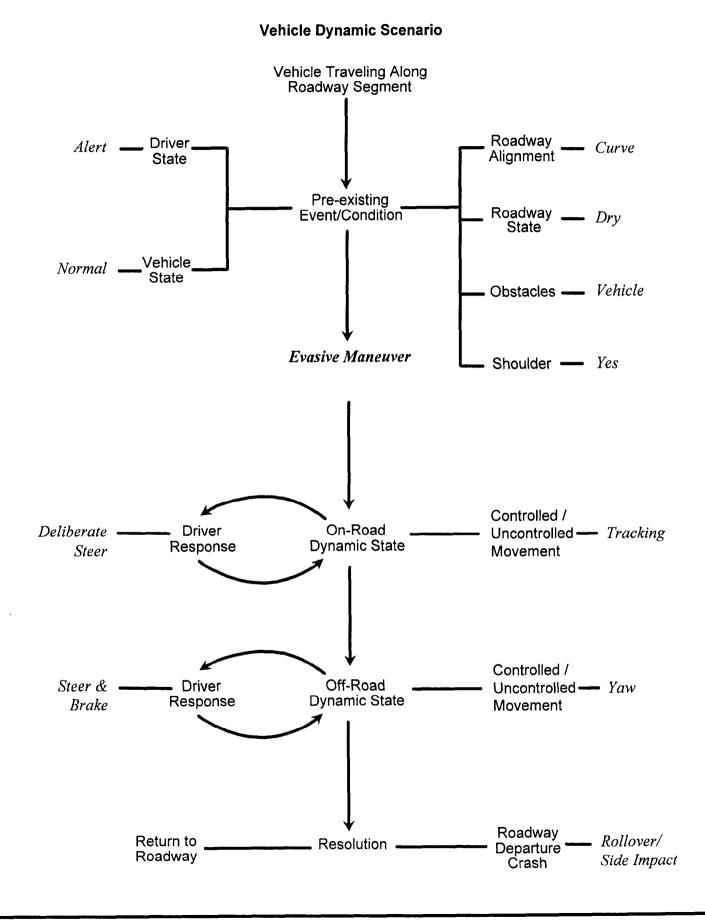
	General Accie	dent Information		
Date:	7-3-93	Weather:	Clear/Cloudy	
Time:	0740	Surface Condition:	Dry	
Accident Type:	Drive Off Road	Lighting:	Daylight	
Accident Seven	ity: 3 (A)	Land Use:	Rural	
Driver/Occ	upant Information	Vehicle Info	mation	
Driver Age:	25	Year:	1993	
Driver Sex:	Female	Vehicle Make:	Ford	
Impairment:	None	Vehicle Model:	Escort/EXP	
Familiarity with Road:	Unknown	ABS:	No	
No. of Occupants:	1	Defects:	No	
	Roadway	Information		
Trafficway Type		Alignment:	Curve Right	
(Median):	Not divided	Slope:	Grade	
No. of Lanes:	2	Speed Limit:	89 km/h	
	Cluster	r Variables		
GV14: 06	Steering left			
	Negotiating a curve			
GV64: 13				
	This vehicle loss of control due t	o other		
GV65: 08	-	o other		

CAUSAL FACTOR: Evasive Maneuver - Vehicle Encroaching into Lane -Other

ROADSIDE DEPARTURE: Left

The subject vehicle was proceeding in a westerly direction on a dry, two-lane, asphalt bypass that curved to the right. This road was physically divided from the opposing traffic lanes by a wide grass median. The vehicle was traveling in the passing lane at a driver estimated speed of 97-113 km/h (60-70 mph). A vehicle (truck) traveling ahead of the subject vehicle kicked up a stone which struck and cracked the windshield of the subject vehicle. As a reflexive action, the subject driver steered to the left and exited the left edge of the roadway. As the vehicle crossed a wide paved shoulder and entered the grass median, the driver overcorrected back to the right. The vehicle reentered the roadway yawing in a clockwise direction, and crossed the roadway in a broadside skid to the left. The vehicle exited the right edge of the roadway, traveled approximately 4.6 m down a negative-sloped embankment, rolled to the left and came down on its top. The vehicle struck a tree with its right rear quarter panel (while upside down), spun around the tree (clockwise), and came to rest on its top, facing in a northerly direction.



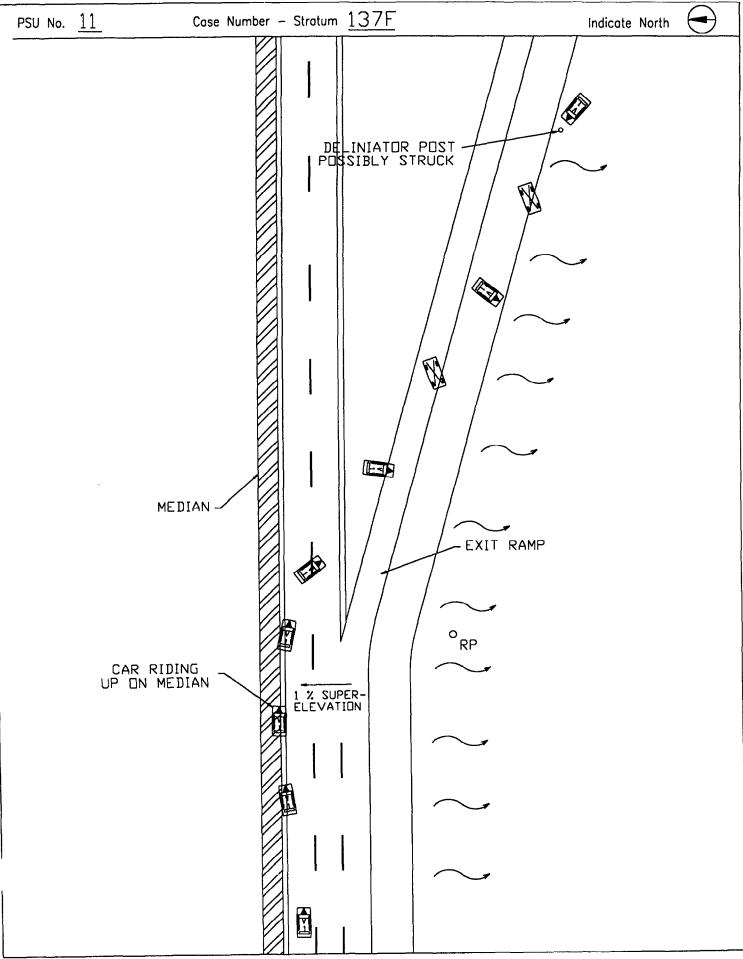


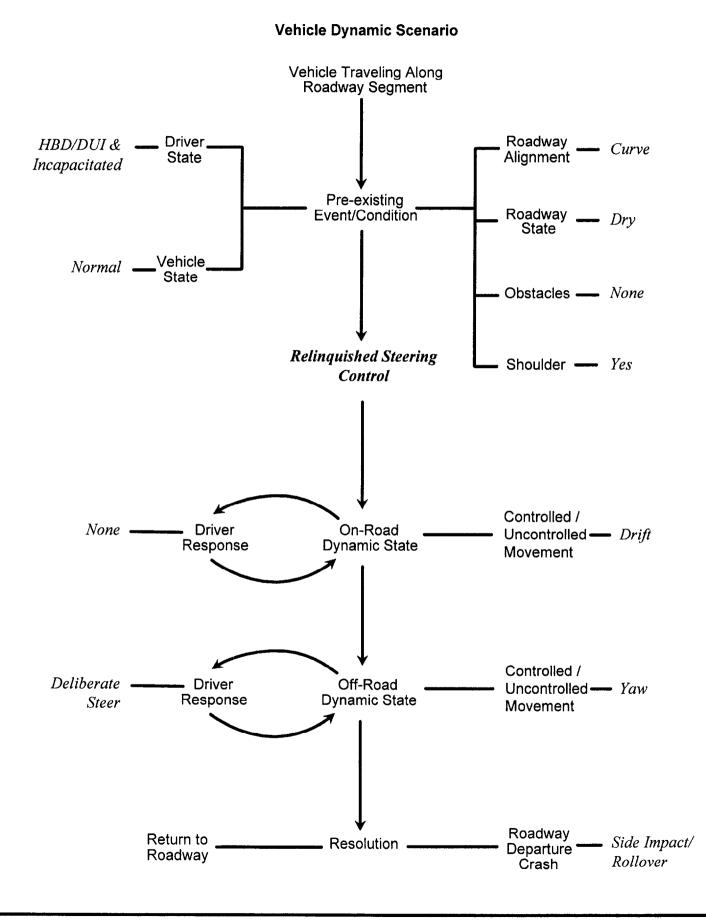
CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Left

		General Accide	ent Information	
Date:		8-3-93	Weather:	Clear/Cloudy
Time:		0200	Surface Condition:	Dry
Accident	Туре:	Control/Traction Loss	Lighting:	None
Accident	Severity:	2 (B)	Land Use:	Urban
Drive	er/Occupa	ant Information	Vehicle Infor	mation
Driver Ag	je:	22	Year:	1988
Driver Se	x:	Male	Vehicle Make:	Saab
Impairme		Intoxicated (alcohol/drugs)	Vehicle Model:	99/99E/900
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		1	Defects:	No
<u></u>		Roadway li	nformation	
Trafficwa			Alignment:	Curve Left
(Media	an):	Physical barrier	Slope:	Level
No. of Lanes: 3		3	Speed Limit:	89 km/h
		Cluster \	/ariables	
GV14:	01 No a	voidance actions		
GV64:	13 Nego	otiating a curve		
GV65:	12 This	vehicle traveling off the edge	of the road on the left side	
	0 Noa	voidance maneuver		
GV66:		GV67: 0 No avoidance maneuver		

CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Left

The subject vehicle was traveling in an easterly direction on the inboard of three travel lanes on a divided interstate. The asphalt road surface was dry and level and curved to the left. Paved shoulders bordered both road edges and a concrete median barrier separated the east/westbound travel lanes. As the driver attempted to negotiate the left curve, the vehicle drifted off the inboard road edge, overrode a 0.6 m wide rumble strip, and traversed the paved shoulder before impacting a concrete median barrier. The driver subsequently applied a clockwise steering input which redirected the vehicle across the travel lanes and off the right road edge where the vehicle overturned. The driver was intoxicated (BAC=0.15) and was traveling at a high rate of speed. Driver intoxication was the primary causal factor with secondary factors involving high speed and probable drowsiness.





CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane - Other

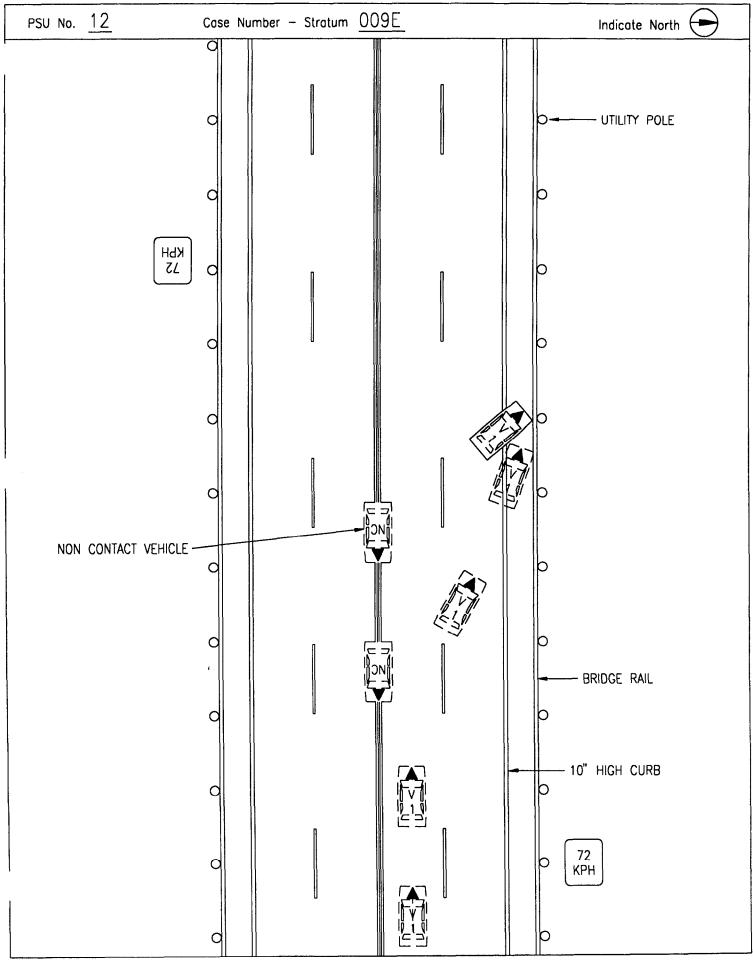
ROADSIDE DEPARTURE: Right

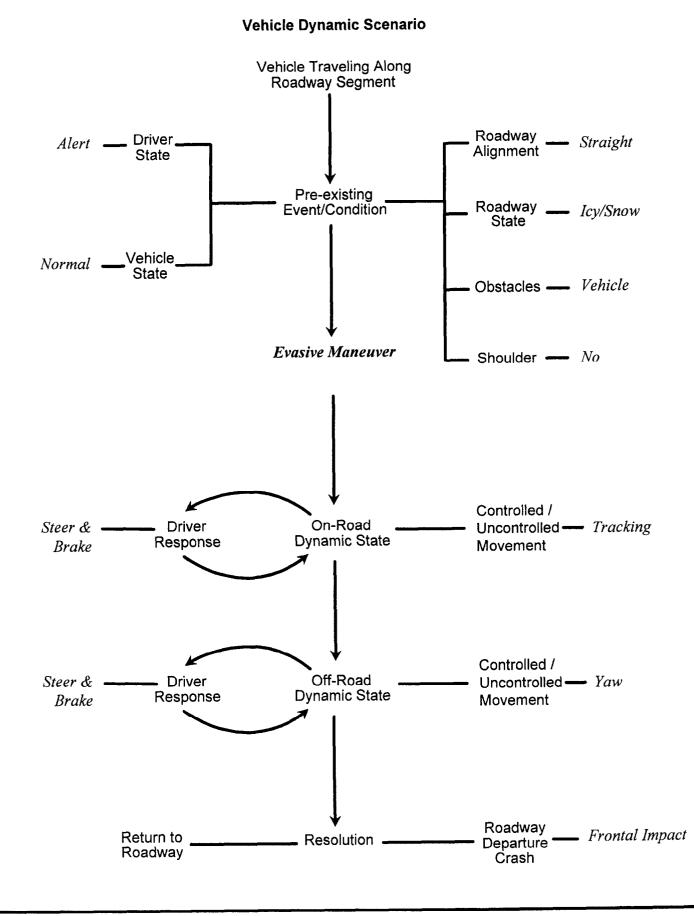
	General Acci	dent information	
Date:	1-1-93	Weather:	Unknown
Time:	1120	Surface Condition:	Ice/Snow
Accident Type	e: Control/Traction Loss	Lighting:	Daylight
Accident Seve	erity: 1 (C)	Land Use:	Rural
Driver/O	ccupant Information	Vehicle Info	rmation
Driver Age:	34	Year:	1992
Driver Sex:	Female	Vehicle Make:	Saturn
Impairment:	None	Vehicle Model:	SL
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Ty		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	4	Speed Limit:	72 km/h
	Cluster	v Variables	
GV14: 09	Braking and steering right		
GV64: 16	Successful avoidance of previous	sevent	
GV65: 13	This vehicle traveling off the edg	e of the road on the right side	
GV66: 1	Tracking		
GV67: 2	Vehicle stayed on roadway but le	eft travel lane where avoidance ma	neuver was initiated

CAUSAL FACTOR: Evasive Maneuver - Vehicle Encroaching into Lane -Other

ROADSIDE DEPARTURE: Right

The subject vehicle was traveling west on a level, straight section of a four-lane, undivided, concrete roadway after exiting a left curved segment. The roadway was icy and the boundary was defined by a bridge rail on both sides of the road. An eastbound vehicle encroached into the subject vehicle's left travel lane and the subject driver initiated a counterclockwise steering maneuver and applied the brakes resulting in the vehicle departing the right road side. The vehicle struck a 25 cm barrier curb and subsequently struck the bridge railing located 1.8 m from the roadway edge. The causal factor was evasive maneuver with loss of vehicle control on icy surface.





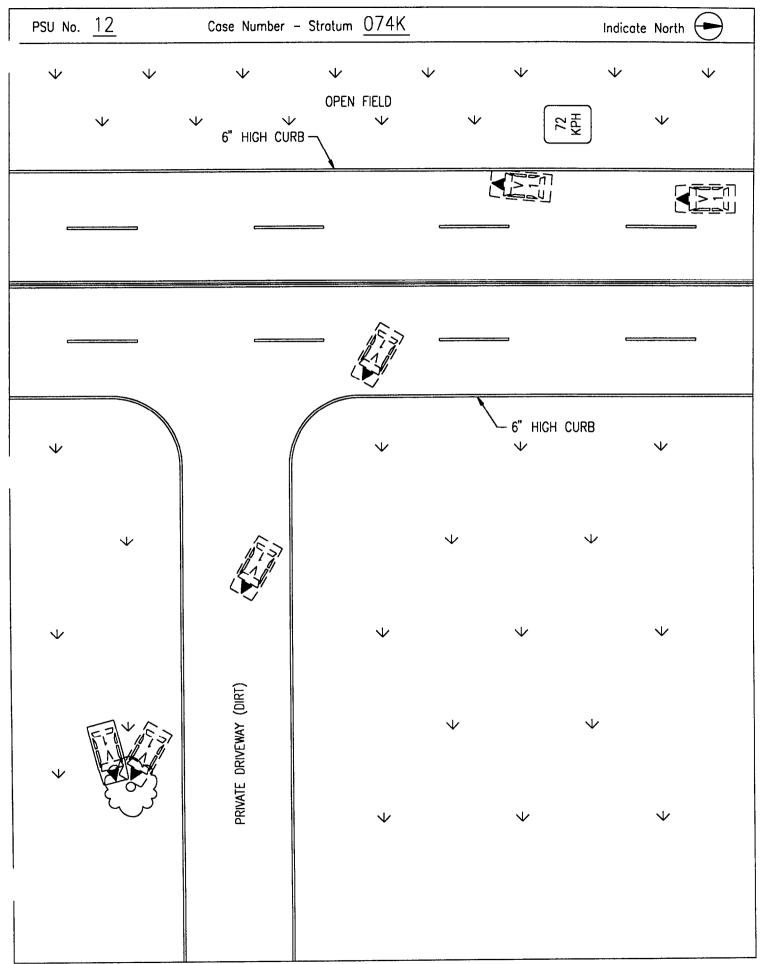
Calspan Corporation

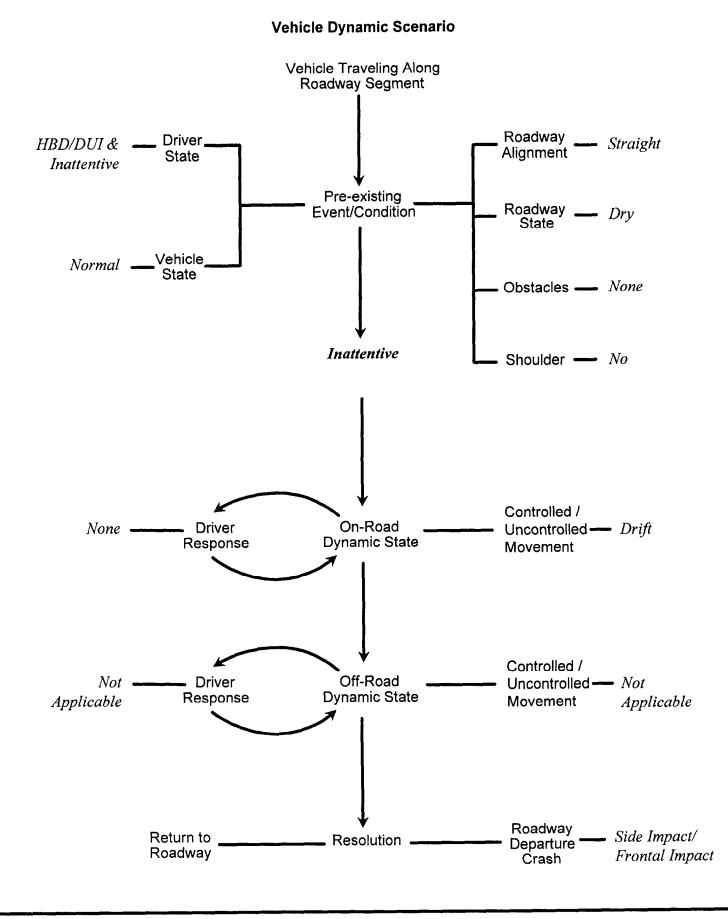
CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

	General Accident	Information			
Date:	5-1-93	Weather:	Clear/Cloudy		
Time:	0115	Surface Condition:	Dry		
Accident Type:	Control/Traction Loss	Lighting:	None		
Accident Severit	y: 3 (A)	Land Use:	Urban		
Driver/Occi	upant Information	Vehicle Infor	mation		
Driver Age:	32	Year:	1986		
Driver Sex:	Female	Vehicle Make:	Chevrolet		
Impairment:	Other (alcoh. consumption - BAC unknown)	Vehicle Model:	Sprint/ Geo Sprint		
Familiarity with Road:	Unknown	ABS:	No		
No. of Occupants:	1	Defects:	No		
	Roadway Info	ormation			
Trafficway Type		Alignment:	Straight		
(Median):	Not divided	Slope:	Level		
No. of Lanes: 4		Speed Limit:	72 km/h		
	Cluster Va	riables	····		
GV14: 01 N	o avoidance actions				
GV64 : 01 G	oing straight				
GV04. 01 0		the road on the right side			
	his vehicle traveling off the edge of the	e	voidance maneuver		
GV65: 13 T	his vehicle traveling off the edge of t o avoidance maneuver	C			

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

The subject vehicle was traveling south in the right lane of a dry, level, four-lane, undivided, asphalt roadway. The driver dropped a purse on the floor and leaned over to pick it up when the vehicle drifted into the right curb. The driver was thrown to the right side of the vehicle. The vehicle subsequently veered to the left, crossed the travel lanes, traveled across a private driveway and lawn, and struck a large tree. The driver had consumed alcohol. There were no adverse weather conditions, however, the roadway was dark and not illuminated. The causal factor was driver inattention and steered off roadway. A contributory factor was the driver's consumption of alcohol.



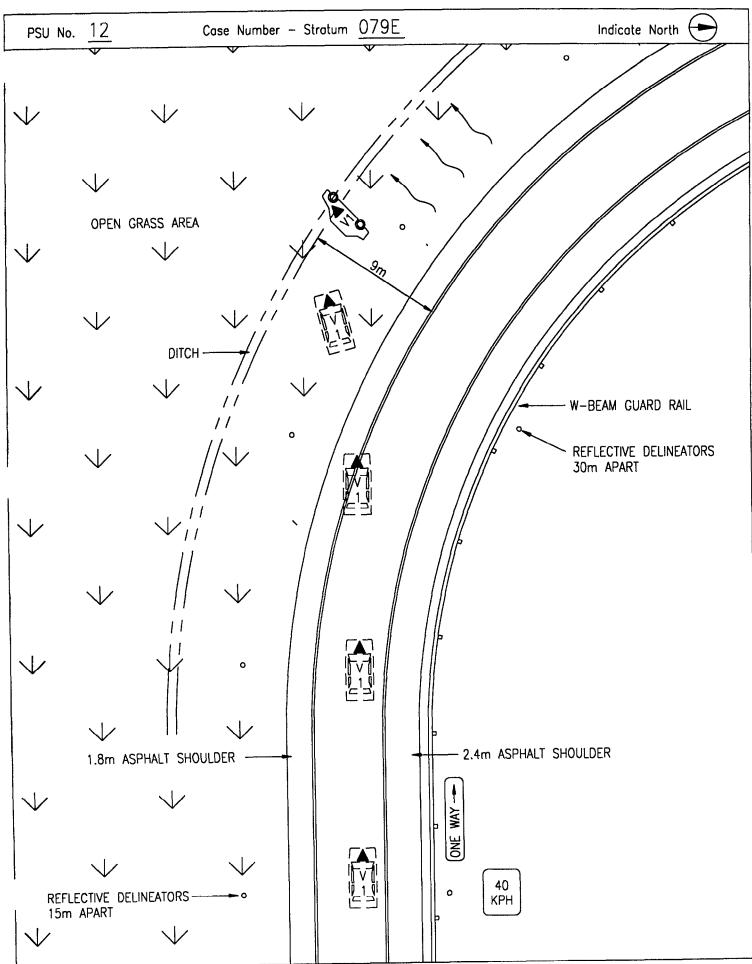


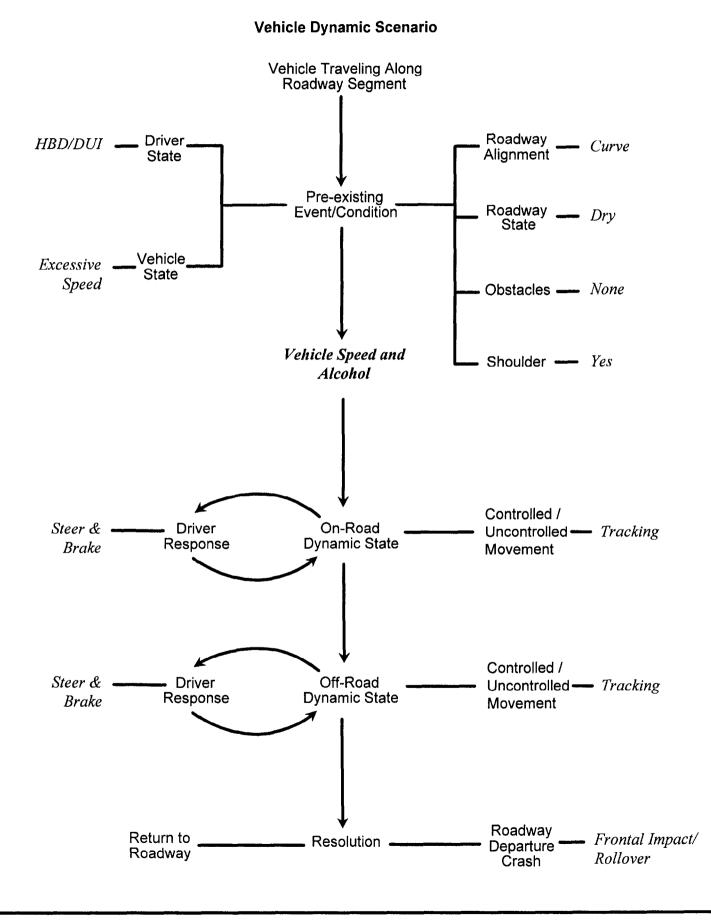
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

	General Accid	ent Information	
Date:	5-4-93	Weather:	Clear/Cloudy
Time:	0200	Surface Condition:	Dry
Accident Type	: Drive Off Road	Lighting:	None
Accident Seve	<i>rity:</i> 2 (B)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Info	rmation
Driver Age:	30	Year:	1990
Driver Sex:	Female	Vehicle Make:	Chevrolet
Impairment:	Other (alcoh. consumption - BAC unknown)	Vehicle Model:	C, K, R, V-serie
Familiarity with Road:	Unknown	ABS:	Unknown
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Typ		Alignment:	Curve Right
(Median):	Not divided	Slope:	Grade
No. of Lanes:	1	Speed Limit:	40 km/h
	Cluster	Variables	
GV14: 09	Braking and steering right		
GV64: 13	Negotiating a curve		
GV65: 12	This vehicle traveling off the edge	e of the road on the left side	
GV66: 1	Tracking		
	4 Vehicle departed roadway		

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling west on a ramp connecting two interstate roadways during the evening hours. The dry, concrete, single-lane roadway was not illuminated, curved to the right, and had a +2% slope. The vehicle departed the left side of the roadway, traveled down a -8% embankment, struck a ditch and rolled over. There were no sight lines or roadway restrictions. The off road terrain was open with no obstacles in the grassy area. The driver had consumed alcohol prior to the crash and lost control of the vehicle. The causal factor was excessive speed for the ramp and alcohol consumption.





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CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE:

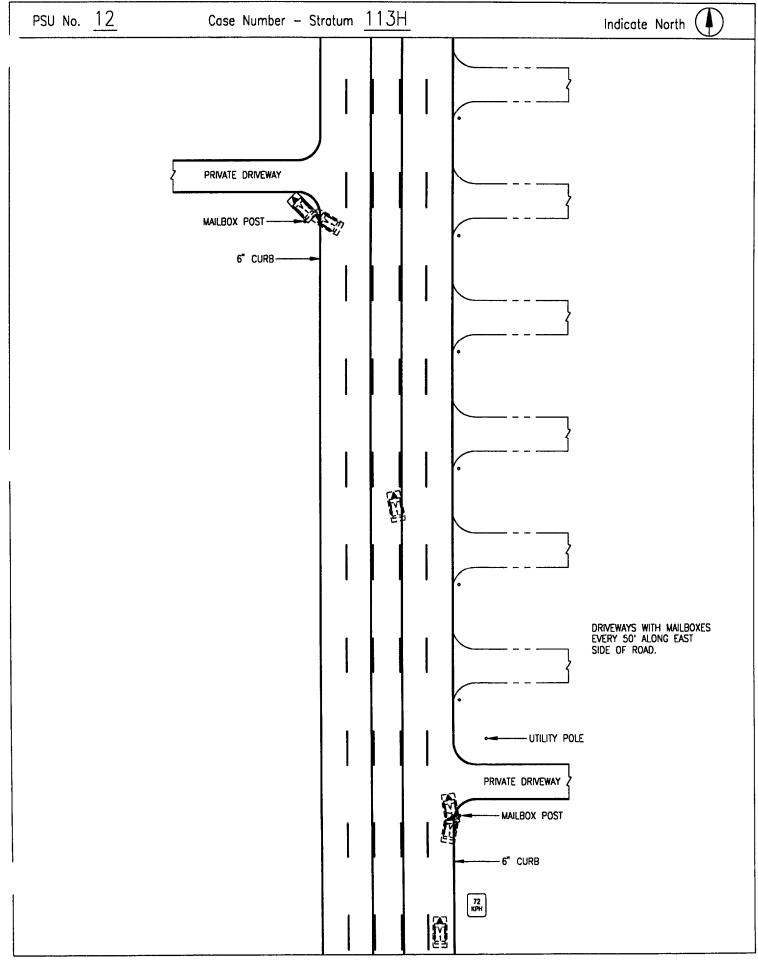
Right

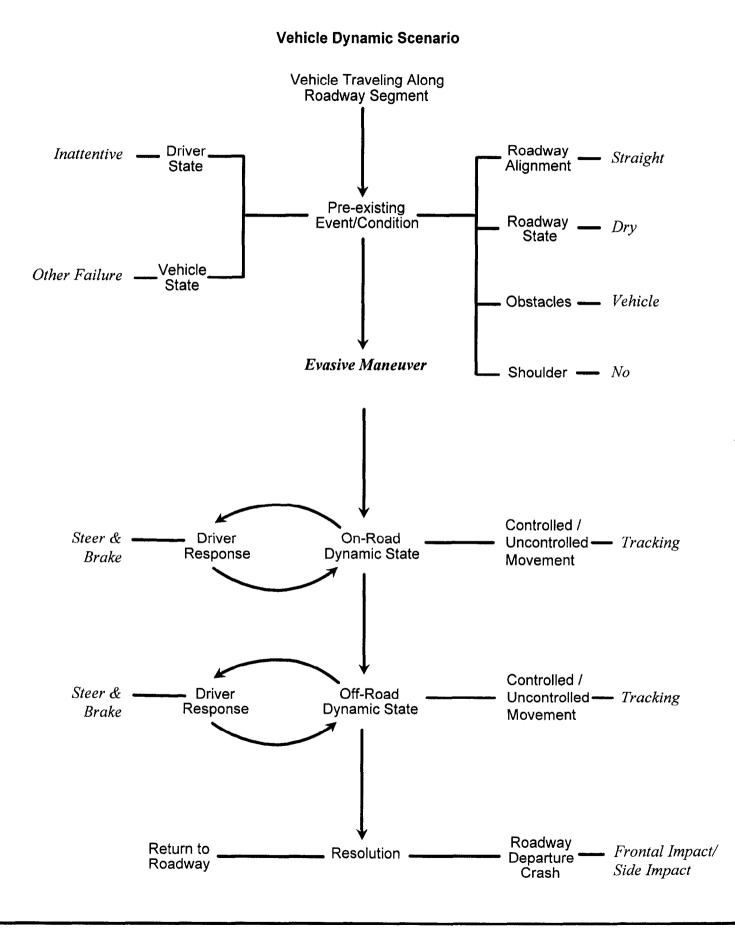
		General Acci	dent Information		
Date:	7-6-9	3	Weather:	Clear/Cloudy	
Time:	2115		Surface Condition:	Dry	
Accident Typ	De: Drive	Off Road	Lighting:	Daylight	
Accident Sev	verity: 0(0)		Land Use:	Urban	
Driver/C	occupant Inf	ormation	Vehicle Info	rmation	
Driver Age:	21		Year:	1980	
Driver Sex:	Male		Vehicle Make:	Chevrolet	
Impairment:	None		Vehicle Model:	Chevette	
Familiarity with Road:	Unkn	own	ABS:	No	
No. of Occupants:	1		Defects:	Other Failure	
		Roadway	Information		
Trafficway Ty (Median):		or curb	Alignment:	Straight	
No. of Lanes			Slope:	Grade	
NO. OF Lanes	. 2		Speed Limit:	72 km/h	
		Cluster	· Variables		
GV14: 09	Braking and	steering right			
GV64: 01	Going straigl	nt			
GV65: 04	This vehicle	loss of control due to	o non-disabling vehicle problem		
GV66: 1	Tracking				
GV67 : 4	GV67: 4 Vehicle departed roadway				

CAUSAL FACTOR: Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Right

The subject vehicle was traveling north on a dry, urban, divided, concrete roadway during daylight hours. The driver entered the roadway from a service station and accelerated the vehicle to a speed of 48-56 km/h (30-35 mph) in the outboard lane. The driver was operating the vehicle with defective brakes and approached slower moving traffic from the rear. The driver was inattentive to the driving task and steered off the road to the right to avoid the non-contact vehicles. The vehicle struck a mailbox that was located at the right road edge. The driver redirected the vehicle to the left and traveled along the roadway, before impacting another mailbox located adjacent to the left road edge.



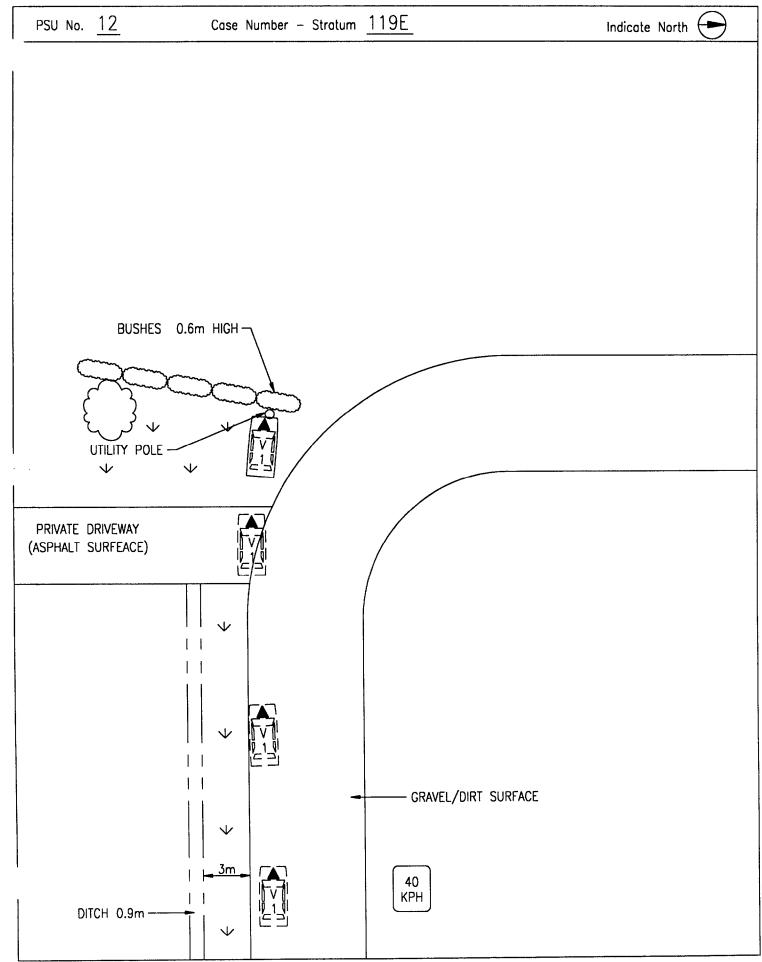


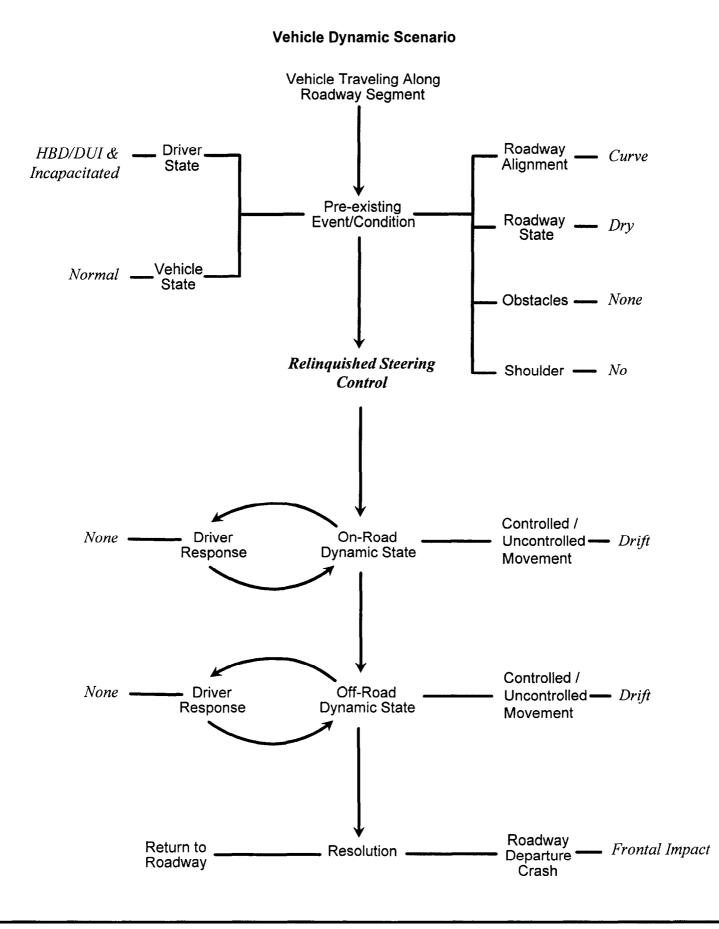
CAUSAL FACTOR:Driver Relinquishes Steering Control - OtherROADSIDE DEPARTURE:Left

<u></u>	General Acc	ident Information	
Date:	7-2-93	Weather:	Clear/Cloudy
Time:	0125	Surface Condition:	Dry
Accident Type:	End Departure	Lighting:	None
Accident Severity	<i>r</i> : 2 (B)	Land Use:	Urban
Driver/Occu	pant Information	Vehicle Infor	mation
Driver Age:	30	Year:	1989
Driver Sex:	Female	Vehicle Make:	GMC
Impairment:	Unknown	Vehicle Model:	Jimmy
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
· · · · · · · · · · · · · · · · · · ·	Roadwa	y Information	······································
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	40 km/h
	Cluste	r Variables	
GV14: 01 No	avoidance actions		
GV64: 13 Ne	gotiating a curve		
GV65: 12 Th	is vehicle traveling off the ed	ge of the road on the left side	
GV66: 0 No	avoidance maneuver		

CAUSAL FACTOR:Driver Relinquishes Steering Control - OtherROADSIDE DEPARTURE:Left

The subject vehicle was traveling on a dry, gravel road surface. The driver failed to initiate a turning maneuver on a 90 degree curve. Based on the roadway geometry and the location of the struck pole, it would appear that the driver was traveling on the left side of the roadway and departed the left road edge as the road curved to the right. The vehicle crossed a driveway and struck the pole with its center frontal area. The PAR indicated that the driver had been drinking, however, no BAC test was offered.



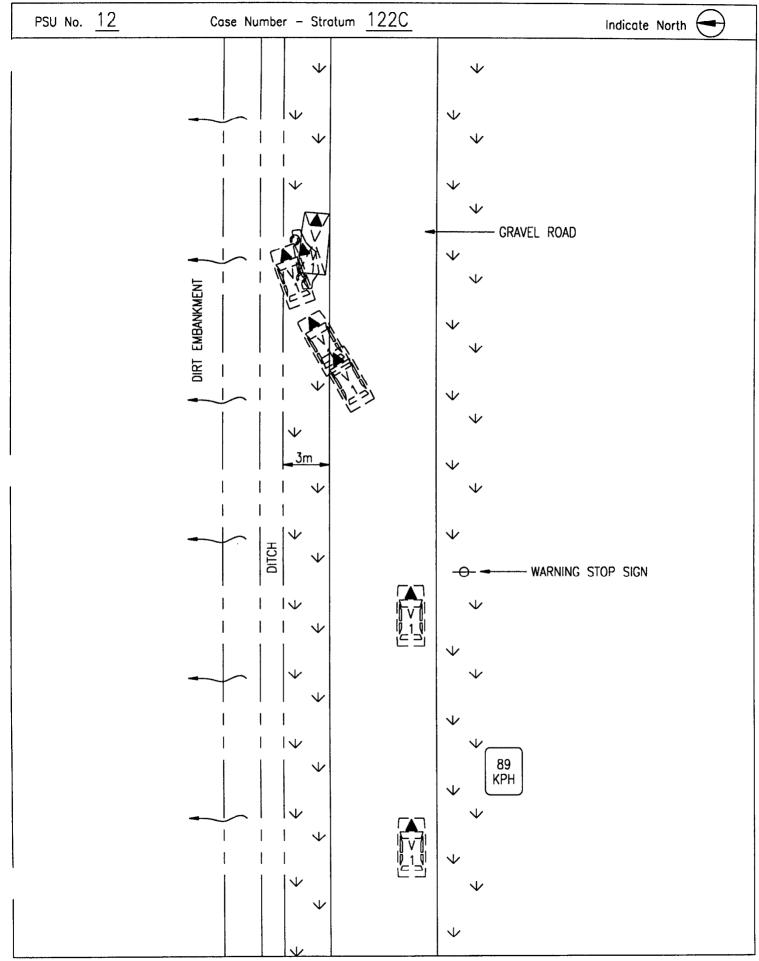


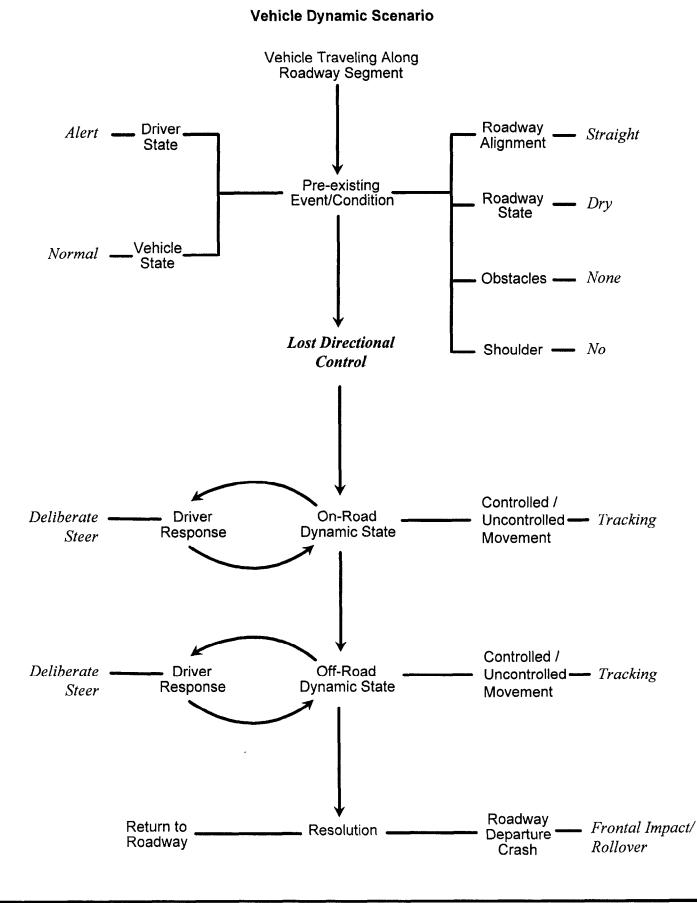
CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Left

	General Acc	ident Information	
Date:	7-7-93	Weather:	Clear/Cloudy
Time:	1135	Surface Condition:	Dry
Accident Type	Drive Off Road	Lighting:	Daylight
Accident Seve	<i>rity:</i> 3 (A)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Infor	mation
Driver Age:	45	Year:	1992
Driver Sex:	Female	Vehicle Make:	Chevrolet
Impairment:	None	Vehicle Model:	Cavalier
Familiarity with Road:	Unknown	ABS:	Yes
No. of Occupants:	1	Defects:	No
	Roadway	y Information	
Trafficway Typ		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	89 km/h
	Cluste	r Variables	
GV14: 06	Steering left		
GV64: 01	Going straight		
GV65: 12	This vehicle traveling off the ed	ge of the road on the left side	
	Tracking		
GV66: 1	-		

CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Left

The subject vehicle was traveling in an easterly direction on a narrow, two-lane dirt/stone/gravel roadway during daylight hours. The road was straight and dry with a -1% slope. There were no shoulders and ditches bordered both road edges. The vehicle overrode a washboard area which caused the driver to loose directional control. As a result, the vehicle crossed the westbound travel lane and departed the left road edge. The driver attempted to brake, but the vehicle exited the road in a tracking mode, entered the ditch, and overturned onto its roof.



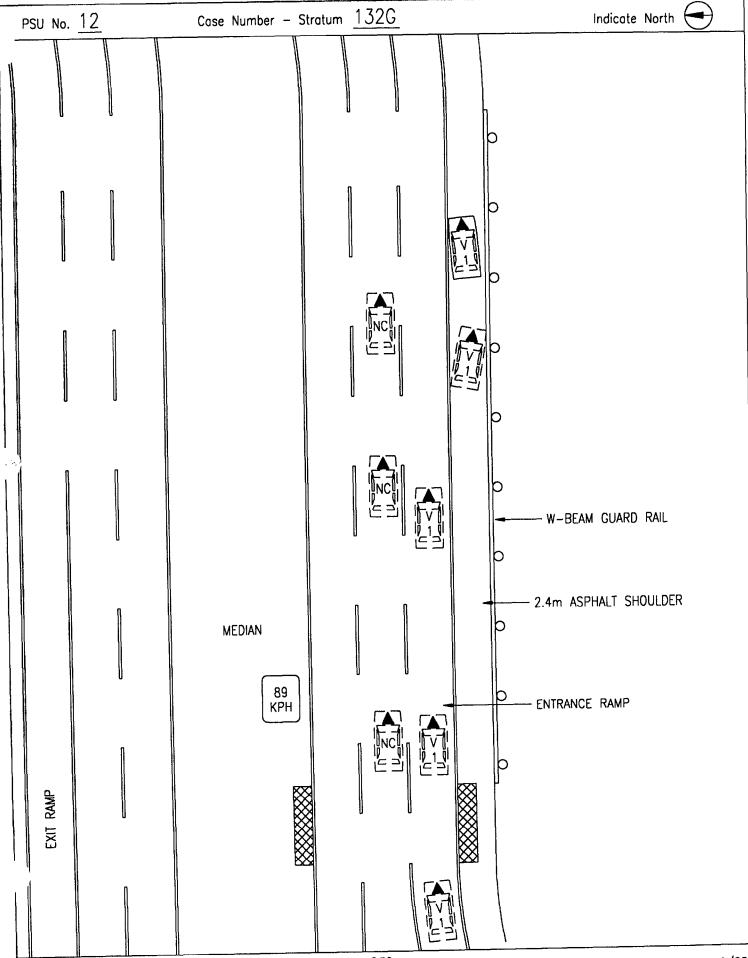


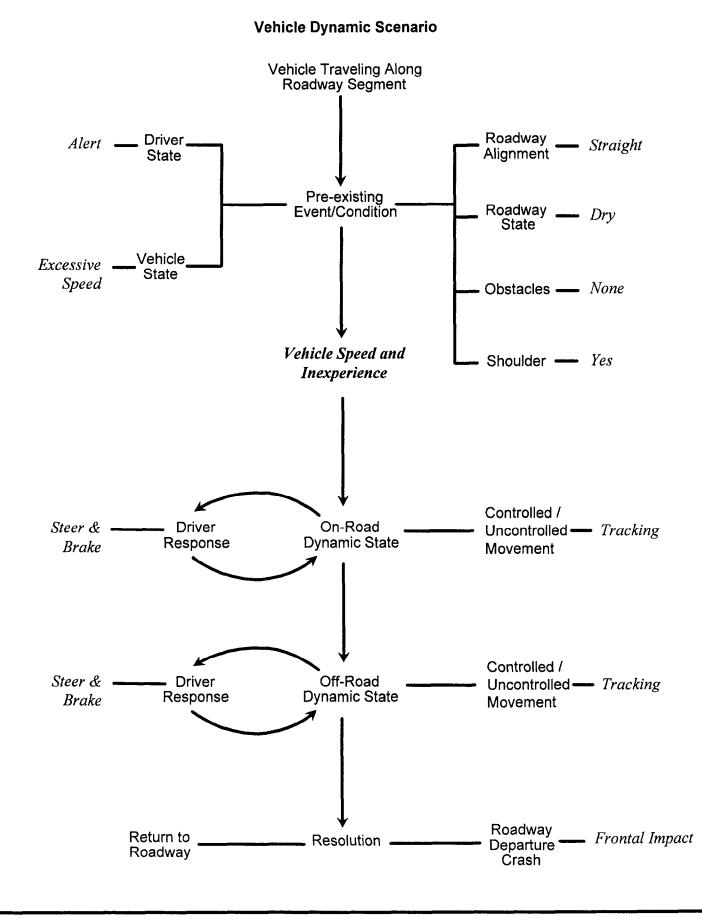
CAUSAL FACTOR:Vehicle Speed - Speed and Driver InexperienceROADSIDE DEPARTURE:Right

		General Accide	ent Information	
Date:		8-6-93	Weather:	Clear/Cloudy
Time:		0920	Surface Condition:	Dry
Accident Typ	e:	Control/Traction Loss	Lighting:	Daylight
Accident Sev	erity:	0 (O)	Land Use:	Rural
Driver/C)ccupa	ant Information	Vehicle Info	rmation
Driver Age:		16	Year:	1990
Driver Sex:		Female	Vehicle Make:	Chevrolet
Impairment:		None	Vehicle Model:	Lumina
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		1	Defects:	No
		Roadway Ir	Information	· · · · · · · · · · · · · · · · · · ·
Trafficway T	/pe		Alignment:	Straight
(Median):		Flush or curb	Slope:	Grade
No. of Lanes	52	3	Speed Limit:	89 km/h
		Cluster V	/ariables	
GV14: 09	Brak	ng and steering right		
GV64: 15	5 Merg	ing		
	6 This	vehicle traveling off the edge of	of the road on the right side	
GV65: 13				
GV65: 13 GV66: 1	Tracl	cing		

CAUSAL FACTOR:Vehicle Speed - Speed and Driver InexperienceROADSIDE DEPARTURE:Right

The subject vehicle was entering the outboard lane of a divided expressway from a one-lane entrance ramp. As the driver entered the expressway, there was a bridge rail approximately 0.6 m outboard of the right road edge, and a tractor-trailer was traveling in the center lane. The driver was intimidated by the truck and felt sandwiched between the truck and the bridge. The driver braked and steered right to avoid the tractor-trailer, departed the right road edge, and struck a W-beam guardrail. Driver inexperience was the primary causal factor as the tractor-trailer remained in its travel lane and did not encroach into the driver's lane.



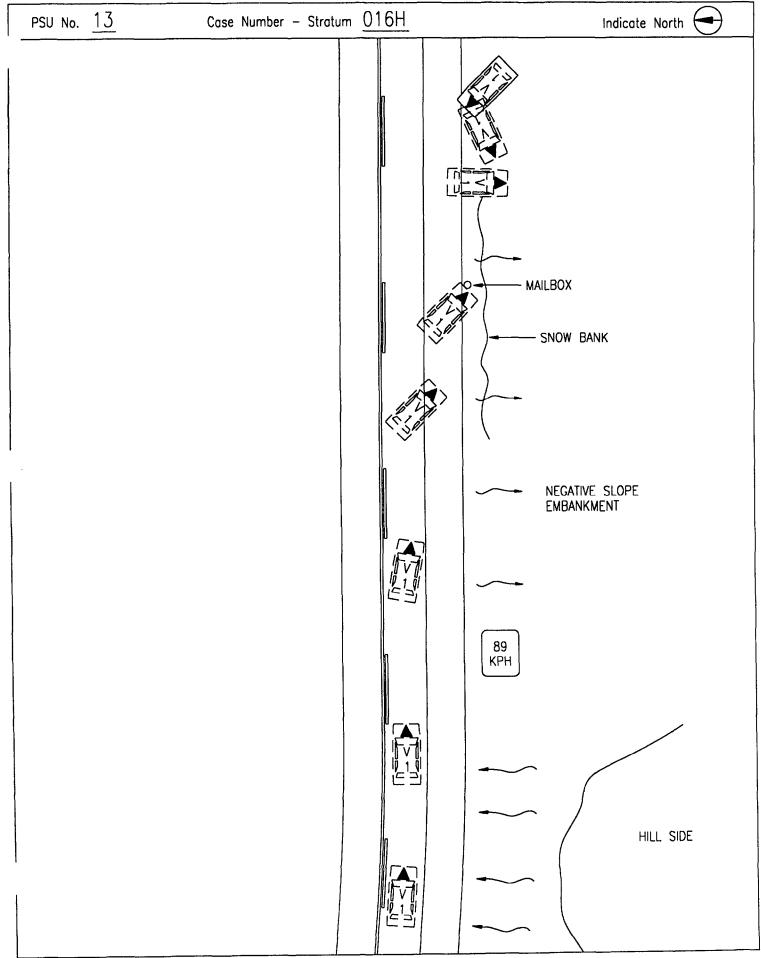


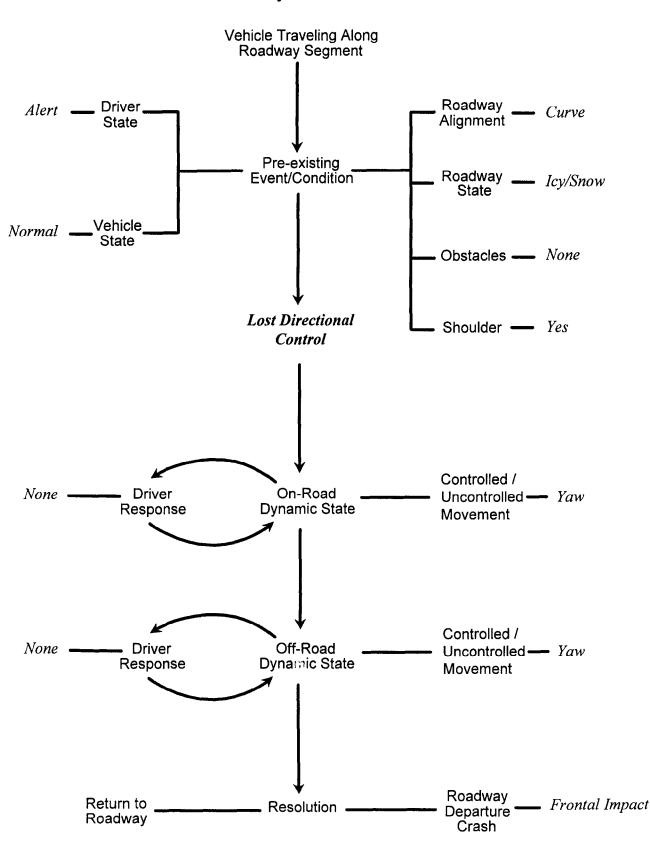
CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

	General Acc	ident Information	
Date:	1-5-93	Weather:	Rain
Time:	1645	Surface Condition:	Ice/Snow
Accident Type	: Control/Traction Loss	Lighting:	Daylight
Accident Seve	erity: 0(O)	Land Use:	Rural
Driver/Oc	ccupant Information	Vehicle Info	rmation
Driver Age:	27	Year:	1986
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	None	Vehicle Model:	Ranger
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	y Information	
Trafficway Typ		Alignment:	Curve Right
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	56 km/h
	Cluste	r Variables	
GV14: 99	Unknown		
GV64: 13	Negotiating a curve		
GV65: 05	This vehicle loss of control due	to poor road conditions	
GV66: 9	Precrash stability unknown		

CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

The subject vehicle was traveling eastbound on a left curve section of an icy, two-lane, undivided roadway with a -4% slope. The driver was making the transition from the curve to straight section and lost control of the vehicle on the icy road surface. The vehicle departed the right side of the straight segment of roadway and struck a snow embankment and a mailbox. The center line consisted of solid and broken yellow lines with passing permitted eastbound. There were no sight lines or roadway restrictions. The crash occurred in the rain during daylight hours. The causal factor was vehicle lost control on icy roadway. A contributing factor was vehicle traveling too fast for conditions.





Vehicle Dynamic Scenario

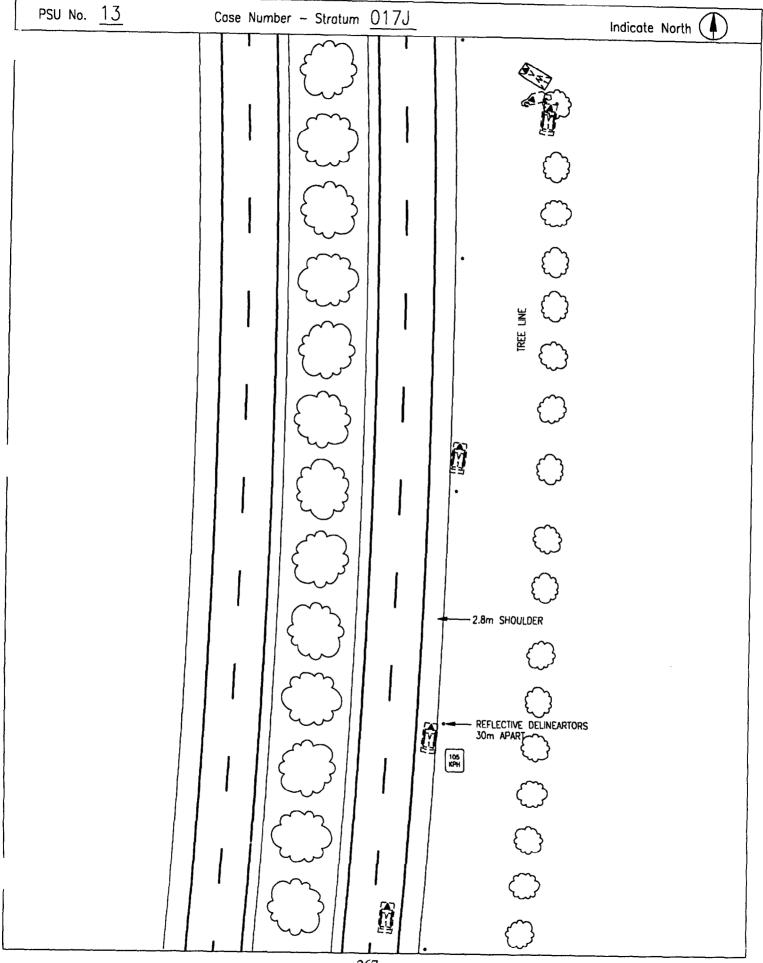
CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Right

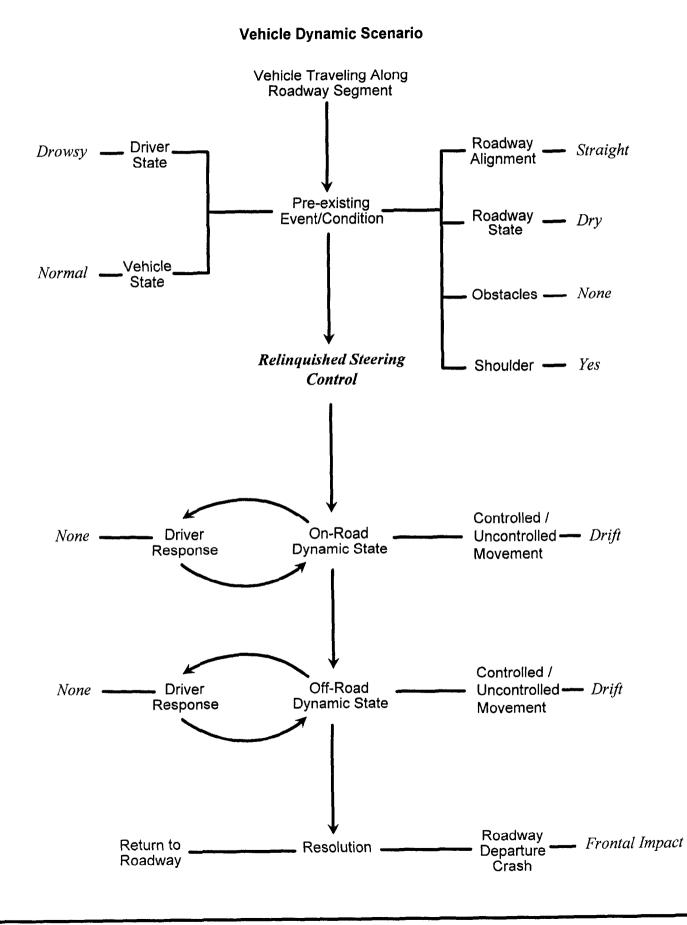
		General Acci	dent Information	
Date:		1-4-93	Weather:	Clear/Cloudy
Time:		0753	Surface Condition:	Dry
Accident T	ype:	Drive Off Road	Lighting:	Daylight
Accident S	everity:	3 (A)	Land Use:	Rural
Driver	/Occup	ant Information	Vehicle Infor	mation
Driver Age	:	21	Year:	1991
Driver Sex:		Female	Vehicle Make:	Chevrolet
Impairmen	t:	Fell Asleep	Vehicle Model:	S-10, T-10
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants	:	1	Defects:	No
		Roadway	Information	
Trafficway			Alignment:	Curve Left
(Median):		Physical barrier	Slope:	Level
No. of Lan	es:	4	Speed Limit:	105 km/h
		Cluster	r Variables	
GV14:	01 No a	voidance actions		
GV64:	13 Nego	otiating a curve		
GV65:	13 This	vehicle traveling off the edg	ge of the road on the right side	
GV66:	0 No a	voidance maneuver		

e 12.5

CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Right

The subject vehicle was traveling north in the right lane of a dry, level, divided, asphalt interstate highway when it departed the right side of a left curve section. The crash occurred during the early morning, daylight hours. The vehicle traveled in a straight trajectory approximately 45 m across the asphalt shoulder and adjacent snow-covered grass area. The vehicle struck a tree with its frontal plane. Witnesses noted that the driver appeared to fall asleep and drift off the roadway. The causal factor was driver relinquished control by falling asleep and drifting off the roadway.





CAUSAL FACTOR: Lost Directional Control

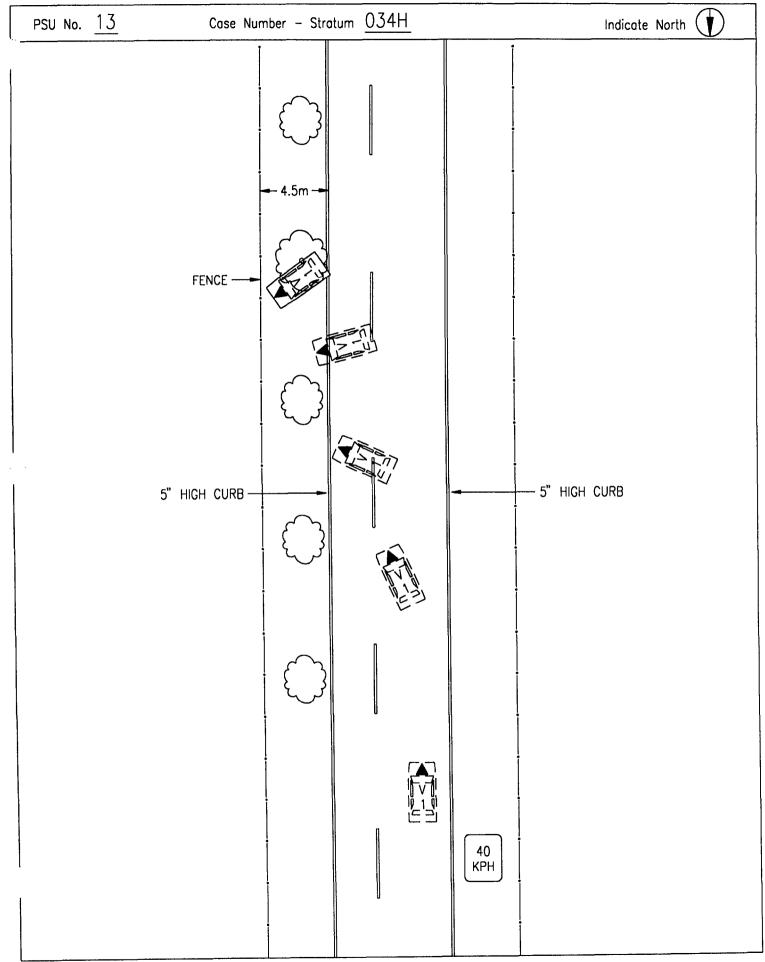
Left

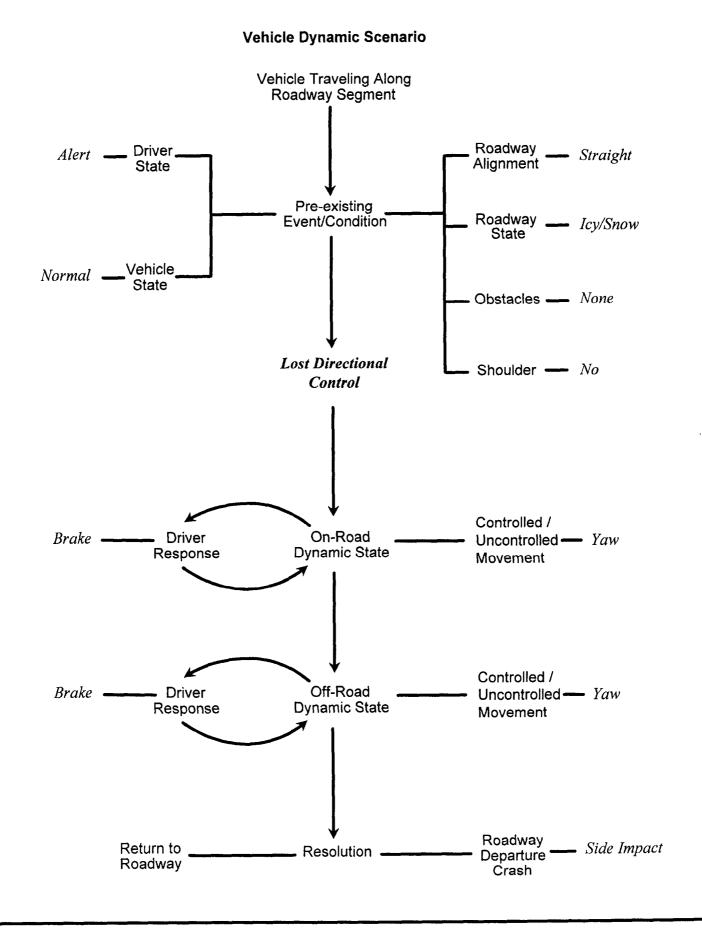
ROADSIDE DEPARTURE:

·····	General Acc	ident Information	
Date:	2-5-93	Weather:	Clear/Cloudy
Time:	0742	Surface Condition:	Ice/Snow
Accident Type	: Control/Traction Loss	Lighting:	Artificial lighting
Accident Seve	erity: 1 (C)	Land Use:	Urban
Driver/O	ccupant Information	Vehicle Infor	mation
Driver Age:	44	Year:	1978
Driver Sex:	Male	Vehicle Make:	Oldsmobile
Impairment:	None	Vehicle Model:	Delta 88
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadwa	y Information	······
Trafficway Ty		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	40 km/h
	Cluste	er Variables	
GV14: 03	Braking (lockup)		
GV64: 01	Going straight		
GV65: 05	This vehicle loss of control due	to poor road conditions	
GV66 : 4	Skidding laterally - countercloc	kwise rotation	
GV67 : 4	Vehicle departed roadway		

CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Left

The subject vehicle was traveling south on an icy, level, two-lane, asphalt roadway. The vehicle crossed the oncoming lane of travel, departed the left roadside in a counterclockwise rotation, rode over the grass area adjacent to the curb, and struck a tree with its right leading side. The driver attempted to regain control of the vehicle by counter-steering and applying the brakes with lock up. There were no adverse ambient weather conditions. The roadway was illuminated by overhead street lights and was delineated by a broken yellow center line which was in good condition. The causal factor was vehicle lost directional control as the result of the icy roadway condition.



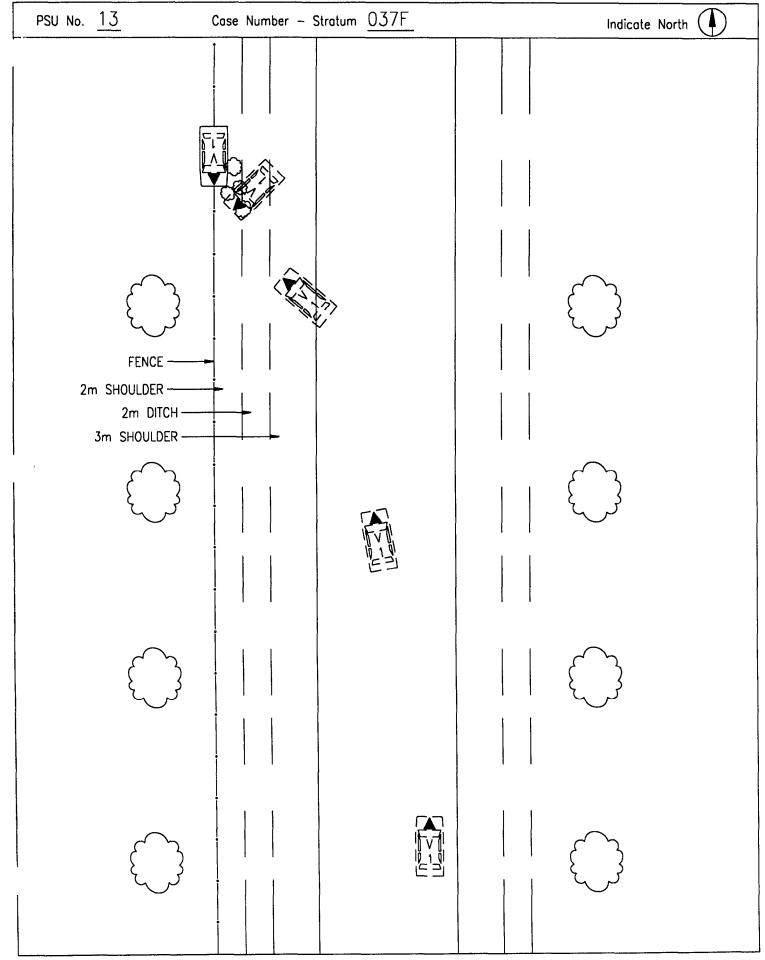


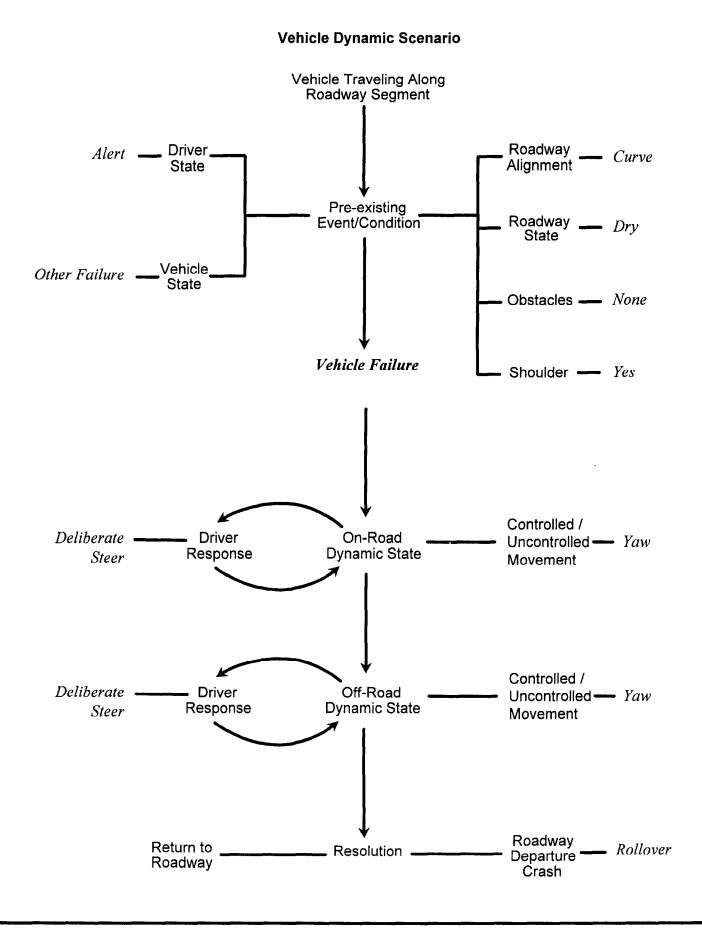
CAUSAL FACTOR:Vehicle FailureROADSIDE DEPARTURE:Left

		General Accide	ent Information	
Date:		2-1-93	Weather:	Clear/Cloudy
Time:		1700	Surface Condition:	Dry
Accident Ty	/pe:	Control/Traction Loss	Lighting:	Daylight
Accident Se	everity:	2 (B)	Land Use:	Rural
Driver/	Occupa	ant Information	Vehicle Infor	mation
Driver Age:		19	Year:	1982
Driver Sex:		Female	Vehicle Make:	Dodge
Impairment	:	None	Vehicle Model:	Omni
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		2	Defects:	Other Failure
		Roadway I	nformation	
Trafficway 1			Alignment:	Straight
(Median)	:	Not divided	Slope:	Level
No. of Lane	es:	2	Speed Limit:	89 km/h
<u> </u>		Cluster \	/ariables	
GV14: ()7 Steer	ing right		
GV64: (01 Goin	g straight		
GV65: ()3 This	vehicle loss of control due to a	lisabling vehicle failure	
GV66: 4	4 Skido	ting laterally - counterclockwi	se rotation	
GV67: 4	4 Vehi	cle departed roadway		

CAUSAL FACTOR:Vehicle FailureROADSIDE DEPARTURE:Left

The subject vehicle was traveling north on a dry, rural, two-lane roadway that was flanked on both sides by a shoulder approximately 2.4-3.0 m wide. Outside of the shoulder was a drainage ditch (approximately 1.2 m wide) and beyond the ditch was a line of trees. The driver stated that the vehicle was pulling left and suddenly pulled hard left at an estimated travel speed of 56 km/h (35 mph). The driver attempted to correct by steering right but the vehicle departed the left roadside, hit the drainage ditch, and flipped over.



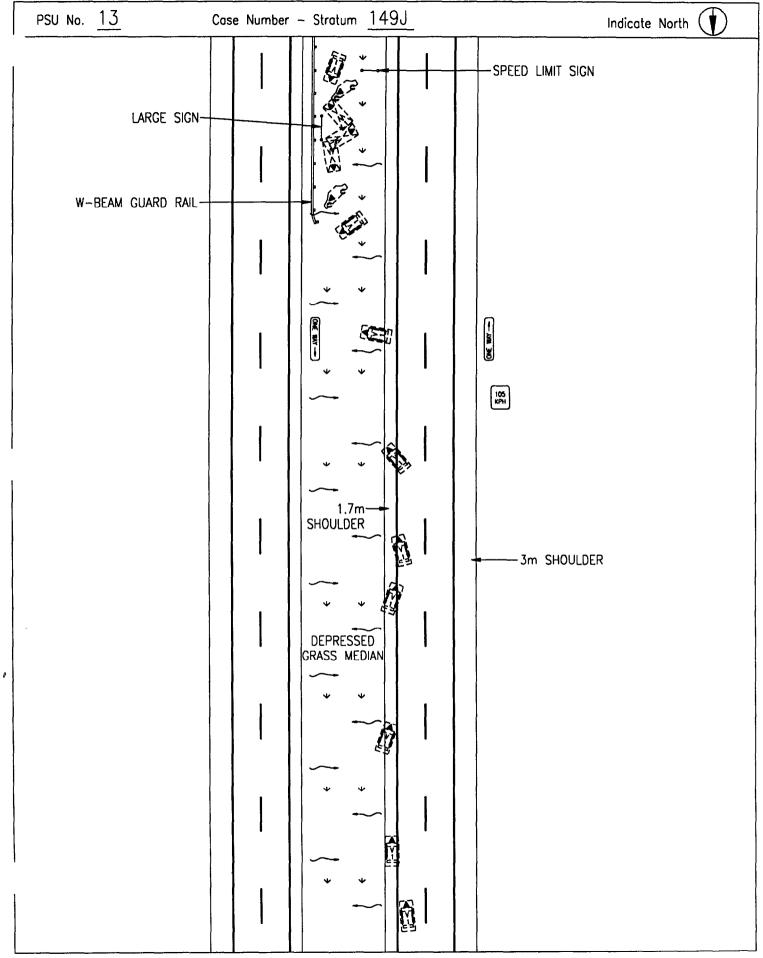


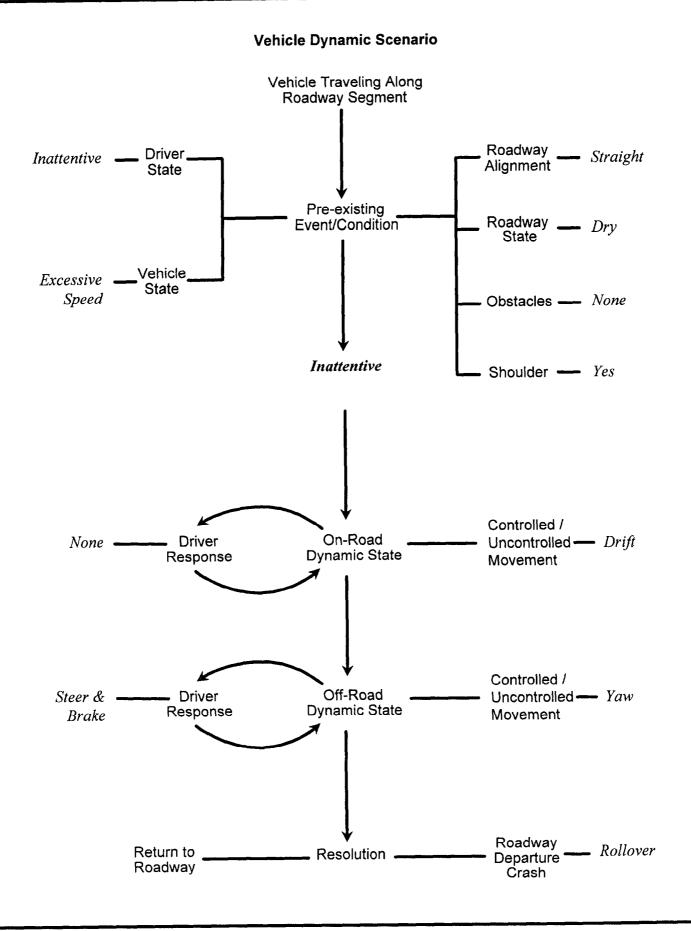
CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

	General Acc	cident Information	
Date:	7-1-93	Weather:	Clear/Cloudy
Time:	1057	Surface Condition:	Dry
Accident Typ	e: Control/Traction Loss	Lighting:	Daylight
Accident Sev	erity: 3 (A)	Land Use:	Rural
Driver/O	ccupant Information	Vehicle Infor	mation
Driver Age:	40	Year:	1993
Driver Sex:	Female	Vehicle Make:	Chevrolet
Impairment:	None	Vehicle Model:	Astro Van
Familiarity with Road:	No	ABS:	Yes
No. of Occupants:	2	Defects:	No
	Roadwa	y Information	
Trafficway Ty		Alignment:	Straight
(Median):	Flush or curb	Slope:	Grade
No. of Lanes	: 2	Speed Limit:	105 km/h
	Cluste	er Variables	
GV14: 01	No avoidance actions		
GV64: 01	Going straight		
	This vehicle traveling off the ed	dge of the road on the left side	
GV65: 12			
GV65: 12 GV66: 0	No avoidance maneuver		

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

The subject vehicle was traveling southbound on a dry, divided interstate roadway with a posted speed limit of 105 km/h (65 mph) during daylight hours. The roadway consisted of two travel lanes in each direction that were separated by a depressed grass median. Paved shoulders bordered both edges of the divided travel lanes. The driver became inattentive to the driving task and allowed the vehicle to drift off the left road edge onto the grass median. The driver steered in a clockwise direction which induced a slight clockwise yaw, and then applied a rapid counterclockwise steering input which reversed the vehicle's rotation to counterclockwise. The vehicle crossed the depressed grass median in a broadside orientation, began rolling, struck an unprotected sign post, and came to rest in an upright orientation. The primary causal factor was driver inattention to the driving task. The vehicle was traveling at a high rate of speed which contributed to the severity of the crash, but was not a primary factor in causation.



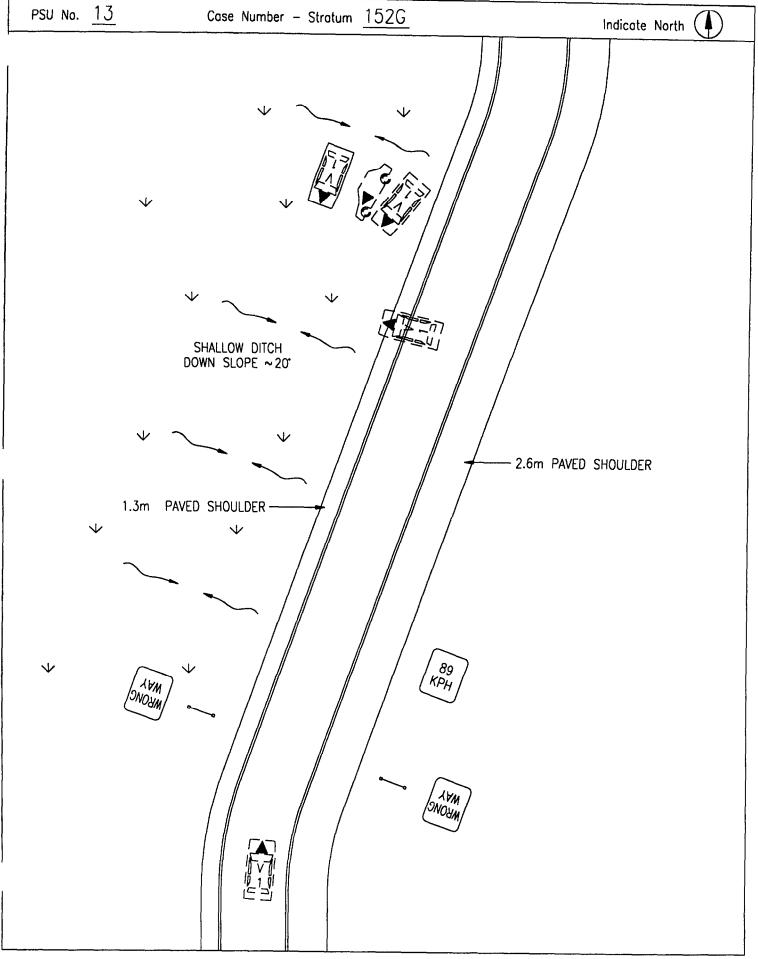


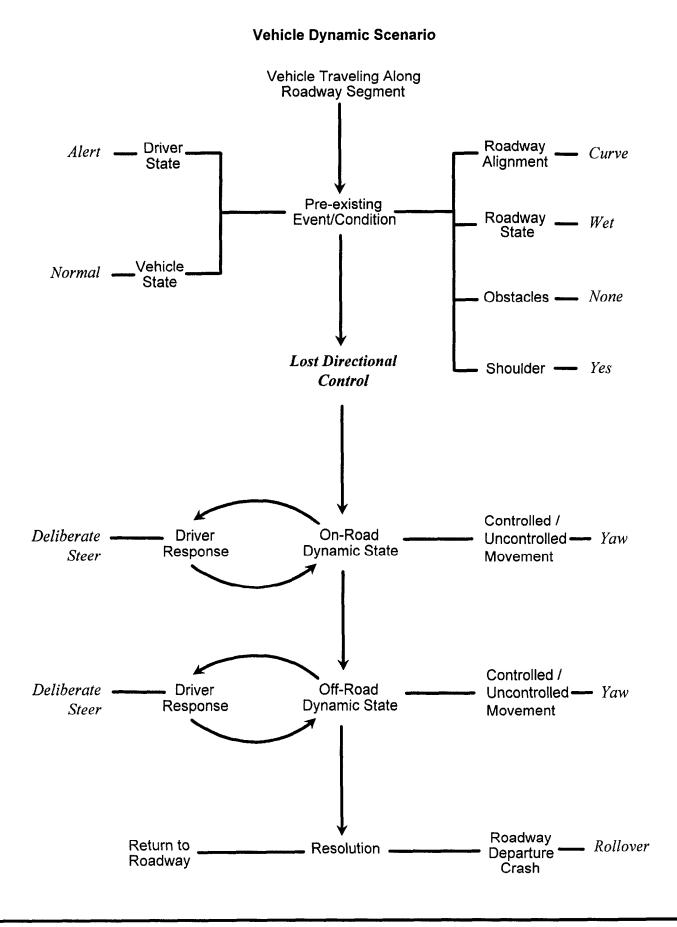
CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Left

Date: Time:	7-5-93	Weather:	N SUN
Time:	0106		Rain
	2135	Surface Condition:	Wet
Accident Type:	Control/Traction Loss	Lighting:	Daylight
Accident Severity:	0 (O)	Land Use:	Urban
Driver/Occup	ant Information	Vehicle Infor	mation
Driver Age:	27	Year:	1989
Driver Sex:	Female	Vehicle Make:	Chevrolet
mpairment:	None	Vehicle Model:	Cavalier
Familiarity vith Road:	Unknown	ABS:	No
No. of Dccupants:	1	Defects:	No
	Roadway In	formation	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	1	Speed Limit:	89 km/h
	Cluster V	ariables	
GV14: 07 Stee	ring right		
GV64: 01 Goir	ng straight		
3V65: 05 This	vehicle loss of control due to pe	oor road conditions	
GV66: 4 Skid	lding laterally - counterclockwis	e rotation	

CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a northerly direction on a wet, straight, one-lane, concrete exit ramp with a 2% slope at a driver estimated speed of 26-32 km/h (15-20 mph). The driver stated that the rear of the vehicle slid out (slight superelevation) and the driver steered right in an attempt to regain directional control. The vehicle subsequently yawed in a counterclockwise direction and departed the left road edge. The vehicle rotated down a grassy embankment and overturned onto its roof as it entered a shallow ditch at the base of the embankment. There were no reflective markers or delineators at the left edge of the exit ramp.



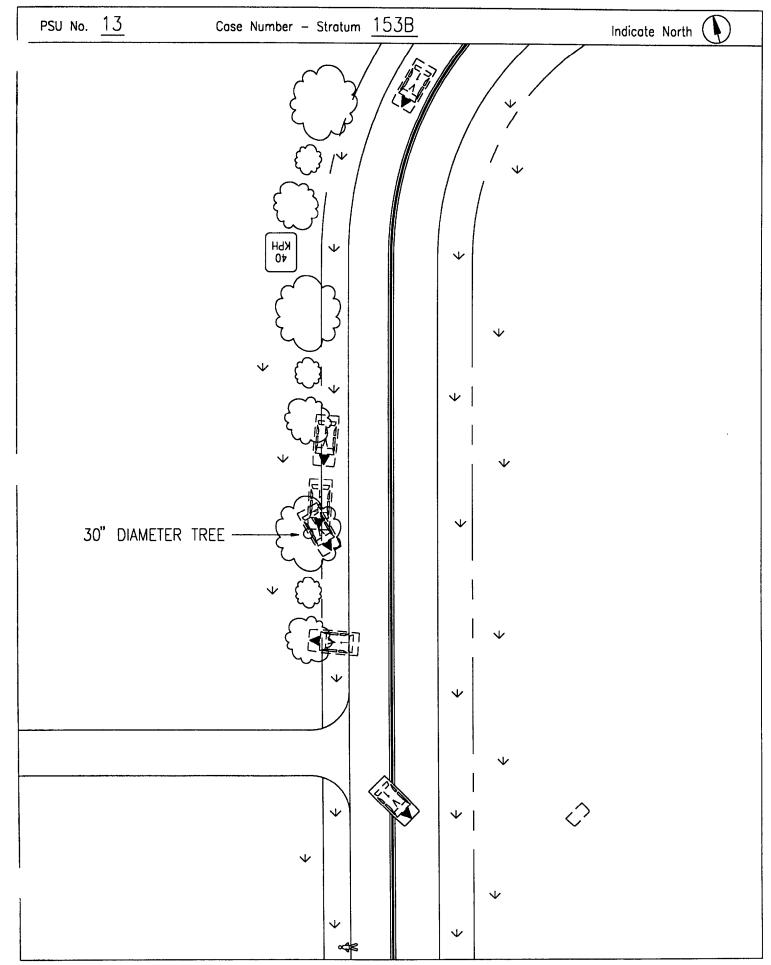


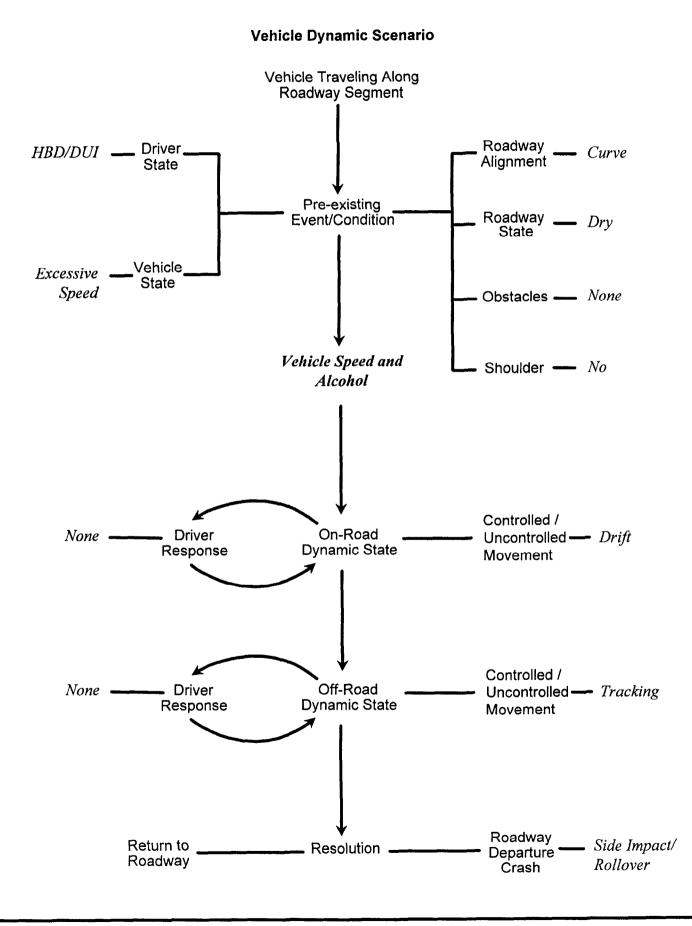
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

	<u> </u>	General Acc	ident Information	
Date:		7-7-93	Weather:	Clear/Cloudy
Time:		0224	Surface Condition:	Dry
Accident Typ	pe:	Drive Off Road	Lighting:	Artificial lighting
Accident Sev	/erity:	4 (K)	Land Use:	Urban
Driver/C	Occupa	ant Information	Vehicle Infor	mation
Driver Age:		36	Year:	1978
Driver Sex:		Male	Vehicle Make:	Chevrolet
Impairment:		Intoxicated (alcohol/drugs)	Vehicle Model:	Fullsize Blazer
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		2	Defects:	No
		Roadway	/ Information	
Trafficway T	ype		Alignment:	Curve Left
(Median):		Not divided	Slope:	Grade
No. of Lanes	5:	2	Speed Limit:	40 km/h
		Cluste	r Variables	
GV14: 01	l No av	voidance actions		
GV64: 13	B Nego	tiating a curve		
	5 This	vehicle loss of control due t	to traveling too fast for conditions	
GV65: 06				
GV65: 06 GV66: 0	No a	voidance maneuver		

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

The subject vehicle was traveling on a sharp left curve section of a dry, two-lane, residential, asphalt roadway in a 40 km/h (25 mph) speed zone. The driver was intoxicated (BAC=0.13) and attempted to negotiate the curve at an unsafe speed. The vehicle yawed in a counterclockwise direction and departed the right road edge. The vehicle continued in a southerly direction as it yawed onto a lawn area adjacent to the road edge. The side of the vehicle impacted a large diameter tree and subsequently overturned as it returned to the travel lane.



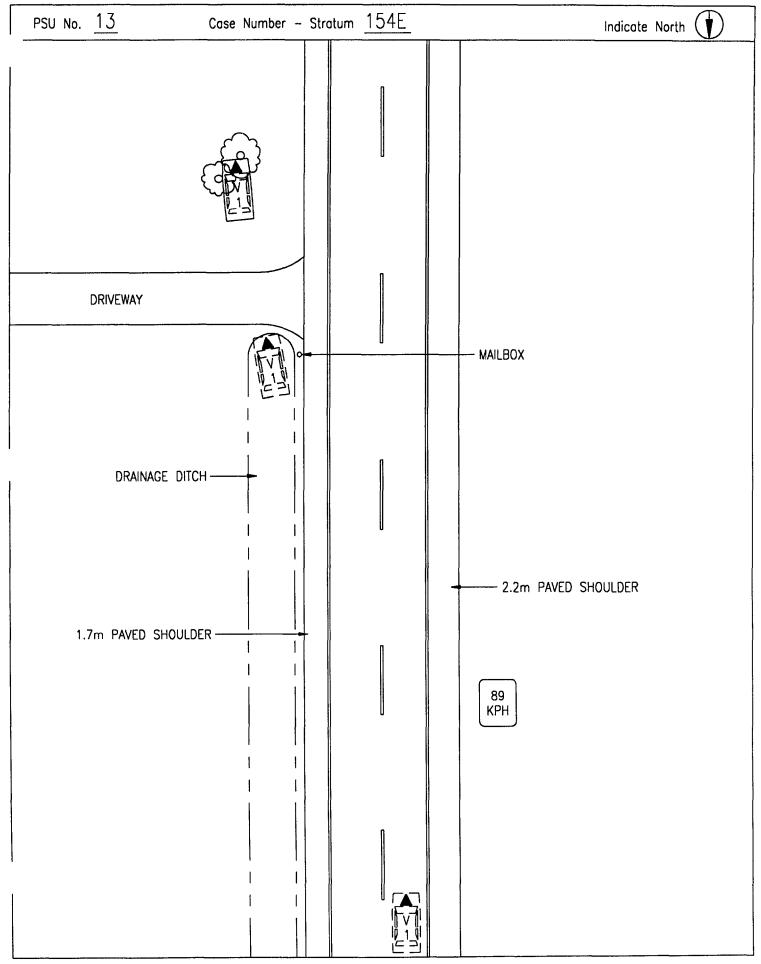


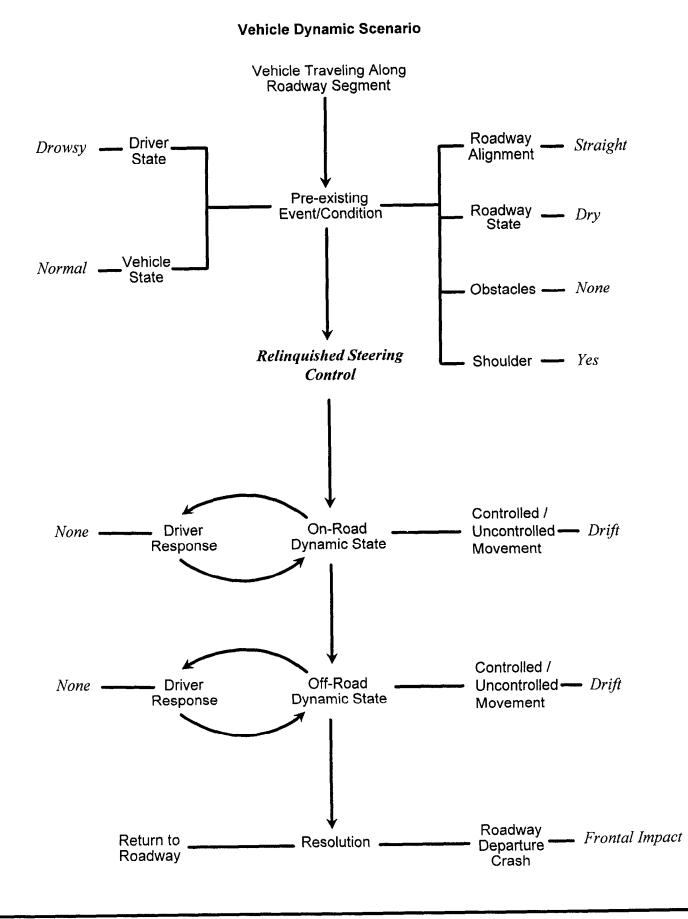
Calspan Corporation Carnegie Mellon University CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Left

	General Acc	dent Information	
Date:	7-4-93	Weather:	Clear/Cloudy
Time:	1735	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	Daylight
Accident Severi	ty: 2 (B)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Infor	rmation
Driver Age:	16	Year:	1990
Driver Sex:	Male	Vehicle Make:	Dodge
Impairment:	Fell Asleep	Vehicle Model:	Dynasty
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	/ Information	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	89 km/h
	Cluste	r Variables	
GV14: 01 1	lo avoidance actions		
GV64: 01 (Going straight		
GV65: 12 7	This vehicle traveling off the ed	ge of the road on the left side	
GV66: 0 1	No avoidance maneuver		
	No avoidance maneuver		

CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Left

The subject vehicle was proceeding in a southerly direction on a dry, straight, level, two-lane, rural, asphalt roadway during daylight hours. The driver fell asleep and allowed the vehicle the to drift off the left edge of the roadway. The vehicle crossed a paved shoulder, entered a wide drainage ditch, struck a culvert at the end of the ditch with its lower frontal area, traversed a driveway beyond the culvert, and then struck a large diameter tree with its center frontal area. The vehicle then rotated in a clockwise direction, struck a second large tree with its left door, and came to rest. The roadway had edge lines and a broken yellow center line.



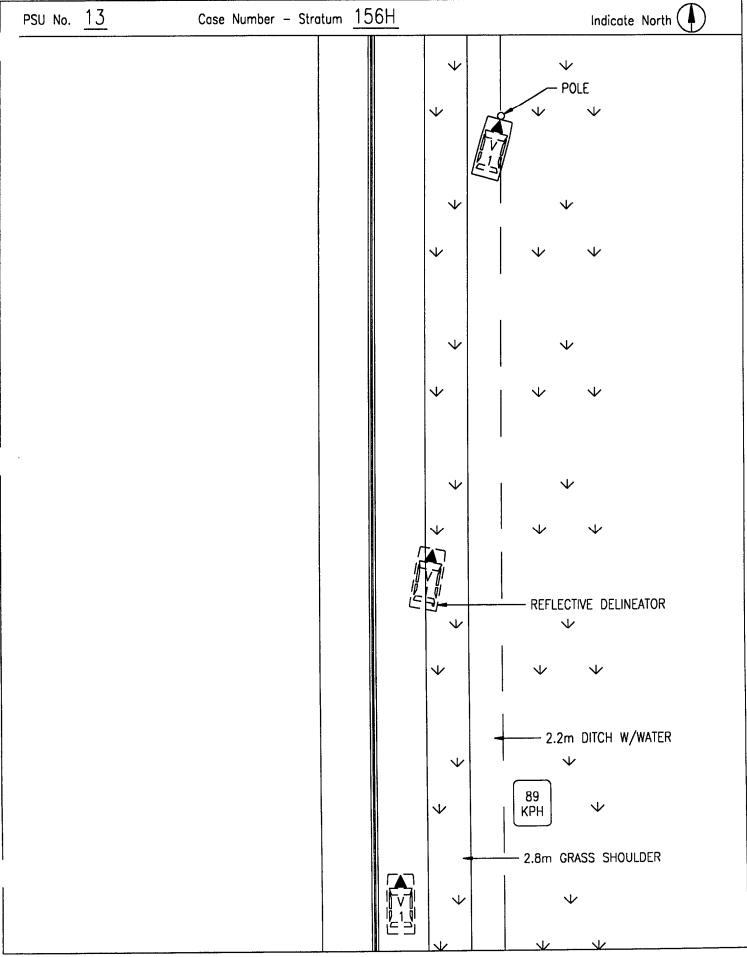


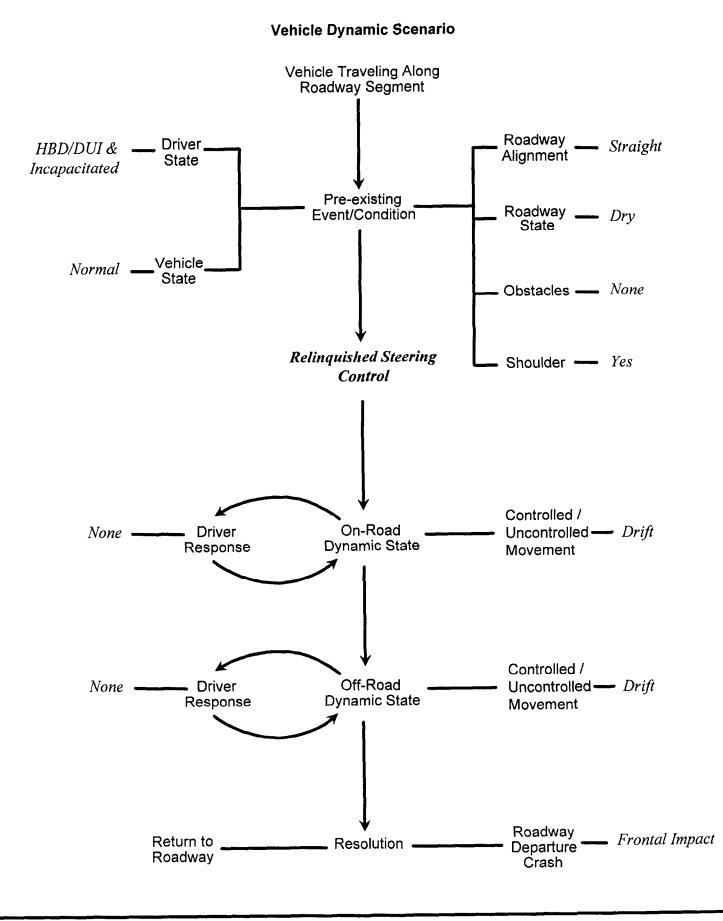
CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

<u></u>	General Acci	dent Information	
Date:	7-7-93	Weather:	Clear/Cloudy
Time:	0113	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	None
Accident Severity	: 0 (O)	Land Use:	Rural
Driver/Occu	pant Information	Vehicle Infor	rmation
Driver Age:	31	Year:	1979
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	F-series pickup
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
······································	Roadway	Information	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	89 km/h
	Cluste	r Variables	
GV14: 01 No	avoidance actions		
GV64: 01 Go	ing straight		
GV65: 13 Th	is vehicle traveling off the edg	ge of the road on the right side	
GV66: 0 No	avoidance maneuver		

CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

The subject vehicle was traveling on a dry, straight, level, rural, two-lane, rural, asphalt roadway with a posted speed limit of 89 km/h (55 mph). The vehicle departed the right road edge, struck the only reflective delineator along the road edge, continued in a northerly direction, and impacted a wooden utility pole. The roadway had a double yellow center line and no edge lines. There were no stabilized shoulders and a ditch paralleled both road edges. The driver claims to have swerved to the right to avoid a deer, however, rotating tire marks at the scene indicate a gradual road departure with brake application. Evidence of a gradual departure from the road along with a driver BAC of 0.14 indicates that the primary causal factor was intoxication.





CAUSAL FACTOR: Vehicle Speed - Excessive

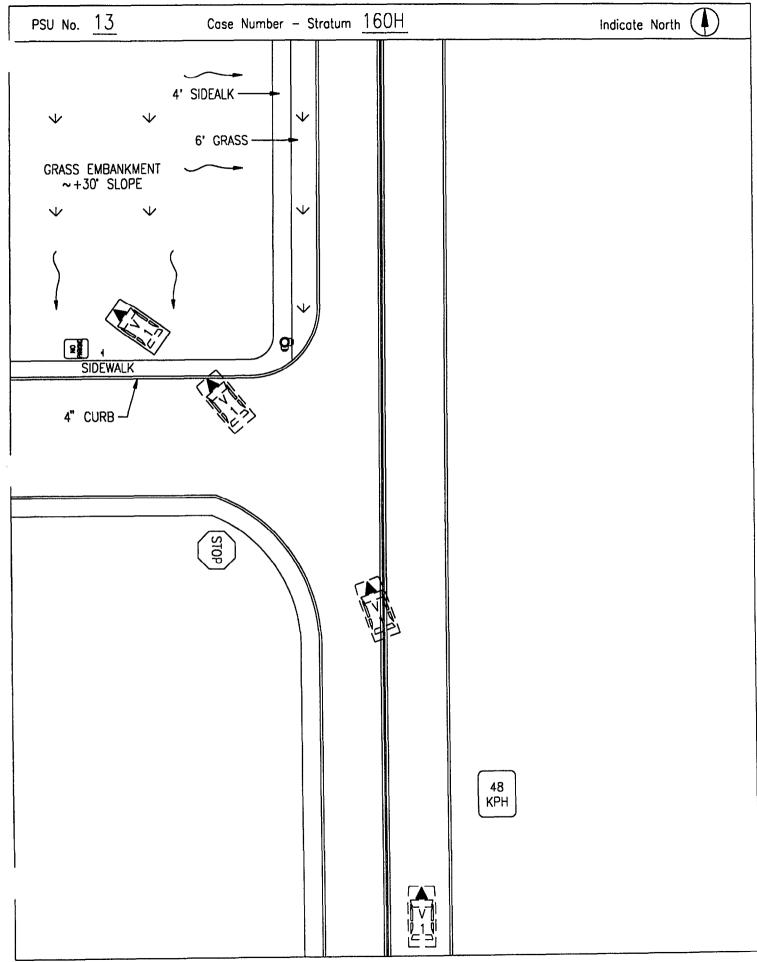
Right

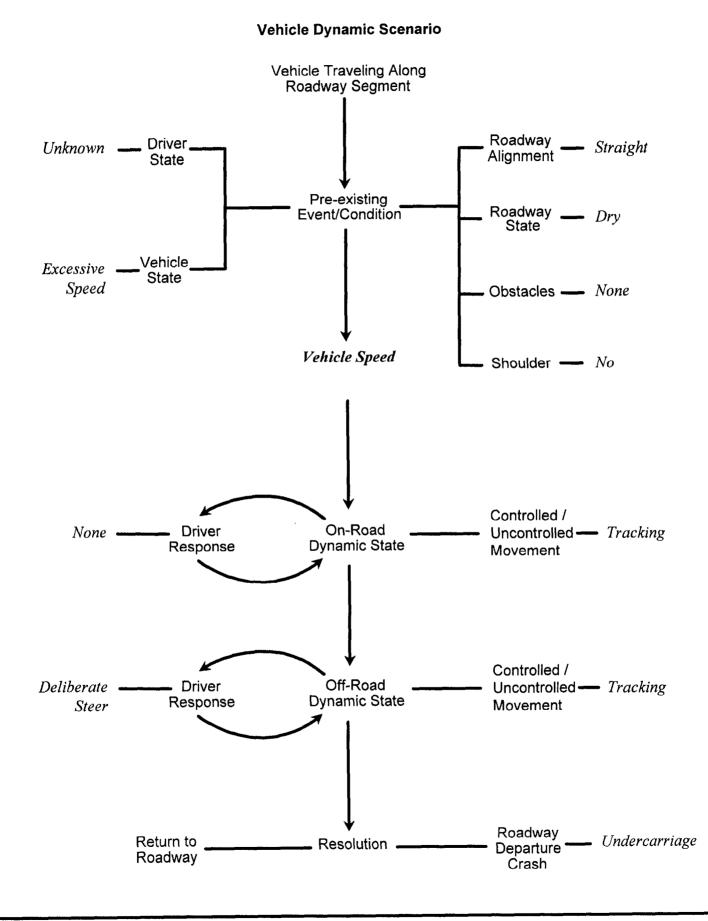
ROADSIDE DEPARTURE:

		General Accid	ent Information	
Date:		7-1-93	Weather:	Clear/Cloudy
Time:		1738	Surface Condition:	Dry
Accident	Туре	Control/Traction Loss	Lighting:	Daylight
Accident	Seve	rity: 0(O)	Land Use:	Urban
Drive	er/Oc	cupant Information	Vehicle Info	rmation
Driver Ag	e:	Unknown	Year:	1984
Driver Se	x:	Unknown	Vehicle Make:	Chevrolet
Impairme	nt:	Unknown	Vehicle Model:	Celebrity
Familiarit with Road		Unknown	ABS:	No
No. of Occupant	ts:	3	Defects:	No
		Roadway	information	
Trafficwa			Alignment:	Straight
(Media	n):	Not divided	Slope:	Grade
No. of La	nes:	2	Speed Limit:	40 km/h
		Cluster	Variables	
GV14:	01	No avoidance actions		
GV64:	10	Turning left		
GV65:	06	This vehicle loss of control due to	traveling too fast for conditions	
GV66:	0	No avoidance maneuver		
GV67:	0	No avoidance maneuver		

CAUSAL FACTOR:Vehicle Speed - ExcessiveROADSIDE DEPARTURE:Right

The subject vehicle was traveling in a northerly direction on a two-lane residential street and initiated a left turn at a three-leg T-intersection at a unsafe speed. The vehicle drifted wide into the turn and departed the right road edge. The vehicle subsequently traversed a sidewalk and traveled up an embankment where it came to rest. The vehicle was stolen and the driver and occupants exited the vehicle and fled the scene. The only known causal factor was that the driver attempted the left turn at an unsafe speed.





CAUSAL FACTOR: ROADSIDE DEPARTURE:

Vehicle Speed - Unsafe Driving Act

Left

		General Accide	nt Information	
Date:		7-5-93	Weather:	Clear/Cloudy
Time:		0214	Surface Condition:	Dry
Accident	t Type:	Control/Traction Loss	Lighting:	Artificial lighting
Accident	: Severity	: 2 (B)	Land Use:	Rural
Driv	er/Occu	pant Information	Vehicle Infor	mation
Driver Ag	ye:	17	Year:	1990
Driver Se	ex:	Male	Vehicle Make:	Ford
Impairme	ent:	None	Vehicle Model:	Probe
Familiari with Roa		Unknown	ABS:	No
No. of Occupan	ts:	1	Defects:	No
		Roadway In	formation	
Trafficwa			Alignment:	Curve Right
(Media	an):	Not divided	Slope:	Grade
No. of L	anes:	2	Speed Limit:	56 km/h
		Cluster V	ariables	
GV14:	03 Bra	king (lockup)		
GV64:	13 Ne	gotiating a curve		
GV65:	06 Thi	s vehicle loss of control due to tr	aveling too fast for conditions	
GV66:	3 Ski	dding laterally - clockwise rotation	on	
GV67:	4 Ve	nicle departed roadway		

CAUSAL FACTOR:Vehicle Speed - Unsafe Driving ActROADSIDE DEPARTURE:Left

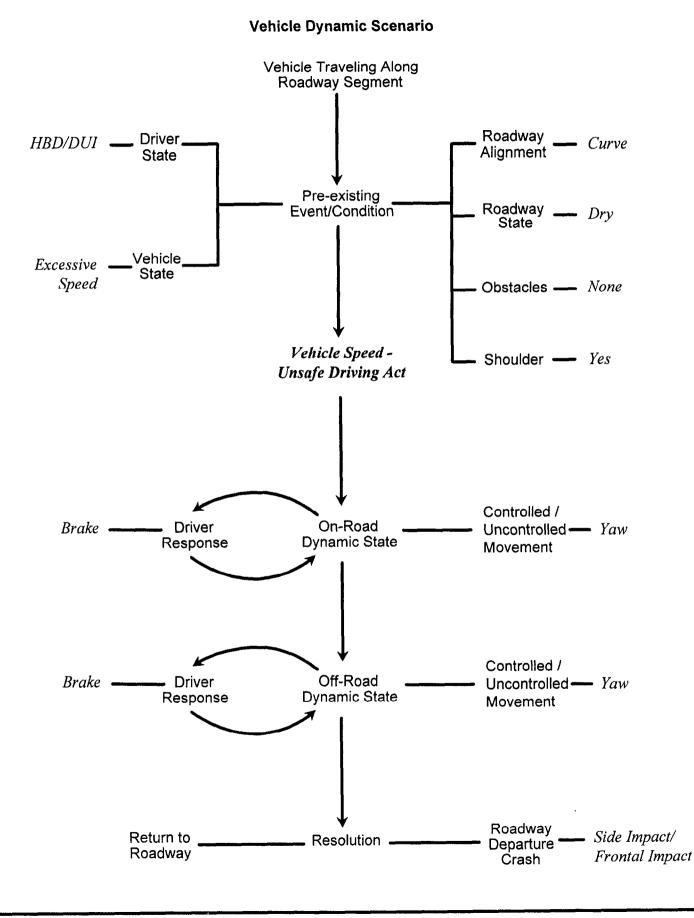
The subject vehicle was traveling in a westerly direction on a right curve section of a dry, level, rural two-lane roadway with a posted speed limit of 56 km/h (35 mph). The driver ran a stop sign and, upon entering a four-leg intersection, the vehicle broke traction. The driver attempted to negotiate the apex of the curve and braked but the vehicle yawed in a clockwise direction and traveled approximately 40 m before departing the left road edge. The vehicle continued for 20 m along the left road edge and struck several small trees with the left rear side area of the vehicle. This sequence redirected the vehicle to a near tracking mode as it traveled an additional 21 m before impacting a tree with the right frontal area. The driver was operating the vehicle in a reckless manner at a high rate of speed while under the influence of alcohol. The vehicle speed was computed at approximately 122 km/h (76 mph) from physical evidence and vehicle damage.

PSU No. 13

S . 100

Case Number - Stratum <u>161E</u>

ACCIDENT COLLISION DIAGRAM NOT AVAILABLE AT THE TIME OF THIS PRINTING



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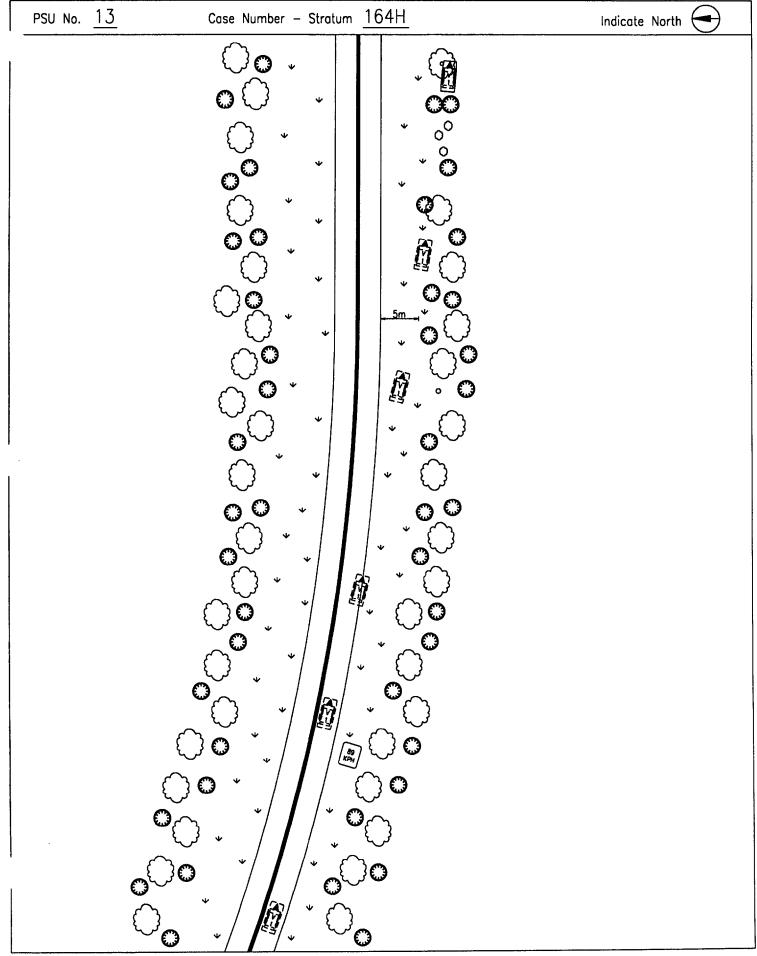
CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Right

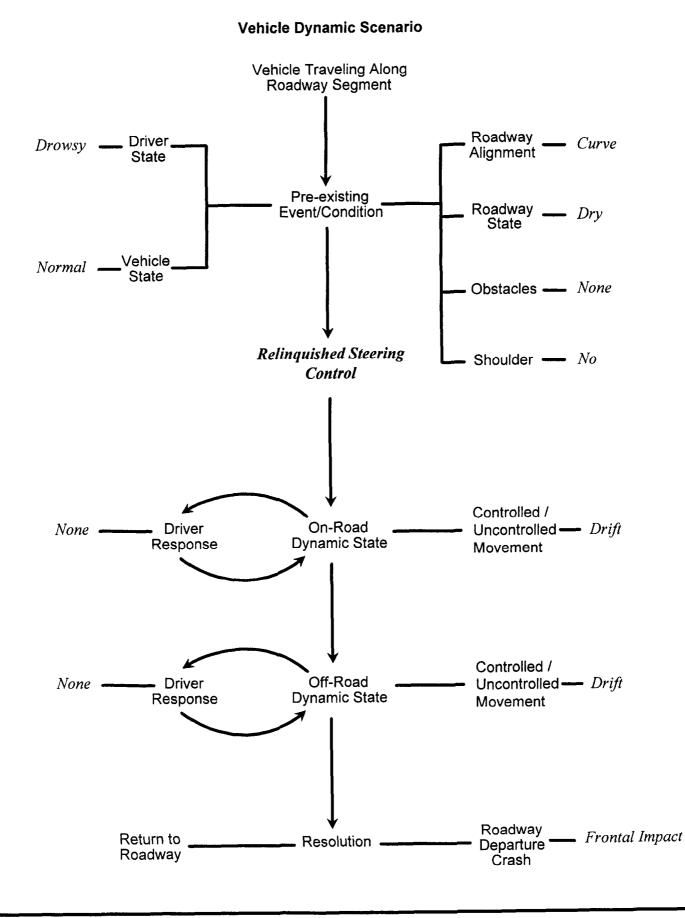
.1

	General Acci	dent Information	
Date:	7-6-93	Weather:	Clear/Cloudy
Time:	0545	Surface Condition:	Dry
Accident Type	: Drive Off Road	Lighting:	None
Accident Seve	<i>rity:</i> 0(O)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Info	rmation
Driver Age:	17	Year:	1978
Driver Sex:	Female	Vehicle Make:	Chevrolet
Impairment:	Fell Asleep	Vehicle Model:	G-series van
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Typ		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	89 km/h
	Cluster	r Variables	
GV14: 01	No avoidance actions		
GV64: 13	Negotiating a curve		
	This vehicle traveling off the edg	ge of the road on the right side	
GV65: 13	This vehicle travening off the edg		
GV65: 13 GV66: 0	No avoidance maneuver		

CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Right

The subject vehicle was traveling on left curve segment of a dry, level, two-lane, asphalt roadway with a $\pm 1\%$ slope during the dawn hours. The driver apparently fell asleep due to fatigue and the vehicle departed the roadway. The vehicle traveled along the adjacent 5 m wide grass shoulder for approximately 35 m and then struck shrubs and trees. The area was rural in nature with heavy vegetation on both sides of the roadway with an off set distance of approximately 5 m. There were no immediate obstacles between the roadway and tree line. The roadway edges were not marked and reflective delineators were not present. Pavement markings consisted of two yellow barrier center lines. The causal factor was driver fatigue-fell asleep.



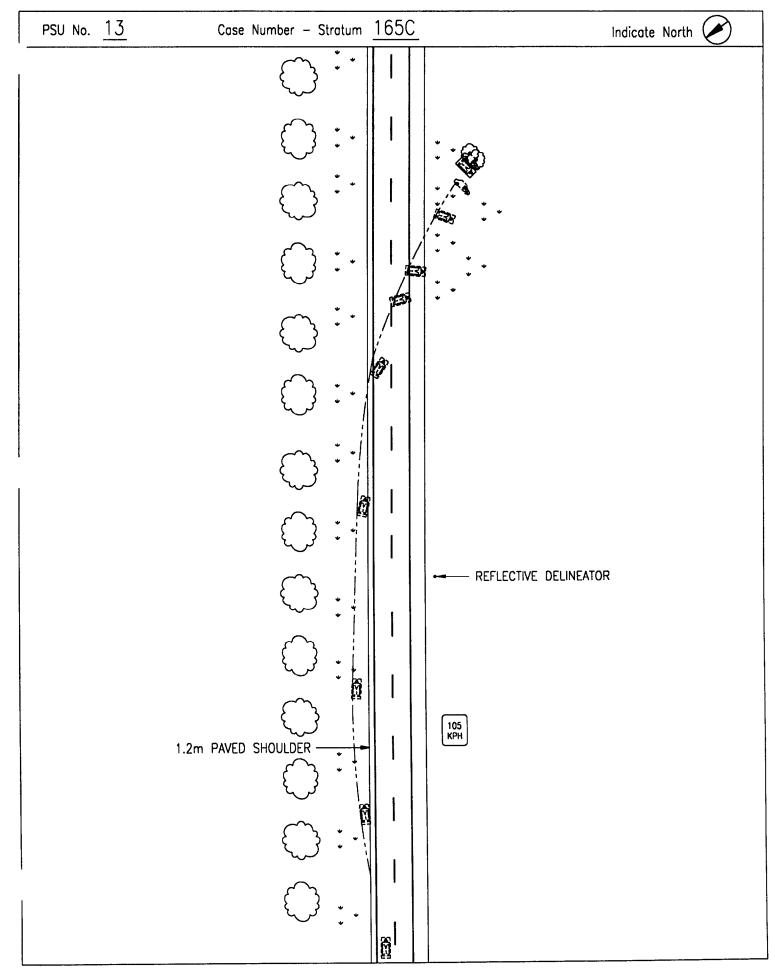


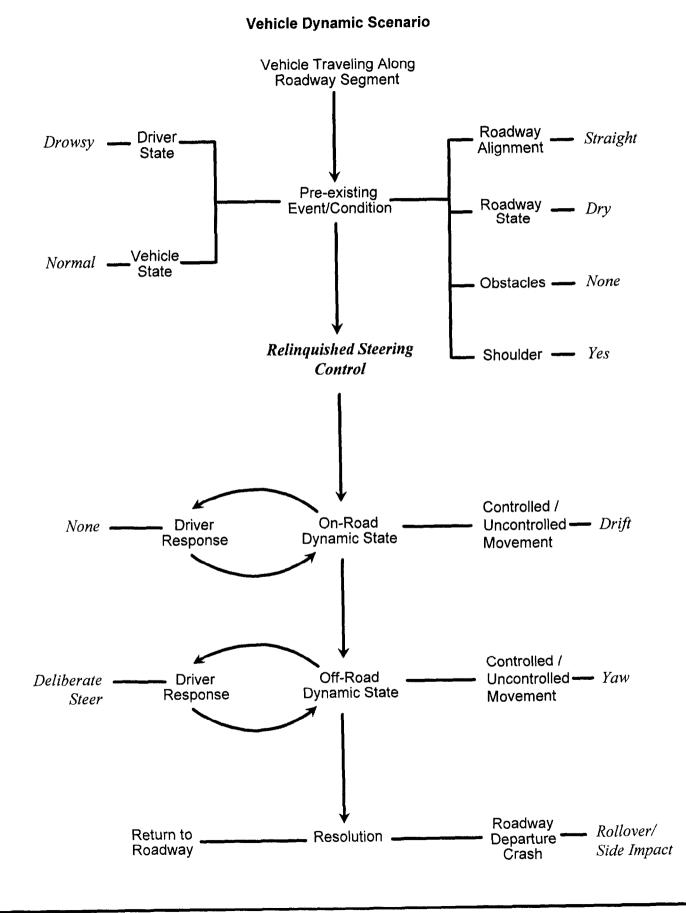
CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Left

	General Accid	ent Information	
Date:	8-3-93	Weather:	Clear/Cloudy
Time:	1234	Surface Condition:	Dry
Accident Type	Control/Traction Loss	Lighting:	Daylight
Accident Seve	<i>rity:</i> 3 (A)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Info	mation
Driver Age:	24	Year:	1989
Driver Sex:	Female	Vehicle Make:	Chevrolet
Impairment:	Fell Asleep	Vehicle Model:	S-10, T-10
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Typ		Alignment:	Straight
(Median):	Physical barrier	Slope:	Level
No. of Lanes:	2	Speed Limit:	105 km/h
	Cluster	Variables	
N// / . 01	No avoidance actions		
GV14: 01			
	Going straight		
GV64 : 01	Going straight This vehicle traveling off the edge	of the road on the left side	
GV64: 01		of the road on the left side	

CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Left

The subject vehicle was traveling on a dry, level, four-lane, divided, asphalt interstate. The highway had limited access with two lanes in each direction and was separated by a tree lined median. The driver apparently fell asleep while driving in the left lane at a speed of 105-113 km/h (65-70 mph) based on calculations using the radius of sideslip curvature formula. The vehicle exited the left side of the roadway across the 1.2 m paved shoulder and traveled on the grass area adjacent to the shoulder. At approximately 1.3 m along this travel path, the driver steered to the right which rotated the vehicle clockwise and reversed the travel path back onto the roadway. The vehicle traveled across the roadway and departed the right where, after the left side tires furrowed into the ground, it began a right over left rollover sequence. After one complete revolution, the vehicle contacted two trees with its left side. The final rest position of the vehicle was against three trees which were approximately 12 m from the roadway edge line. The road had a solid yellow left roadway edge line, white broken lane lines and a right solid white line. All pavement markings were in new condition. Reflective delineators were only present on the right side. The causal factor was driver fatigue-fell asleep.





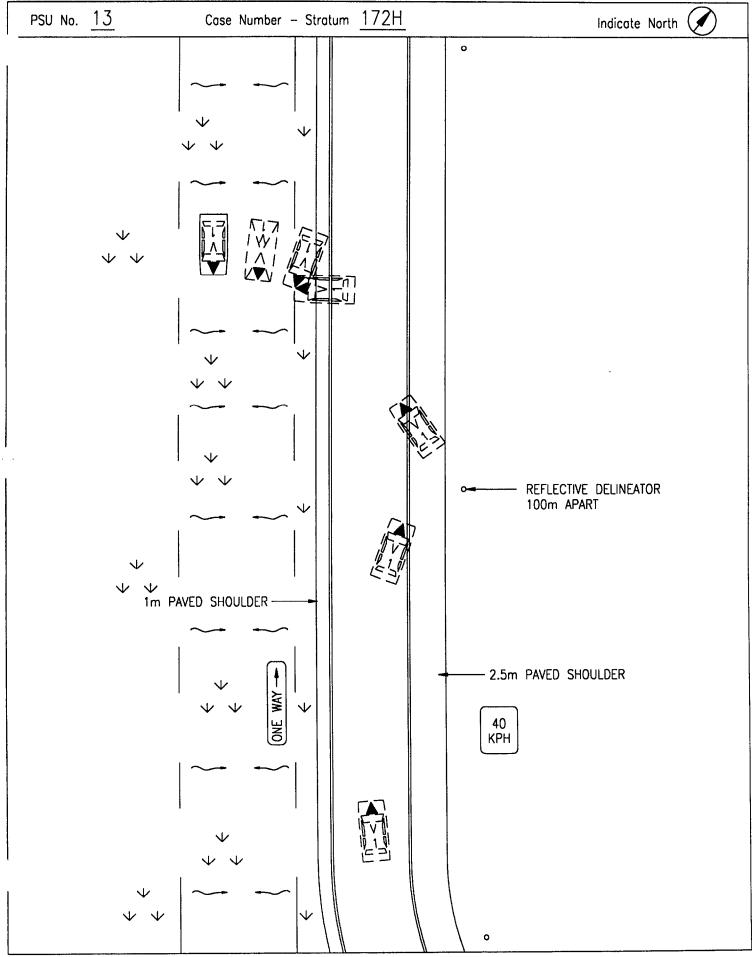
Calspan Corporation Carnegie Mellon University

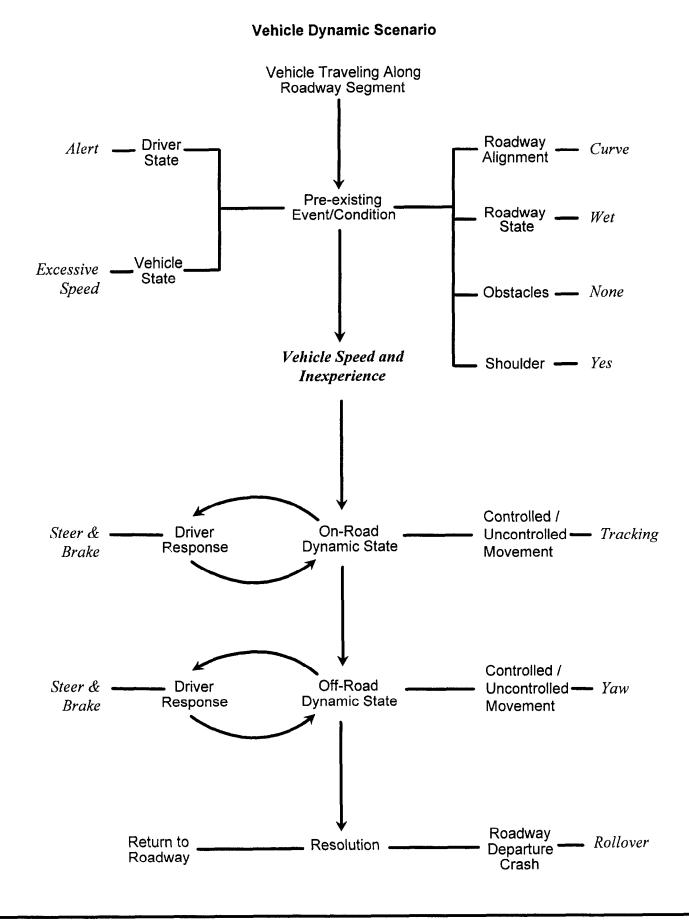
CAUSAL FACTOR:Vehicle Speed - Speed and Driver InexperienceROADSIDE DEPARTURE:Right

		General Accide	ent Information	
Date:		8-1-93	Weather:	Rain
Time:		1259	Surface Condition:	Wet
Accident	Туре:	Control/Traction Loss	Lighting:	Daylight
Accident	Severity:	1 (C)	Land Use:	Rural
Drive	er/Occup	ant Information	Vehicle Info	mation
Driver Ag	e:	16	Year:	1987
Driver Se	x:	Female	Vehicle Make:	Nissan/Datsun
Impairme	nt:	None	Vehicle Model:	Pathfinder
Familiarit with Road		No	ABS:	No
No. of Occupant	ts:	3	Defects:	No
		Roadway I	nformation	
Trafficwa			Alignment:	Curve Right
(Media	n):	Not divided	Slope:	Level
No. of La	ines:	1	Speed Limit:	40 km/h
		Cluster \	/ariables	
GV14:	06 Steer	ring left		
GV64:	01 Goin	g straight		
GV65:	06 This	vehicle loss of control due to	traveling too fast for conditions	
GV66:	1 Trac	king		

CAUSAL FACTOR:Vehicle Speed - Speed and Driver InexperienceROADSIDE DEPARTURE:Right

The subject vehicle was traveling in a northerly direction on a one-lane entrance ramp to an expressway at a speed of 48-64 km/h (30-40 mph). The asphalt road surface was wet due to rain. The driver had exited a right curve and accelerated on the posted 40 km/h (25 mph) ramp in an attempt to get up to expressway speed. As the driver exited the curve, the vehicle yawed in a clockwise direction and departed the right road edge onto the paved shoulder. The driver subsequently applied a counterclockwise steer input which reversed the rotation of the vehicle to counterclockwise. The vehicle yawed across the travel lane and departed the left road edge in a near broadside orientation. The vehicle exited the shoulder and overturned down a shallow grassy embankment. Vehicle speed and driver inexperience for the wet conditions were the primary causal factors for the crash.





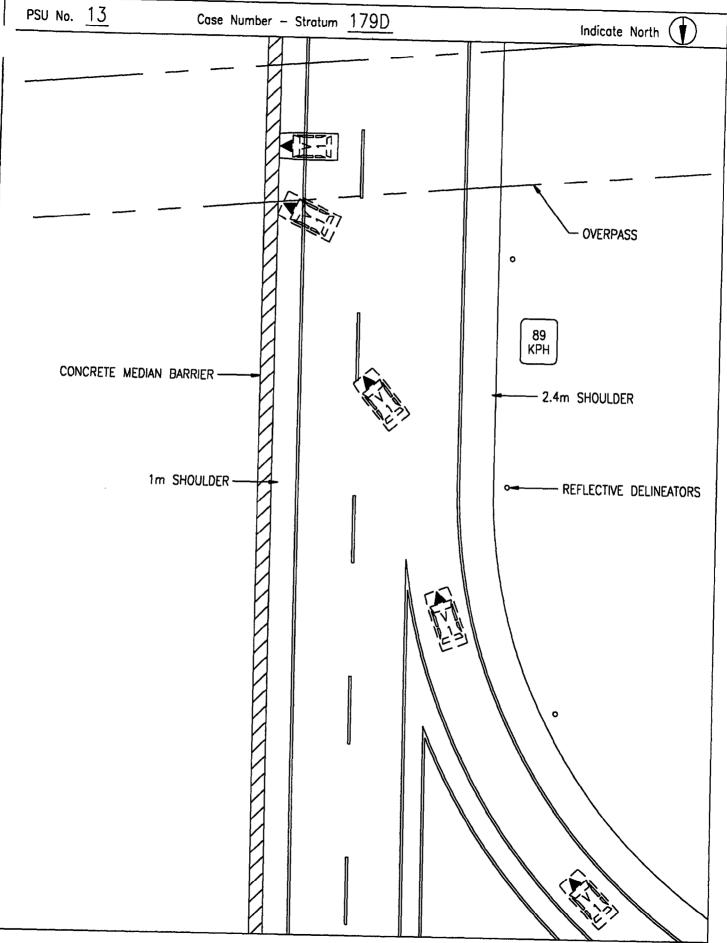
Calspan Corporation Carnegie Mellon University

CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Left

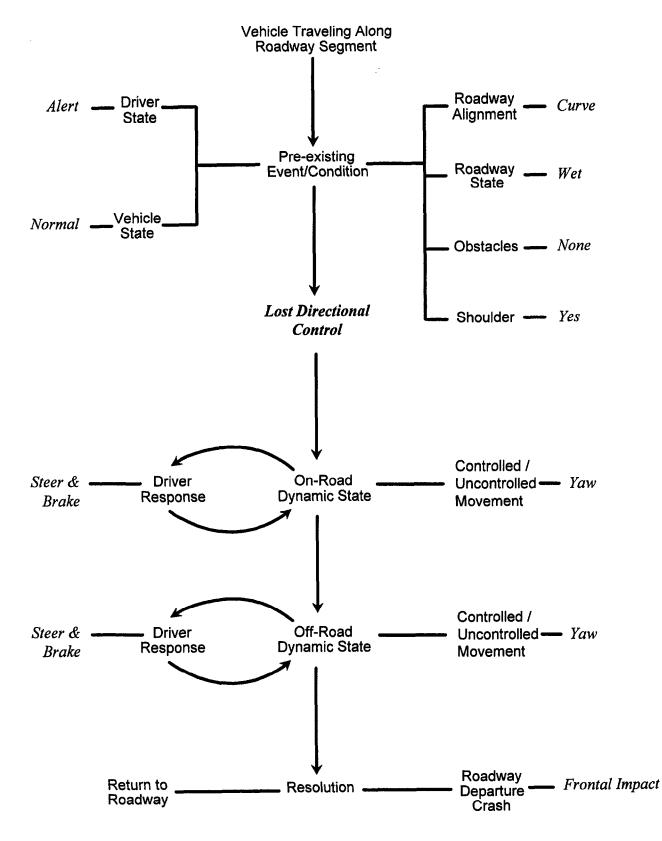
	General Acci	dent Information	
Date:	8-5-93	Weather:	Rain
Time:	0737	Surface Condition:	Wet
Accident Type:	Stationary Object	Lighting:	Daylight
Accident Severity	3 (A)	Land Use:	Urban
Driver/Occuj	pant Information	Vehicle Info	rmation
Driver Age:	19	Year:	1985
Driver Sex:	Female	Vehicle Make:	Ford
Impairment:	None	Vehicle Model:	Escort/EXP
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	3	Defects:	No
·	Roadway	Information	
Trafficway Type		Alignment:	Curve Right
(Median):	Not divided	Slope:	Level
No. of Lanes:	1	Speed Limit:	89 km/h
	Cluster	Variables	
GV14: 08 Bral	king and steering left		
3V64: 15 Mer	ging		
3V65: 06 This	vehicle loss of control due to	traveling too fast for conditions	
3V66: 4 Skid	lding laterally - counterclocky	vise rotation	
GV67: 4 Veh	icle departed roadway		

CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a southerly direction on a one-lane entrance ramp approaching a two-lane divided highway. The concrete road surface was wet due to rain and curved to the right. The driver estimated travel speed was 72 km/h (45 mph) approaching the highway. Due to the wet road surface, the vehicle began to hydroplane and broke traction. The driver probably braked and steered and reported that the engine subsequently stalled. The vehicle subsequently yawed in a counterclockwise direction and crossed the southbound travel lanes. The vehicle departed the inboard road edge of the divided highway and struck the concrete median barriers.







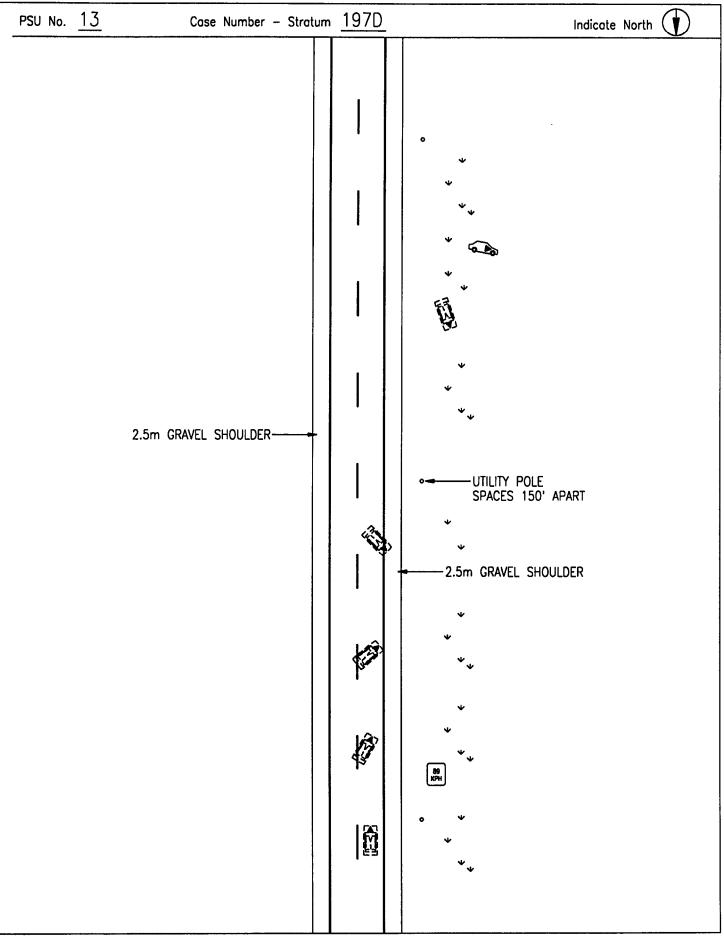
Lost Directional Control CAUSAL FACTOR: Right

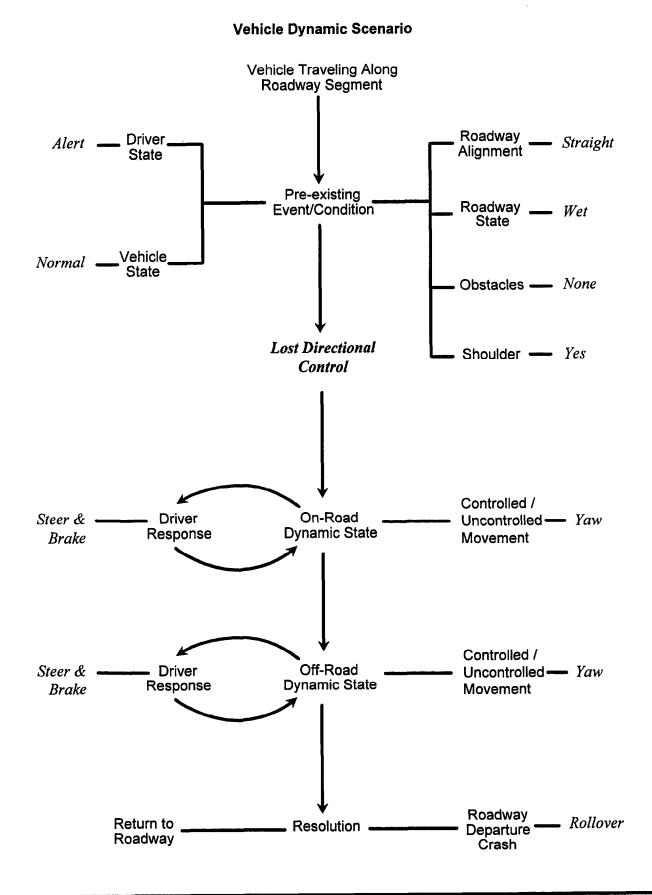
ROADSIDE DEPARTURE:

·····		General Accid	ent Information	
Date:		9-2-93	Weather:	Rain
Time:		1910	Surface Condition:	Wet
Accident T	/pe:	Control/Traction Loss	Lighting:	Daylight
Accident S	everity:	3 (A)	Land Use:	Rural
Driver	Occup	ant Information	Vehicle Infor	mation
Driver Age:		25	Year:	1986
Driver Sex:		Female	Vehicle Make:	Mercury
Impairment	:	None	Vehicle Model:	Topaz
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:	,	2	Defects:	No
		Roadway I	nformation	
Trafficway ((Median)		Not divided	Alignment:	Straight
			Slope:	Grade
No. of Lane	3 5:	2	Speed Limit:	89 km/h
		Cluster \	/ariables	
GV14 : ()9 Braki	ng and steering right		
GV64: ()1 Going	g straight		
GV65:)6 This	vehicle loss of control due to	traveling too fast for conditions	
GV66:	3 Skidd	ling laterally - clockwise rotat	ion	
GV67: 4	4 Vehia	le departed roadway		

CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

The subject vehicle was southbound on a straight, wet, two-lane, asphalt roadway with a +1% slope in an 89 km/h (55 mph) speed zone. The driver stated that the vehicle began to hydroplane on the wet surface and drifted across the center line. There was another vehicle approaching from the opposite direction so the subject driver steered in a clockwise direction and braked. The vehicle subsequently yawed in a clockwise direction and departed the right road edge in a near broadside orientation. The vehicle crossed a gravel shoulder and overturned on a grassy area adjacent to the shoulder. The primary causal factor was loss of control due to the wet road surface.





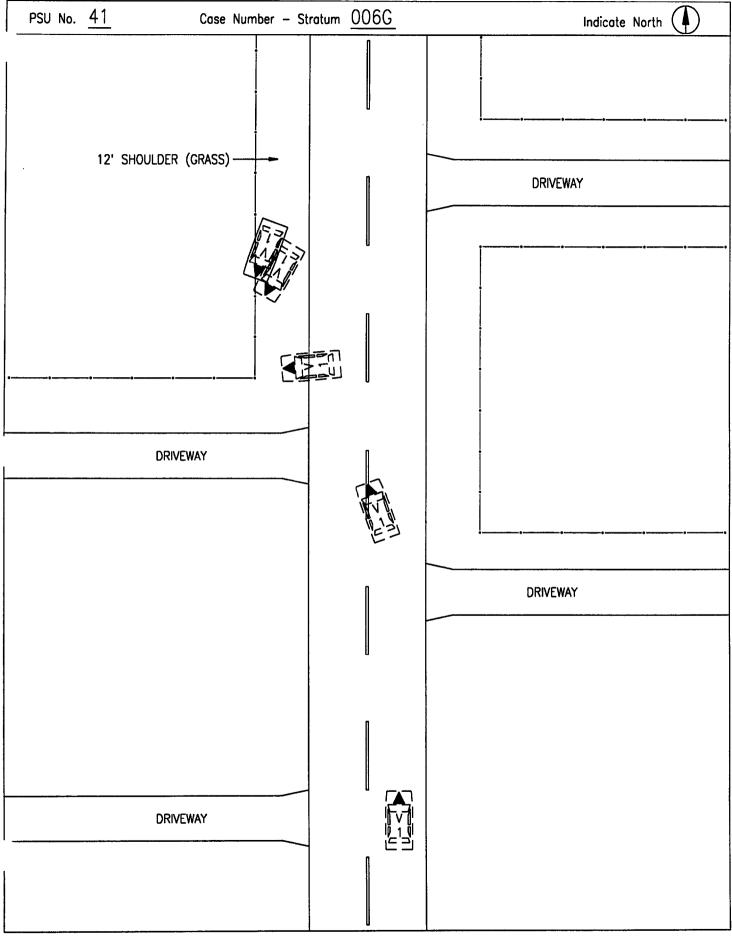
CAUSAL FACTOR: Vehicle Speed - Unsafe Driving Act

ROADSIDE DEPARTURE: Left

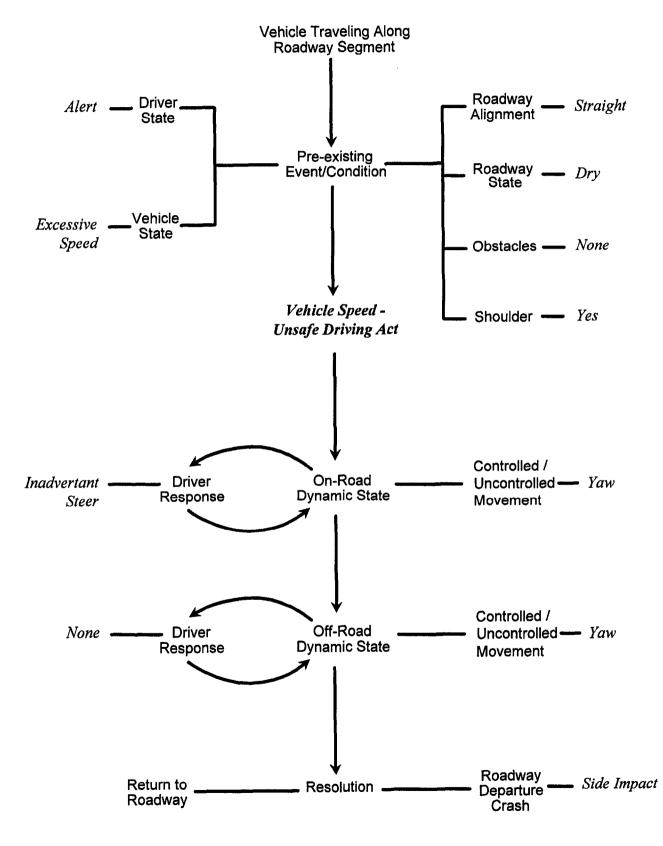
		General Accide	ent Information	
Date:		1-193	Weather:	Clear/Cloudy
Time:		1555	Surface Condition:	Dry
Accident	Туре:	Control/Traction Loss	Lighting:	Daylight
Accident	Severity:	0 (O)	Land Use:	Urban
Drive	er/Occupa	ant Information	Vehicle Infor	mation
Driver Ag	le:	30	Year:	1993
Driver Se	x:	Male	Vehicle Make:	Chevrolet
Impairme	nt:	None	Vehicle Model:	Lumina
Familiarit with Road		No	ABS:	Yes
No. of Occupan	ts:	1	Defects:	No
		Roadway Ir	formation	· · · · · · · · · · · · · · · · · · ·
Trafficwa (Media		Not divided	Alignment: Slope:	Straight Level
No. of La	anes:	2	Speed Limit:	48 km/h
		Cluster V	/ariables	
GV14:	99 Unkr	nown		
GV64:	01 Goin	g straight		
GV65:	06 This	vehicle loss of control due to t	raveling too fast for conditions	
GV66:	9 Precr	ash stability unknown		
GV67:	9 Direc	ctional consequences unknown	l .	

CAUSAL FACTOR:Vehicle Speed - Unsafe Driving ActROADSIDE DEPARTURE:Left

The subject vehicle was proceeding north on a dry, level, two-lane, residential, asphalt roadway. The driver was traveling at an excessive speed in a 56 km/h (35 mph) speed zone. The driver was charged with careless driving and excessive speed.



Vehicle Dynamic Scenario



CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

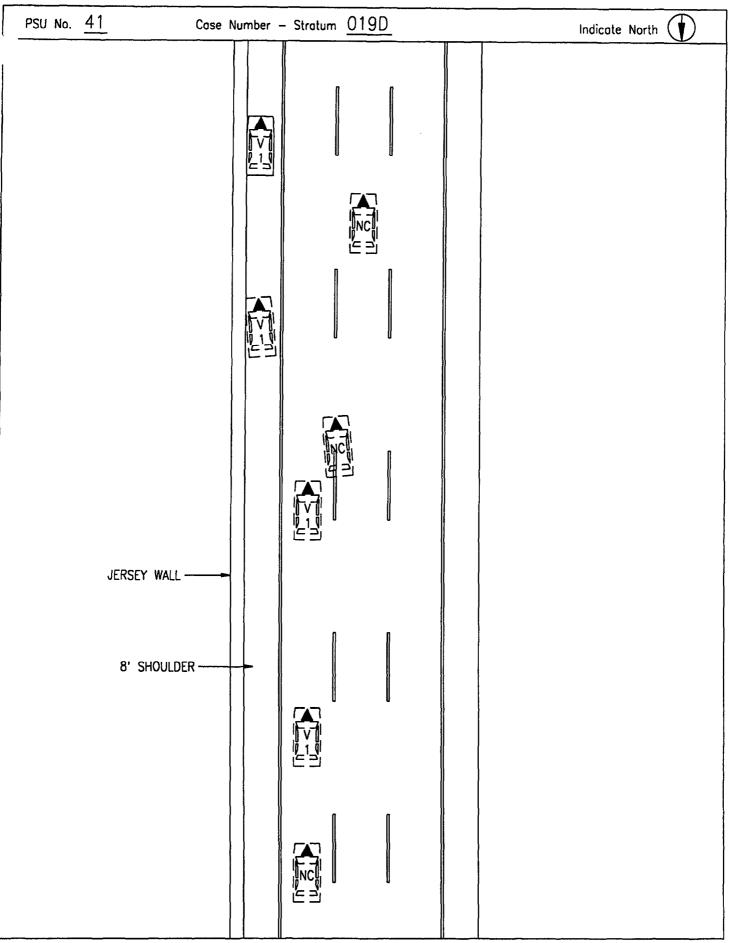
ROADSIDE DEPARTURE: Left

	General Accie	dent Information	
Date:	2-2-93	Weather:	Clear/Cloudy
Time:	0915	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	Daylight
Accident Severity:	3 (A)	Land Use:	Urban
Driver/Occup	oant Information	Vehicle Info	mation
Driver Age:	21	Year:	1985
Driver Sex:	Female	Vehicle Make:	Dodge
Impairment:	None	Vehicle Model:	Daytona
Familiarity with Road:	Unknown	ABS:	Yes
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Type		Alignment:	Straight
(Median):	Physical barrier	Slope:	Level
No. of Lanes:	3	Speed Limit:	89 km/h
	Cluster	' Variables	
GV14: 06 Stee	ering left		
GV64: 16 Suc	cessful avoidance of previous	sevent	
GV65: 61 Oth	er vehicle encroaching into la	ane from adjacent lane (same direc	tion) over right lane l
GV66: 1 Tra	cking		
GV67: 4 Vet	nicle departed roadway		

CAUSAL FACTOR:	Evasive Maneuver - Vehicle Encroaching into Lane -
	Same Travel Direction

ROADSIDE DEPARTURE: Left

The subject vehicle was traveling along a six-lane, divided highway. The vehicle was involved in evasive maneuvers with another car. The vehicle was initially in the left lane. A phantom vehicle cut the subject vehicle off causing the subject vehicle to swerve left into a jersey barrier.



Vehicle Traveling Along **Roadway Segment** Roadway — Straight Driver_ Alert -State Pre-existing Event/Condition Roadway — Dry State Vehicle Normal -State Obstacles — Vehicle **Evasive Maneuver** Shoulder — Yes Controlled / **On-Road** Deliberate -Driver Uncontrolled - Tracking Response **Dynamic State** Movement Steer Controlled / Off-Road Deliberate . Driver Uncontrolled — Tracking **Dynamic State** Response Movement Steer Roadway Side Impact Return to Resolution Departure * Roadway Ċrash

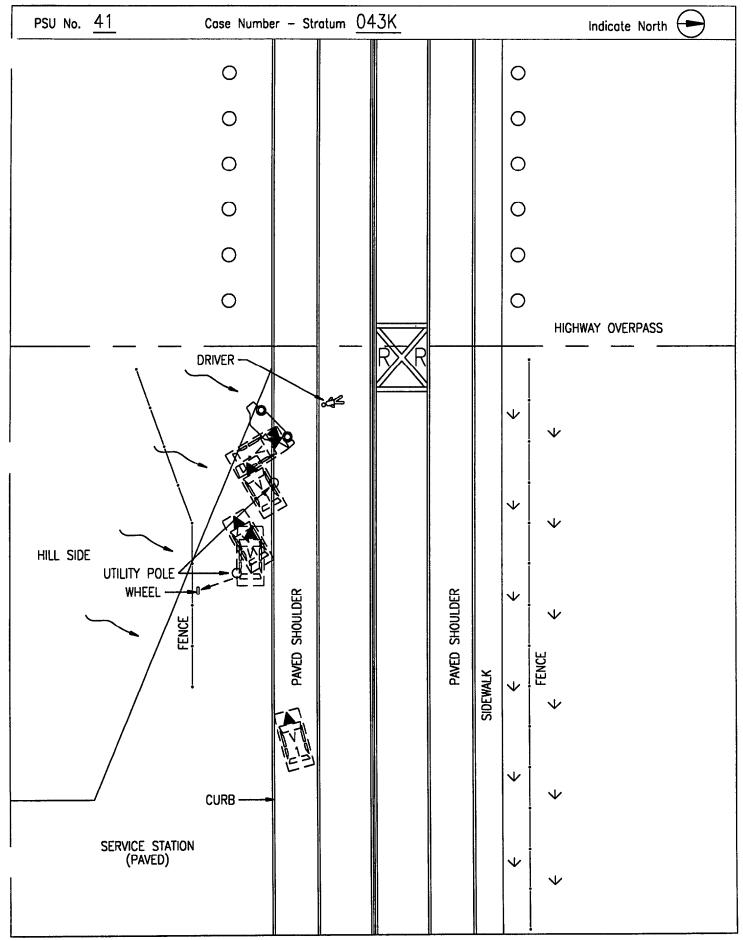
Vehicle Dynamic Scenario

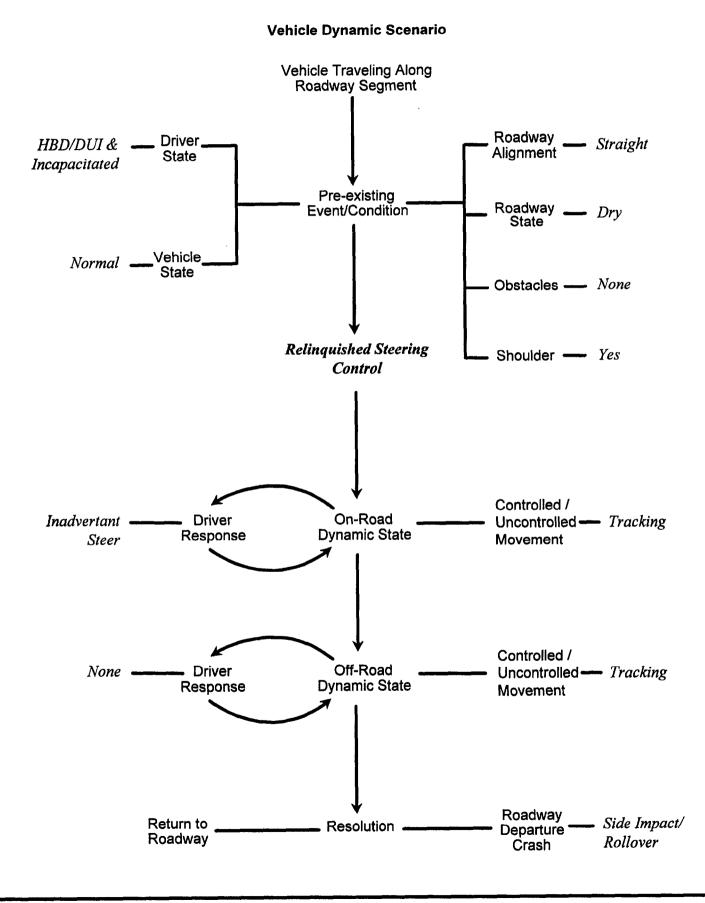
CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Left

	General Acci	dent Information	
Date:	5-2-93	Weather:	Clear/Cloudy
Time:	1334	Surface Condition:	Dry
Accident Type	: Drive Off Road	Lighting:	Artificial lighting
Accident Seve	rity: 3 (A)	Land Use:	Urban
Driver/Oc	cupant Information	Vehicle Infor	rmation
Driver Age:	24	Year:	1970
Driver Sex:	Male	Vehicle Make:	Jeep
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Unknown (light truck)
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Typ		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	56 km/h
	Cluster	r Variables	····
GV14: 99	Unknown		
GV64: 01	Going straight		
GV65: 12	This vehicle traveling off the edg	ge of the road on the left side	
GV66: 9	Precrash stability unknown		
GV67: 9	Directional consequences unknow	wn	

CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Left

The subject vehicle was traveling along a two-lane, rural road. The driver relinquished control of the vehicle and veered left off the road. The vehicle entered the front area of a service station and continued across the lot until impacting a pole with the left side of the vehicle. The vehicle then pitched right, impacted a second pole on the vehicle's right side, traveled up a hill and rolled over, ejecting the driver. The driver was under the influence of alcohol and drugs.



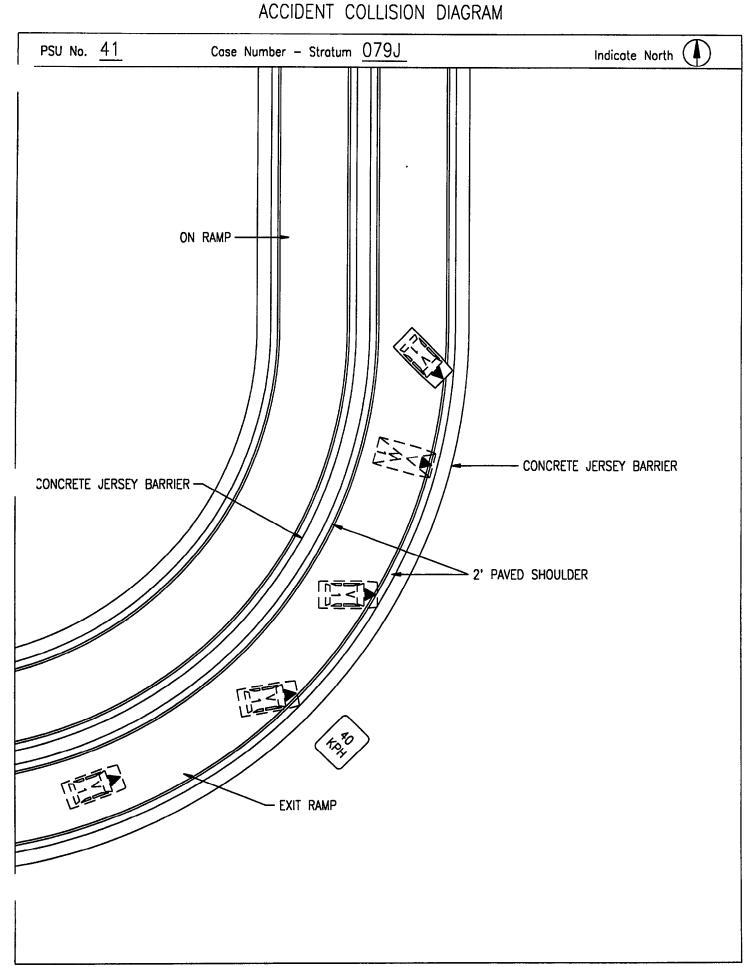


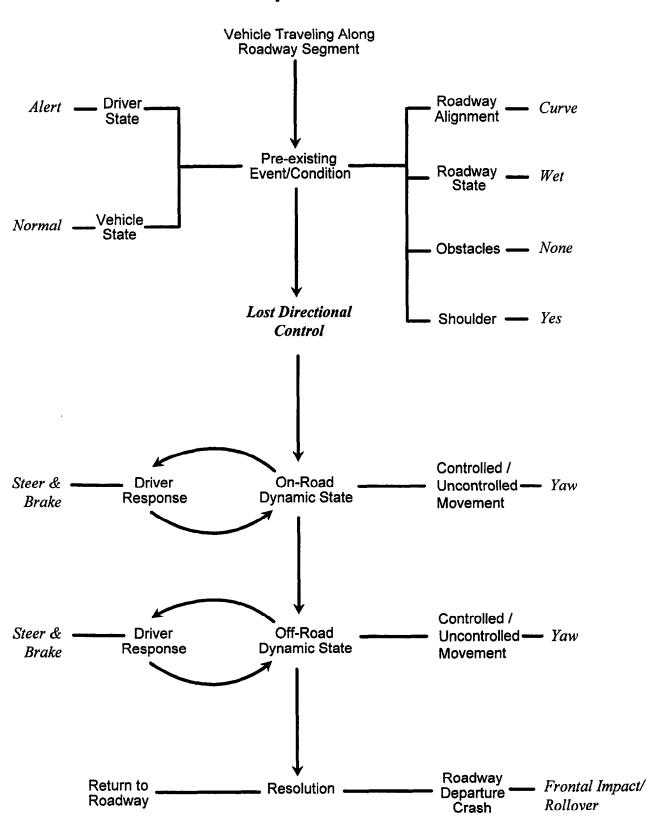
CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

		General Accide	ent Information	
Date:		8-2-93	Weather:	Rain
Time:		1247	Surface Condition:	Wet
Accident 1	Type:	Control/Traction Loss	Lighting:	Daylight
Accident S	Severity:	3 (A)	Land Use:	Urban
Drive	r/Occup	ant Information	Vehicle Infor	rmation
Driver Age):	21	Year:	1992
Driver Sex		Male	Vehicle Make:	Ford
Impairmen	it:	None	Vehicle Model:	Ranger
Familiarity with Road:		Unknown	ABS:	Yes
No. of Occupants	s:	1	Defects:	No
		Roadway Ir	Iformation	
Trafficway			Alignment:	Curve Left
(Median):	Physical barrier	Slope:	Level
No. of Lan	ies:	1	Speed Limit:	40 km/h
		Cluster V	ariables	·····
GV14:	09 Brak	ing and steering right		
GV64:	13 Nego	tiating a curve		
GV65:	05 This	vehicle loss of control due to p	oor road conditions	
GV66:	3 Skido	ling laterally - clockwise rotati	on	
GV67:	4 Vehi	cle departed roadway		

CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

The subject vehicle was exiting an expressway and traveling in a northerly direction on a wet, one-lane exit ramp that was bordered on both sides by concrete median barriers. As the driver completed the right curve and entered the left curve, the driver noted water and braked. The vehicle yawed and the driver steered in both directions in an attempt to regain control. The vehicle subsequently yawed clockwise, departed the right road edge and impacted the concrete barrier with its frontal area. Based on the slides, the ramp was an S-configuration. Water had accumulated on the ramp due to heavy rain and drain backups. Loss of control was attributed to the standing water on the roadway. The geometry of the ramp and the concrete barriers limited the driver's view of the road surface in the direction of travel.





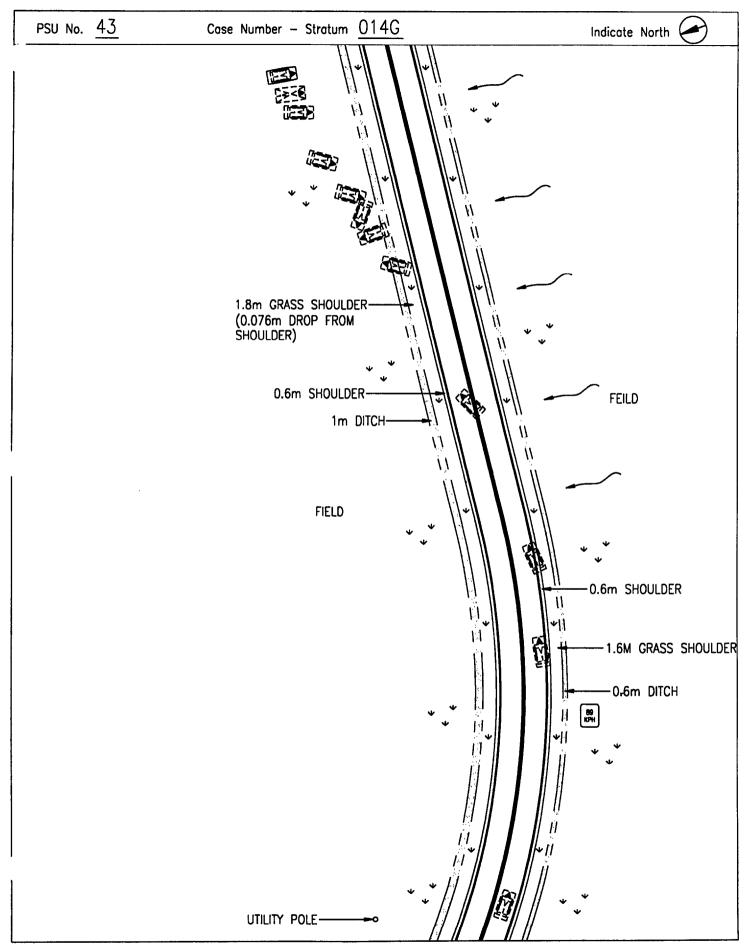
Vehicle Dynamic Scenario

CAUSAL FACTOR:Evasive Maneuver - Avoid Animal or PedestrianROADSIDE DEPARTURE:Right

Date:	1-3-93	Weather:	Clear/cloudy
Time:	0645	Surface Condition:	Dry
Accident Type:	Avoid Collision	Lighting:	Daylight
Accident Severity	0 (O)	Land Use:	Rural
Driver/Occu	oant Information	Vehicle Infor	mation
Driver Age:	36	Year:	1993
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	None	Vehicle Model:	Escort/EXP
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	5	Defects:	No
	Roadway I	nformation	
Trafficway Type		Alignment:	Curve Left
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	89 km/h
	Cluster	Variables	
GV14: 09 Bra	king and steering right		
GV64: 13 Ne	otiating a curve		
GV65: 87 An	mal in roadway		
GV66: 1 Tra	cking		
GV67: 4 Ve	nicle departed roadway		

CAUSAL FACTOR:Evasive Maneuver - Avoid Animal or PedestrianROADSIDE DEPARTURE:Right

The subject vehicle was proceeding along a two-lane, rural road traveling approximately 72 km/h (45 mph). A large dog jumped onto the roadway. The driver made an evasive maneuver to avoid the dog and the vehicle's right wheels dropped off the right shoulder of the road and started to dig in. The driver over-corrected, lost control and had further road excursions.



Vehicle Traveling Along **Roadway Segment** Roadway — Curve Driver Alert -State **Pre-existing** Roadway <u>Dry</u> Event/Condition Vehicle State Normal -Obstacles — Animal **Evasive Maneuver** Shoulder - Yes Controlled / Driver On-Road Deliberate -Uncontrolled — Tracking **Dynamic State** Response Steer Movement Controlled / Off-Road Deliberate - Driver Uncontrolled — Yaw **Dynamic State** Response Steer Movement Roadway Return to - Rollover Resolution Departure " Roadway Crash

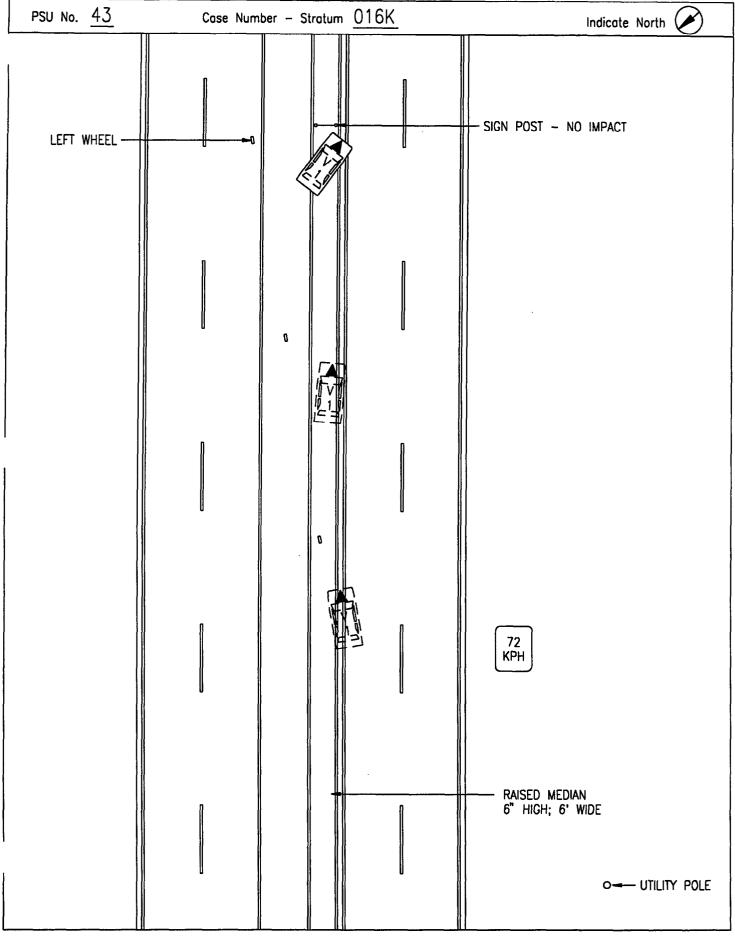
Vehicle Dynamic Scenario

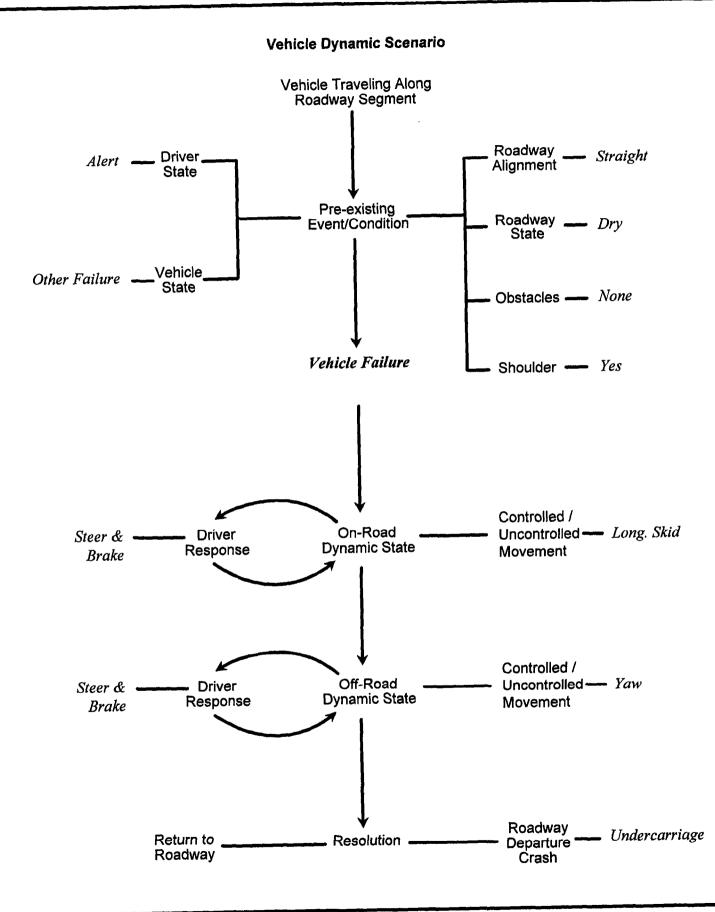
CAUSAL FACTOR:Vehicle FailureROADSIDE DEPARTURE:Left

		General Accide	ent Information	
Date:		1-7-93	Weather:	Clear/Cloudy
Time:		1840	Surface Condition:	Dry
Accident T	ype:	Control/Traction Loss	Lighting:	Daylight
Accident S	Severity:	3 (A)	Land Use:	Urban
Drive	r/Occup	ant Information	Vehicle Infor	rmation
Driver Age);	18	Year:	1980
Driver Sex	:	Male	Vehicle Make:	Nissan/Datsun
Impairmen	t:	None	Vehicle Model:	Z-car, ZX
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants	a:	1	Defects:	Other Failure
		Roadway Ir	nformation	
Trafficway			Alignment:	Straight
(Mediar	n):	Flush or curb	Slope:	Level
No. of Lan	ies:	4	Speed Limit:	72 km/h
		Cluster V	/ariables	
GV14:	09 Brak	ing and steering right		
GV64:	15 Merg	ging		
GV65:	03 This	vehicle loss of control due to d	lisabling vehicle failure	
		ding longitudinally - less than a	30 degrees rotation	
GV66:	2 Skide	unig longitudinariy - less than .		

CAUSAL FACTOR:Vehicle FailureROADSIDE DEPARTURE:Left

The subject vehicle pulled out onto a 4-lane, divided roadway. As the driver merged into the right lane, the left wheel fell off. The driver lost control of the vehicle and veered left off the roadway onto the center median. The vehicle slid along the median and came to rest. The vehicle had just left an automotive repair shop where its brakes had been repaired.



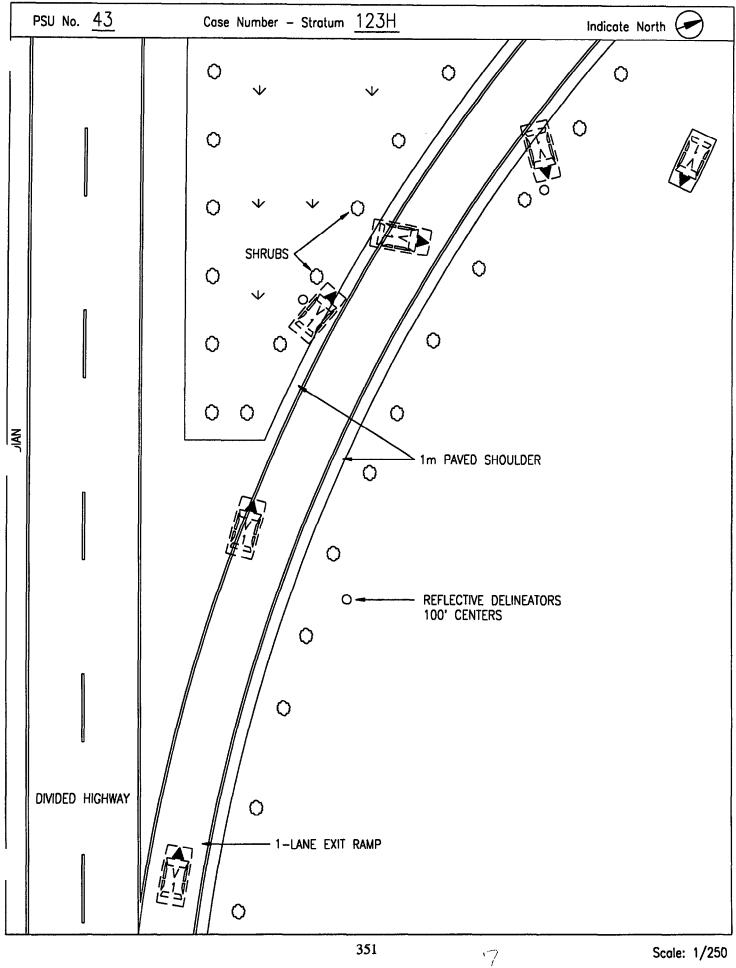


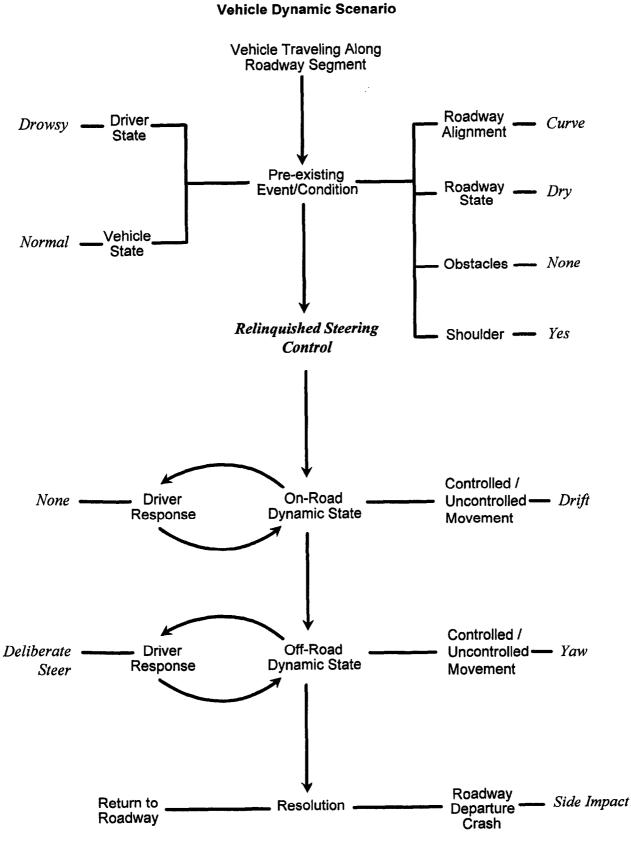
CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Left

	General Accide	nt Information	
Date:	7-4-93	Weather:	Clear/Cloudy
Time:	0522	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	None
Accident Sever	<i>ity:</i> 0(O)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Info	mation
Driver Age:	26	Year:	1984
Driver Sex:	Male	Vehicle Make:	Pontiac
Impairment:	Other (driver fatigued)	Vehicle Model:	J-2000/2000/ Sunbird
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway In	formation	
Trafficway Type		Alignment:	Curve Right
(Median):	Not divided	Slope:	Level
No. of Lanes:	1	Speed Limit:	89 km/h
	Cluster V	ariables	·····
GV14: 01	No avoidance actions		
GV64: 13	Negotiating a curve		
GV65: 12	This vehicle traveling off the edge o	f the road on the left side	
GV66: 0	No avoidance maneuver		

CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Left

The subject vehicle was traveling on a two-lane, divided roadway in an 89 km/h (55 mph) speed zone during dark, early morning hours. The driver exited the divided roadway to the right onto a one-lane exit ramp that curved to the right. As the driver initiated the maneuver, the vehicle drifted off the left edge of the ramp and onto the grassy area adjacent to the left roadedge. The driver applied a rapid clockwise steering input which initiated a clockwise yaw. The vehicle rotated across the ramp and departed the right edge in a near broadside orientation. The vehicle struck several shrubs before coming to rest in a catch basin beyond the shrubs. The driver was noted as fatigued on the PAR.





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Carnegie Mellon University

CAUSAL FACTOR: Vehicle Speed - Speed and Alcohol

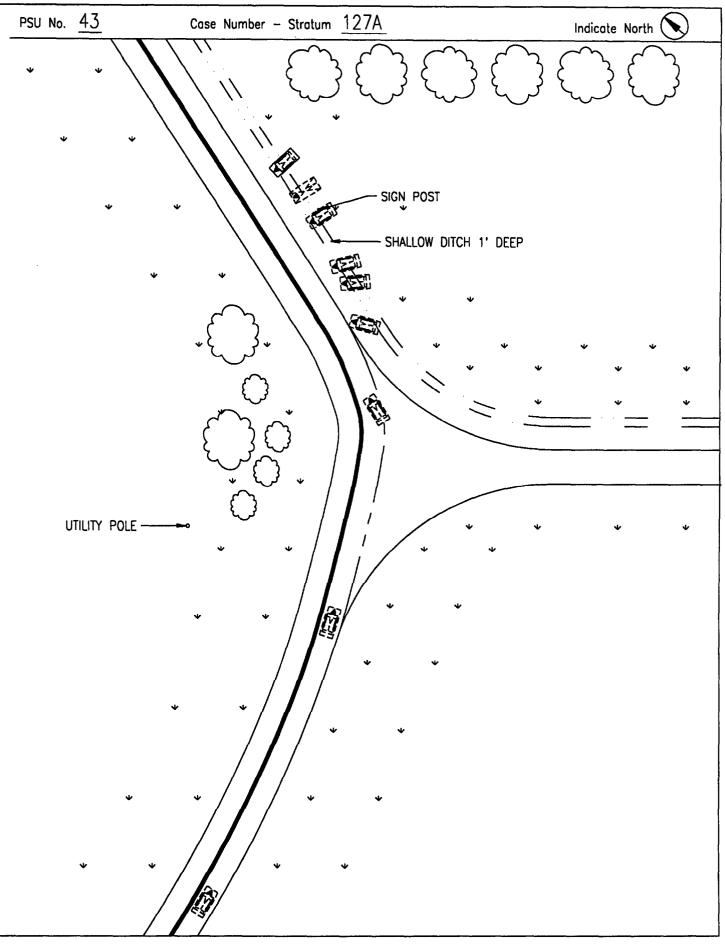
ROADSIDE DEPARTURE: Right

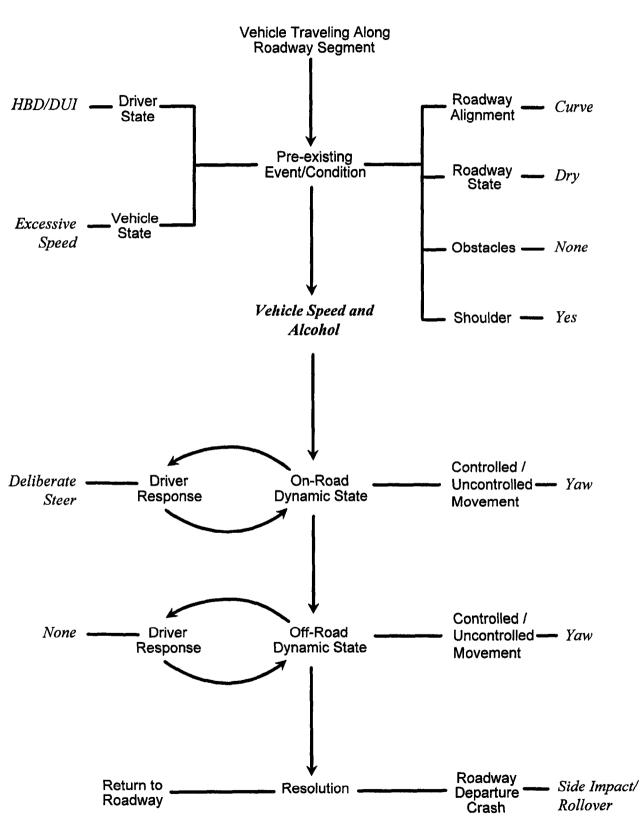
	General Acc	ident Information	
Date:	7-7-93	Weather:	Clear/Cloudy
Time:	0012	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	None
Accident Sever	<i>ity:</i> 4 (K)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Info	rmation
Driver Age:	27	Year:	1992
Driver Sex:	Male	Vehicle Make:	Isuzu
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Amigo
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	/ Information	
Trafficway Typ		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	72 km/h
	Cluste	r Variables	
GV14: 06	Steering left		
GV64: 13	Negotiating a curve		
GV65: 13	This vehicle traveling off the ed	ge of the road on the right side	
GV66: 4	Skidding laterally - counterclock	wise rotation	
GV67: 4 Vehicle departed roadway			

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

The subject vehicle was traveling on a dark, unlit, rural, two-lane, asphalt road that curved to the left with a hillcrest at the apex of the curve. While attempting to negotiate the left curve at an unsafe speed, the vehicle broke traction and yawing in a counterclockwise direction. The vehicle departed the right roadedge near the apex of the curve at a 3-leg intersection. The vehicle traversed the mouth of the intersection and departed the southeast corner in a yawed trajectory and traveled onto a grassy area. The right front tire entered a shallow drainage ditch as the right side area impacted a sign post. As a result, the vehicle overturned and came to rest on its wheels. The belted driver remained in the vehicle, however, the driver expired at the scene. The medical report stated the driver was intoxicated (BAC=0.11) and was apparently eating a taco while driving. The PAR listed 40 m of pre-impact tire marks. The road surface was covered. There were no markings on the pavement at the time of the inspection. The PAR schematic did illustrate double yellow centerlines. There were no reflective markers or delineators along either roadedge. The PAR listed alcohol and vehicle speed as the primary causal factors.

ACCIDENT COLLISION DIAGRAM





Vehicle Dynamic Scenario

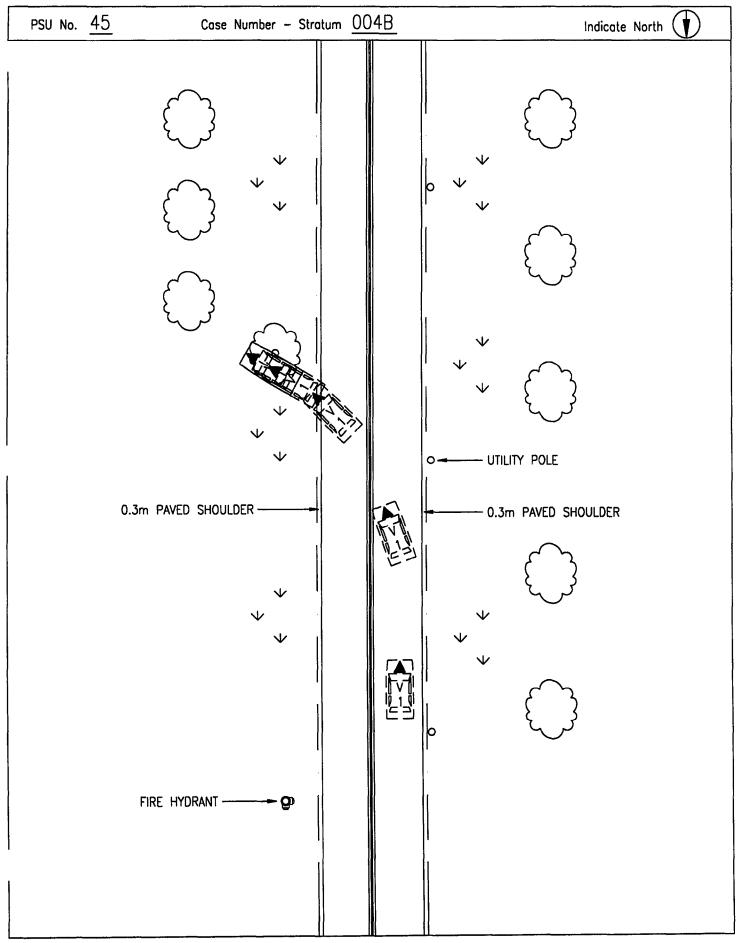
CAUSAL FACTOR: Driver Inattention

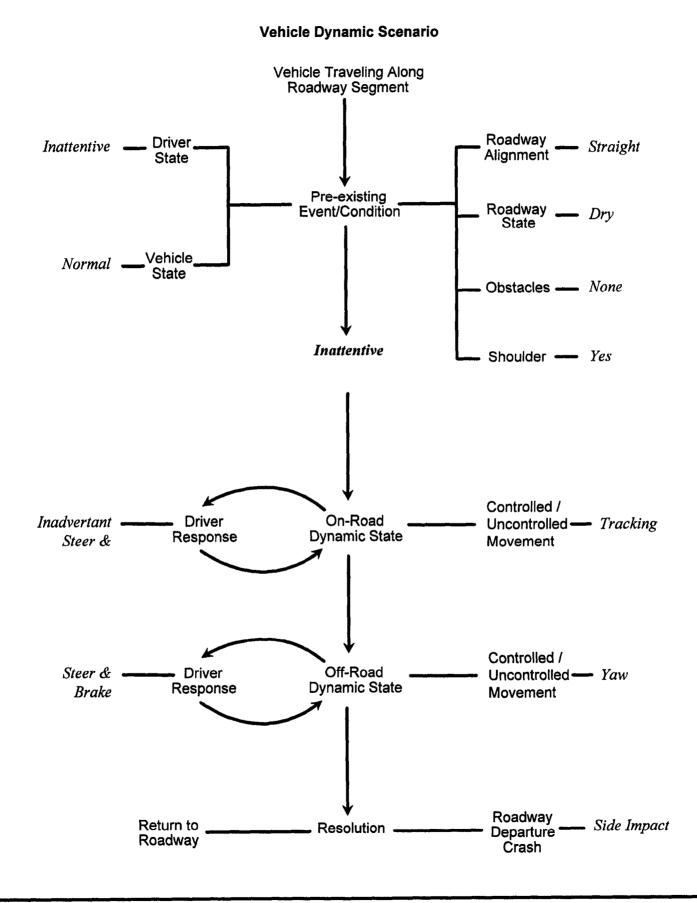
ROADSIDE DEPARTURE: Left

·····		General Acc	cident Information	
Date:		1-4-93	Weather:	Clear/Cloudy
Time:		2140	Surface Condition:	Dry
Accident Typ	pe:	Drive Off Road	Lighting:	None
Accident Se	verity:	4 (K)	Land Use:	Urban
Driver/C	Dccupa	ant Information	Vehicle Info	rmation
Driver Age:		15	Year:	1987
Driver Sex:		Male	Vehicle Make:	Plymouth
Impairment:		None	Vehicle Model:	Horizon
Familiarity with Road:		Yes	ABS:	No
No. of Occupants:		2	Defects:	No
· · · · · · · · · · · · · · · · · · ·		Roadwa	y Information	· · · · · · · · · · · · · · · · · · ·
Trafficway T			Alignment:	Straight
(Median):		Not divided	Slope:	Level
No. of Lanes	s <i>:</i>	2	Speed Limit:	48 km/h
		Clust	er Variables	·····
GV14: 08	8 Braki	ing and steering left		
GV64: 13	3 Nego	tiating a curve		
GV65: 10	0 This	vehicle traveling over the	lane line on left side of travel lane	
	Track	cing		
GV66: 1				

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

The subject vehicle was traveling along a two-lane, urban roadway. The driver was concentrating on the rear view mirror when the vehicle drifted into the left lane and finally off the roadway. The vehicle impacted a tree off the roadway surface.



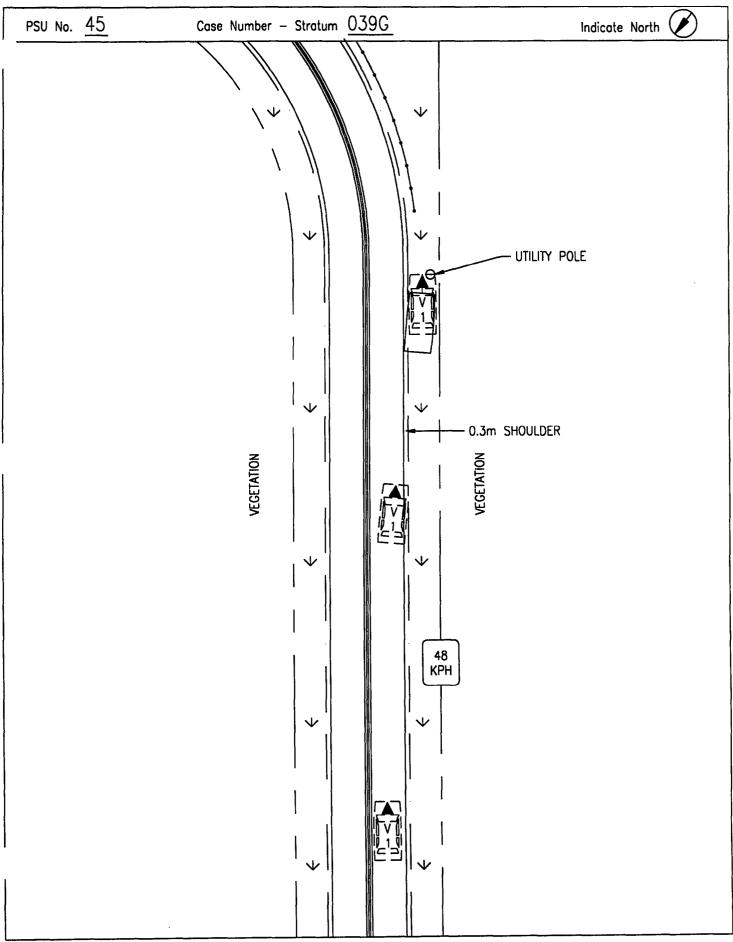


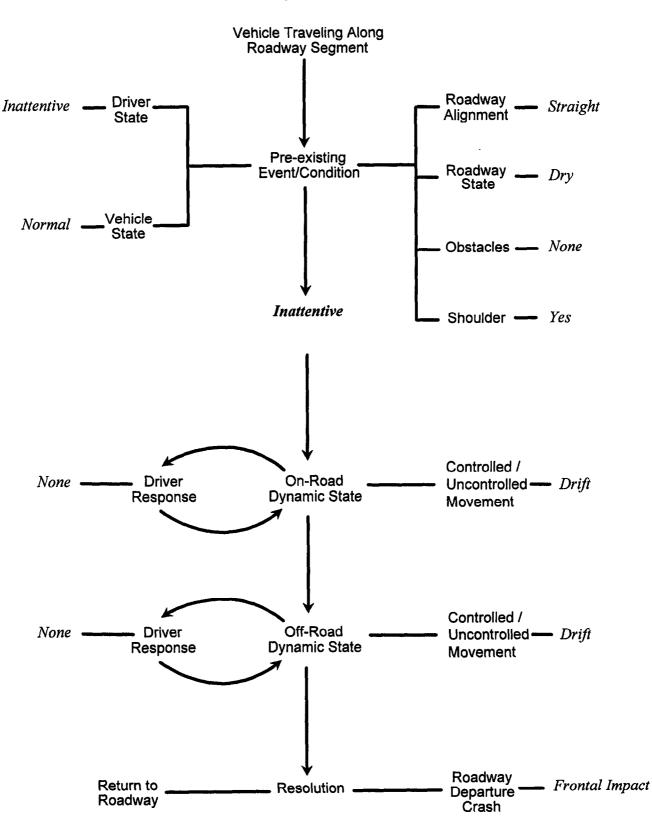
CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

	General Acc	ident Information	
Date:	2-5-93	Weather:	Clear/Cloudy
Time:	0020	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	None
Accident Severit	<i>::</i> 0(0)	Land Use:	Rural
Driver/Occu	pant Information	Vehicle Infor	mation
Driver Age:	17	Year:	1989
Driver Sex:	Male	Vehicle Make:	Toyota
Impairment:	None	Vehicle Model:	4-Runner
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	/ Information	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	48 km/h
	Cluste	r Variables	
GV14: 01 No	avoidance actions		
	gotiating a curve		
GV64: 13 No		ge of the road on the right side	
	is vehicle traveling off the ed	6° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° °	
GV65: 13 Th	is vehicle traveling off the ed	g, .,	

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

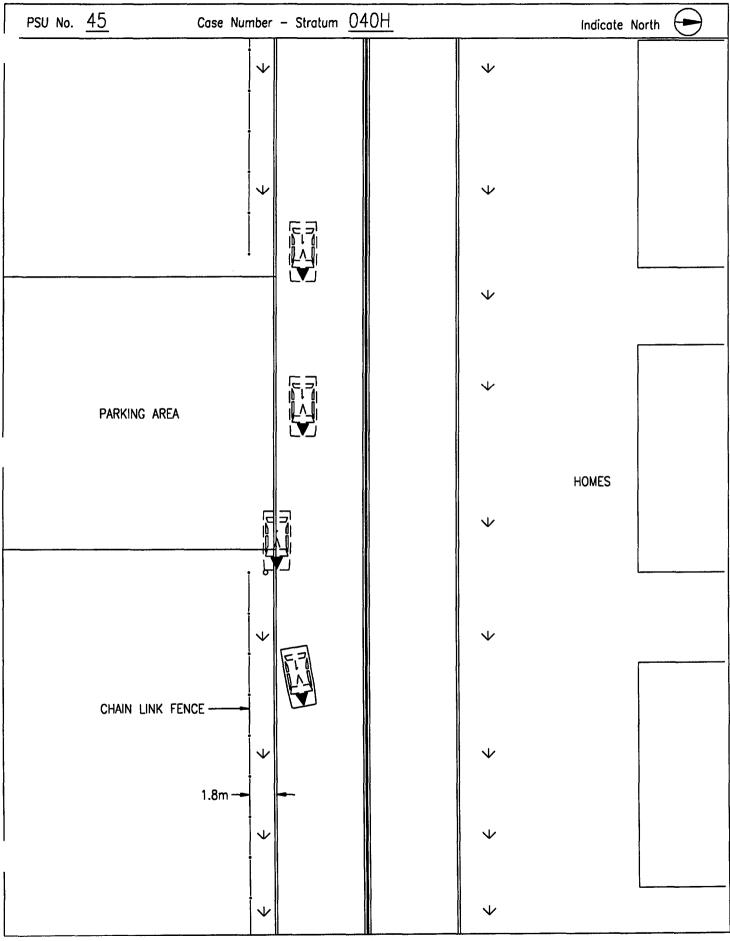
The subject vehicle was traveling along a two-lane, rural roadway. The driver was inattentive and drifted off the right side of road. The driver applied the brakes and attempted to turn left, but impacted a pole with the right front side of the vehicle.

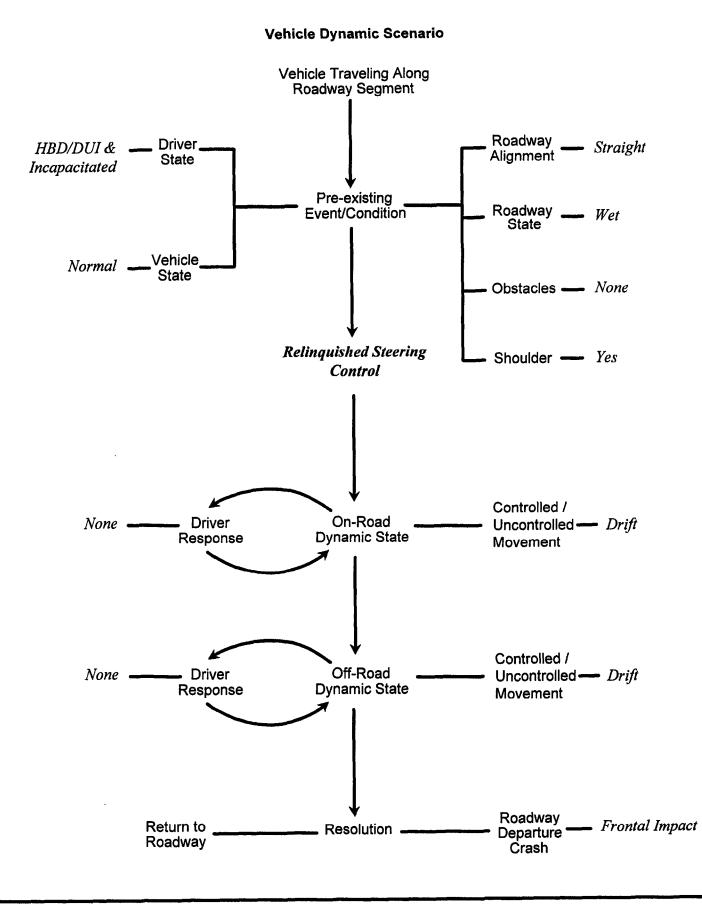




		General Accie	dent Information	······
Date:		2-3-93	Weather:	Rain
Time:		0456	Surface Condition:	Wet
Accident	Туре:	Drive Off Road	Lighting:	Artificial lighting
Accident	Severity:	2 (B)	Land Use:	Urban
Drive	er/Occup	ant Information	Vehicle Info	rmation
Driver Ag	e:	34	Year:	1972
Driver Sex	x:	Female	Vehicle Make:	Mercury
Impairme Familiarit <u>i</u>		Intoxicated (alcohol/drugs)	Vehicle Model:	Marquis/ Monterey
with Road		Unknown	ABS:	No
No. of Occupant	's:	1	Defects:	No
		Roadway	Information	·····
Trafficwa			Alignment:	Straight
(Media	-	Not divided	Slope:	Grade
No. of La	nes:	2	Speed Limit:	48 km/h
		Cluster	Variables	
GV14:	01 No a	voidance actions		
GV64:	01 Goin	g straight		
GV65:	13 This	vehicle traveling off the edg	e of the road on the right side	
GV66:	0 No a	voidance maneuver		
GV67:	0 Noa	voidance maneuver		

The subject vehicle was traveling on a wet, lit, rural, two-lane roadway. The driver drifted off the right side of the road and impacted a pole. The driver was charged with DUI. The driver had been drinking and was going home.



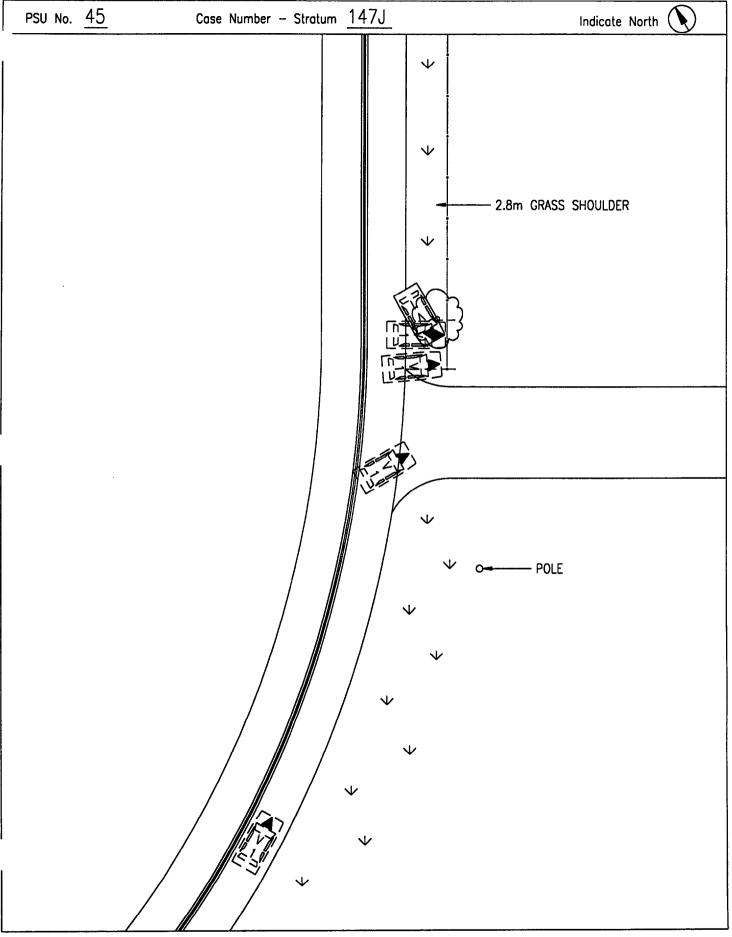


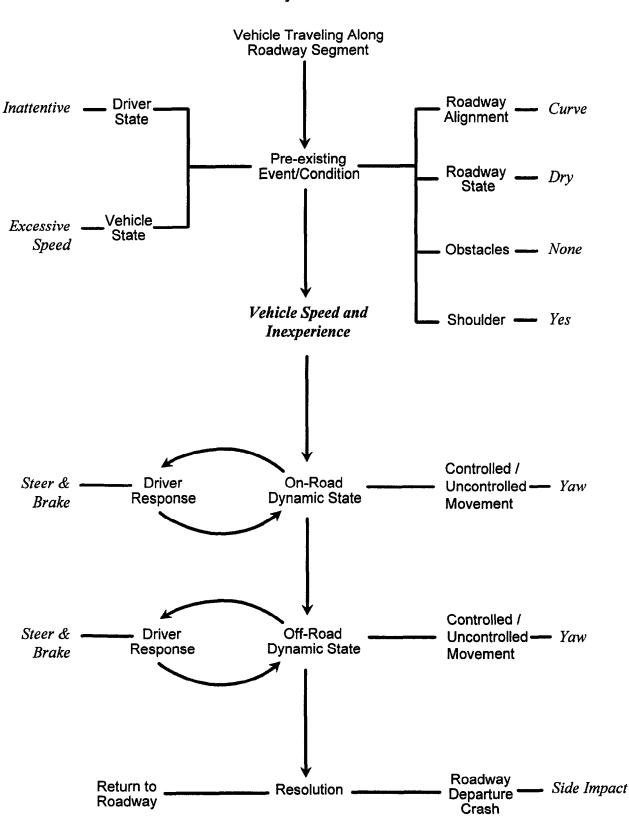
CAUSAL FACTOR:Vehicle Speed - Speed and Driver InexperienceROADSIDE DEPARTURE:Right

	General Acci	dent Information	
Date:	7-1-93	Weather:	Clear/Cloudy
Time:	2156	Surface Condition:	Dry
Accident Type	: Control/Traction Loss	Lighting:	None
Accident Seve	erity: 3 (A)	Land Use:	Urban
Driver/Oc	cupant Information	Vehicle Info	rmation
Driver Age:	16	Year:	1991
Driver Sex:	Female	Vehicle Make:	Honda
Impairment:	None	Vehicle Model:	Civic/CRX
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	3	Defects:	No
	Roadway	Information	
Trafficway Tyj		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	40 km/h
	Cluster	Variables	
GV14: 09	Braking and steering right		
	Negotiating a curve		
GV64: 13			
	This vehicle loss of control due to	o traveling too fast for conditions	
	This vehicle loss of control due to Skidding laterally - clockwise rot	_	

CAUSAL FACTOR:Vehicle Speed - Speed and Driver InexperienceROADSIDE DEPARTURE:Right

The subject vehicle was traveling on a dark, unlit, two-lane, undivided, dry, asphalt roadway which curved to the left and had a -3% slope. The driver was distracted by the passengers and entered the curve at a high rate of speed, loosing control of the vehicle. The vehicle departed the right side of the roadway in clockwise rotation and struck a tree with the left side plane. A curve advisory speed limit of 32 km/h (20 mph) was posted prior to the curve. Roadway edge lines consisted of solid white lines which were in poor condition. A full barrier yellow centerline was also in poor condition. The causal factor was inexperience of the driver in conjunction with the vehicle's pre-curve travel speed.





Vehicle Dynamic Scenario

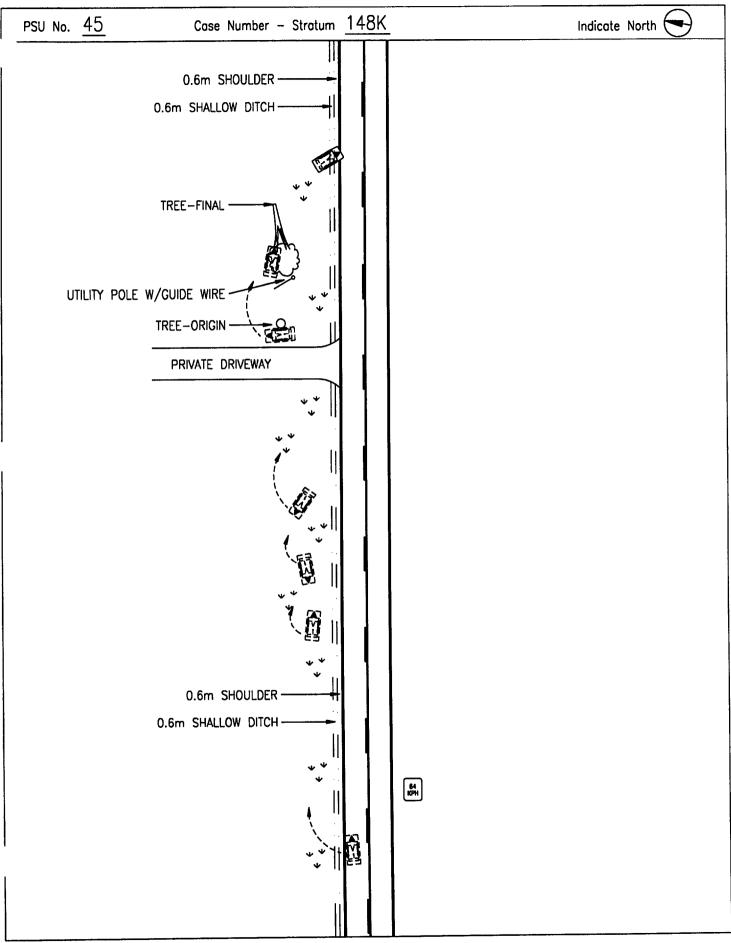
CAUSAL FACTOR: Vehicle Speed - Speed and Alcohol

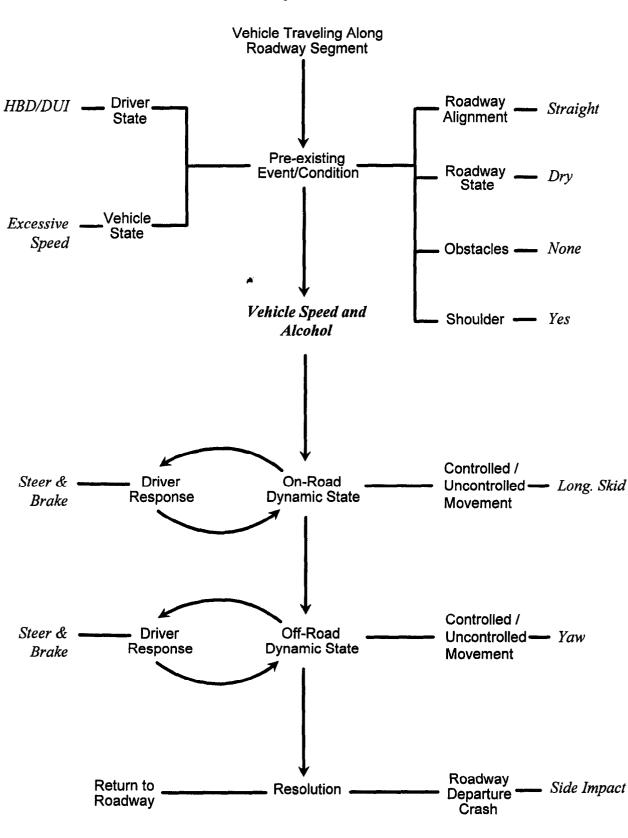
ROADSIDE DEPARTURE: Left

	General Accie	dent Information	······
Date:	7-1-93	Weather:	Clear/Cloudy
Time:	1613	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	Daylight
Accident Sever	ity: 3 (A)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Infor	mation
Driver Age:	29	Year:	1987
Driver Sex:	Female	Vehicle Make:	Dodge
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Dakota
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	64 km/h
	Cluster	Variables	
GV14: 09 I	Braking and steering right		
GV64: 01 (Going straight		
	his vehicle traveling off the edg	e of the road on the left side	
GV65: 12 1			
	kidding longitudinally - less that	n 30 degrees rotation	

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling eastbound on a dry, straight, undivided, two-lane, asphalt roadway during daylight hours. The vehicle departed the left roadedge and rotated in a clockwise pattern across a grass lawn and struck a tree with its right side plane after rotating approximately 270 degrees and traveling 65 meters along the lawn. The left road edge line was delineated by a solid white line which was worn and partially masked by grass overgrowth. The yellow centerline consisted of a solid line (against vehicle's travel lane) and broken line which permitted passing for westbound traffic. The driver's alcohol level was measured at 0.27 by the hospital. The off road area for recovery was generally free of obstacles with the exception of a utility pole line located 6.5 m from the road edge and poles spaced 30 m apart. A shallow drainage ditch, located 0.6 m from the road edgeline and approximately 0.3 m deep, did not appear to be a major obstacle for vehicle recovery. The causal factor was high vehicle speed with alcohol consumption.

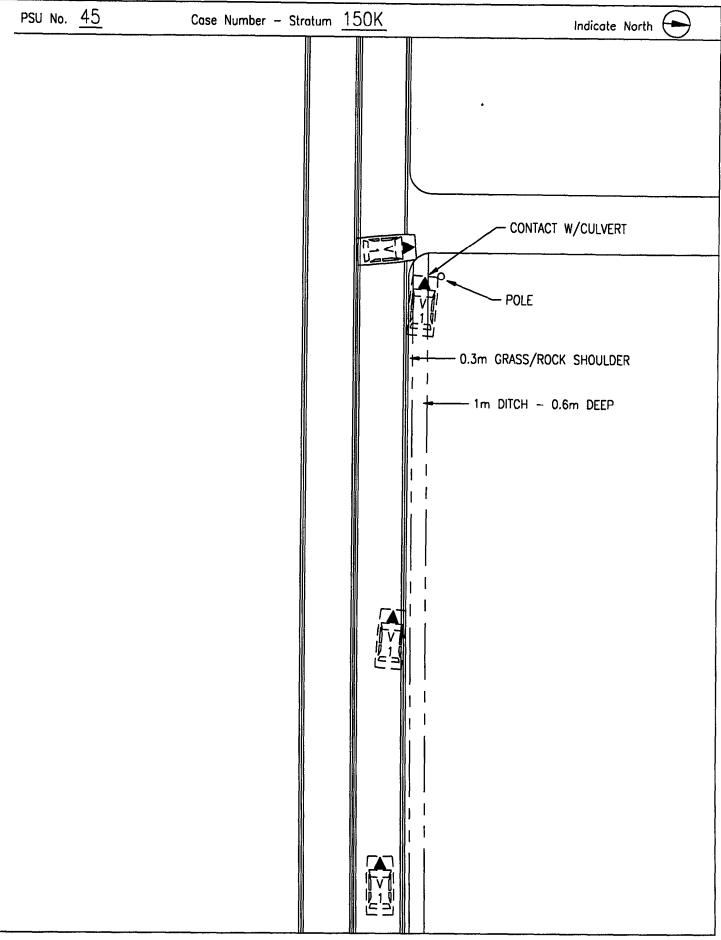


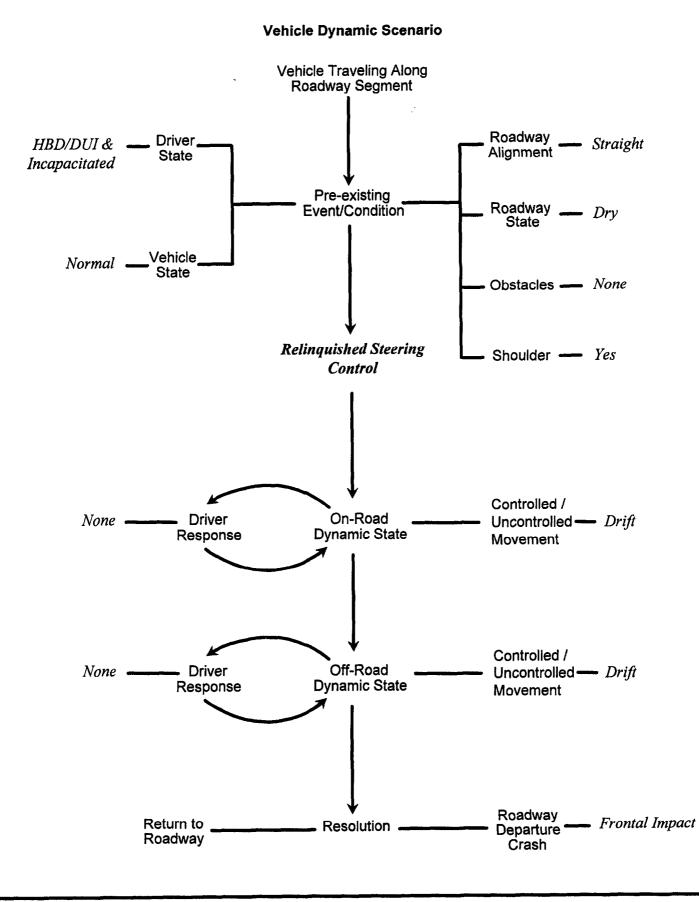


Vehicle Dynamic Scenario

		General Accid	dent Information	
Date:		7-6-93	Weather:	Clear/Cloudy
Time:		2358	Surface Condition:	Dry
Accident 1	Type:	Drive Off Road	Lighting:	Artificial lighting
Accident S	Severity:	3 (A)	Land Use:	Urban
Drive	r/Occup	pant Information	Vehicle Info	rmation
Driver Age):	17	Year:	1984
Driver Sex	:	Male	Vehicle Make:	Ford
Impairmen Fomilioritu		Intoxicated (alcohol/drugs)	Vehicle Model:	Tempo
Familiarity with Road		Unknown	ABS:	No
No. of Occupants	5:	1	Defects:	No
		Roadway	Information	
Trafficway			Alignment:	Straight
(Mediar	ı):	Not divided	Slope:	Grade
No. of Lar	ies:	2	Speed Limit:	56 km/h
		Cluster	Variables	
GV14:	01 No	avoidance actions		
GV64:	01 Goi	ng straight		
GV65:	13 This	s vehicle traveling off the edg	e of the road on the right side	
GV66:	0 No	avoidance maneuver		
GV67:	0 No	avoidance maneuver		

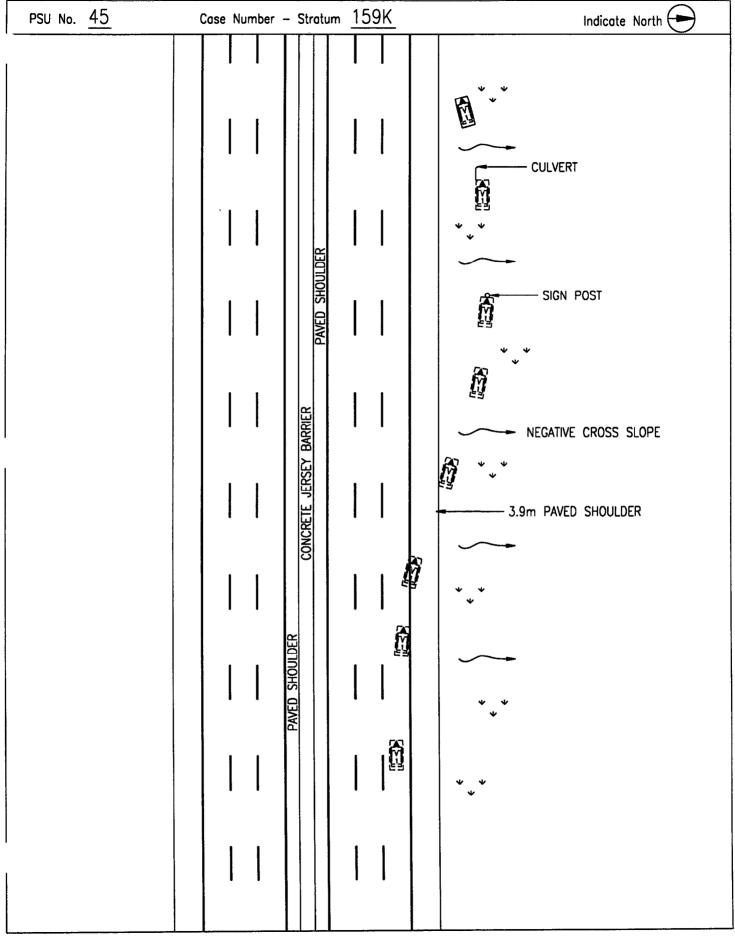
The subject vehicle was traveling westbound on a dry, lit, two-lane, undivided roadway during the evening hours. The driver swerved back and forth in the lane. The vehicle departed the right road edge, traveled across the narrow grass and rock shoulder which was 0.3 m wide and entered a ditch. The vehicle continued approximately 2 m and struck a driveway culvert. It subsequently rotated clockwise and came to rest rotated approximately 90 degrees from its travel direction. The ditch provided a terrain boundary which limited the vehicle's lateral off road trajectory to 0.3 m. There were no obstacles along the narrow shoulder or in the roadway. The driver's ability was impaired by alcohol consumption. The causal factor was intoxication.

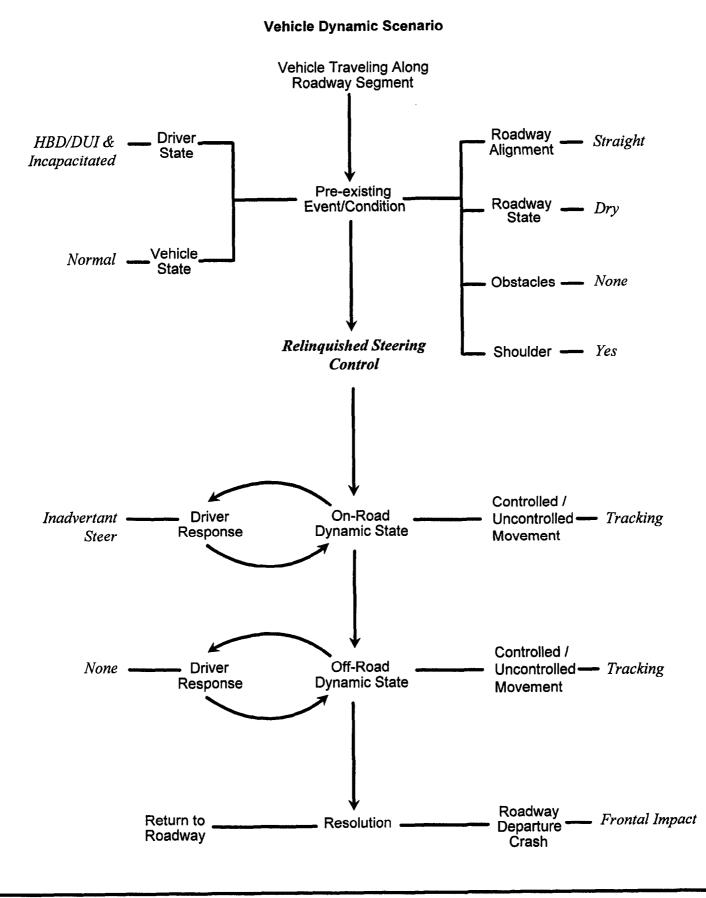




		General Accie	dent Information	
Date:		7-5-93	Weather:	Clear/Cloudy
Time:		2220	Surface Condition:	Dry
Accident 1	Гуре:	Drive Off Road	Lighting:	None
Accident S	Severity:	3 (A)	Land Use:	Rural
Drive	r/Occup	ant Information	Vehicle Info	rmation
Driver Age	ə:	24	Year:	1988
Driver Sex		Male	Vehicle Make:	Mazda
Impairmer		Intoxicated (alcohol/drugs)	Vehicle Model:	Pickup
Familiarity with Road		Unknown	ABS:	No
No. of Occupants	s:	1	Defects:	No
· · · · · · · · · · · · · · · · · · ·		Roadway	Information	
Trafficway			Alignment:	Straight
(Mediai	n):	Physical barrier	Slope:	Level
No. of Lai	nes:	3	Speed Limit:	89 km/h
		Cluster	Variables	
GV14:	01 No a	avoidance actions		
GV64:	01 Goir	ng straight		
	13 This	vehicle traveling off the edg	e of the road on the right side	
GV65:				
GV65: GV66:	0 No a	avoidance maneuver		

The subject vehicle was traveling on a dry, six-lane, divided, asphalt, interstate with three travel lanes in each direction. The vehicle drifted off the roadway, across the right shoulder, and traveled approximately 25 m on the grass area before striking a sign post which was located 10.6 m laterally from the roadway edge line. The vehicle continued another 15 m and struck a drainage culvert. It came to rest after traveling another 12 m. The driver of the vehicle was intoxicated (BAC=0.32). The roadway edge lines consisted of a solid yellow line adjacent to the new jersey barrier in the median and a white solid line along the right shoulder area. There were broken white lines delineating the three travel lanes. All lane markings were in new condition. A paved (asphalt) shoulder abutted the right travel lane and was 3.9 m wide. A well managed negative cross slope grassy area was adjacent to the paved shoulder. This area was approximately 5 m wide. Roadway delineators were located in the grassy area adjacent to the paved shoulder and were spaced approximately 45 m apart. These were designed with reflective qualities and were made from fiberglass materials. The causal factor was driver relinquished steering control of the vehicle as the result of intoxication.



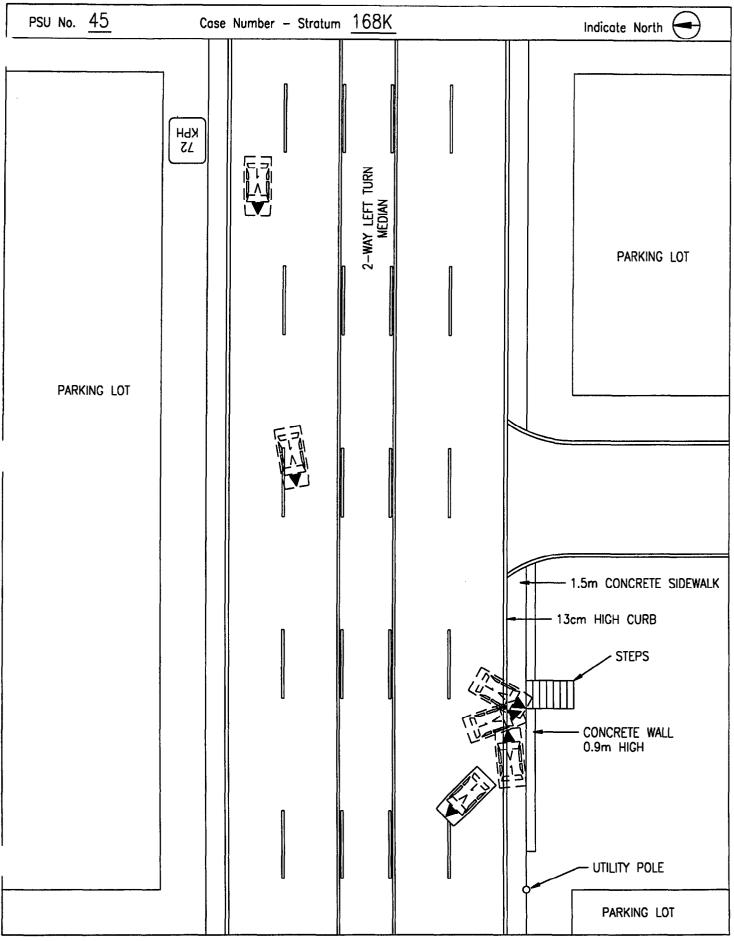


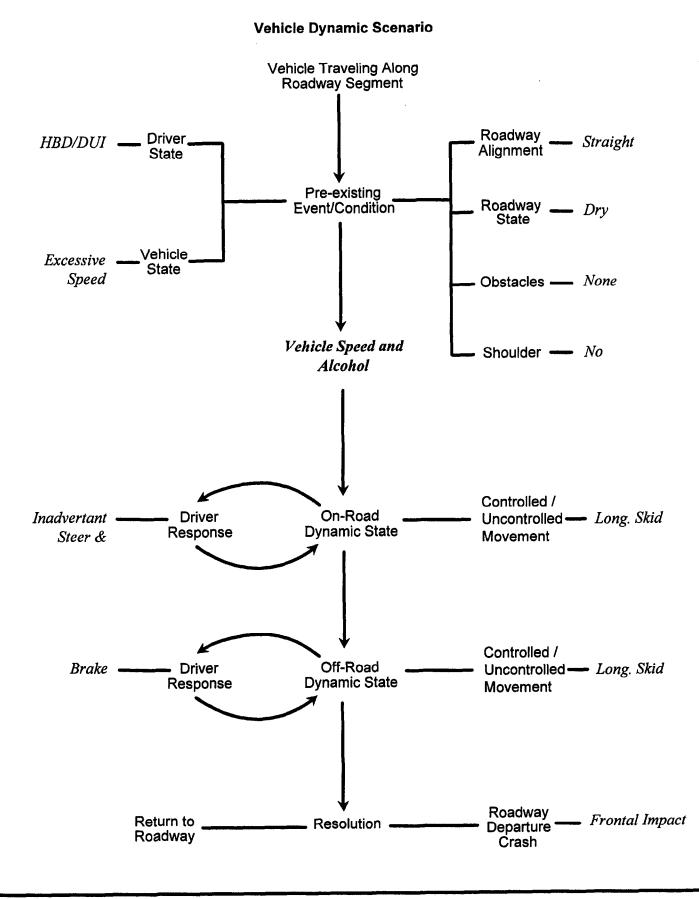
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

	General Accid	ent Information	
Date:	7-1-93	Weather:	Clear/Cloudy
Time:	2336	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	Artificial lighting
Accident Severity:	3 (A)	Land Use:	Urban
Driver/Occup	ant Information	Vehicle Infor	mation
Driver Age:	23	Year:	1986
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Escort/EXP
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	2	Defects:	No
	Roadway	Information	<u></u>
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	3	Speed Limit:	72 km/h
	Cluster	Variables	
GV14: 02 Brak	ing (no lockup)		
GV64: 01 Goin	ng straight		
GV65: 12 This	vehicle traveling off the edge	of the road on the left side	
GV66: 2 Skid	ding longitudinally - less than	30 degrees rotation	
GV67: 4 Vehi	icle departed roadway		

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling on a dark but lit, dry, four-lane, divided, asphalt roadway which was bounded on both sides by 13 m high curbs. The vehicle was traveling westbound in the right (curb) lane at a high rate of speed when it veered to the left and crossed the left lane, the paved median, the eastbound lanes and mounted the curb continuing across the 1.5 m sidewalk and striking a 0.9 m high concrete wall with its frontal plane. The vehicle subsequently rotated counter clockwise and struck the concrete wall a second time with its right rear fender corner. It continued to rotate in a counterclockwise rotation and rebounded from the wall to final rest on the roadway. The driver's BAC was 0.10. In both directions of travel, the lanes were marked by broken white lane lines which were in new condition. The paved flush median was striped with a solid yellow line and an interior broken yellow line to provide a two way, left turn channelization configuration. The yellow lines were in new condition. The causal factors were vehicle speed and alcohol consumption.



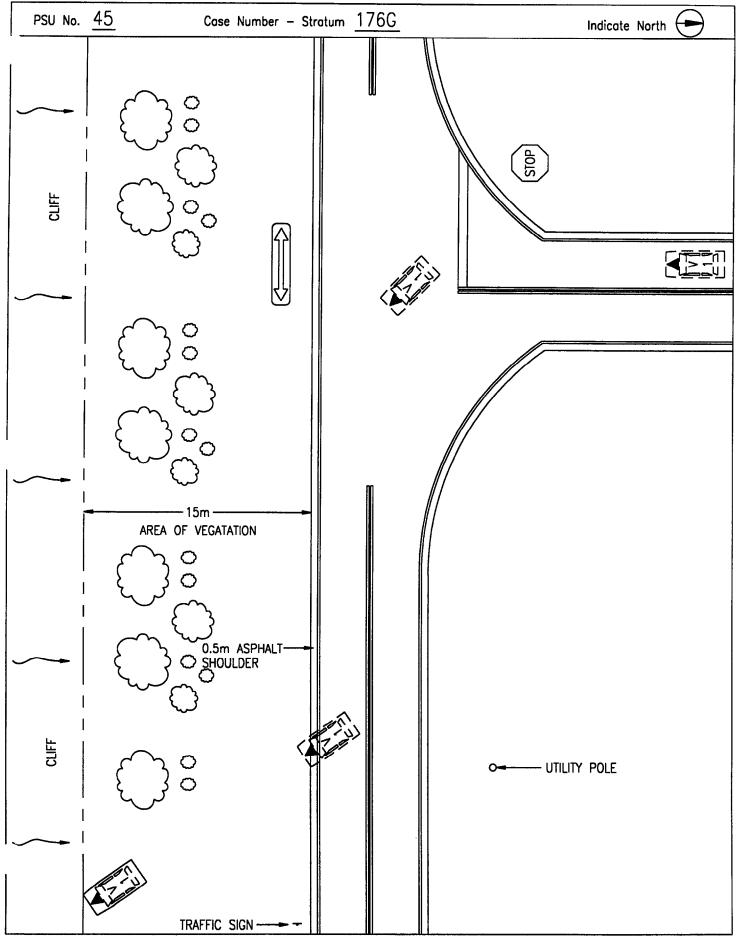


CAUSAL FACTOR:Vehicle Speed - Speed and Driver InexperienceROADSIDE DEPARTURE:Right

	General Accide	nt Information	
Date:	7-3-93	Weather:	Clear/Cloudy
Time:	1045	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	Daylight
Accident Severity:	0 (O)	Land Use:	Rural
Driver/Occup	ant Information	Vehicle Info	mation
Driver Age:	17	Year:	1989
Driver Sex:	Female	Vehicle Make:	Ford
Impairment:	None	Vehicle Model:	Mustang/ Mustang II
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	2	Defects:	No
· · · · · · · · · · · · · · · · · · ·	Roadway In	formation	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	64 km/h
	Cluster V	ariables	·····
GV14: 07 Steer	ring right		
GV64: 10 Turn	ing left		
GV65: 13 This	vehicle traveling off the edge of	of the road on the right side	
GV66: 1 Trac	king		

CAUSAL FACTOR:Vehicle Speed - Speed and Driver InexperienceROADSIDE DEPARTURE:Right

The subject vehicle was traveling on a dry, asphalt road surface with a -3% slope, solid white road edgelines and full barrier yellow centerlines in new condition. The driver was stopped at the stop sign in a T-intersection and proceeded to accelerate while making a left turn. The vehicle fishtailed and the driver steered off the right side of the road. A paved shoulder 0.5 m wide, adjacent to the travel lane, was abutted by an area of undergrowth vegetation estimated at 15 m wide. This was followed by a high cliff. The causal factor was driver inexperience with vehicle speed.



Vehicle Dynamic Scenario Vehicle Traveling Along **Roadway Segment** Roadway Alignment Driver. Straight Alert . State Pre-existing Event/Condition Roadway ____ Dry State Vehicle Excessive State Speed Obstacles — None Vehicle Speed and Shoulder — Yes Inexperience Controlled / **On-Road** Uncontrolled — Tracking Driver Deliberate -**Dynamic State** Response Movement Steer Controlled / **Off-Road** Uncontrolled — Tracking Deliberate • Driver **Dynamic State** Response Movement Steer Roadway Frontal Impact Return to Resolution Departure Roadway Crash

Calspan Corporation Carnegie Mellon University

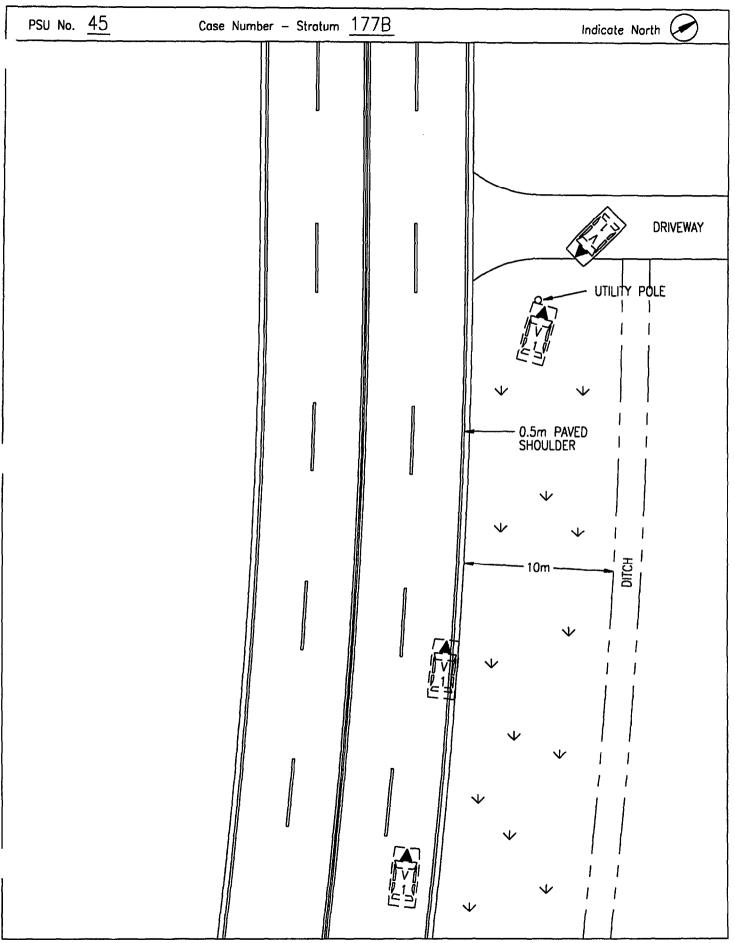
CAUSAL FACTOR: Vehicle Speed - Speed and Alcohol

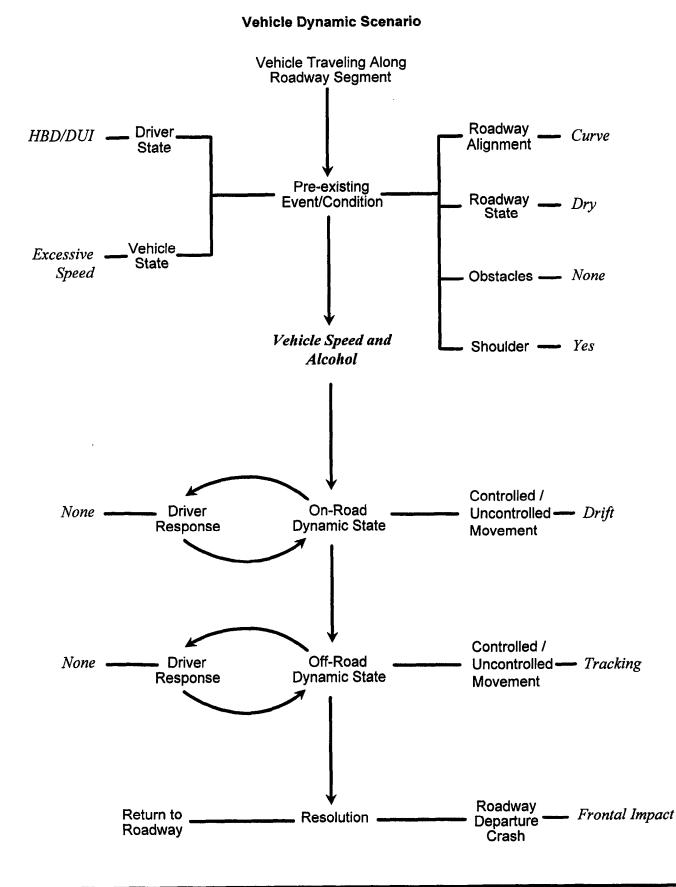
ROADSIDE DEPARTURE: Right

		General Accid	dent Information	
Date:		7-7-93	Weather:	Clear/Cloudy
Time:		0428	Surface Condition:	Dry
Accident	Type:	Drive Off Road	Lighting:	Artificial lighting
Accident	Severity:	4 (K)	Land Use:	Rural
Drive	ər/Occuj	pant Information	Vehicle Info	rmation
Driver Ag	le:	20	Year:	1982
Driver Se	x:	Female	Vehicle Make:	Ford
Impairme		Intoxicated (alcohol/drugs)	Vehicle Model:	Mustang/ Mustang II
Familiarit with Road		Unknown	ABS:	No
No. of Occupan	ts:	1	Defects:	No
		Roadway	Information	·····
Trafficwa			Alignment:	Curve Left
(Media	an):	Not divided	Slope:	Grade
No. of La	anes:	4	Speed Limit:	80 km/h
		Cluster	Variables	
GV14:	01 No	avoidance actions		
GV64:	13 Neg	otiating a curve		
GV65:	13 Thi	s vehicle traveling off the edg	e of the road on the right side	
GV66:	0 No	avoidance maneuver		
GV67:	0 No	avoidance maneuver		

CAUSAL FACTOR: Vehicle Speed - Speed and Alcohol ROADSIDE DEPARTURE: Right

The subject vehicle was traveling westbound on a dry, dark but lit, asphalt roadway surface with a -6% slope and superelevated at an estimated 0.7%. The vehicle exited the right side of the roadway in a left curve segment, traveled across the 0.5 m wide paved shoulder, and struck a utility pole located 4 m from the roadway edge line. The vehicle's off roadway travel distance was estimated at 35 m. The four travel lanes were well defined by solid white edgelines, broken white lane lines and full barrier yellow centerlines. The driver was traveling at a high rate of speed while under the influence of alcohol (BAC=0.17). The causal factor was the vehicle's speed in combination with the driver's alcohol consumption.





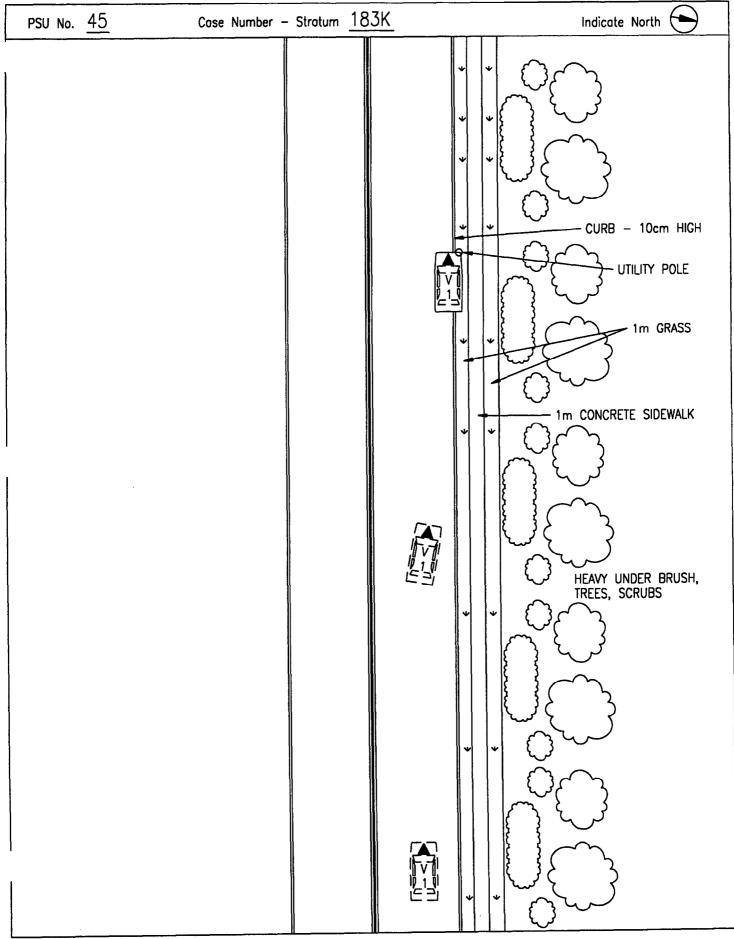
CAUSAL FACTOR: Vehicle Speed - Unsafe Driving Act

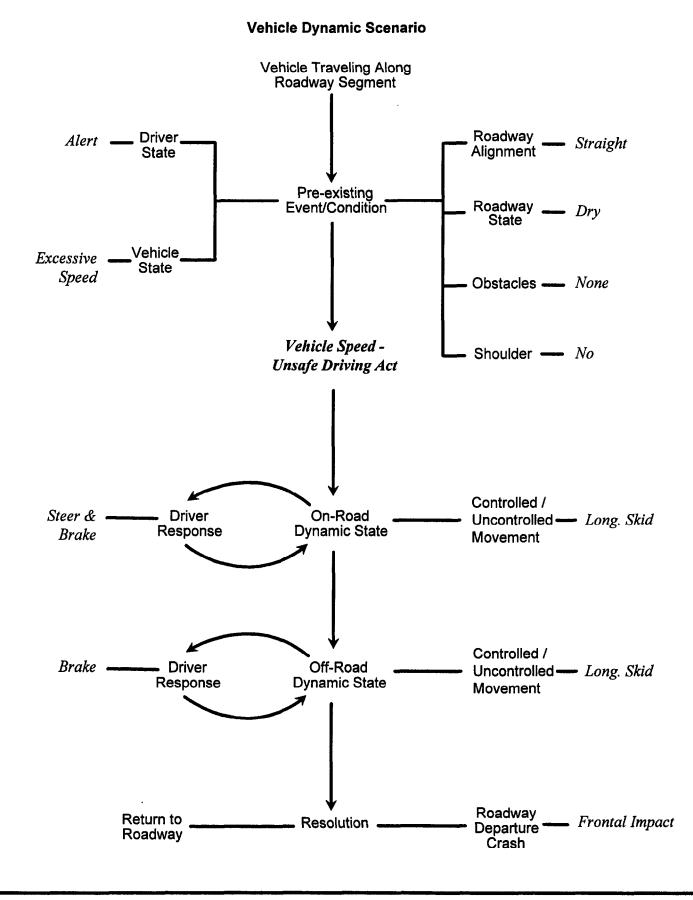
ROADSIDE DEPARTURE: Right

	General Accide		
Date:	8-2-93	Weather:	Clear/Cloudy
Time:	1926	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	Daylight
Accident Severit	y: 3 (A)	Land Use:	Urban
Driver/Occu	pant Information	Vehicle Info	mation
Driver Age:	30	Year:	1985
Driver Sex:	Male	Vehicle Make:	Chevrolet
Impairment:	None	Vehicle Model:	Camaro
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	2	Defects:	No
	Roadway In	formation	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	48 km/h
	Cluster V	ariables	
GV14: 08 Br	aking and steering left		
GV64: 01 Go	oing straight		
3V65: 13 Th	is vehicle traveling off the edge of	of the road on the right side	
G V66: 2 Sk	idding longitudinally - less than 3	30 degrees rotation	
G V67: 4 Ve	hicle departed roadway		

CAUSAL FACTOR:Vehicle Speed - Unsafe Driving ActROADSIDE DEPARTURE:Right

The subject vehicle was traveling during daylight hours on a dry, two-lane, undivided, asphalt roadway where both roadway edges were bounded by a 10 cm high curb. The vehicle had just traveled down a -7% slope segment of the roadway and began to ascend a +6% segment when it departed the right side of the roadway and traveled 12 m on the grass surface adjacent to the curb and struck a utility pole with the frontal plane. Neighbors in the area told police the driver had been speeding earlier in the day. The causal factor was reckless driving with speed being the primary factor. A line of utility poles located adjacent to the curb was noted as an obstacle which would impede vehicle recovery attempts. The pole spacing was estimated at approximately 30 m apart.



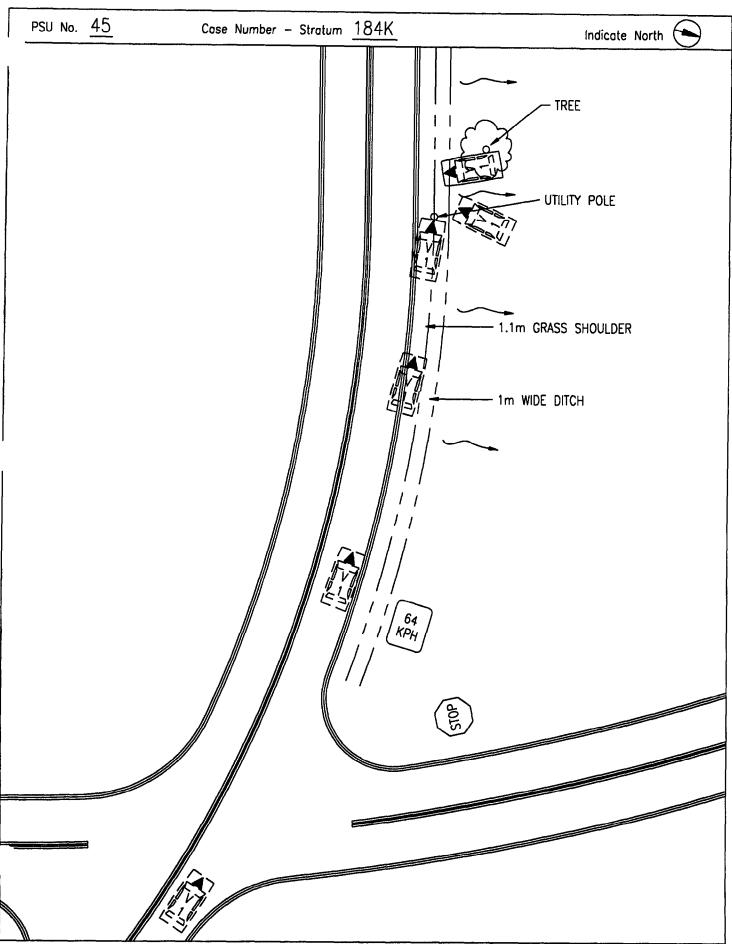


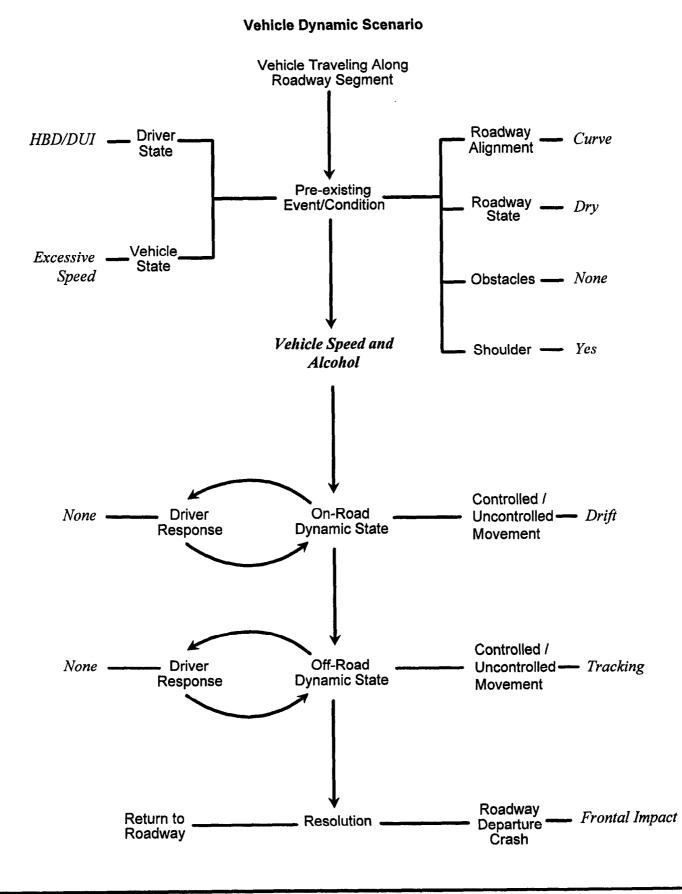
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

	General Accide	nt Information	
Date:	8-7-93	Weather:	Clear/Cloudy
Time:	0134	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	None
Accident Severi	ty: 3 (A)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Infor	mation
Driver Age:	21	Year:	1981
Driver Sex:	Male	Vehicle Make:	Toyota
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Celica
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	3	Defects:	No
	Roadway In	formation	
Trafficway Type		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	64 km/h
	Cluster V	ariables	
GV14: 01 N	lo avoidance actions		
GV64: 13 N	legotiating a curve		
GV65: 13 T	his vehicle traveling off the edge o	f the road on the right side	
GV66: 0 N	lo avoidance maneuver		

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

The subject vehicle was traveling on a dry, two-lane, undivided, asphalt roadway. The vehicle departed the right roadway edge in a left curve segment and struck a utility pole. The vehicle then rotated in a counterclockwise direction and struck a tree with its right side plane. The driver was under the influence of alcohol and was traveling too fast through the curve. The road was dark with no streetlight illumination. The roadway edgelines were new white solid lines and the centerline was also new yellow barrier lines. There were three occupants in the vehicle.





CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

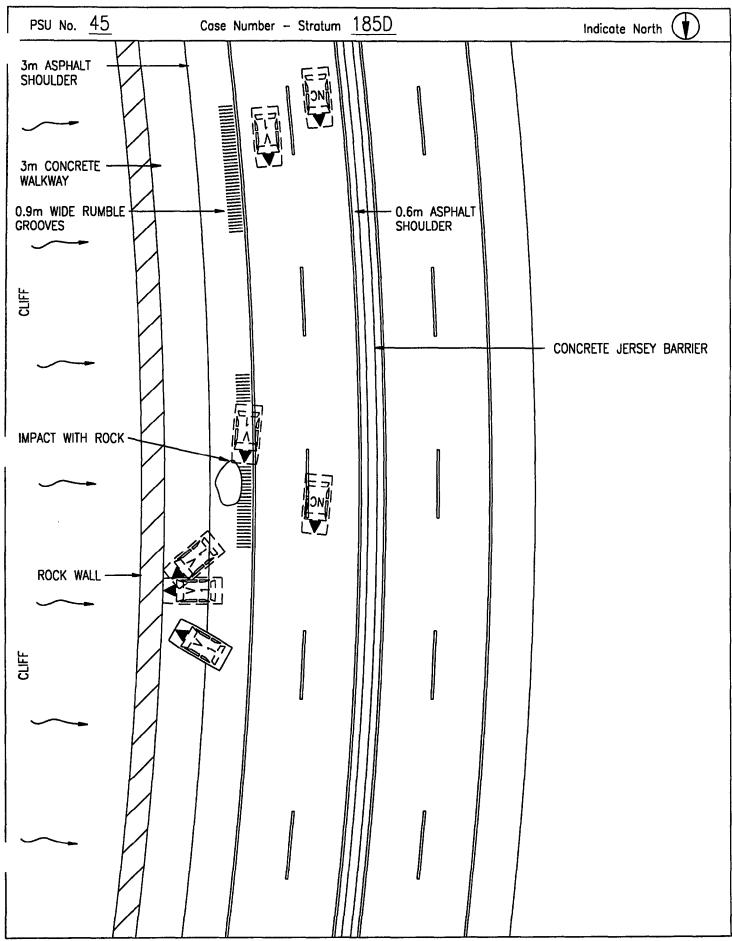
ROADSIDE DEPARTURE: Right

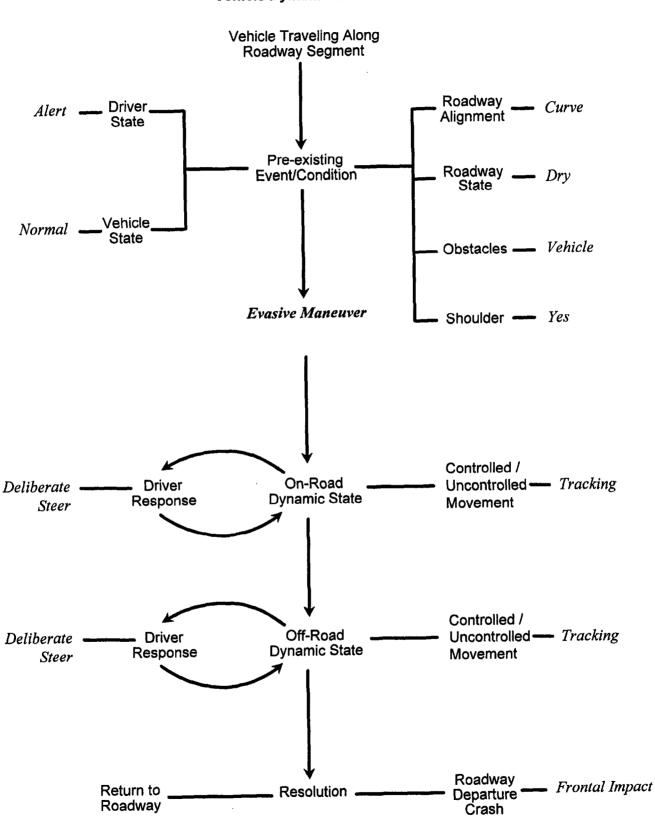
	General Accid	lent Information	
Date:	8-2-93	Weather:	Clear/Cloudy
Time:	0411	Surface Condition:	Dry
Accident Type:	Avoid Collision	Lighting:	None
Accident Severity:	3 (A)	Land Use:	Rural
Driver/Occup	ant Information	Vehicle Info	rmation
Driver Age:	18	Year:	1986
Driver Sex:	Male	Vehicle Make:	Chrysler
Impairment:	None	Vehicle Model:	Newport/ 5th Avenue
Familiarity with Road:	No	ABS:	No
No. of Occupants:	2	Defects:	No
	Roadway	Information	
Trafficway Type		Alignment:	Curve Right
(Median):	Physical barrier	Slope:	Grade
No. of Lanes:	2	Speed Limit:	80 km/h
	Cluster	Variables	
GV14: 07 Stee	ring right		
GV64: 16 Suc	cessful avoidance of previous	event	
GV65: 60 Oth	er vehicle encroaching into la	ne from adjacent lane (same direct	tion) over left lane li
	king		

CAUSAL FACTOR: Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Right

The subject vehicle was traveling on a dry, unlit, four-lane, divided, asphalt roadway during the evening hours. The roadway curved to the right and had an estimated +4% slope. The driver apparently exited the roadway to the right in an attempt to avoid a vehicle which was encroaching into the travel lane from the left lane. The vehicle struck a large rock in the emergency lane, went out of control and struck a rock cliff. The area adjacent to the right travel lane consisted of a 3 m wide asphalt shoulder classified by the police as an emergency lane. This was followed by a 1.5 m wide concrete sidewalk which ended at the rock cliff. A 0.9 m wide band of rumble grooves were located on the emergency lane adjacent to the right roadway edgeline. The causal factor was vehicle encroachment into lane from same travel direction.





Vehicle Dynamic Scenario

CAUSAL FACTOR:

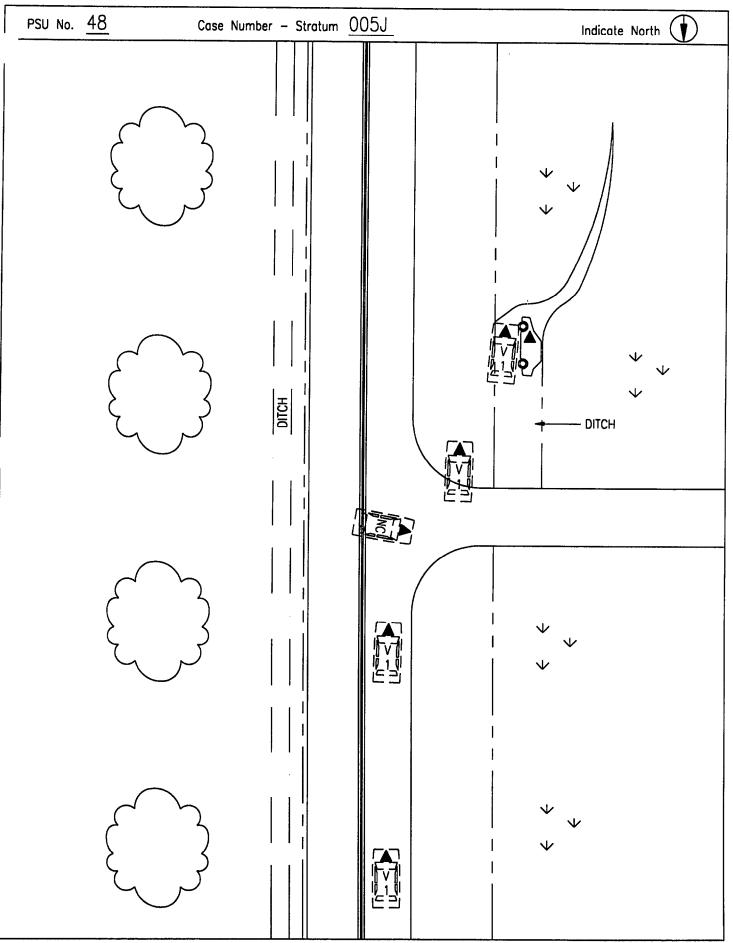
Evasive Maneuver - Vehicle Encroaching into Lane - Other

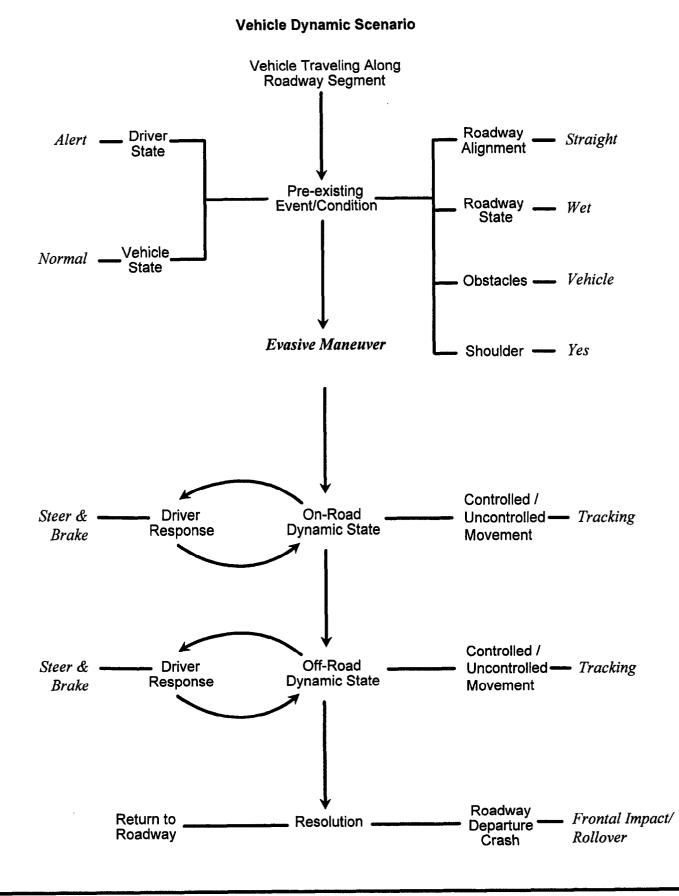
ROADSIDE DEPARTURE: Right

		General Accide	ent Information	·····
Date:		1-1-93	Weather:	Rain
Time:		2350	Surface Condition:	Wet
Accident 1	ype:	Control/Traction Loss	Lighting:	None
Accident S	Severity:	3 (A)	Land Use:	Urban
Drive	r/Occup	ant Information	Vehicle Infor	mation
Driver Age	2	30	Year:	1991
Driver Sex	:	Male	Vehicle Make:	Ford
Impairmen	t:	None	Vehicle Model:	Taurus
Familiarity with Road:		Yes	ABS:	No
No. of Occupants	5:	3	Defects:	No
		Roadway I	nformation	
Trafficway			Alignment:	Straight
(Mediar	n):	Not divided	Slope:	Level
No. of Lar	ies:	2	Speed Limit:	72 km/h
*		Cluster \	/ariables	·····
GV14:	09 Brak	ing and steering right		
GV64:	16 Succ	essful avoidance of previous e	vent	
GV65:	71 Othe	r vehicle encroaching into lane	e from driveway, turning into op	posite direction
GV66:	1 Trac	king		
GV67:	4 Vehi	cle departed roadway		

CAUSAL FACTOR: Evasive Maneuver - Vehicle Encroaching into Lane -Other ROADSIDE DEPARTURE: Right

The subject vehicle was traveling along a two-lane roadway in a residential area. A second vehicle backed out of a driveway. The driver performed an avoidance maneuver, exited the roadway on the right, and ran into a culvert.





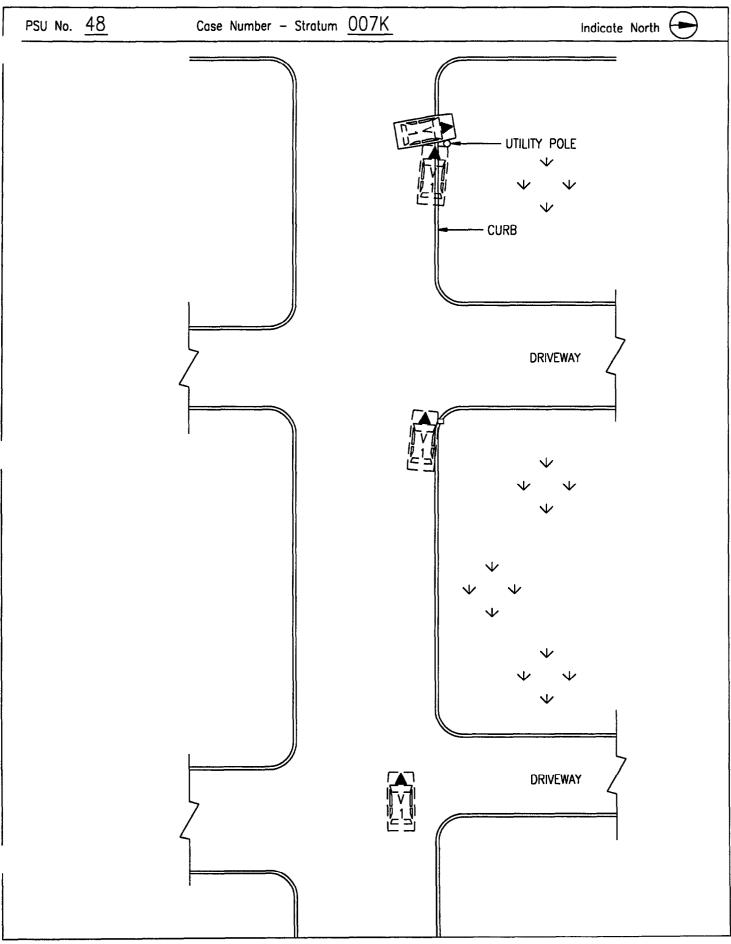
CAUSAL FACTOR: Driver Inattention

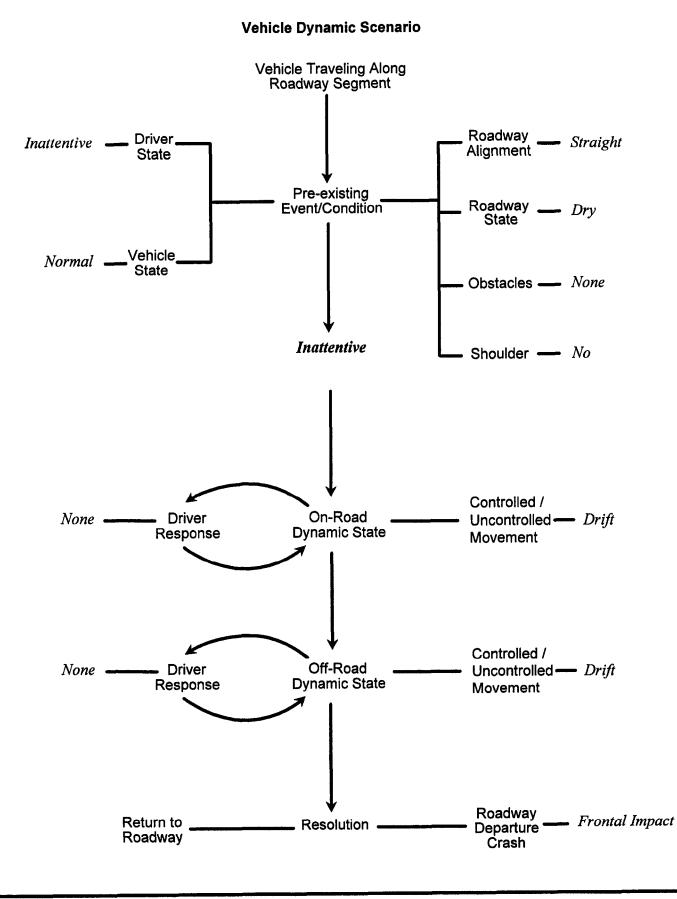
ROADSIDE DEPARTURE: Right

		General Acc	ident Information	
Date:		1-7-93	Weather:	Clear/Cloudy
Time:		0740	Surface Condition:	Dry
Accident	t Type	: Drive Off Road	Lighting:	Daylight
Accident	t Seve	ority: 3 (A)	Land Use:	Rural
Driv	er/Oc	cupant Information	Vehicle Info	rmation
Driver Ag	ge:	41	Year:	1985
Driver Se	ex:	Female	Vehicle Make:	Dodge
Impairme	ənt:	None	Vehicle Model:	Caravan
Familiari with Roa		Yes	ABS:	No
No. of Occupar	nts:	6	Defects:	No
		Roadway	y Information	
Trafficwa			Alignment:	Straight
(Medi	an):	Not divided	Slope:	Level
No. of L	anes:	2	Speed Limit:	40 km/h
		Cluste	r Variables	
GV14:	06	Steering left		
GV64:	13	Negotiating a curve		
GV65:	13	This vehicle traveling off the ed	ge of the road on the right side	
GV66:	1	Tracking		
GV67:	4	Vehicle departed roadway		

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

The subject vehicle was traveling along a two-lane roadway in a residential area. The driver rounded a curve well below the area speed limit and started to look for something in the passenger compartment. The vehicle left the road on the right side and struck a post box stand.





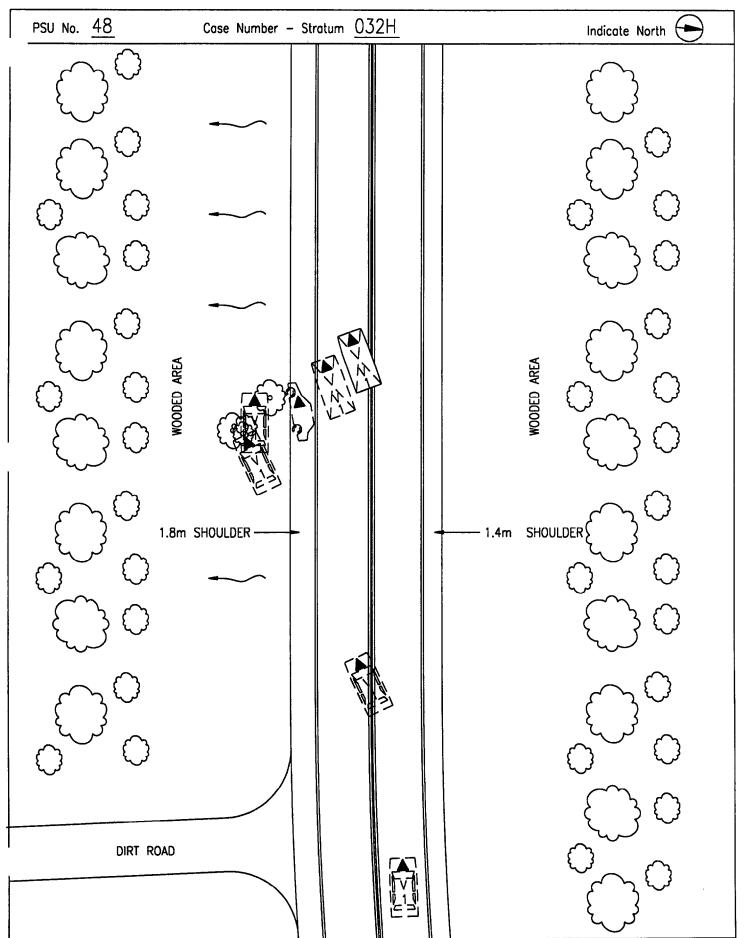
CAUSAL FACTOR: Vehicle Speed - Speed and Alcohol

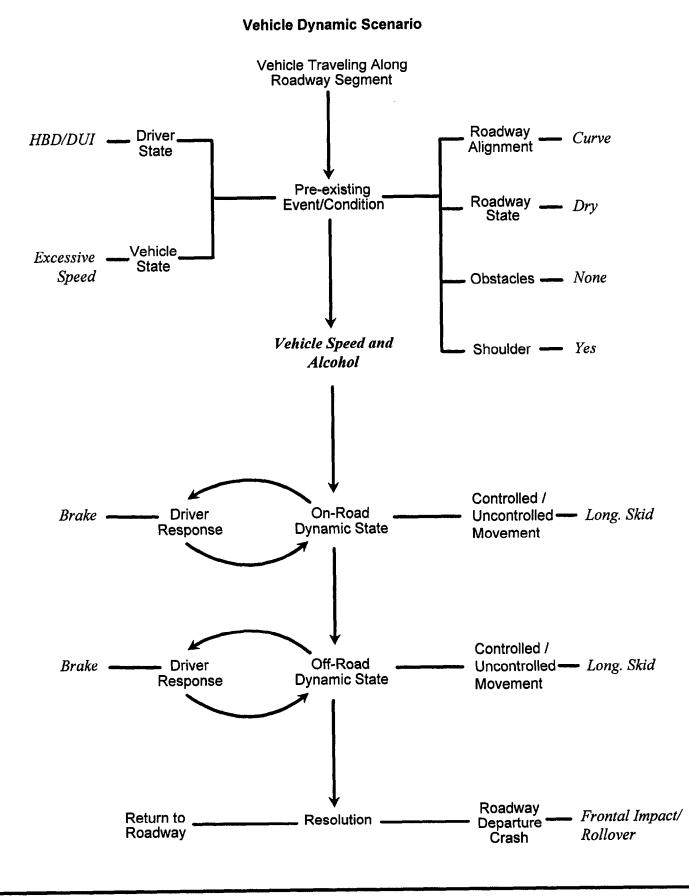
ROADSIDE DEPARTURE: Left

	General Accid	dent Information	
Date:	2-3-93	Weather:	Clear/Cloudy
Time:	1435	Surface Condition:	Dry
Accident Type	: Control/Traction Loss	Lighting:	Daylight
Accident Seve	<i>rity:</i> 0(O)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Info	rmation
Driver Age:	39	Year:	1977
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	F-series pickup
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Typ		Alignment:	Curve Right
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	72 km/h
	Cluster	Variables	
GV14: 03	Braking (lockup)		
GV64: 13	Negotiating a curve		
GV65: 12	This vehicle traveling off the edg	e of the road on the left side	
0 1/00	Skidding longitudinally - less that	n 30 degrees rotation	
GV66: 2			

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling along a two-lane winding road at 113 km/h (70 mph) in a 76 km/h (45 mph) speed zone. The driver lost control and exited the roadway on the left side. The vehicle hit a tree and rolled over. The driver had consumed alcohol.





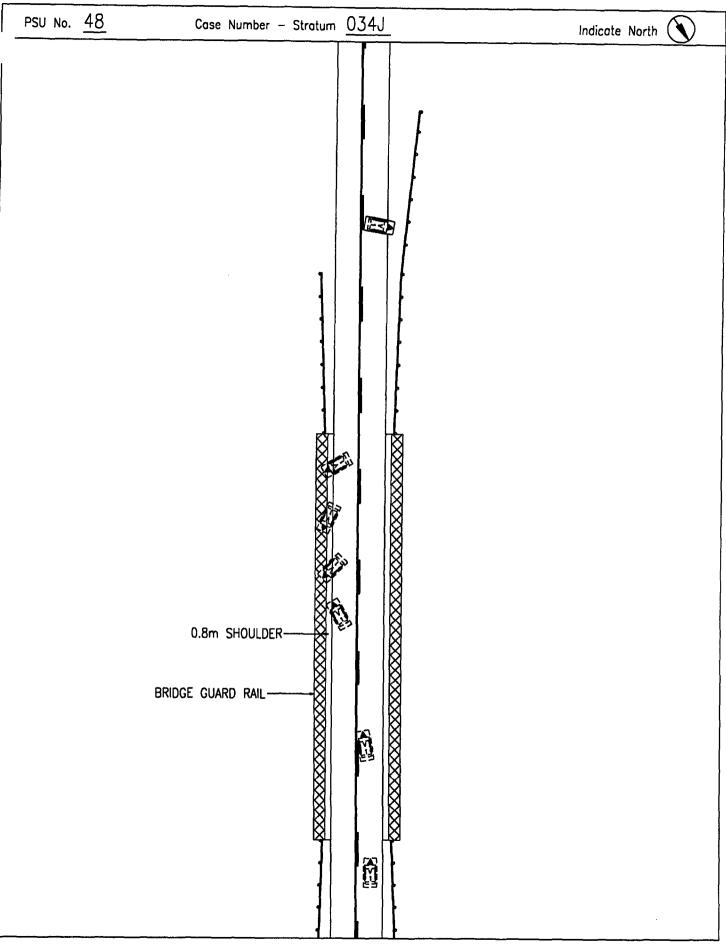
CAUSAL FACTOR: Lost Directional Control

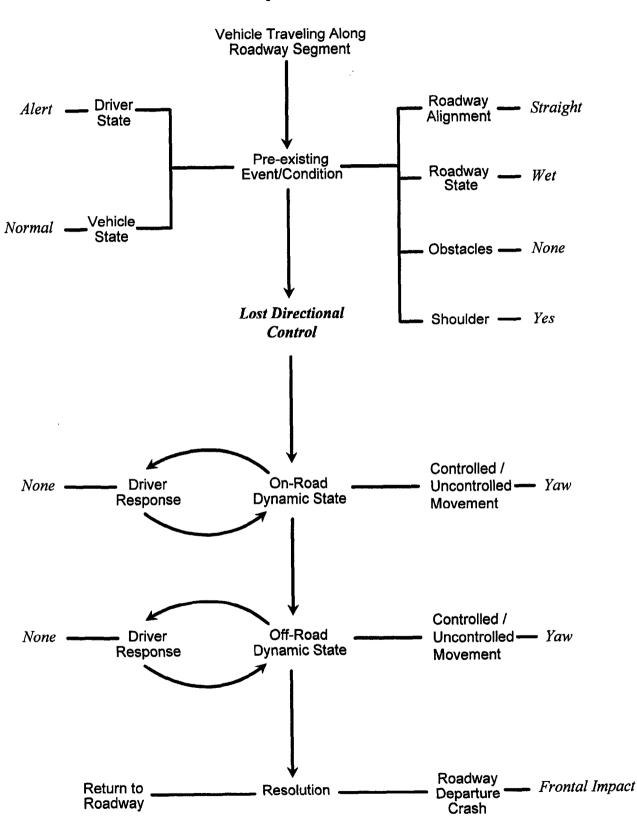
ROADSIDE DEPARTURE: Left

		General Accide	nt Information	
Date:		2-2-93	Weather:	Rain
Time:		2235	Surface Condition:	Wet
Accident	Type:	Control/Traction Loss	Lighting:	None
Accident	Severity:	3 (A)	Land Use:	Urban
Drive	er/Occup	ant Information	Vehicle Info	rmation
Driver Ag	e:	23	Year:	1992
Driver Sex	c:	Female	Vehicle Make:	Toyota
Impairmei	nt:	None	Vehicle Model:	MR-2
Familiarity with Road		Yes	ABS:	No
No. of Occupant	s:	1	Defects:	No
· · · · · · · · · · · · · · · · · · ·		Roadway Ir	formation	
Trafficway			Alignment:	Straight
(Media	-	Not divided	Slope:	Level
No. of La	nes:	2	Speed Limit:	89 km/h
		Cluster V	ariables	
GV14:	01 No a	voidance actions		
GV64:	01 Goin	ng straight		
GV65:	05 This	vehicle loss of control due to p	oor road conditions	
GV66:	0 Noa	voidance maneuver		

CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Left

The subject vehicle was proceeding along a dark, two-lane urban roadway with no streetlights. The vehicle hit a patch of water and proceeded to hydroplane. The driver was unable to control the vehicle and exited the roadway on the left side. The vehicle impacted the left guardrail and rebounded back to the right lane.



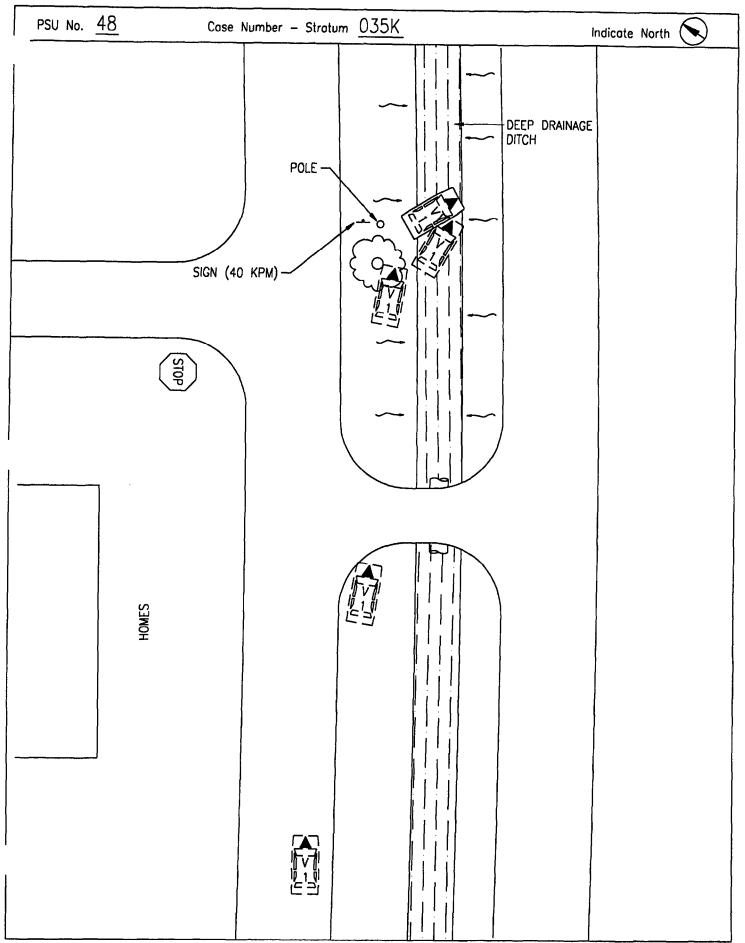


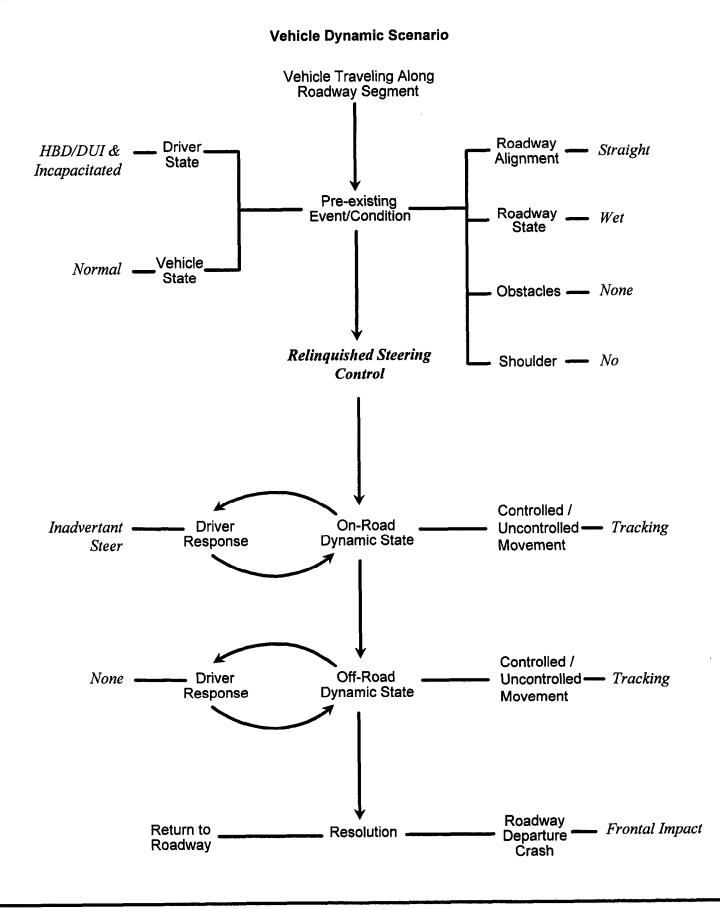
CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

	General Accie	dent Information	
Date:	2-7-93	Weather:	Clear/Cloudy
Time:	0400	Surface Condition:	Wet
Accident Type	Drive Off Road	Lighting:	None
Accident Seve	rity: 3 (A)	Land Use:	Urban
Driver/Oc	cupant Information	Vehicle Info	rmation
Driver Age:	37	Year:	1985
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Escort/EXP
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Typ		Alignment:	Curve Left
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	56 km/h
	Cluster	Variables	
GV14: 01	No avoidance actions		
GV64: 13	Negotiating a curve		
GV65: 13	This vehicle traveling off the edg	e of the road on the right side	
GV66: 0	No avoidance maneuver		

CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

The subject vehicle was traveling along a wet, unlit, two way, rural roadway. The driver fell asleep at the wheel. The vehicle exited the right side of a large radius left turn, hit a small depression in the road, proceeded up a crossing road embankment and became airborne. The vehicle struck a pole and a sign. The driver of the vehicle had been drinking heavily.





CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Opposite Travel Direction

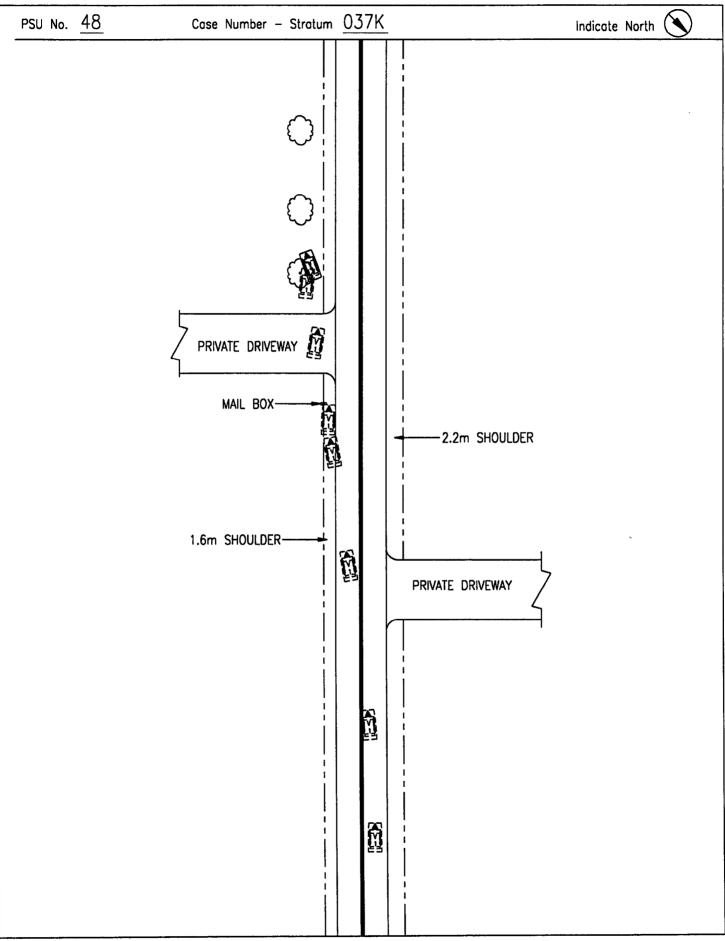
ROADSIDE DEPARTURE: Left

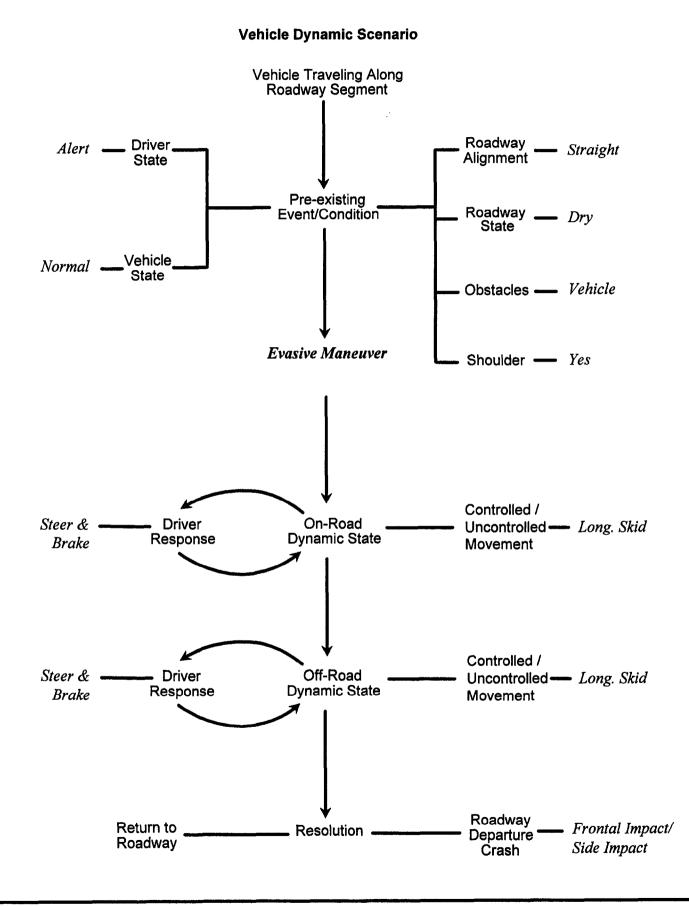
	General Acci	dent Information	
Date:	2-2-93	Weather:	Clear/Cloudy
Time:	1510	Surface Condition:	Dry
Accident Type:	Avoid Collision	Lighting:	Daylight
Accident Severity:	3 (A)	Land Use:	Rural
Driver/Occup	ant Information	Vehicle Info	mation
Driver Age:	16	Year:	1982
Driver Sex:	Male	Vehicle Make:	Chevrolet
Impairment:	None	Vehicle Model:	C, K, R, V-series
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	3	Defects:	No
	Roadway	Information	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	89 km/h
	Cluste	r Variables	
GV14: 08 Bra	king and steering left		
GV64: 16 Suc	cessful avoidance of previou	s event	
GV65: 62 Oth	er vehicle encroaching into la	ane from opposite direction over le	ft lane line
GV66: 2 Skie	lding longitudinally - less the	an 30 degrees rotation	
GV67: 4 Veh	icle departed roadway		

CAUSAL FACTOR: Evasive Maneuver - Vehicle Encroaching into Lane -Opposite Travel Direction

ROADSIDE DEPARTURE: Left

The subject vehicle was proceeding in a southerly direction on a dry, straight, two-lane, rural asphalt roadway with a +2% slope during daylight hours. The driver had just exited a curve to the right when a northbound non-contact vehicle made a left turn (across the subject vehicle's path of travel into a private driveway). The subject driver steered to the left to avoid the turning vehicle, applied heavy brake pedal pressure, and attempted to steer back to the right to remain on the roadway. The subject vehicle exited the left edge of the roadway in a clockwise yaw. The vehicle's front bumper struck a mailbox (uprooted) and the vehicle then skidded across a driveway and struck a tree with its left front fender and door. The subject vehicle rotated counterclockwise around this tree and came to rest facing in a south southeasterly direction. The roadway had edge lines and full barrier center lines.





CAUSAL FACTOR:

Driver Relinquishes Steering Control - Physical (seizure/passed out)

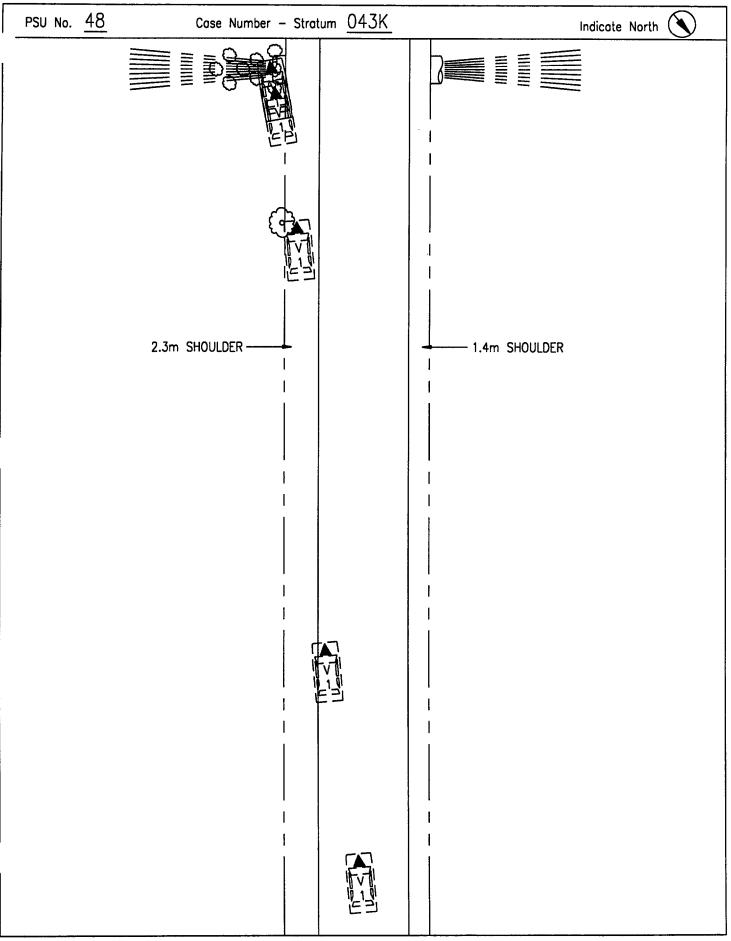
ROADSIDE DEPARTURE: Left

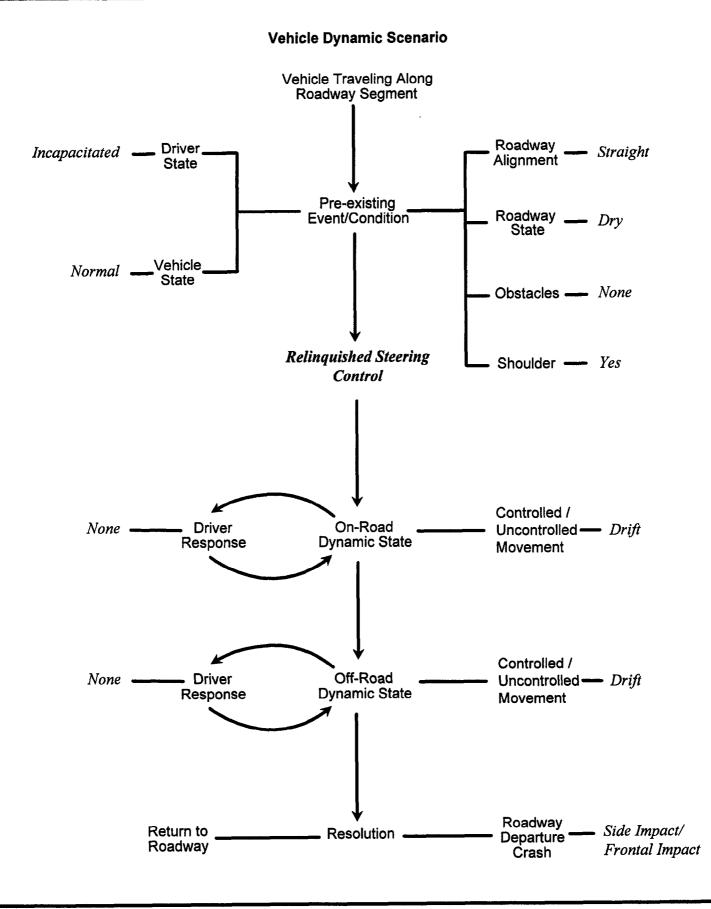
	General Accid	ent Information	
Date:	2-3-93	Weather:	Clear/Cloudy
Time:	2030	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	None
Accident Severity:	3 (A)	Land Use:	Rural
Driver/Occup	ant Information	Vehicle Infor	mation
Driver Age:	60	Year:	1976
Driver Sex:	Male	Vehicle Make:	Chevrolet
Impairment:	Physical (seizure/passed out)	Vehicle Model:	C, K, R, V-series
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	1	Defects:	No
·····	Roadway I	nformation	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	72 km/h
	Cluster	/ariables	
GV14: 01 No a	voidance actions		
GV64: 01 Goin	g straight		
GV65: 12 This	vehicle traveling off the edge	of the road on the left side	
GV66: 0 No a	voidance maneuver		
GV67: 0 No a	voidance maneuver		

CAUSAL FACTOR: Driver Relinquishes Steering Control - Physical (seizure/passed out)

ROADSIDE DEPARTURE: Left

The subject vehicle was proceeding in a south southwesterly direction on a dry, two-lane, rural, asphalt roadway. The driver blacked-out, relinquishing steering control. The vehicle drifted to the left and exited the left edge of the roadway in a tracking mode. After departing the roadway, the left front fender of the vehicle sideswiped a tree located approximately 3 m off the roadway. The vehicle continued forward in a tracking attitude, entered a gully, and came to rest against several small trees. The total distance traveled from the point of exit to final rest was approximately 40 m. The roadway had a negative slope and no surface markings.





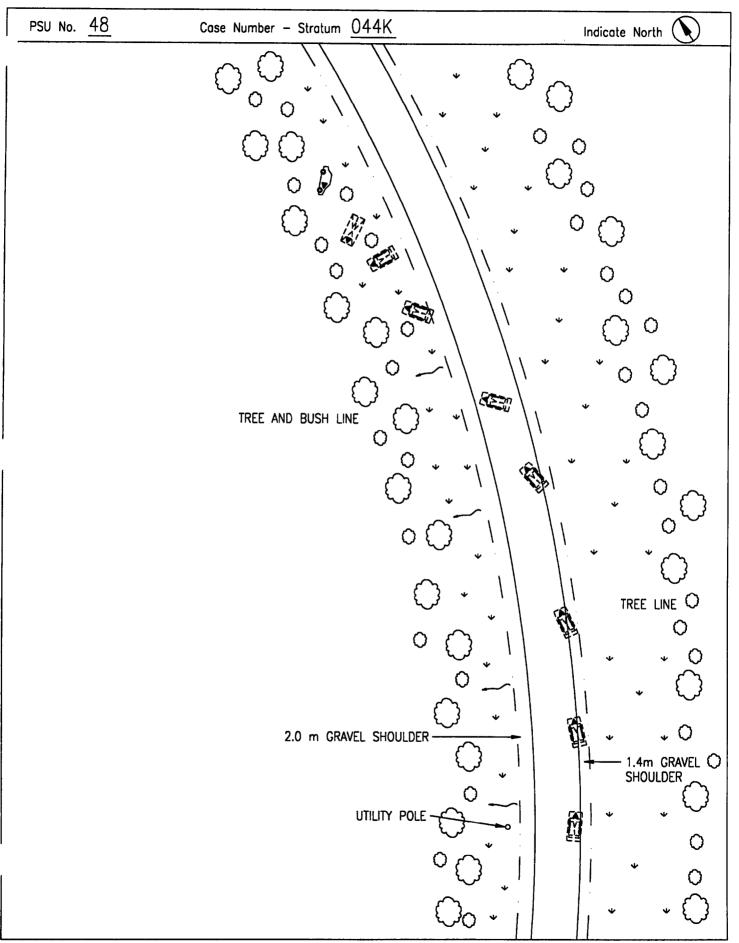
Vehicle Speed - Speed and Alcohol CAUSAL FACTOR: Right

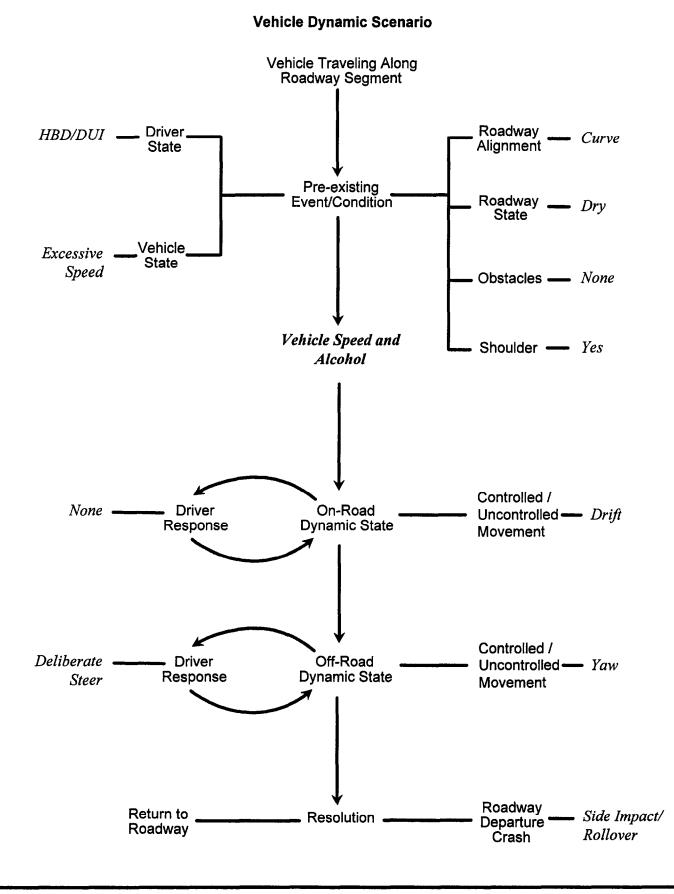
ROADSIDE DEPARTURE:

	General Accident	t Information	
Date:	2-6-93	Weather:	Clear/Cloudy
Time:	0450	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	None
Accident Severi	ty: 3 (A)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Info	rmation
Driver Age:	36	Year:	1986
Driver Sex:	Male	Vehicle Make:	Chevrolet
Impairment:	Other (alcoh. consumption - BAC unknown)	Vehicle Model:	S-10, T-10
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway Info	ormation	
Trafficway Type		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	64 km/h
	Cluster Var	riables	
GV14: 01 N	lo avoidance actions		
GV64: 13 N	legotiating a curve		
GV65: 13 T	his vehicle traveling off the edge of t	the road on the right side	
-	lo avoidance maneuver		
GV66: 0 1			

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

The subject vehicle was traveling north on a dry, two-lane, undivided, asphalt roadway with a +4% slope. The driver failed to negotiate a left curve which had a crowned road profile and departed the right road edge. The driver steered to the left in an attempt to return to the travel lane causing the vehicle to rotate in a counterclockwise direction and travel across the roadway. The vehicle then exited the left side of the roadway and rolled over striking two trees. The roadway was unlighted with no painted roadway edge lines or center lines. The causal factor was driver lost control of vehicle due to speed in a curve with alcohol consumption as a contributory factor.





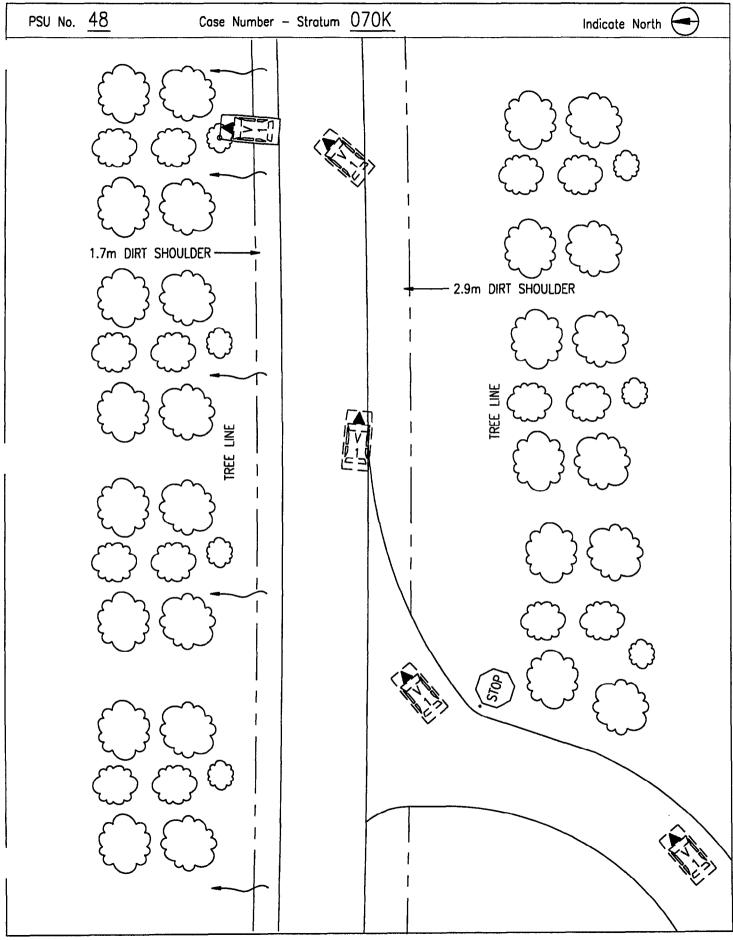
CAUSAL FACTOR: Vehicle Speed - Speed and Alcohol

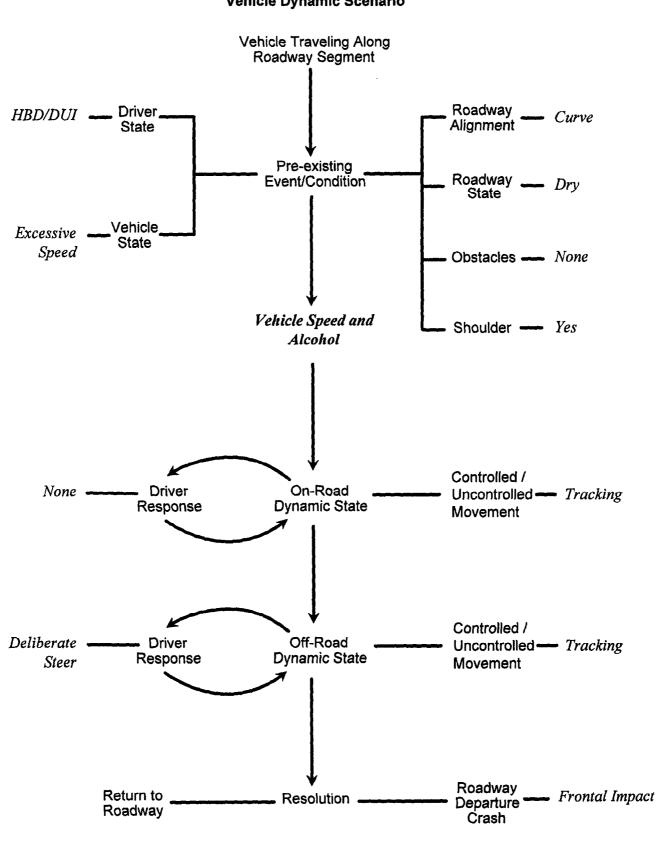
ROADSIDE DEPARTURE: Right

	General Accident	Information	·
Date:	4-7-93	Weather:	Clear/Cloudy
Time:	0210	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	None
Accident Severit	y: 3 (A)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Infor	rmation
Driver Age:	44	Year:	1972
Driver Sex:	Female	Vehicle Make:	Pontiac
Impairment:	Other (alcoh. consumption - BAC unknown)	Vehicle Model:	LeMans/ Tempest
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	2	Defects:	No
	Roadway Info	ormation	
Trafficway Type		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	40 km/h
· · · · · · · · · · · · · · · · · · ·	Cluster Var	riables	
GV14: 01 N	o avoidance actions		
GV64: 09 T	urning right		
GV65: 11 T	his vehicle traveling over the lane lin	ne on right side of travel lane	
	o avoidance maneuver		
GV66: 0 N			

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

The subject vehicle was traveling on a dry, two-lane, undivided, asphalt roadway with a -3% slope during dark hours with no street light illumination. The driver lost control of the vehicle in a left curve and departed the right road edge. The driver then steered to the left and crossed over the roadway striking a ditch after departing the left road edge. Before losing control of the vehicle, the driver completed a right turn from a three leg intersection and was apparently accelerating at the time of control loss. The driver had consumed alcohol prior to the accident. The roadway was not marked with painted edge lines or center lines and there were no reflective markers. The causal factor was loss of control due to speed in a curve with alcohol consumption as a contributing factor.





Vehicle Dynamic Scenario

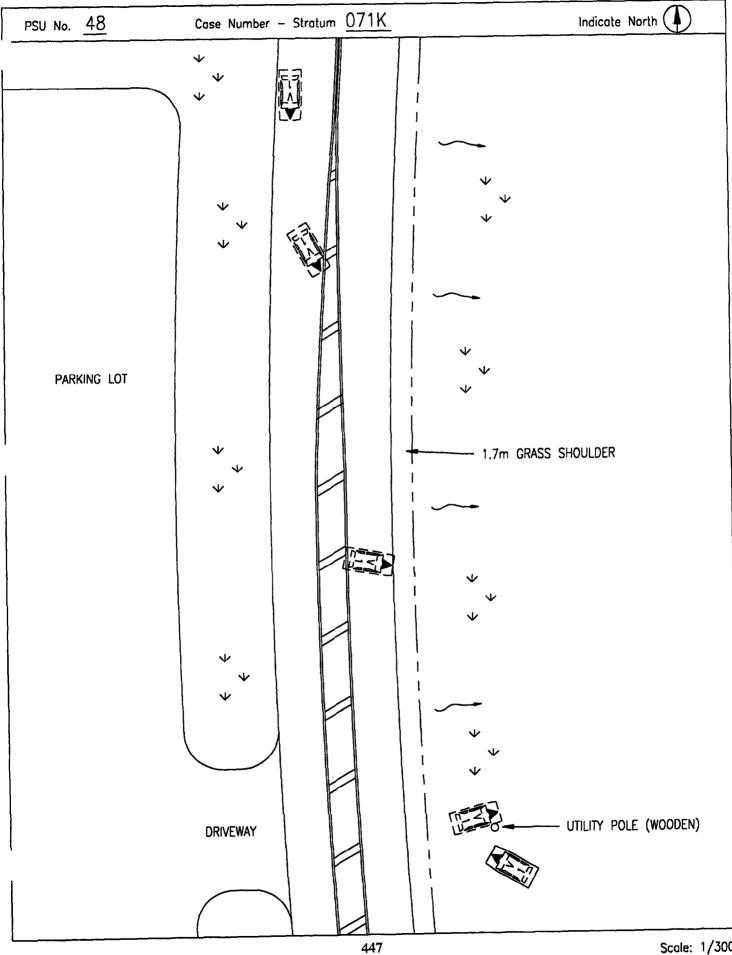
Calspan Corporation Carnegie Mellon University

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

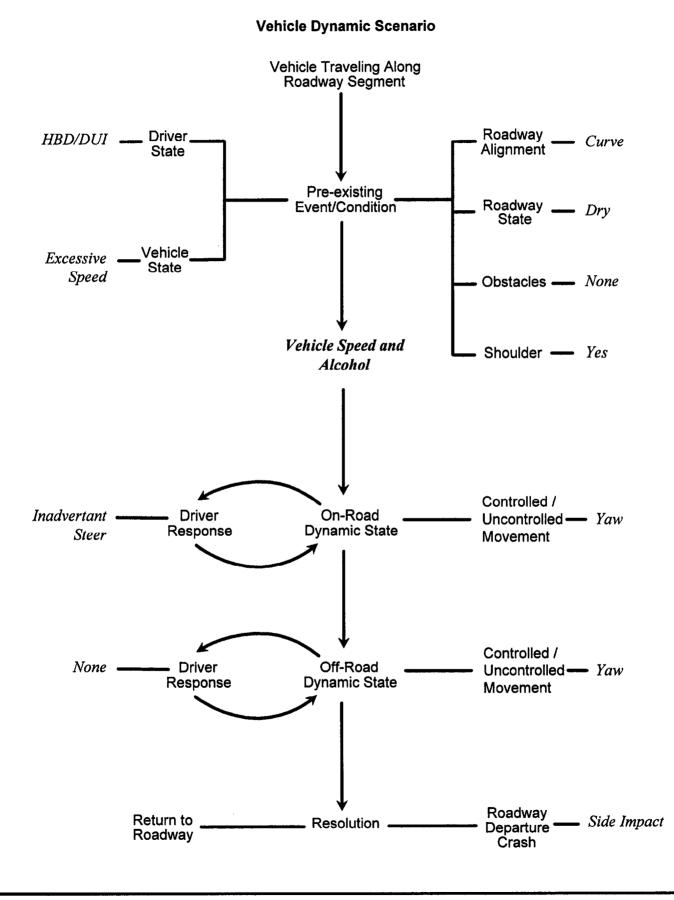
	Genera	Accident Information	
Date:	3-1-93	Weather:	Clear/Cloudy
Time:	1910	Surface Condition:	Dry
Accident Typ	e: Control/Traction L	oss Lighting:	None
Accident Sev	erity: 3 (A)	Land Use:	Urban
Driver/O	ccupant Information	Vehicle Info	rmation
Driver Age:	27	Year:	1974
Driver Sex:	Male	Vehicle Make:	Oldsmobile
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Cutlass
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	2	Defects:	No
	Roa	idway Information	
Trafficway Ty		Alignment:	Curve Left
(Median):	Not divided	Slope:	Level
No. of Lanes	: 2	Speed Limit:	72 km/h
	C	luster Variables	
GV14: 01	No avoidance actions		
GV64: 13	Negotiating a curve		
	This vehicle traveling off	the edge of the road on the left side	
GV65: 12			
GV65: 12 GV66: 0	No avoidance maneuver		

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling on a dry, level, two-lane, undivided, asphalt roadway during the night time hours with no overhead roadway illumination. The vehicle exited the left road edge on a left curve and struck a utility pole with the right front fender. The driver was cited for DWI (BAC=0.11) and was traveling too fast for the curve. The white edge line and the yellow full barrier center lines were in new condition. There were no sight line restrictions or roadway obstacles present prior to the roadway departure. The causal factor was loss of control due to speed in a curve with intoxication as a contributory factor.



Scale: 1/300

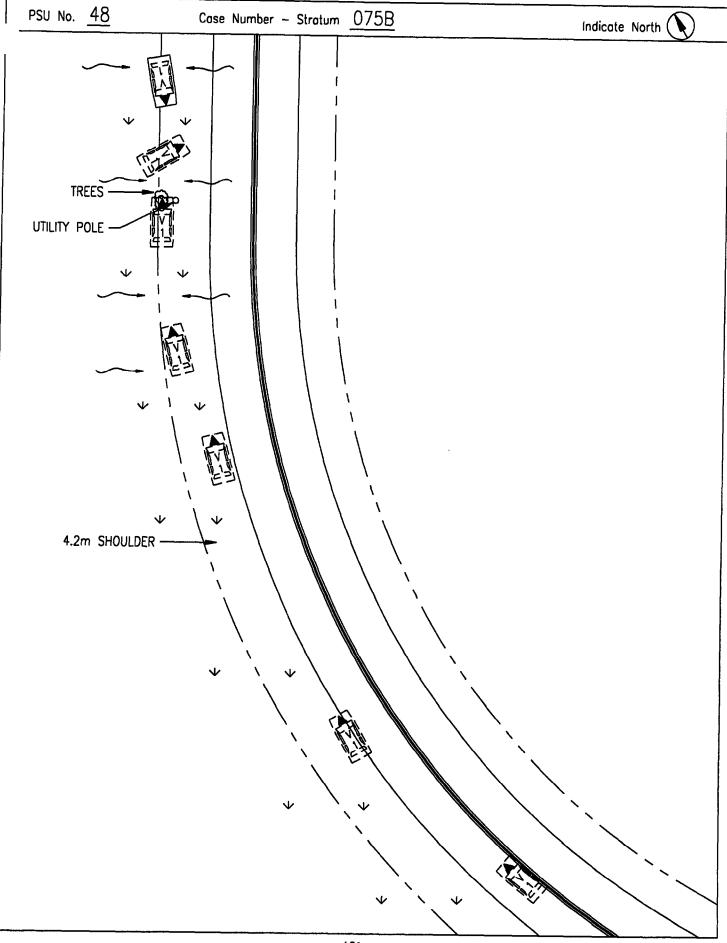


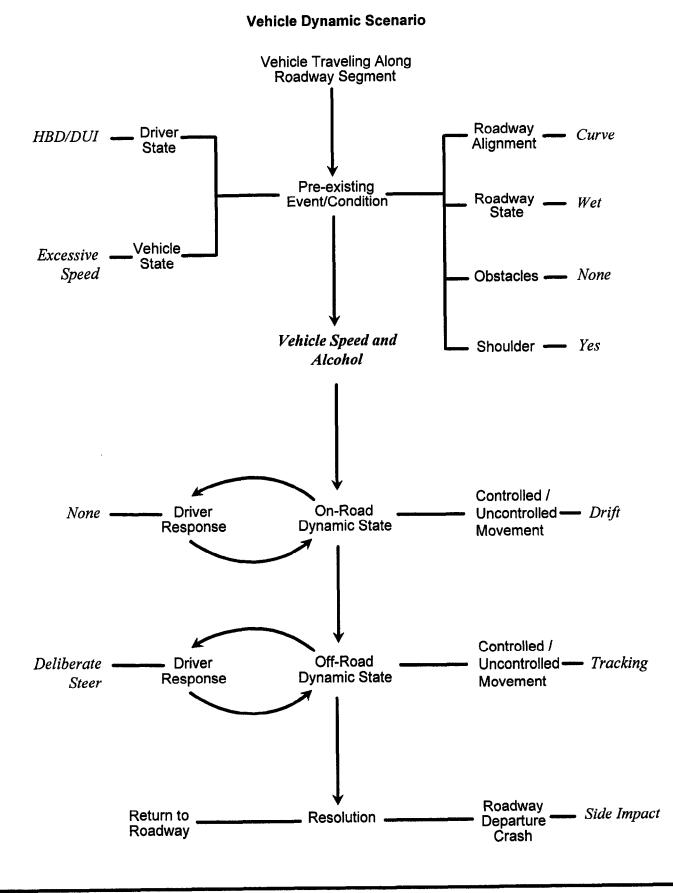
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

	General Acci	dent Information	
Date:	4-6-93	Weather:	Rain
Time:	0120	Surface Condition:	Wet
Accident Type:	Drive Off Road	Lighting:	None
Accident Severity:	4 (K)	Land Use:	Rural
Driver/Occup	ant Information	Vehicle Info	rmation
Driver Age:	34	Year:	1983
Driver Sex:	Male	Vehicle Make:	Buick
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Skylark
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Type		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	40 km/h
	Cluster	Variables	
GV14: 01 No a	voidance actions		
GV64: 13 Neg	otiating a curve		
GV65: 12 This	vehicle traveling off the edg	e of the road on the left side	
GV66: 0 No a	voidance maneuver		
	voidance maneuver		

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was proceeding in a northerly direction around a right curve on a dark and unlit, wet, two-lane, rural asphalt roadway with edge lines and full barrier center lines. The vehicle failed to track a curve to the right, exiting the left edge of the roadway in tracking attitude with no evidence of braking. Approximately 50 m after leaving the roadway, the right side of the vehicle struck a utility pole located approximately 2.6 m off the roadway. The vehicle rotated in a clockwise direction around the utility pole and came to rest facing in a south southwesterly direction approximately 6 m beyond the pole. The driver was intoxicated (BAC=0.24) and was traveling at a speed which was too fast for conditions.





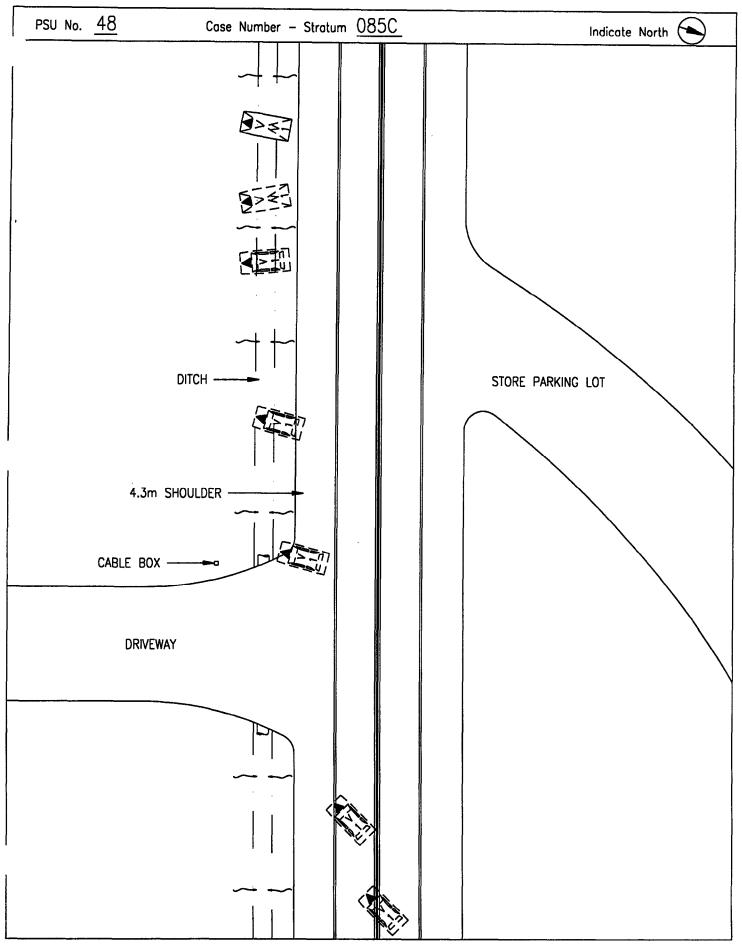
Lost Directional Control CAUSAL FACTOR: Right

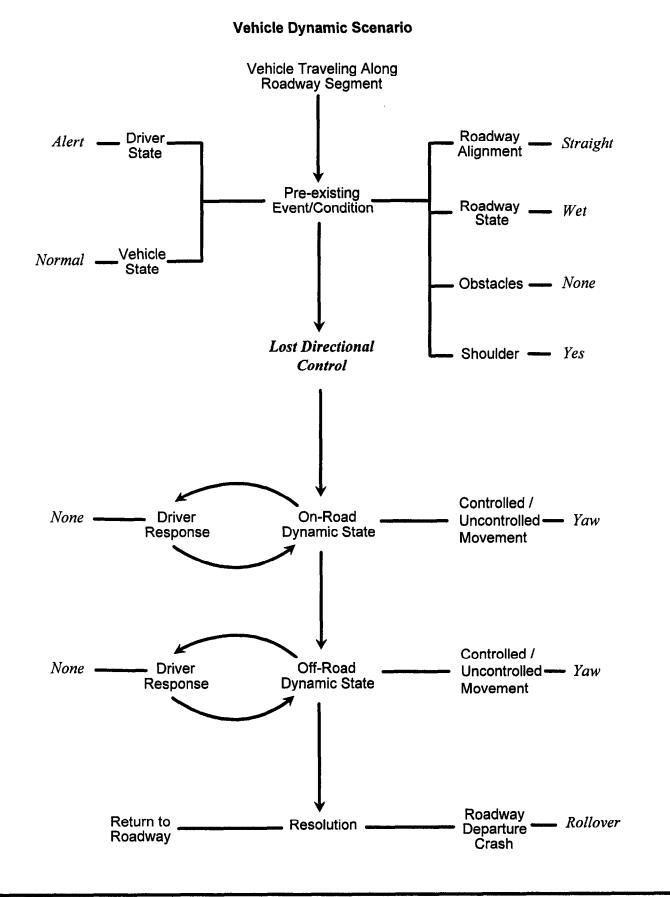
ROADSIDE DEPARTURE:

	General Accide	nt Information	
Date:	4-3-93	Weather:	Rain
Time:	1555	Surface Condition:	Wet
Accident Type:	Control/Traction Loss	Lighting:	Daylight
Accident Severi	'y: 3 (A)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Infor	mation
Driver Age:	30	Year:	1991
Driver Sex:	Female	Vehicle Make:	Nissan/Datsun
Impairment:	Unknown	Vehicle Model:	810/Maxima
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	3	Defects:	No
	Roadway Ir	formation	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	89 km/h
	Cluster V	ariables	
GV14: 01 N	o avoidance actions		
GV64: 02 S	lowing or stopping in traffic lane		
GV65: 05 T	his vehicle loss of control due to p	oor road conditions	
GV66: 0 N	o avoidance maneuver		
GV67: 0 N	o avoidance maneuver		

CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

The subject vehicle was proceeding over a hillcrest in a westerly direction on a wet, two-lane, rural asphalt roadway with a +2% slope, edge lines, and a partial barrier center line. The driver approached the hillcrest, applied brake pedal pressure to decelerate and lost control on the wet road surface. The vehicle rotated counterclockwise and entered a broadside skid to the right. The vehicle exited the left edge of the roadway in a broadside attitude, skidded across a private driveway, entered a shallow drainage ditch, and then rolled side-over-side to the right 1.5 times. The vehicle came to rest on its top, in the ditch, facing a southerly direction.





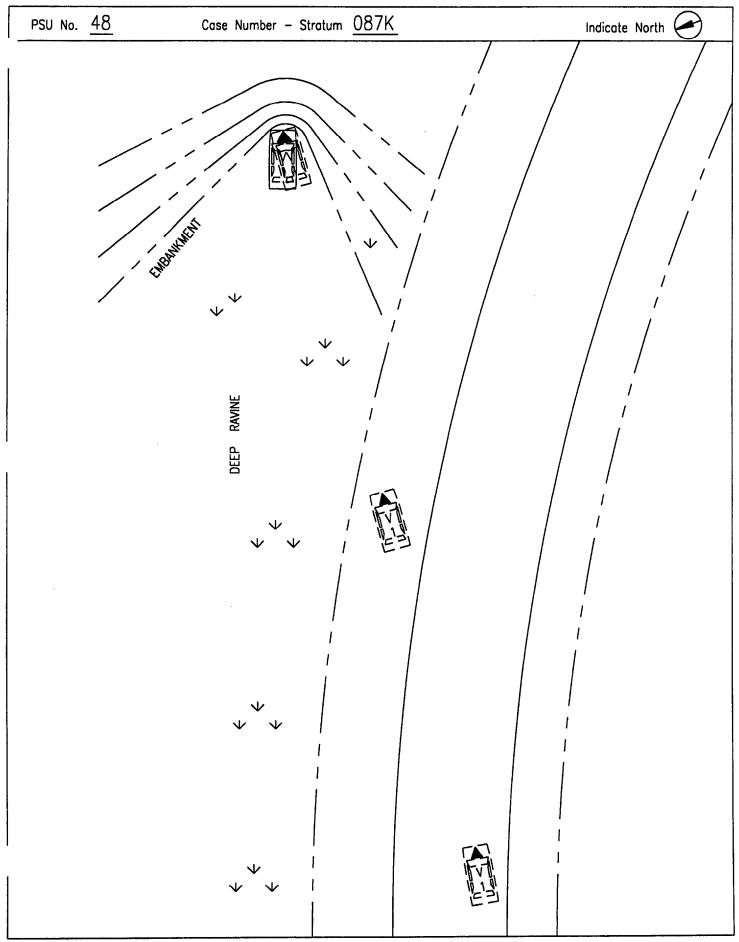
CAUSAL FACTOR: Driver Inattention

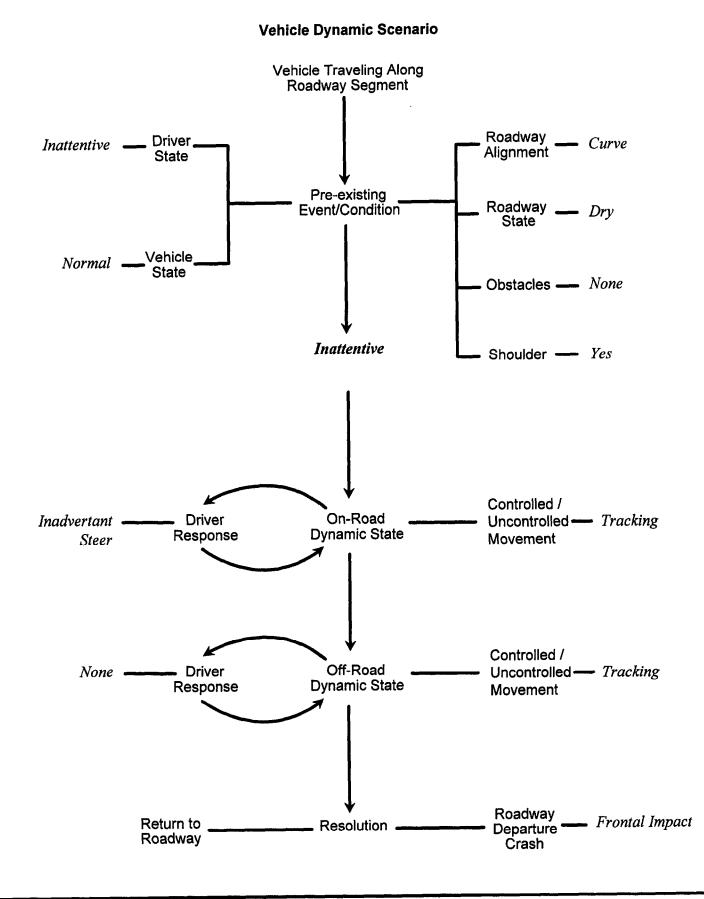
ROADSIDE DEPARTURE: Left

		General Acc	ident Information	
Date:		4-3-93	Weather:	Clear/Cloudy
Time:		0500	Surface Condition:	Dry
Acciden	t Туре	: Drive Off Road	Lighting:	Daylight
Acciden	t Seve	erity: 3 (A)	Land Use:	Urban
Driv	/er/Oc	cupant Information	Vehicle Info	rmation
Driver Ag	ge:	20	Year:	1981
Driver So	ex:	Male	Vehicle Make:	Chevrolet
Impairm	ent:	None	Vehicle Model:	Caprice/Impala
Familiari with Roa		Yes	ABS:	No
No. of Occupar	nts:	1	Defects:	No
		Roadway	y Information	
Trafficwa			Alignment:	Curve Right
(Medi	-	Not divided	Slope:	Grade
No. of L	anes:	2	Speed Limit:	40 km/h
		Cluste	r Variables	
GV14:	01	No avoidance actions		
GV64:	13	Negotiating a curve		
GV65:	12	This vehicle traveling off the ed	ge of the road on the left side	
GV66:	0	No avoidance maneuver		
5000.				

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a southeasterly direction on a dry, two-lane, rural, asphalt roadway with a +4% slope, no surface markings, and a sharp curve to right. As the road curved to the right, the driver continued straight forward. The vehicle exited the left edge of the roadway in a tracking attitude with no evidence of braking. Approximately 15 m after leaving the roadway, the vehicle vaulted an 18 m wide ravine and struck the far wall of the ravine embankment with its frontal structure. The vehicle came to rest at the point of impact facing an east southeasterly direction. The causal factor was driver inattentive to the driving task.





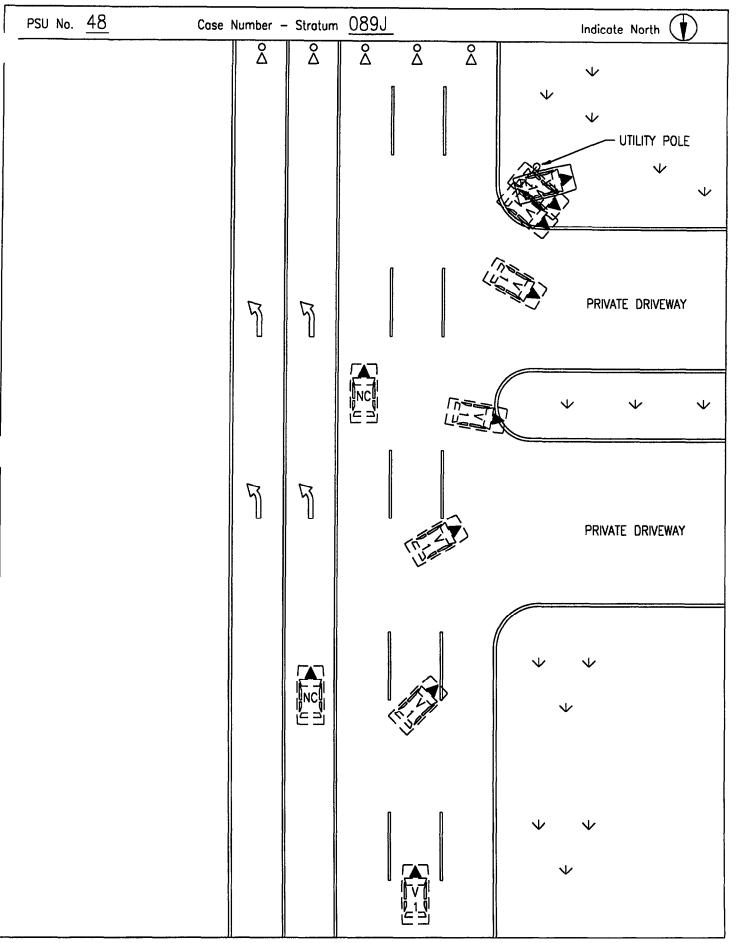
CAUSAL FACTOR: Vehicle Speed - Speed and Alcohol

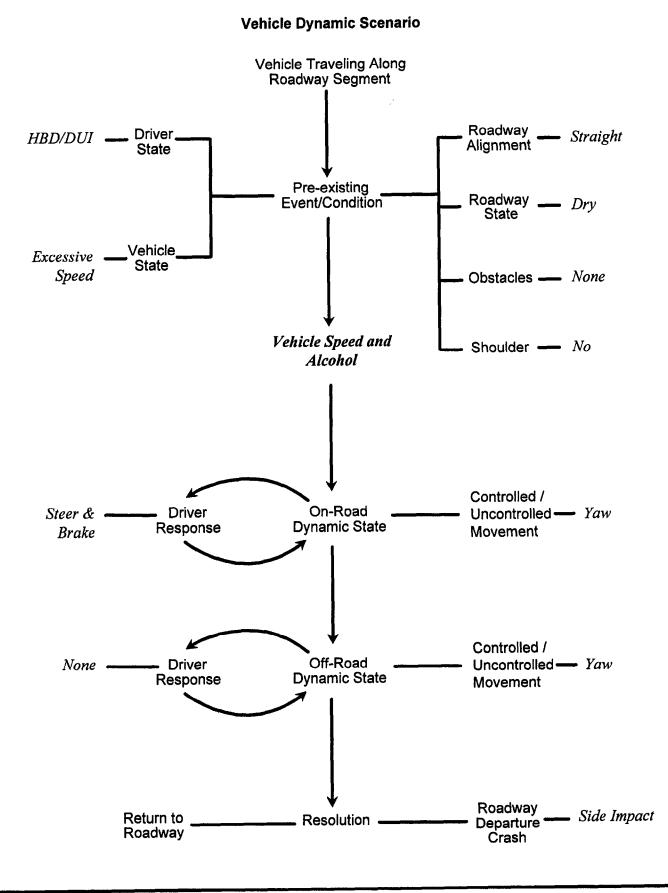
ROADSIDE DEPARTURE: Right

	General Accide	nt Information	
Date:	4-4-93	Weather:	Clear/Cloudy
Time:	2010	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	Artificial lighting
Accident Severity:	3 (A)	Land Use:	Urban
Driver/Occup	pant Information	Vehicle Info	mation
Driver Age:	52	Year:	1992
Driver Sex:	Male	Vehicle Make:	Chevrolet
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Lumina
Familiarity with Road:	Unknown	ABS:	Unknown
No. of Occupants:	2	Defects:	No
	Roadway Ir	formation	
Trafficway Type		Alignment:	Straight
(Median):	Flush or curb	Slope:	Grade
No. of Lanes:	5	Speed Limit:	80 km/h
·····	Cluster V	ariables	· · · · · · · · · · · · · · · · · · ·
GV14: 09 Bra	king and steering right		
GV64: 01 Goi	ng straight		
GV65: 13 This	s vehicle traveling off the edge of	of the road on the right side	
GV66: 3 Skie	ding laterally - clockwise rotati	on	
GV67: 4 Veh	icle departed roadway		

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

The subject vehicle was traveling in a southerly direction in the second southbound lane of a straight, dry and lighted, multi-lane, divided, urban, asphalt, roadway with a -2% slope. A southbound non-contact vehicle traveling in an inboard lane attempted to merge to the right into the an adjacent lane. The subject driver steered sharply to the right. The vehicle rotated clockwise and entered a broadside skid with the left side leading. The vehicle exited the right edge of the roadway and struck a light standard with its left C-pillar area. The investigating officer noted that the subject driver was intoxicated and was traveling at an estimated speed of 113 km/h (70 mph) in a 80 km/h (50 mph) speed zone. The roadway consisted of five lanes with two left turn lanes.



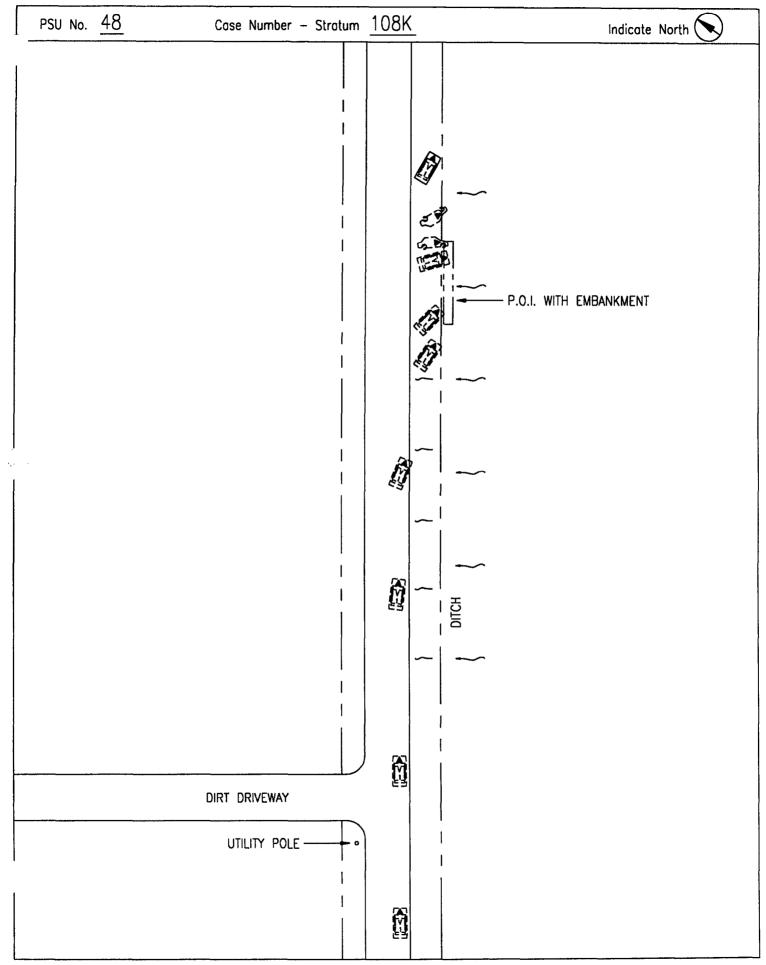


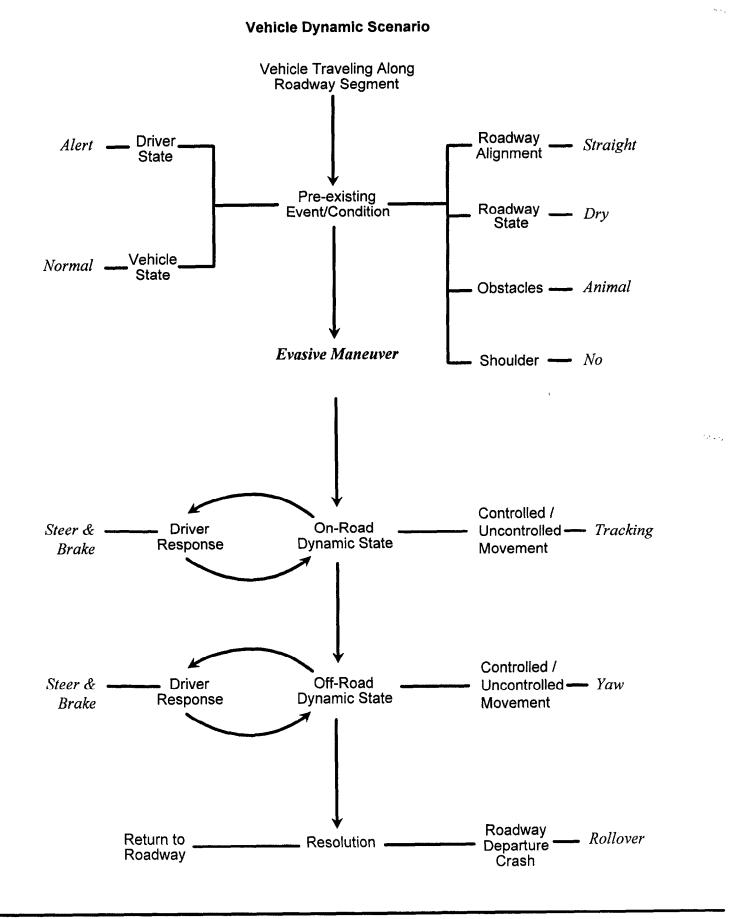
CAUSAL FACTOR:Evasive Maneuver - Avoid Animal or PedestrianROADSIDE DEPARTURE:Right

		General Accide	ent Information	
Date:		5-1-93	Weather:	Clear/Cloudy
Time:		1655	Surface Condition:	Dry
Accident	Type:	Avoid Collision	Lighting:	Daylight
Accident	Severity:	3 (A)	Land Use:	Rural
Drive	er/Occup	pant Information	Vehicle Info	rmation
Driver Ag	je:	29	Year:	1976
Driver Se	x:	Female	Vehicle Make:	Oldsmobile
Impairme	ent:	None	Vehicle Model:	Cutlass
Familiarii with Roa		Unknown	ABS:	No
No. of Occupan	ts:	1	Defects:	No
		Roadway I	nformation	
Trafficwa			Alignment:	Straight
(Media	an):	Not divided	Slope:	Grade
No. of La	anes:	2	Speed Limit:	72 km/h
		Cluster	Variables	
GV14:	09 Bra	king and steering right		
GV64:	01 Goi	ing straight		
GV65:	87 Ani	imal in roadway		
GV66:	1 Tra	cking		

CAUSAL FACTOR:Evasive Maneuver - Avoid Animal or PedestrianROADSIDE DEPARTURE:Right

The subject vehicle was traveling in an easterly direction on a dry, straight, two-lane, rural, asphalt roadway. A dog entered the roadway, forward of the vehicle, and began crossing from the driver's right to the driver's left. The driver steered sharply to the right in an evasive maneuver. The vehicle rotated clockwise and entered a broadside skid to the left with the left side leading. The vehicle exited the right edge of the roadway, entered a drainage ditch, struck the far wall of the ditch with its frontal structure, and then rolled side-over-side to the left. The vehicle rolled once and then came to rest on its wheels, facing in an east southeasterly direction. The roadway had no surface markings. The vehicle was traveling at a police estimated speed of 72 km/h (45 mph).



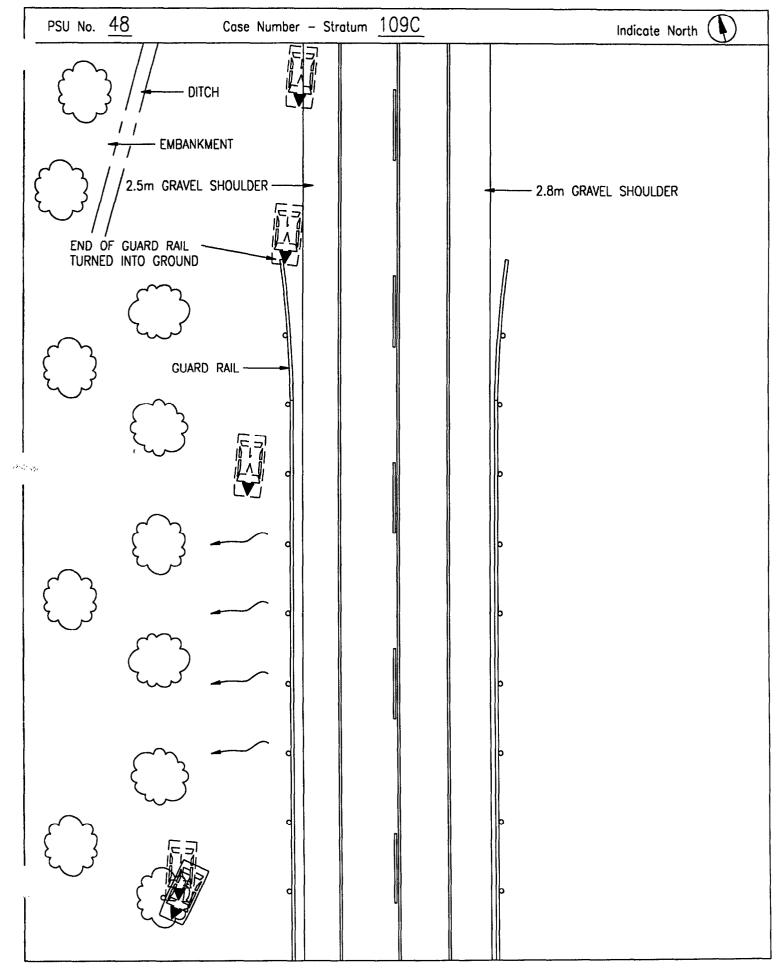


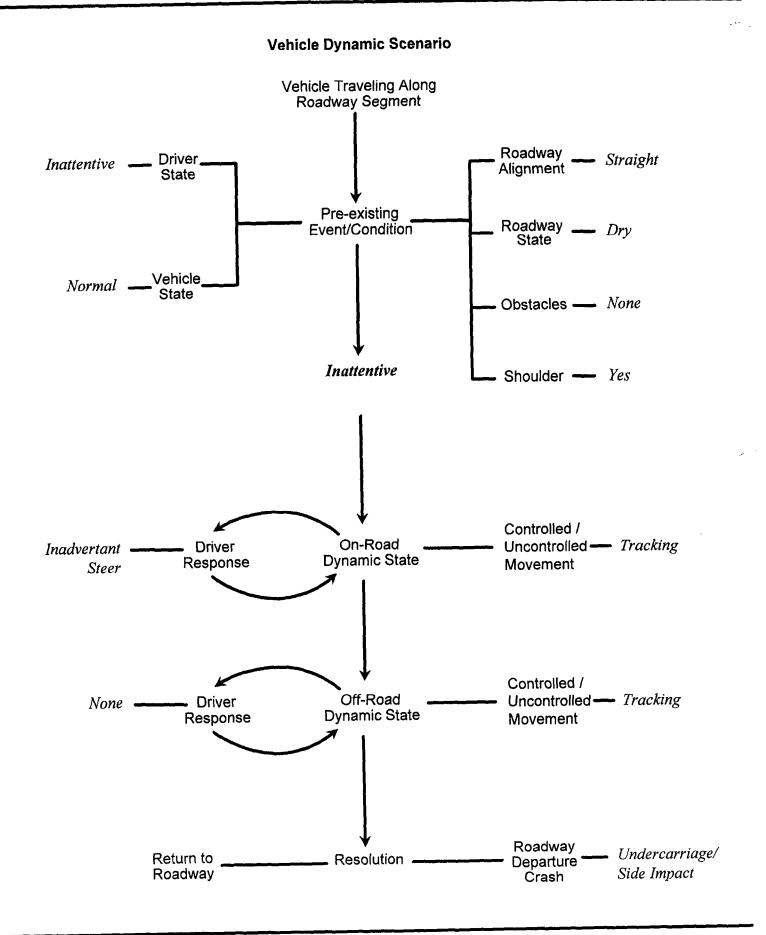
CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

		General Acci	ident Information	
Date:		5-6-93	Weather:	Clear/Cloudy
Time:		1412	Surface Condition:	Dry
Accident 1	Гуре:	Drive Off Road	Lighting:	Daylight
Accident S	Severity	: 3 (A)	Land Use:	Rural
Drive	r/Occu	pant Information	Vehicle Infor	mation
Driver Age):	43	Year:	1991
Driver Sex		Male	Vehicle Make:	Nissan/Datsun
Impairmer	nt:	None	Vehicle Model:	Pickup
Familiarity with Road		Unknown	ABS:	No
No. of Occupants	5:	1	Defects:	No
		Roadway	/ Information	
Trafficway			Alignment:	Straight
(Mediai	n):	Not divided	Slope:	Grade
No. of Lai	nes:	2	Speed Limit:	89 km/h
		Cluste	r Variables	
GV14:	01 No	avoidance actions		
GV64:	01 Go	ing straight		
GV65:	13 Th	is vehicle traveling off the ed	ge of the road on the right side	
GV66:	0 No	avoidance maneuver		

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

The subject vehicle was traveling southbound on a straight, dry, undivided, two-lane, asphalt roadway with a -4% slope. The driver reached for a package of chewing tobacco, steered right and departed the right roadway edge, striking the down turned end of a W-beam guardrail. The vehicle continued over the guardrail and impacted a tree with its right side. The road markings consisted of solid white edge lines and yellow center lines which were in new condition. There were no sight line restrictions or obstacles in the roadway prior to roadway departure which occurred during daylight hours. The causal factor was driver inattentive to driving task.



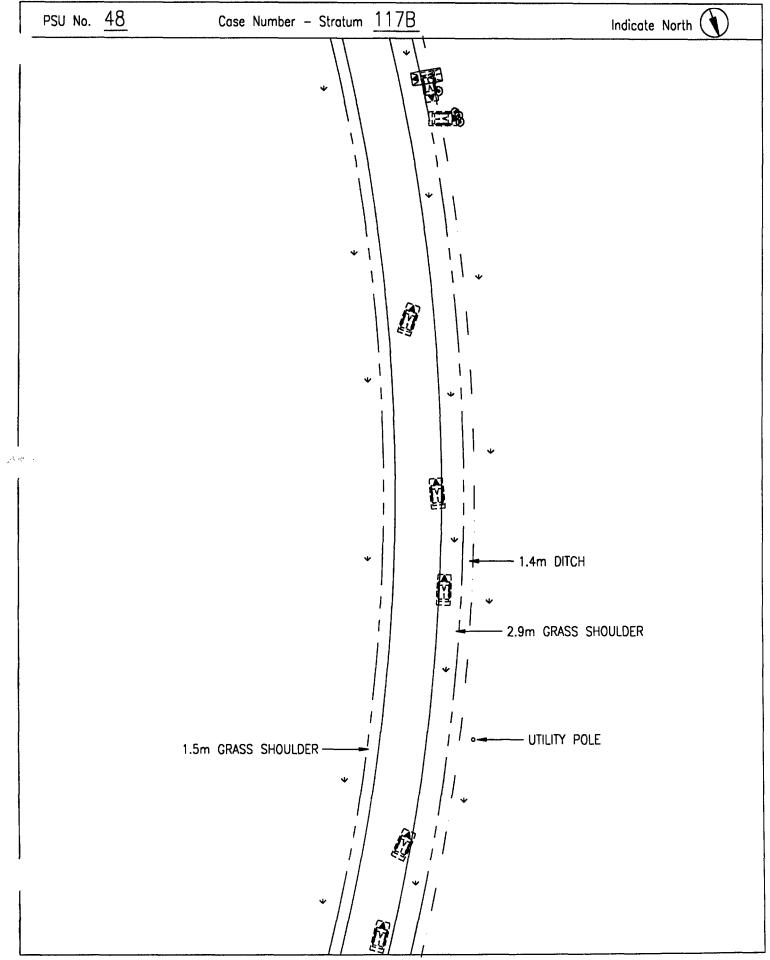


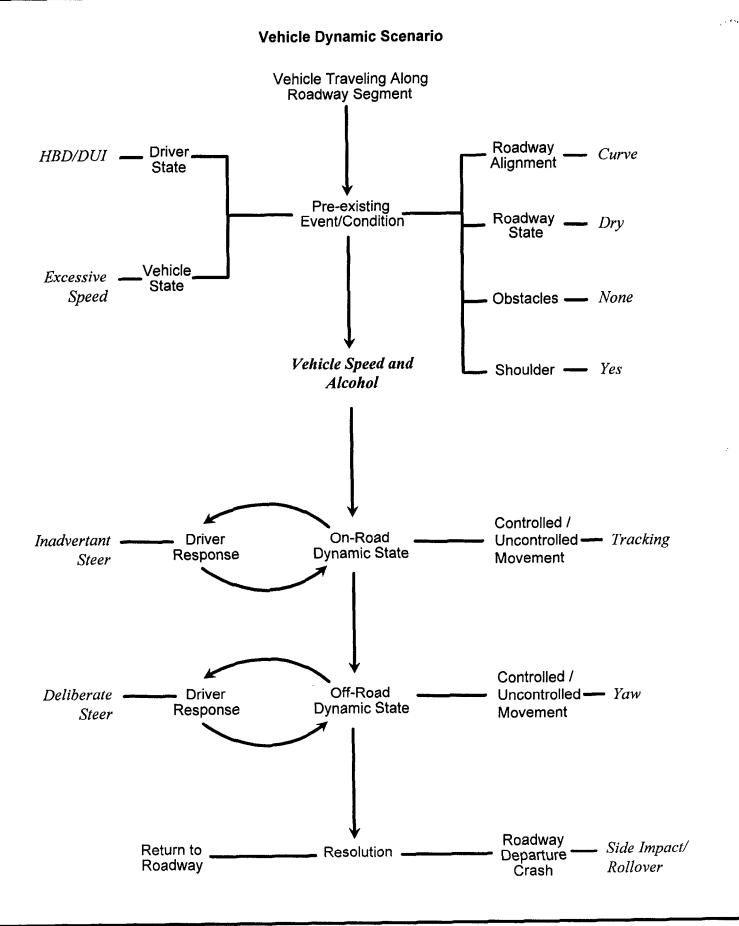
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

		General Accide	nt Information	
Date:		5-7-93	Weather:	Clear/Cloudy
Time:		1858	Surface Condition:	Dry
Accident Typ	e:	Control/Traction Loss	Lighting:	Daylight
Accident Sev	erity:	4 (K)	Land Use:	Rural
Driver/O	ccupa	nt Information	Vehicle Infor	rmation
Driver Age:		22	Year:	1976
Driver Sex:		Male	Vehicle Make:	Buick
Impairment:		Intoxicated (alcohol/drugs)	Vehicle Model:	LeSabre
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		3	Defects:	No
·····		Roadway In	formation	
Trafficway Ty	/pe		Alignment:	Curve Left
(Median):		Not divided	Slope:	Grade
No. of Lanes:		2	Speed Limit:	72 km/h
NO. Of Lanes				
NO. Of Lanes		Cluster V	ariables	
		Cluster V oidance actions	ariables	
GV14 : 01	No ave		ariables	
GV14: 01 GV64: 13	No ave	oidance actions		
GV14: 01 GV64: 13	No avo Negot This v	oidance actions iating a curve		

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

The subject vehicle was traveling southbound around a left hand curve on a dry, two-lane, undivided, asphalt roadway with a +2% slope. The vehicle departed the right roadway edge, traveled along the grassy shoulder and re-entered the roadway. It then departed the right side of the roadway and struck a tree with its left side plane and rolled over. There were no roadway edge lines or center lines present and no reflective delineators or roadway markers. There were no sight line restrictions or obstacles in the roadway prior to roadway departure which occurred during daylight hours. The driver was intoxicated (BAC=0.28) and traveling at 145 km/h (90 mph). The causal factor was driver lost control of the vehicle as the result of high speed in a curve with alcohol consumption as a contributing factor.





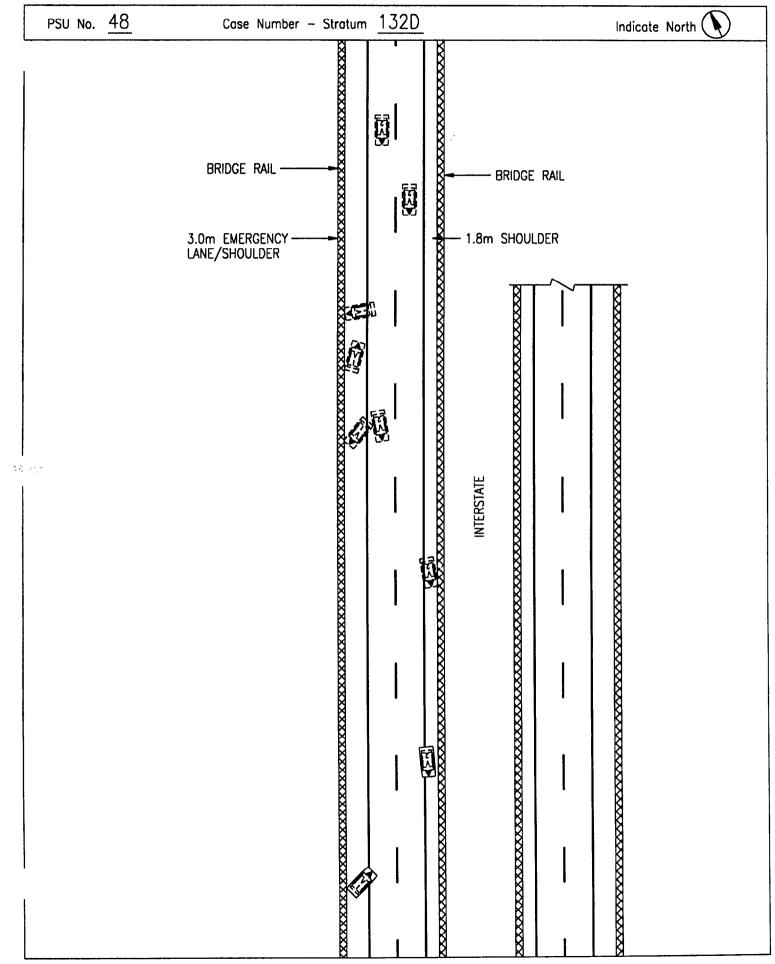
CAUSAL FACTOR:Vehicle FailureROADSIDE DEPARTURE:Right

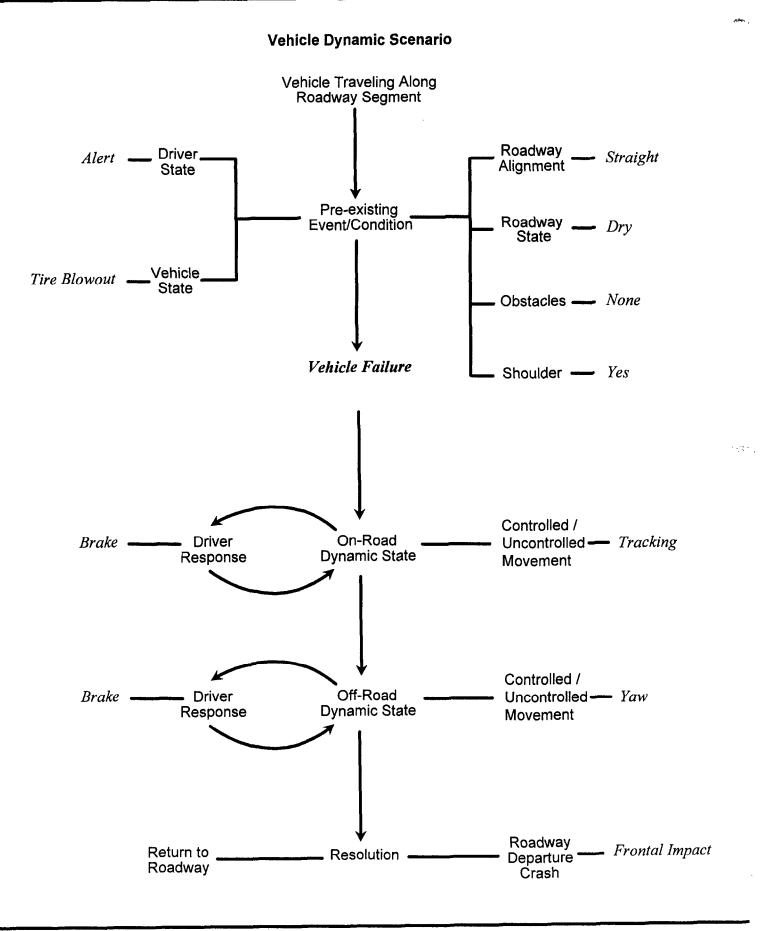
	General Accid	ent Information	
Date:	6-1-93	Weather:	Clear/Cloudy
Time:	1010	Surface Condition:	Dry
Accident Type	: Control/Traction Loss	Lighting:	Daylight
Accident Seve	rity: 3 (A)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Info	rmation
Driver Age:	46	Year:	1986
Driver Sex:	Female	Vehicle Make:	Lincoln
Impairment:	None	Vehicle Model:	Continental/ Town Car
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	9	Defects:	Tire Blowout
	Roadway	Information	
Trafficway Tyj		Alignment:	Straight
(Median):	Physical barrier	Slope:	Grade
No. of Lanes:	4	Speed Limit:	105 km/h
	Cluster	Variables	
GV14: 02	Braking (no lockup)		
	Braking (no lockup) Passing or overtaking another veh	icle	
GV64: 05			
GV64: 05	Passing or overtaking another veh		

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CAUSAL FACTOR:Vehicle FailureROADSIDE DEPARTURE:Right

The subject vehicle was traveling southbound on a dry, four-lane, divided, concrete roadway, with a -2% slope. The vehicle veered to the right when the right front tire experienced an "air out" event, departed the right roadway edge line, and struck a bridge rail with the right frontal plane. The vehicle rotated in a clockwise direction and subsequently struck another vehicle traveling in the same direction. It continued along the right emergency lane/shoulder striking the bridge rail a second time. The weather was clear during daylight hours with no roadway obstacles or hazards noted. The driver had the cruise control set and activated at 105 km/h (65 mph). The causal factor was vehicle failure involving a tire blow out.





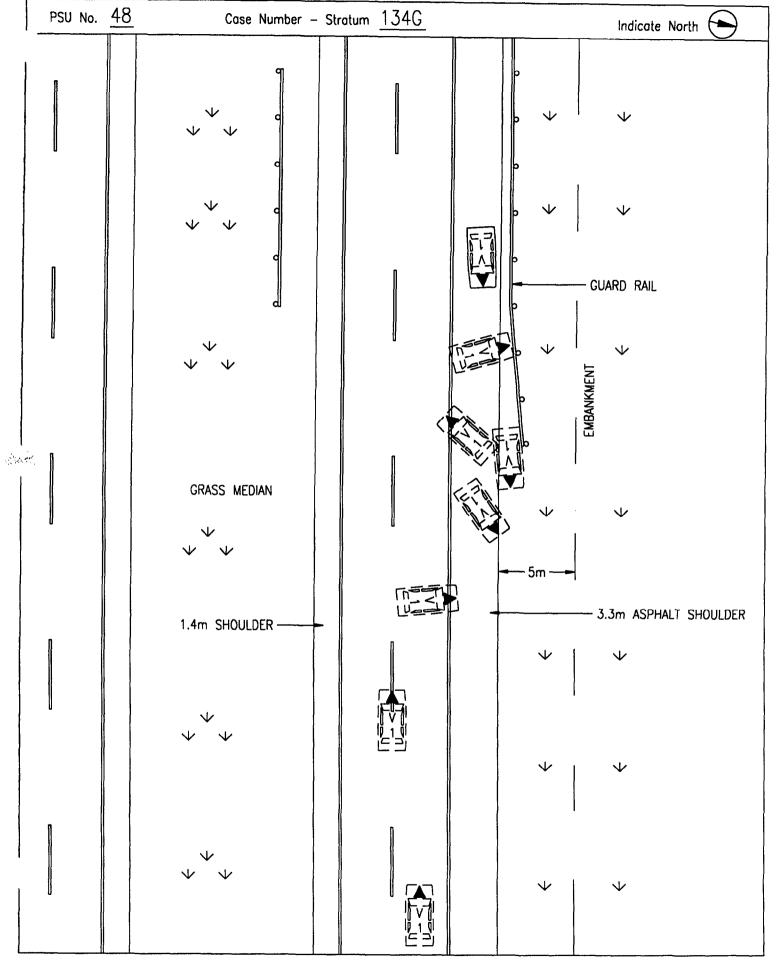
CAUSAL FACTOR:Lost Directional-ControlROADSIDE DEPARTURE:Right

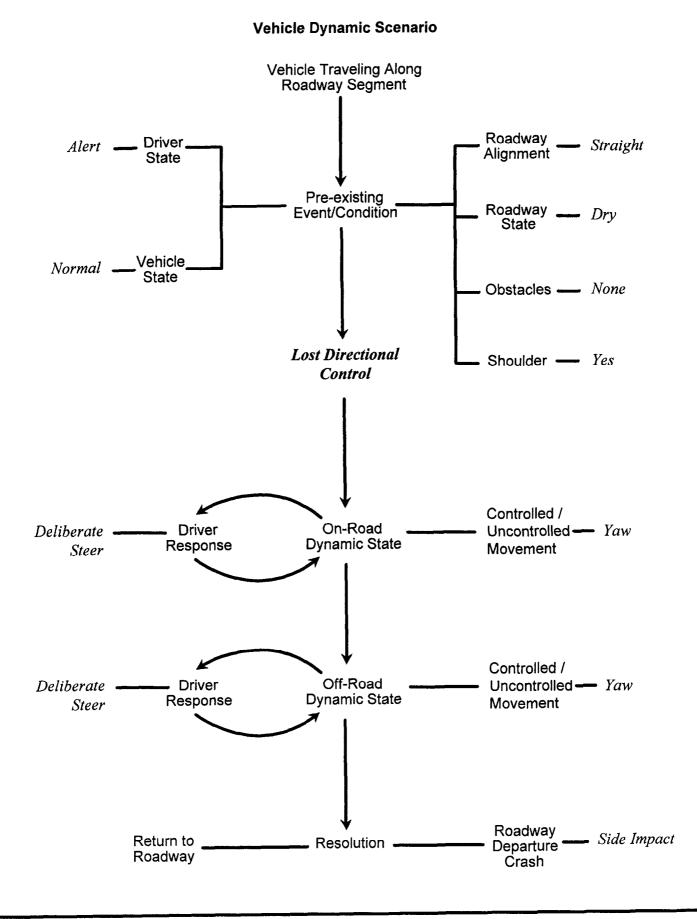
	General Accide	ent Information	
Date:	6-1-93	Weather:	Clear/Cloudy
Time:	1140,	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	Daylight
Accident Severity	; 0 (O)	Land Use:	Rural
Driver/Occu	pant Information	Vehicle Infor	rmation
Driver Age:	50	Year:	1992
Driver Sex:	Female	Vehicle Make:	Dodge
Impairment:	None	Vehicle Model:	Dakota
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	[°] Roadway Ir	nformation	
Trafficway Type		Alignment:	Straight
(Median):	Flush or curb	Slope:	Grade
No. of Lanes:	4	Speed Limit:	105 km/h
	Cluster V	ariables	
GV14: 01 No	avoidance actions		
GV64: 14 Ch	inging lanes		
GV65: 13 Thi	s vehicle traveling off the edge of	of the road on the right side	
GV66: 0 No	avoidance maneuver		
GV67: 0 No	avoidance maneuver		

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CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

The subject vehicle was traveling east on a dry, straight, four-lane, divided, asphalt interstate road with a -1% slope. The driver initiated a change to the adjacent left lane, decided to return to the same right lane, and lost control of the vehicle. The vehicle rotated clockwise and departed the right road edge, crossing the asphalt shoulder and striking a guardrail with the left rear side plane. The vehicle was redirected and came to final rest on the shoulder facing in the opposite direction. The accident occurred during daylight hours. There were no sight line limitations, roadway hazards, or obstacles. The causal factor was the driver attempted to change lanes and lost control of the vehicle.



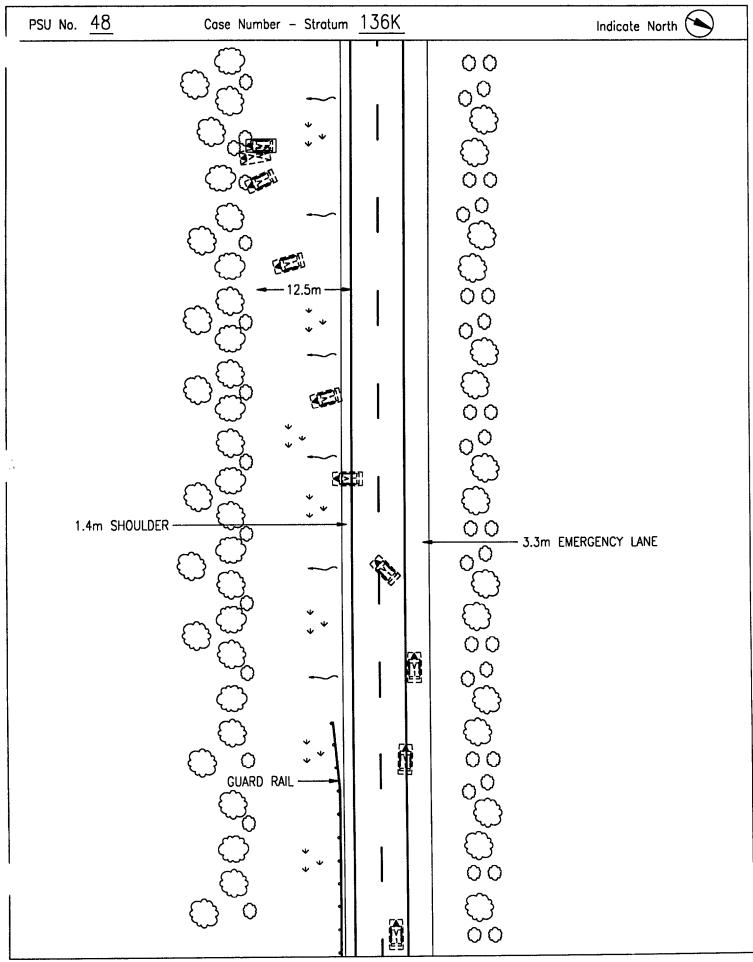


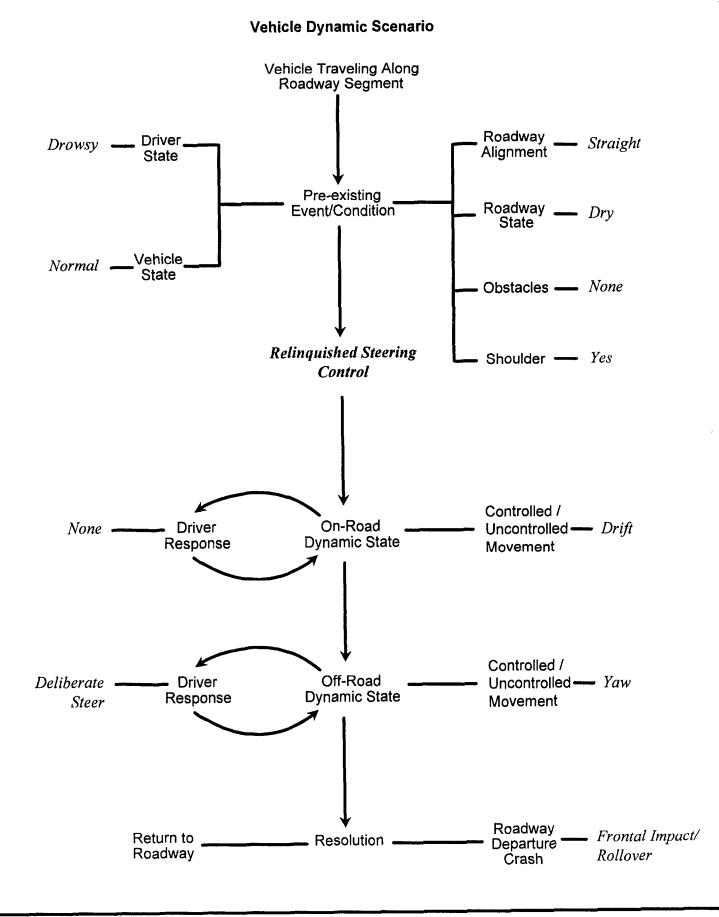
CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Right

	General Accide	ent Information	
Date:	6-3-93	Weather:	Clear/Cloudy
Time:	0330	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	None
Accident Severit	y: 3 (A)	Land Use:	Rural
Driver/Occu	pant Information	Vehicle Infor	rmation
Driver Age:	18	Year:	1987
Driver Sex:	Female	Vehicle Make:	Ford
Impairment:	Fell Asleep	Vehicle Model:	Ranger
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	2	Defects:	No
	Roadway I	nformation	
Trafficway Type		Alignment:	Straight
(Median):	Physical barrier	Slope:	Level
No. of Lanes:	4	Speed Limit:	105 km/h
	Cluster \	/ariables	
GV14: 01 No	avoidance actions		
GV64 : 01 Ge	oing straight		
GV65: 12 Th	is vehicle traveling off the edge	of the road on the left side	
GV66: 0 No	o avoidance maneuver		

CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Right

The subject vehicle was traveling westbound on a dry, level, four-lane, divided, asphalt interstate roadway. The driver fell asleep, departed the right road edge, and traveled a short distance on the asphalt shoulder. The driver awoke and over-steered to the left, crossing the two travel lanes, and departing the left side of the roadway in a counterclockwise rotation. The vehicle traveled down a -2% embankment cross slope, struck a tree, rolled over, and caught on fire. The roadway departure occurred during the evening hours with no overhead roadway illumination present. There were no sight line restrictions or roadway obstacles. The right roadway edge line was a solid white line in good condition. There were no reflective roadside delineators; however, reflective road markers were present along the lane lines. The causal factor was driver relinquished control of the vehicle due to falling asleep.





CAUSAL FACTOR: Lost Directional Control

Right

ROADSIDE DEPARTURE:

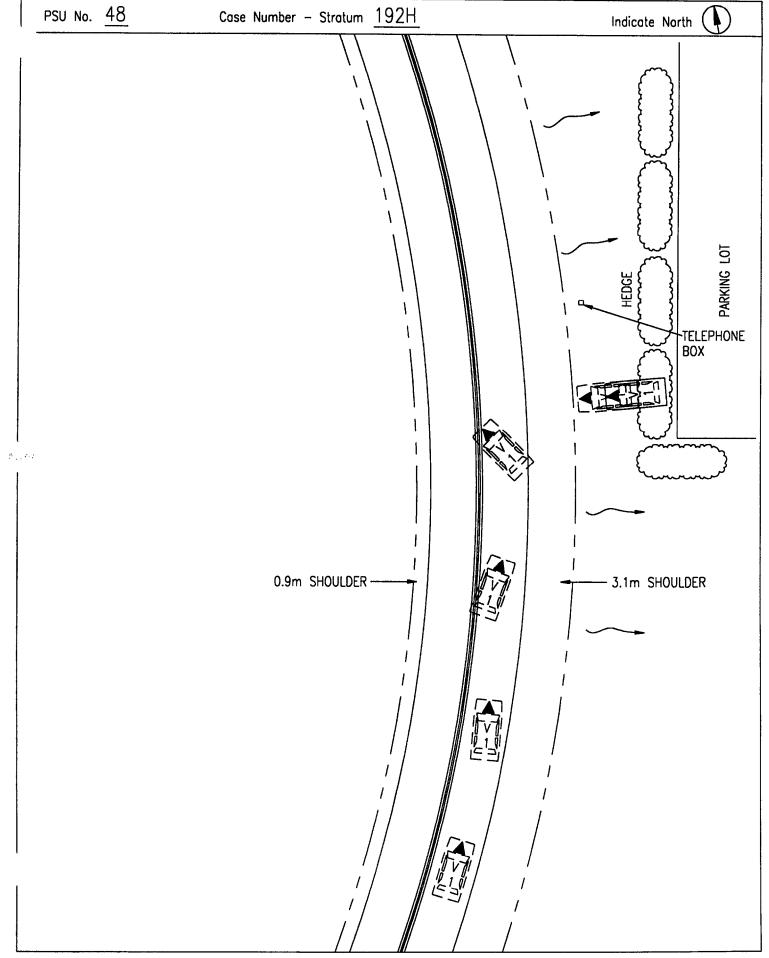
		General Accide	nt Information	
Date:		9-5-93	Weather:	Rain
Time:		1715	Surface Condition:	Wet
Accident	Туре:	Control/Traction Loss	Lighting:	Daylight
Accident	Severity:	0 (O)	Land Use:	Rural
Drive	er/Occup	pant Information	Vehicle Infor	mation
Driver Ag	e:	19	Year:	1979
Driver Se	x:	Female	Vehicle Make:	Chevrolet
Impairme	nt:	None	Vehicle Model:	Malibu/Chevelle
Familiarit with Road		Yes	ABS:	No
No. of Occupant	ts:	2	Defects:	No
		Roadway Ir	Information	
Trafficwa			Alignment:	Curve Left
(Media	nn):	Not divided	Slope:	Grade
No. of La	nnes:	2	Speed Limit:	56 km/h
		Cluster V	/ariables	
GV14:	07 Stee	ering right		
GV64:	13 Neg	otiating a curve		
GV65:	06 Thi	s vehicle loss of control due to t	raveling too fast for conditions	
GV66:	4 Ski	dding laterally - counterclockwi	se rotation	
		nicle departed roadway		

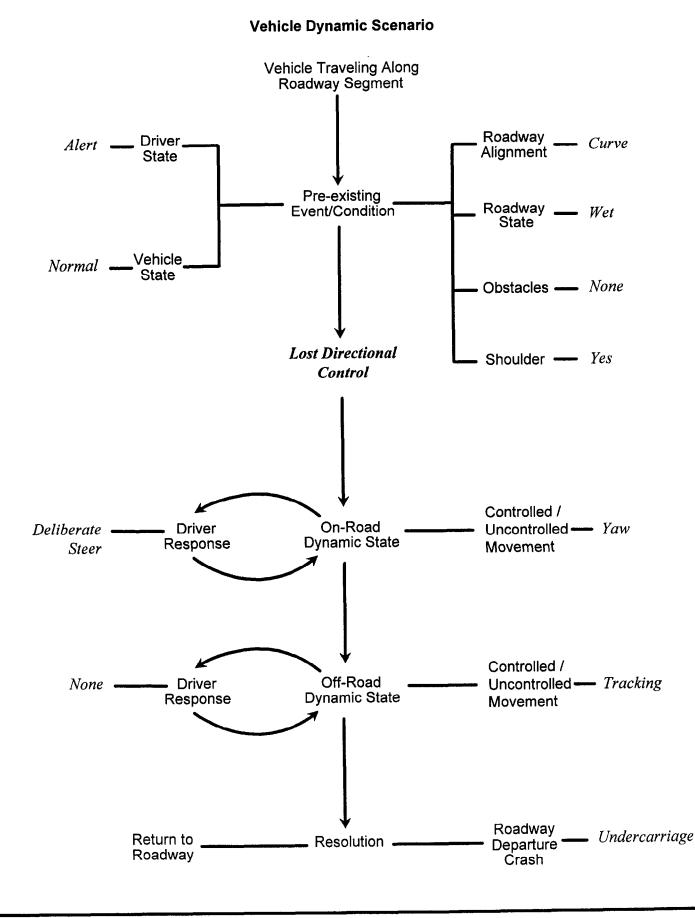
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CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

The subject vehicle was proceeding through rain in a northerly direction on a wet, two-lane, rural roadway and was negotiating a curve to the left with a -4% slope. The driver lost directional control on the wet surface, and after a series of overcorrections, the vehicle rotated counterclockwise and exited the right edge of the roadway, skidding backwards. The vehicle skidded down an embankment with a -10% slope and came to rest straddling a hedge located at the bottom of the embankment. Both edges of the roadway were delineated by edge lines in good condition, and lane separation was provided by full barrier center lines which were also in good condition. The only vehicle damage sustained during this sequence was a flat rear tire.



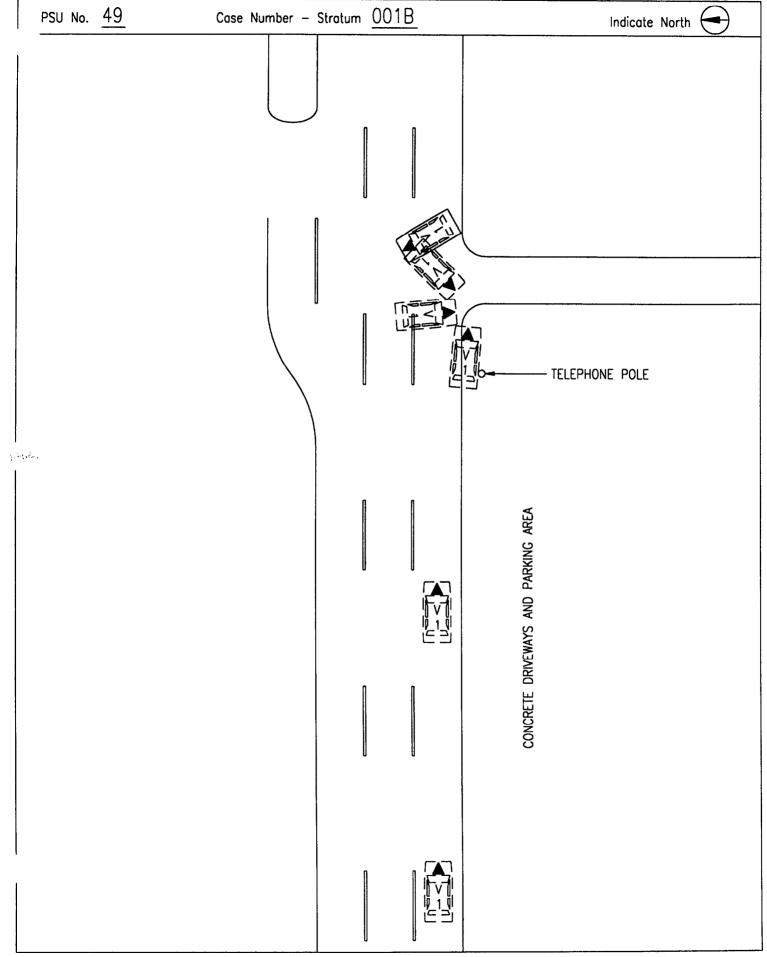


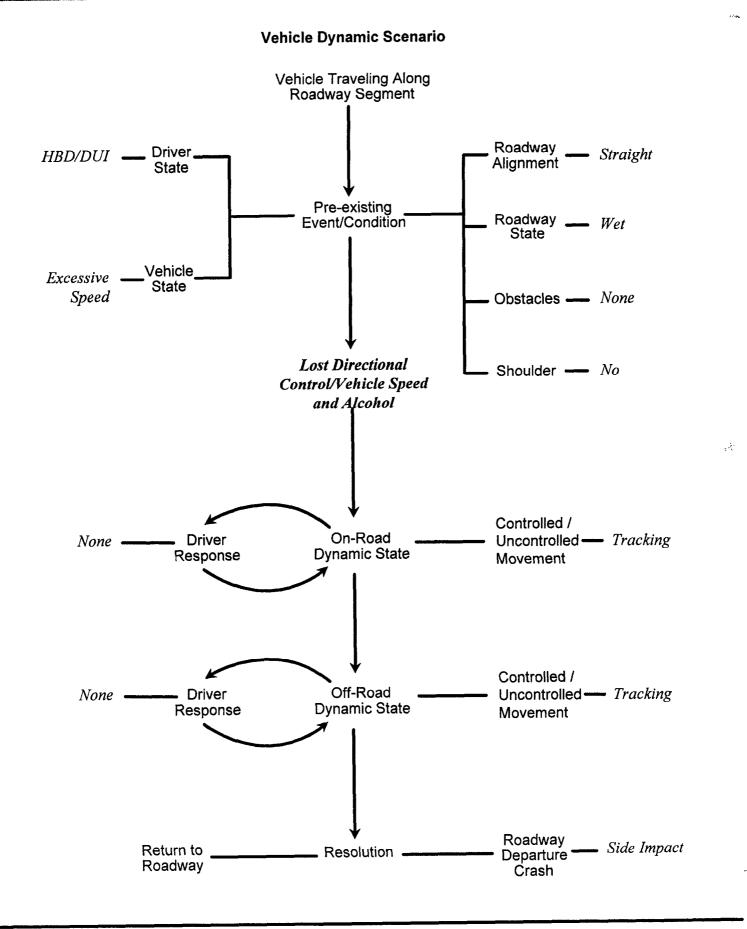
CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

	General Accide	nt Information	
Date:	1-7-93	Weather:	Rain
Time:	0025	Surface Condition:	Wet
Accident Type:	Control/Traction Loss	Lighting:	Artificial lighting
Accident Severity	: 4 (K)	Land Use:	Urban
Driver/Occu	pant Information	Vehicle Infor	rmation
Driver Age:	18	Year:	1979
Driver Sex:	Male	Vehicle Make:	Oldsmobile
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Cutlass
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	4	Defects:	No
	Roadway In	formation	
Trafficway Type		Alignment:	Straight
(Median):	Flush or curb	Slope:	Grade
No. of Lanes:	3	Speed Limit:	48 km/h
	Cluster V	ariables	
GV14: 01 No	avoidance actions		
GV64 : 01 Go	ng straight		
GV65 : 06 Th	s vehicle loss of control due to tr	aveling too fast for conditions	
GV66: 0 No	avoidance maneuver		
GV67: 0 No	avoidance maneuver		

CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

The subject vehicle was traveling through rain in an easterly direction in the first, eastbound travel lane of a wet, six-lane, divided roadway. As the vehicle traversed and exited a curve to the right and then entered a straight section with -3% slope, the subject driver lost directional control on the wet road surface. The vehicle exited the right edge of the roadway and sideswiped a utility pole located 0.9 m beyond the south edge of the roadway with its right side. The vehicle rotated clockwise off the utility pole and came to rest in the roadway, facing northwest. The driver was intoxicated and was exceeding the speed limit. The loss of control was related to the driver's intoxication, the curve, and to the vehicle's travel speed.



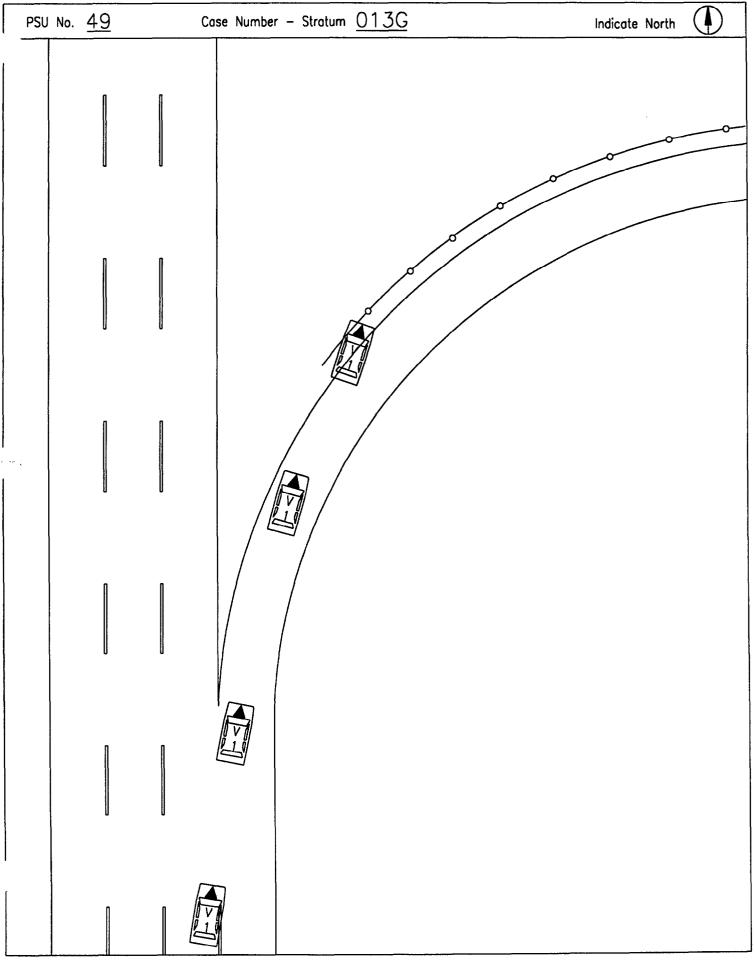


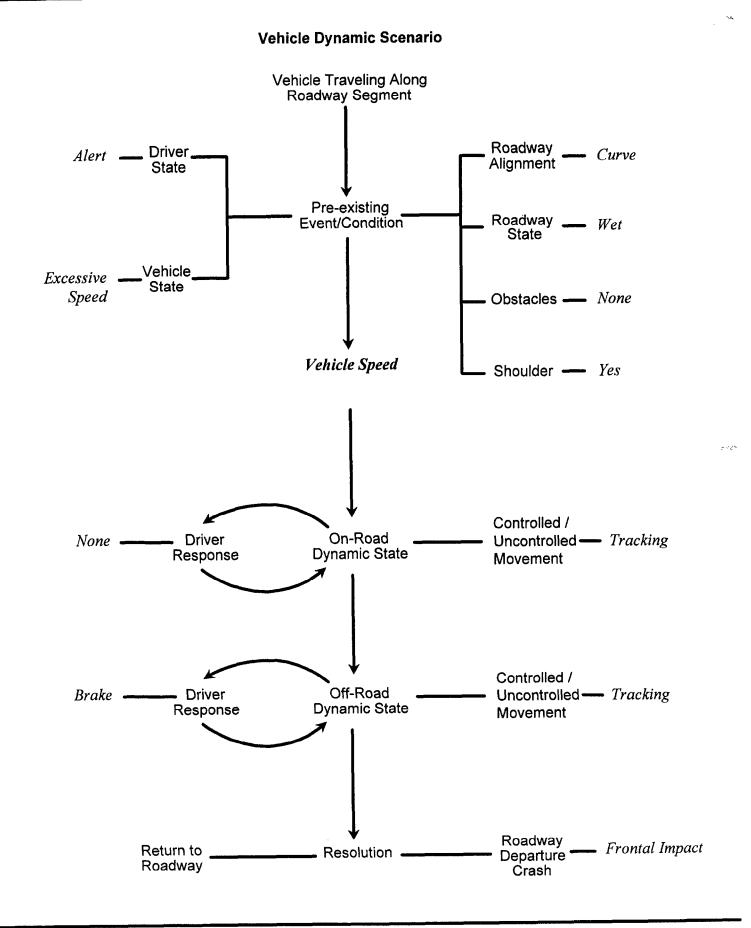
CAUSAL FACTOR:Vehicle Speed - OtherROADSIDE DEPARTURE:Left

		General Acc	ident Information	
Date:		1-3-93	Weather:	Clear/Cloudy
Time:		2035	Surface Condition:	Wet
Accident T	ype:	Drive Off Road	Lighting:	Artificial lighting
Accident S	everity:	0 (O)	Land Use:	Urban
Driver/	/Occupa	ant Information	Vehicle Info	rmation
Driver Age:		23	Year:	1993
Driver Sex:		Male	Vehicle Make:	Ford
Impairment		None	Vehicle Model:	Crown Victoria
Familiarity with Road:		No	ABS:	Yes
No. of Occupants:	•	1	Defects:	No
		Roadway	/ Information	
Trafficway			Alignment:	Curve Right
(Median)	:	Not divided	Slope:	Level
No. of Lane	es:	1	Speed Limit:	56 km/h
		Cluste	r Variables	······
GV14:	01 No a	voidance actions		
GV64:	13 Nego	tiating a curve		
GV65:	12 This	vehicle traveling off the ed	ge of the road on the left side	
GV66:	0 No a	voidance maneuver		
GV67:	0 Noa	voidance maneuver		

. Makiring CAUSAL FACTOR:Vehicle Speed - OtherROADSIDE DEPARTURE:Left

The subject vehicle was traveling through rain on a wet, one-lane, right curved, level, concrete, interstate exit ramp. The driver attempted to exit the interstate on a connecting loop ramp to another interstate, but was unfamiliar with the area and was traveling too fast. The vehicle departed the left road edge, and struck a guardrail. The roadway departure occurred during evening hours, but the ramp was illuminated by overhead lights. The left road edge was defined by a solid yellow line and the right road edge was defined by a solid white line. The causal factor was vehicle speed to fast for conditions and driver unfamiliarity with the roadway.





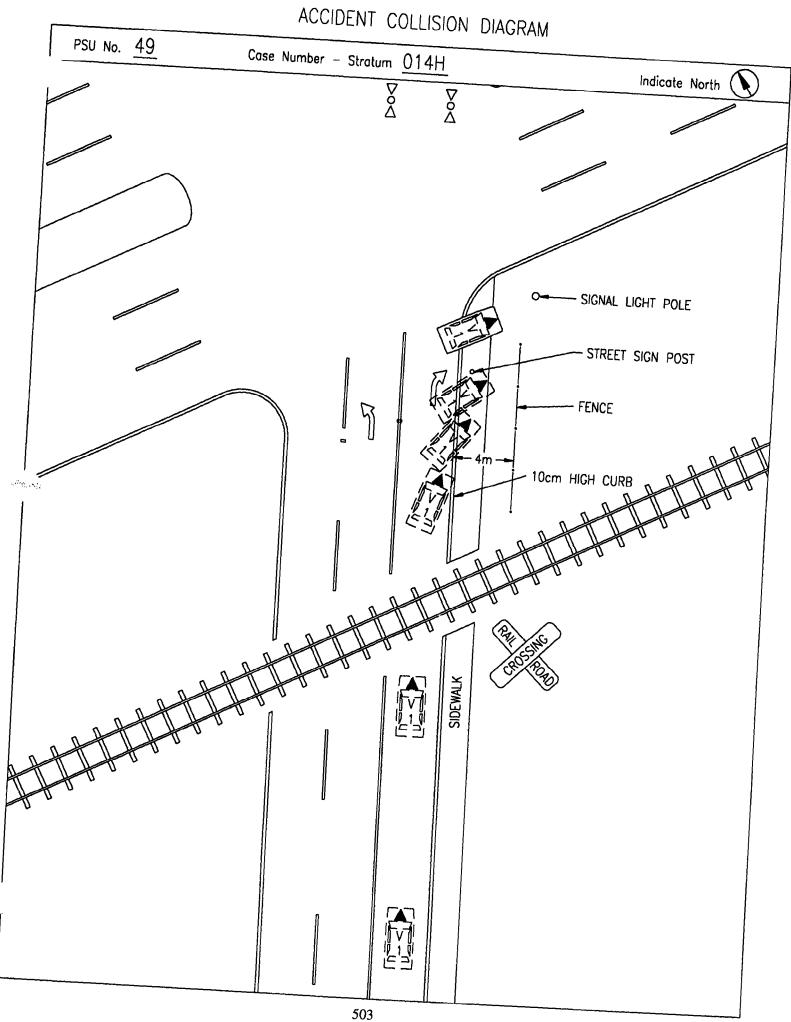
CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

		General Accide	nt Information	
Date:		1-1-93	Weather:	Rain
Time:		2326	Surface Condition:	Ice/Snow
Accident	Туре:	Control/Traction Loss	Lighting:	Artificial lighting
Accident	Severity.	: 0 (O)	Land Use:	Urban
Drive	er/Occup	pant Information	Vehicle Infor	mation
Driver Ag	je:	47	Year:	1968
Driver Se	x:	Male	Vehicle Make:	Ford
Impairme		None	Vehicle Model:	Mustang/ Mustang II
Familiarit with Road		Unknown	ABS:	No
No. of Occupan	ts:	3	Defects:	No
		Roadway In	formation	·····
Trafficwa			Alignment:	Straight
(Media	nn):	Not divided	Slope:	Grade
No. of La	anes:	3	Speed Limit:	48 km/h
		Cluster V	ariables	
GV14:	01 No :	avoidance actions		
GV64:	02 Slov	wing or stopping in traffic lane		
GV65:	05 This	s vehicle loss of control due to po	oor road conditions	
GV66:	0 No	avoidance maneuver		
GV67:	0 No	avoidance maneuver		

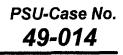
14 - 4

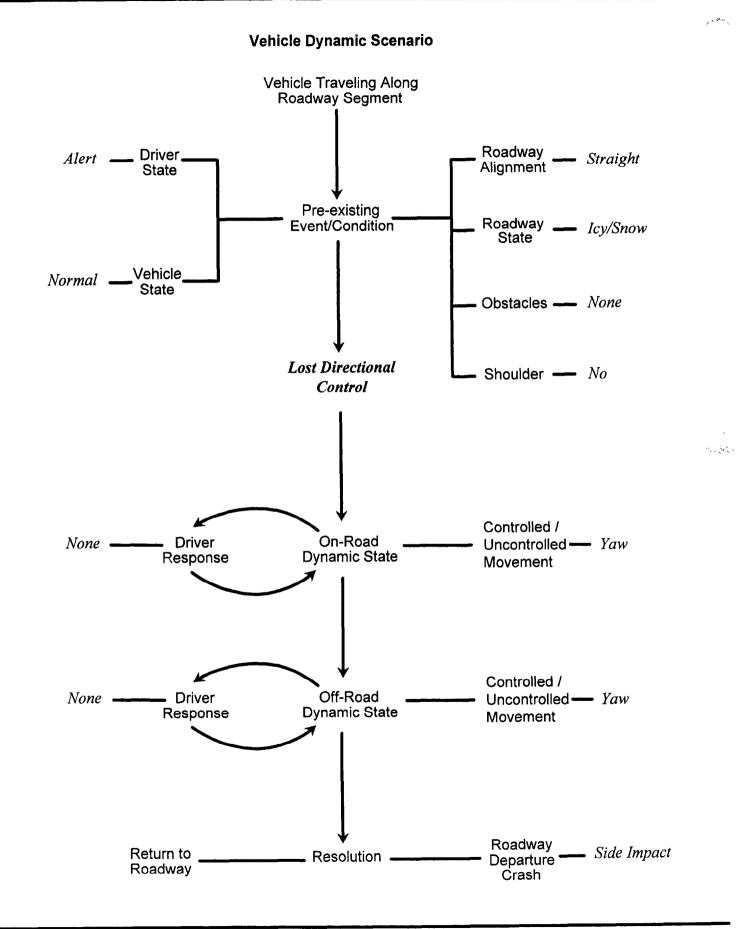
CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

The subject vehicle was traveling north on an icy, three-lane, undivided, concrete roadway with a -2% slope. The driver attempted to avoid another vehicle by applying the brakes, skidded on the road surface, departed the right side of the roadway by jumping the 10 cm high curb, and struck a street sign located on the sidewalk with the left side plane. The roadway was illuminated by overhead street lights and there were no sight line restrictions; however, the driver crossed a set of railroad tracks just prior to the roadway departure which occurred during evening hours. The causal factor was driver lost directional control on an icy road surface.



Scale: 1/250





CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE:

Left

	General Acci	dent Information	
Date:	1-4-93	Weather:	Clear/Cloudy
Time:	2020	Surface Condition:	Dry
Accident Type:	Avoid Collision	Lighting:	Artificial lighting
Accident Severity:	2 (B)	Land Use:	Rural
Driver/Occup	pant Information	Vehicle Infor	mation
Driver Age:	20	Year:	1992
Driver Sex:	Female	Vehicle Make:	Saturn
Impairment:	None	Vehicle Model:	SL
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	4	Defects:	No
	Roadway	Information	
Trafficway Type		Alignment:	Straight
(Median):	Physical barrier	Slope:	Grade
No. of Lanes:	2	Speed Limit:	89 km/h
<u></u>	Cluster	Variables	· · · · · · · · · · · · · · · · · · ·
GV14: 08 Bral	king and steering left		
GV64: 01 Goi	ng straight		
GV65: 60 Oth	er vehicle encroaching into la	ne from adjacent lane (same direct	tion) over left lane li
GV66: 1 Trae	cking		
GV67: 4 Veh	icle departed roadway		

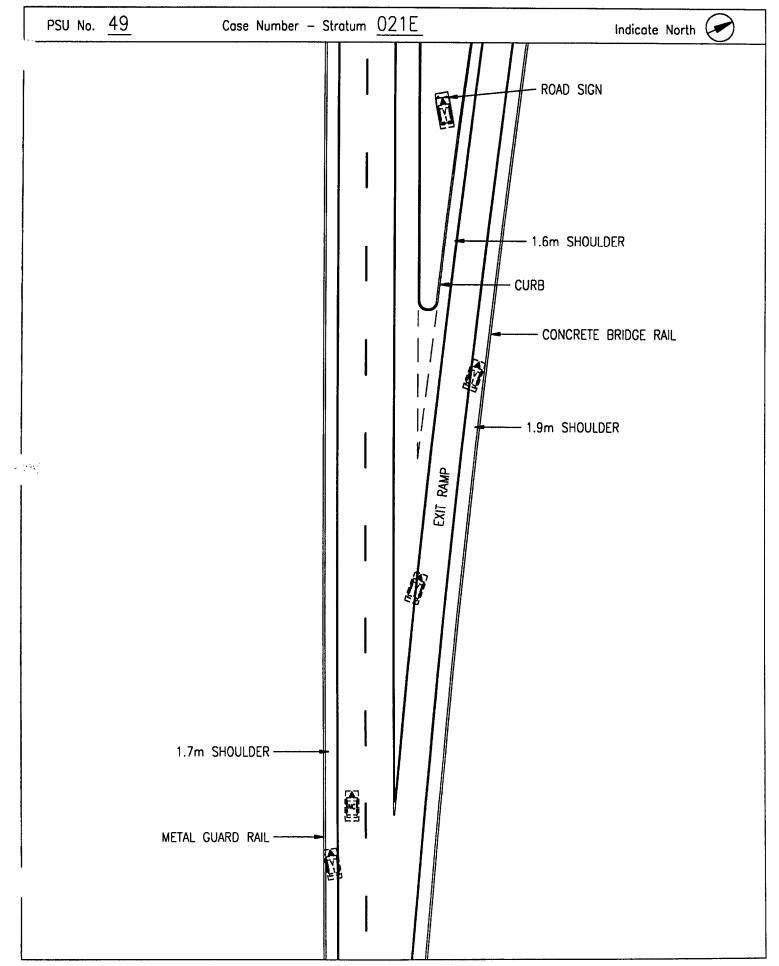
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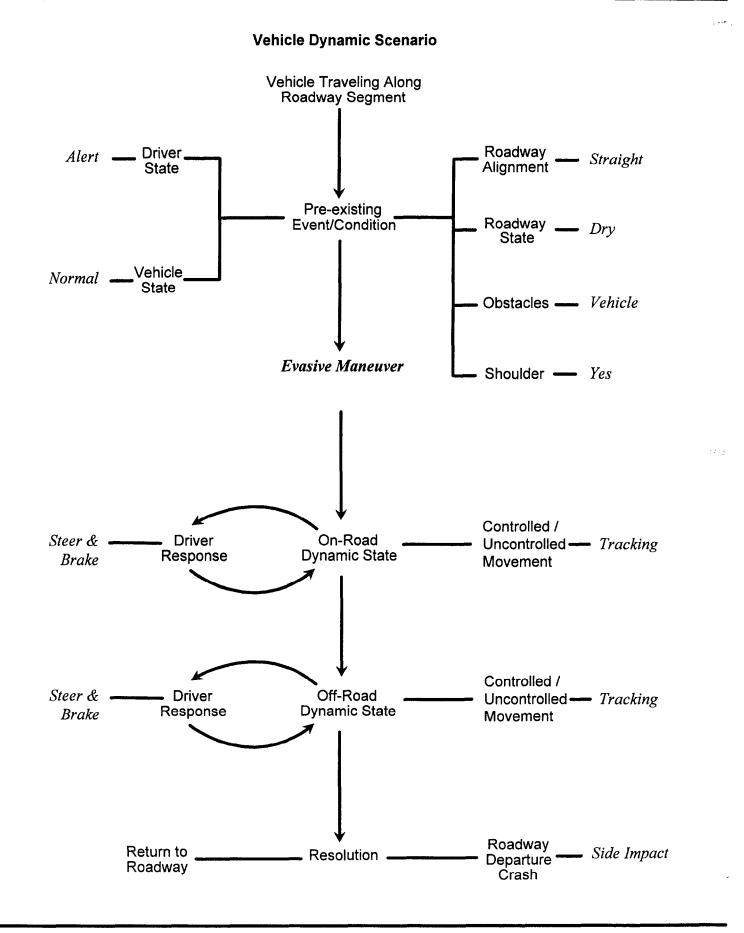
CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Left

The subject vehicle was proceeding in a westerly direction in the second lane of a four-lane, divided expressway. A non-contact vehicle steered left and entered the second westbound lane in front of the subject vehicle. The subject driver steered left to avoid this non-contact vehicle and exited the left edge of the roadway. The left front fender and left rear quarter panel then struck the guardrail located at the edge of the south shoulder. The subject vehicle deflected to its right, crossed the roadway again, and then struck a bridge rail located at the north edge of the adjoining exit ramp. It then continued on and was involved in a frontal impact with a sign located in the gore area between the roadway and the exit ramp.





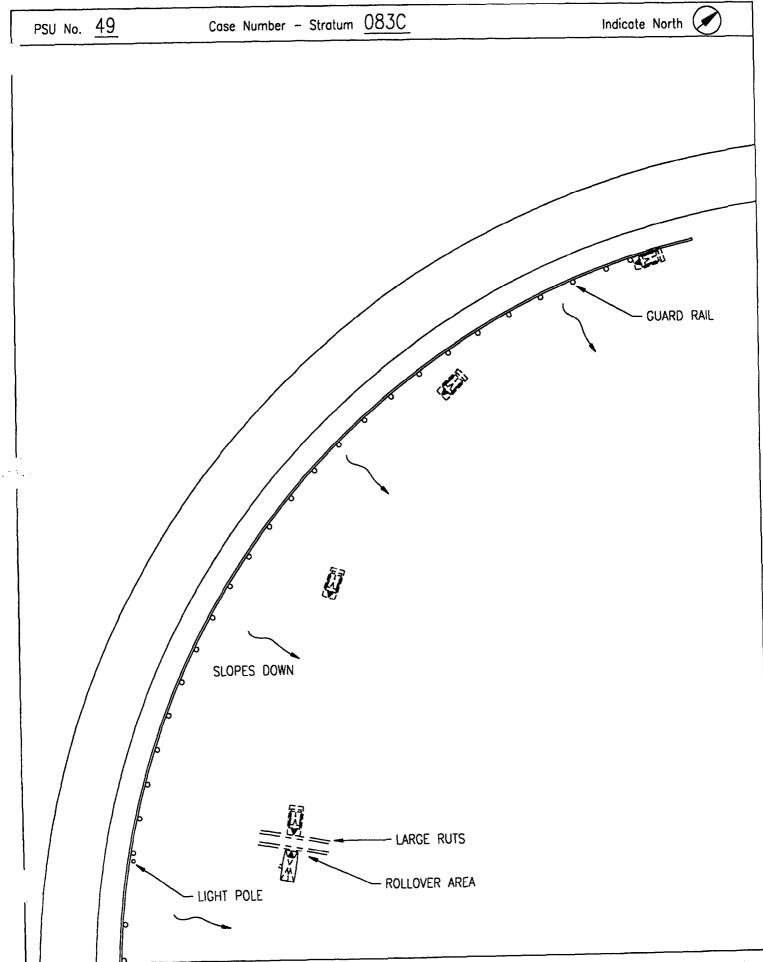
CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Left

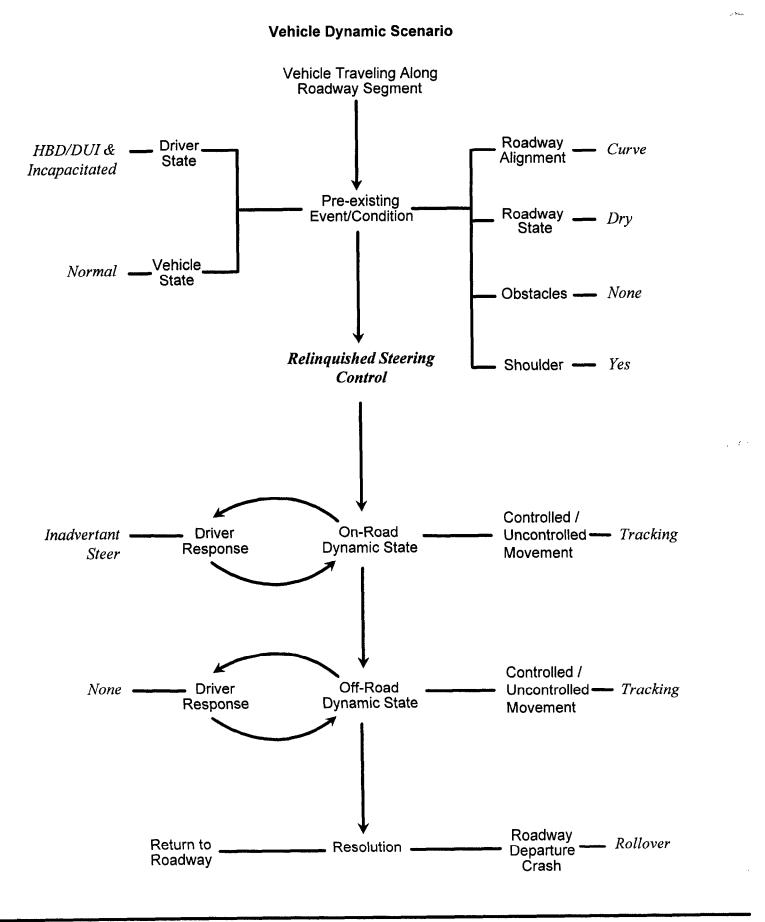
		General Acci	dent Information	
Date:		4-5-93	Weather:	Clear/Cloudy
Time:		0645	Surface Condition:	Dry
Accident Ty	vpe:	Drive Off Road	Lighting:	Daylight
Accident Se	everity:	3 (A)	Land Use:	Rural
Driver/	Occup	ant Information	Vehicle Info	rmation
Driver Age:		25	Year:	1987
Driver Sex:		Male	Vehicle Make:	Nissan/Datsun
Impairment.	;	Intoxicated (alcohol/drugs)	Vehicle Model:	Stanza
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		1	Defects:	No
		Roadway	Information	- <u></u>
Trafficway T			Alignment:	Curve Left
(Median)	:	Flush or curb	Slope:	Grade
No. of Lane	es:	2	Speed Limit:	89 km/h
		Cluster	Variables	
GV14: ()1 No a	voidance actions		
GV64: ()1 Goin	g straight		
GV65:	12 This	vehicle traveling off the edg	e of the road on the left side	
GV66: () No a	voidance maneuver		

 \mathcal{A}

CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a southerly direction on a two-lane ramp that connected two interstate roadways. The vehicle drifted off the left edge of the roadway while traversing a curve to the left. It then ramped over the turned down end of W-section guardrail, traveled an additional 90 m, ran through a deep rut, and then flipped end-over-end. The vehicle came to rest on its top, facing in a northerly direction. The driver was intoxicated (BAC = 0.16).





CAUSAL FACTOR: ROADSIDE DEPARTURE:

Lost Directional Control

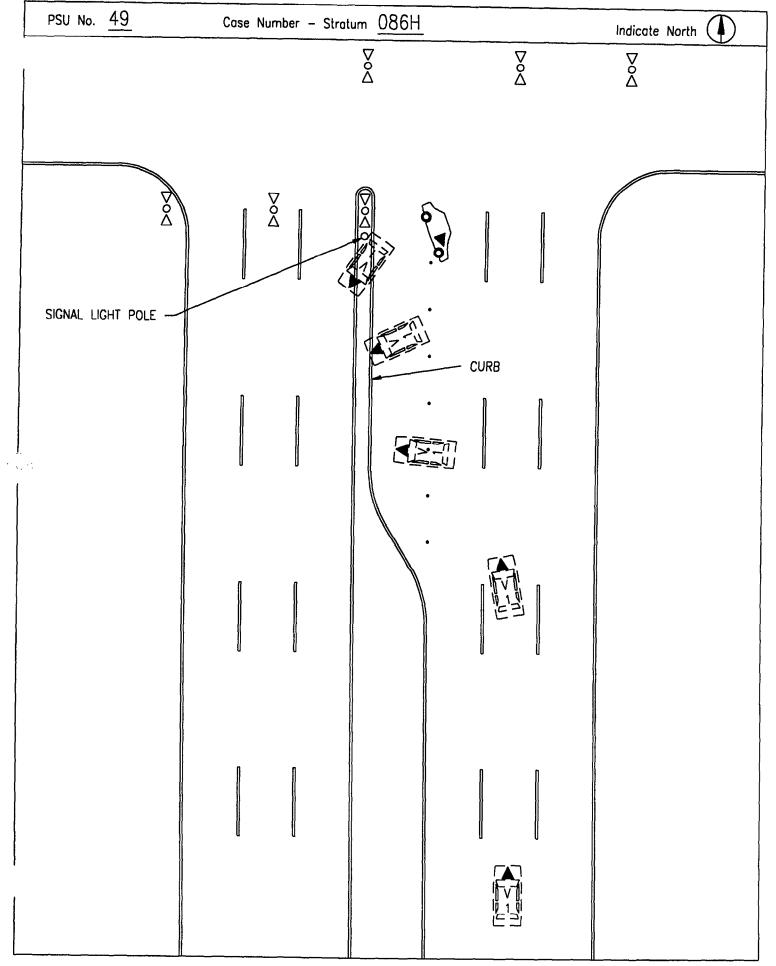
Left

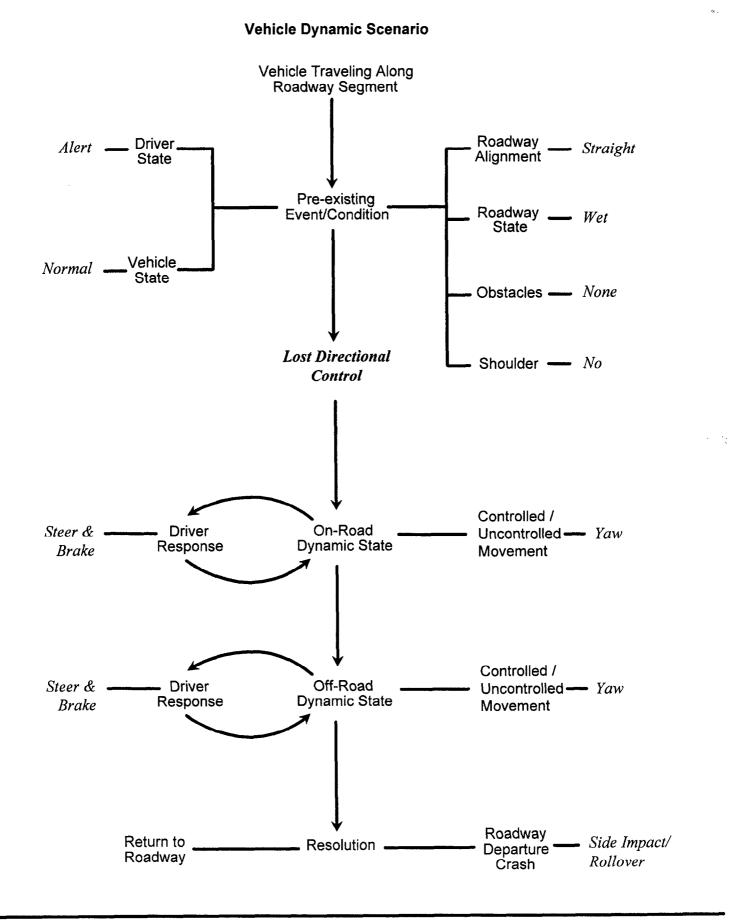
	General Accide	nt Information	
Date:	4-4-93	Weather:	Rain
Time:	0550	Surface Condition:	Wet
Accident Type:	Control/Traction Loss	Lighting:	Daylight
Accident Severity	<i>r:</i> 1 (C)	Land Use:	Urban
Driver/Occu	pant Information	Vehicle Infor	mation
Driver Age:	25	Year:	1984
Driver Sex:	Male	Vehicle Make:	Nissan/Datsun
Impairment:	None	Vehicle Model:	Pickup
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway In	formation	
Trafficway Type (Median):	Flush or curb	Alignment: Slope:	Straight Grade
No. of Lanes:	4	Speed Limit:	56 km/h
	Cluster V	ariables	
GV14: 08 Br	aking and steering left		
GV64: 02 Slo	owing or stopping in traffic lane		
GV65: 06 Th	is vehicle loss of control due to t	raveling too fast for conditions	
GV66: 4 Sk	idding laterally - counterclockwi	se rotation	
GV67: 4 Ve	ehicle departed roadway		

1200

CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Left

The subject vehicle was traveling in the second northbound travel lane on a wet, seven-lane, divided, urban, concrete, roadway with a negative slope. As the vehicle approached an intersection, the traffic signal changed to red for northbound traffic. The driver braked heavily causing the vehicle to rotate counterclockwise. The vehicle skidded off the roadway to the left in a broadside skid and struck a traffic signal standard located in the median with the right rear portion of its pickup box. The vehicle rotated counterclockwise around the pole, re-entered the northbound lanes and rolled onto its left side and came to rest facing in a south southeasterly direction. The roadway had broken white lane lines and both northbound lanes were bounded by curbs.





CAUSAL FACTOR: Vehicle Speed - Excessive

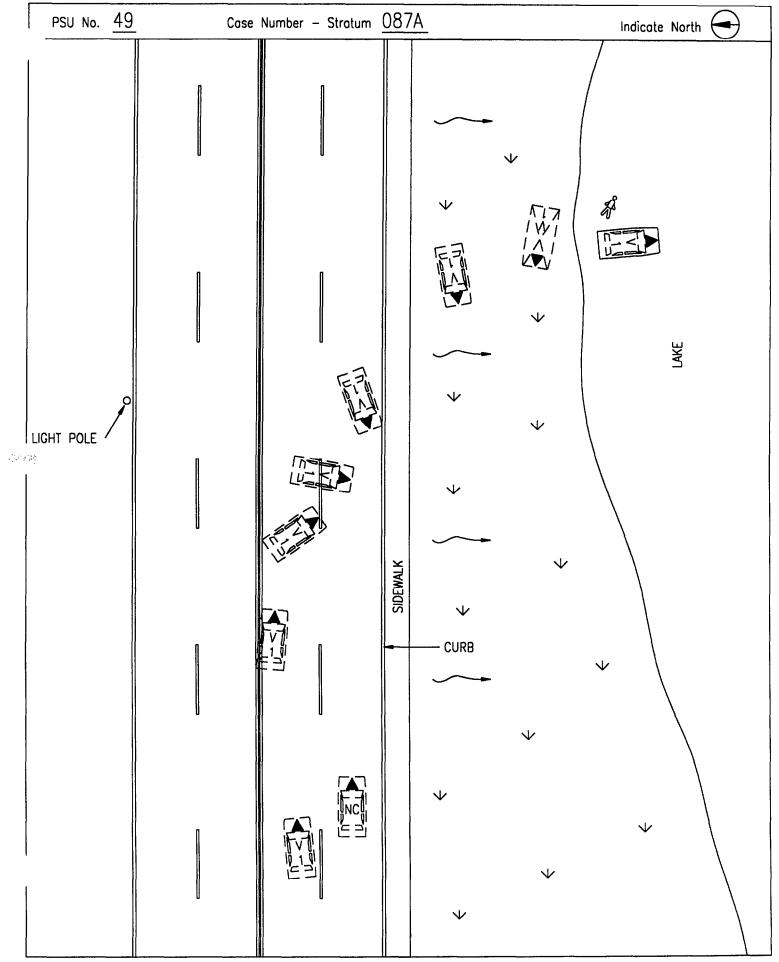
Right

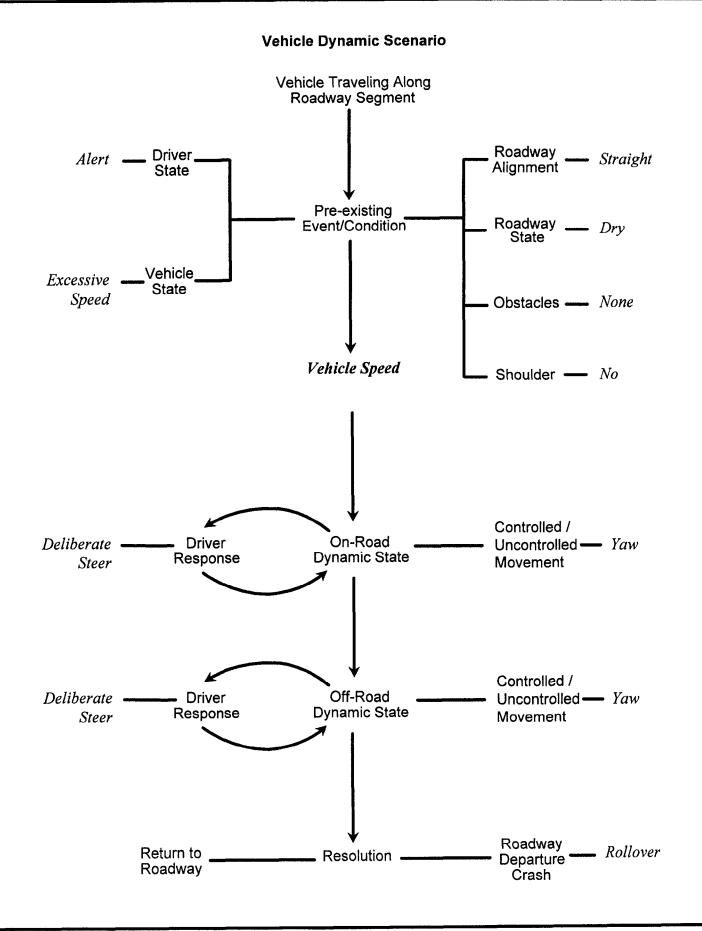
ROADSIDE DEPARTURE:

······································	General Accide	nt Information	
Date:	4-3-93	Weather:	Clear/Cloudy
Time:	0155	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	Artificial lighting
Accident Severi	ty: 4 (K)	Land Use:	Urban
Driver/Occ	upant Information	Vehicle Infor	rmation
Driver Age:	41	Year:	1989
Driver Sex:	Male	Vehicle Make:	Chevrolet
Impairment:	None	Vehicle Model:	S-10, T-10
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	2	Defects:	No
	Roadway In	formation	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	4	Speed Limit:	48 km/h
	Cluster V	ariables	
GV14: 07 S	Steering right		
GV64: 01 (Going straight		
GV65: 06 1	This vehicle loss of control due to the	raveling too fast for conditions	
GV66: 3 S	Skidding laterally - clockwise rotati	on	
GV67: 4 V	Vehicle departed roadway		

CAUSAL FACTOR:Vehicle Speed - ExcessiveROADSIDE DEPARTURE:Right

The subject vehicle was traveling in the first eastbound travel lane on a dry, four-lane, urban, asphalt, roadway with a negative slope. The driver moved into the second eastbound lane to pass a slower moving vehicle. After passing the non-contact vehicle, the driver attempted to return to the first eastbound lane, lost directional control, yawed in a clockwise direction, and entered a broadside skid. The vehicle exited the right edge of the roadway, striking and mounting the south curb line. As the vehicle skidded down a negative-sloped embankment beyond the south sidewalk, it rolled side-over-side to the left and came to rest on its wheels in a lake, facing in a southerly direction. The right front passenger was ejected during the rollover sequence, landed in the lake and drowned. The roadway was marked with lane lines, full barrier center lines, and was lighted. The investigating officer noted that the driver was traveling at an excessive speed.





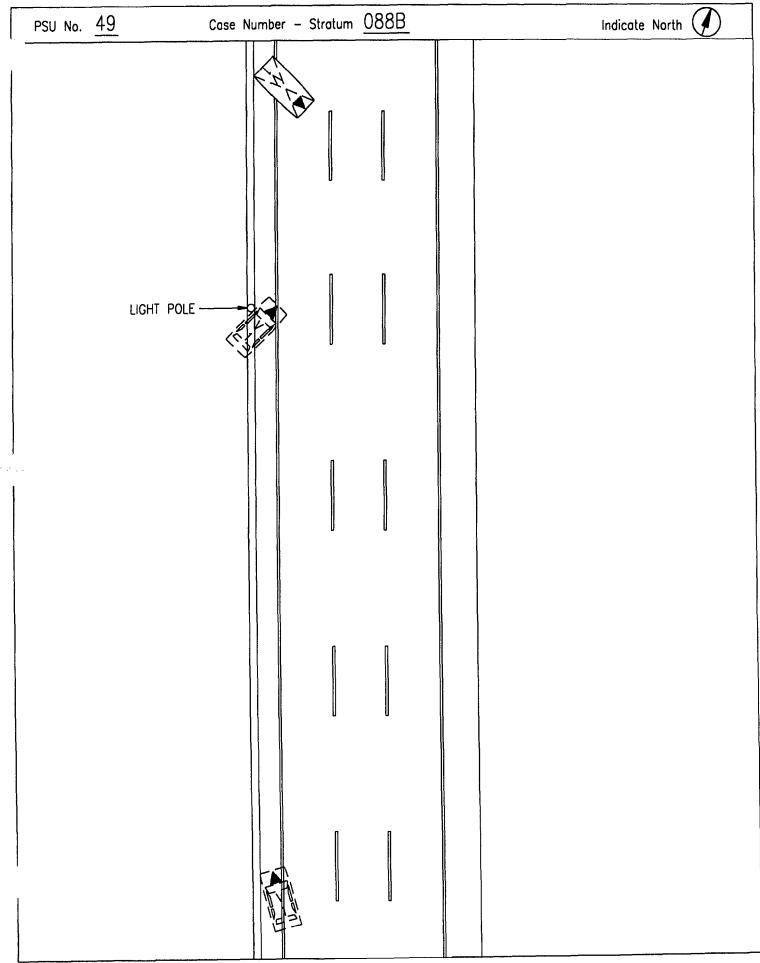
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

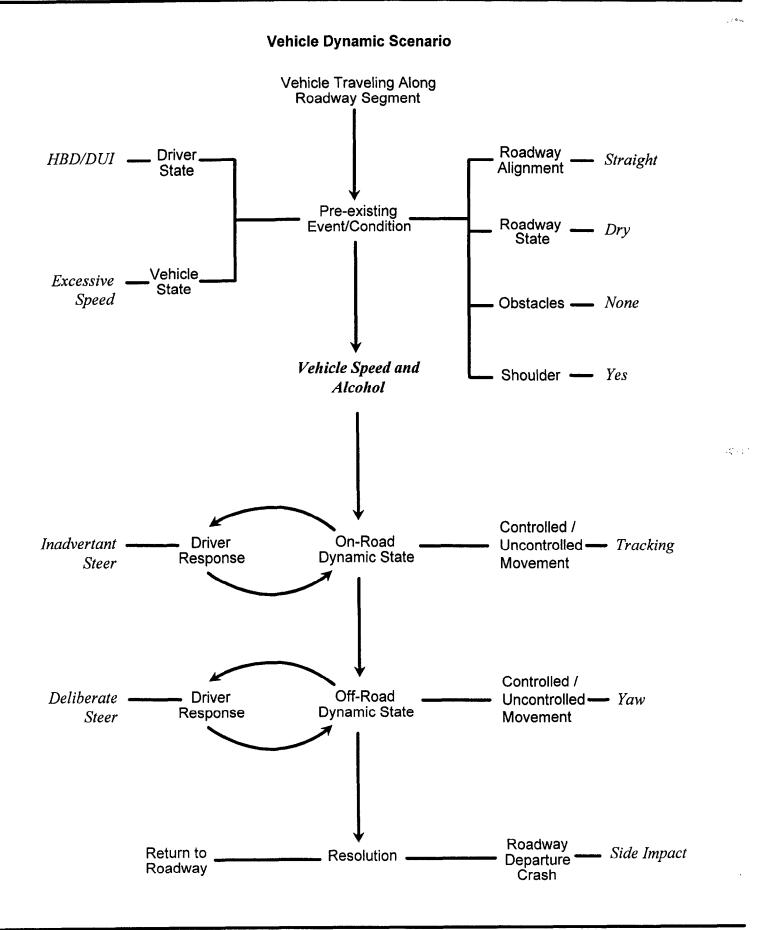
		General Accide	nt Information	
Date:		4-2-93	Weather:	Clear/Cloudy
Time:		0156	Surface Condition:	Dry
Accident 1	Гуре:	Control/Traction Loss	Lighting:	Artificial lighting
Accident S	Severity:	4 (K)	Land Use:	Urban
Drive	r/Occup	ant Information	Vehicle Infor	mation
Driver Age		19	Year:	1981
Driver Sex	:	Male	Vehicle Make:	Honda
Impairment:		Intoxicated (alcohol/drugs)	Vehicle Model:	Prelude
Familiarity with Road		Unknown	ABS:	No
No. of Occupants	s:	3	Defects:	No
·····		Roadway In	formation	
Trafficway			Alignment:	Straight
(Median	-	Physical barrier	Slope:	Grade
No. of Lar	ies:	3	Speed Limit:	89 km/h
		Cluster V	ariables	
GV14:	99 Unkr	lown		
GV64:	01 Goin	g straight		
GV65:	06 This	vehicle loss of control due to t	raveling too fast for conditions	
GV66:	9 Precr	ash stability unknown		
GV67:	9 Direc	tional consequences unknown		

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CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling in the third northbound lane of a six-lane, divided roadway. The driver lost directional control of the vehicle which struck a concrete median barrier with its left front corner. The vehicle overrode the barrier and slid along the top of the barrier with its left side leading and rotated approximately 80 degrees clockwise to the vehicle's trajectory. The left side of the vehicle then struck a light standard mounted on top of the barrier. The vehicle split into two sections and came to rest straddling the west edge line of the roadway, upside down and facing in an easterly direction. The vehicle caught on fire and burned after coming to rest. The driver was intoxicated and traveling at an excessive speed.



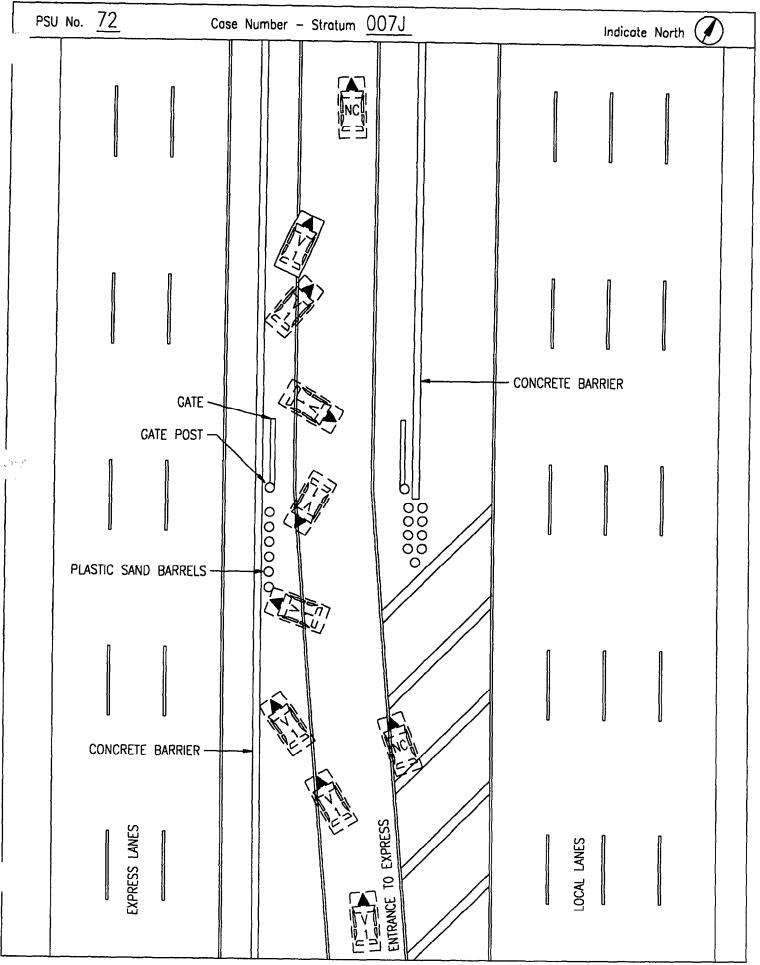


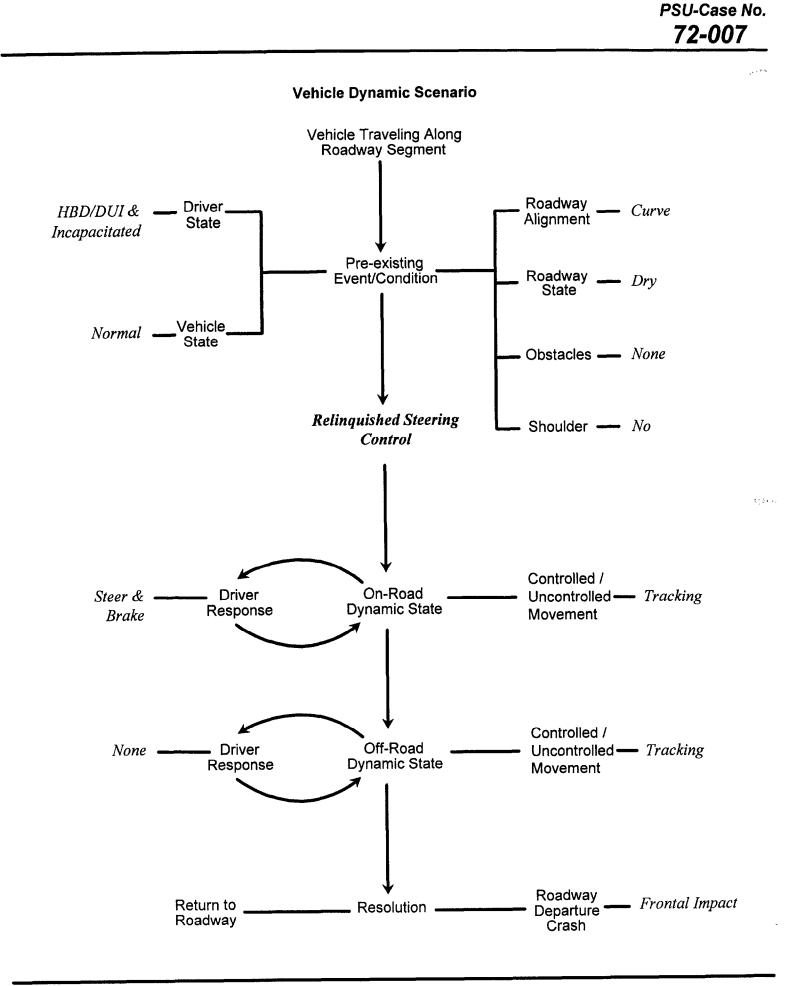
Calspan Corporation Carnegie Mellon University CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Left

	General Acci	dent Information	
Date:	1-6-93	Weather:	Clear/Cloudy
Time:	1830	Surface Condition:	Dry
Accident Type:	Avoid Collision	Lighting:	Artificial lighting
Accident Severity:	3 (A)	Land Use:	Urban
Driver/Occup	ant Information	Vehicle Info	rmation
Driver Age:	51	Year:	1991
Driver Sex:	Male	Vehicle Make:	Chevrolet
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	S-10, T-10
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Type		Alignment:	Curve Right
(Median):	Physical barrier	Slope:	Grade
No. of Lanes:	1	Speed Limit:	89 km/h
	Cluster	Variables	· · · · · · · · · · · · · · · · · · ·
GV14: 08 Brak	ing and steering left		
GV64 : 15 Mer	ging		
GV65: 74 Othe	er vehicle encroaching into la	me from entrance to limited access	highway
GV66: 4 Skid	lding laterally - counterclock	wise rotation	
Stor. 4 Brie			

CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Left

The subject vehicle was proceeding in a northerly direction in the fourth lane of a four-lane expressway. The subject driver moved to the left and entered a one lane entrance ramp to the express lanes. The driver stated that a non-contact vehicle from the third northbound lane, who also entered the entrance ramp, cut off the subject vehicle. The subject driver steered to the left to avoid the non-contact vehicle and struck the concrete barrier separating the express lanes from the entrance ramp. In this case it is more probable that the driver merely released steering control due to intoxication (BAC=0.22).



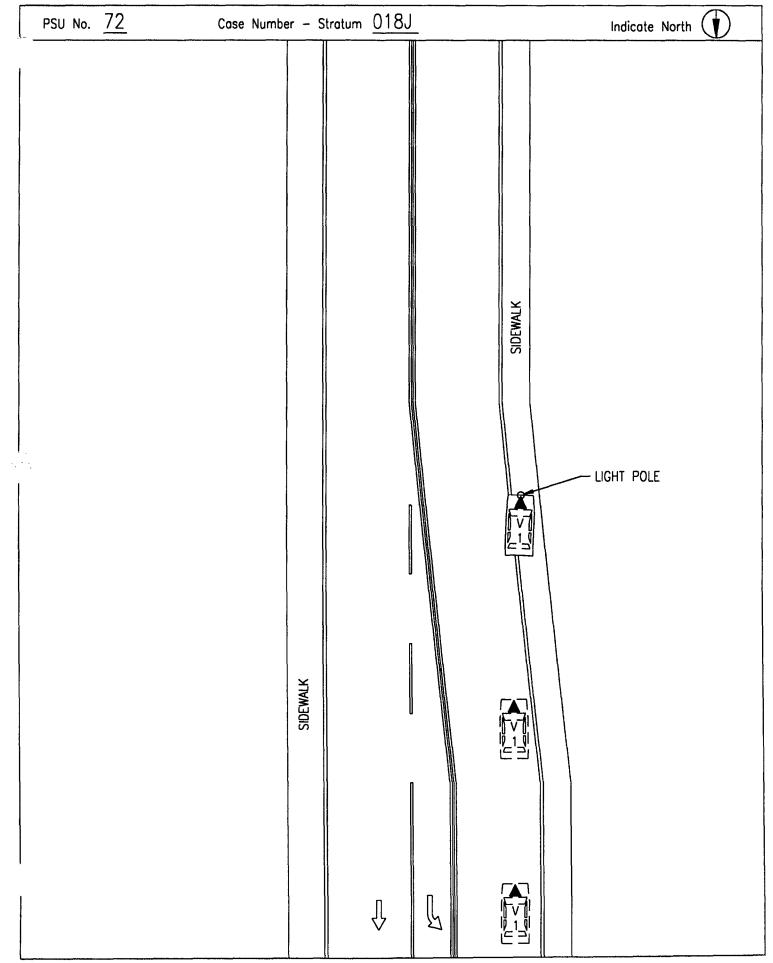


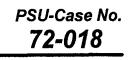
CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

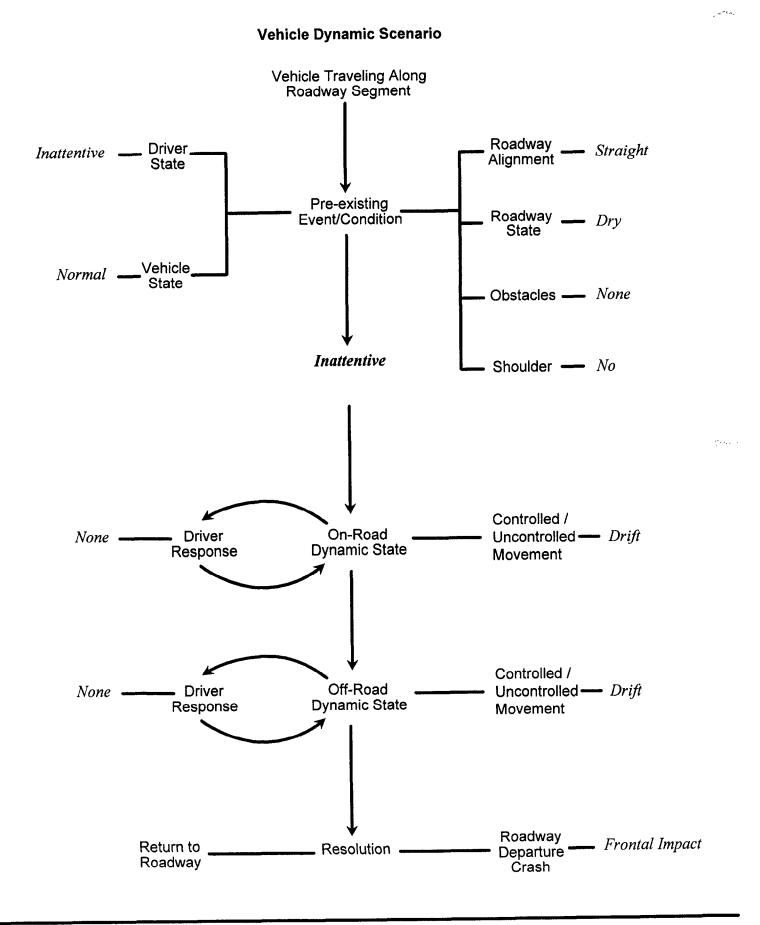
	General Acci	dent Information	
Date:	2-5-93	Weather:	Clear/Cloudy
Time:	2130	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	Artificial lighting
Accident Severity:	3 (A)	Land Use:	Urban
Driver/Occupa	ant Information	Vehicle Infor	mation
Driver Age:	19	Year:	1991
Driver Sex:	Female	Vehicle Make:	Dodge
Impairment:	None	Vehicle Model:	Vista Van
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	4	Speed Limit:	48 km/h
	Cluster	r Variables	
GV14: 01 No av	voidance actions		
GV64: 01 Going	g straight		
GV65: 11 This v	vehicle traveling over the la	ne line on right side of travel lane	
GV66: 0 No av	voidance maneuver		
GV67: 0 No av	voidance maneuver		

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

The subject vehicle was traveling south in the first travel lane of a four-lane, undivided, city street. The driver failed to track the transition as the roadway narrowed and the southbound lanes shifted to the left. The vehicle continued straight forward, exited the right edge of the roadway, struck a light pole located 0.6 m beyond the west curb line with its center frontal area, and came to rest at the point of impact. The subject driver was inattentive to the driving task.





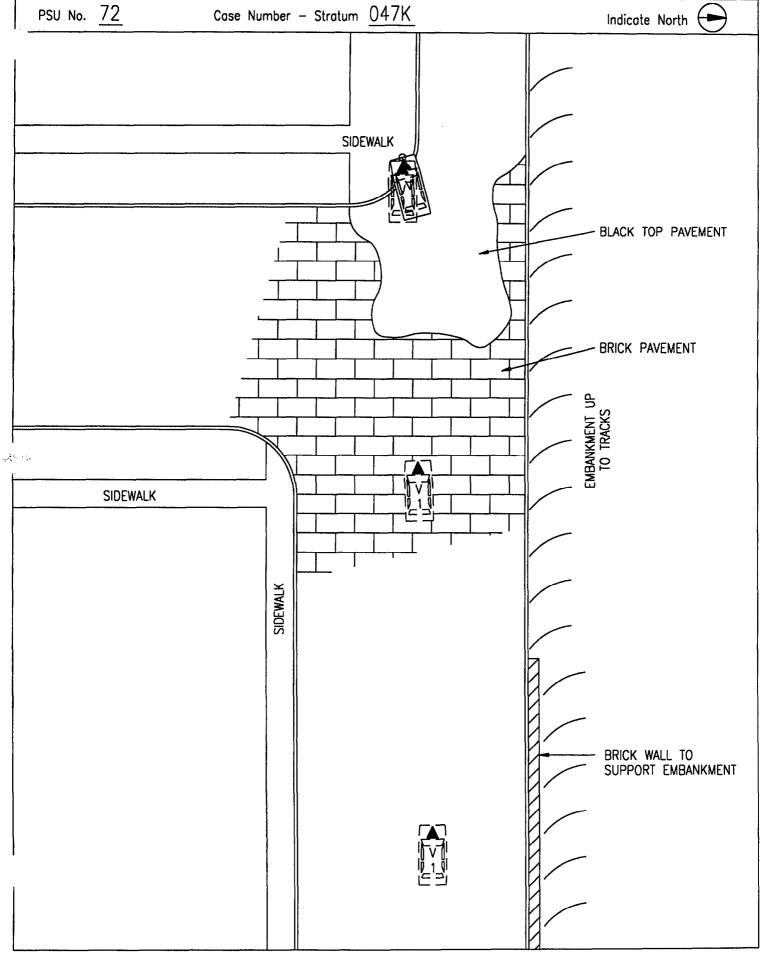


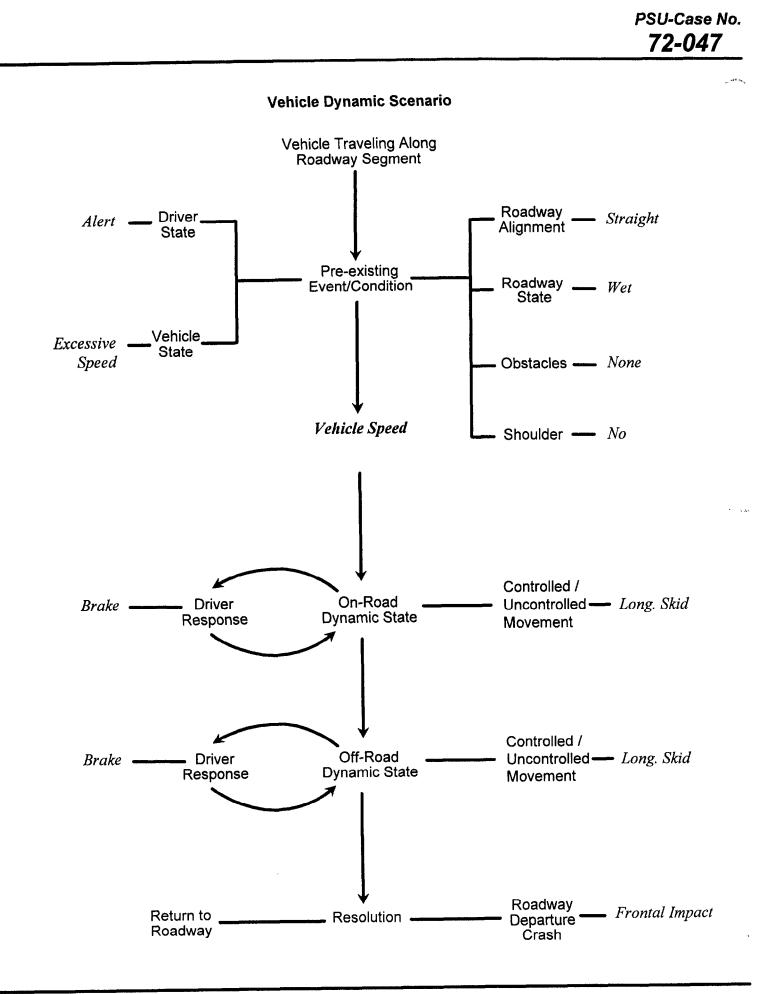
CAUSAL FACTOR:Vehicle Speed - Attempted to Initiate a 90 Degree TurnROADSIDE DEPARTURE:Right

		General Acc	ident Information	
Date:		3-4-93	Weather:	Snow/Sleet/Hail
Time:		0047	Surface Condition:	Wet
Accident T	ype:	End Departure	Lighting:	Artificial lighting
Accident S	everity:	3 (A)	Land Use:	Urban
Driver	/Occupa	ant Information	Vehicle Info	rmation
Driver Age	.	31	Year:	1979
Driver Sex:		Male	Vehicle Make:	Pontiac
Impairment	t:	None	Vehicle Model:	Bonneville/ Catalina
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants	:	1	Defects:	No
		Roadwa	y Information	
Trafficway			Alignment:	Straight
(Median)):	Not divided	Slope:	Grade
No. of Lan	es:	2	Speed Limit:	48 km/h
		Cluste	er Variables	······································
GV14:	03 Brak	ng (lockup)		
GV64:	02 Slow	ing or stopping in traffic la	ane	
GV65:	15 This	vehicle turning left at inter	rsection	
GV66:	2 Skide	ling longitudinally - less th	nan 30 degrees rotation	
	4 Vehi	cle departed roadway		

CAUSAL FACTOR:Vehicle Speed - Attempted to Initiate a 90 Degree TurnROADSIDE DEPARTURE:Right

The subject vehicle was traveling through snowy weather in a westerly direction on a wet, two-lane urban cobblestone, street. As the vehicle approached a T-intersection with a north/south roadway, the driver attempted to decelerate to initiate a left turn onto the intersecting roadway. The vehicle skidded straight forward, and struck a utility pole located at the southwest corner of the intersection. The vehicle came to rest at the point of impact, in contact with the pole, facing in a west southwesterly direction. The roadway was dark with no artificial lighting and no surface markings. The driver was traveling too fast for the wet road surface.





Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Left

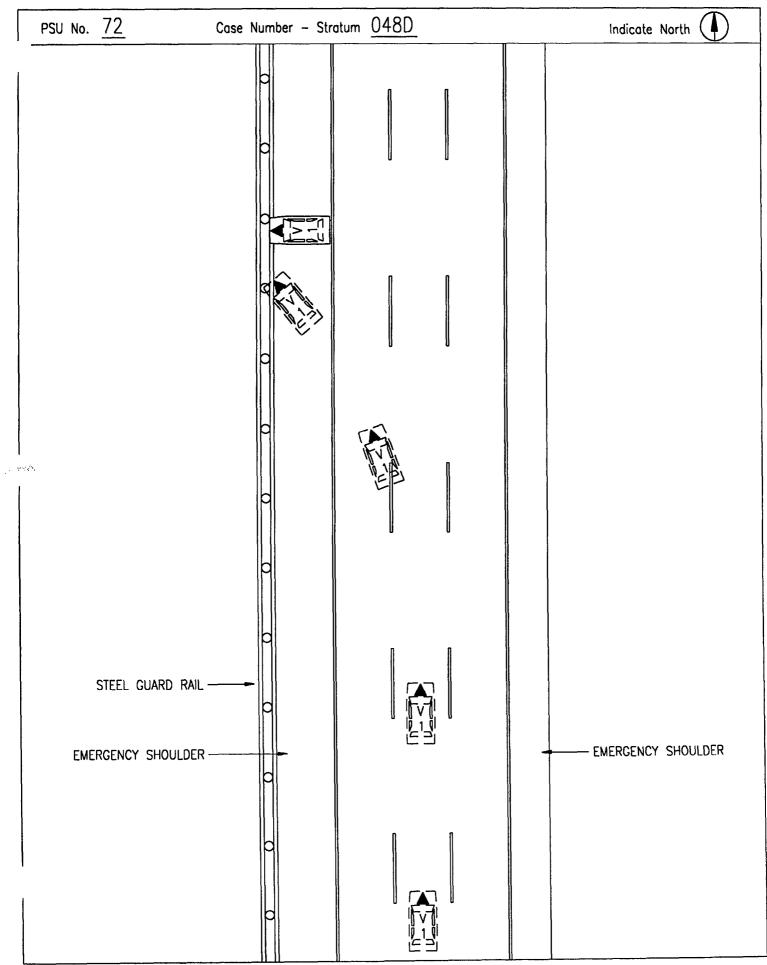
	General Accid	dent Information	· · · · · · · · · · · · · · · · · · ·
Date:	3-1-93	Weather:	Clear/Cloudy
Time:	0720	Surface Condition:	Dry
Accident Type	: Avoid Collision	Lighting:	Daylight
Accident Seve	rity: 3 (A)	Land Use:	Urban
Driver/Oc	cupant Information	Vehicle Infor	rmation
Driver Age:	26	Year:	1977
Driver Sex:	Male	Vehicle Make:	Chevrolet
Impairment:	None	Vehicle Model:	Nova
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	2	Defects:	No
	Roadway	Information	
Trafficway Typ		Alignment:	Straight
(Median):	Physical barrier	Slope:	Level
No. of Lanes:	3	Speed Limit:	89 km/h
·····	Cluster	Variables	
GV14: 06	Steering left		
GV64: 01	Going straight		
GV65: 61	Other vehicle encroaching into la	ne from adjacent lane (same direct	tion) over right lan
GV66: 1	Tracking		
GV67 : 4	Vehicle departed roadway		

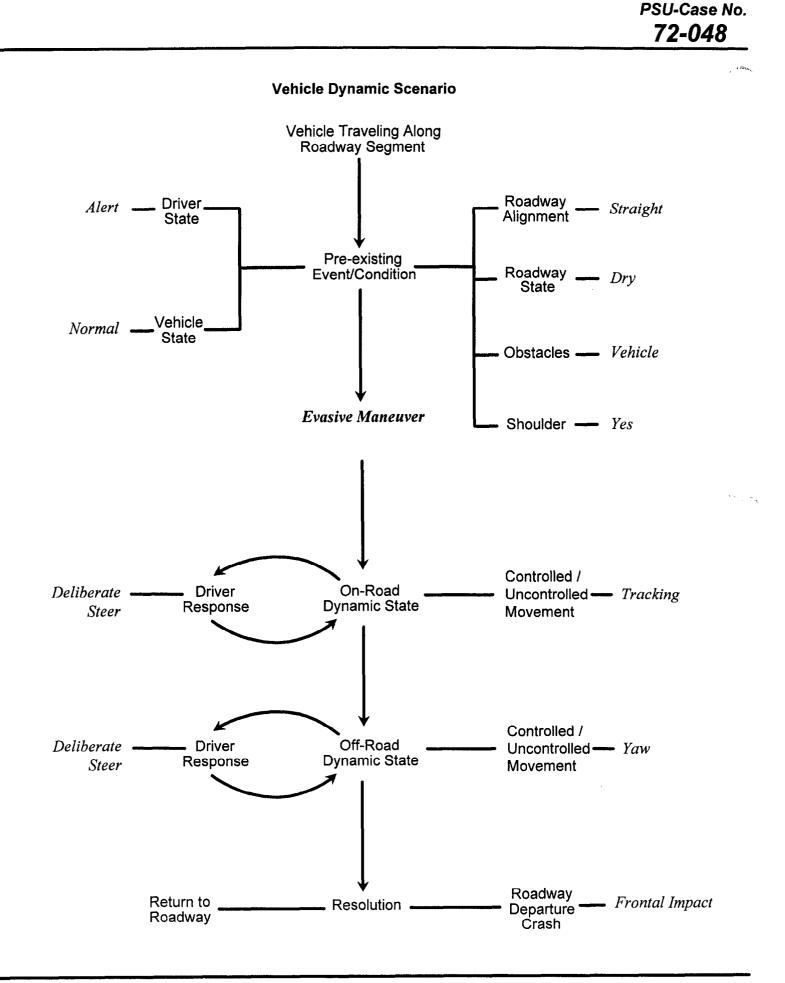
15 6 20

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Left

The subject vehicle was traveling in the second northbound travel lane of a six-lane, divided expressway. A non-contact vehicle traveling in the first travel lane immediately forward of the subject vehicle, started to move into lane two. The subject driver steered sharply to the left to avoid the non-contact vehicle. The non-contact driver saw the subject vehicle and returned to the first travel lane. The subject vehicle swerved across lane three and the adjacent emergency lane striking the steel W-beam median barrier with its frontal plane. The subject vehicle then slid along the barrier coming to rest with the front of the vehicle in contact with the barrier and straddling the emergency lane, facing in a westerly direction.





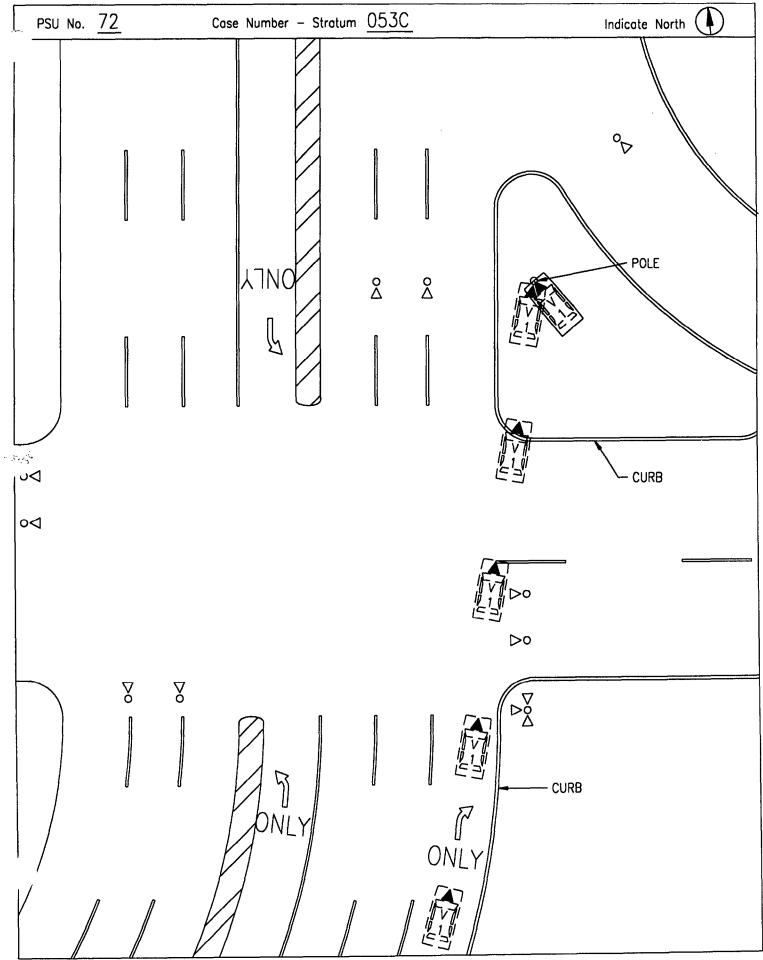
CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

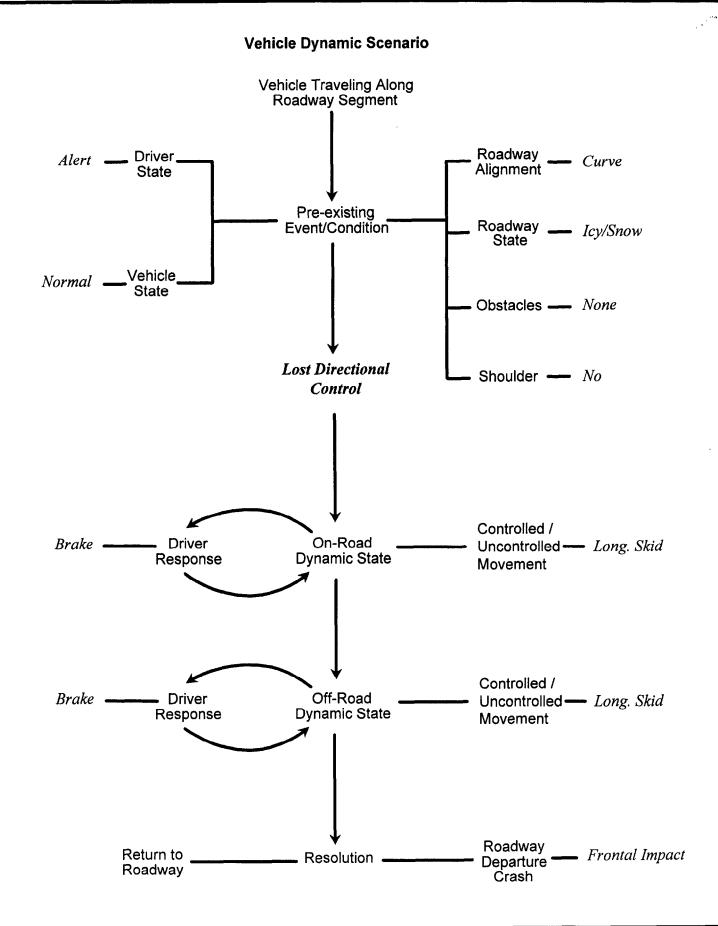
		General Acc	ident Information	
Date:		3-7-93	Weather:	Clear/Cloudy
Time:		2345	Surface Condition:	Ice/Snow
Acciden	t Type	: Drive Off Road	Lighting:	Artificial lighting
Acciden	t Seve	erity: 3 (A)	Land Use:	Urban
Driv	er/Oc	cupant Information	Vehicle Infor	mation
Driver Ag	ge:	21	Year:	1989
Driver Se	ex:	Male	Vehicle Make:	Pontiac
Impairme Familiari		None	Vehicle Model:	Grand Prix (FWD)
with Roa		Unknown	ABS:	No
No. of Occupan	its:	4	Defects:	No
		Roadway	/ Information	
Trafficwa			Alignment:	Curve Left
(Medi	·	Flush or curb	Slope:	Level
No. of L	anes:	3	Speed Limit:	48 km/h
		Cluste	r Variables	
GV14:	03	Braking (lockup)		
GV64:	13	Negotiating a curve		
GV65:	13	This vehicle traveling off the ed	ge of the road on the right side	
GV66:	2	Skidding longitudinally - less th	an 30 degrees rotation	
GV67:	4	Vehicle departed roadway		

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CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

The subject vehicle was traveling in the first northbound lane of a snow and ice covered, seven-lane, divided, urban, asphalt, roadway. The driver lost directional control on the snow/ice covered roadway surface while negotiating a curve to the left. The vehicle skidded off the right edge of the roadway after passing through an intersection and the center frontal area struck a traffic signal support standard located on a traffic island at the northeast corner of the intersection. The vehicle rotated counterclockwise and came to rest in contact with the pole, facing in a northwesterly direction. The roadway was lighted, bounded by curbs, and the lane lines were in good condition. The northbound lanes had a 25-30 cm superelevation.





Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Right

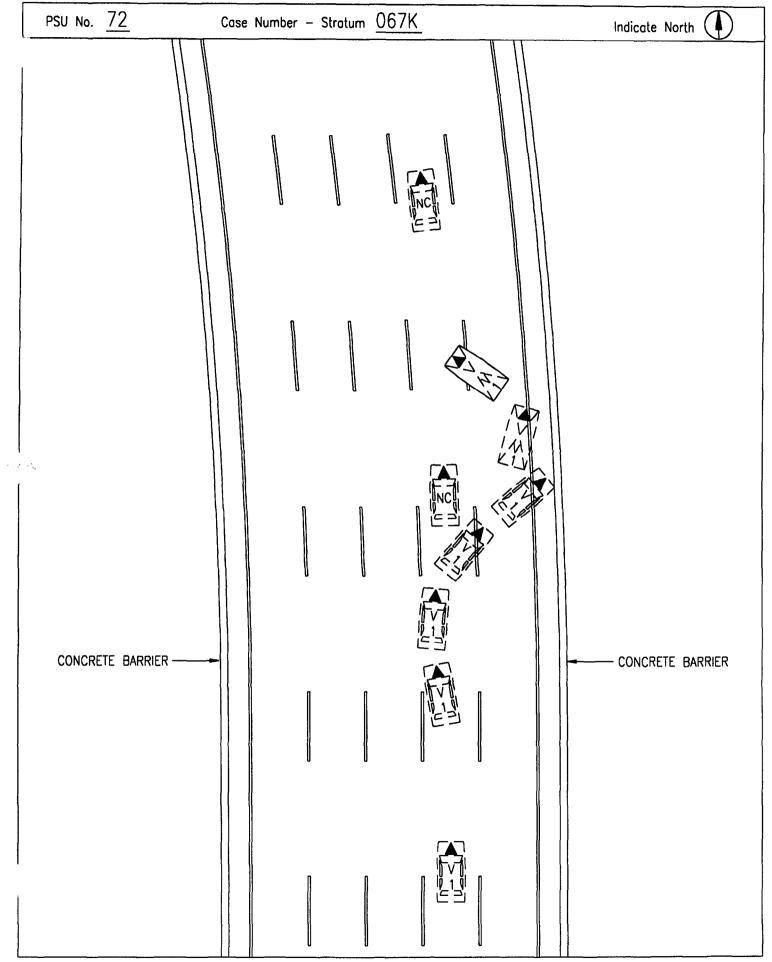
	General Accie	dent Information	
Date:	3-6-93	Weather:	Fog
Time:	2240	Surface Condition:	Dry
Accident Type:	Avoid Collision	Lighting:	Artificial lighting
Accident Severity:	3 (A)	Land Use:	Urban
Driver/Occup	ant Information	Vehicle Infor	mation
Driver Age:	44	Year:	1985
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Escort/EXP
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Type		Alignment:	Curve Left
(Median):	Physical barrier	Slope:	Grade
No. of Lanes:	5	Speed Limit:	72 km/h
	Cluster	Variables	
GV14: 06 Stee	ring left		
GV64: 01 Goin	ng straight		
GV65: 10 This	vehicle traveling over the la	ne line on left side of travel lane	
GV66: 1 Trac	king		
GV67: 4 Veh	icle departed roadway		

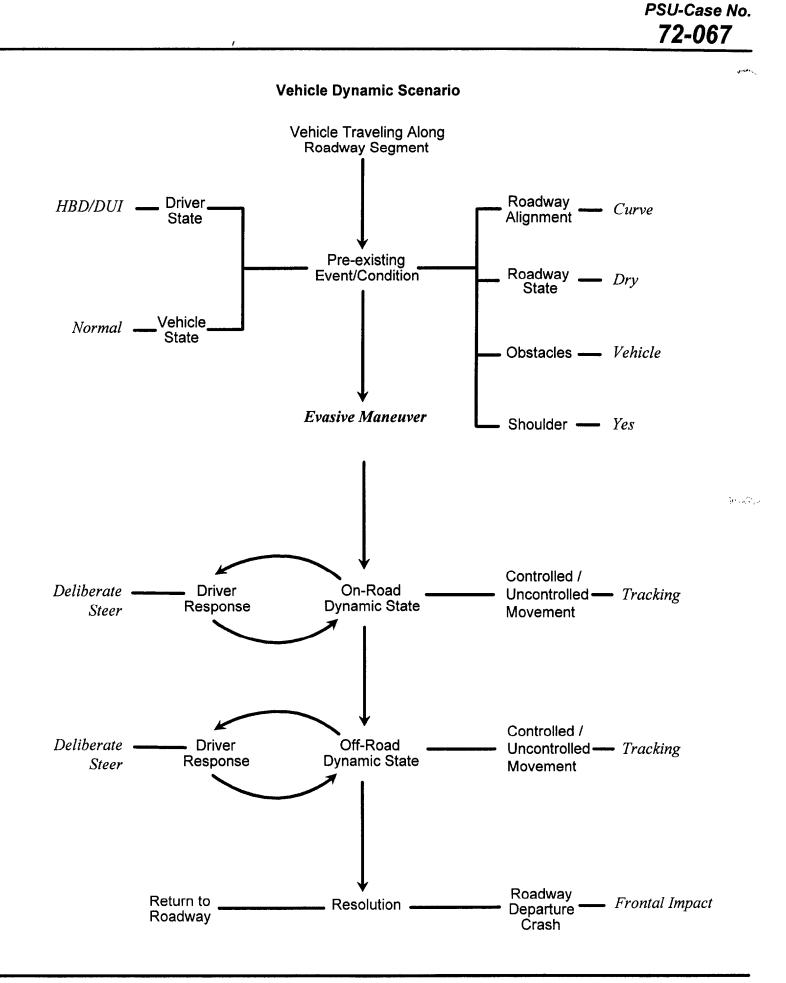
Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE:

The subject vehicle was traveling along a left hand curve in the second northbound lane of a dry, ten-lane, divided, asphalt, expressway with a negative slope. The driver noted traffic slowing and overreacted by initially steering to the left and then overcorrecting back to the right. The vehicle exited the right edge of the roadway and struck a concrete barrier located beyond the shoulder with its right frontal area. The vehicle rotated clockwise, flipped onto its roof to the left, and continued rotating while upside-down. The vehicle came to rest on its top, straddling the first and second northbound lanes, facing in a northwesterly direction. The roadway was lighted and edge lines and lane lines were present. The driver was intoxicated (BAC=0.28).

Right





CAUSAL FACTOR: ROADSIDE DEPARTURE:

Driver Inattention Left

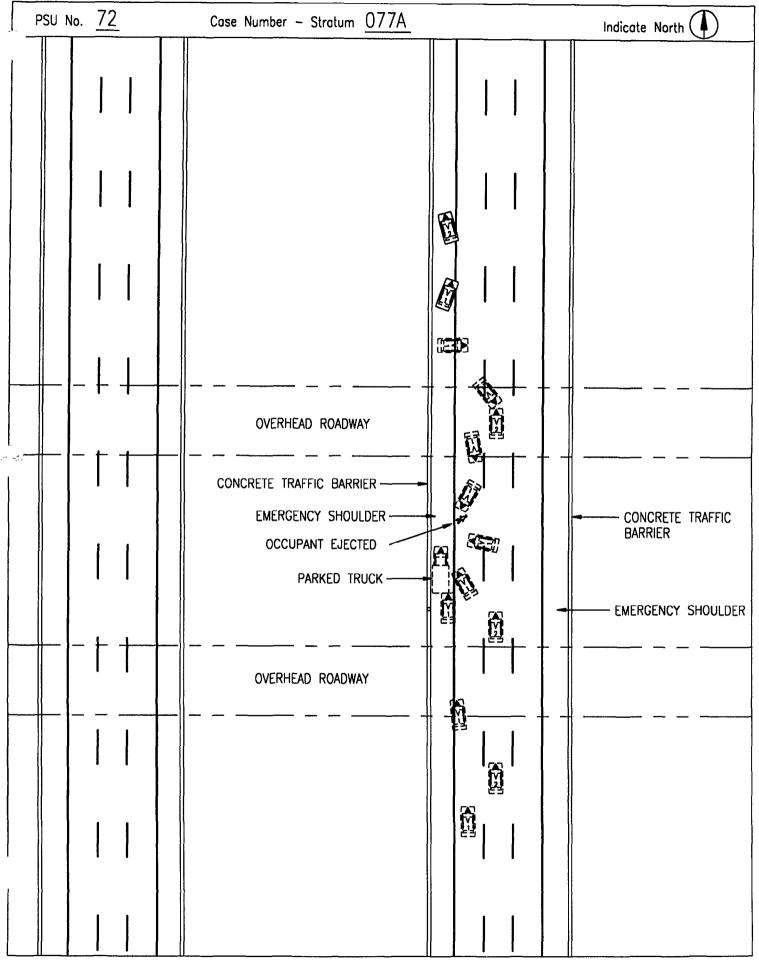
	General Accie	dent Information	
Date:	4-1-93	Weather:	Clear/Cloudy
Time:	0310	Surface Condition:	Dry
Accident Type:	Parked Vehicle	Lighting:	Artificial lighting
Accident Severity:	4 (K)	Land Use:	Urban
Driver/Occup	ant Information	Vehicle Info	rmation
Driver Age:	47	Year:	1990
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	Unknown	Vehicle Model:	Aerostar
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	3	Defects:	No
·····	Roadway	Information	······································
Trafficway Type		Alignment:	Straight
(Median):	Physical barrier	Slope:	Level
No. of Lanes:	6	Speed Limit:	80 km/h
	Cluster	Variables	
GV14: 01 No a	woidance actions		
GV64: 01 Goir	ng straight		
GV65: 10 This	vehicle traveling over the lan	ne line on left side of travel lane	
GV66: 0 No a	voidance maneuver		
GV67: 0 No a	voidance maneuver		

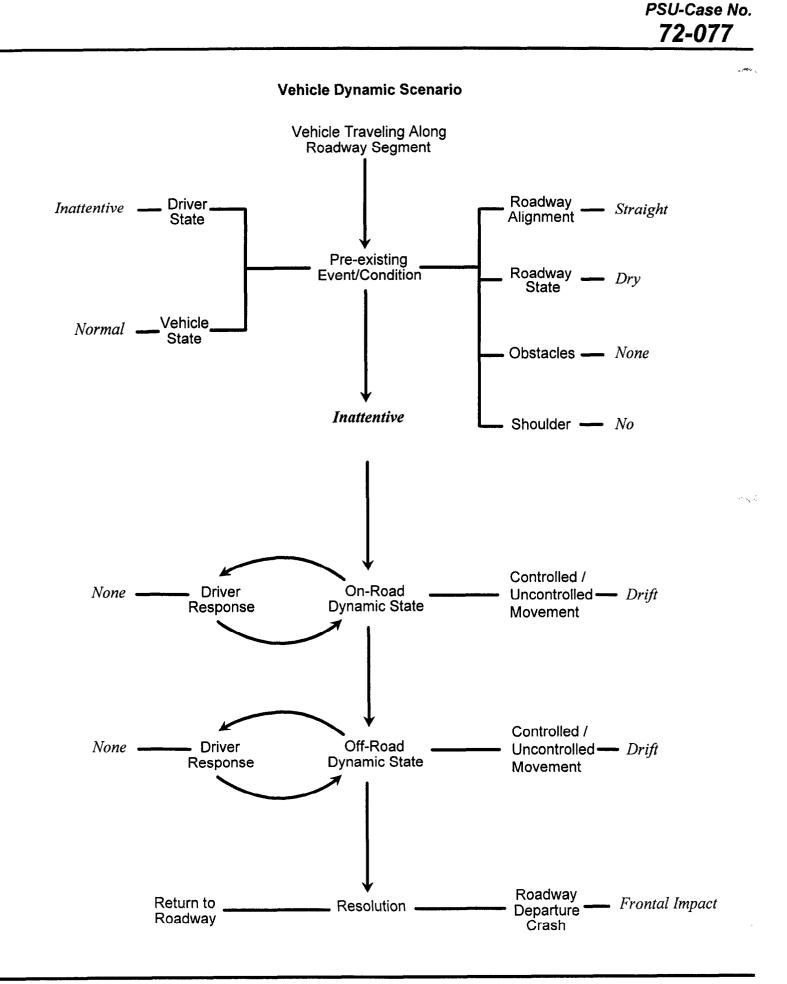
(a, b)

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

The subject vehicle was traveling in the third north bound lane of a six-lane divided, level, dry, asphalt interstate roadway when it drifted across the median road edge line and struck a parked tow truck. The vehicle rotated counterclockwise, ejecting the driver, and continuing back across the travel lane where it was struck by another vehicle. The parked vehicle was located well within the left emergency lane/shoulder area with its emergency lights operating prior to the impact. The roadway was illuminated by overhead streetlights. The roadway lane markings and road edge lines were in new condition. There were no sight line restrictions noted. The causal factor was driver inattentive to driving task.

 $Q_{1}^{1} + e_{2}^{2}$





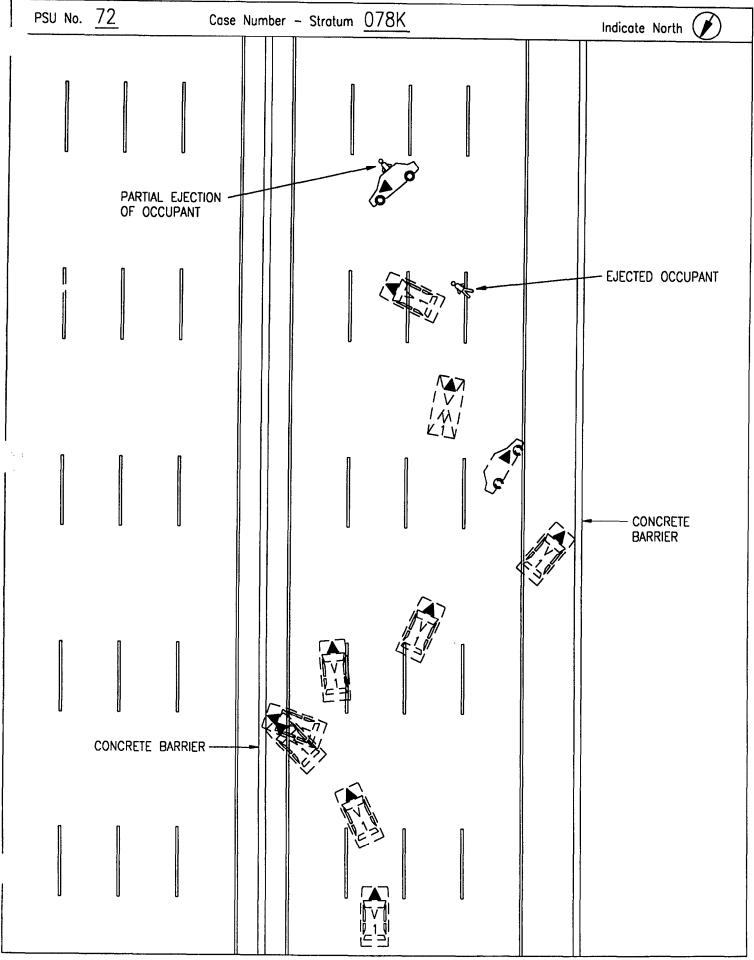
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

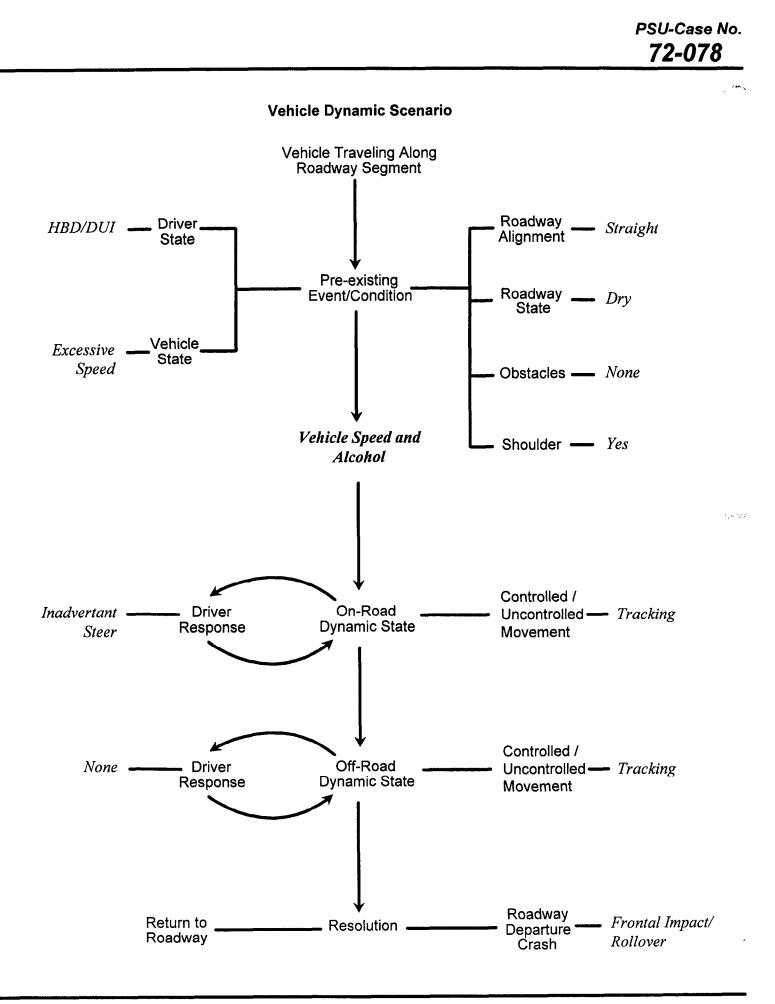
	General Accident	Information	
Date:	4-7-93	Weather:	Unknown
Time:	0425	Surface Condition:	Unknown
Accident Type:	Control/Traction Loss	Lighting:	Artificial lightin
Accident Seven	ity: 3 (A)	Land Use:	Urban
Driver/Occ	cupant Information	Vehicle Infor	mation
Driver Age:	21	Year:	1988
Driver Sex:	Male	Vehicle Make:	Buick
Impairment:	Other (alcoh. consumption - BAC unknown)	Vehicle Model:	LeSabre
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	3	Defects:	No
	Roadway Info	ormation	
Trafficway Type		Alignment:	Straight
(Median):	Physical barrier	Slope:	Level
No. of Lanes:	8	Speed Limit:	72 km/h
	Cluster Va	riables	
GV14: 06	Steering left		
GV64: 14	Changing lanes		
GV65: 06	This vehicle loss of control due to tra	veling too fast for conditions	
GV66: 1	Tracking		

s.

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling on an eight-lane, divided, level, concrete interstate roadway, when it departed the left roadway edge line and struck the concrete median barrier. The vehicle was redirected back across the travel lanes and rolled over, ejecting the driver. The driver's speed was estimated at 161 km/h (100 mph). Police reported that the driver had consumed alcohol prior to the accident. The lane lines and right roadway edge line were in new condition. The roadway was illuminated by overhead streets lights. The causal factor was vehicle speed with alcohol consumption as a contributing factor.





Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Right

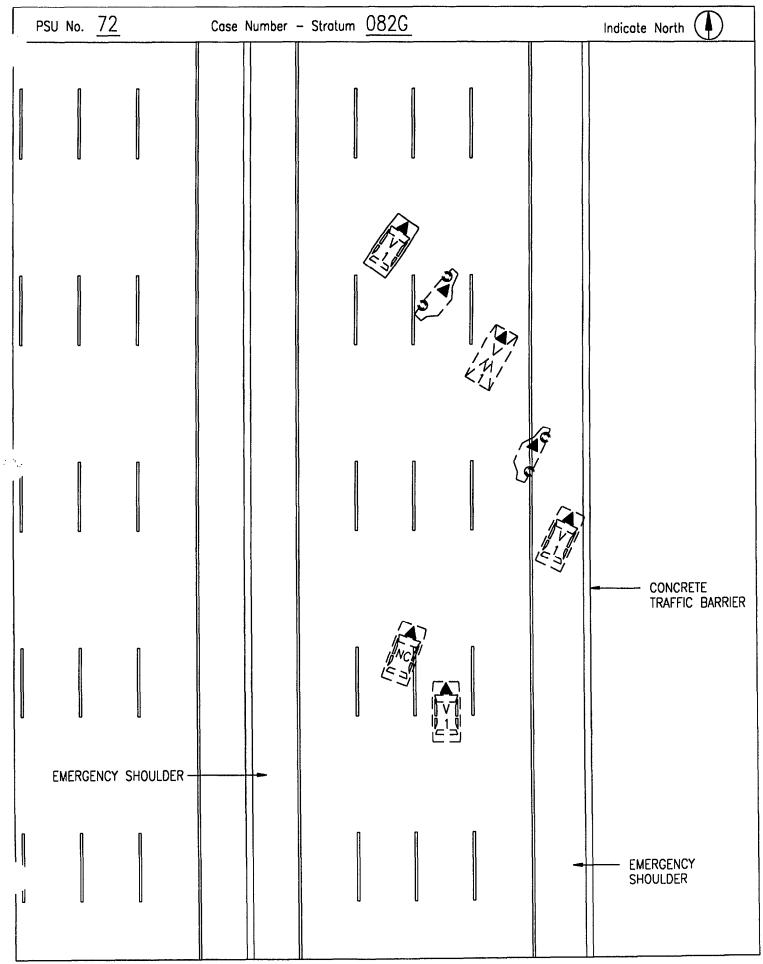
	General Accid	lent Information	
Date:	4-1-93	Weather:	Clear/Cloudy
Time:	2359	Surface Condition:	Wet
Accident Type	Avoid Collision	Lighting:	Artificial lighting
Accident Seve	ity: 1 (C)	Land Use:	Urban
Driver/Oc	cupant Information	Vehicle Info	rmation
Driver Age:	32	Year:	1989
Driver Sex:	Male	Vehicle Make:	Honda
Impairment:	None	Vehicle Model:	Accord
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	·····
Trafficway Typ		Alignment:	Straight
(Median):	Physical barrier	Slope:	Grade
No. of Lanes:	8	Speed Limit:	80 km/h
	Cluster	Variables	· · · · · · · · · · · · · · · · · · ·
GV14 : 08	Braking and steering left		
GV64 : 01	Going straight		
GV65: 60	Other vehicle encroaching into la	ne from adjacent lane (same direc	tion) over left lane l
GV66: 2	Skidding longitudinally - less tha	n 30 degrees rotation	
GV67 : 4	Vehicle departed roadway		

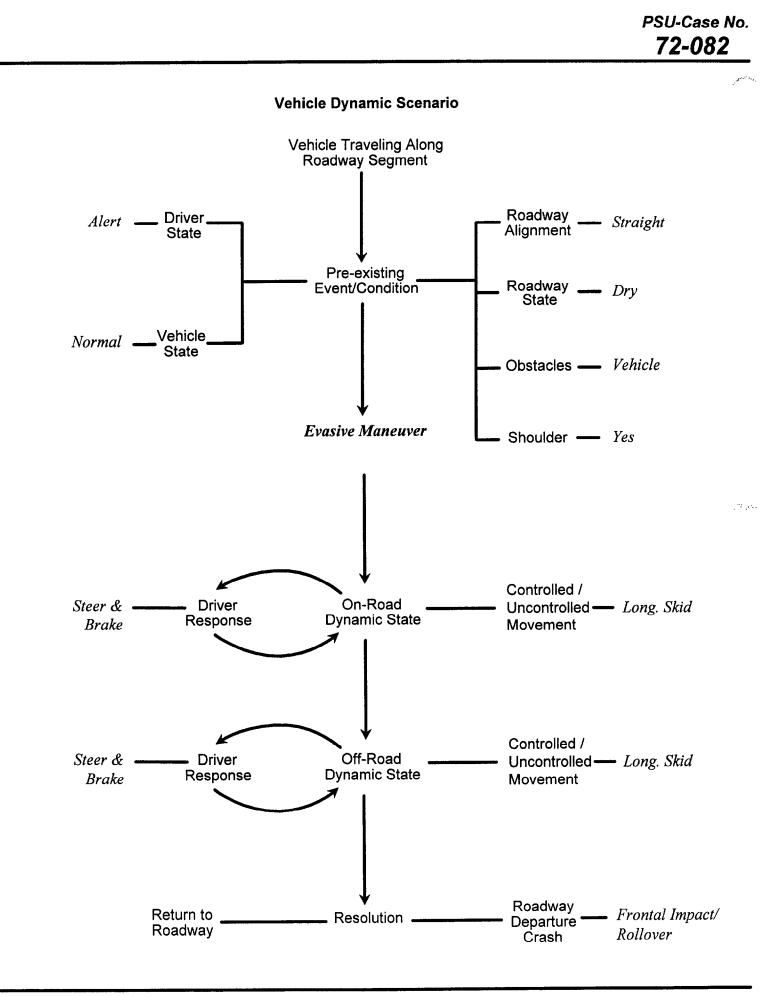
Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE:

The subject vehicle was traveling north during evening hours on a dry, eight-lane, divided, concrete interstate roadway with a +2% slope. The vehicle departed the right roadway edge line, crossed the 3.2 m shoulder/emergency lane, and struck a concrete traffic barrier. The driver indicated he was encroached upon by a north bound vehicle traveling in the left adjacent lane that it suddenly entered his travel lane. The subject driver swerved to the right and lost control of the vehicle. The roadway was illuminated by overhead street lights. There were no sight line restrictions or adverse weather conditions. The causal factor was evasive maneuver (steered off roadway) to avoid an encroaching vehicle traveling in the same direction.

Right





CAUSAL FACTOR:DiROADSIDE DEPARTURE:Ri

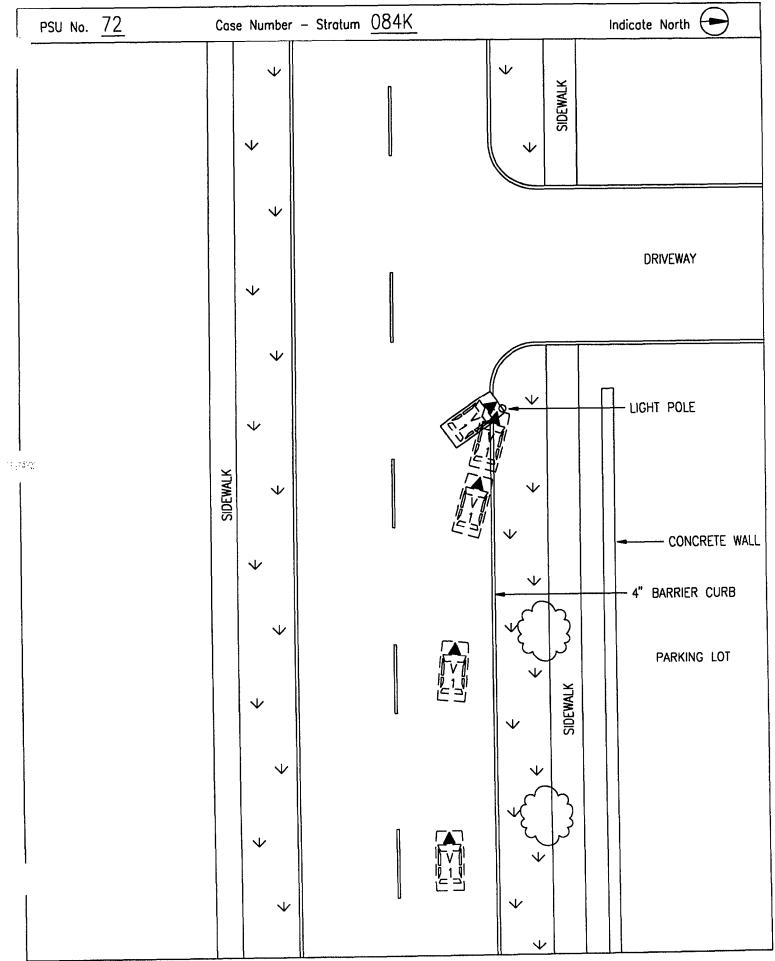
Driver Inattentio	on
Right	

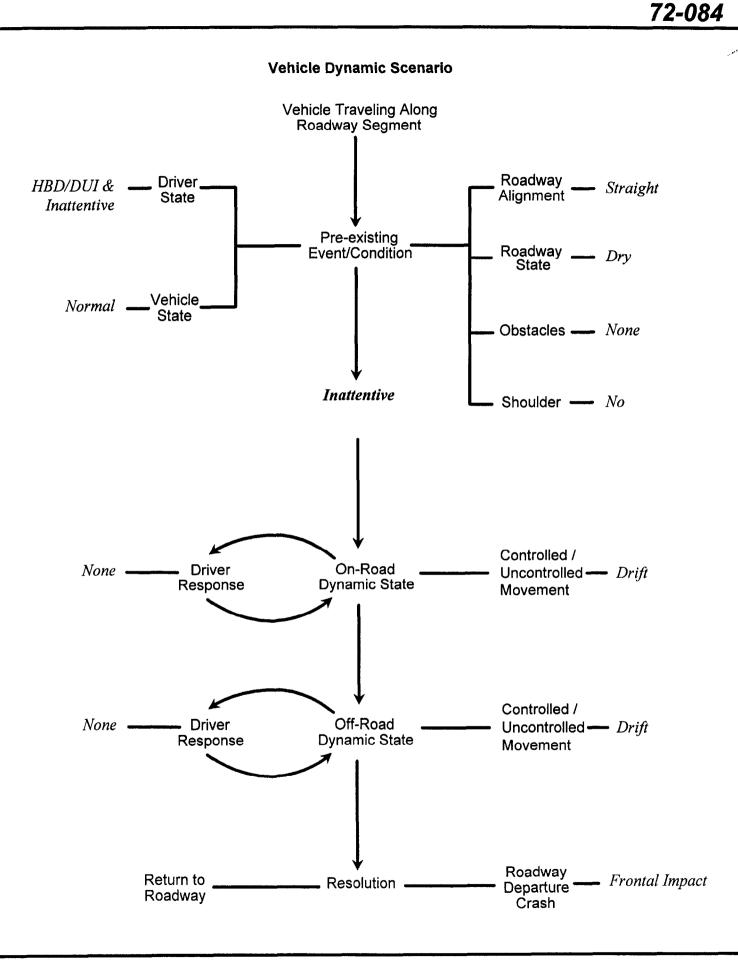
		General Accide	nt Information	
Date:		4-4-93	Weather:	Clear/Cloudy
Time:		0055	Surface Condition:	Dry
Accident	Type:	Control/Traction Loss	Lighting:	Artificial lighting
Accident	Severity:	3 (A)	Land Use:	Urban
Driver/Occupant Information		Vehicle Info	rmation	
Driver Ag	e:	47	Year:	1983
Driver Sex	K:	Male	Vehicle Make:	Plymouth
Impairme		Intoxicated (alcohol/drugs)	Vehicle Model:	Reliant (K)
Familiarit with Road		Unknown	ABS:	No
No. of Occupant	s:	3	Defects:	No
		Roadway In	formation	
Trafficwa			Alignment:	Straight
(Media	n):	Not divided	Slope:	Grade
No. of La	nes:	2	Speed Limit:	56 km/h
		Cluster V	ariables	·····
GV14:	01 No a	avoidance actions		
GV64:	01 Goi	ng straight		
GV65:	09 This	s vehicle loss of control due to u	nknown	
GV66:	0 No :	avoidance maneuver		
GV67:	0 No :	avoidance maneuver		

11 A. 15

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

The subject vehicle was traveling west on a dry, two-lane, undivided, asphalt roadway with a +2% slope. The vehicle departed the right side of the roadway by mounting the 10 cm high barrier curb and striking a steel utility pole with the frontal plane. The pole was located 0.9 m laterally from the curb face. There were no adverse weather conditions and the roadway was illuminated by overhead street lights. The driver was cited by police for negligent driving and DWI for alcohol and drugs. The causal factor was driver inattention to the driving task and drifted off roadway with alcohol and drugs (DWI) listed as a contributing factor.





PSU-Case No.

Vehicle Speed - Speed and Alcohol

Left

ROADSIDE DEPARTURE:

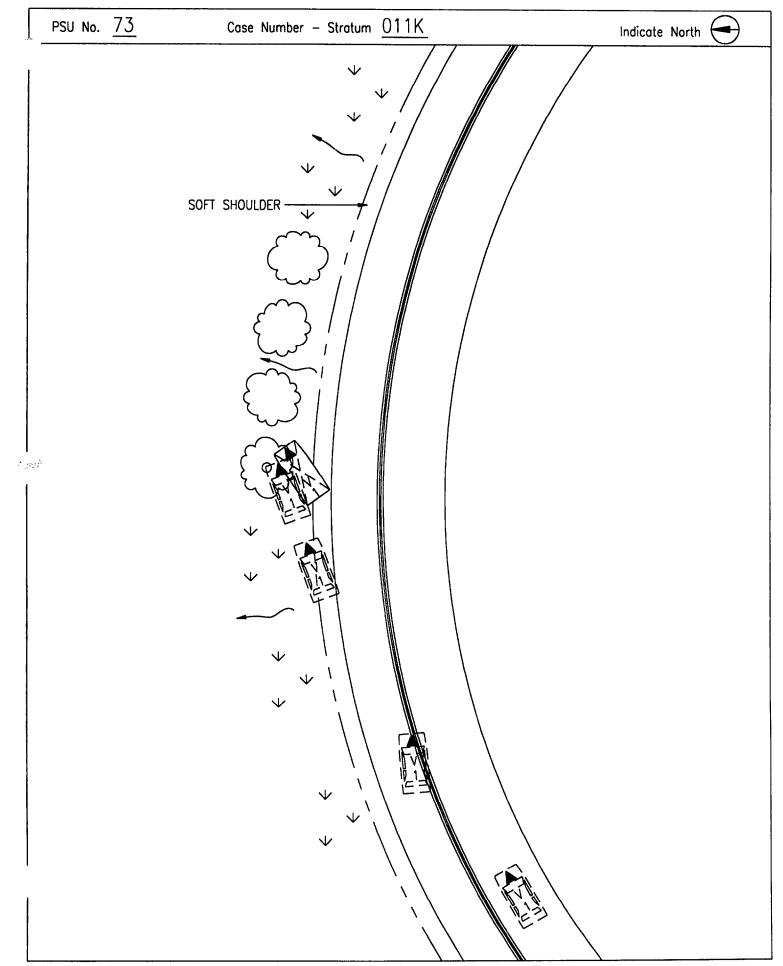
		General Accide	nt Information	
Date:		1-1-93	Weather:	Snow/Sleet/Hai
Time:		1909	Surface Condition:	Dry
Accident	: Туре:	Control/Traction Loss	Lighting:	None
Accident	Severity.	3 (A)	Land Use:	Urban
Driv	er/Occuj	pant Information	Vehicle Infor	mation
Driver Ag	je:	48	Year:	1987
Driver Se	ex:	Male	Vehicle Make:	Pontiac
Impairme		Intoxicated (alcohol/drugs)	Vehicle Model:	Grand Prix (RWD)
Familiarit with Roa		Unknown	ABS:	No
No. of Occupan	ts:	1	Defects:	No
		Roadway In	formation	
Trafficwa			Alignment:	Curve Right
(Media	an):	Not divided	Slope:	Level
No. of La	anes:	2	Speed Limit:	48 km/h
		Cluster V	ariables	
GV14:	03 Bra	king (lockup)		
GV64:	13 Neg	otiating a curve		
GV65:	06 Thi	s vehicle loss of control due to tr	aveling too fast for conditions	
GV66:	2 Ski	dding longitudinally - less than 3	0 degrees rotation	
GV67:	4 Veł	nicle departed roadway		

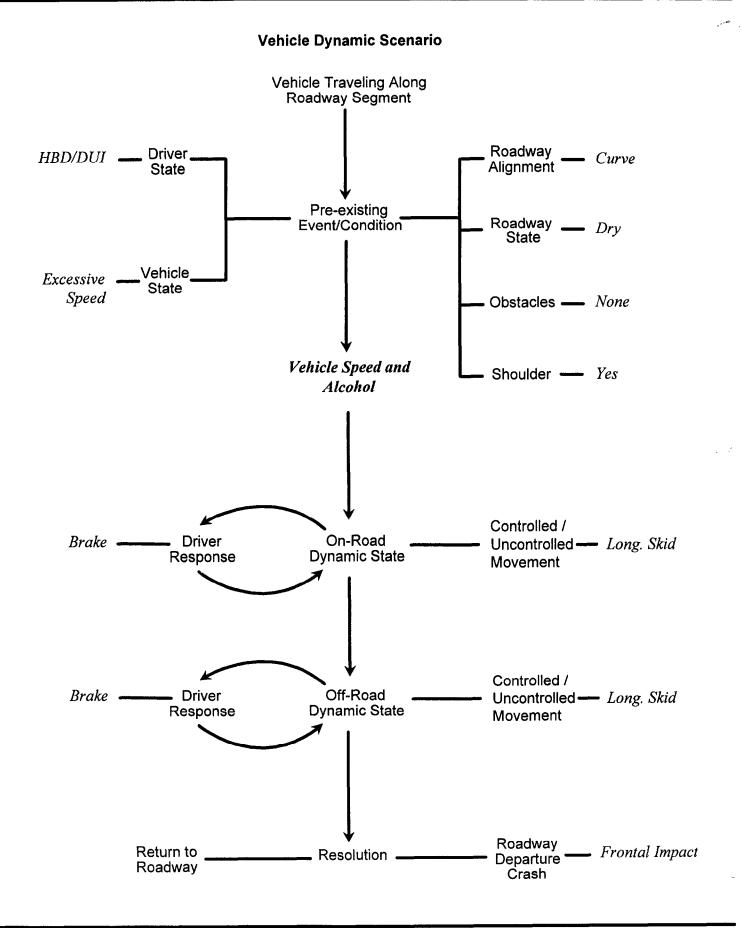
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100

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a northeasterly direction on a two-lane roadway. As the vehicle entered a curve to the right, it crossed the full barrier center line, and the driver braked heavily. The vehicle skidded forward in a tracking attitude, exited the left edge of the roadway, and the left frontal area struck a tree located 4.3 m beyond the edge of the roadway. The vehicle then reportedly deflected to its right and rolled onto its left side. The subject driver was intoxicated (BAC=0.25) and was traveling at a witness estimated speed of 80-96 km/h (50-60 mph).





CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

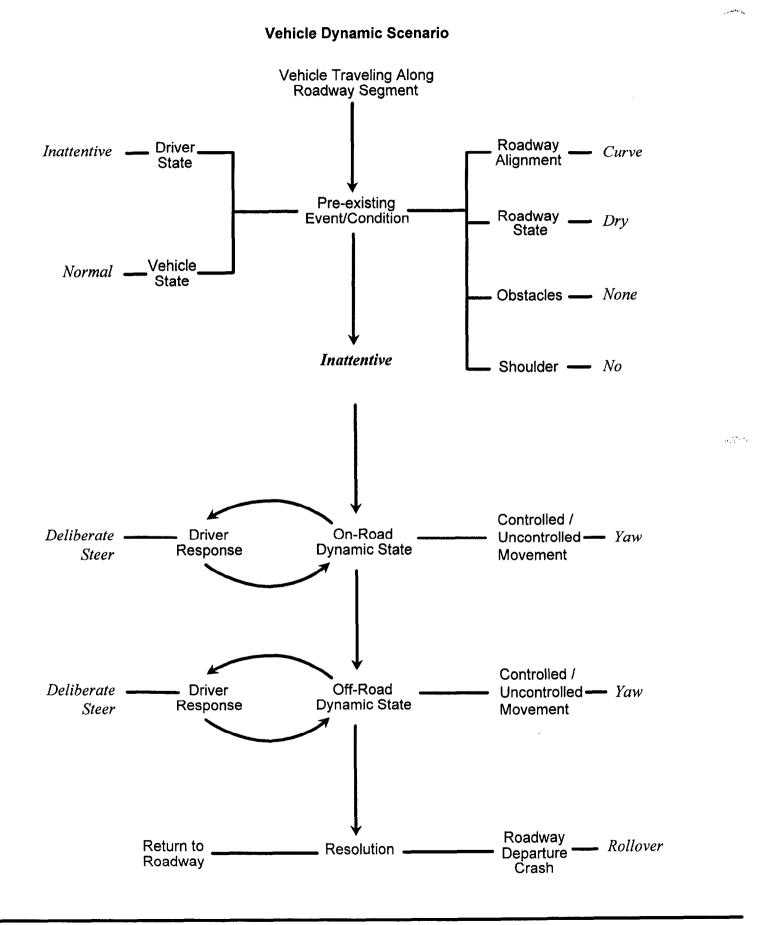
	General Accide	ent Information	
Date:	1-5-93	Weather:	Clear/Cloudy
Time:	2215	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	None
Accident Severi	t y: 0(O)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Info	mation
Driver Age:	46	Year:	1993
Driver Sex:	Male	Vehicle Make:	Pontiac
Impairment:	None	Vehicle Model:	Bonneville/ Catalina
Familiarity with Road:	No	ABS:	Yes
No. of Occupants:	1	Defects:	No
	Roadway I	nformation	
Trafficway Type		Alignment:	Curve Right
(Median):	Not divided	Slope:	Grade
No. of Lanes:	1	Speed Limit:	56 km/h
	Cluster \	/ariables	<u>.</u>
GV14: 07 Si	eering right		
GV64: 13 N	egotiating a curve		
GV65: 12 T	his vehicle traveling off the edge	of the road on the left side	
GV66: 3 S	kidding laterally - clockwise rotat	ion	
GV67: 4 V	ehicle departed roadway		

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CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

The subject vehicle was traveling on a one-lane entrance ramp which curved sharply to the right. The driver did not enter sufficient steering input to track the curve, and steered sharply to the right as the vehicle exited the left edge of the roadway. The vehicle yawed clockwise, rolled side-over-side to the left 1.5 rolls times, and came to rest on its roof. The driver was inattentive to the driving task.

PSU No. <u>73</u> Co	ise Number – Strotum <u>013G</u>	Indicate North	
1			
		MUD & DIRT	
	LEVEL GRADE		
1			<u></u>
/			
1			



CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

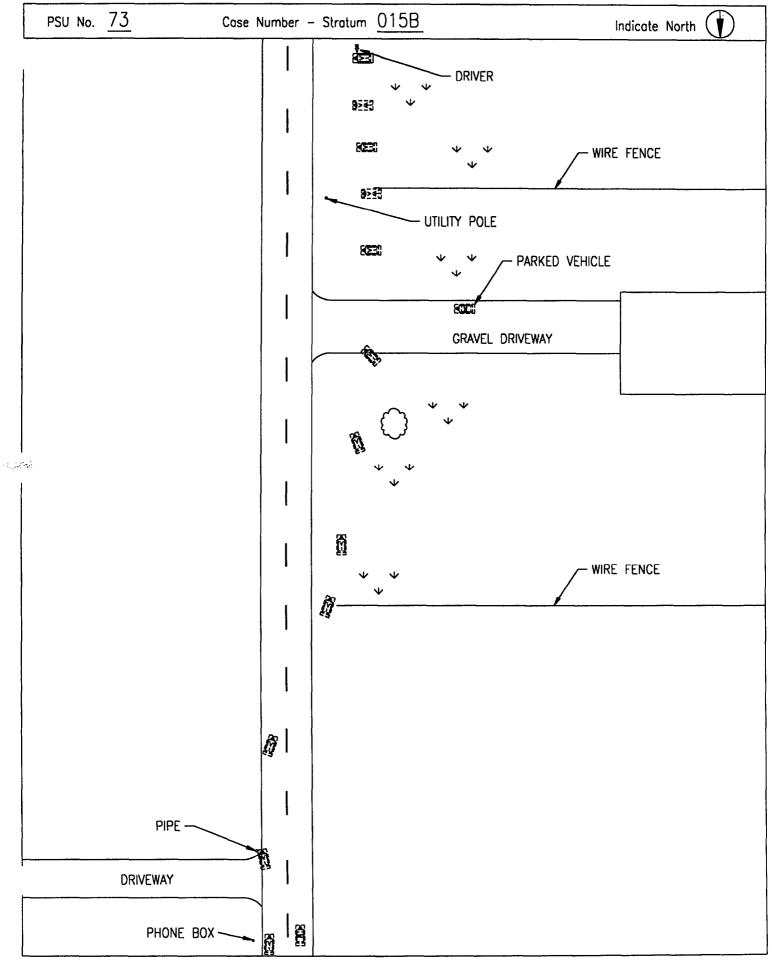
	General Acc	ident Information	
Date:	2-6-93	Weather:	Clear/Cloudy
Time:	2000	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	None
Accident Severi	t y: 4 (K)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Infor	rmation
Driver Age:	16	Year:	1980
Driver Sex:	Male	Vehicle Make:	Chevrolet
Impairment:	None	Vehicle Model:	Fullsize Blazer
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	2	Defects:	No
	Roadwa	y Information	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	64 km/h
	Clust	er Variables	
GV14: 01 1	lo avoidance actions		
GV64: 05 H	assing or overtaking another v	vehicle	
GV65: 12 1	his vehicle traveling off the e	dge of the road on the left side	
GV66: 0 1	lo avoidance maneuver		

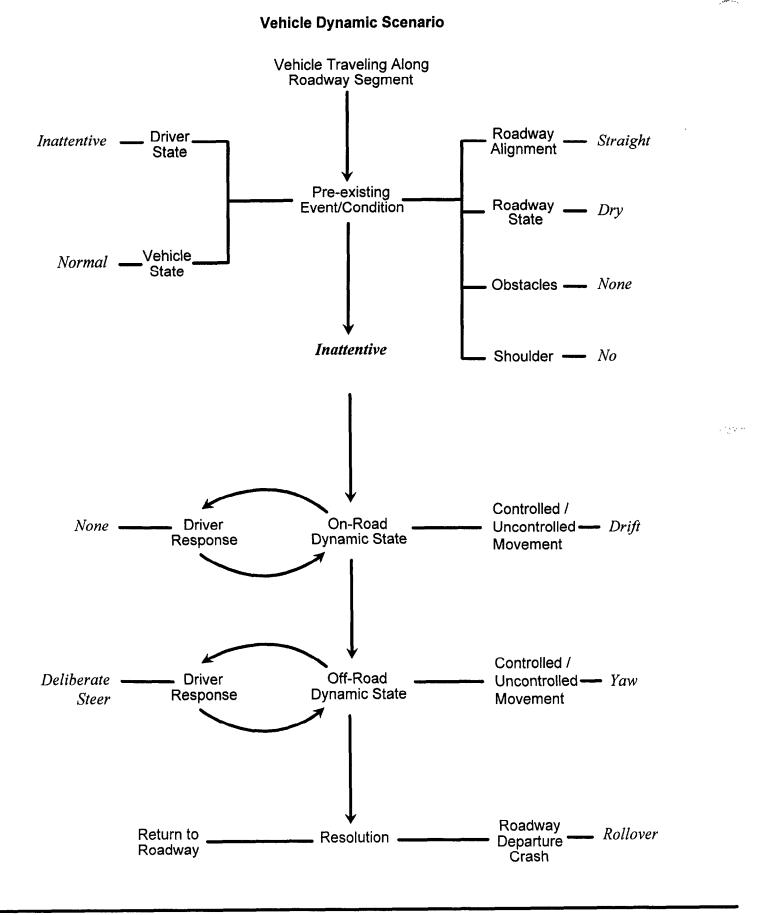
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CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

The subject vehicle was traveling in the southbound lane of a two-lane, straight and level, rural roadway. The driver pulled to the left and entered the northbound travel lane to pass a non-contact vehicle. While passing this vehicle, the subject driver was apparently inattentive to the driving task and allowed the subject vehicle to drift off the left edge of the roadway. The driver overcorrected back to the right, re-entered, crossed, and exited the right edge of the roadway. The driver overcorrected back to the left, the vehicle yawed counterclockwise and rolled two complete times to the right, side-over-side, coming to rest on its wheels facing in an easterly direction. Both occupants of the vehicle were ejected during the rollover and the driver sustained fatal injuries.





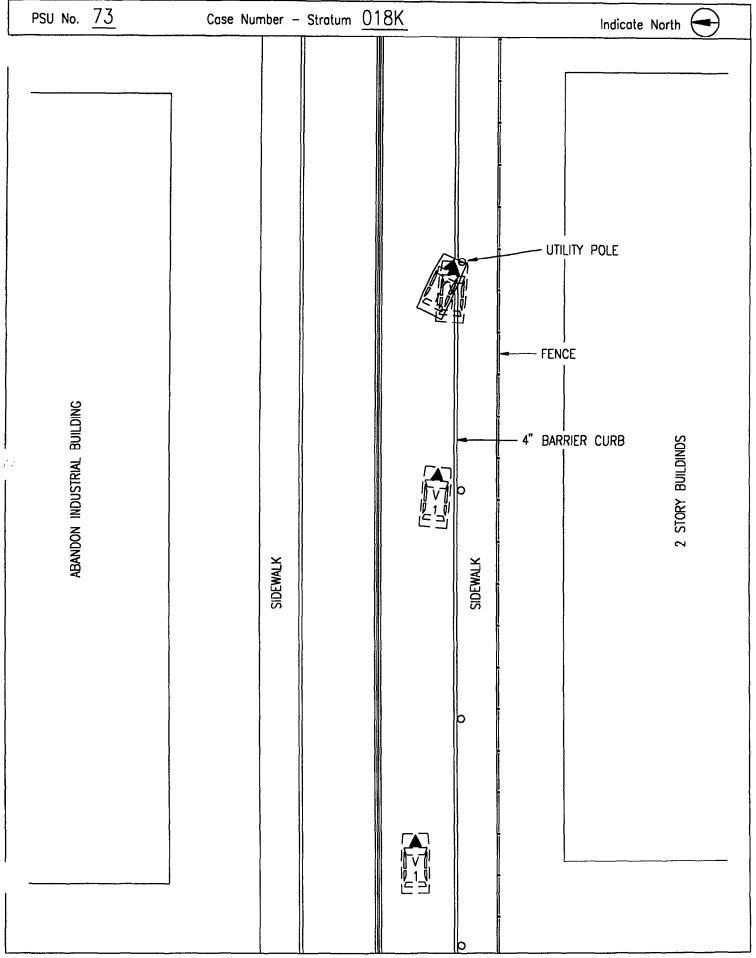
CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

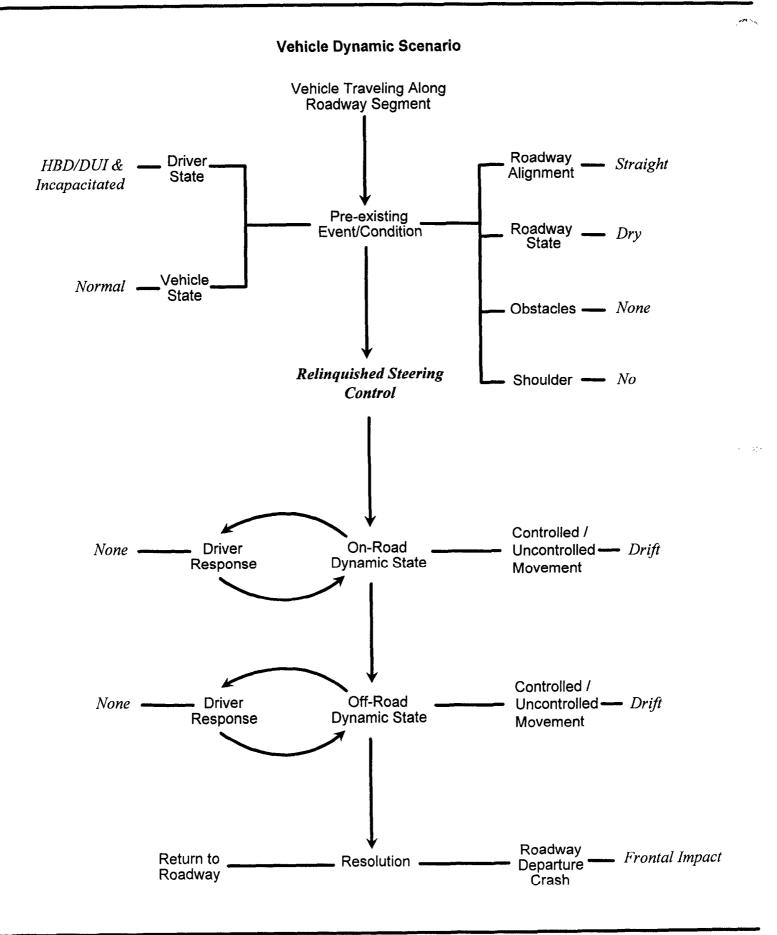
		General Acci	dent Information	
Date:		2-2-93	Weather:	Clear/Cloudy
Time:		1848	Surface Condition:	Dry
Accident T	уре:	Drive Off Road	Lighting:	Daylight
Accident S	Severity:	3 (A)	Land Use:	Urban
Driver	r/Occupa	ant Information	Vehicle Infor	mation
Driver Age		68	Year:	1980
Driver Sex	:	Male	Vehicle Make:	Chevrolet
Impairmen	t:	Intoxicated (alcohol/drugs)	Vehicle Model:	Caprice/Impala
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants	5.	1	Defects:	No
		Roadway	/ Information	
Trafficway			Alignment:	Straight
(Mediar	n):	Not divided	Slope:	Level
No. of Lar	nes:	2	Speed Limit:	48 km/h
		Cluste	r Variables	
GV14:	01 No a	voidance actions		
GV64:	01 Goin	g straight		
GV65:	13 This	vehicle traveling off the ed	ge of the road on the right side	
GV66:	0 Noa	voidance maneuver		

 $\omega(t,n_{1})$

CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

The subject vehicle was traveling east on a dry, two-lane, undivided, level, asphalt roadway when it crossed the right roadway edge line and struck a utility pole located 0.4 m laterally from the barrier curb. The driver was tested for alcohol consumption and was reported with a BAC of 0.38. The ambient conditions were clear during the dusk hours of the day. There were no roadway obstacles or sight line restrictions. The travel lanes were marked by solid, yellow, full barrier center lines and barrier curbs along both roadway edges. The causal factor was driver relinquished control due to intoxication.



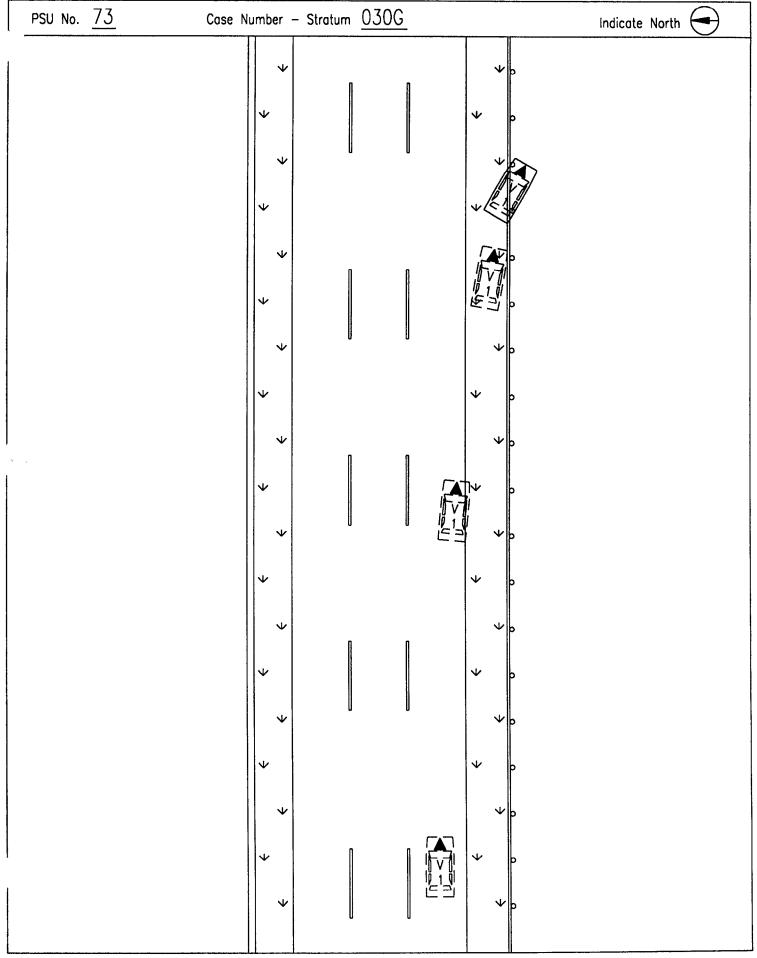


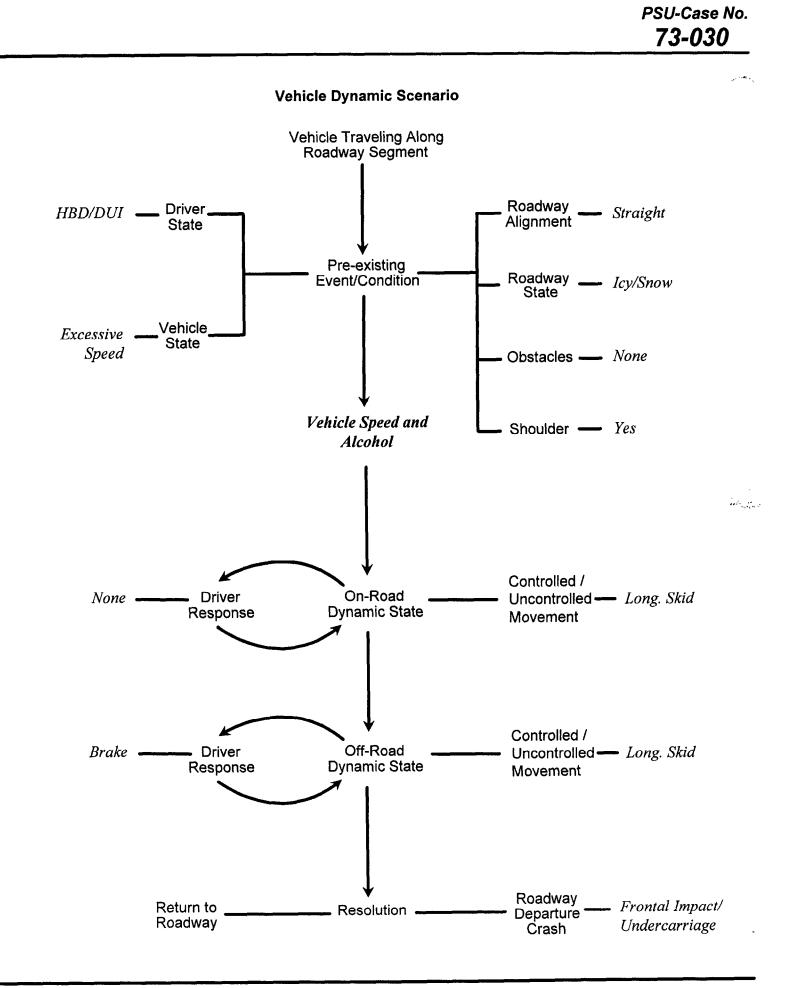
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

	General Acci	dent Information	
Date:	2-1-93	Weather:	Snow/Sleet/Hai
Time:	0100	Surface Condition:	Ice/Snow
Accident Typ	Drive Off Road	Lighting:	None
Accident Sev	verity: 0(O)	Land Use:	Rural
Driver/C	occupant Information	Vehicle Info	rmation
Driver Age:	25	Year:	1991
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Ranger
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	I Information	
Trafficway Ty	-	Alignment:	Straight
(Median):	Physical barrier	Slope:	Grade
No. of Lanes	: 3	Speed Limit:	89 km/h
	Cluste	r Variables	
GV14: 01	No avoidance actions		
GV64: 01	Going straight		
GV65: 06	This vehicle loss of control due t	o traveling too fast for conditions	
GV66: 0	No avoidance maneuver		
GV67: 0	No avoidance maneuver		

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

The subject vehicle was traveling in the first eastbound lane of a straight and level, six-lane, divided interstate. The driver lost directional control. The vehicle exited the right edge of the roadway and then struck and mounted the guardrail adjacent to the south shoulder. The vehicle came to rest straddling the guardrail facing east southeast. The vehicle reportedly sustained damage to the undercarriage, but was repaired before inspected. The driver was intoxicated (BAC=0.13) and was traveling at a speed which was too fast for the snow/ice covered travel conditions.





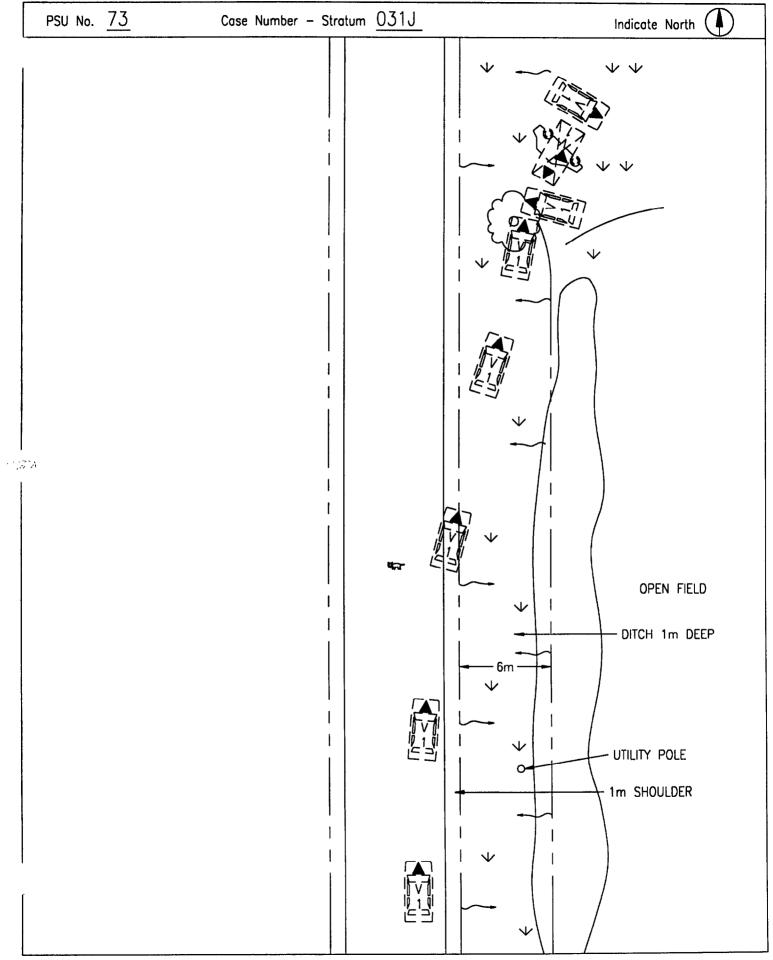
CAUSAL FACTOR:Evasive Maneuver - Avoid Animal or PedestrianROADSIDE DEPARTURE:Right

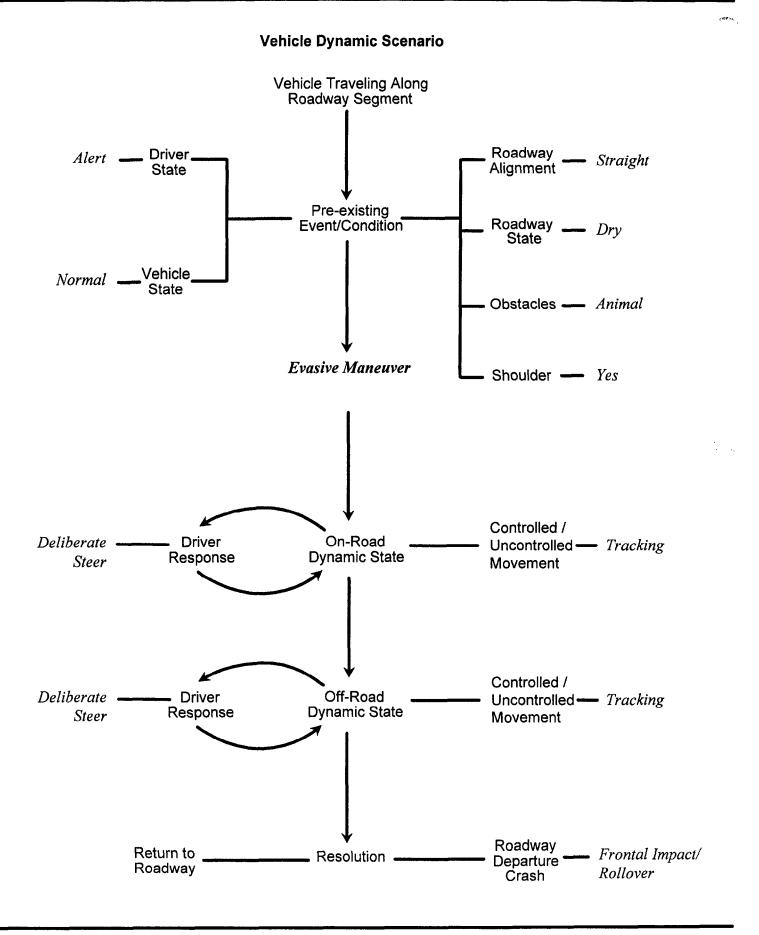
	General Accid	lent Information	
Date:	3-7-93	Weather:	Clear/Cloudy
Time:	1820	Surface Condition:	Dry
Accident Type:	Avoid Collision	Lighting:	Unknown
Accident Sever	ity: 3 (A)	Land Use:	Rural
Driver/Oco	cupant Information	Vehicle Infor	rmation
Driver Age:	16	Year:	1991
Driver Sex:	Male	Vehicle Make:	Hyundai
Impairment:	None	Vehicle Model:	Excel
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	4	Defects:	No
· · · · · ·	Roadway	Information	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	64 km/h
· · · · · · · · · · · · · · · · · · ·	Cluster	Variables	
GV14: 07	Steering right		
GV64: 01	Going straight		
GV65: 87	Animal in roadway		
GV66: 1	Tracking		

 $(1,1) = \sum_{i=1}^{n-1} (1,1) = \sum_{i=1}^{n-1$

CAUSAL FACTOR:Evasive Maneuver - Avoid Animal or PedestrianROADSIDE DEPARTURE:Right

The subject vehicle was proceeding in a northerly direction on a two-lane rural roadway. The subject driver steered to the right in an evasive maneuver to avoid an animal that was crossing the roadway from the driver's right. The subject vehicle exited the right edge of the roadway, proceeded through a drainage ditch, struck a tree with its left frontal area, rotated counterclockwise around the tree, and rolled one full roll while rotating.





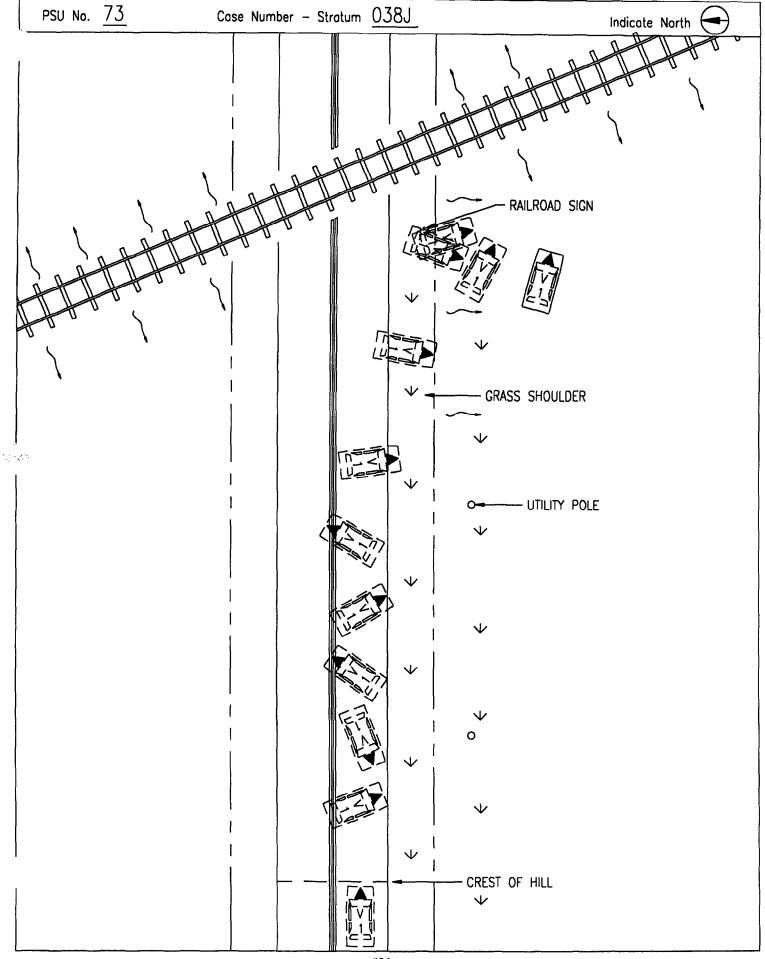
CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

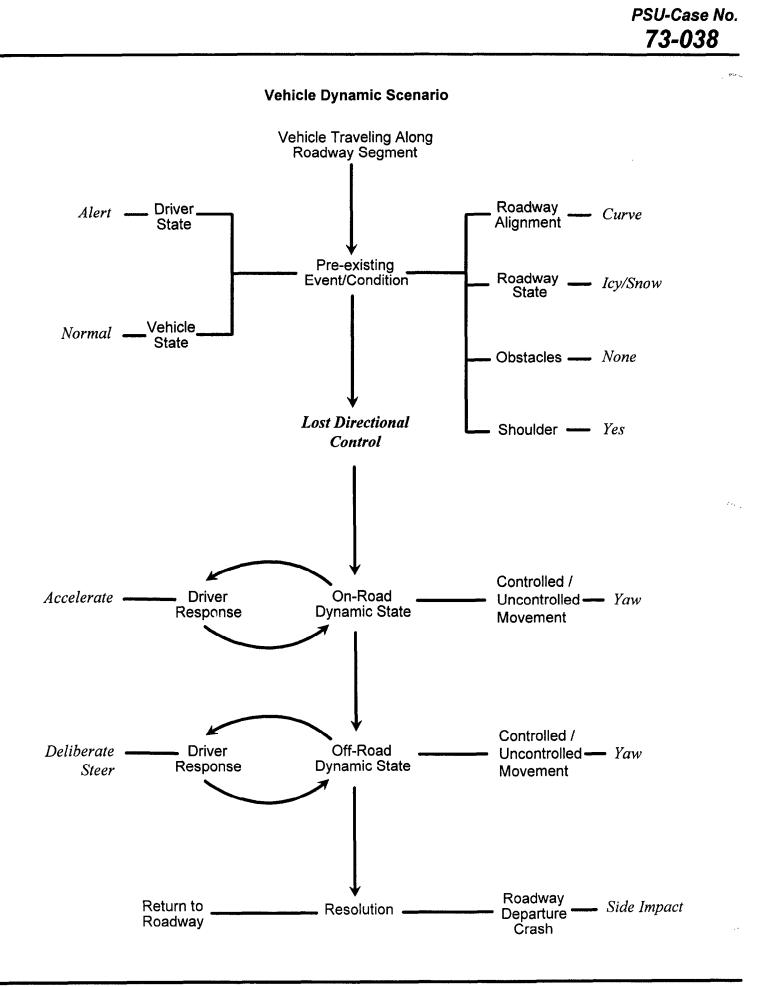
Date:	3-7-93	Weather:	Snow/Sleet/Hail
Time:	0815	Surface Condition:	Ice/Snow
Accident Type:	Control/Traction Loss	Lighting:	Daylight
Accident Severity	3 (A)	Land Use:	Rural
Driver/Occuj	pant Information	Vehicle Infor	mation
Driver Age:	43	Year:	1991
Driver Sex:	Male	Vehicle Make:	Oldsmobile
Impairment:	None	Vehicle Model:	Cutlass (FWD)
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	2	Defects:	No
	Roadway In	formation	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	64 km/h
	Cluster V	ariables	
GV14: 10 Acc	elerating		
GV64: 01 Goi	ng straight		
GV65: 05 Thi	s vehicle loss of control due to p	oor road conditions	
GV66: 3 Ski	lding laterally - clockwise rotati	on	

1426-44

CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

The subject vehicle was traveling east on a snow covered, two-lane, undivided, roadway with a -3% slope. The vehicle departed the right roadside in a clockwise rotation. The vehicle traveled approximately 12 m along the grass shoulder and struck a railroad crossing signal pole with the left side plane. The ambient weather condition was snow. The vehicle, prior to loss of control, had cleared a hill crest and was proceeding along a downgrade segment, approaching a railroad grade crossing. The causal factor was driver lost directional control on road surface. The negative slope of the roadway and the presence of the railroad crossing were also contributing factors.





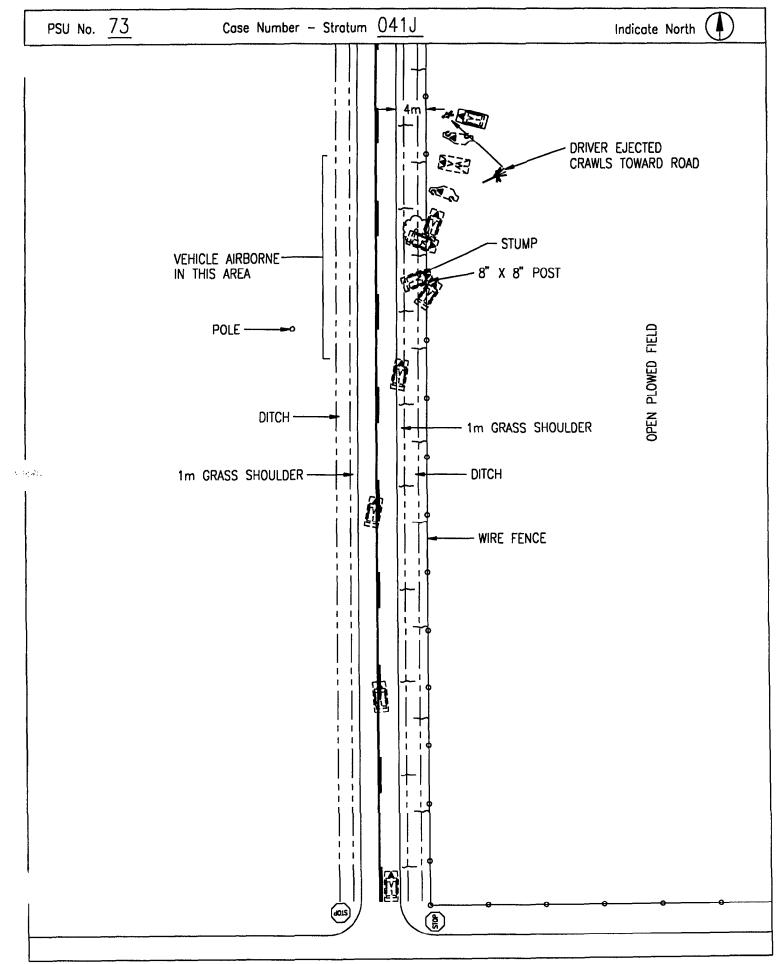
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

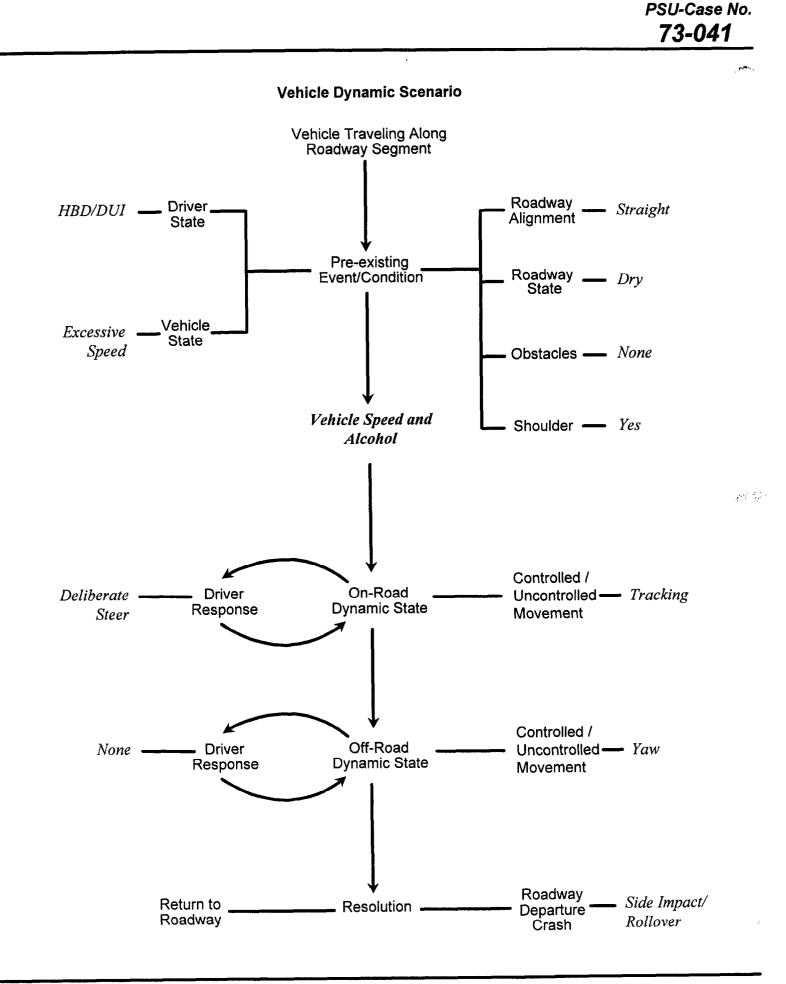
		General Accident	Information	
Date:		3-5-93	Weather:	Clear/Cloudy
Time:		1630	Surface Condition:	Dry
Accident 1	Туре:	Control/Traction Loss	Lighting:	None
Accident S	Severity	: 3 (A)	Land Use:	Rural
Drive	r/Occu	pant Information	Vehicle Infor	mation
Driver Age	ə:	23	Year:	1992
Driver Sex		Male	Vehicle Make:	Chevrolet
Impairmen		Other (alcoh. consumption - BAC .06)	Vehicle Model:	Corvette
Familiarity with Road		Unknown	ABS:	Yes
No. of Occupants	5:	1	Defects:	No
		Roadway Info	ormation	
Trafficway			Alignment:	Straight
(Mediar	ר):	Not divided	Slope:	Grade
No. of Lar	nes:	2	Speed Limit:	64 km/h
		Cluster Var	iables	······································
GV14:	01 No	avoidance actions		
		avoidance actions ng straight		
GV64:	01 Go		he road on the right side	
GV14: GV64: GV65: GV66:	01 Goi 13 Thi	ng straight	he road on the right side	

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

The subject vehicle was traveling south on a dry, unlit, two-lane, undivided, asphalt roadway with a -2% slope. The driver lost control of the vehicle and departed the right side of the roadway. The vehicle crossed a ditch, struck a fence post, rotated clockwise and struck a tree with the left side plane. The vehicle then continued by rotating in a counterclockwise direction and rolling over. Police indicated the vehicle had exceeded the speed limit. The driver had consumed an alcoholic beverage (BAC=0.06) and ingested illicit drugs prior to the crash. The causal factor was excessive vehicle speed with contributing factors of alcohol consumption and illicit drug use.

ACCIDENT COLLISION DIAGRAM





Calspan Corporation Carnegie Mellon University CAUSAL FACTOR:

Driver Relinquishes Steering Control - Physical (seizure/passed out)

ROADSIDE DEPARTURE: Right

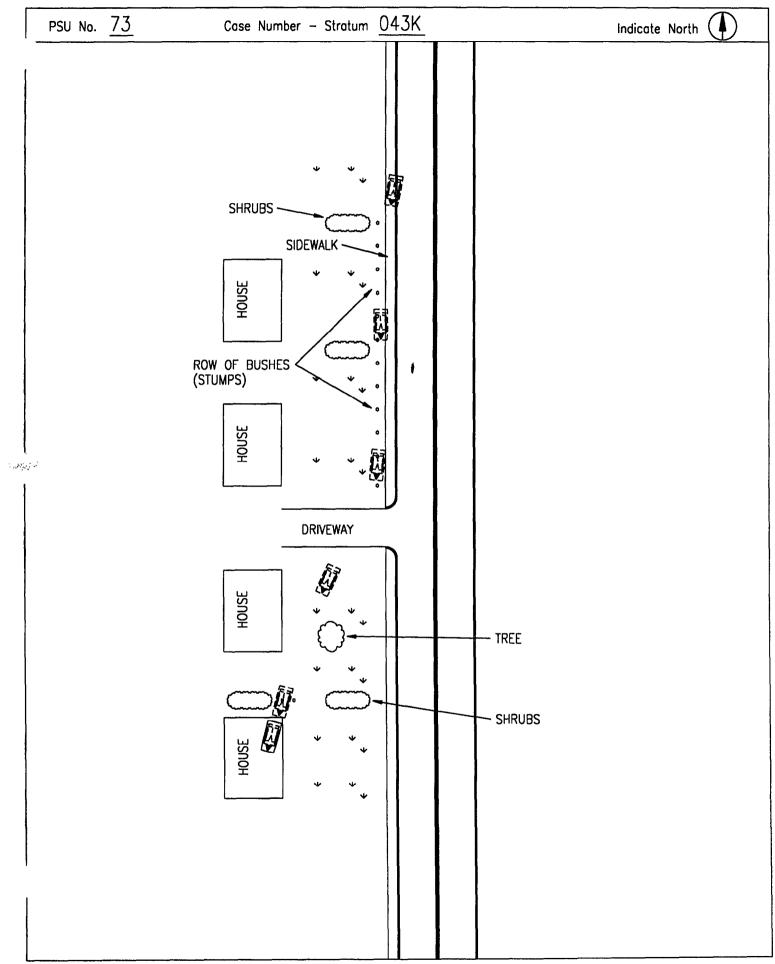
	General Accide	nt Information	
Date:	3-6-93	Weather:	Clear/Cloudy
Time:	1130	Surface Condition:	Dry
Accident Type:	Avoid Collision	Lighting:	Daylight
Accident Severity	: 3 (A)	Land Use:	Urban
Driver/Occu	pant Information	Vehicle Info	rmation
Driver Age:	20	Year:	1986
Driver Sex:	Male	Vehicle Make:	Chevrolet
Impairment:	Physical (seizure/passed out)	Vehicle Model:	Camaro
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway II	nformation	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	4	Speed Limit:	48 km/h
	Cluster V	/ariables	
GV14: 07 Ste	ering right		
GV64: 01 Go	ing straight		
	ner critical precrash event		
GV65: 98 Otl	ier ernicar preerasir event		
	icking		

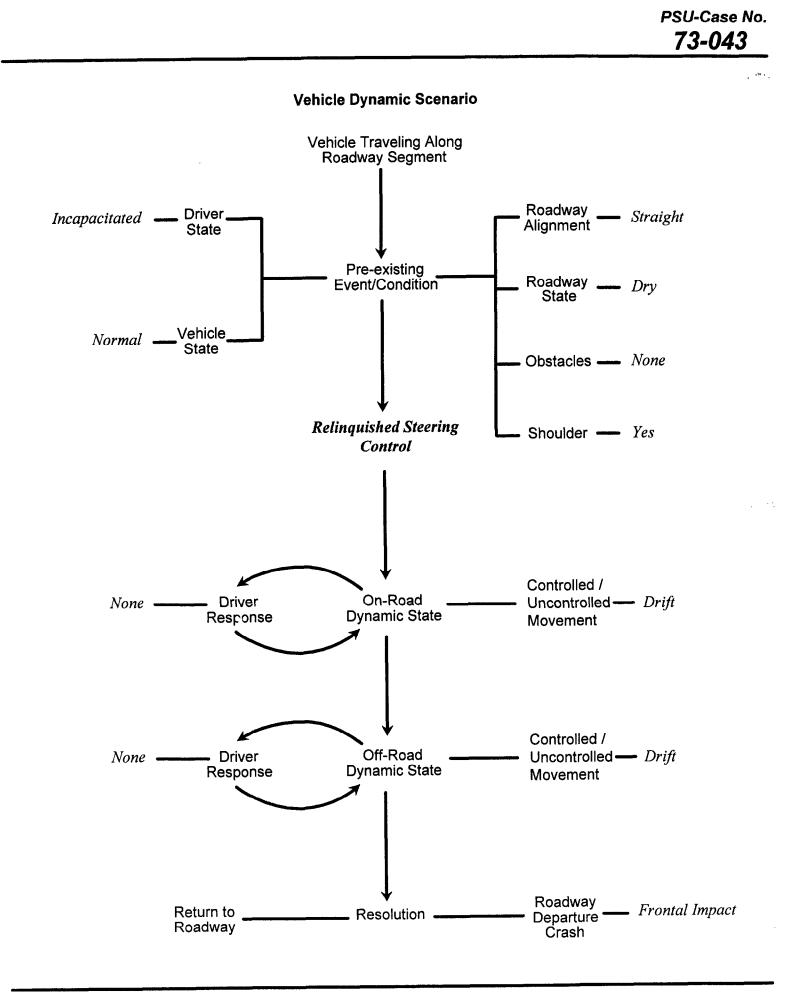
120

CAUSAL FACTOR: Driver Relinquishes Steering Control - Physical (seizure/passed out)

ROADSIDE DEPARTURE: Right

The subject vehicle was traveling south on a dry, four-lane, undivided, level, asphalt roadway when the driver apparently had a seizure and departed the right roadside. The vehicle jumped the curb, struck a row of bushes, traveled over lawns, and impacted a house. The roadway departure occurred during daylight hours with no adverse environmental conditions. The roadway edges were defined by mountable curbs with opposing travel directions separated by solid barrier yellow center lines which were in poor condition. There were no lane lines present. The causal factor was driver relinquished control of the vehicle as the result of a seizure.





CAUSAL FACTOR: ROADSIDE DEPARTURE: Lost Directional Control

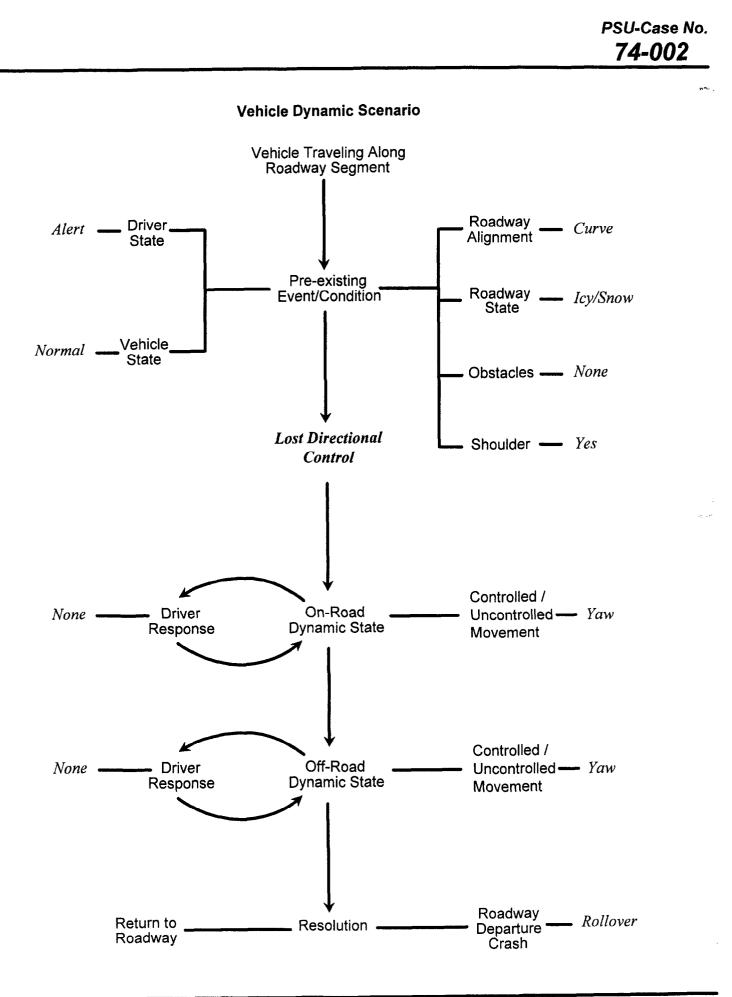
Left

		General Accid	ent Information	
Date:		1-3-93	Weather:	Snow/Sleet/Hail
Time:		0030	Surface Condition:	Ice/Snow
Accident	Гуре:	Control/Traction Loss	Lighting:	None
Accident S	Severit	'y: 3 (A)	Land Use:	Rural
Drive	r/Occi	upant Information	Vehicle Infor	mation
Driver Age	ə:	66	Year:	1991
Driver Sex	<i>c:</i>	Male	Vehicle Make:	Ford
Impairmer	nt:	None	Vehicle Model:	Tempo
Familiarity with Road		Yes	ABS:	No
No. of Occupant	s:	1	Defects:	No
		Roadway	Information	
Trafficwaj (Media		Not divided	Alignment: Slope:	Curve Right Level
No. of La	nes:	2	Speed Limit:	64 km/h
		Cluster	Variables	
GV14:	01 N	lo avoidance actions		
GV64:	13 N	legotiating a curve		
GV65:	05 T	This vehicle loss of control due to	poor road conditions	
GV66:	0	No avoidance maneuver		
GV67:	0	No avoidance maneuver		

Calspan Corporation Carnegie Mellon University CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Left

The subject vehicle was proceeding along a twisting, snow covered, two-lane, unlit roadway. The vehicle rotated clockwise when the driver lost directional control on a patch of ice, and exited the left side of the roadway. The vehicle's speed was 32 km/h (20 mph) in a 64 km/h (40 mph) speed zone.

PSU No. 74	Case Number - Stratum 002C	Indicate North
PSU No. <u>/4</u>	Case Number - Stratum UU2L	Indicate North



CAUSAL FACTOR: Lost Directional Control

Left

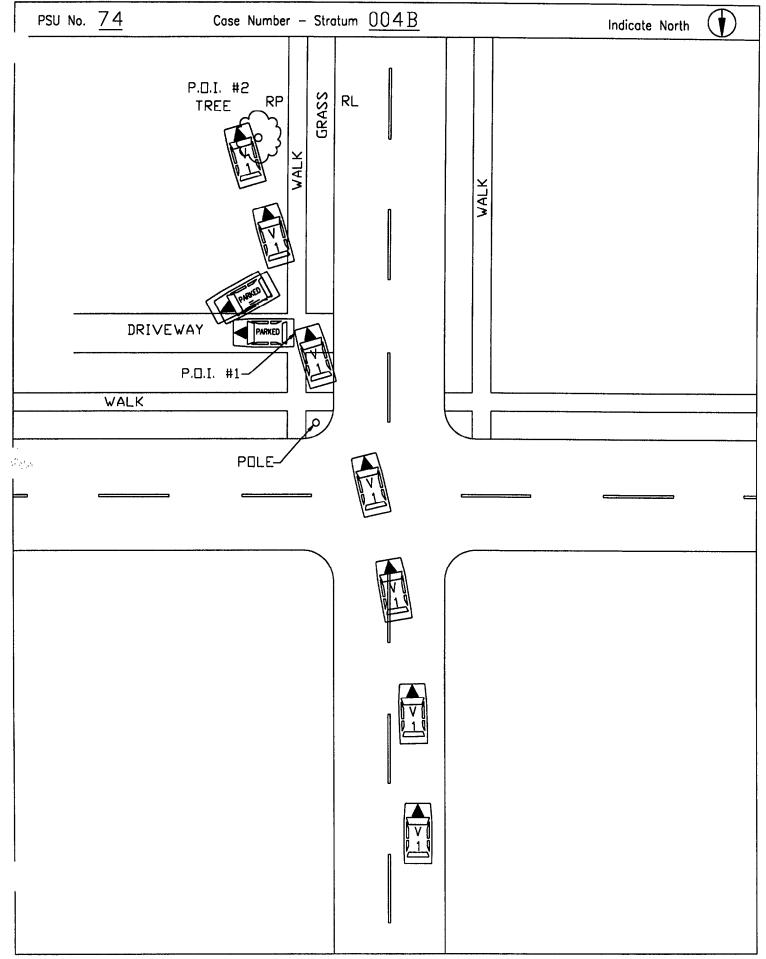
ROADSIDE DEPARTURE:

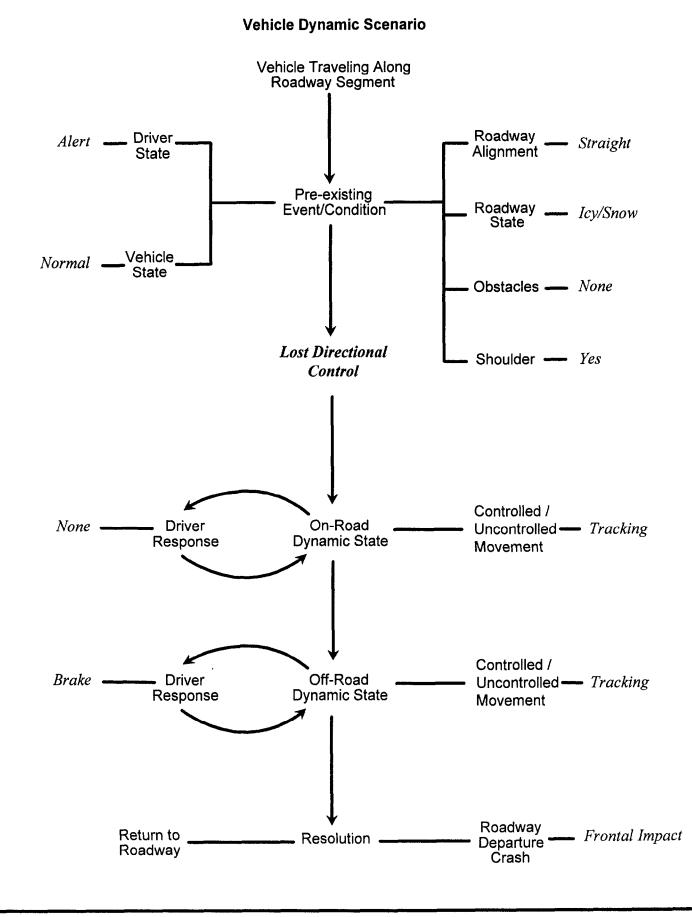
	General Accide	ent Information	
Date:	1-6-93	Weather:	Clear/Cloudy
Time:	2212	Surface Condition:	Ice/Snow
Accident Type:	Control/Traction Loss	Lighting:	Artificial lighting
Accident Severi	ty: 4 (K)	Land Use:	Urban
Driver/Occ	upant Information	Vehicle Info	rmation
Driver Age:	18	Year:	1988
Driver Sex:	Male	Vehicle Make:	Chevrolet
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Cavalier
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	4	Defects:	No
	Roadway I	nformation	· · · · · · · · · · · · · · · · · · ·
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	48 km/h
	Cluster \	/ariables	
GV14: 01 N	lo avoidance actions		
GV64: 01 C	Going straight		
GV65: 05 T	This vehicle loss of control due to	poor road conditions	
GV66: 0 N	lo avoidance maneuver		
GV00. 0 P			

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CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Left

The subject vehicle was proceeding along a residential roadway during evening hours when it hit a patch of ice. The driver lost directional control of the vehicle which veered to the left. The subject vehicle impacted two parked vehicles with the left side, proceeded another 15 m down the shoulder and impacted a tree. The driver was traveling below the speed limit.



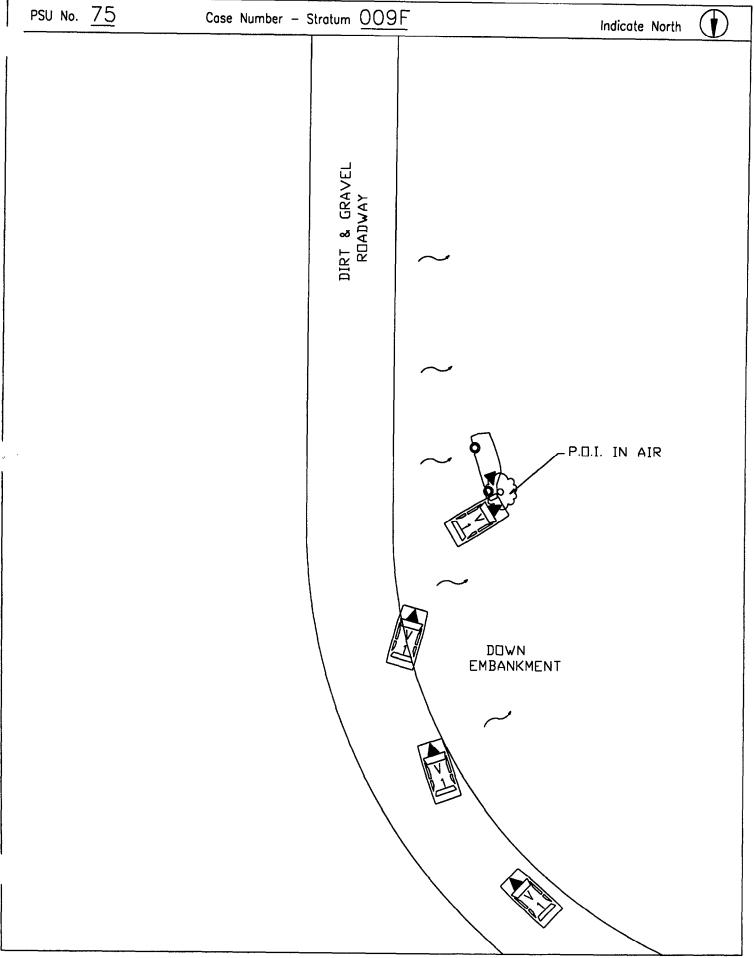


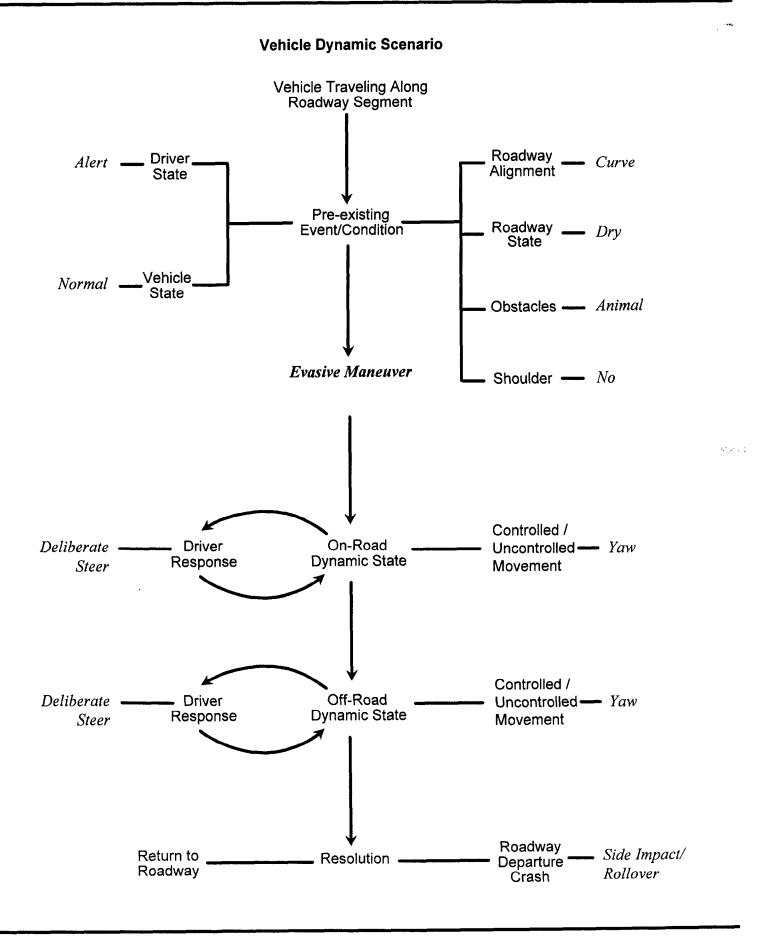
Calspan Corporation Carnegie Mellon University CAUSAL FACTOR:Evasive Maneuver - Avoid Animal or PedestrianROADSIDE DEPARTURE:Right

	General Acc	ident Information	
Date:	1-3-93	Weather:	Clear/Cloudy
Time:	1815	Surface Condition:	Dry
Accident Type:	Avoid Collision	Lighting:	None
Accident Severit	y: 2 (B)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Infor	mation
Driver Age:	42	Year:	1985
Driver Sex:	Male	Vehicle Make:	Toyota
Impairment:	None	Vehicle Model:	Pickup
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadwa	y Information	
Trafficway Type		Alignment:	Curve Right
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	40 km/h
	Cluste	er Variables	
GV14: 07 S	teering right		
GV64: 13 N	egotiating a curve		
GV65: 05 T	his vehicle loss of control due	to poor road conditions	
GV66: 3 S	kidding laterally - clockwise ro	otation	

CAUSAL FACTOR:Evasive Maneuver - Avoid Animal or PedestrianROADSIDE DEPARTURE:Right

The subject vehicle was proceeding along a dark, dirt and gravel roadway. The driver steered right to avoid a deer which had leaped into the roadway. The vehicle yawed and rotated clockwise, existing the roadway to the right.





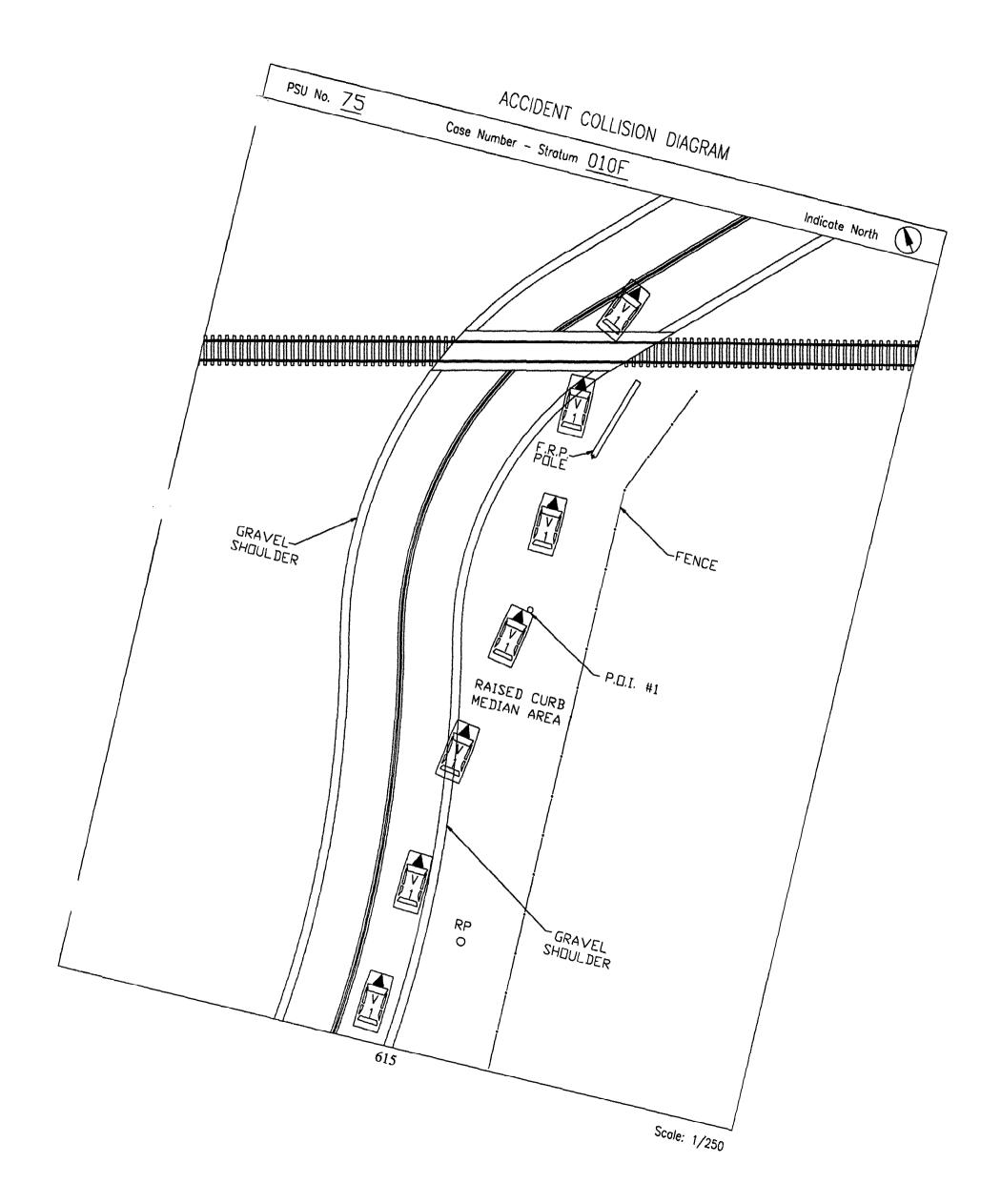
Calspan Corporation Carnegie Mellon University CAUSAL FACTOR: Dri ROADSIDE DEPARTURE: Rig

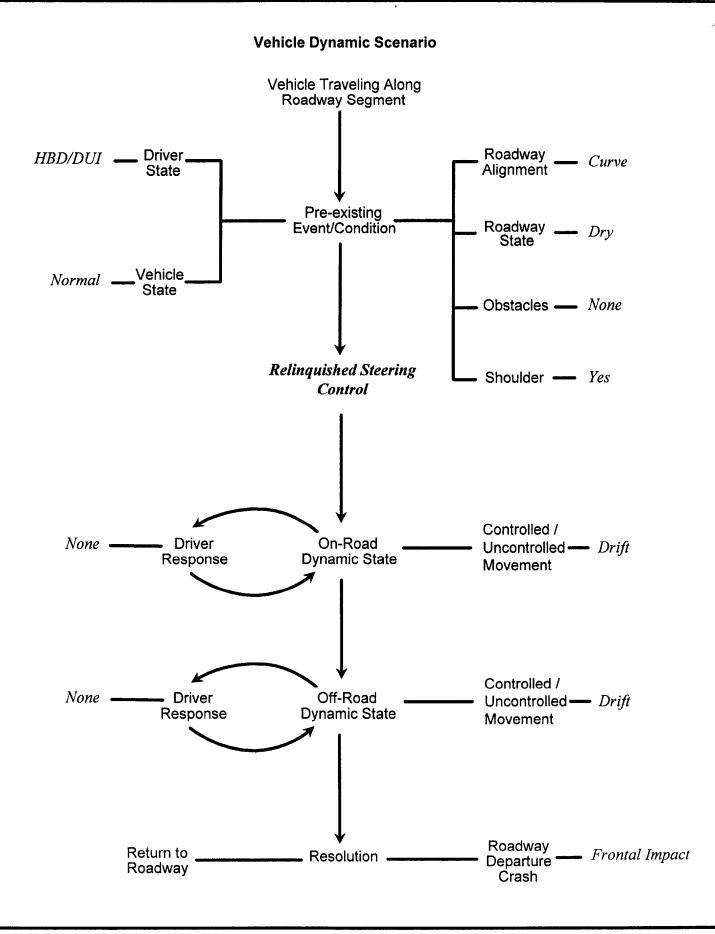
Driver Relinquishes Steering Control - Intoxicated Right

		General Acci	dent Information	· · · · · · · · · · · · · · · · · · ·
Date:		1-1-93	Weather:	Clear/Cloudy
Time:		0155	Surface Condition:	Dry
Accident T	ype:	Drive Off Road	Lighting:	None
Accident S	everity:	1 (C)	Land Use:	Rural
Driver	/Occup	pant Information	Vehicle Infor	mation
Driver Age:		46	Year:	1977
Driver Sex:		Male	Vehicle Make:	Oldsmobile
Impairment	tr	Intoxicated (alcohol/drugs)	Vehicle Model:	Cutlass
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants	:	1	Defects:	No
		Roadway	Information	
Trafficway			Alignment:	Curve Left
(Median)):	Not divided	Slope:	Level
No. of Lan	es:	2	Speed Limit:	48 km/h
		Cluster	r Variables	
GV14:	01 No	avoidance actions		
GV64:	13 Neg	gotiating a curve		
GV65:	13 Thi	s vehicle traveling off the edg	ge of the road on the right side	
GV66:	0 No	avoidance maneuver		
G V00.				

CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

The subject vehicle was proceeding along a two-lane trafficway. The driver relinquished steering control and drifted off the right side of the road. The driver was intoxicated.





CAUSAL FACTOR: Lost Directional Control

Left

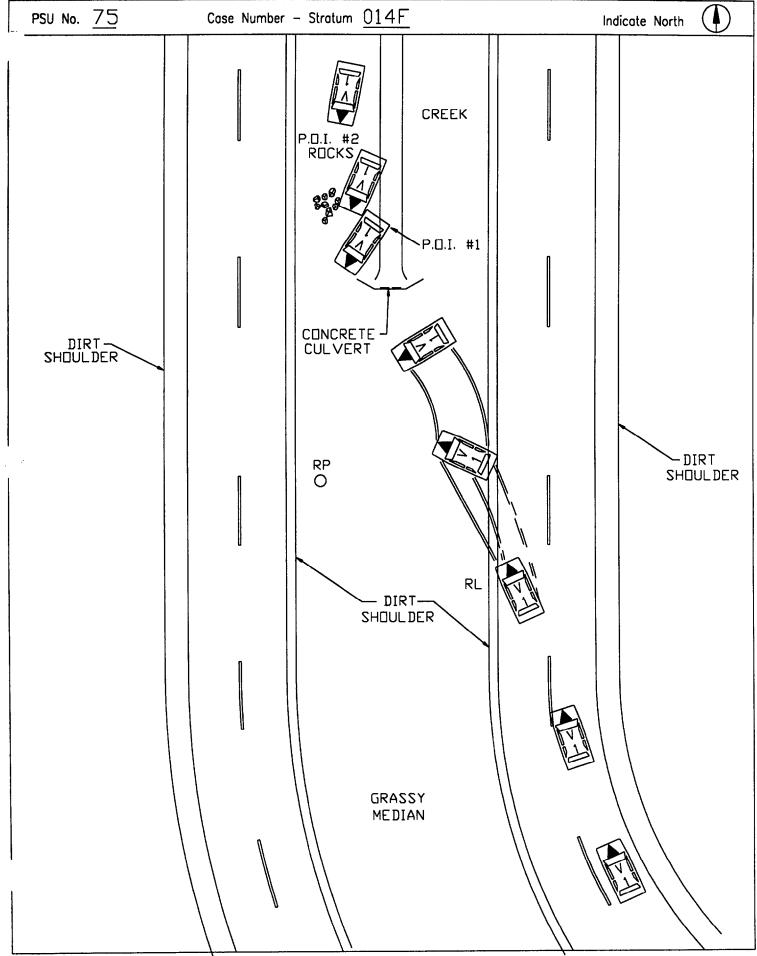
ROADSIDE DEPARTURE:

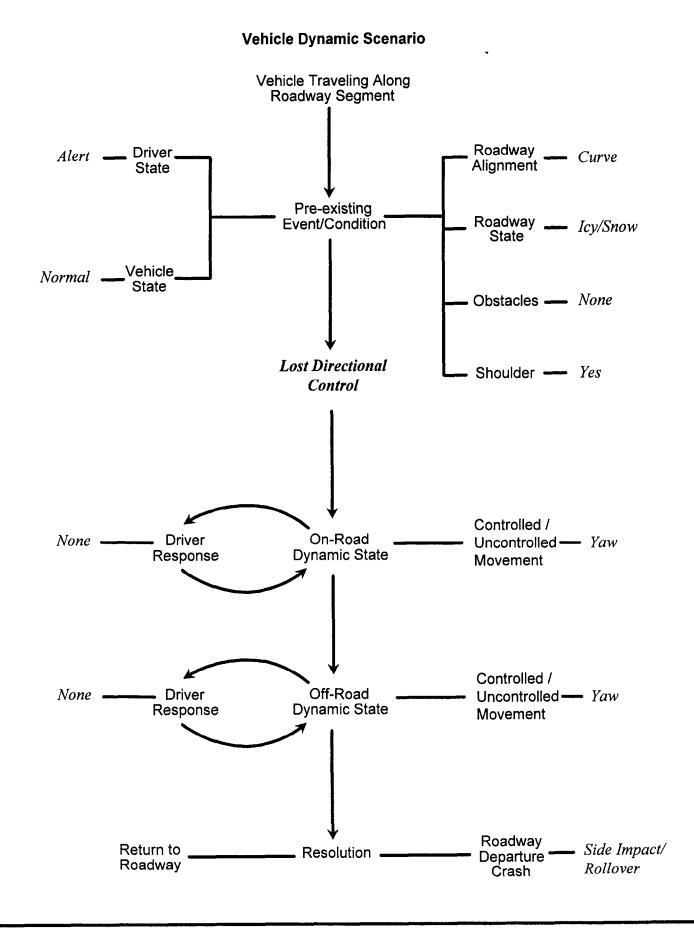
	General Acci	dent Information	
Date:	1-2-93	Weather:	Clear/Cloudy
Time:	1750	Surface Condition:	Ice/Snow
Accident Type	: Control/Traction Loss	Lighting:	None
Accident Seve	<i>rity:</i> 1 (C)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Infor	rmation
Driver Age:	16	Year:	1988
Driver Sex:	Female	Vehicle Make:	Buick
Impairment:	None	Vehicle Model:	Regal
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadwa	y Information	na n
Trafficway Ty		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	56 km/h
	Cluste	er Variables	
GV14 : 01	No avoidance actions		
GV64 : 13	Negotiating a curve		
GV65 : 05	This vehicle loss of control due	to poor road conditions	
GV66: 0	No avoidance maneuver		
GV67: 0	No avoidance maneuver		

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CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Left

The subject vehicle was proceeding along a rural, unlit, two-lane highway. The vehicle contacted a patch of black ice, started to rotate counterclockwise, departed the road on the left side and went down an embankment prior to impacting a culvert. The vehicle rolled over one-quarter turn, coming to rest on some rocks. The driver reported a travel speed of 48 km/h (30 mph) prior to hitting the ice.





CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Left

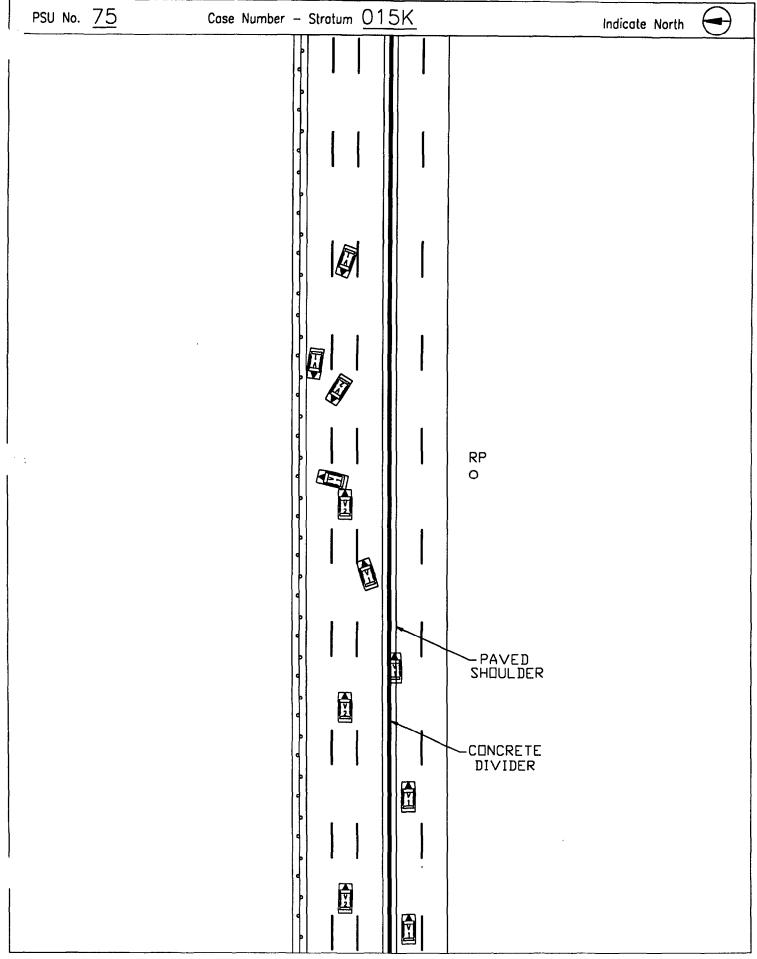
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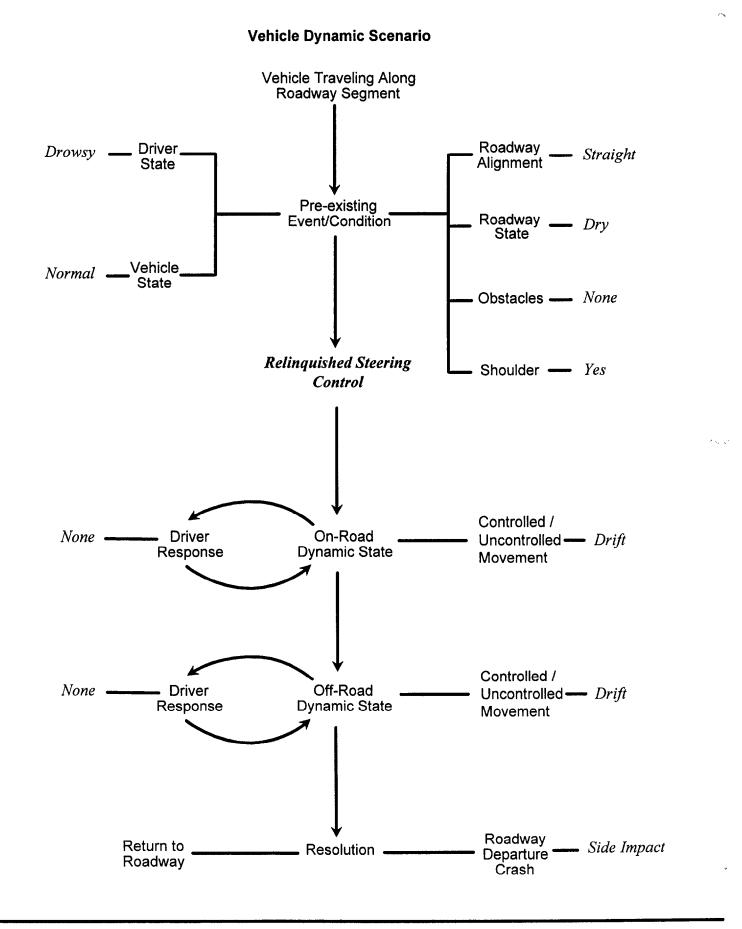
		General Acci	dent Information	····
Date:		2-6-93	Weather:	Clear/Cloudy
Time:		0340	Surface Condition:	Dry
Accident 1	ype:	Drive Off Road	Lighting:	Artificial lighting
Accident S	Severity:	3 (A)	Land Use:	Urban
Drive	r/Occupa	ant Information	Vehicle Infor	mation
Driver Age	:	57	Year:	1969
Driver Sex	:	Male	Vehicle Make:	Volkswagon
Impairmen	t:	Fell Asleep	Vehicle Model:	Beetle 1300/1500
Familiarity with Road:		Yes	ABS:	No
No. of Occupants	:	2	Defects:	No
		Roadway	Information	
Trafficway			Alignment:	Straight
(Median	-	Physical barrier	Slope:	Grade
No. of Lan	ies:	2	Speed Limit:	48 km/h
		Cluster	Variables	
GV14:	01 No av	voidance actions		
GV64:	01 Goin	g straight		
GV65:	12 This	vehicle traveling off the edg	e of the road on the left side	
		voidance maneuver		
GV66:	0 No av	volutioe maneuver		

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CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Left

The subject vehicle was traveling along an expressway on-ramp when the driver fell asleep. The vehicle crossed over a raised median to the right of the road and impacted a second vehicle.





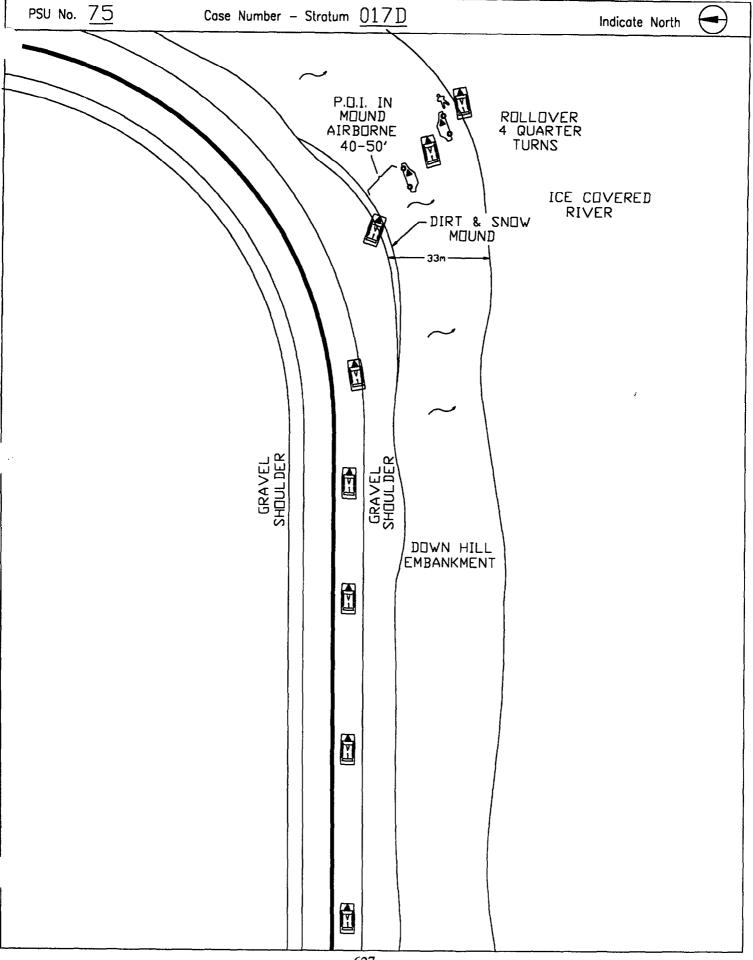
Calspan Corporation Carnegie Mellon University CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

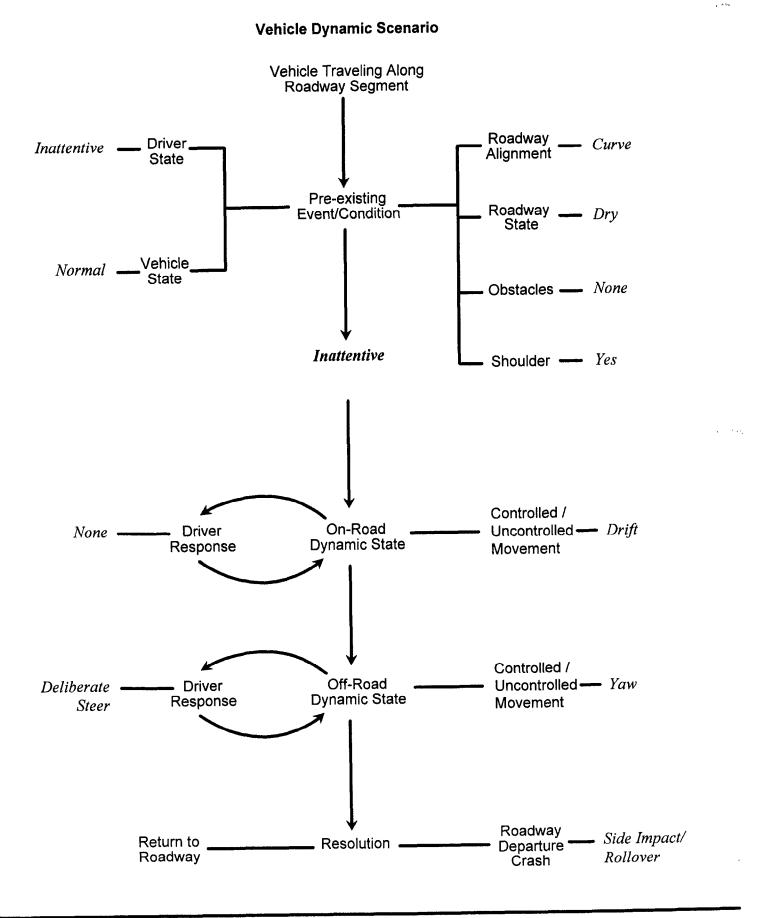
		General Accide	nt Information	
Date:		1-1-93	Weather:	Clear/Cloudy
Time:		1620	Surface Condition:	Dry
Accident T	ype:	Control/Traction Loss	Lighting:	Daylight
Accident S	everity:	3 (A)	Land Use:	Rural
Driver	/Occupa	ant Information	Vehicle Infor	mation
Driver Age:		20	Year:	1980
Driver Sex:		Male	Vehicle Make:	Subaru
Impairment	t:	None	Vehicle Model:	DL/FE/G/GF/ GLF/STD
Familiarity with Road:		Yes	ABS:	No
No. of Occupants	:	3	Defects:	No
		Roadway Ir	formation	
Trafficway			Alignment:	Curve Left
(Median)):	Not divided	Slope:	Level
No. of Lan	es:	2	Speed Limit:	64 km/h
		Cluster V	ariables	
GV14:	01 No a	voidance actions		
GV64:	13 Nego	otiating a curve		
GV65:	06 This	vehicle loss of control due to t	raveling too fast for conditions	
GV66:	0 No a	voidance maneuver		
GV67:	0 Noa	voidance maneuver		

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CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

The subject vehicle was traveling eastbound on a two-lane, mountain road. The vehicle was approaching a left curve when the driver looked out to the right to observe the scenery. By the time the driver looked back, the vehicle had exited the right edge of the roadway. The driver attempted to correct back onto the road. The vehicle rotated counterclockwise and impacted a dirt and snow mound. The impact launched the vehicle and started it rolling. The vehicle came to rest in an ice covered stream.



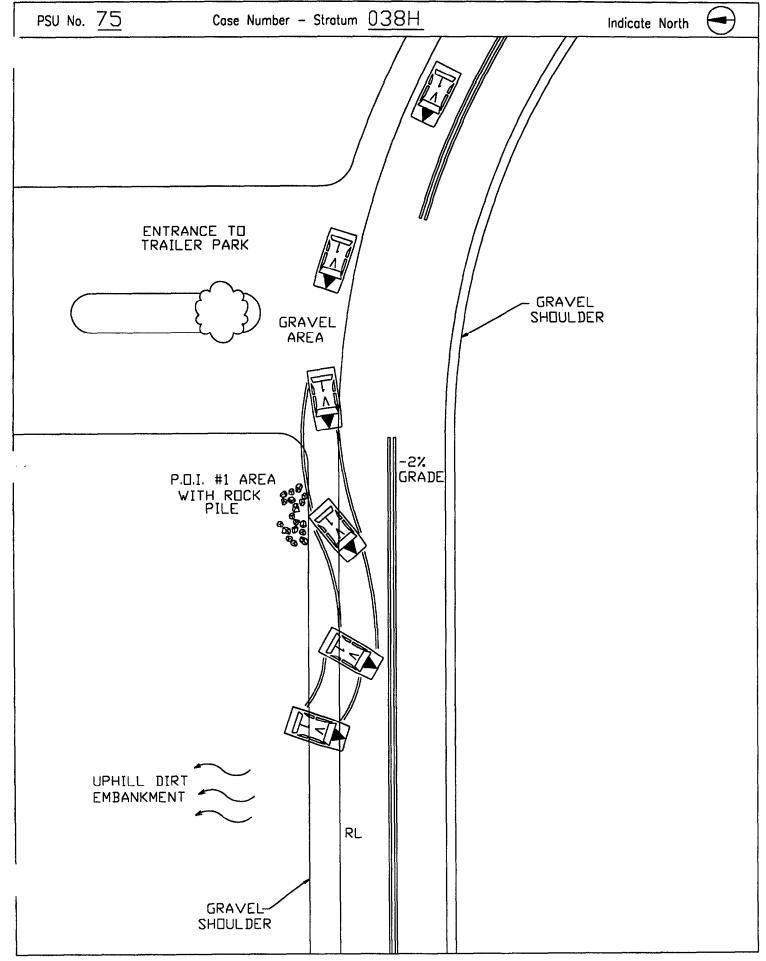


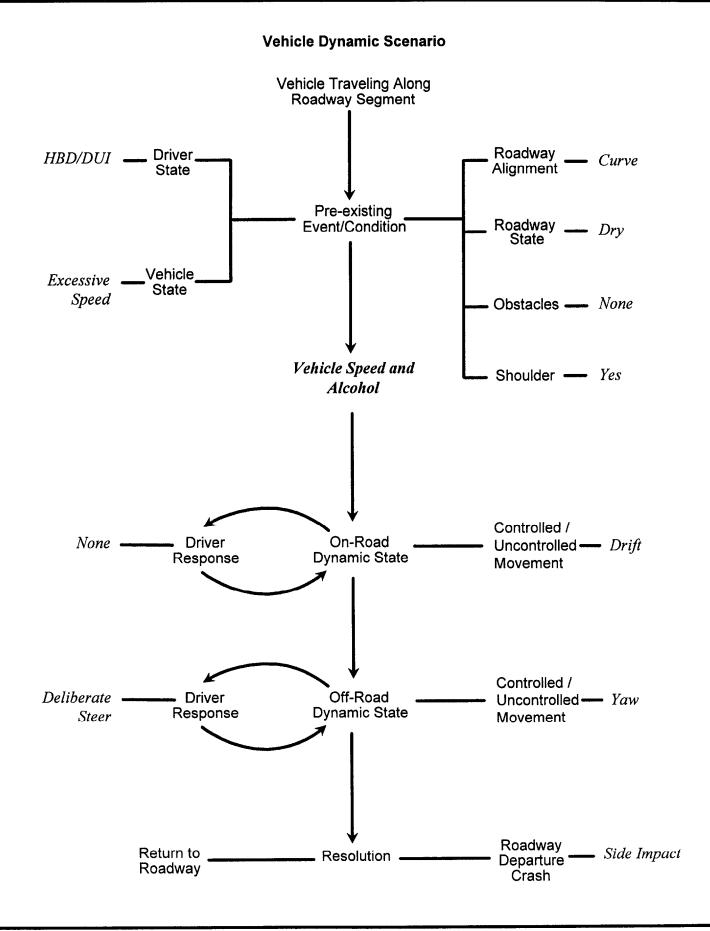
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

	General Accident	Information	
Date:	3-1-93	Weather:	Clear/Cloudy
Time:	2145	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	None
Accident Sever	<i>ity:</i> 2 (B)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Infor	mation
Driver Age:	19	Year:	1974
Driver Sex:	Male	Vehicle Make:	Ford
Impairment:	Other (alcoh. consumption - BAC unknown)	Vehicle Model:	Mustang/ Mustang II
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway Info	ormation	
Trafficway Typ		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	40 km/h
	Cluster Va	riables	······································
GV14 : 01	No avoidance actions		
GV64: 13	Negotiating a curve		
GV65 : 13	This vehicle traveling off the edge of	the road on the right side	
	No avoidance maneuver		
GV66: 0			

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

The subject vehicle was traveling in a northwesterly direction around a left curve on a dry, two-lane, rural, asphalt, roadway with a negative slope, full barrier center lines, and no edge lines. The vehicle failed to track a sharp curve to the left, exiting the right edge of the roadway. As the driver steered back to the left in an attempt to regain the roadway, the vehicle crossed a wide, graveled surface, entrance to a trailer park and began yawing counterclockwise. The vehicle then struck a large rock pile located immediately to the west of the trailer park entrance with its right rear quarter panel. This impact reversed the vehicle's rotation from counterclockwise to clockwise while the vehicle continued in a westerly direction in a broadside skid to the left, straddling the westbound travel lane and the north shoulder. The vehicle exited the roadway a second time and came to rest facing in a northerly direction straddling the north shoulder and an adjacent grassy embankment. The driver had been drinking and was traveling at a high rate of speed.





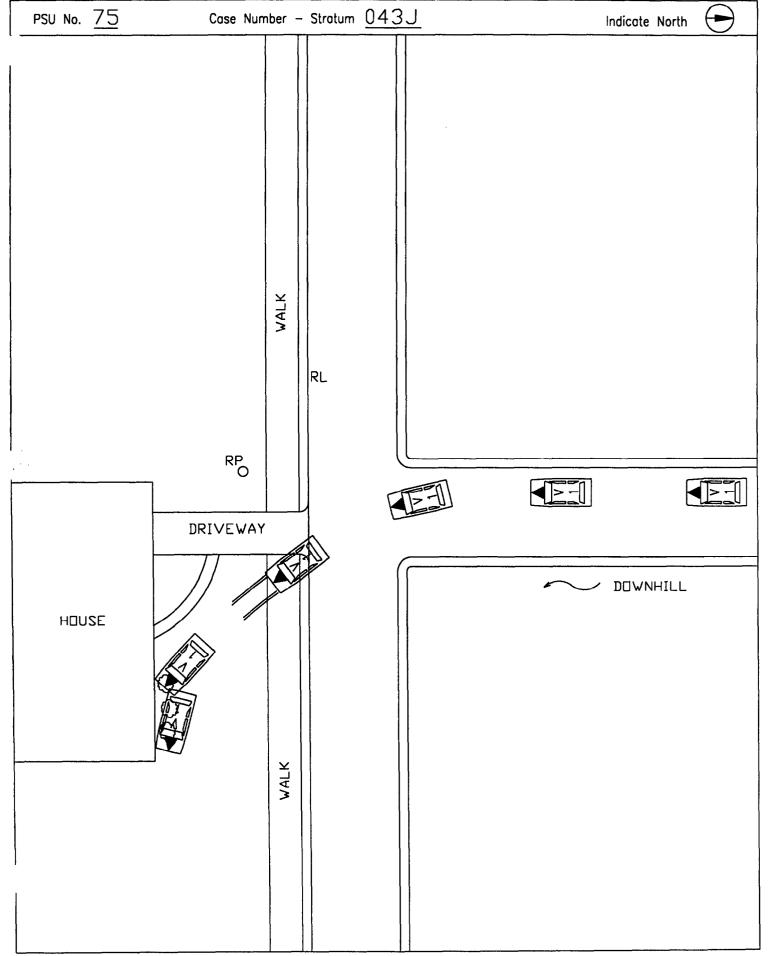
CAUSAL FACTOR:	Vehicle Failure
ROADSIDE DEPARTURE:	End Departure

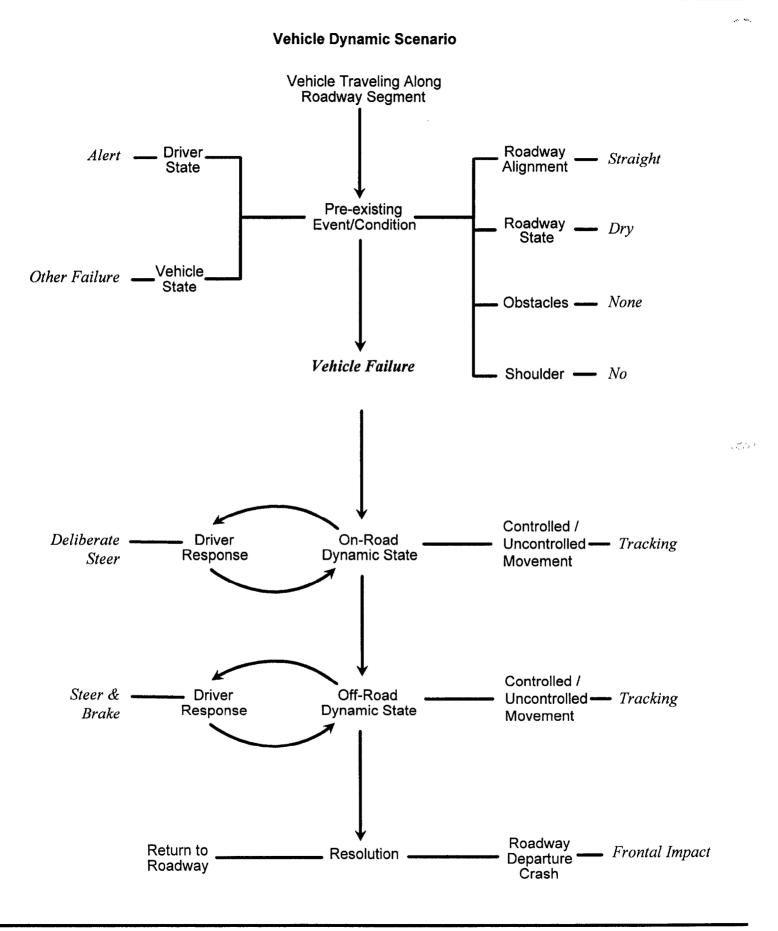
	General Acc	ident Information	
Date:	3-4-93	Weather:	Clear/Cloudy
Time:	1525	Surface Condition:	Dry
Accident Type	e: End Departure	Lighting:	Daylight
Accident Seve	erity: 3 (A)	Land Use:	Urban
Driver/O	ccupant Information	Vehicle Infor	rmation
Driver Age:	64	Year:	1993
Driver Sex:	Female	Vehicle Make:	Jeep
Impairment:	None	Vehicle Model:	Cherokee (1984-on)
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	Other Failure
	Roadwa	y Information	······
Trafficway Ty		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes	2	Speed Limit:	48 km/h
	Cluste	er Variables	
GV14 : 06	Steering left		
GV64 : 02	Slowing or stopping in traffic la	ane	
GV65: 03	This vehicle loss of control due	to disabling vehicle failure	
GV66: 1	Tracking		
	Vehicle departed roadway		

CAUSAL FACTOR:Vehicle FailureROADSIDE DEPARTURE:End Departure

The subject vehicle was traveling in a southerly direction on a dry, two-lane, residential, urban, asphalt, roadway with a negative slope, bounded by curbs, and with no surface markings. As the vehicle approached a T-intersection, the accelerator pedal reportedly fell to the floor resulting in sudden acceleration. The driver had intended to initiate a left turn at the intersection, but was not able to be successfully complete this maneuver. The vehicle exited the right edge of the intersecting roadway, impacted a house with its frontal plane, and came to rest in contact with the house, facing in an east southeasterly direction.

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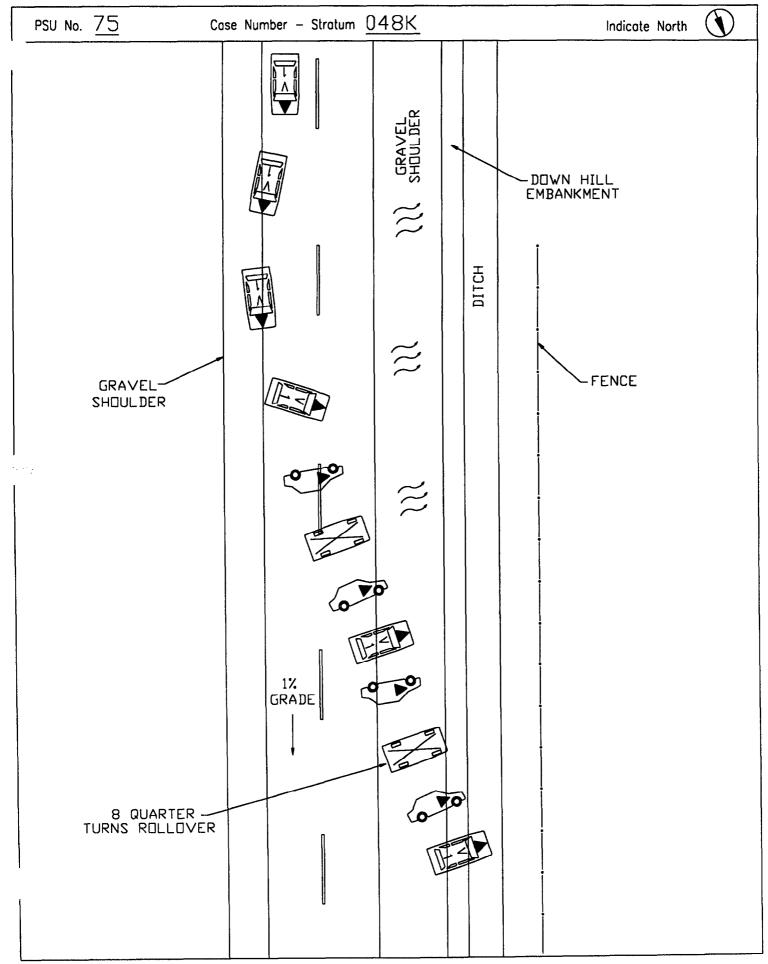


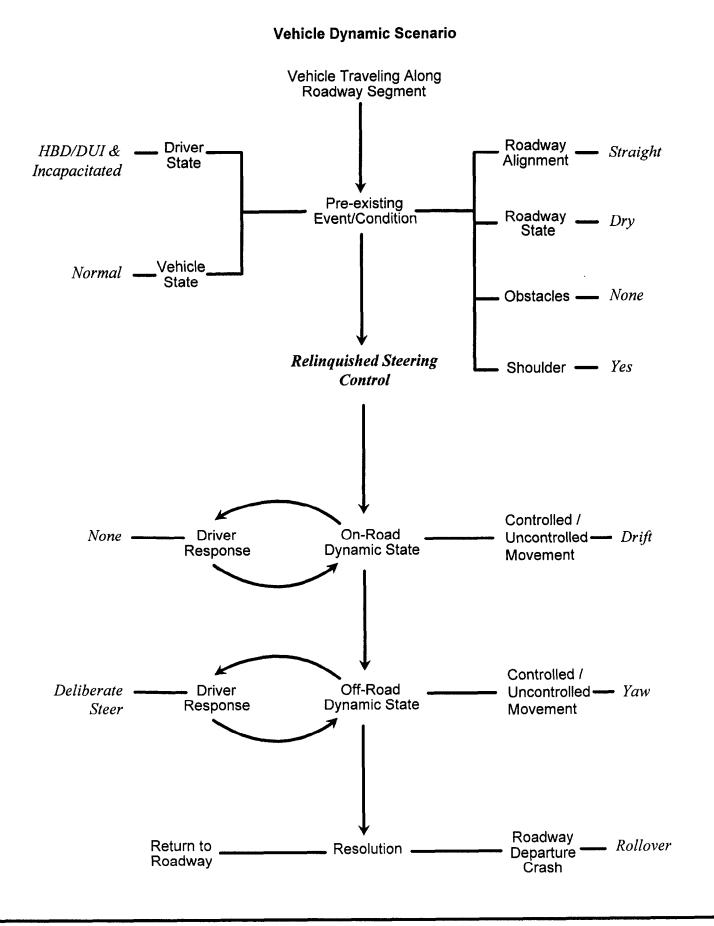
CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

·····	General Accid	ent Information	
Date:	3-7-93	Weather:	Clear/Cloudy
Time:	2331	Surface Condition:	Dry
Accident Type.	Control/Traction Loss	Lighting:	None
Accident Seve	rity: 3 (A)	Land Use;	Rural
Driver/Oc	cupant Information	Vehicle Infor	mation
Driver Age:	26	Year:	1987
Driver Sex:	Male	Vehicle Make:	Chevrolet
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	S-10 Blazer
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Typ		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	89 km/h
	Cluster	Variables	
GV14: 01	No avoidance actions		
GV64: 01	Going straight		
GV65: 13	This vehicle traveling off the edge	e of the road on the right side	
GV66: 0	No avoidance maneuver		

CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

The subject vehicle was proceeding in a northerly direction on a dry, straight, two-lane, rural, asphalt, highway with a +1% slope. The vehicle drifted off the right edge of the roadway and traveled along the right/east shoulder for a distance of 34 m. The driver steered sharply back to the left, the vehicle yawed counterclockwise as it reentered the roadway, and rolled twice side-over-side to the right. The vehicle came to rest on its wheels in a gully adjacent to the west shoulder facing southwest. The roadway was dark with white edge lines, broken yellow center line, and no artificial lighting. The driver was intoxicated (BAC=0.31).



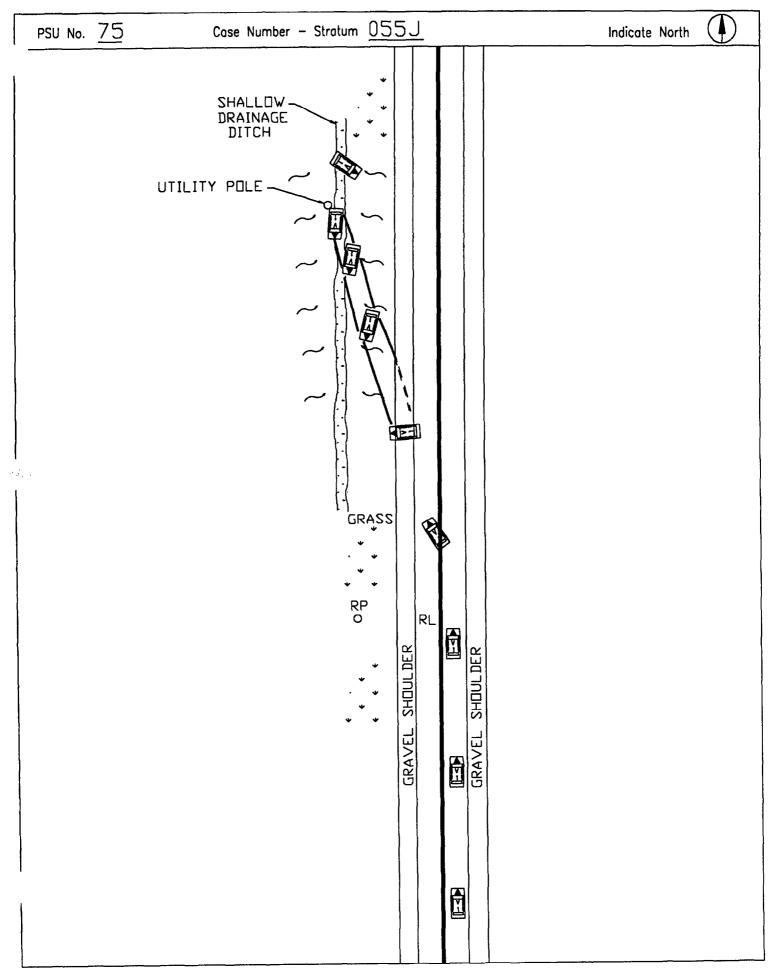


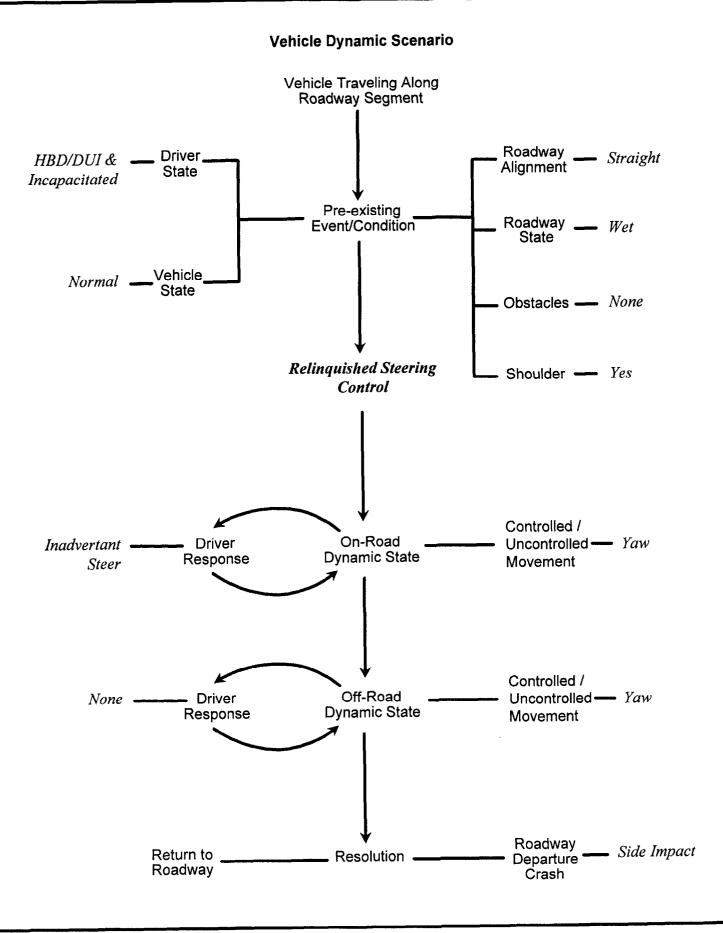
CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Left

	General Accide	ent Information	
Date:	4-3-93	Weather:	Clear/Cloudy
Time:	0200	Surface Condition:	Wet
Accident Type:	Control/Traction Loss	Lighting:	None
Accident Severity	: 3 (A)	Land Use:	Rural
Driver/Occu	pant Information	Vehicle Infor	rmation
Driver Age:	21	Year:	1990
Driver Sex:	Female	Vehicle Make:	Chevrolet
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Nova/Geo Prizm
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway li	nformation	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	80 km/h
	Cluster V	/ariables	· · · · · · · · · · · · · · · · · · ·
GV14: 01 No	avoidance actions		
GV64: 01 Go	ing straight		
GV65: 05 Th	is vehicle loss of control due to p	poor road conditions	
GV66: 0 No	avoidance maneuver		
	avoidance maneuver		

CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a northerly direction on a straight, wet, two-lane, rural, asphalt, highway with a negative slope, edge lines, and full barrier center lines. The sequence of pre-crash events is not clear; however, the vehicle yawed approximately 180 degrees in a counterclockwise direction and exited the left edge of the roadway. The vehicle crossed the shoulder and traversed a shallow drainage ditch proceeding rearward until the right rear quarter panel struck a utility pole located on the far bank of the ditch. The vehicle rotated counterclockwise off this impact and came to rest a short distance north of the pole, facing southeast. The driver was intoxicated and relinquished steering control. The roadway was dark and not lighted.





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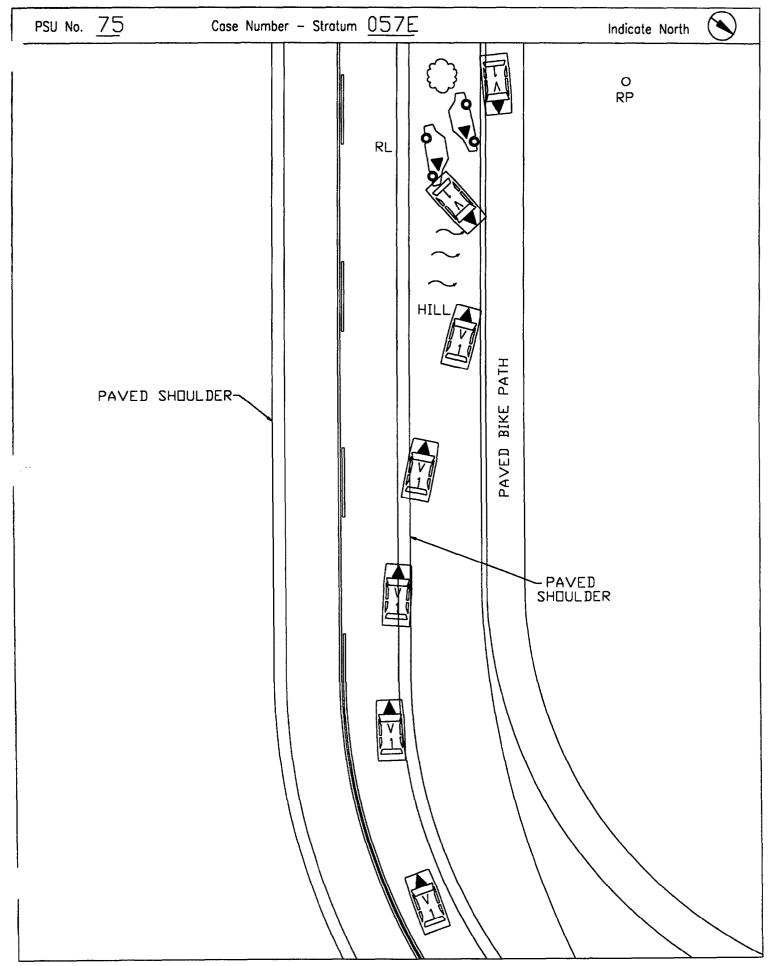
CAUSAL FACTOR: ROADSIDE DEPARTURE:

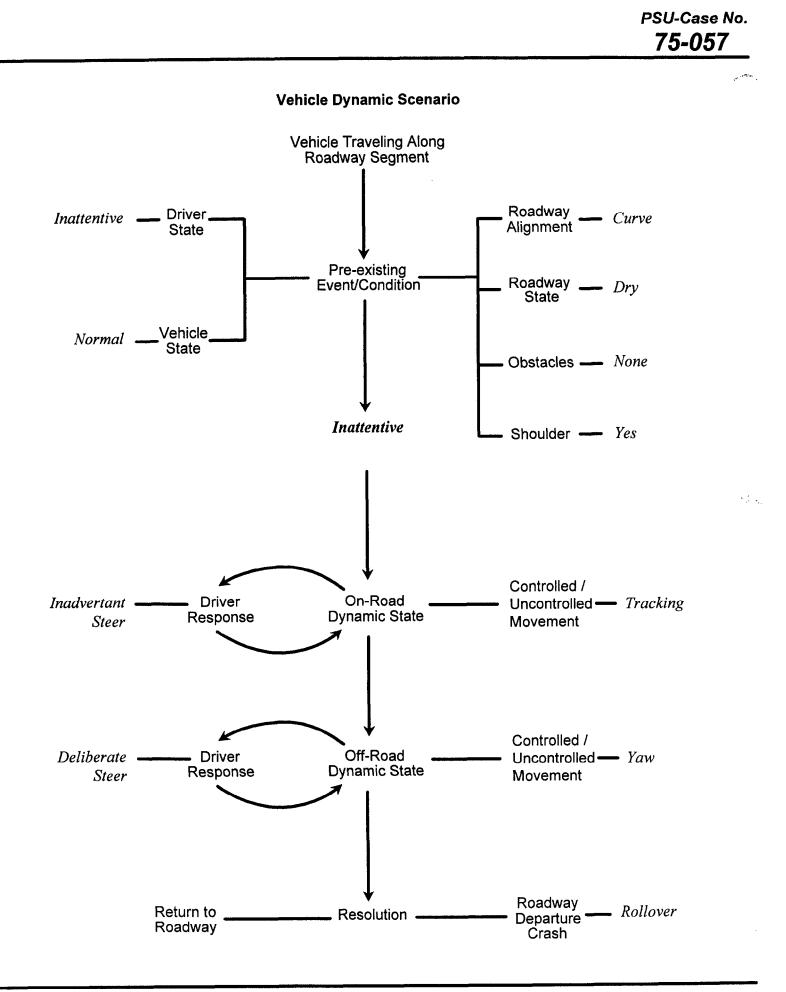
Driver Inattention Right

	General Accie	dent Information		
Date:	1-4-93	Weather:	Clear/Cloudy	
Time:	2030	Surface Condition:	Dry	
Accident Type:	Drive Off Road	Lighting:	None	
Accident Sever	ity: 1 (C)	Land Use:	Rural	
Driver/Occupant Information		Vehicle Infor	Vehicle Information	
Driver Age:	22	Year:	1992	
Driver Sex:	Female	Vehicle Make:	Volkswagon	
Impairment:	None	Vehicle Model:	Jetta	
Familiarity with Road:	Unknown	ABS:	No	
No. of Occupants:	2	Defects:	No	
	Roadway	Information		
Trafficway Type		Alignment:	Curve Right	
(Median):	Not divided	Slope:	Level	
No. of Lanes:	2	Speed Limit:	72 km/h	
HITCH	Cluster	Variables		
GV14: 01 1	No avoidance actions			
GV64: 13 1	Negotiating a curve			
GV65: 13	This vehicle traveling off the edg	e of the road on the right side		
GV66: 0 1	No avoidance maneuver			
GV67: 0	No avoidance maneuver			

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

The subject vehicle was traveling in a westerly direction on a dry, level, two-lane, rural, asphalt, roadway. After exiting a curve to the right, the driver reportedly removed a pair of eyeglasses and did not realize that the vehicle was drifting to the right. The driver could not see without glasses. The vehicle exited the right edge of the roadway and traversed diagonally across a negative-sloped embankment. At the base of the embankment, the driver steered back to the left causing the vehicle to yaw counterclockwise and roll side-over-side to the right one complete turn. The vehicle came to rest on its wheels at the base of the embankment, facing in an easterly direction. The roadway was dark, unlighted, with edge lines, and a partial barrier center line.





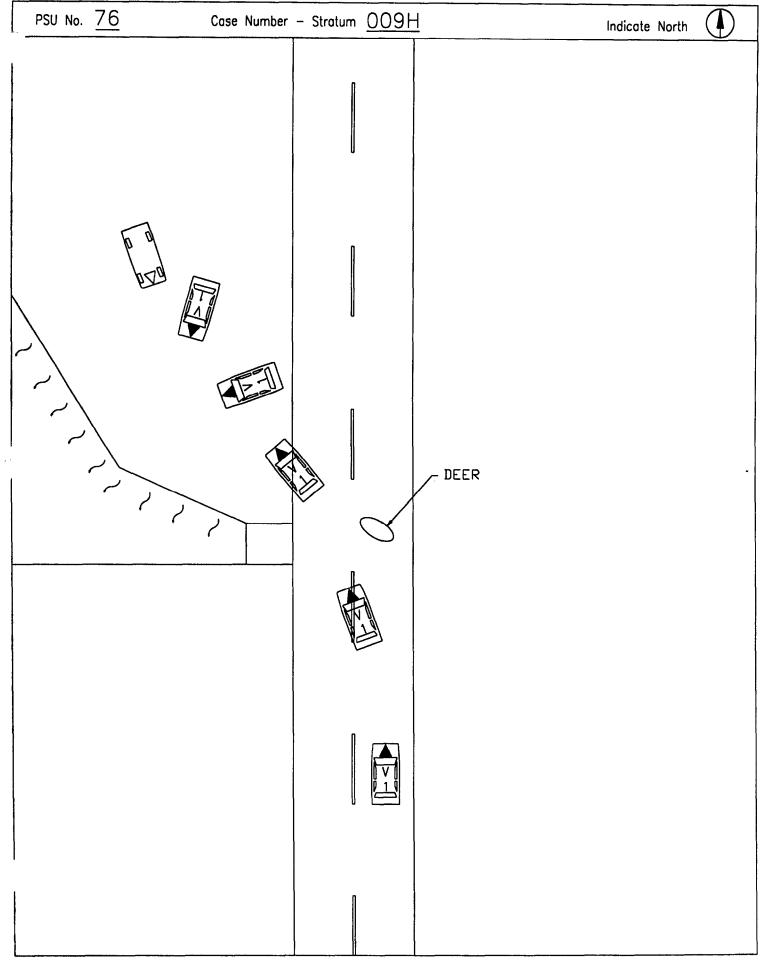
CAUSAL FACTOR:Evasive Maneuver - Avoid Animal or PedestrianROADSIDE DEPARTURE:Left

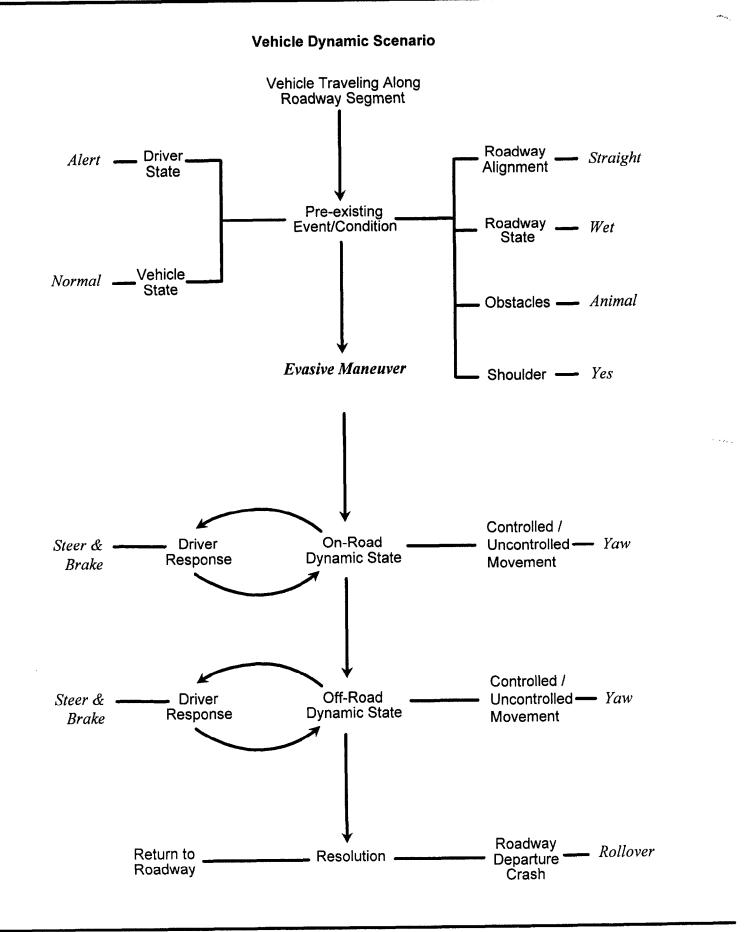
		General Ac	cident Information	
Date:		1-4-93	Weather:	Rain
Time:		0855	Surface Condition:	Wet
Accident Typ	oe:	Drive Off Road	Lighting:	Daylight
Accident Sev	verity:	0 (O)	Land Use:	Rural
Driver/C	Occupa	ant Information	Vehicle Info	rmation
Driver Age:		51	Year:	1988
Driver Sex:		Male	Vehicle Make:	Jeep
Impairment:		None	Vehicle Model:	Comanche
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		1	Defects:	No
		Roadwa	ay Information	
Trafficway Type (Median): N			Alignment:	Straight
		Not divided	Slope:	Level
No. of Lanes	s:	2	Speed Limit:	89 km/h
	<u></u>	Clust	er Variables	·····
GV14: 03	8 Brak	ing and steering left		
GV64 : 0	1 Goin	g straight		
GV65: 8′	7 Anin	nal in roadway		
	Skide	ding laterally - countercloo	ckwise rotation	
GV66 : 4				

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CAUSAL FACTOR:Evasive Maneuver - Avoid Animal or PedestrianROADSIDE DEPARTURE:Left

The subject vehicle was traveling northbound on a two-lane roadway when a deer entered the road. The driver steered to avoid the animal and the vehicle left the road and rolled.





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CAUSAL FACTOR: ROADSIDE DEPARTURE:

Vehicle Speed - Speed and Alcohol

General Accident Information

Left

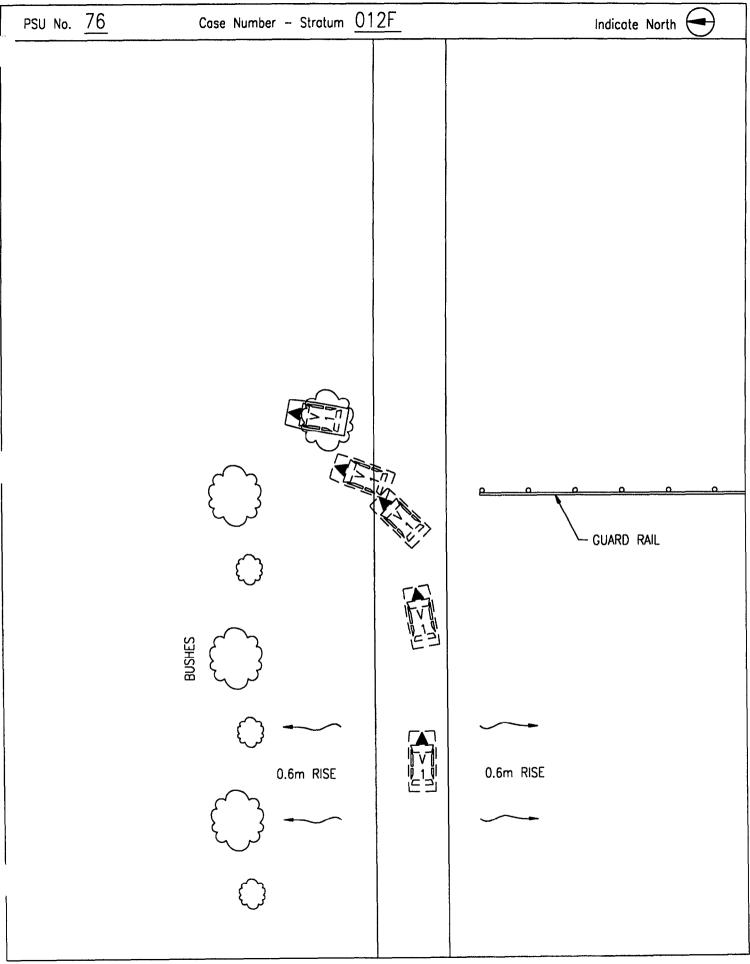
2-1-93 Weather: Rain Date: 0213 Surface Condition: Wet Time: Drive Off Road Lighting: Accident Type: None Land Use: Accident Severity: 2 (B) Rural **Driver/Occupant Information** Vehicle Information Year: 1976 Driver Age: 23 Driver Sex: Male Vehicle Make: Chevrolet Impairment: Intoxicated Vehicle Model: Camaro (alcohol/drugs) Familiarity ABS: with Road: No Unknown No. of Defects: No Occupants: 1 **Roadway Information** Alignment: Straight Trafficway Type (Median): Not divided Slope: Level No. of Lanes: 2 Speed Limit: 64 km/h **Cluster Variables**

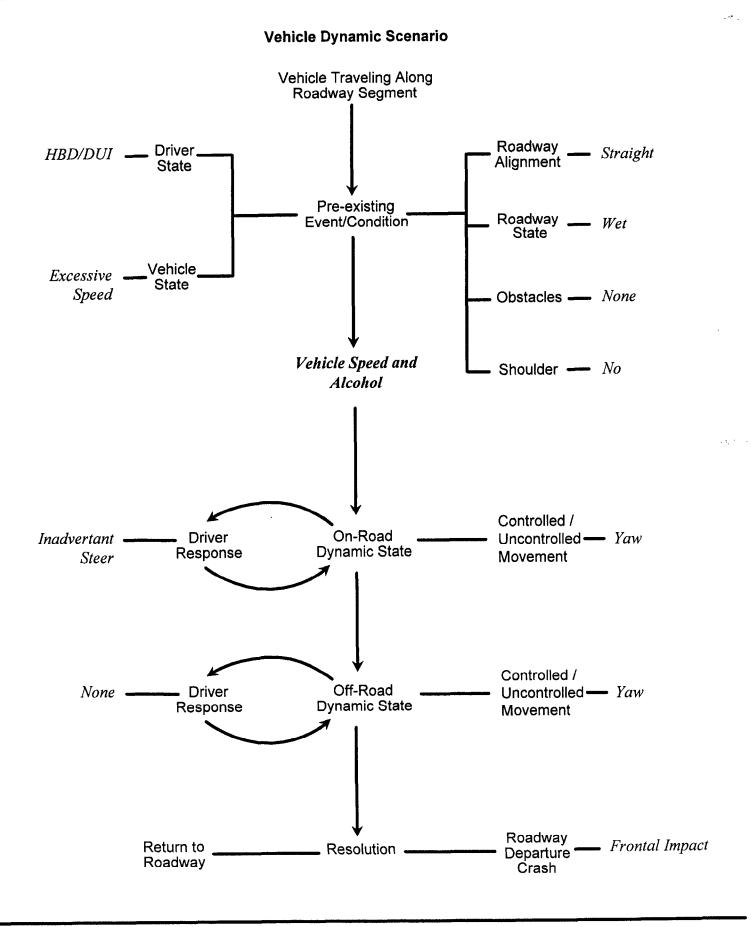
GV14: 01 No avoidance actions GV64: 01 Going straight GV65: 06 This vehicle loss of control due to traveling too fast for conditions GV66: 0 No avoidance maneuver GV67: 0 No avoidance maneuver

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Calspan Corporation Carnegie Mellon University CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling on a wet, unlit, two-lane, asphalt roadway. The driver lost control and exited the roadway to the left side of the road. The vehicle impacted some bushes and came to rest on the shoulder of the road. The driver had been drinking previously and was traveling in excess of the speed limit. The roadway had no edge markings.



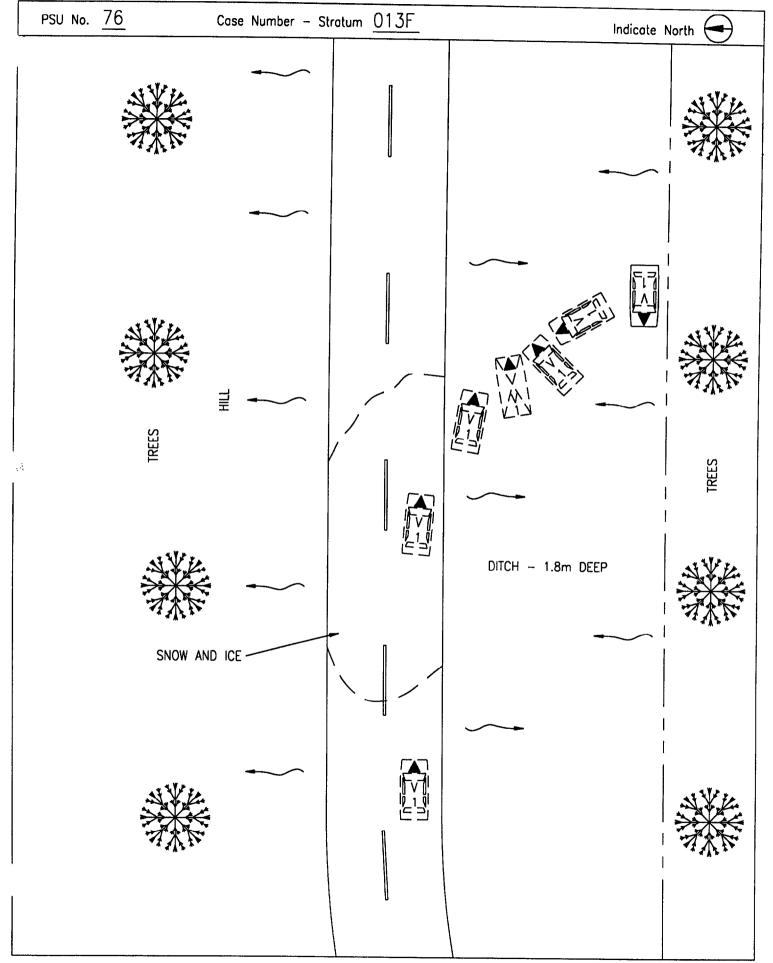


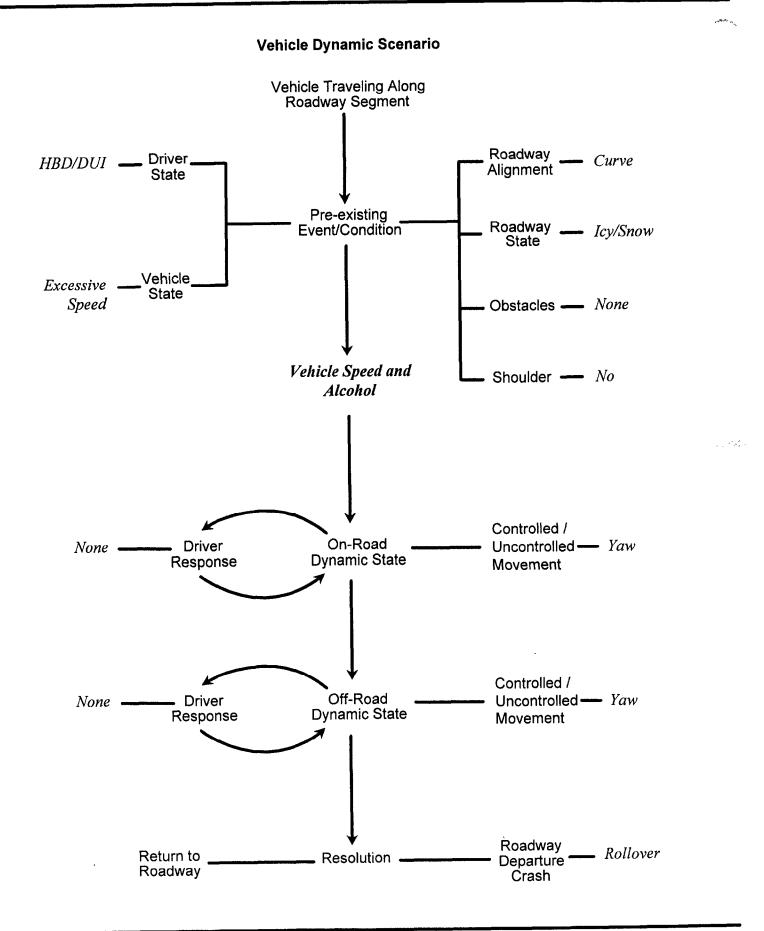
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

	General Accide	nt Information	
Date:	1-4-93	Weather:	Snow/Sleet/Hail
Time:	0055	Surface Condition:	Ice/Snow
Accident Type:	Control/Traction Loss	Lighting:	None
Accident Sever	ity: 2 (B)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Infor	mation
Driver Age:	20	Year:	1989
Driver Sex:	Male	Vehicle Make:	Chevrolet
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	C, K, R, V-serie
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	5	Defects:	No
	Roadway Ir	nformation	·······
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	89 km/h
····	Cluster V	/ariables	
GV14: 0 1 1	No avoidance actions		
GV64: 13	Negotiating a curve		
GV65: 05	This vehicle loss of control due to p	poor road conditions	
GV66: 0	No avoidance maneuver		
GV67: 0	No avoidance maneuver		

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

The subject vehicle was traveling along a two-lane, mountainous roadway. The driver claimed to hit a patch of ice. The vehicle slid off the roadway, went down into a ditch, and impacted a ridge. The driver had been drinking and was speeding.





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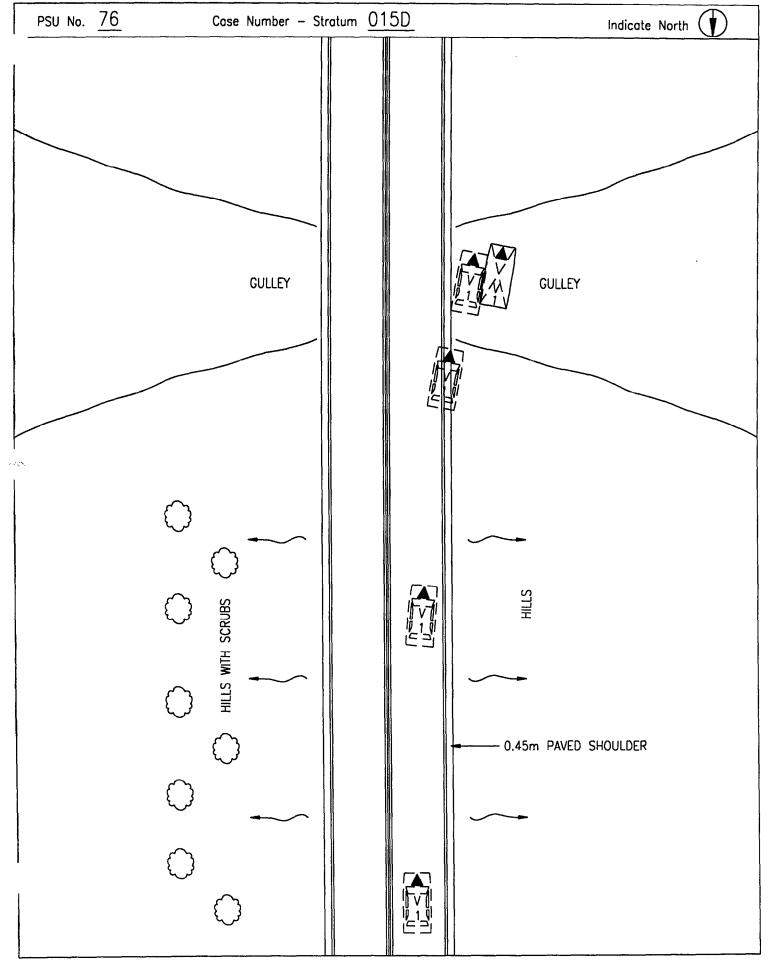
CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

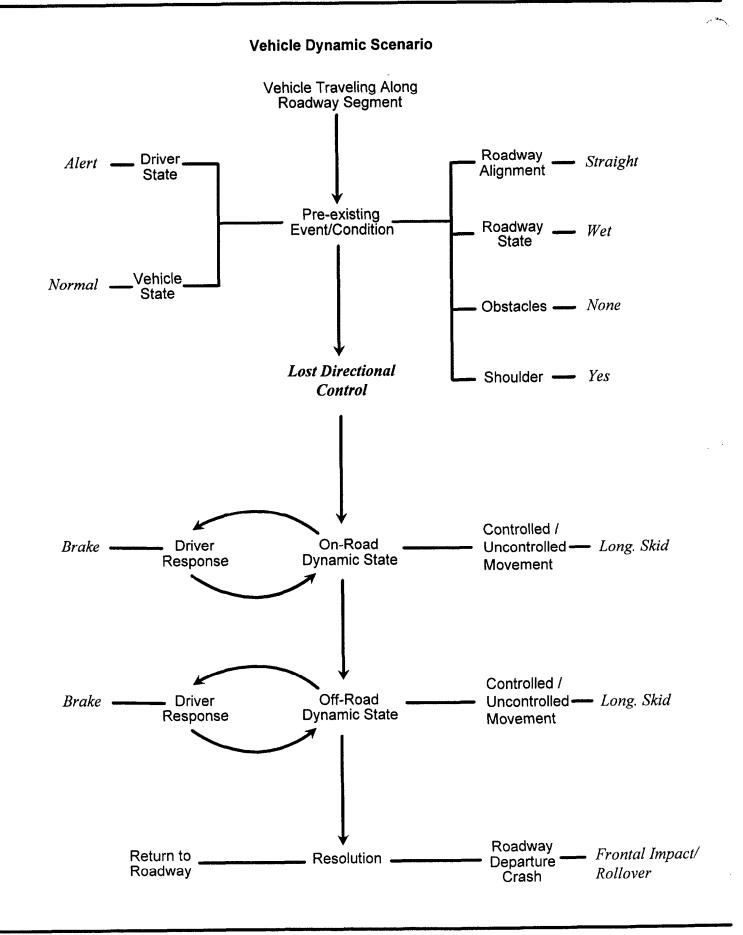
	General Accide	nt Information	
Date:	2-2-93	Weather:	Rain
Time:	2215	Surface Condition:	Wet
Accident Type:	Control/Traction Loss	Lighting:	None
Accident Severity:	3 (A)	Land Use:	Rural
Driver/Occup	ant Information	Vehicle Information	
Driver Age:	25	Year:	1988
Driver Sex:	Male	Vehicle Make:	Pontiac
Impairment:	None	Vehicle Model:	Unknown
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway Ir	nformation	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	80 km/h
	Cluster V	/ariables	
GV14: 03 Brak	ing (lockup)		
GV64: 02 Slow	ving or stopping in traffic lane		
GV65: 05 This	vehicle loss of control due to p	ooor road conditions	
GV66: 2 Skid	ding longitudinally - less than	30 degrees rotation	
GV67: 4 Veh	icle departed roadway		

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CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Right

The subject vehicle was proceeding along a wet, dark and unlit, mountainous roadway. The driver lost control due to the wet surface, applied the vehicle's brakes, and was unable to regain control. The vehicle exited the roadway on the right side, traveled into a gully, impacted rocks, and flipped onto the roof. The driver was traveling to work along a familiar route and was proceeding faster than was prudent.



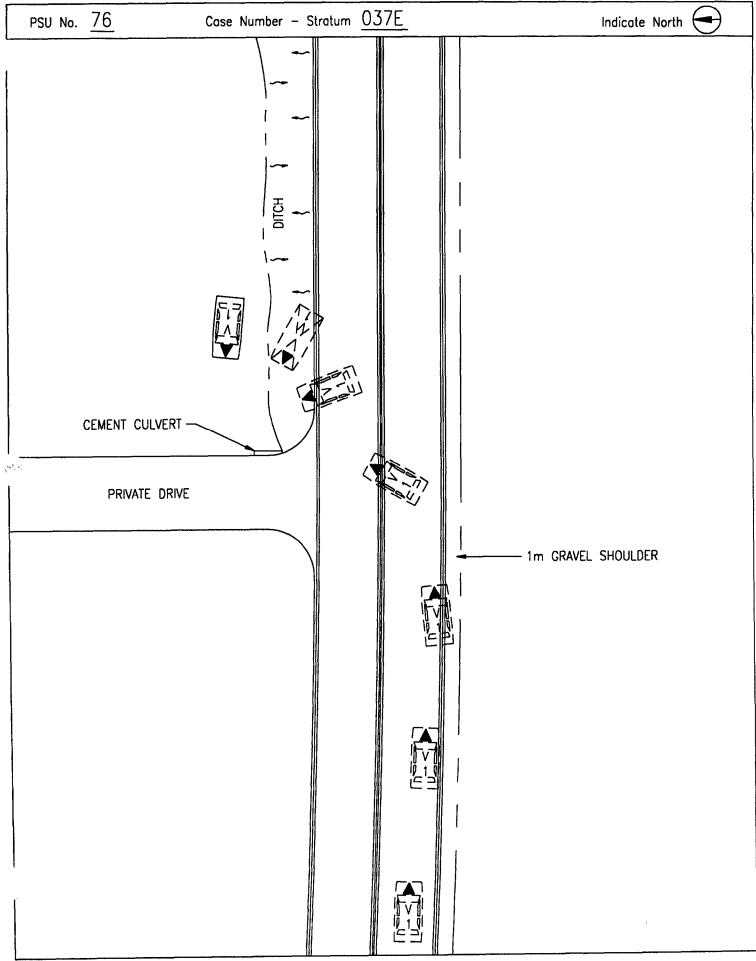


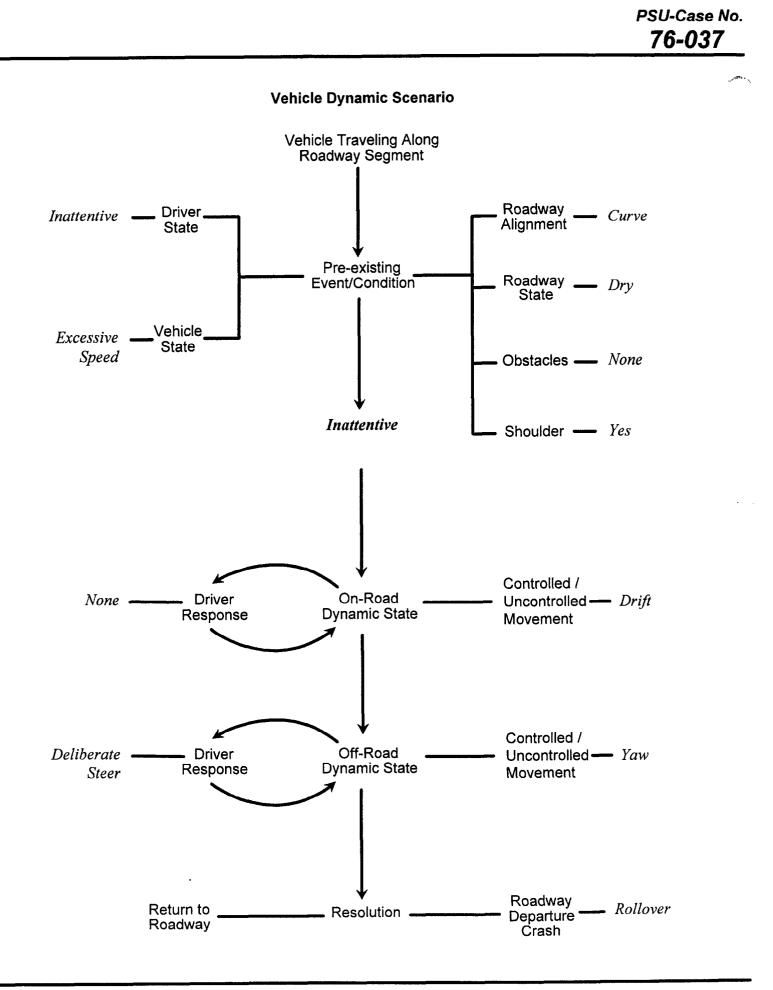
CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

	General Accide	nt Information	
Date:	3-7-93	Weather:	Clear/Cloudy
Time:	0655	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	Daylight
Accident Severity:	2 (B)	Land Use:	Rural
Driver/Occup	ant Information	Vehicle Infor	rmation
Driver Age:	30	Year:	1991
Driver Sex:	Female	Vehicle Make:	Subaru
Impairment:	Other (driver fatigued)	Vehicle Model:	Legacy
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	2	Defects:	No
	Roadway In	formation	
Trafficway Type		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	72 km/h
	Cluster V	ariables	
GV14: 01 No a	voidance actions		
GV64: 01 Goin	g straight		
GV65: 13 This	vehicle traveling off the edge o	of the road on the right side	
GV66: 0 No a	voidance maneuver		
GV67: 0 Noa	voidance maneuver		

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

The subject vehicle was traveling along a left curve on a dry, two-lane, undivided, asphalt, rural roadway with a slope of -3%., The vehicle departed the right road edge, re-entered the travel lanes, crossing over to the left side of the road, and impacting the ditch embankment beyond the road edge. The curved road segment preceding the initial road departure was superelevated approximately 3%. The driver was reported by the police to have been fatigued and driving to fast for conditions. It appeared that the vehicle drifted over the right road edge line and that the driver then over corrected to the left causing a counterclockwise rotation. There were no adverse weather conditions and the road edge lines and full barrier yellow center lines were in new condition. The causal factor was driver was inattentive to driving task and drifted off roadway with mental fatigue and excessive vehicle speed for curve as contributing factors.





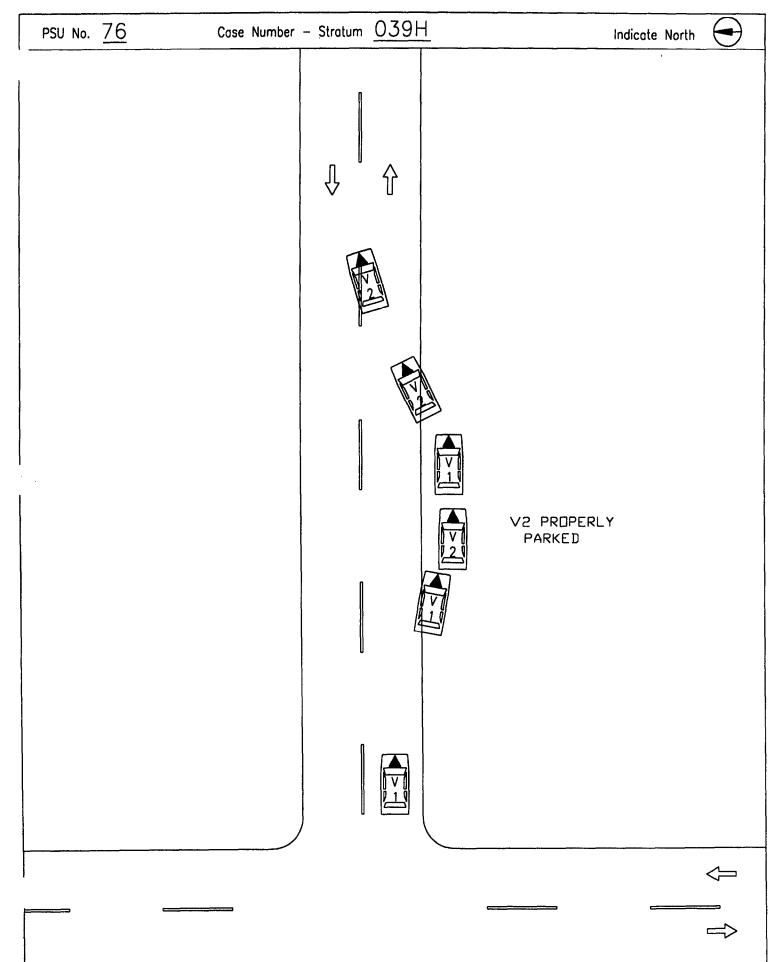
CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

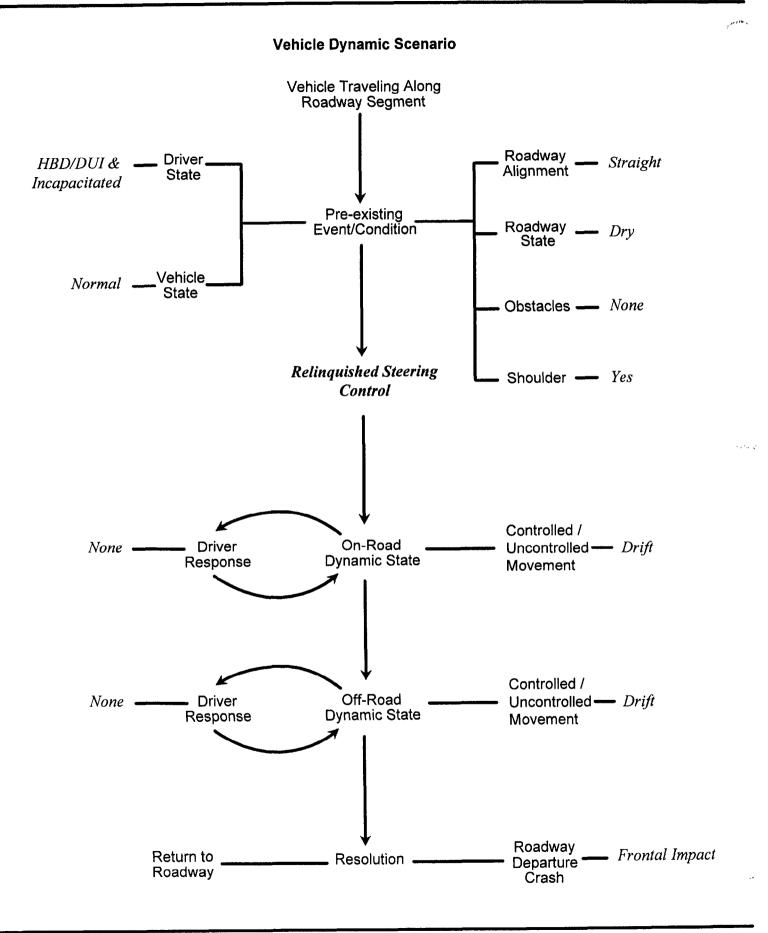
		General Accident	t Information	
Date:		3-7-93	Weather:	Clear/Cloudy
Time:		2250	Surface Condition:	Dry
Accident T	ype:	Parked Vehicle	Lighting:	None
Accident S	everity:	0 (O)	Land Use:	Urban
Driver	/Occupa	ant Information	Vehicle Infor	mation
Driver Age:	;	30	Year:	1965
Driver Sex:		Male	Vehicle Make:	Ford
Impairment	tr	Other (alcoh. consumption - BAC unknown)	Vehicle Model:	Thunderbird
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants	:	1	Defects:	No
		Roadway Info	ormation	
Trafficway Type			Alignment:	Straight
(Median)):	Not divided	Slope:	Level
No. of Lan	es:	2	Speed Limit:	40 km/h
		Cluster Var	riables	
GV14:	01 No a	voidance actions		
GV64:	09 Turn	ing right		
GV65:	13 This	vehicle traveling off the edge of t	the road on the right side	
	0 Noa	voidance maneuver		
GV66:				

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CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

The subject vehicle was traveling east on a dark, two-lane, undivided, straight, urban, level, dry, asphalt roadway with no overhead illumination. The vehicle drifted off the right side of the road and struck the rear of a parked pickup truck. The police cited the driver with DWI. The driver stated he had been working hard all day and fell asleep prior to drifting off the road. The roadway markings consisted of only a broken yellow center line which was in poor condition. There were no sight line restrictions or road obstacles impeding the driver. The causal factor was intoxication. A contributory factor may have been fatigue.





CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

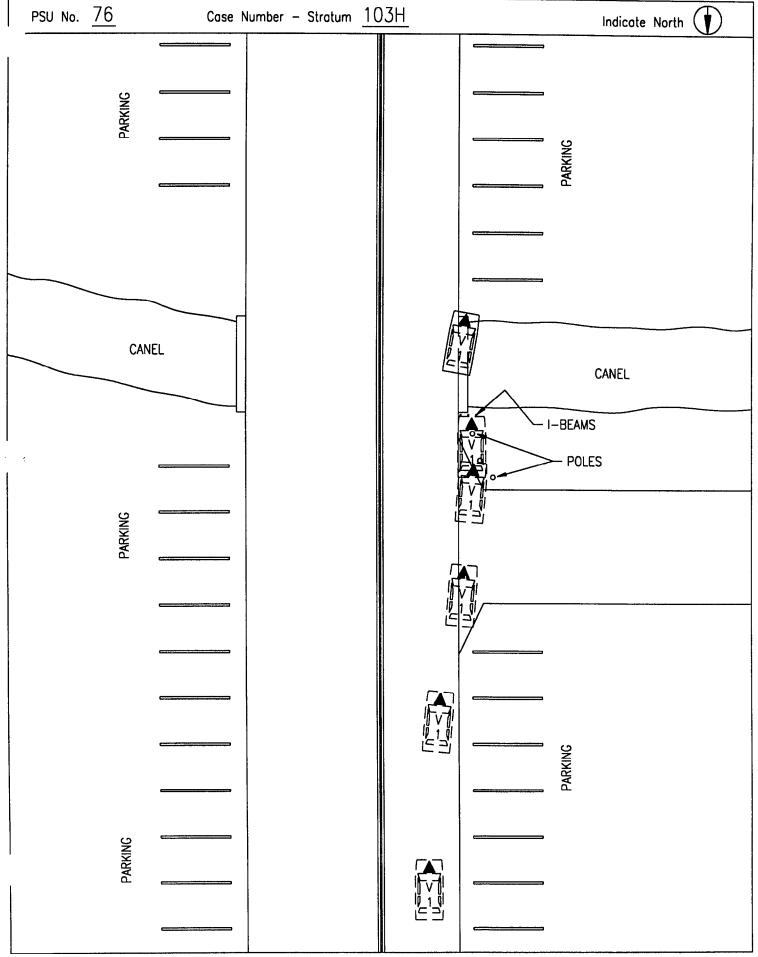
	General Accide	nt Information	·
Date:	9-7-93	Weather:	Clear/Cloudy
Time:	2058	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	Artificial lighting
Accident Severity:	1 (C)	Land Use:	Urban
Driver/Occup	ant Information	Vehicle Infor	mation
Driver Age:	46	Year:	1985
Driver Sex:	Female	Vehicle Make:	Chevrolet
Impairment:	Other (driver fatigued)	Vehicle Model:	G-series van
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway In	formation	·····
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	40 km/h
	Cluster V	ariables	
GV14: 01 No	avoidance actions		
GV64: 01 Goi	ng straight		
GV65: 13 Thi	s vehicle traveling off the edge of	of the road on the right side	
GV66: 0 No	avoidance maneuver		
GV67: 0 No	avoidance maneuver		

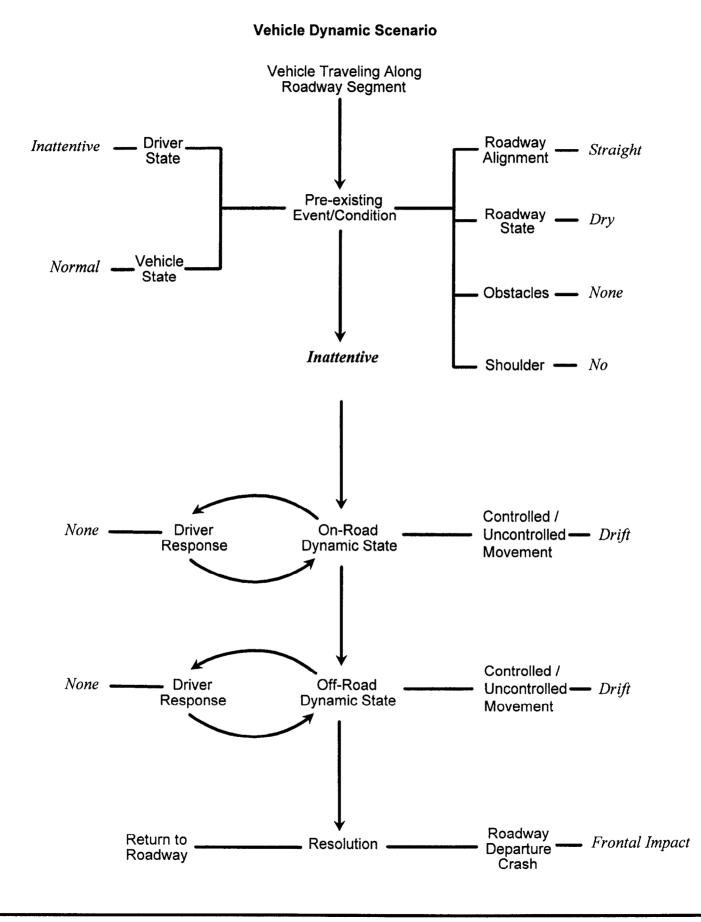
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CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

The subject vehicle was traveling south on a wide, dry, two-lane, undivided, level, urban, asphalt roadway which was illuminated by overhead street lights. The vehicle drifted off the right road edge and struck a horizontal gas line which was located parallel to the road and spanned a narrow canal. The driver was tired and looked down causing the vehicle to depart the road. There were no adverse weather conditions or sight line restrictions to impede the driver's vision. The center of the road was defined by full barrier yellow center lines which were in new condition. The road edges looked like painted lines. There were no delineators or reflective road markers. The causal factor was driver inattentive to the driving task.

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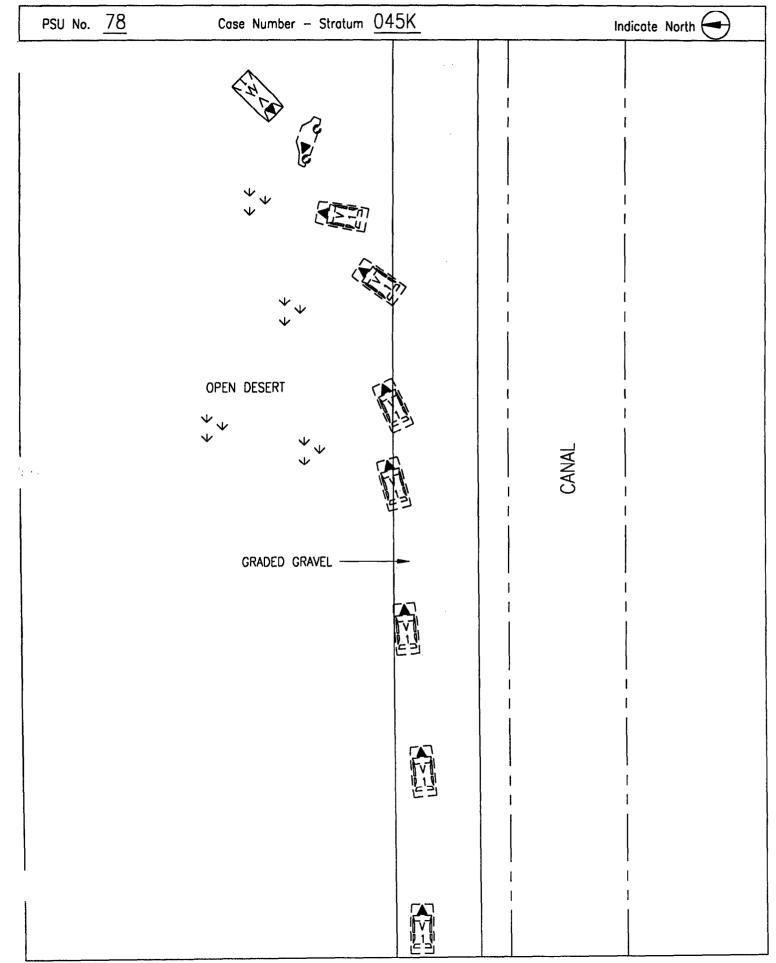
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

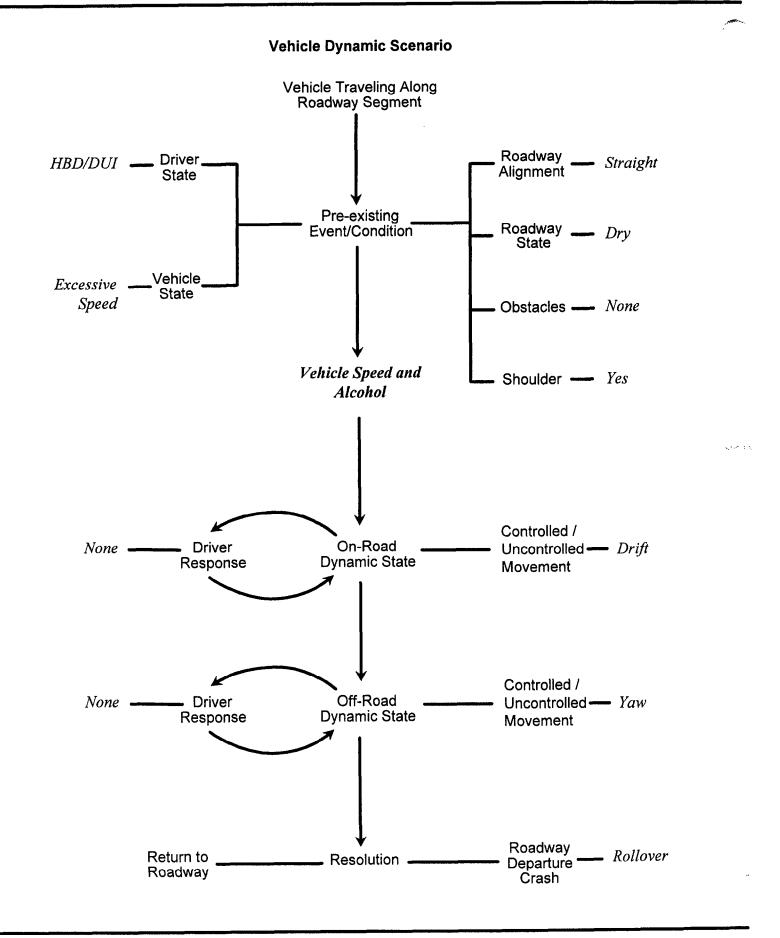
···· + · · ·		General Acci	dent Information	
Date:		4-6-93	Weather:	Clear/Cloudy
Time:		2230	Surface Condition:	Dry
Accident T	ype:	Drive Off Road	Lighting:	None
Accident S	everity:	3 (A)	Land Use:	Rural
Driver/Occupant Information		Vehicle Info	Vehicle Information	
Driver Age:		26	Year:	1983
Driver Sex:		Male	Vehicle Make:	Toyota
Impairment	k. •	Intoxicated (alcohol/drugs)	Vehicle Model:	Pickup
Familiarity with Road:		Yes	ABS:	No
No. of Occupants:		2	Defects:	No
		Roadway	Information	
Trafficway Type (Median):			Alignment:	Straight
		Not divided	Slope:	Level
No. of Lan	es:	2	Speed Limit:	80 km/h
<u></u>		Cluste	r Variables	
GV14:	01 No a	voidance actions		
GV64:	01 Goin	g straight		
	12 This	vehicle traveling off the edg	ge of the road on the left side	
GV65:				
		voidance maneuver		

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CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling in an easterly direction on a rural, two-lane, level, gravel roadway during evening hours in an 80 km/h speed zone. The roadway was dry, straight, unlighted, and the ambient weather condition was clear. The subject driver was intoxicated and traveling at a high rate of speed. He allowed the subject vehicle to drift to the left and exit the north edge of the roadway. The subject vehicle subsequently yawed in a counterclockwise direction and rolled side-over-side to the right. The vehicle rolled one-half roll and came to rest on it's roof. The causal factor was driver intoxication and vehicle speed.





Calspan Corporation Carnegie Mellon University CAUSAL FACTOR:Vehicle FailureROADSIDE DEPARTURE:Left

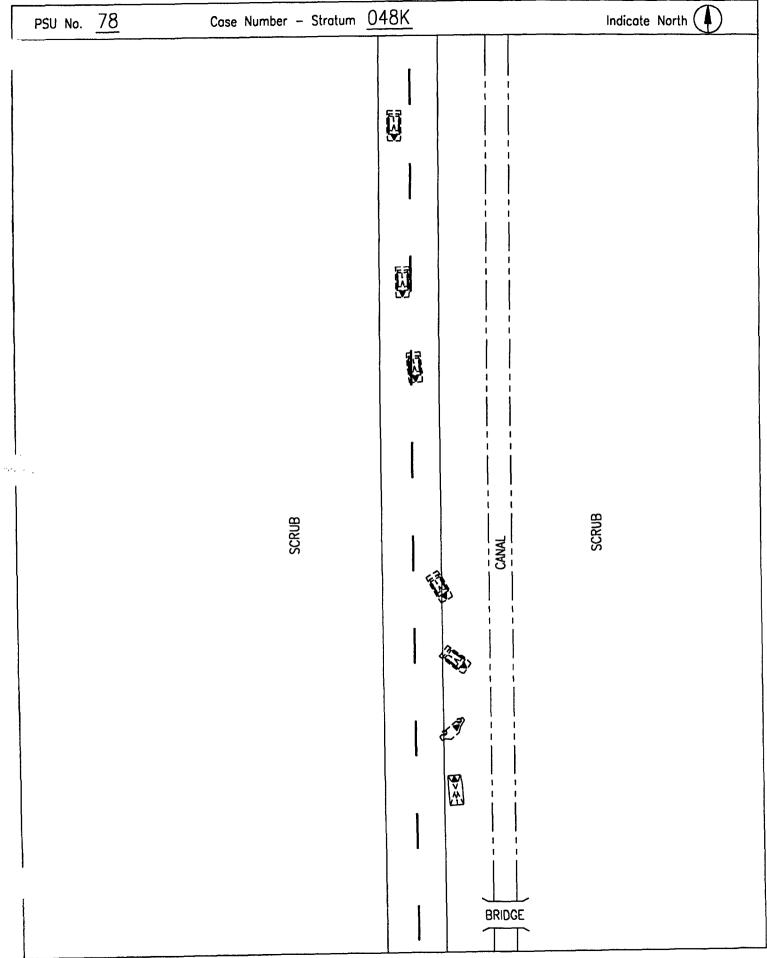
		General Accide	ent Information	······································
Date:		4-2-93	Weather:	Clear/Cloudy
Time:		1520	Surface Condition:	Dry
Accident 1	Гуре:	Control/Traction Loss	Lighting:	Daylight
Accident S	Severity:	3 (A)	Land Use:	Rural
Drive	r/Occup	ant Information	Vehicle Info	rmation
Driver Age	ə:	28	Year:	1981
Driver Sex		Male	Vehicle Make:	Chevrolet
Impairmer	nt:	None	Vehicle Model:	C, K, R, V-serie
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		2	Defects:	Tire Blowout
		Roadway Iı	nformation	
Trafficway			Alignment:	Straight
(Medial	n):	Not divided	Slope:	Level
No. of La	nes:	2	Speed Limit:	80 km/h
		Cluster \	/ariables	
GV14:	01 No a	voidance actions		
GV64:	01 Goir	ng straight		
GV65:	01 This	vehicle loss of control due to	blow out or flat tire	
GV66:	0 No a	avoidance maneuver		
GV67:	0 No a	avoidance maneuver		

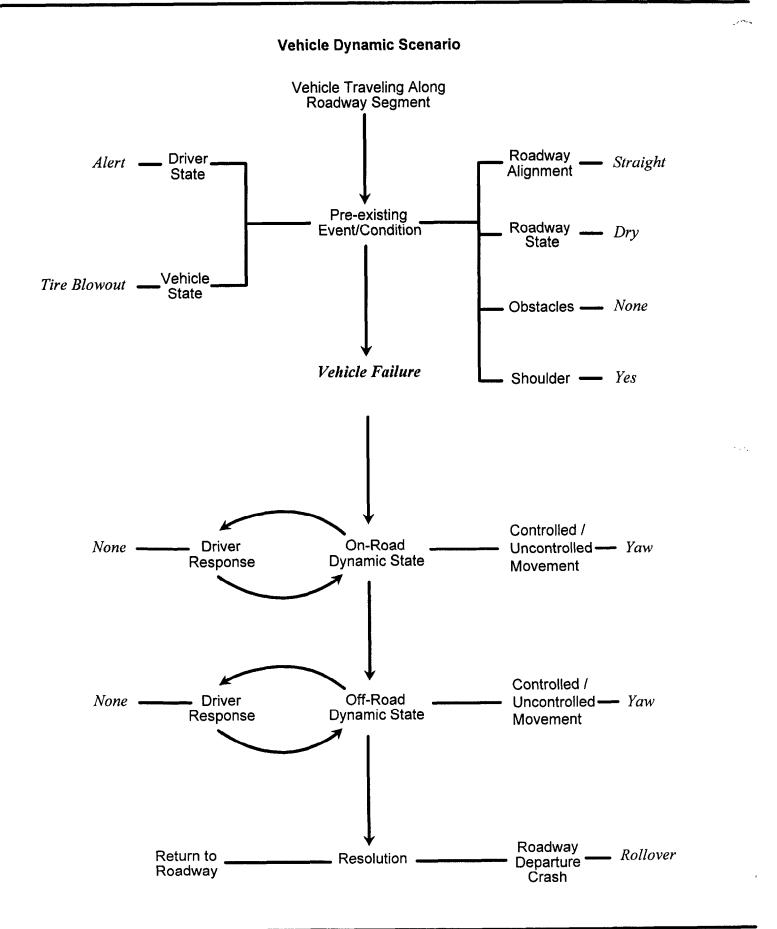
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CAUSAL FACTOR:Vehicle FailureROADSIDE DEPARTURE:Left

The subject vehicle was traveling along a rural, level, two-lane, asphalt roadway when the left front tire blew out. The driver lost control of the vehicle which started to spin counterclockwise. The vehicle departed the road to the left when its tires dug in and the vehicle overturned. The vehicle came to rest facing north, on the its top.





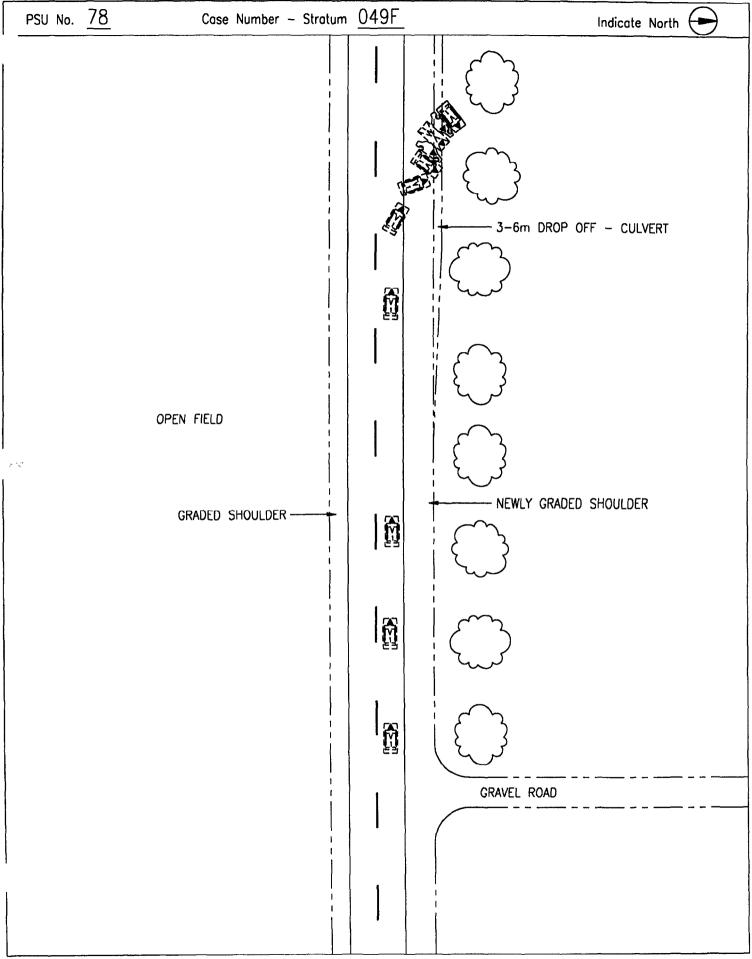
Calspan Corporation Carnegie Mellon University

CAUSAL FACTOR:Vehicle FailureROADSIDE DEPARTURE:Right

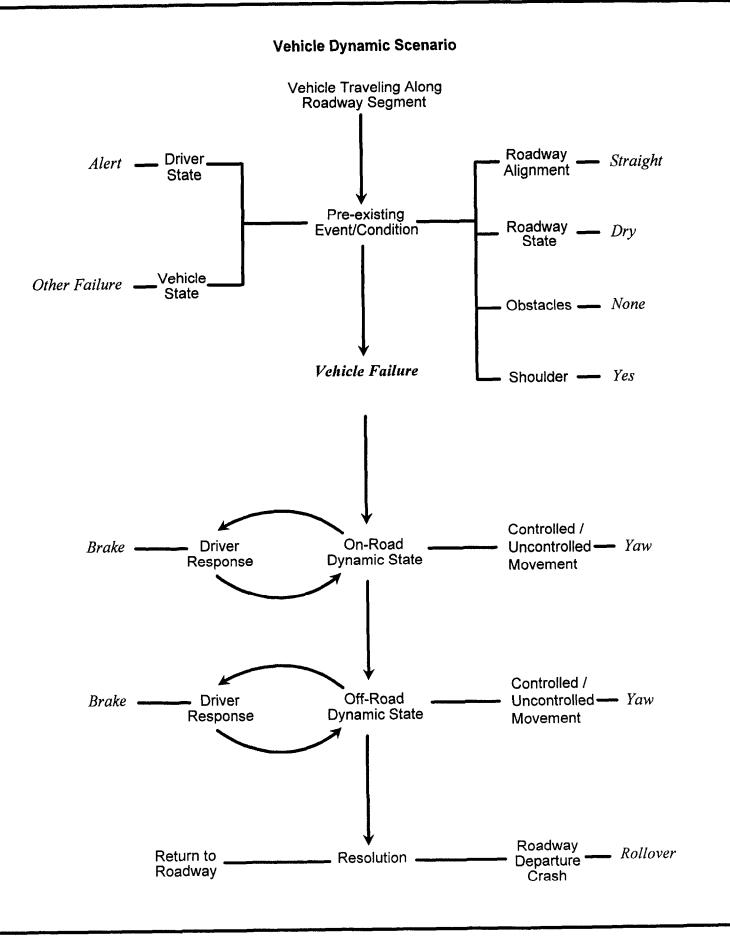
		General Acci	ident Information	
Date:		4-1-93	Weather:	Clear/Cloudy
Time:		1545	Surface Condition:	Dry
Accident	Туре	: Control/Traction Loss	Lighting:	Artificial lighting
Accident	Seve	rity: 1 (C)	Land Use:	Rural
Driv	er/Oc	cupant Information	Vehicle Infor	mation
Driver Ag	ye:	38	Year:	1988
Driver Se	ex:	Male	Vehicle Make:	Ford
Impairme	ent:	None	Vehicle Model:	Ranger
Familiarity with Road:		Yes	ABS:	No
No. of Occupan	ts:	2	Defects:	Other Failure
		Roadway	/ Information	
Trafficwa			Alignment:	Straight
(Media	an):	Not divided	Slope:	Level
No. of L	anes:	2	Speed Limit:	80 km/h
		Cluste	r Variables	
GV14:	03	Braking (lockup)		
GV64:	01	Going straight		
GV65:	03	This vehicle loss of control due	to disabling vehicle failure	
GV66:	3	Skidding laterally - clockwise ro	otation	
GV67:	4	Vehicle departed roadway		

CAUSAL FACTOR:Vehicle FailureROADSIDE DEPARTURE:Right

The subject vehicle was traveling westbound on a dry, level, two-lane, rural, asphalt roadway. The driver reported that the vehicle's transmission seized. The driver applied the brakes and caused lock-up. The vehicle departed the roadway on the right side and overturned.



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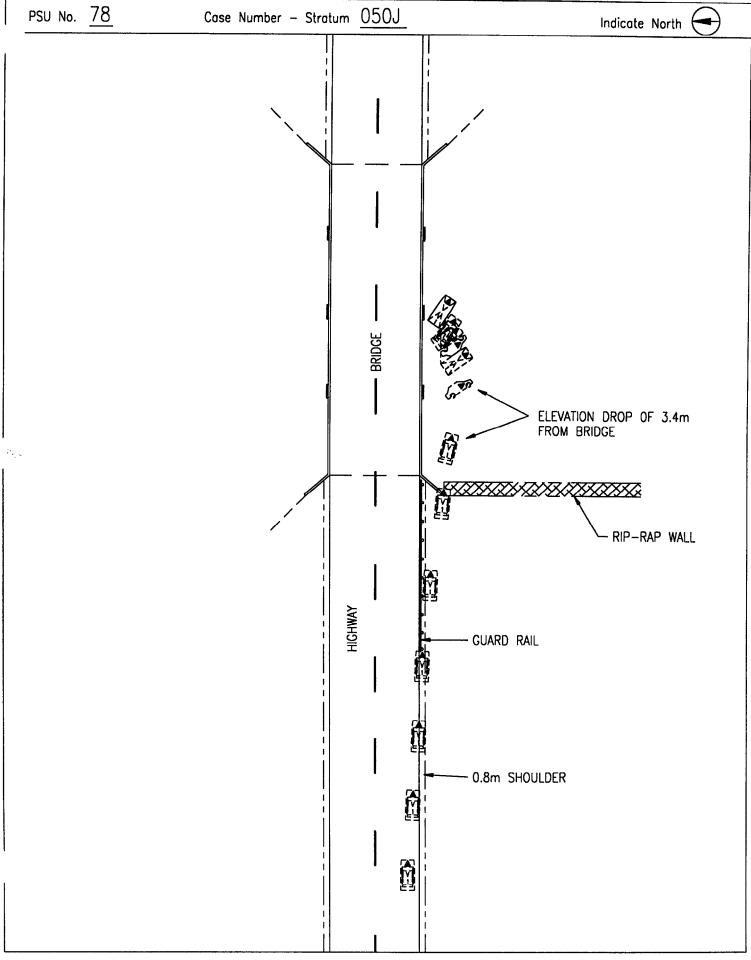
Calspan Corporation Carnegie Mellon University CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Right

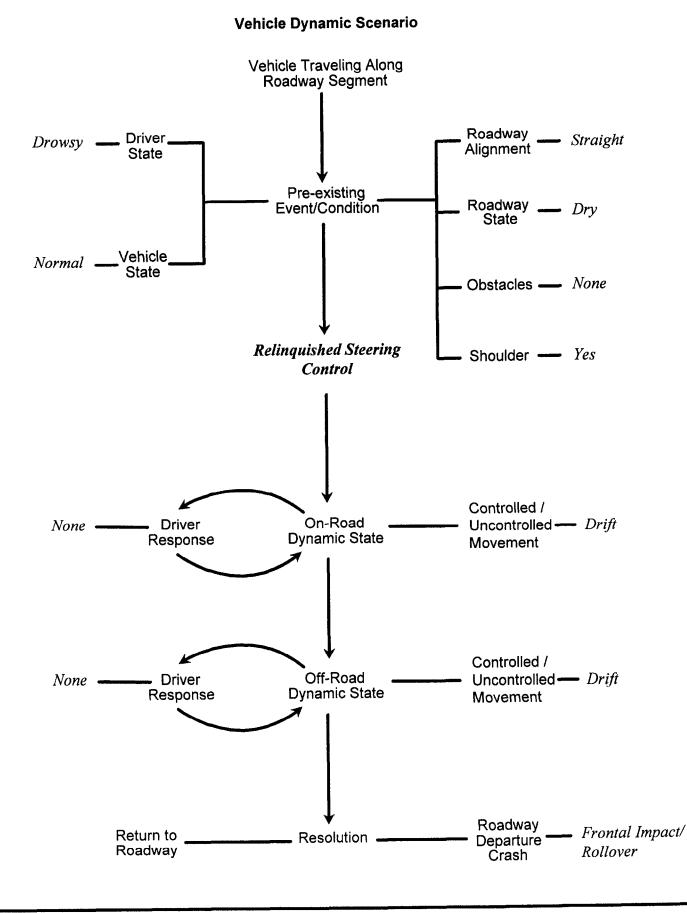
<u></u>	<u> </u>	General Acci	dent Information	
Date:		5-7-93	Weather:	Clear/Cloudy
Time:		0203	Surface Condition:	Dry
Accident Typ	e:	Drive Off Road	Lighting:	Unknown
Accident Sev	erity:	3 (A)	Land Use:	Rural
Driver/O	ccupa	nt Information	Vehicle Info	rmation
Driver Age:		23	Year:	1993
Driver Sex:		Male	Vehicle Make:	Toyota
Impairment:		Fell Asleep	Vehicle Model:	Pickup
Familiarity with Road:		Yes	ABS:	Unknown
No. of Occupants:		1	Defects:	No
·		Roadway	/ Information	
Trafficway Ty	pe		Alignment:	Straight
(Median):		Not divided	Slope:	Level
No. of Lanes	:	2	Speed Limit:	80 km/h
		Cluste	r Variables	
GV14 : 01	No av	oidance actions		
GV64: 01	Going	straight		
GV65: 13	This v	ehicle traveling off the eda	ge of the road on the right side	
GV66: 0	No av	oidance maneuver		

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CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Right

The subject vehicle was traveling eastbound on a level, two-lane, rural, asphalt roadway. The subject driver fell asleep at the wheel and exited the roadway on the right. The vehicle struck a guardrail and continued forward. The vehicle vaulted off a drop into a dry wash.





CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

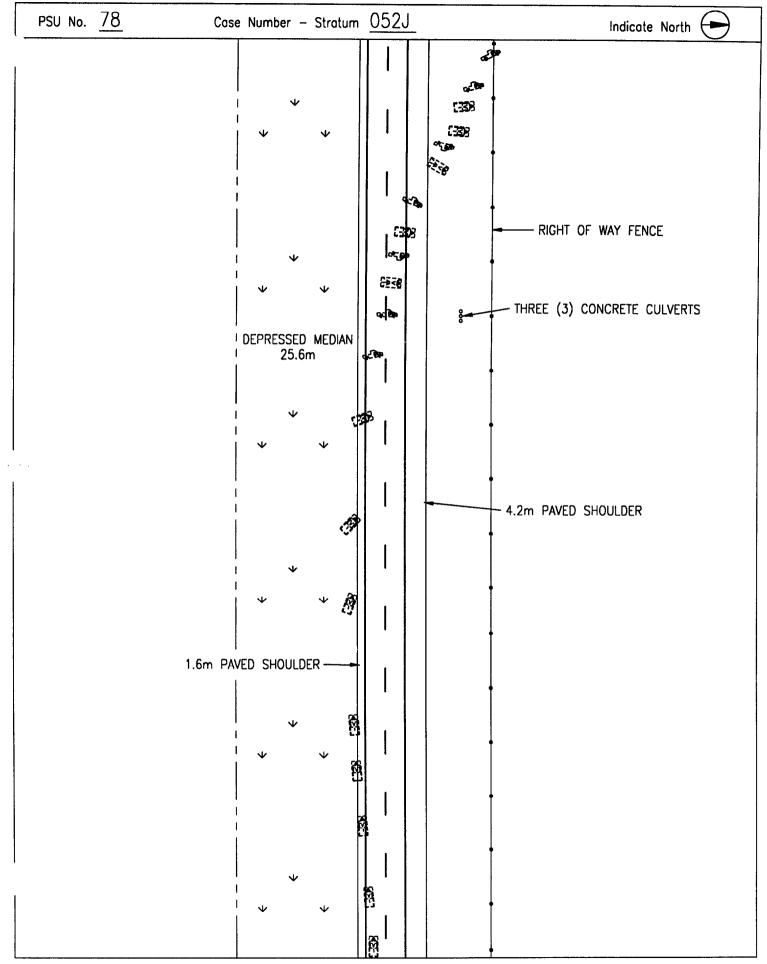
	General Accide	nt Information	
Date:	3-4-93	Weather:	Clear/Cloudy
Time:	0315	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	Unknown
Accident Severity	<i>:</i> 3 (A)	Land Use:	Rural
Driver/Occu	pant Information	Vehicle Info	rmation
Driver Age:	19	Year:	1993
Driver Sex:	Male	Vehicle Make:	Mazda
Impairment:	None	Vehicle Model:	Pickup
Familiarity with Road:	Yes	ABS:	Unknown
No. of Occupants:	2	Defects:	No
	Roadway Ir	nformation	
Trafficway Type		Alignment:	Straight
(Median):	Physical barrier	Slope:	Level
No. of Lanes:	2	Speed Limit:	105 km/h
	Cluster V	/ariables	
GV14 : 01 N	o avoidance actions		
GV64 : 01 G	oing straight		
GV65 : 12 T	his vehicle traveling off the edge	of the road on the left side	
GV66: 0 N	o avoidance maneuver		
GV67: 0 N	o avoidance maneuver		

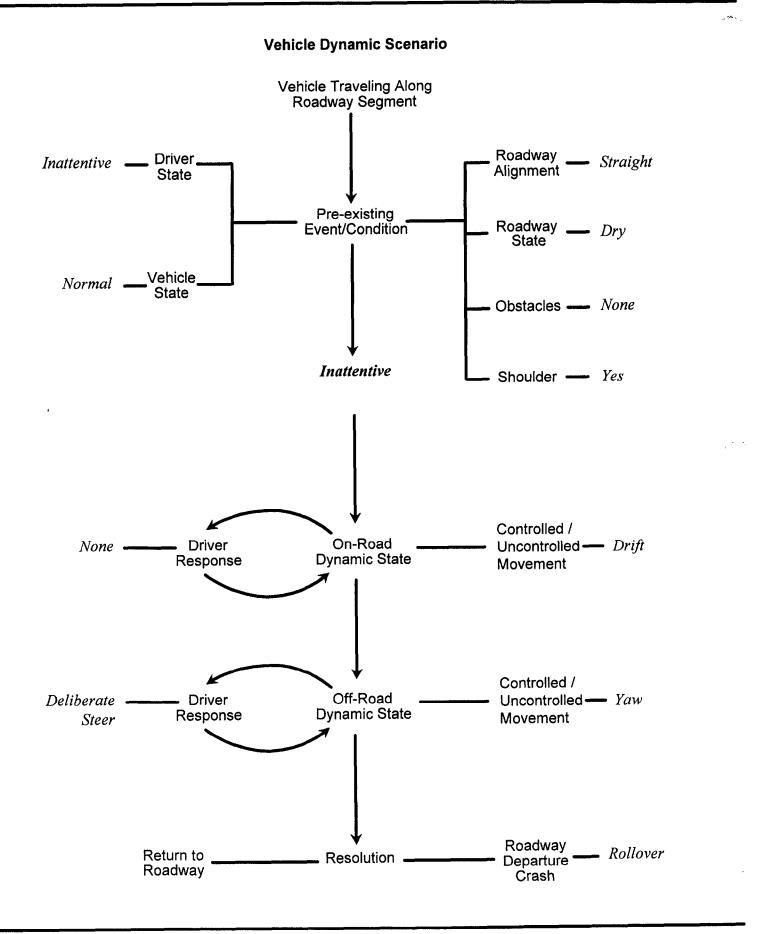
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CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

The subject vehicle was traveling westbound on a dry, level, two-lane, divided, rural, asphalt, interstate roadway. The driver was talking to the passenger when the vehicle drifted off the left side of the roadway. The driver overcorrected to the right causing the vehicle to spin. The vehicle re-entered the road, overturned and struck a right of way fence.





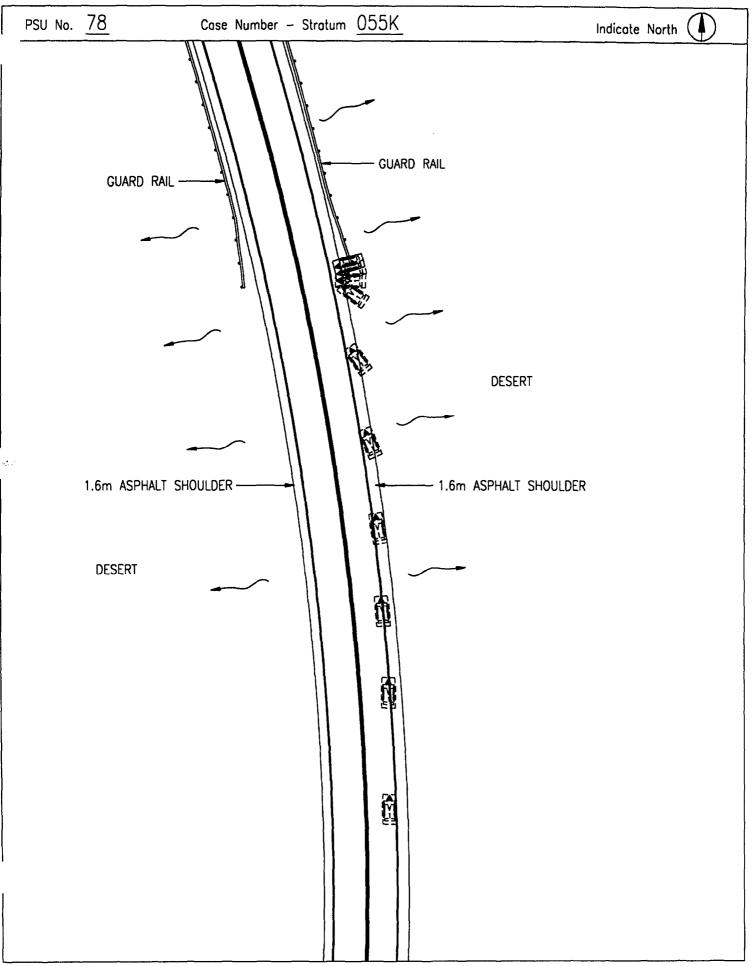
Calspan Corporation Carnegie Mellon University

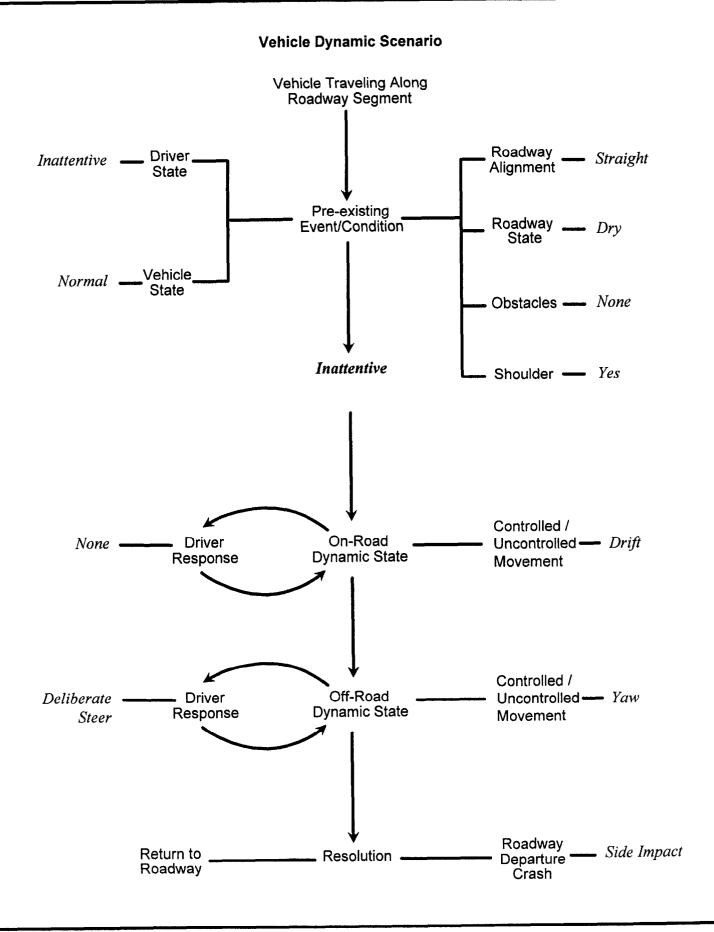
CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

	General Acc	ident Information	
Date:	4-3-93	Weather:	Clear/Cloudy
Time:	1330	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	Daylight
Accident Severi	ty: 3 (A)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Infor	rmation
Driver Age:	25	Year:	1981
Driver Sex:	Female	Vehicle Make:	Chevrolet
Impairment:	None	Vehicle Model:	Citation
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	2	Defects:	No
	Roadwa	y Information	
Trafficway Type		Alignment:	Curve Left
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	72 km/h
	Cluste	r Variables	
GV14: 01 1	lo avoidance actions		
GV64: 13 1	legotiating a curve		
GV65: 13 1	This vehicle traveling off the ed	ge of the road on the right side	
GV66: 0 1	No avoidance maneuver		

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Right

The subject vehicle was traveling north on a dry, level, two-lane, undivided, rural, asphalt roadway when the driver became distracted by a child passenger. As the driver looked at the child, the vehicle departed the road, traveled across the shoulder and dropped off the pavement onto the gravel area adjacent to the shoulder. The driver reacted by steering to the left. The vehicle rotated in a counterclockwise direction and struck the blunt end of a break away W-beam guardrail with the vehicle's right side plane. There were no adverse weather conditions or sight line restrictions. The road edges were marked by solid white lines in new condition and full barrier yellow lines also in new condition. The causal factor was driver inattention to driving task due to looking at a child passenger which allowed the vehicle to drift off the road.





Calspan Corporation Carnegie Mellon University

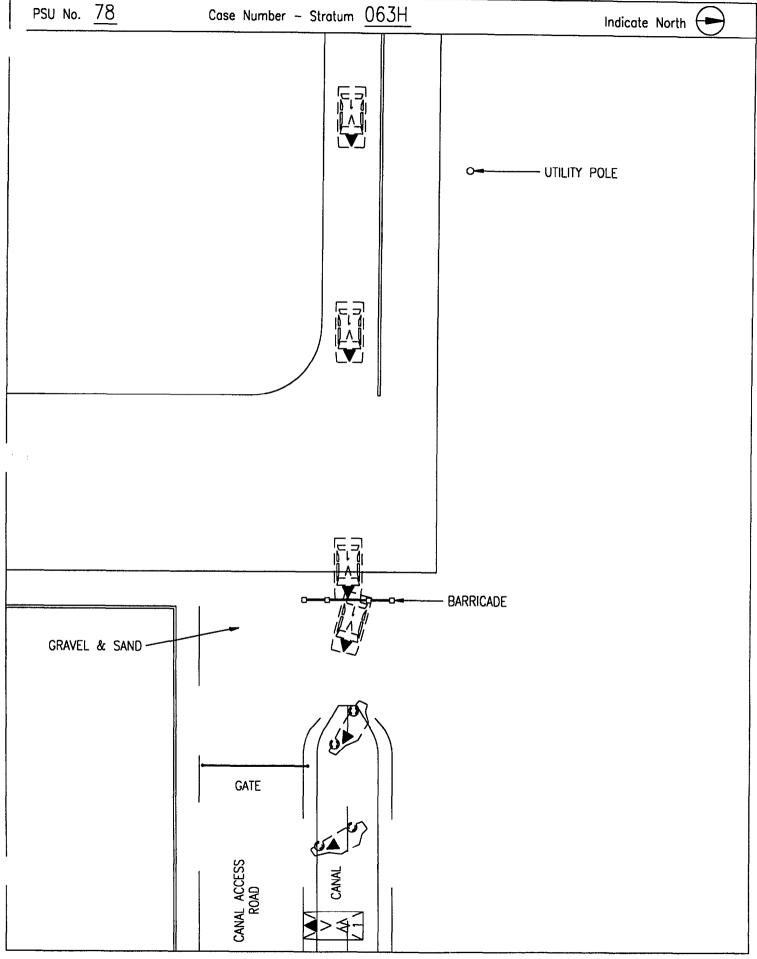
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:End Departure

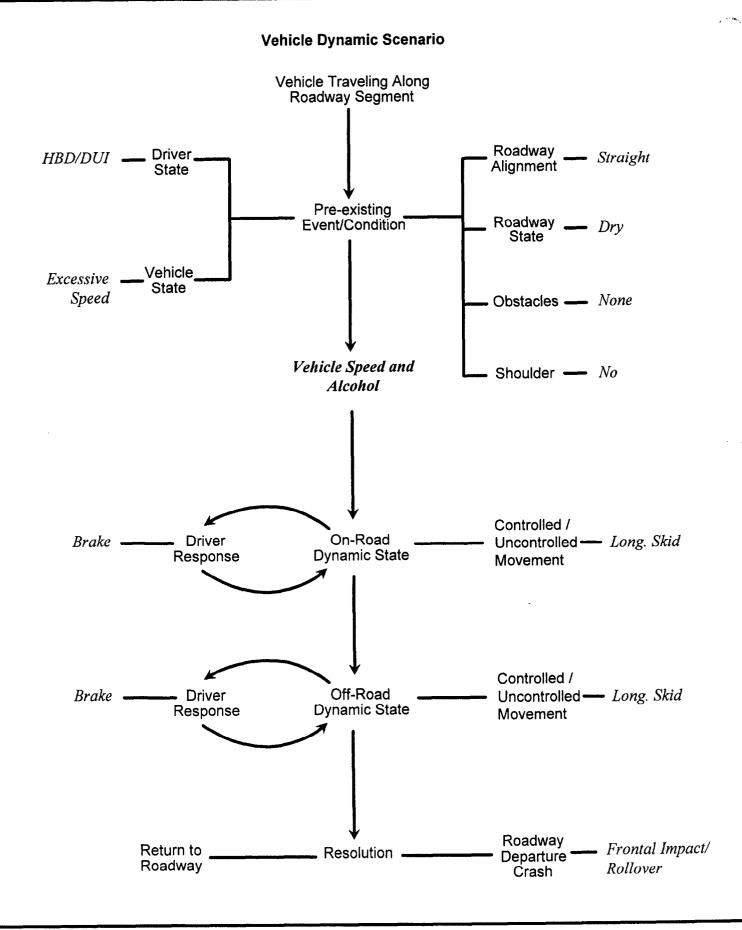
	General Accident	t Information	
Date:	6-7-93	Weather:	Clear/Cloudy
Time:	1643	Surface Condition:	Dry
Accident Type:	End Departure	Lighting:	Daylight
Accident Severit	by: 2 (B)	Land Use:	Urban
Driver/Occ	upant Information	Vehicle Infor	mation
Driver Age:	22	Year:	1987
Driver Sex:	Male	Vehicle Make:	Oldsmobile
Impairment:	Other (alcoh. consumption - BAC unknown)	Vehicle Model:	Delta 88
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway Info	ormation	
Trafficway Type		Alignment:	Straight
(Median):	Not divided	Slope:	Level
No. of Lanes:	2	Speed Limit:	40 km/h
	Cluster Var	riables	
GV14: 03 B	raking (lockup)		
GV64: 01 G	oing straight		
GV65: 14 T	his vehicle traveling off an end depar	rture	
	racking		
GV66: 1 T	lacking		

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CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:End Departure

The subject vehicle was proceeding in an easterly direction during daylight hours on a level, two-lane, urban, asphalt, residential street with edge lines and a solid yellow center line. The driver apparently was not aware that the roadway ended at an L-intersection with a north/south roadway. As the vehicle approached the intersection, the driver applied heavy brake pedal pressure. The vehicle skidded straight forward 12 m, exited the east edge of the intersection, struck and penetrated a wooden barricade, and then vaulted 24 m into a deep drainage ditch. The vehicle apparently rolled during the vault and came down on its top in the drainage ditch. The vehicle slid a short distance and came to rest, upside down, facing in a southerly direction. The driver had been drinking and was traveling at a high rate of speed. The investigating officer estimated the vehicle's speed at 114 km/h (71 mph) in a 40 km/h (25 mph) speed zone.



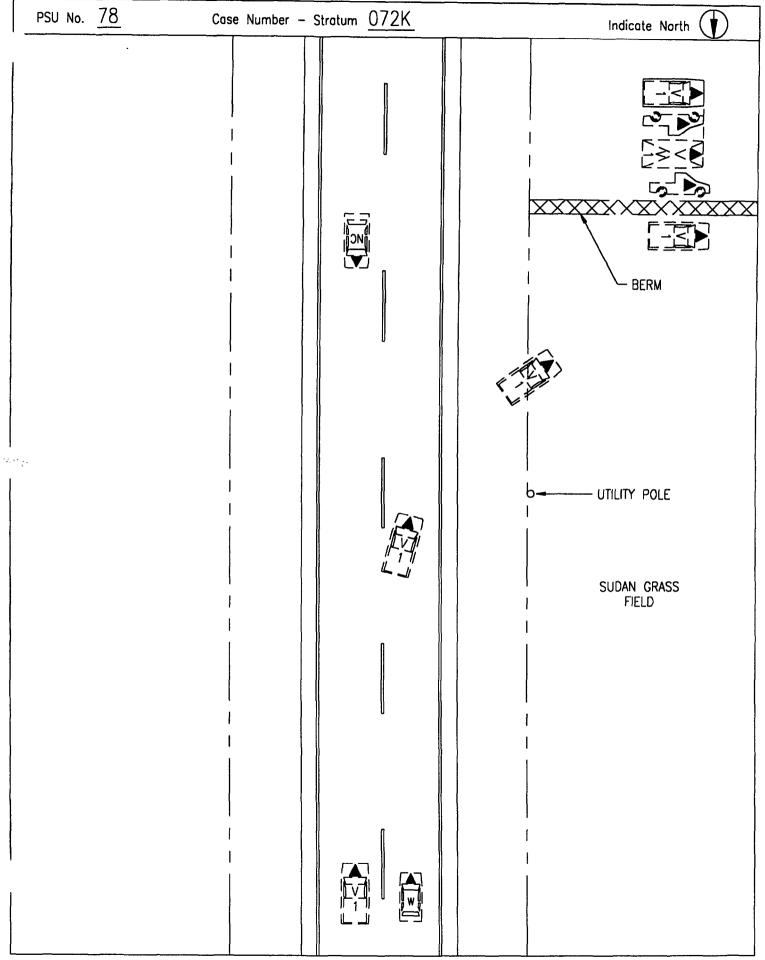


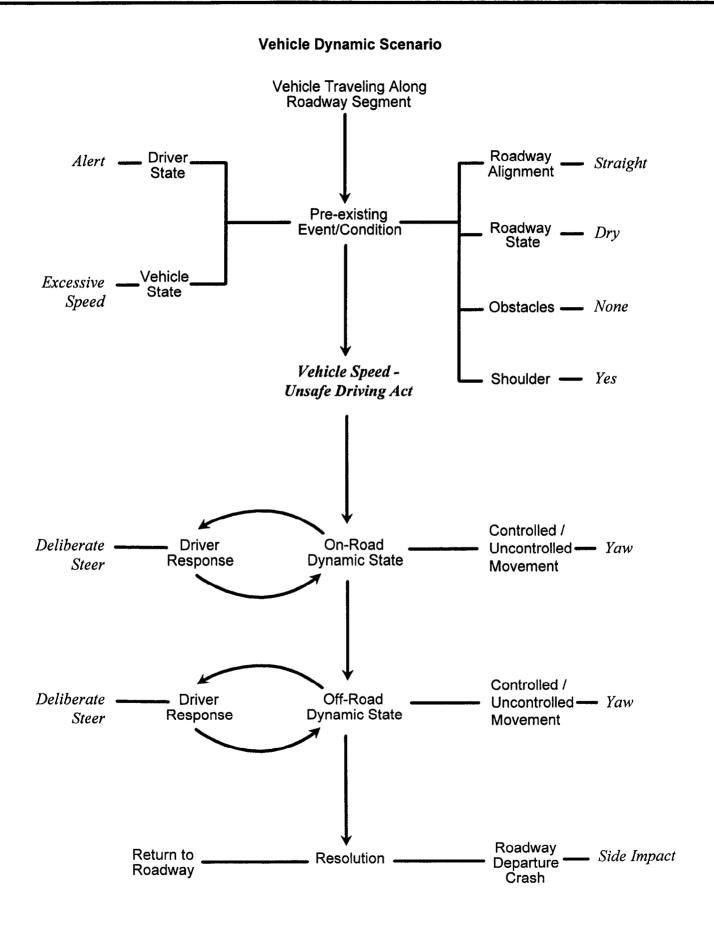
CAUSAL FACTOR:Vehicle Speed - Unsafe Driving ActROADSIDE DEPARTURE:Right

		General Accide	ent Information	
Date:		5-6-93	Weather:	Clear/Cloudy
Time:		0930	Surface Condition:	Dry
Accident 1	Гуре:	Control/Traction Loss	Lighting:	Daylight
Accident S	Severity:	3 (A)	Land Use:	Rural
Drive	r/Occup	oant Information	Vehicle Info	rmation
Driver Age):	28	Year:	1980
Driver Sex	:	Male	Vehicle Make:	Ford
Impairmen	nt:	None	Vehicle Model:	F-series pickup
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants	5:	2	Defects:	No
		Roadway li	nformation	
Trafficway			Alignment:	Straight
(Mediar	n):	Not divided	Slope:	Level
No. of Lai	nes:	2	Speed Limit:	80 km/h
		Cluster \	/ariables	
GV14:	07 Stee	ering right		
GV64:	05 Pass	sing or overtaking another vehic	cle	
GV65:	04 This	s vehicle loss of control due to a	non-disabling vehicle problem	
-	3 Skie	lding laterally - clockwise rotat	ion	
GV66:				

CAUSAL FACTOR:Vehicle Speed - Unsafe Driving ActROADSIDE DEPARTURE:Right

The subject vehicle was traveling south on a dry, level, two-lane, rural, asphalt roadway. The driver attempted to a pass a non-contact vehicle when another non-contact vehicle was seen coming from the other direction. The driver accelerated, pulled right and lost control of the vehicle which departed the right side of the roadway and rotated clockwise. The vehicle hit a culvert and flipped.





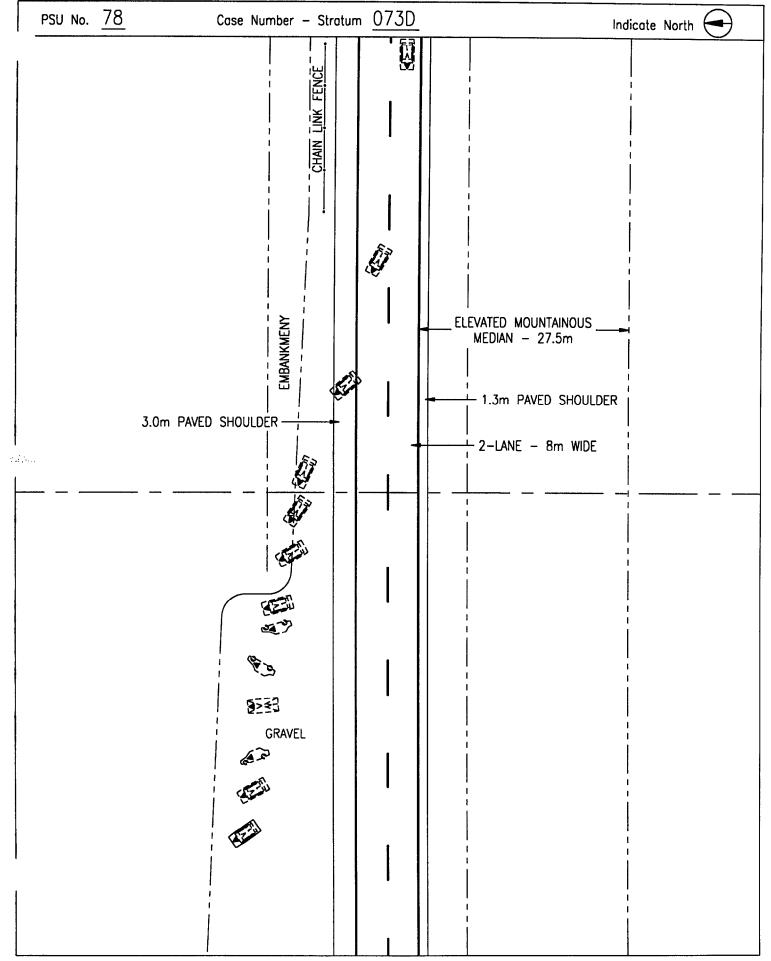
CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Right

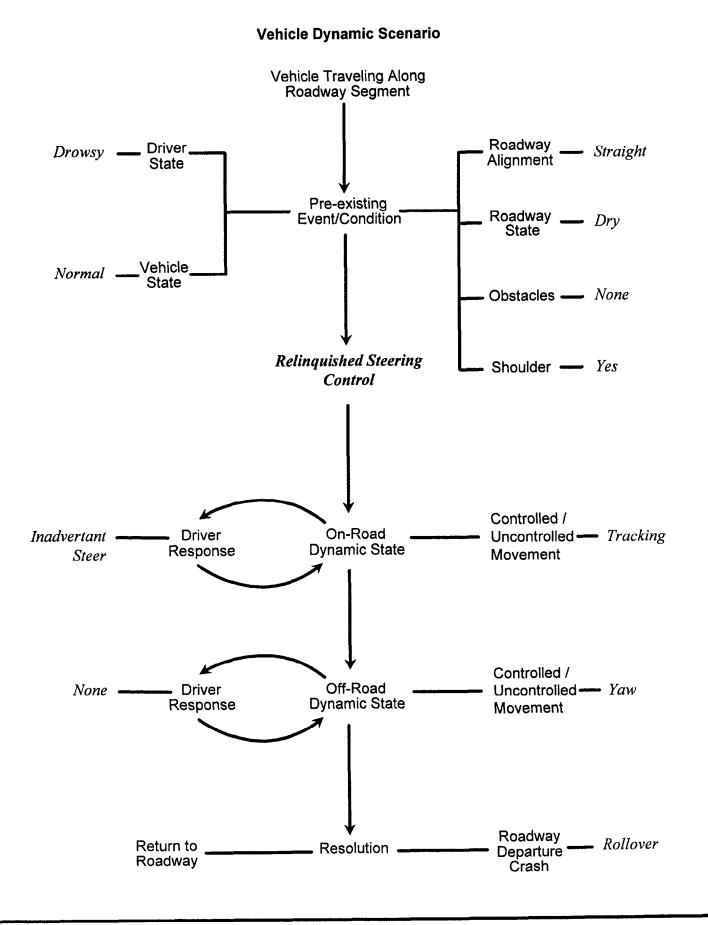
	General Accid	lent Information	
Date:	5-7-93	Weather:	Clear/Cloudy
Time:	2055	Surface Condition:	Dry
Accident Type:	Control/Traction Loss	Lighting:	None
Accident Sever	<i>ity:</i> 3 (A)	Land Use:	Rural
Driver/Oc	cupant Information	Vehicle Infor	mation
Driver Age:	28	Year:	1969
Driver Sex:	Male	Vehicle Make:	Mercury
Impairment:	Fell Asleep	Vehicle Model:	Montego
Familiarity with Road:	No	ABS:	No
No. of Occupants:	4	Defects:	No
	Roadway	Information	· · · · · · · · · · · · · · · · · · ·
Trafficway Typ		Alignment:	Straight
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	105 km/h
	Cluster	v Variables	
GV14 : 07	Steering right		
GV64 : 01	Going straight		
GV65: 13	This vehicle traveling off the edg	ge of the road on the right side	
GV66: 3	Skidding laterally - clockwise ro	tation	

14.

CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Right

The subject vehicle was traveling westbound on a dry, two-lane, divided, rural, asphalt interstate with a negative slope. The subject driver fell asleep, steered right, and exited the roadway on the right. The vehicle struck an embankment, became airborne and landed on the left rear portion of the vehicle.





CAUSAL FACTOR: Driver Inattention

Left

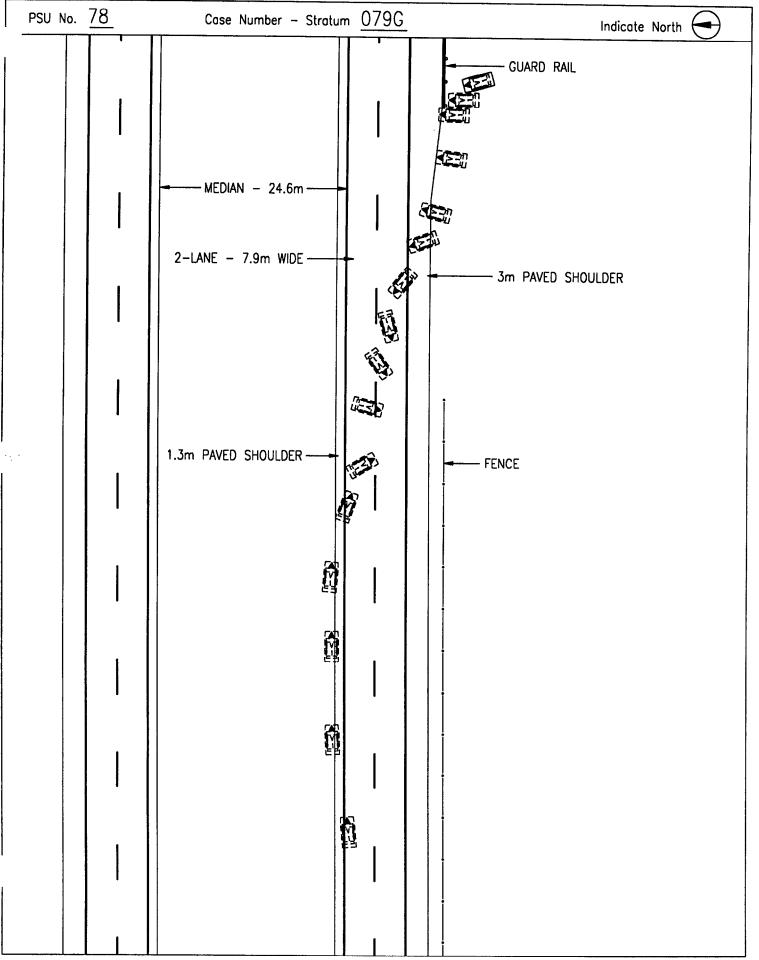
ROADSIDE DEPARTURE:

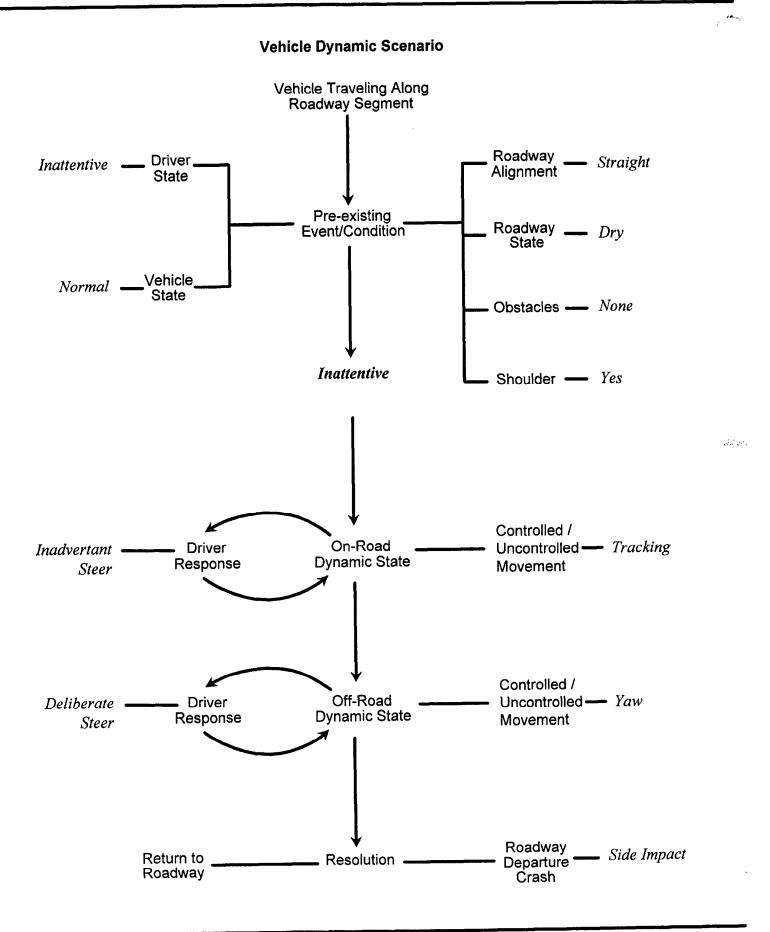
······		General Accide	nt Information	
Date:		7-2-93	Weather:	Clear/Cloudy
Time:		1235	Surface Condition:	Dry
Accident Ty	oe:	Control/Traction Loss	Lighting:	Daylight
Accident Se	verity:	0 (O)	Land Use:	Rural
Driver/0	Dccup	ant Information	Vehicle Info	mation
Driver Age:		34	Year:	1991
Driver Sex:		Male	Vehicle Make:	Nissan/Datsun
Impairment:		None	Vehicle Model:	200SX / 240SX
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		1	Defects:	No
		Roadway Ir	nformation	
Trafficway T			Alignment:	Straight
(Median):		Physical barrier	Slope:	Grade
No. of Lane	s:	2	Speed Limit:	105 km/h
		Cluster V	/ariables	
GV14 : 0	1 No a	voidance actions		
GV64 : 1	3 Nego	otiating a curve		
GV65: 1	2 This	vehicle traveling off the edge of	of the road on the left side	
GV66: 0	No a	voidance maneuver		

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CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

The subject vehicle was traveling along a dry, divided, two-lane, rural, asphalt interstate roadway. The driver lost control of the vehicle while looking for something. The driver overcorrected, spun the vehicle, and hit a guardrail.



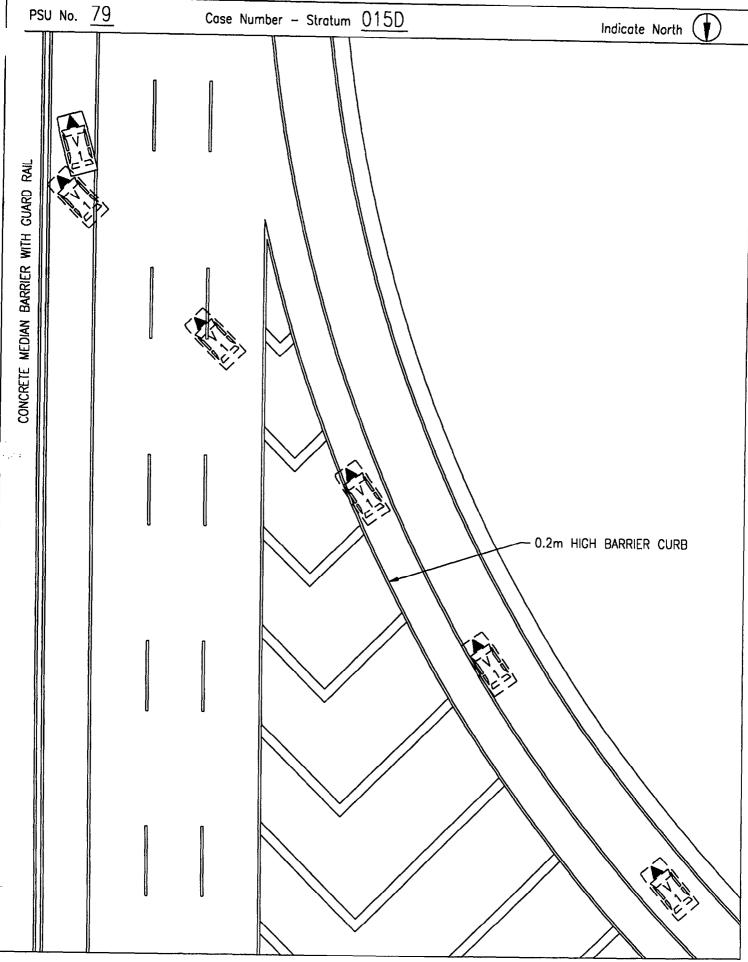


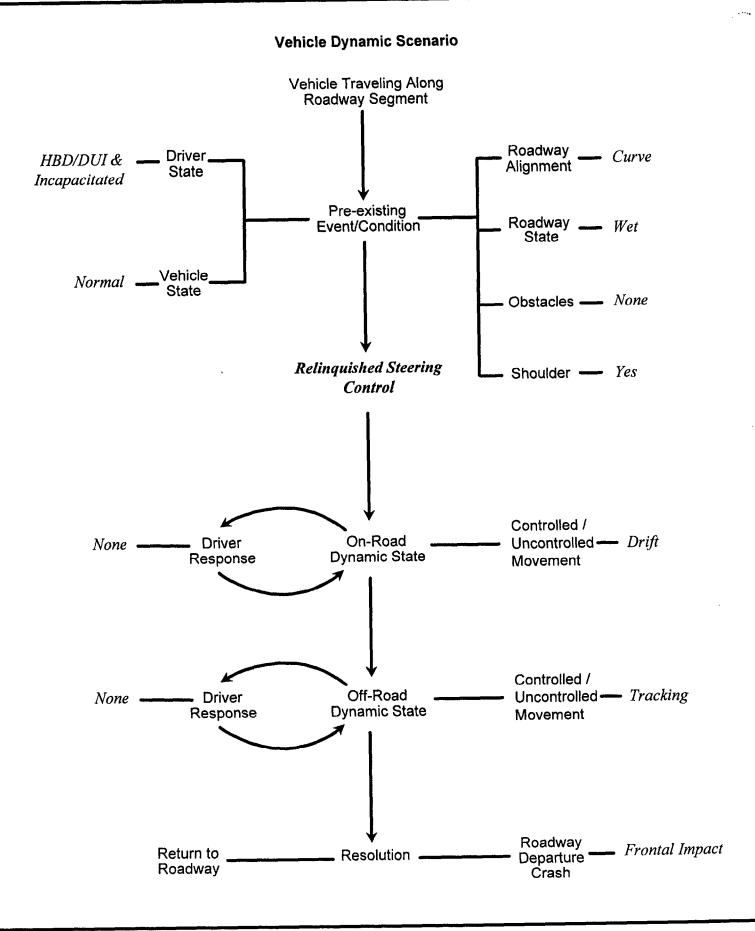
CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Left

		General Acci	dent Information	••••••••••••••••••••••••••••••••••••••
Date:		1-5-93	Weather:	Clear/Cloudy
Time:		2355	Surface Condition:	Wet
Accident	Гуре:	Drive Off Road	Lighting:	Artificial lightin
Accident S	Severity:	3 (A)	Land Use:	Urban
Drive	r/Occupa	ant Information	Vehicle Infor	mation
Driver Age	: :	63	Year:	1975
Driver Sex		Male	Vehicle Make:	Cadillac
Impairmer		Intoxicated (alcohol/drugs)	Vehicle Model:	DeVille/ Fleetwood
Familiarity with Road		Unknown	ABS:	No
No. of Occupant:	s:	1	Defects:	No
		Roadway	Information	
Trafficway			Alignment:	Curve Right
(Mediai	n):	Flush or curb	Slope:	Grade
No. of Lai	nes:	1	Speed Limit:	80 km/h
		Cluster	Variables	·····
GV14:	01 No a	voidance actions		
GV64:	15 Merg	ging		
GV65:	12 This	vehicle traveling off the edg	e of the road on the left side	
GV66:	0 Noa	voidance maneuver		

CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a southeasterly direction on a wet, lighted, one-lane, superelevated, concrete, entrance ramp with edge lines. The driver attempted to merge onto a freeway and allowed the vehicle to drift to the left, override a raise zone area, cross three southbound travel lanes of the freeway, and then to strike a concrete median barrier with the left frontal plane. The vehicle slid a short distance along the barrier and came to rest facing south southeast, adjacent to the barrier, in the breakdown lane. The driver was intoxicated (BAC=0.14).





CAUSAL FACTOR:

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Lost Directional Control

Left

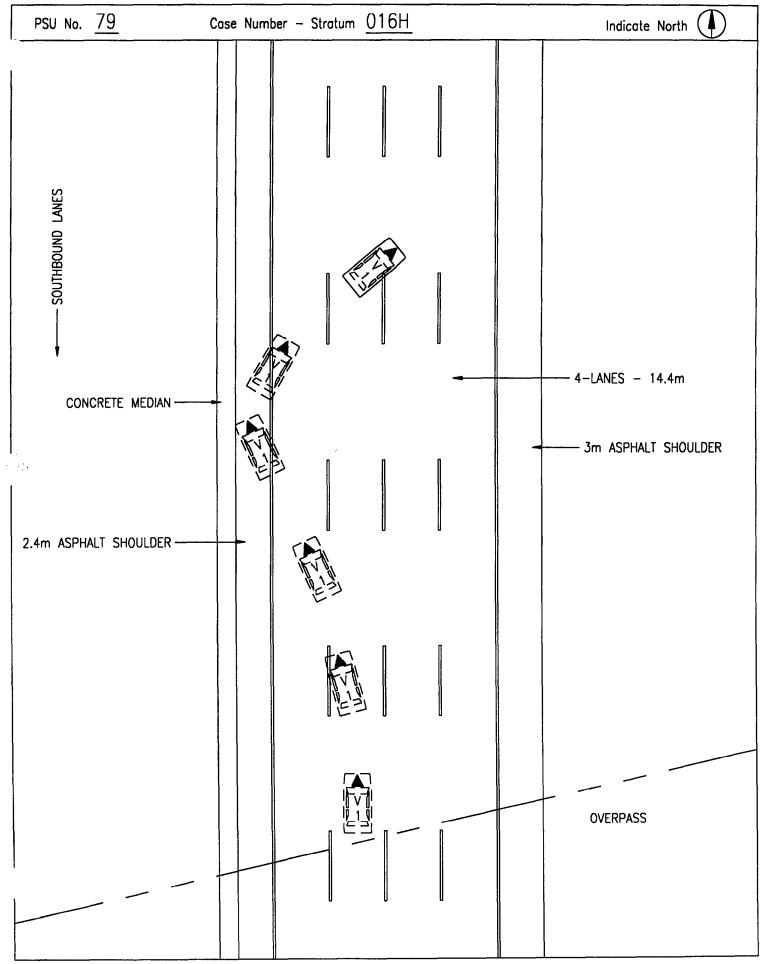
ROADSIDE DEPARTURE:

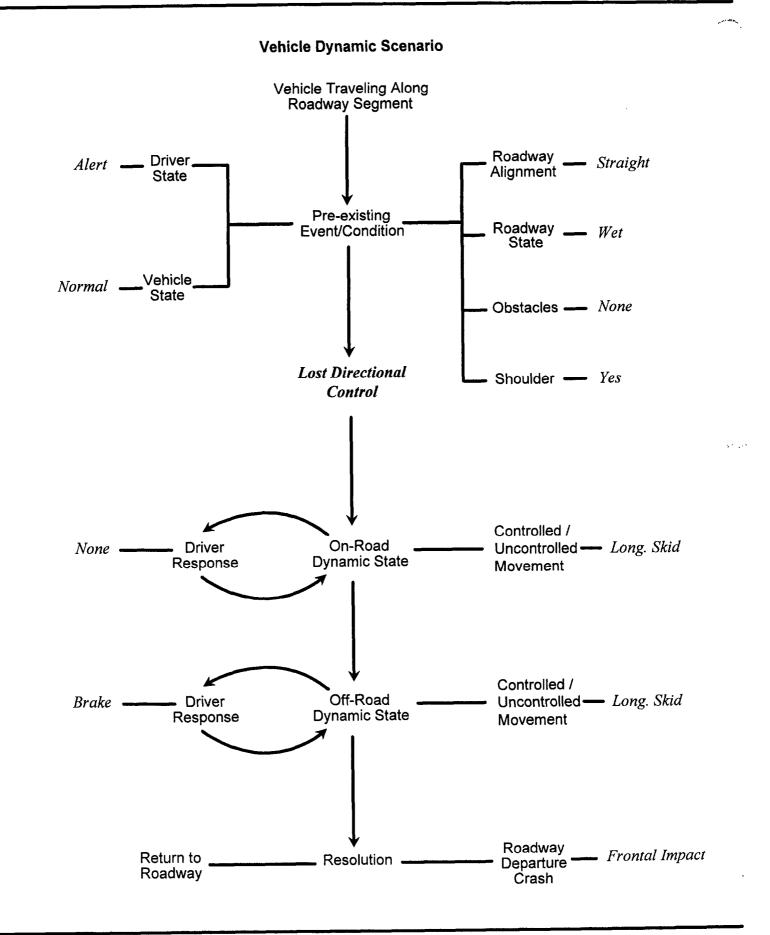
		General Accid	lent Information	
Date:		1-4-93	Weather:	Rain
Time:		0450	Surface Condition:	Wet
Accident	Type:	Control/Traction Loss	Lighting:	None
Accident	Sever	<i>ity:</i> 0(O)	Land Use:	Urban
Drive	er/Oc	cupant Information	Vehicle Info	rmation
Driver Ag	e:	48	Year:	1987
Driver Se	x:	Male	Vehicle Make:	Dodge
Impairme		None	Vehicle Model:	Unknown (light truck)
Familiarit with Road		Unknown	ABS:	No
No. of Occupan	ts:	2	Defects:	No
		Roadway	Information	
Trafficwa			Alignment:	Straight
(Media	an):	Physical barrier	Slope:	Level
No. of La	anes:	4	Speed Limit:	89 km/h
		Cluster	Variables	
GV14:	99	Unknown		
GV64:	01	Going straight		
GV65:	06	This vehicle loss of control due to	o traveling too fast for conditions	
GV66:	9	Precrash stability unknown		

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CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Left

The subject vehicle was traveling through rain in the third northbound travel lane of a wet, level, eight-lane, divided, concrete, interstate route with edge lines and lane lines. The vehicle hydroplaned in an accumulation of water causing the driver to lose directional control. The vehicle skidded to the left, struck a concrete median barrier with its left frontal area, and then deflected back into the roadway. The vehicle came to rest straddling two lanes facing in a northeasterly direction.



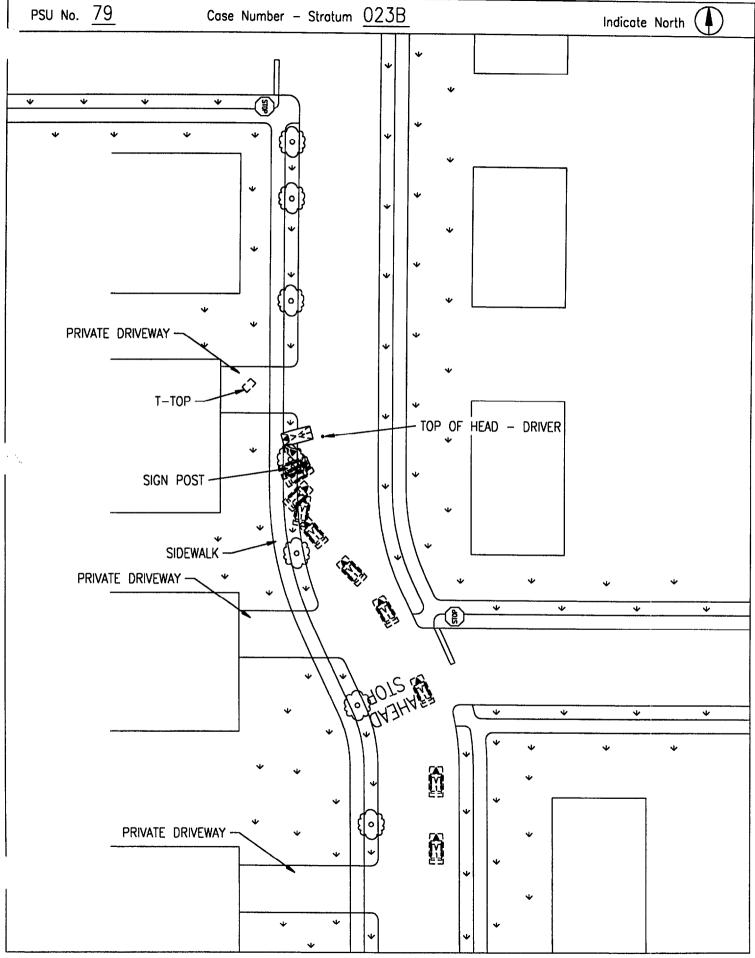


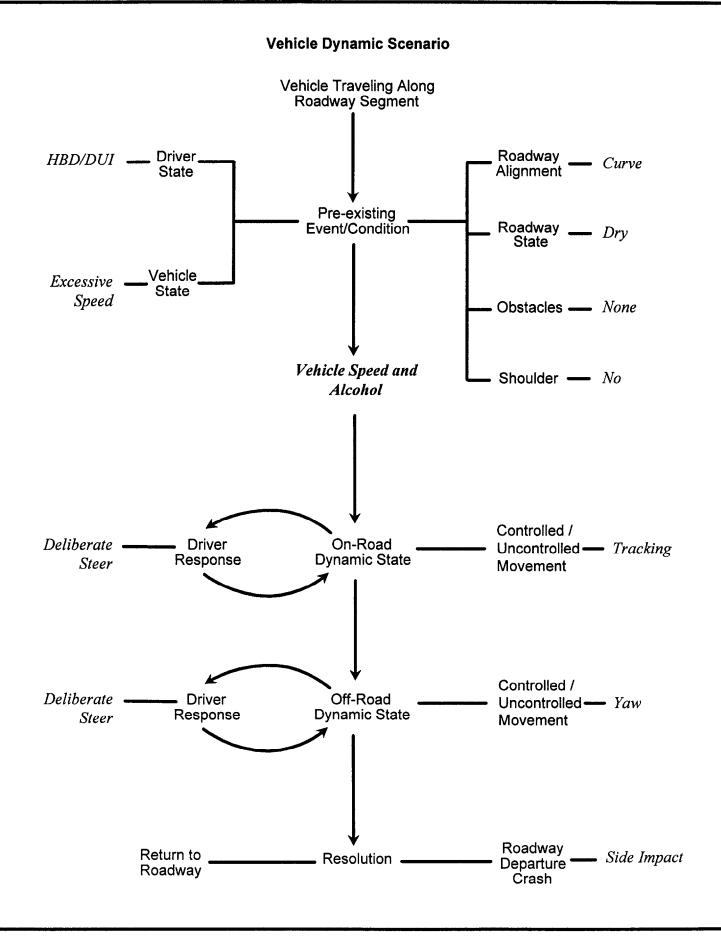
Calspan Corporation Carnegie Mellon University CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

	<u></u>	General Acci	dent Information	
Date:		2-1-93	Weather:	Clear/Cloudy
Time:		0200	Surface Condition:	Dry
Accident 1	Гуре:	Drive Off Road	Lighting:	Artificial lighting
Accident S	Severity:	4 (K)	Land Use:	Urban
Drive	r/Occup	oant Information	Vehicle Info	mation
Driver Age	ə:	30	Year:	1983
Driver Sex	:	Male	Vehicle Make:	Nissan/Datsun
Impairmer		Intoxicated (alcohol/drugs)	Vehicle Model:	Z-car, ZX
Familiarity with Road		Unknown	ABS:	No
No. of Occupants	s:	1	Defects:	No
		Roadway	/ Information	· · · · · · · · · · · · · · · · · · ·
Trafficway			Alignment:	Curve Right
(Mediai	n):	Not divided	Slope:	Level
No. of La	nes:	2	Speed Limit:	40 km/h
		Cluste	r Variables	
GV14:	07 Stee	ering right		
GV64:	13 Neg	otiating a curve		
GV65:	06 This	s vehicle loss of control due	to traveling too fast for conditions	
GV66:	1 Tra	cking		
GV67:	4 Veh	icle departed roadway		

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a northerly direction around an S-curve on a two-lane, urban, residential street. The driver successfully negotiated the first half of the curve to the left but then struck and mounted the west curb causing the vehicle to vault and rotate clockwise. After exiting the roadway, the airborne vehicle struck a street sign and a 1 m diameter tree, located 1 meter west of the curb line, with its left door and C-pillar area. The vehicle had rotated nearly 90 degrees clockwise to its path of travel at the point of impact with the tree. Following this impact, the vehicle reversed rotation and rotated nearly 180 degrees counterclockwise while rolling onto its top. The vehicle came to rest a short distance north of the tree, straddling the west curb line, facing west southwest. The driver was intoxicated (BAC=0.24) and was traveling at a high rate of speed in a 40 km/h (25 mph) speed zone.





CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Right

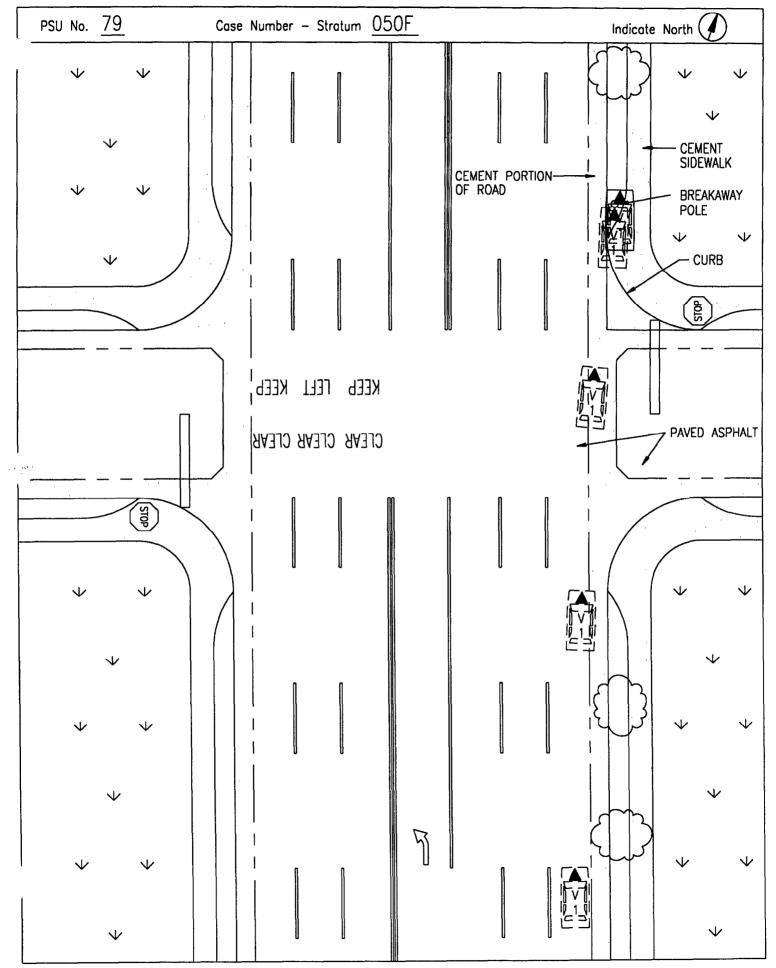
		General Accid	lent Information		
Date:		2-7-93	Weather:	Clear/Cloudy	
Time:		0120	Surface Condition:	Wet	
Accident	Type:	Drive Off Road	Lighting:	Artificial lighting	
Accident	Severity:	0 (O)	Land Use:	Urban	
Drive	er/Occup	ant Information	Vehicle Infor	rmation	
Driver Ag	e:	30	Year:	1964	
Driver Se	x:	Male	Vehicle Make:	Chevrolet	
Impairme	nt:	Fell Asleep	Vehicle Model:	C, K, R, V-series	
Familiarit with Road		Unknown	ABS:	No	
No. of Occupant	ts:	1	Defects:	No	
		Roadway	Information		
Trafficwa			Alignment:	Straight	
(Media	n):	Flush or curb	Slope:	Level	
No. of La	nes:	7	Speed Limit:	56 km/h	
		Cluster	Variables		
GV14:	01 No a	avoidance actions			
GV64:	01 Goii	Going straight			
GV65:	13 This	vehicle traveling off the edg	e of the road on the right side		
GV66:	0 No a	avoidance maneuver			
GV67:	0 No :	avoidance maneuver			

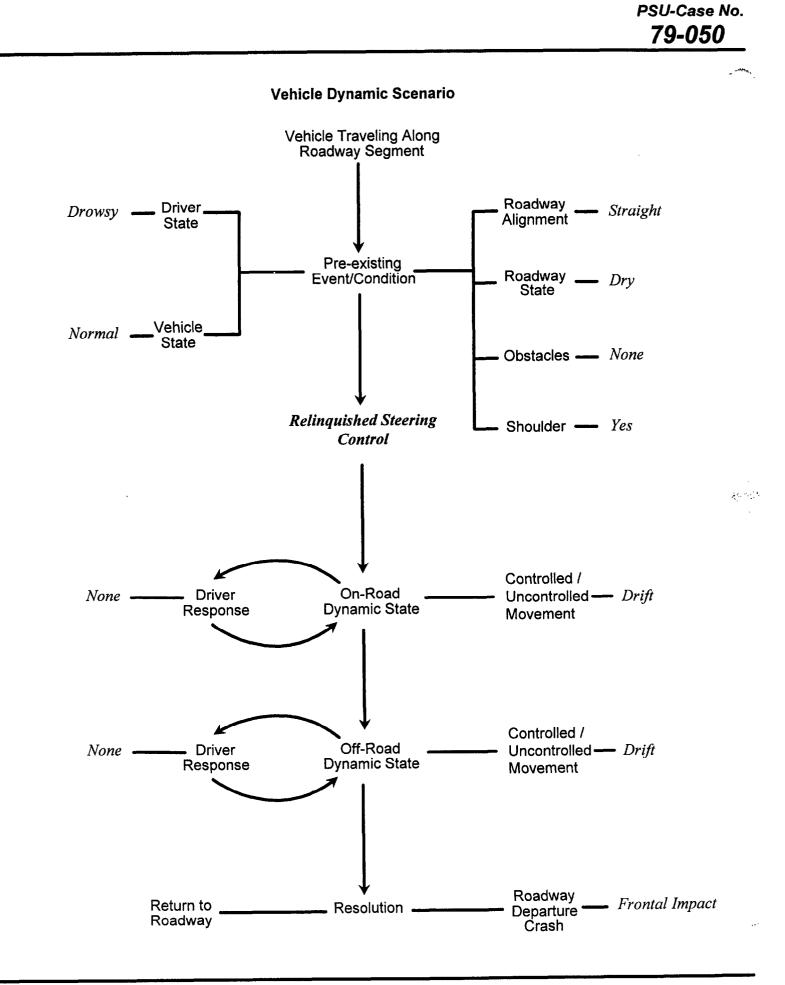
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CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Right

The subject vehicle was traveling along a seven-lane, undivided, two way, urban roadway. The driver fell asleep at the wheel. The vehicle ran off the right side of the road and impacted a breakaway pole. The vehicle came to rest at the impact location.





CAUSAL FACTOR: ROADSIDE DEPARTURE:

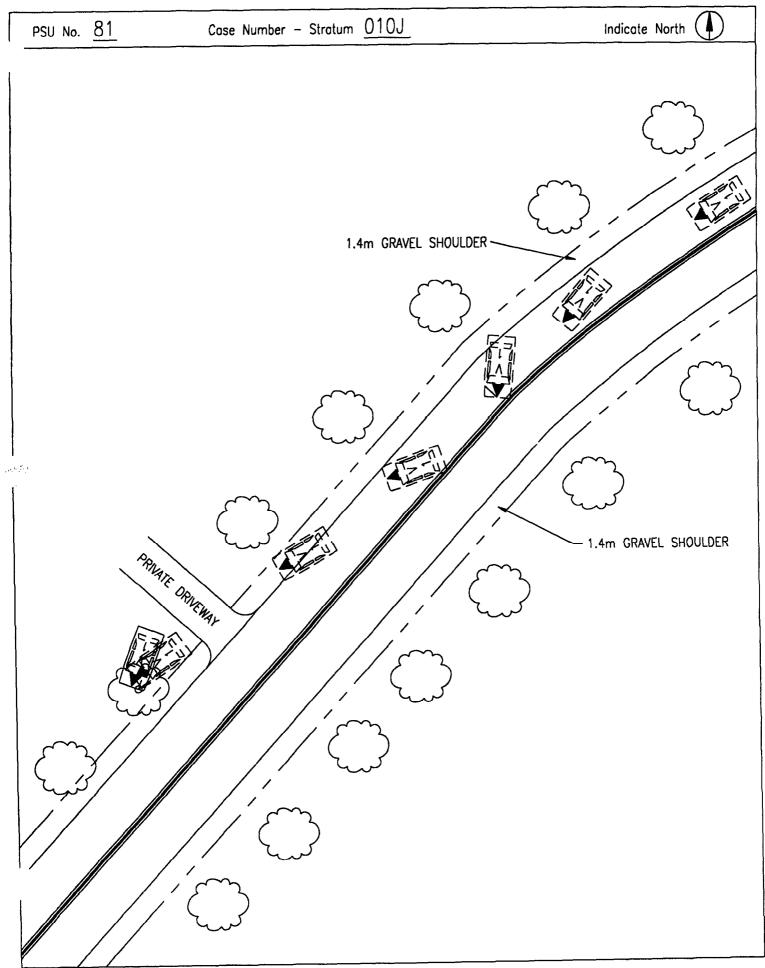
Vehicle Speed - Excessive

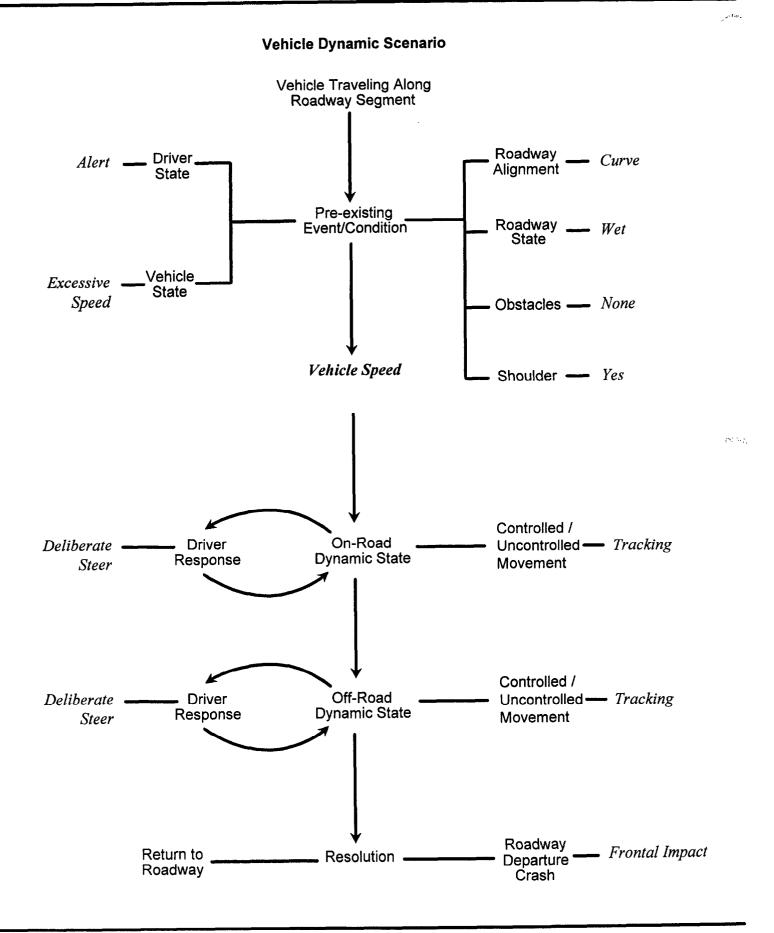
Right

		General Accide	ent Information	······
Date:		1-3-93	Weather:	Unknown
Time:		2100	Surface Condition:	Wet
Accident T	ype:	Control/Traction Loss	Lighting:	Artificial lighting
Accident S	everity:	3 (A)	Land Use:	Rural
Driver	/Occupa	ant Information	Vehicle Infor	mation
Driver Age	:	22	Year:	1989
Driver Sex:		Female	Vehicle Make:	Chevrolet
Impairmen	t:	None	Vehicle Model:	Spectrum
Familiarity with Road:		Yes	ABS:	No
No. of Occupants	:	1	Defects:	No
		Roadway Ir	nformation	
Trafficway			Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lan	es:	2	Speed Limit:	56 km/h
		Cluster V	ariables	
GV14:	07 Steer	ing right		
GV64:	13 Nego	tiating a curve		
GV65:	13 This	vehicle traveling off the edge of	of the road on the right side	
GV66:	1 Track	sing		
GV67:	4 Vehi	cle departed roadway		

CAUSAL FACTOR:Vehicle Speed - ExcessiveROADSIDE DEPARTURE:Right

The subject vehicle was traveling on a wet, lit, two-lane, rural roadway during the evening hours. The vehicle started to fishtail and the driver tried to correct. The vehicle exited the road to right and impacted a tree. The driver was proceeding along the road at 98 km/h (60 mph) in a 56 km/h (35 mph) speed zone. The driver was familiar with roadway.





CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Left

	General Acci	dent Information	
Date:	1-3-93	Weather:	Rain
Time:	0635	Surface Condition:	Wet
Accident Type:	Drive Off Road	Lighting:	None
Accident Severit	y: 0(O)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Infor	mation
Driver Age:	32	Year:	1989
Driver Sex:	Female	Vehicle Make:	Honda
Impairment:	None	Vehicle Model:	Civic/CRX
Familiarity with Road:	Yes	ABS:	No
No. of Occupants:	I	Defects:	No
	Roadway	/ Information	
Trafficway Type		Alignment:	Straight
(Median):	Flush or curb	Slope:	Grade
No. of Lanes:	2	Speed Limit:	89 km/h
	Cluste	r Variables	
GV14: 06 S	teering left		
GV64: 16 S	uccessful avoidance of previou	s event	
GV65: 60 C	Other vehicle encroaching into l	ane from adjacent lane (same direc	tion) over left lane line
GV66: 1 7	racking		
GV67: 4 \	/ehicle departed roadway		

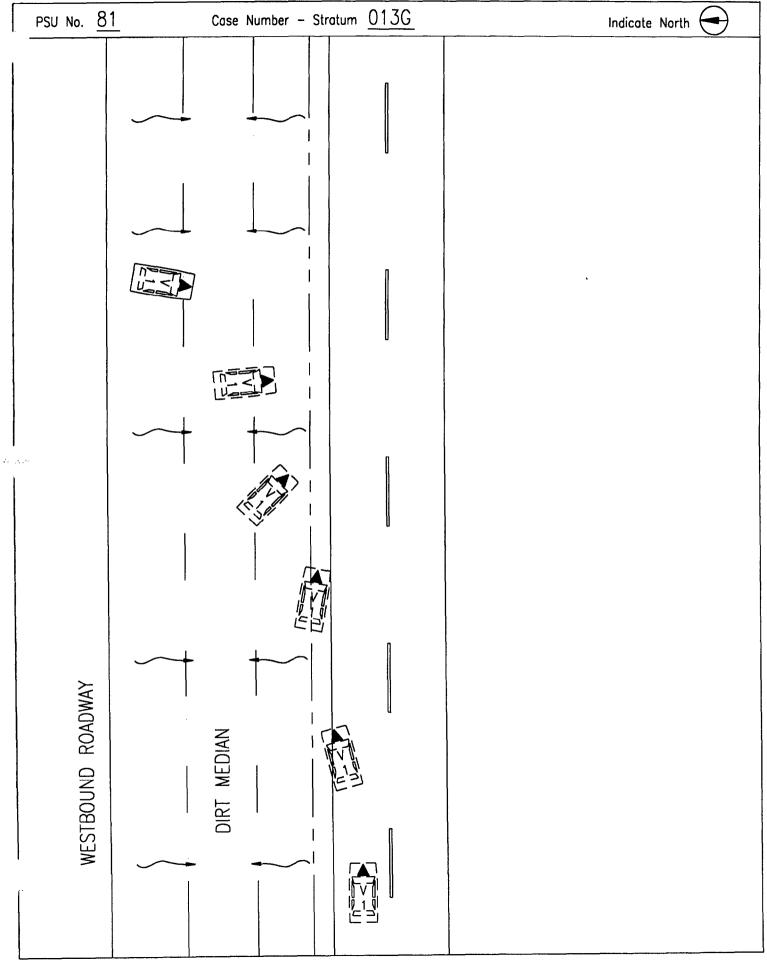
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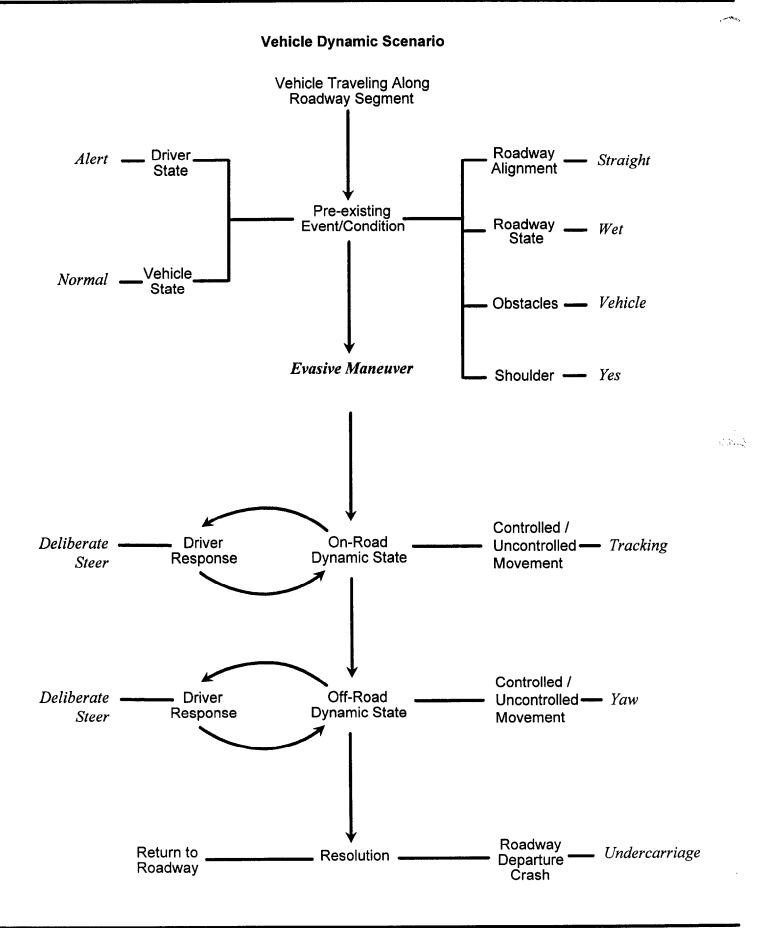
CAUSAL FACTOR:

Evasive Maneuver - Vehicle Encroaching into Lane -Same Travel Direction

ROADSIDE DEPARTURE: Left

The subject vehicle was traveling in an easterly direction in the second lane of a four-lane, divided interstate. A non-contact vehicle traveling slightly forward of the subject in the first eastbound lane moved left and attempted to enter the second eastbound lane. The subject driver steered left to avoid the non-contact vehicle and exited the left edge of the roadway. The subject driver steered sharply back to the right. The vehicle yawed in a clockwise direction and continued skidding through the median, contacting the median surface with its undercarriage. The vehicle came to rest in the median, facing a southerly direction.





CAUSAL FACTOR: Lost Directional Control

Left

ROADSIDE DEPARTURE:

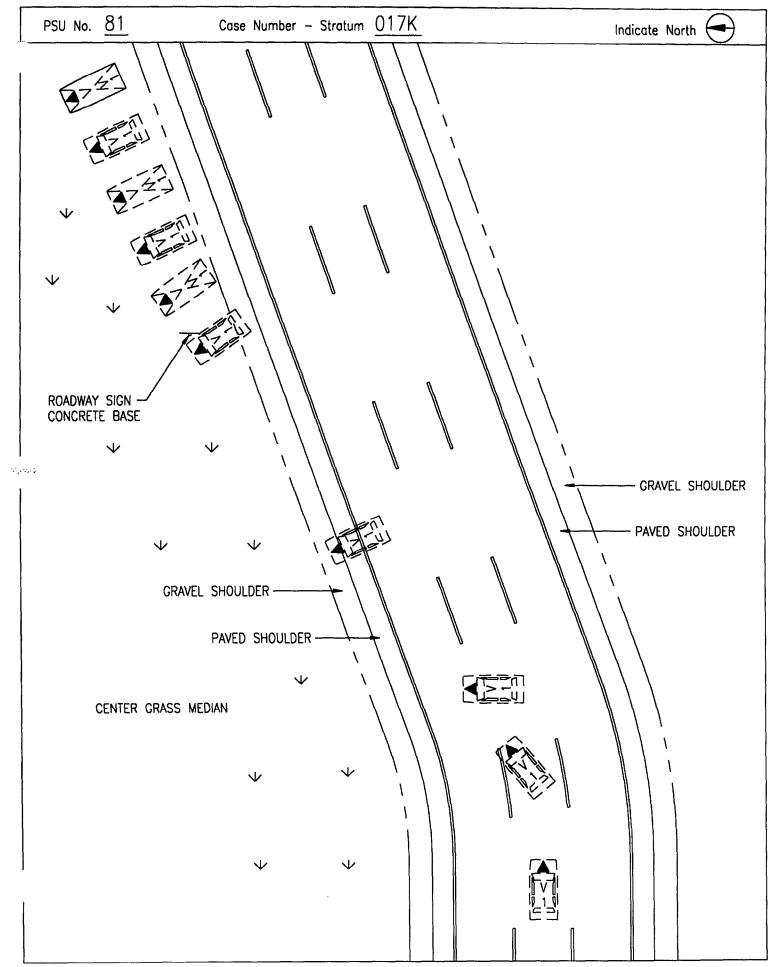
	· ·	General Accide	ent Information	
Date:		1-7-93	Weather:	Rain
Time:		2140	Surface Condition:	Ice/Snow
Accident Typ	e:	Control/Traction Loss	Lighting:	None
Accident Sev	verity:	3 (A)	Land Use:	Rural
Driver/C)ccupa	ant Information	Vehicle Infor	rmation
Driver Age:		30	Year:	1979
Driver Sex:		Male	Vehicle Make:	Ford
Impairment:		None	Vehicle Model:	F-series pickup
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		2	Defects:	No
		Roadway li	nformation	
Trafficway T	ype		Alignment:	Curve Left
(Median):		Flush or curb	Slope:	Grade
No. of Lanes	5:	2	Speed Limit:	105 km/h
		Cluster \	/ariables	
GV14 : 01	7 Steer	ring right		
GV64: 13	3 Nego	otiating a curve		
	5 This	vehicle loss of control due to	poor road conditions	
GV65 : 03				
GV65 : 0: GV66 : 4		ding laterally - counterclockwi	ise rotation	

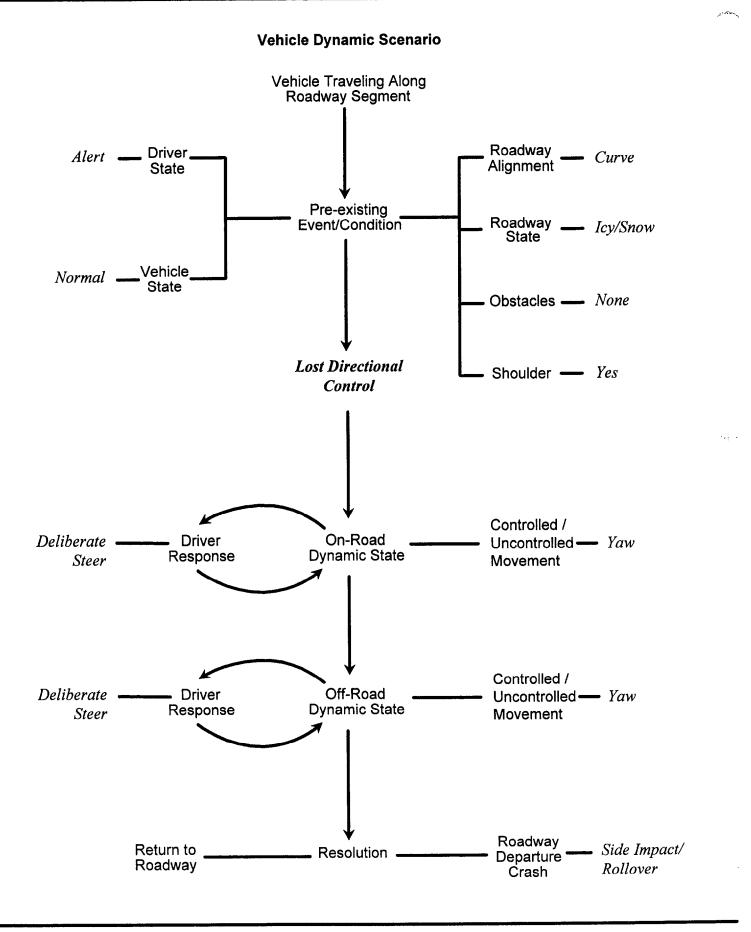
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CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Left

The subject vehicle was traveling eastbound in the second lane of a six-lane, divided interstate with a -3% slope and a curve to the left. As the vehicle exited the curve, the driver encountered an ice patch. The vehicle yawed in a clockwise direction and skidded off the roadway in a broadside skid. The right door of the vehicle struck a single pole mounted road sign. The vehicle then rolled side-over-side to right 1.5 times and came to rest on its top facing in a north northwesterly direction.

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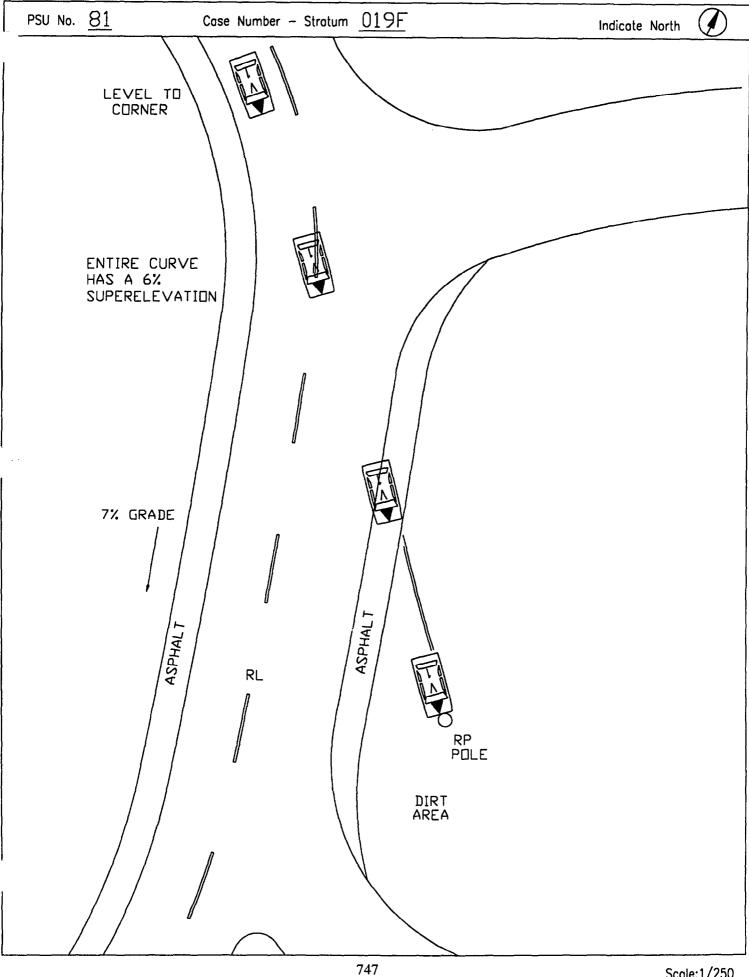


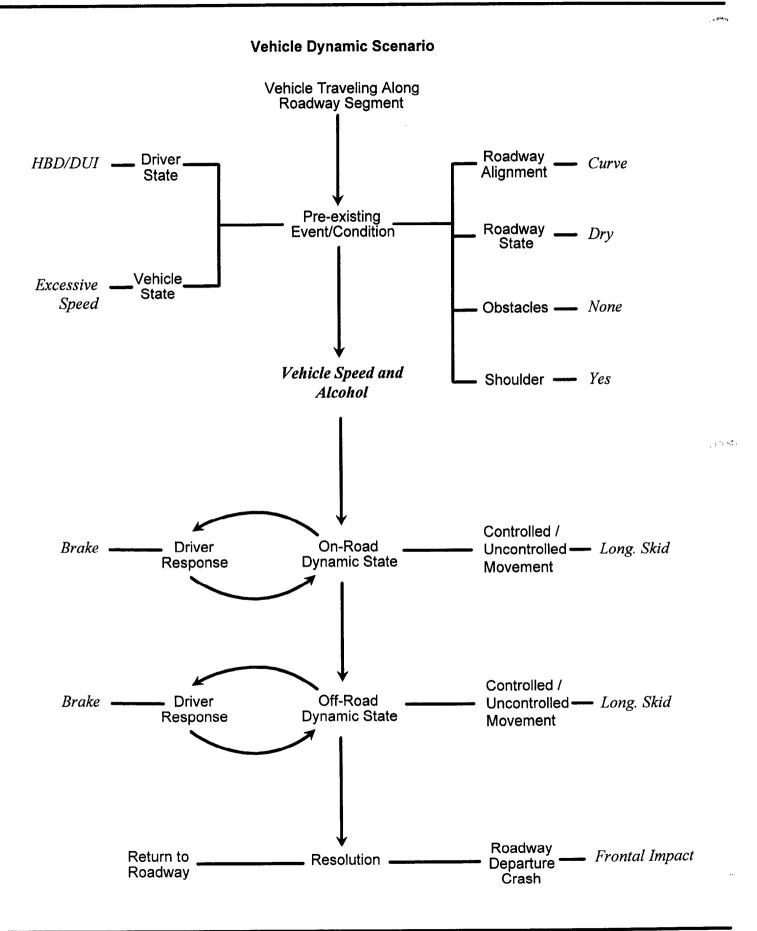
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

	General Acci	dent Information	
Date:	2-2-93	Weather:	Clear/Cloudy
Time:	2210	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	None
Accident Severit	y: 2 (B)	Land Use:	Rural
Driver/Occu	pant Information	Vehicle Infor	mation
Driver Age:	26	Year:	1979
Driver Sex:	Male	Vehicle Make:	Mercury
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	Cougar/XR7
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway	Information	
Trafficway Type		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	40 km/h
	Cluster	Variables	
GV14: 03 B	aking (lockup)		
GV64: 13 N	egotiating a curve		
GV65: 06 T	nis vehicle loss of control due to	o traveling too fast for conditions	
GV66: 2 SI	kidding longitudinally - less that	n 30 degrees rotation	
GV67: 4 V	ehicle departed roadway		

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling a southerly direction on a two-lane, rural roadway. The driver failed to track a curve to the right and braked heavily leaving 30 m skid marks, as reported by the police. The vehicle skidded off the roadway and struck a utility pole with its center front. The vehicle came to rest at the pole, facing in a southerly direction. The subject driver was intoxicated (BAC=0.24) and traveling too fast for the roadway.





CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Left

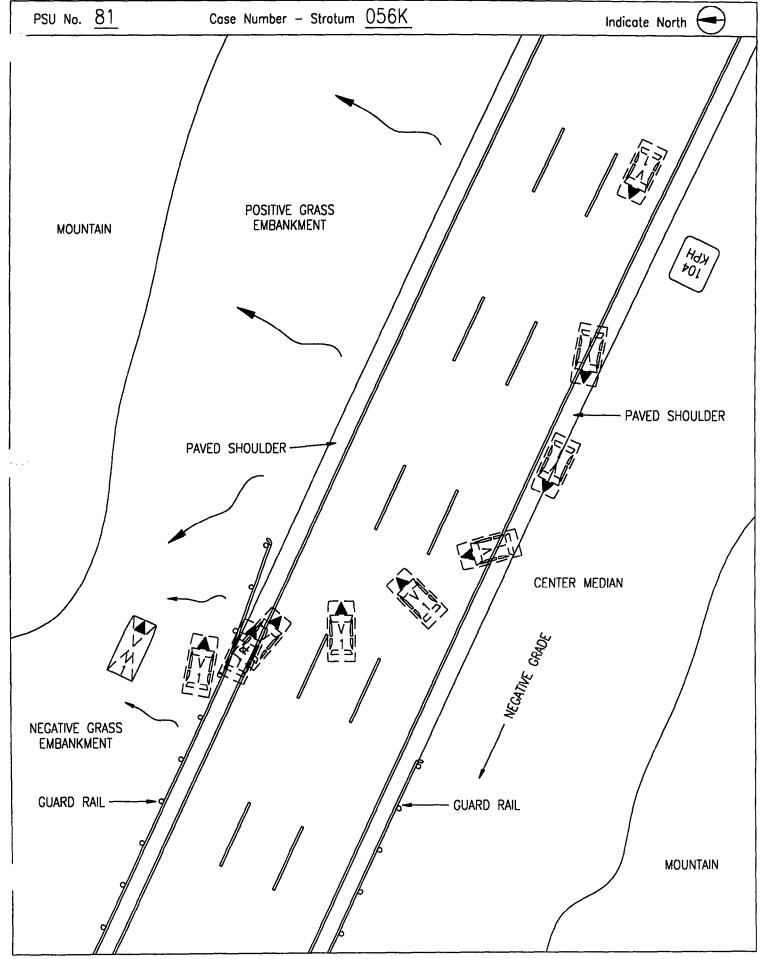
<u></u>		General Accide	nt Information	
Date:		4-6-93	Weather:	Clear/Cloudy
Time:		1535	Surface Condition:	Dry
Accident Ty	rpe:	Control/Traction Loss	Lighting:	Daylight
Accident Se	verity:	3 (A)	Land Use:	Rural
Driver/	Occupa	ant Information	Vehicle Infor	rmation
Driver Age:		18	Year:	1984
Driver Sex:		Female	Vehicle Make:	Chevrolet
Impairment	;	Fell Asleep	Vehicle Model:	Cavalier
Familiarity with Road:		Yes	ABS:	No
No. of Occupants:		1	Defects:	No
		Roadway Ir	nformation	<u> </u>
Trafficway :			Alignment:	Curve Left
(Median)	:	Flush or curb	Slope:	Grade
No. of Land	es:	3	Speed Limit:	105 km/h
		Cluster V	/ariables	
GV14:	01 No a	voidance actions		
GV64:	13 Neg	otiating a curve		
GV65:	13 This	vehicle traveling off the edge	of the road on the right side	
GV66:	0 No a	voidance maneuver		

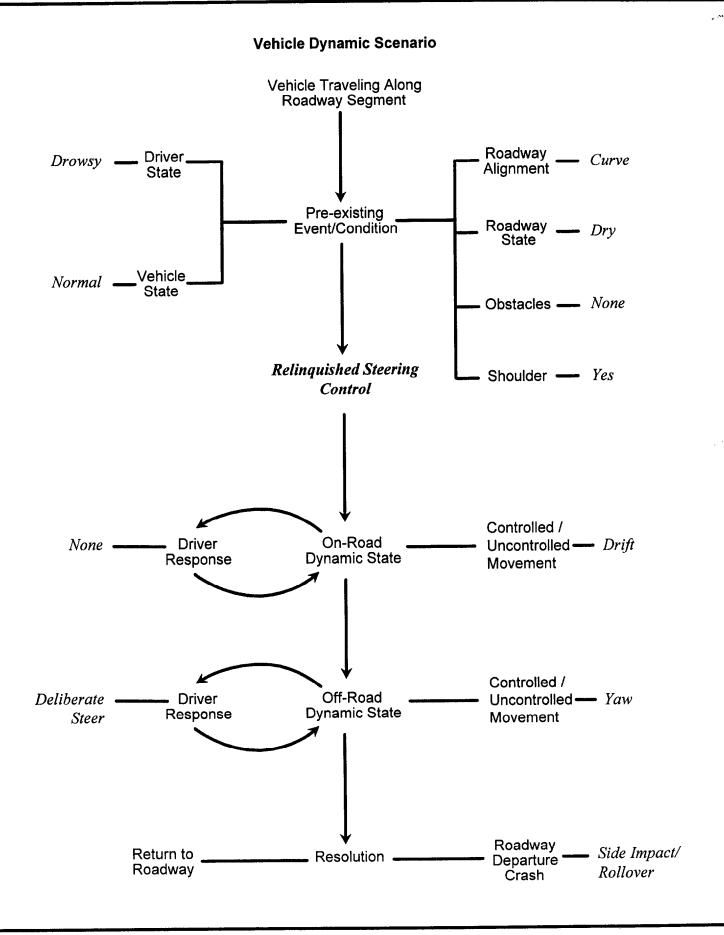
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CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Left

The subject vehicle was proceeding in a northwesterly direction traversing a left curve in the third lane of a six-lane, divided, asphalt interstate with a negative slope, edge lines, and lane lines. The driver apparently fell asleep while negotiating the curve to the left. The vehicle drifted left and exited the left edge of roadway traveling along the shoulder. The driver woke at this point and steered sharply back to the right. The subject vehicle re-entered the roadway, rotating clockwise. It crossed the travel lanes in a broadside skid with its left side leading and exited the right, edge of the roadway. The vehicle struck a W-beam guardrail located adjacent to the north shoulder with its left side. It penetrated through the guardrail and then rolled 1/2 roll onto its top, side-over-side to left. The vehicle came to rest on a negative-sloped embankment, beyond the guardrail, on its top, facing northeast.





Calspan Corporation Carnegie Mellon Universitv

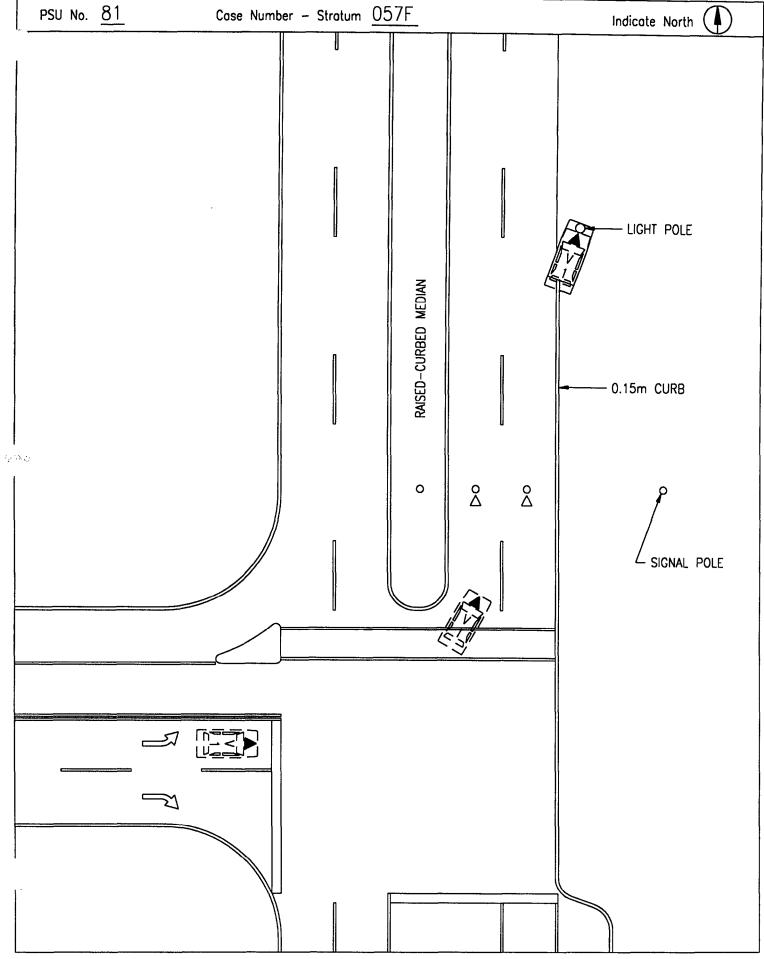
CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:End Departure

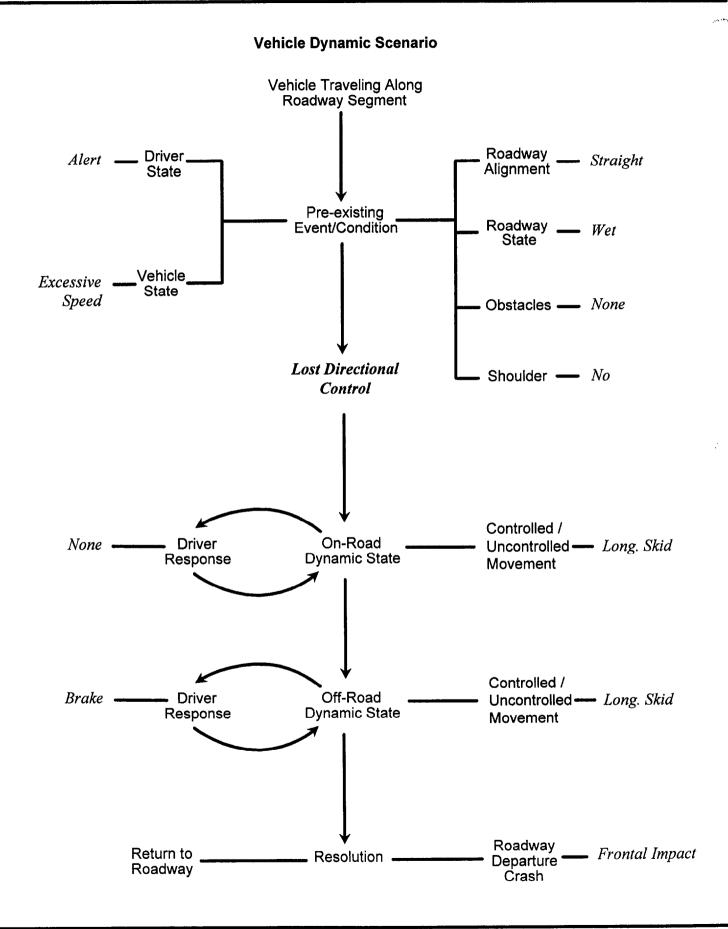
		General Acc	ident Information	
Date:		4-3-93	Weather:	Rain
Time:		0851	Surface Condition:	Wet
Accident	Туре	: Drive Off Road	Lighting:	Daylight
Accident	Seve	<i>rity:</i> 1 (C)	Land Use:	Rural
Drive	er/Oc	cupant Information	Vehicle Info	rmation
Driver Ag	e:	33	Year:	1980
Driver Se	x :	Female	Vehicle Make:	Ford
Impairme	nt:	None	Vehicle Model:	Fairmont
Familiarit with Road		Yes	ABS:	No
No. of Occupan	ts:	1	Defects:	No
		Roadwa	y Information	. <u></u>
Trafficwa			Alignment:	Straight
(Media	in):	Flush or curb	Slope:	Grade
No. of La	anes:	2	Speed Limit:	56 km/h
		Cluste	er Variables	
GV14:	99	Unknown		
GV64:	10	Turning left		
GV65:	14	This vehicle traveling off an end	d departure	
GV66:	9	Precrash stability unknown		
	9	Directional consequences unkno		

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CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:End Departure

The subject vehicle was proceeding in an easterly direction on a wet, three-lane, rural roadway which ended in a T-intersection with a four-lane, divided roadway. As the driver approached the intersection, the traffic signal was green for eastbound traffic so the driver initiated a left turn onto the intersecting four-lane roadway. The vehicle was unable to complete the turn, exited the east edge of the intersection roadway, and struck a light standard which fell on top of the vehicle following the initial impact. The vehicle came to rest straddling the east edge of the intersecting in a northeasterly direction. The driver initiated the turn at a speed which was too high to successfully complete the maneuver given the wet road conditions.





CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

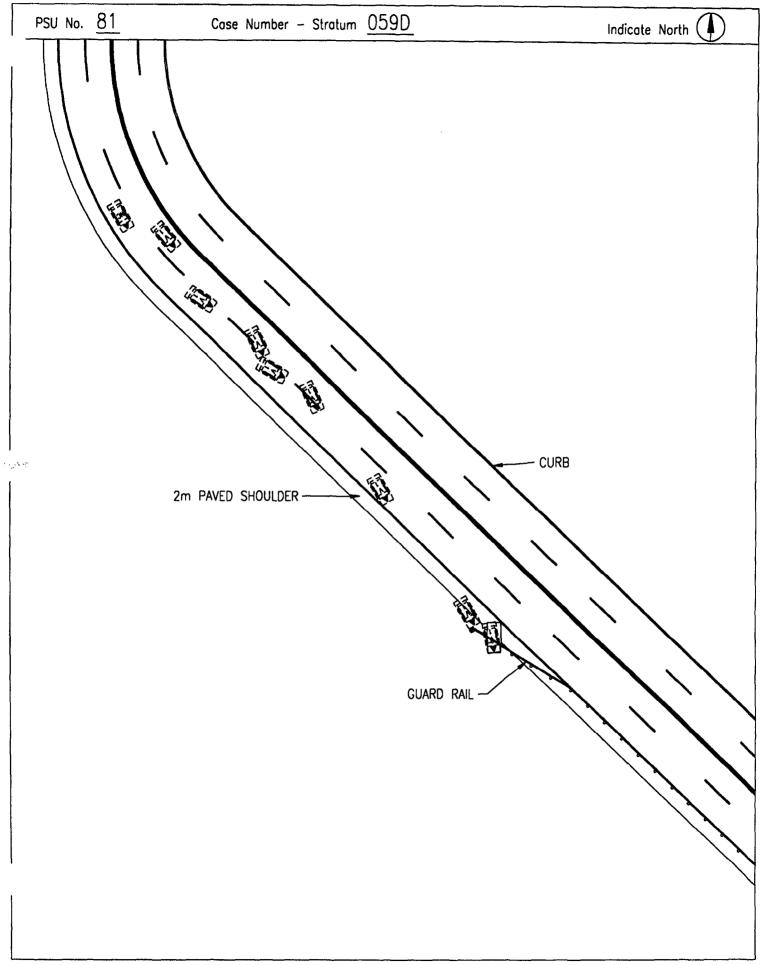
		General Accide	ent Information	
Date:		4-7-93	Weather:	Clear/Cloudy
Time:		2300	Surface Condition:	Wet
Accident	Туре:	Control/Traction Loss	Lighting:	Artificial lighting
Accident S	Severity:	3 (A)	Land Use:	Rural
Drive	r/Occup	pant Information	Vehicle Infor	mation
Driver Age):	24	Year:	1971
Driver Sex	:	Male	Vehicle Make:	Oldsmobile
Impairmer		Intoxicated (alcohol/drugs)	Vehicle Model:	Cutlass
Familiarity with Road		Unknown	ABS:	No
No. of Occupants	s:	4	Defects:	No
······		Roadway In	formation	· · · · · · · · · · · · · · · · · · ·
Trafficway		X . H . I	Alignment:	Curve Left
(Mediar	-	Not divided	Slope:	Grade
No. of Lar	ies:	4	Speed Limit:	56 km/h
		Cluster V	ariables	·
GV14:	07 Stee	ring right		
GV64:	05 Pass	ing or overtaking another vehic	le	
GV65:	06 This	vehicle loss of control due to tr	raveling too fast for conditions	
GV66:	3 Skid	lding laterally - clockwise rotati	on	
GV67:	4 Veh	icle departed roadway		

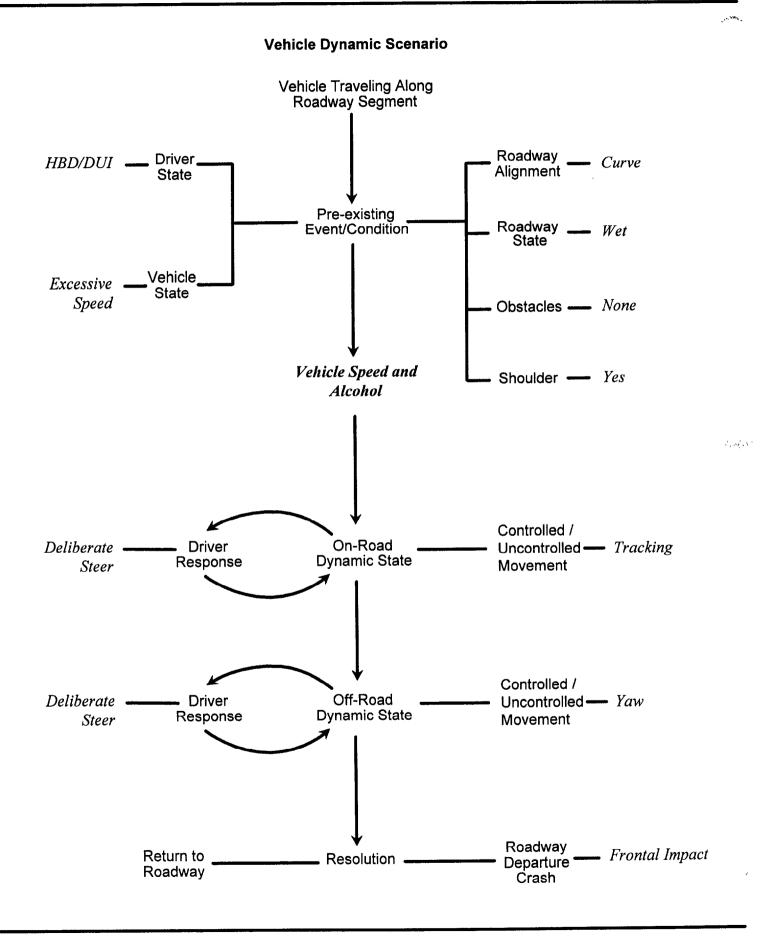
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CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a southeasterly direction negotiating a left curve in the second lane on a wet, four-lane, rural, asphalt roadway with a +3% slope, white edge lines, and lane center lines delineated by flush markers. While traversing the curve, the subject driver passed a non-contact vehicle traveling in the first lane and lost directional control. After several overcorrections, the vehicle began yawing clockwise, exited the right, west edge of the roadway, traversed a paved shoulder, and the front of the vehicle struck the blunt end of a W-beam guardrail. The end treatment was uprooted and the left door of the vehicle struck one of the guardrail support posts as the vehicle continued to rotate and override the W-section rail. The vehicle came to rest straddling the rail, facing south. The driver was intoxicated (BAC=0.12) and was traveling at a speed that was too fast for conditions.





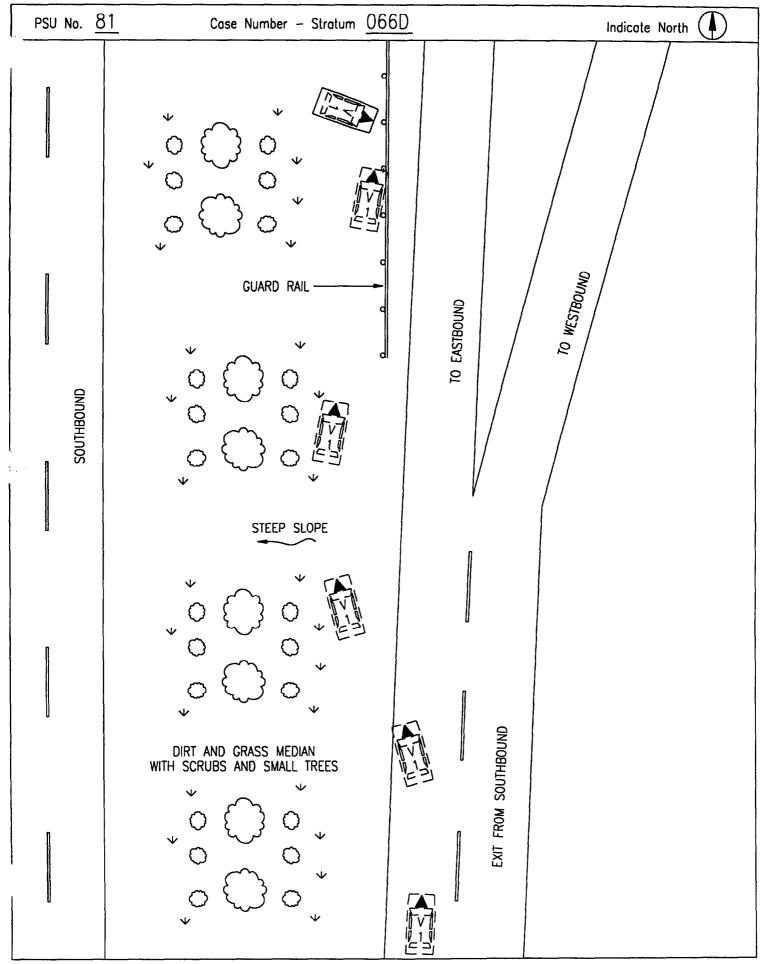
CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Left

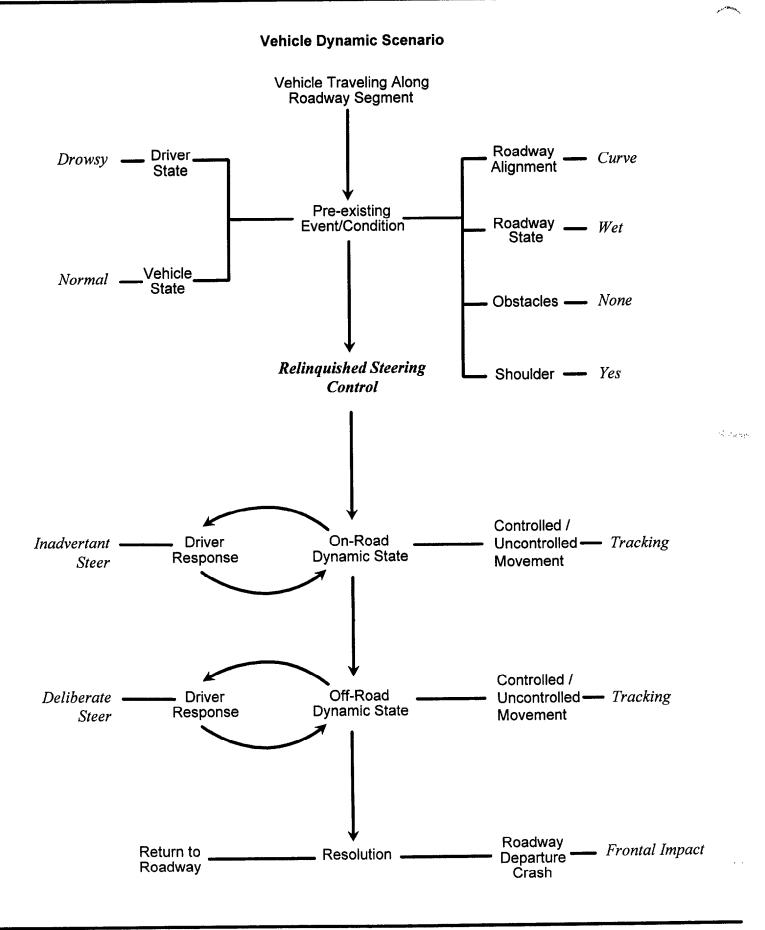
	<u></u>	General Acci	dent Information	
Date:		5-2-93	Weather:	Rain
Time:		0415	Surface Condition:	Wet
Accident Ty	pe:	Drive Off Road	Lighting:	Artificial lightin
Accident Se	verity:	3 (A)	Land Use:	Urban
Driver/	Occupa	ant Information	Vehicle Info	mation
Driver Age:		31	Year:	1983
Driver Sex:		Male	Vehicle Make:	Toyota
Impairment:		Fell Asleep	Vehicle Model:	Supra
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		1	Defects:	No
		Roadway	Information	
Trafficway			Alignment:	Curve Right
(Median)	:	Not divided	Slope:	Grade
No. of Lane	es:	2	Speed Limit:	89 km/h
		Cluste	r Variables	
GV14:	01 Noa	voidance actions		
GV64:	13 Neg	otiating a curve		
GV65:	12 This	vehicle traveling off the ed	ge of the road on the left side	
GV66:	0 Noa	voidance maneuver		
GV67:	0 No a	voidance maneuver		

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CAUSAL FACTOR:Driver Relinquishes Steering Control - Fell AsleepROADSIDE DEPARTURE:Left

The subject vehicle was traveling in a southerly direction on a two-lane interstate entrance ramp. While traversing a long sweeping curve to the right, the driver fell asleep, allowing the vehicle to drift off the left edge of the ramp. The vehicle traversed along a steep, positive embankment for a short distance and then began arcing back toward the roadway. The right frontal area of the vehicle struck the back side of a W-beam guardrail. The vehicle rotated clockwise off this impact and came to rest upright, facing in an easterly direction.





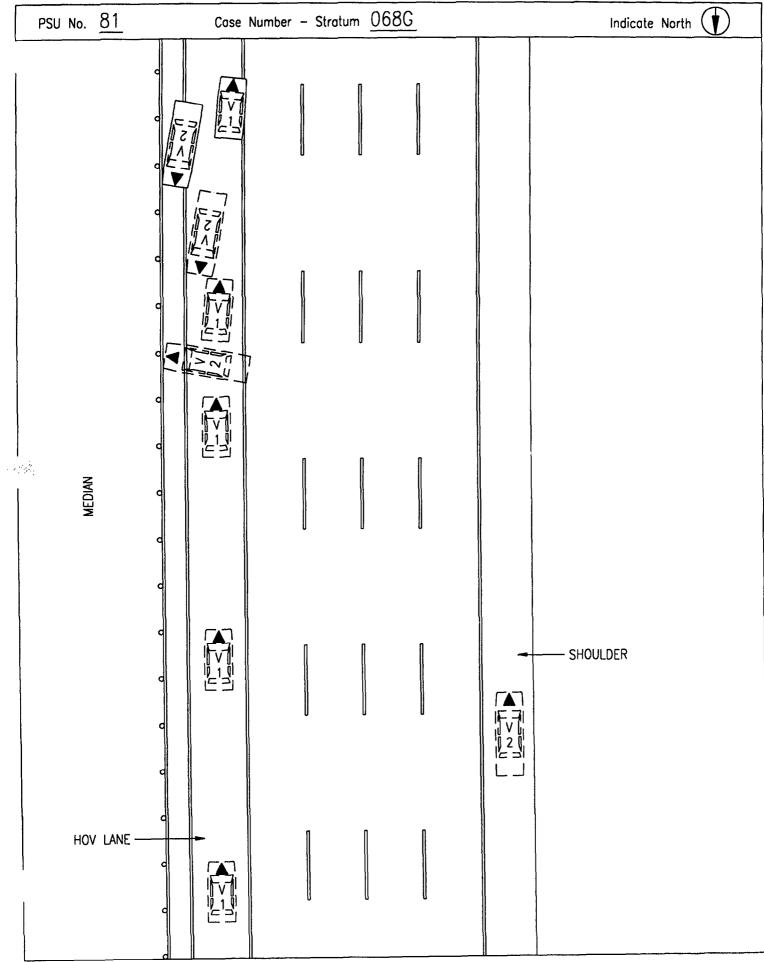
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

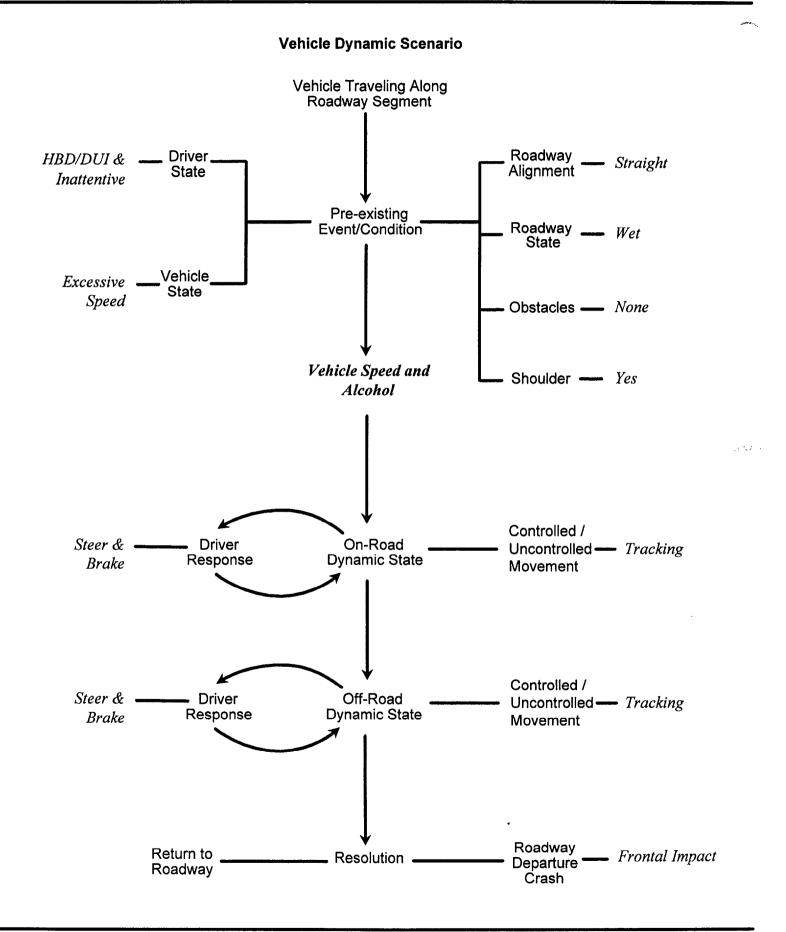
		General Accident	Information	
Date:		4-1-93	Weather:	Rain
Time:		1800	Surface Condition:	Wet
Accident	Туре:	Control/Traction Loss	Lighting:	Daylight
Accident S	Severity:	1 (C)	Land Use:	Rural
Drive	r/Occup	ant Information	Vehicle Info	mation
Driver Age	e:	48	Year:	1975
Driver Sex	<i>c:</i>	Male	Vehicle Make:	Chevrolet
Impairment:		Other (alcoh. consumption - BAC unknown)	Vehicle Model:	LUV
Familiarity with Road		Unknown	ABS:	No
No. of Occupant	s:	5	Defects:	No
······		Roadway Info	ormation	
Trafficwa			Alignment:	Straight
(Media	n):	Physical barrier	Slope:	Grade
No. of La	nes:	10	Speed Limit:	89 km/h
		Cluster Var	iables	
GV14:	08 Brak	king and steering left		
GV64:	16 Succ	cessful avoidance of previous ever	nt	
GV65:	50 Othe	er motor vehicle in lane, stopped		
GV66:	1 Trac	cking		
GV67:	4 Veh	icle departed roadway		

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CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling south along the right paved shoulder of a wet, ten-lane, divided, concrete interstate with a +3% slope. The driver attempted to pass another vehicle by steering left, lost control of the vehicle, crossed the five south bound travel lanes and struck the median guardrail. The police reported the driver was inattentive and had been drinking with ability impaired. The ambient weather condition was rain which did not adversely affect the accident condition. The causal factors included inattention to the driving task, vehicle speed, and alcohol consumption.





CAUSAL FACTOR: Lost Directional Control

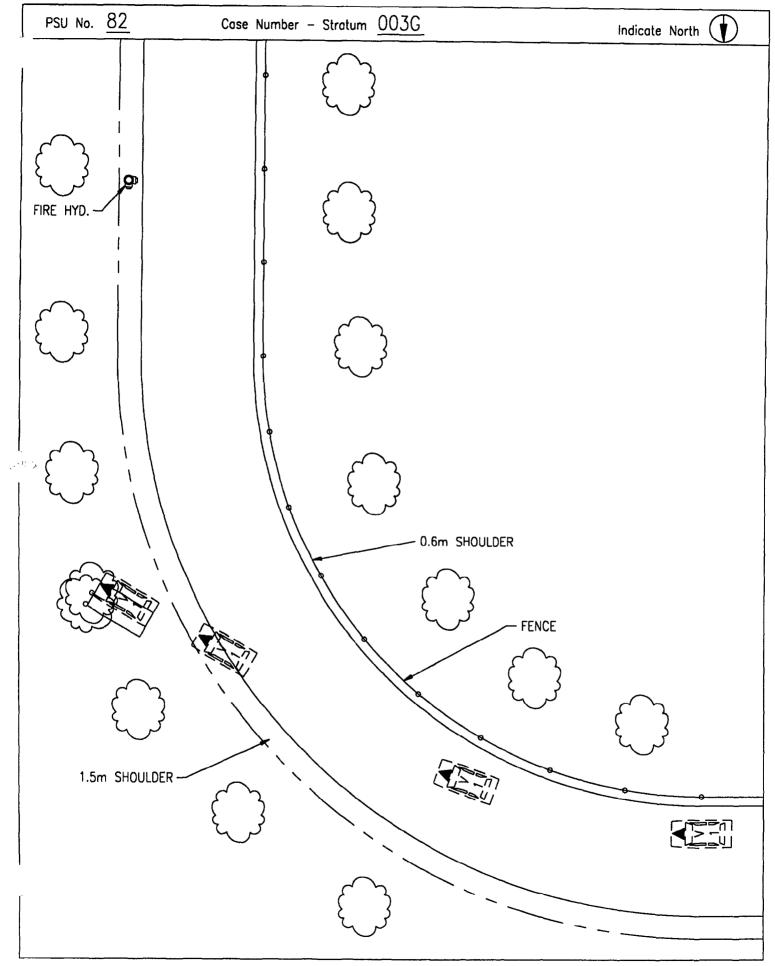
Left

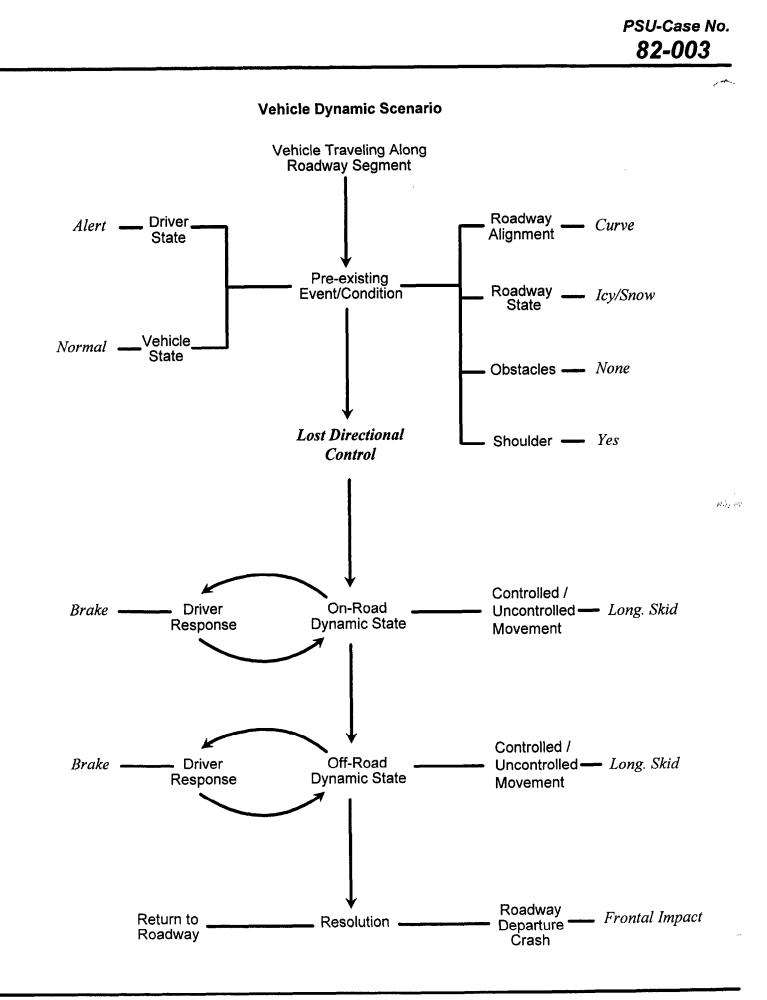
ROADSIDE DEPARTURE:

		General Accide	ent Information	
Date:		1-6-93	Weather:	Clear/Cloudy
Time:		1000	Surface Condition:	Ice/Snow
Accident Ty	pe:	Control/Traction Loss	Lighting:	Artificial lighting
Accident Se	verity:	0 (O)	Land Use:	Rural
Driver/0	Dccup	ant Information	Vehicle Info	rmation
Driver Age:		27	Year:	1992
Driver Sex:		Male	Vehicle Make:	Pontiac
Impairment:		None	Vehicle Model:	Grand Prix (FWD)
Familiarity with Road:		Unknown	ABS:	Yes
No. of Occupants:		1	Defects:	No
		Roadway Ir	nformation	
Trafficway T			Alignment:	Curve Right
(Median):		Not divided	Slope:	Level
No. of Lane	s:	2	Speed Limit:	24 km/h
		Cluster V	ariables	
GV14: 03	3 Brak	ing (lockup)		
GV64: 13	3 Nego	tiating a curve		
GV65: 0:	5 This	vehicle loss of control due to p	oor road conditions	
	Skide	ding longitudinally - less than 3	30 degrees rotation	
GV66: 2	SKIU	000		

CAUSAL FACTOR:Lost Directional ControlROADSIDE DEPARTURE:Left

The subject vehicle was traveling eastbound on a right curve of a two-lane roadway. The driver hit a patch of ice and skidded off the left side of the road. The vehicle impacted a tree. The speed limit for the roadway was 24 km/h (15 mph). There was no injury to the driver.





CAUSAL FACTOR:

Driver Relinquishes Steering Control - Physical (seizure/passed out)

ROADSIDE DEPARTURE:

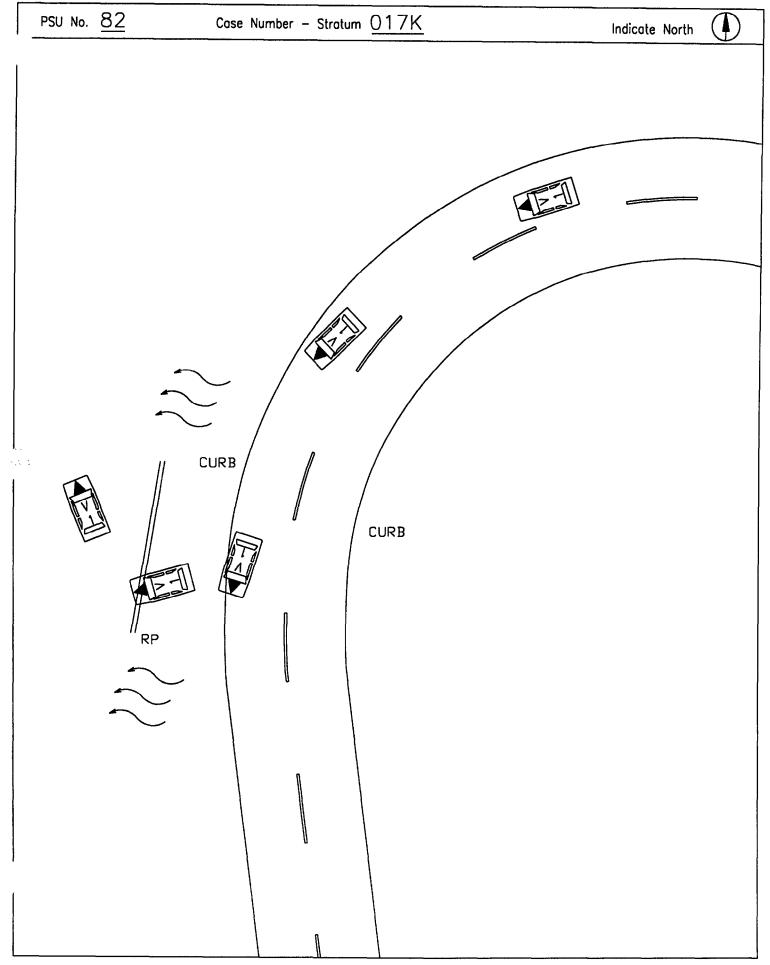
Right

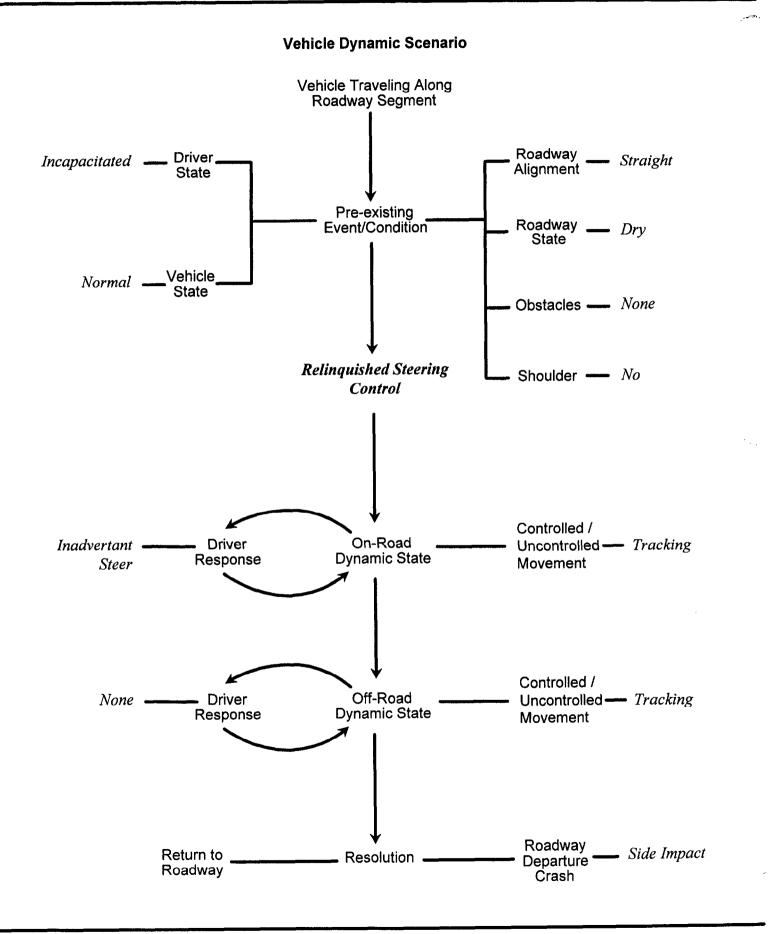
	General Accid	ent Information	
Date:	2-5-93	Weather:	Clear/Cloudy
Time:	1320	Surface Condition:	Dry
Accident Type:	Drive Off Road	Lighting:	Daylight
Accident Sever	ity: 3 (A)	Land Use:	Rural
Driver/Occ	upant Information	Vehicle Infor	mation
Driver Age:	67	Year:	1971
Driver Sex:	Male	Vehicle Make:	Nissan/Datsun
Impairment:	Physical (seizure/passed out)	Vehicle Model:	Pickup
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway I	nformation	
Trafficway Type		Alignment:	Curve Left
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	40 km/h
	Cluster	Variables	
GV14: 01	No avoidance actions		
GV64: 13	Negotiating a curve		
GV65: 08	This vehicle loss of control due to	other	
GV66: 0	No avoidance maneuver		

CAUSAL FACTOR: Driver Relinquishes Steering Control - Physical (seizure/passed out)

ROADSIDE DEPARTURE: Right

The subject vehicle was traveling southbound on a two-lane street. The vehicle exited the road to the right and impacted the curb with its right side wheels. The vehicle traveled over the curb and became airborne. The driver suffered a heart attack.





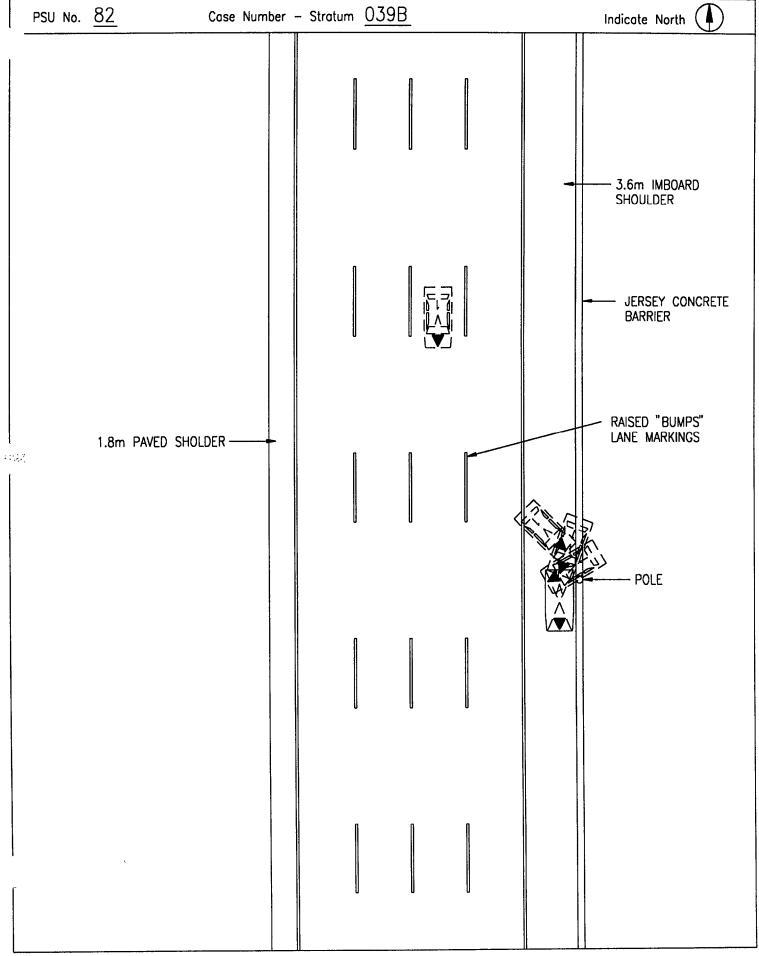
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

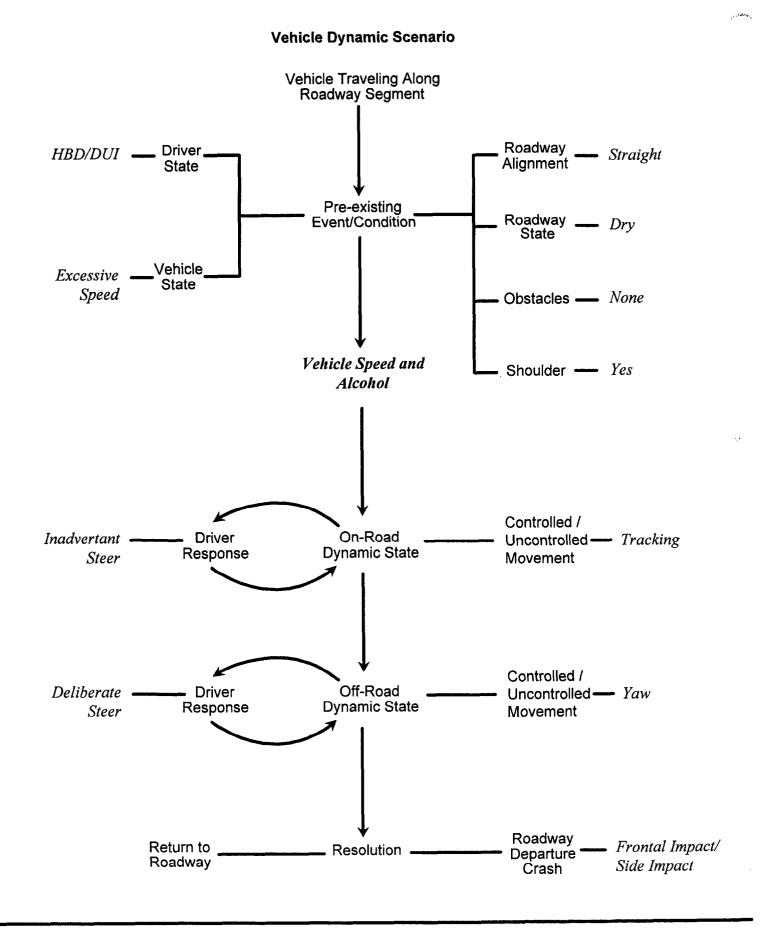
		General Accide	ent Information	
Date:		3-5-93	Weather:	Clear/Cloudy
Time:		0535	Surface Condition:	Dry
Accident	Type:	Control/Traction Loss	Lighting:	Artificial lighting
Accident	Sever	<i>ity:</i> 4 (K)	Land Use:	Urban
Driv	er/Oc	cupant Information	Vehicle Infor	rmation
Driver Ag	je:	20	Year:	1980
Driver Se	ex:	Male	Vehicle Make:	Chevrolet
Impairment:		Intoxicated (alcohol/drugs)	Vehicle Model:	Citation
Familiari with Roa		Unknown	ABS:	No
No. of Occupan	ts:	1	Defects:	No
		Roadway I	nformation	
Trafficwa			Alignment:	Straight
(Media	an):	Physical barrier	Slope:	Grade
No. of Li	anes:	4	Speed Limit:	89 km/h
		Cluster	/ariables	
GV14:	99	Unknown		
GV64:	01	Going straight		
GV65:	06	This vehicle loss of control due to t	traveling too fast for conditions	
	9	Precrash stability unknown		
GV66:				

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling on an eight-lane, divided interstate roadway at a police reported high rate of speed. The driver departed the inboard road edge and impacted the Jersey barrier with the left front corner of the vehicle. The vehicle yawed in a clockwise direction, mounted the barrier, and impacted a luminaire, which was mounted on top of the barrier, with the left front door area of the vehicle. The driver was intoxicated (BAC=0.20). Alcohol and excessive speed were the contributing factors to the crash.

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CAUSAL FACTOR:

Driver Relinquishes Steering Control - Physical (seizure/passed out)

ROADSIDE DEPARTURE:

Right

	General Accide	ent Information	
Date:	4-1-93	Weather:	Rain
Time:	0935	Surface Condition:	Wet
Accident Type:	Drive Off Road	Lighting:	Daylight
Accident Severit	<i>r</i> : 2 (B)	Land Use:	Urban
Driver/Occu	pant Information	Vehicle Info	mation
Driver Age:	71	Year:	1976
Driver Sex:	Male	Vehicle Make:	Oldsmobile
Impairment:	Physical (seizure/passed out)	Vehicle Model:	Cutlass
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway I	nformation	
Trafficway Type		Alignment:	Curve Right
(Median):	Not divided	Slope:	Grade
No. of Lanes:	2	Speed Limit:	48 km/h
	Cluster \	/ariables	
GV14: 01 No	avoidance actions		
GV64: 13 No	avoidance actions	other	
GV64: 13 Ne GV65: 08 Th	avoidance actions	other	

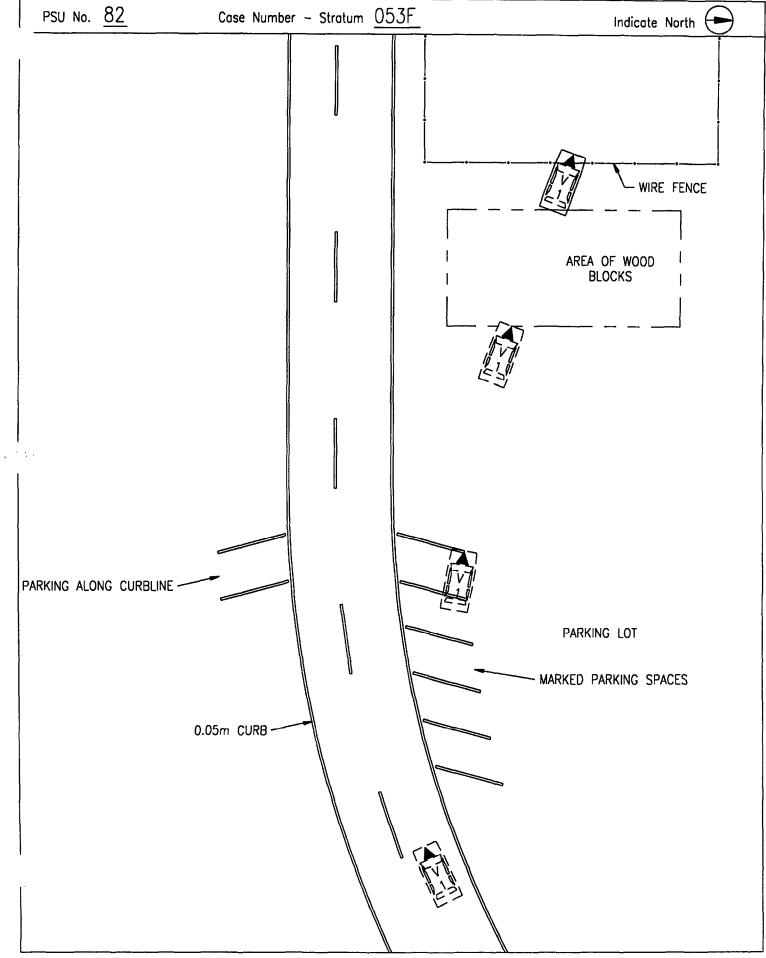
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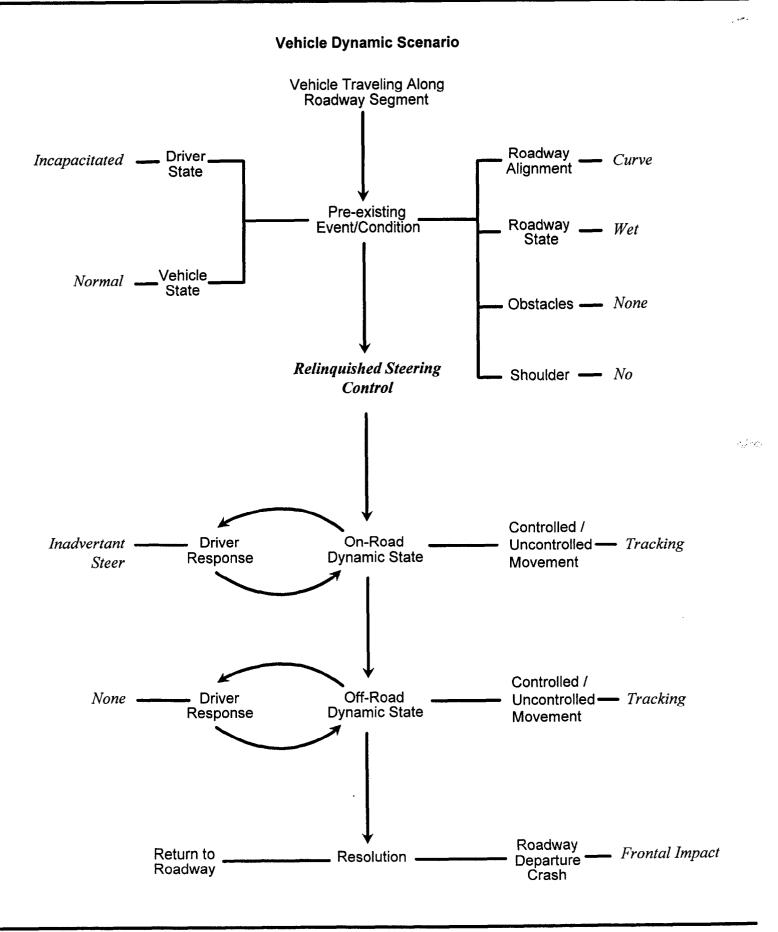
CAUSAL FACTOR: Driver Relinquishes Steering Control - Physical (seizure/passed out)

ROADSIDE DEPARTURE: Right

The subject vehicle was traveling in a westerly direction during daylight hours on a two-lane, right curved, asphalt road that was wet due to rain. The driver apparently passed out and relinquished control of the vehicle which drifted off the right road edge, traversed an asphalt parking lot, and impacted a loose pile of large timbers. The vehicle mounted the timbers and then struck a chain-link fence where it came to rest. A witness stated that the driver entered the right curve at an estimated speed of 48 km/h (30 mph). There were no cars in the parking lot.

 $\mathbb{P}_{1,2} \subset \mathbb{Q}_{2}$





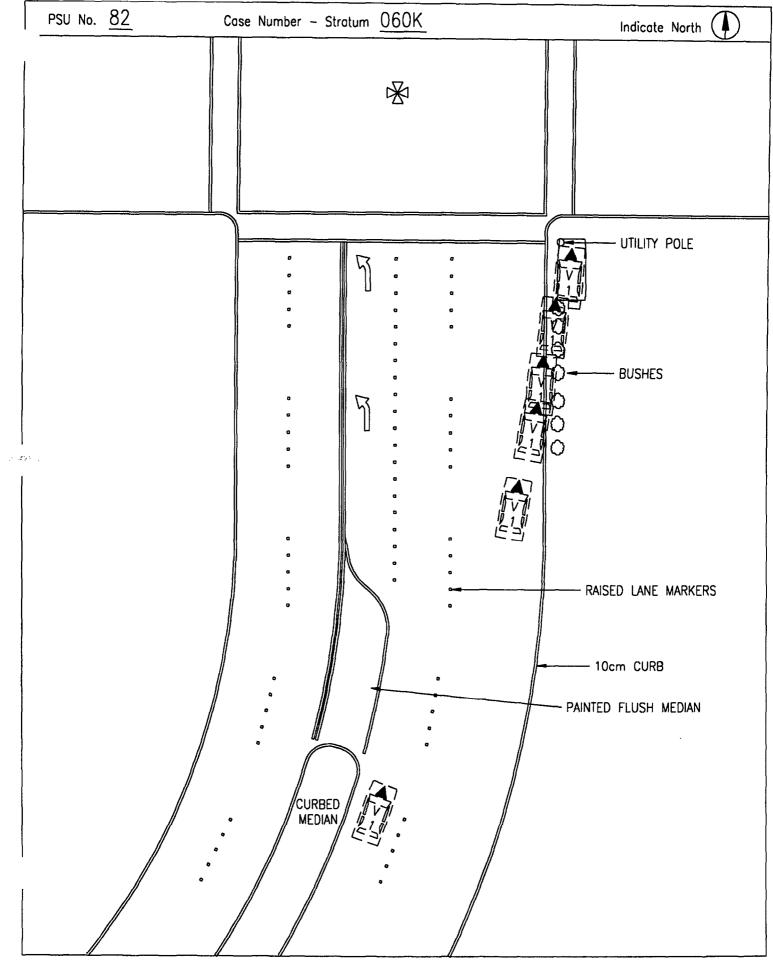
CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

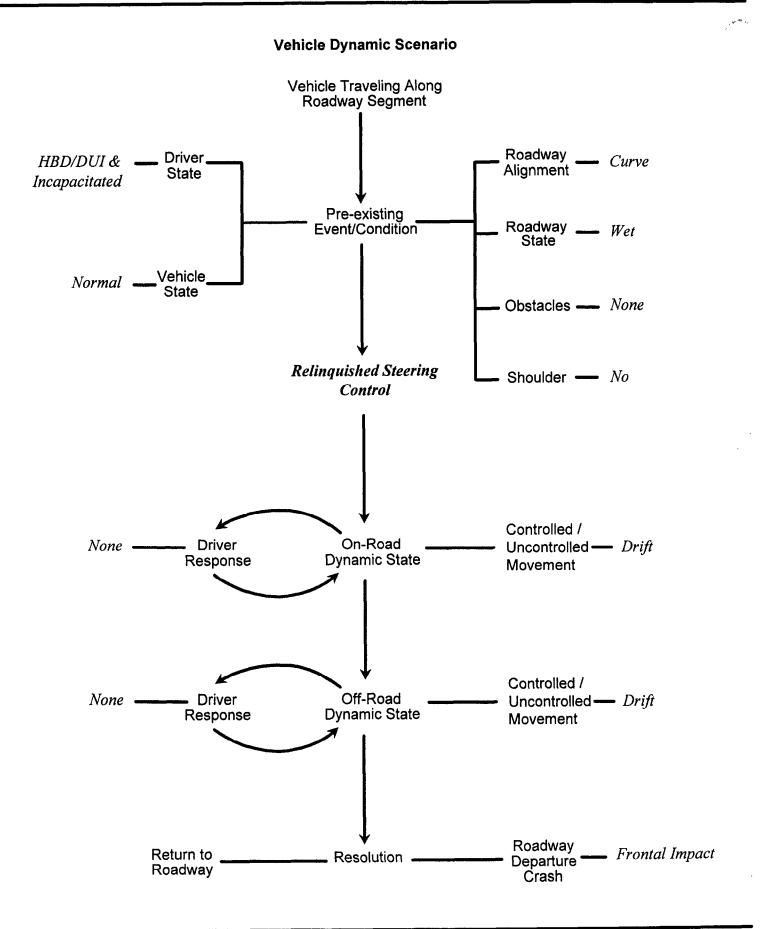
	General Accide	nt Information	
Date:	4-1-93	Weather:	Rain
Time:	1809	Surface Condition:	Wet
Accident Type:	Control/Traction Loss	Lighting:	Daylight
Accident Severi	ty: 3 (A)	Land Use:	Urban
Driver/Occ	upant Information	Vehicle Info	rmation
Driver Age:	59	Year:	1986
Driver Sex:	Male	Vehicle Make:	Chrysler
Impairment:	Intoxicated (alcohol/drugs)	Vehicle Model:	LeBaron
Familiarity with Road:	Unknown	ABS:	No
No. of Occupants:	1	Defects:	No
	Roadway Ir	formation	· · · · · · · · · · · · · · · · · · ·
Trafficway Type		Alignment:	Curve Left
(Median):	Flush or curb	Slope:	Grade
No. of Lanes:	3	Speed Limit:	48 km/h
	Cluster V	/ariables	
GV14: 01 1	No avoidance actions		
GV64: 13 1	Negotiating a curve		
GV65: 06	This vehicle loss of control due to t	raveling too fast for conditions	
	No avoidance maneuver		
GV66: 0			

n Auróip CAUSAL FACTOR:Driver Relinquishes Steering Control - IntoxicatedROADSIDE DEPARTURE:Right

The subject vehicle was traveling in a northerly direction during daylight hours on a wet, concrete road surface in the outboard travel lane. The driver attempted to negotiate a left curve; however, the vehicle drifted toward the right road edge. The driver braked leaving right front tire skid marks on the road surface prior to departure. The vehicle mounted a barrier curb, traveled along a landscaped edge, and impacted a traffic signal/luminaire pole with the center frontal area. The driver was intoxicated (BAC=0.33).

System.





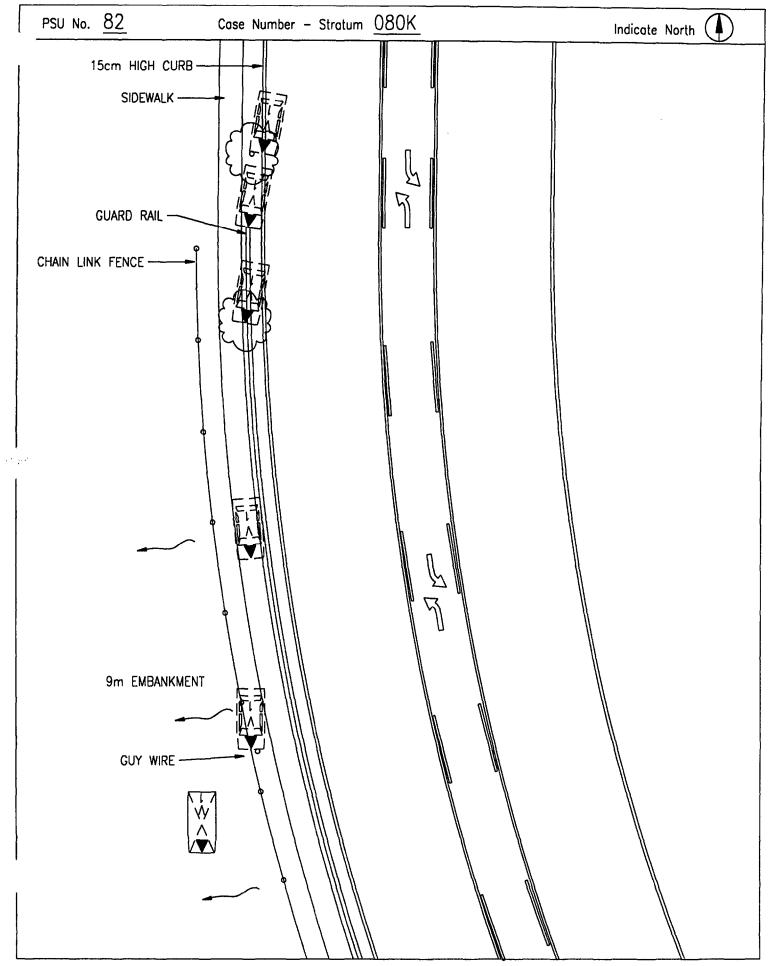
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

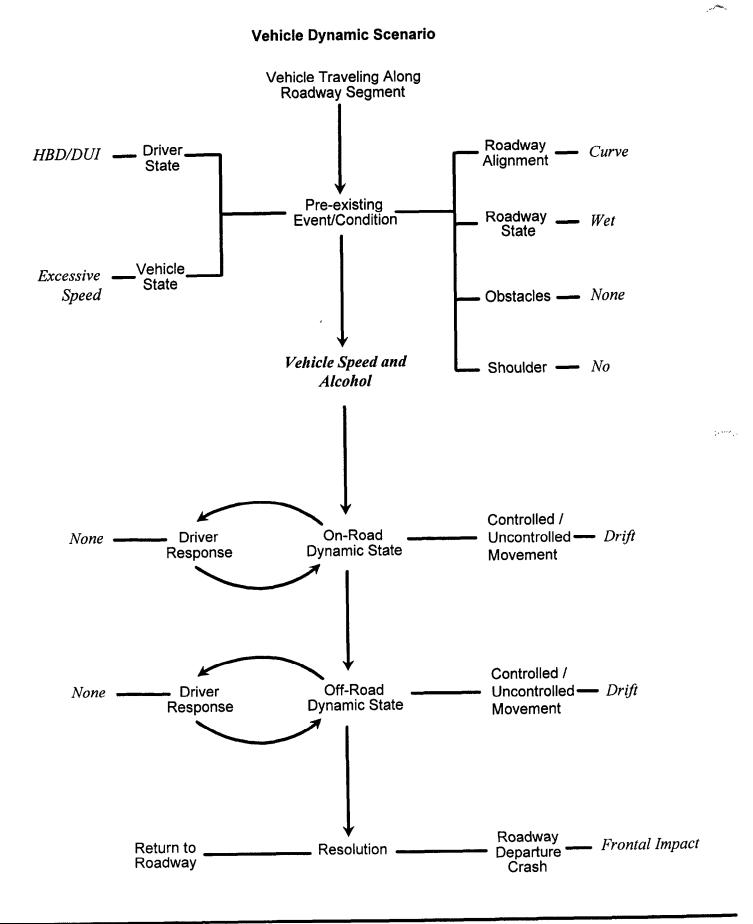
		General Accident	Information	
Date:		5-1-93	Weather:	Rain
Time:		2340	Surface Condition:	Wet
Accident	Туре:	Drive Off Road	Lighting:	Artificial lighting
Accident	Severity	: 3 (A)	Land Use:	Urban
Drive	er/Occu	pant Information	Vehicle Information	
Driver Ag	le:	32	Year:	1978
Driver Se	<i>x:</i>	Male	Vehicle Make:	Oldsmobile
Impairment:		Other (alcoh. consumption - BAC unknown)	Vehicle Model:	Cutlass
Familiarity with Road:		Unknown	ABS:	No
No. of Occupan	ts:	1	Defects:	No
		Roadway Info	ormation	
Trafficway Type (Median): No. of Lanes:			Alignment:	Curve Left
		Not divided	Slope:	Level
		3	Speed Limit:	56 km/h
· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	Cluster Var	iables	
GV14:	01 No	avoidance actions		
GV64:	13 Ne	gotiating a curve		
GV65:	06 Th	s vehicle loss of control due to trav	veling too fast for conditions	
	0 No	avoidance maneuver		
GV66:	U NU			

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CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

The subject vehicle was traveling south through rain on a wet, two-lane, undivided, level, asphalt road illuminated by street lights. The driver failed to make the transition from a straight road segment to a left curve. The vehicle jumped the right, 15 cm high barrier curb and struck the down turned end of a W-beam guardrail. The vehicle mounted the rail, traversed along the top and struck a fence located behind the rail. The police reported the vehicle speed in excess of 129 km/h (80 mph) and reported the driver's condition as had been drinking with ability impaired. The center lanes were mixed with solid and broken yellow lines in new condition for a one-lane, two way, turning channelization. The causal factor was vehicle speed with alcohol consumption.





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CAUSAL FACTOR:

Vehicle Speed - Speed and Alcohol

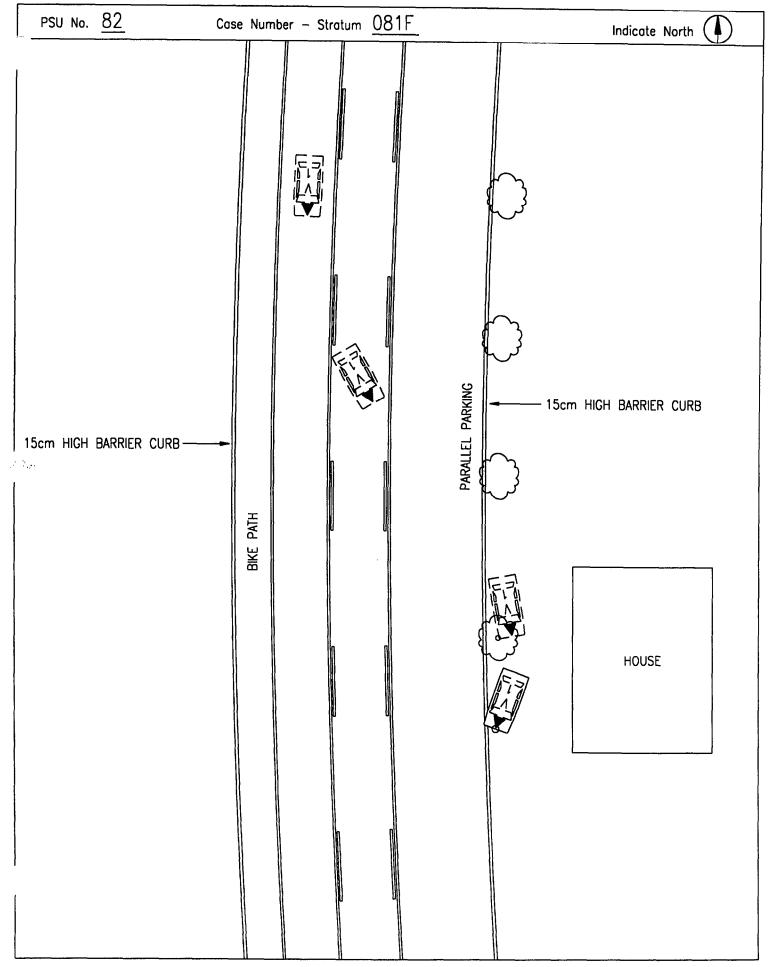
Left

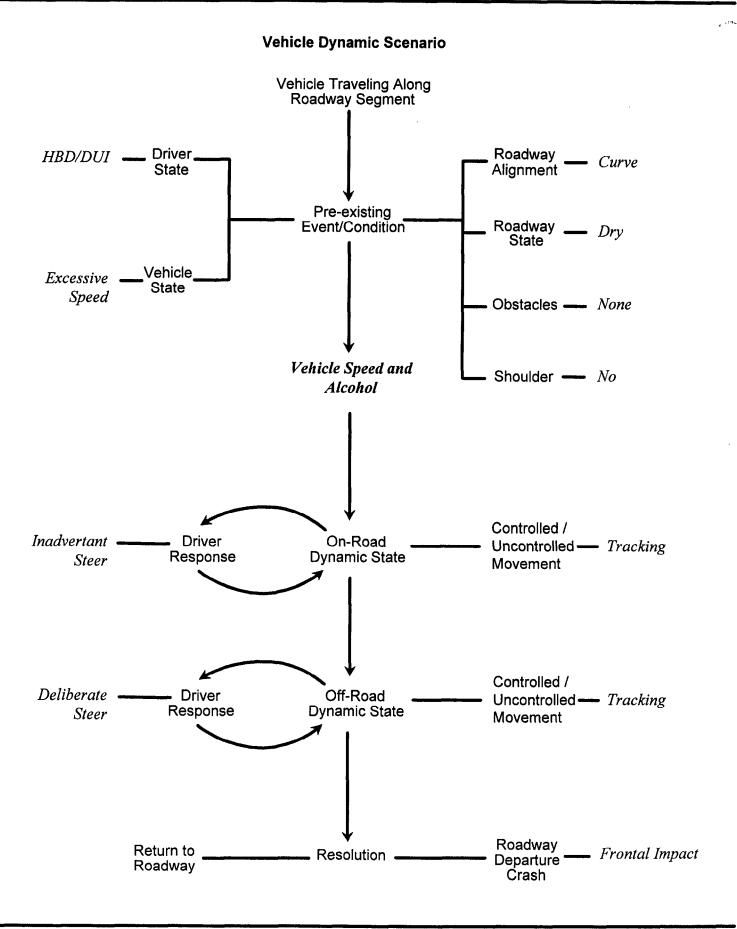
ROADSIDE DEPARTURE:

		General Acciden	t Information	
Date:		6-5-93	Weather:	Clear/Cloudy
Time:		1714	Surface Condition:	Dry
Accident	Type:	Control/Traction Loss	Lighting:	Daylight
Accident	Sever	<i>ity</i> : 2 (B)	Land Use:	Urban
Drive	er/Oc	cupant Information	Vehicle Info	rmation
Driver Ag	e:	50	Year:	1975
Driver Se	x :	Male	Vehicle Make:	Dodge
Impairment:		Other (alcoh. consumption - BAC unknown)	Vehicle Model:	B-series Van
Familiarit with Road		Unknown	ABS:	No
No. of Occupant	ts:	1	Defects:	No
		Roadway Inf	ormation	
Trafficwa			Alignment:	Curve Left
(Median):		Not divided	Slope:	Grade
No. of La	nes:	3	Speed Limit:	48 km/h
		Cluster Va	riables	
GV14:	06	Steering left		
GV64:	01	Going straight		
GV65:	61	Other vehicle encroaching into lane f	rom adjacent lane (same direct	tion) over right lane
GV66:	1	Tracking		

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Left

The subject vehicle was traveling south on a dry, three-lane, urban, concrete road with a -5.2 % slope. The driver steered to the left in a left curve, jumped the left 15 cm high barrier curb and struck a tree and a utility pole. The center lane was marked to accommodate a two way turn lane with yellow solid/broken lines in good condition. The police indicated the driver was under the influence of alcohol. The driver claimed to have been cut off by an approaching vehicle. There were no adverse environmental conditions or sight line restrictions The causal factor was excessive speed and alcohol consumption.



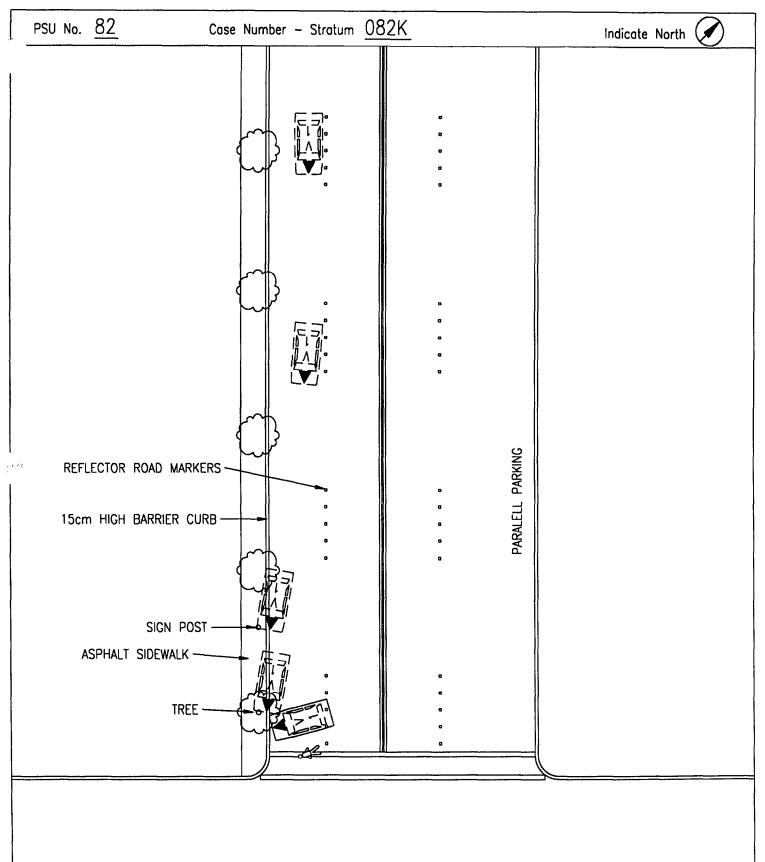


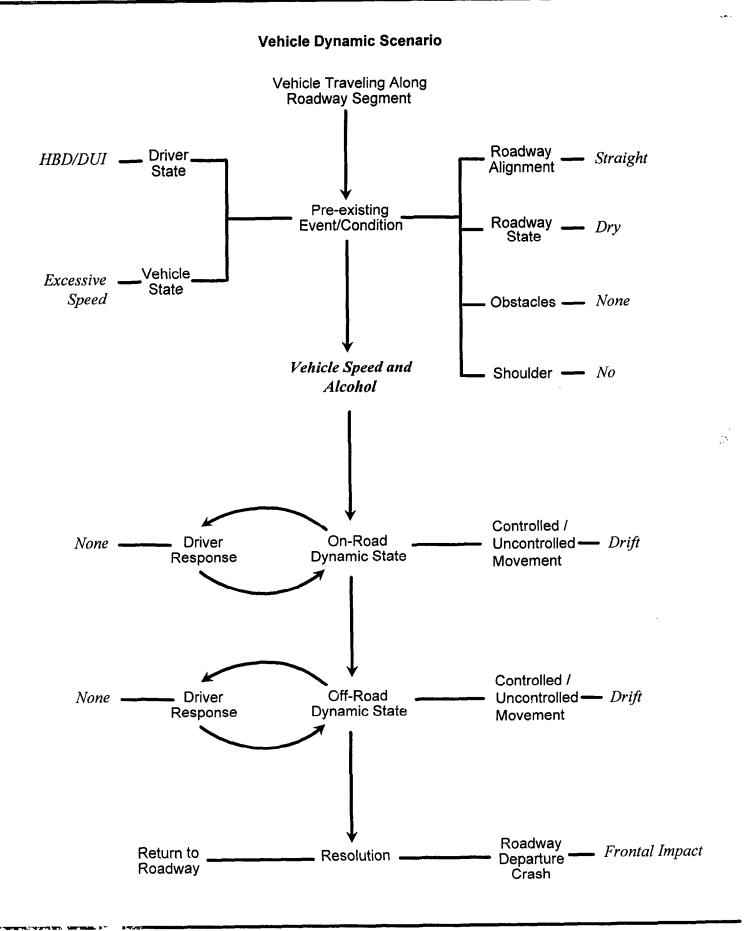
CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

		General Accident	Information	
Date:		6-4-93	Weather:	Clear/Cloudy
Time:		0530	Surface Condition:	Dry
Accident Ty	vpe:	Drive Off Road	Lighting:	Daylight
Accident Se	overity:	3 (A)	Land Use:	Urban
Driver/	Occup	ant Information	Vehicle Infor	mation
Driver Age:		19	Year:	1985
Driver Sex:		Male	Vehicle Make:	Honda
Impairment:	:	Other (alcoh. consumption - BAC unknown)	Vehicle Model:	Civic/CRX
Familiarity with Road:		Unknown	ABS:	No
No. of Occupants:		1	Defects:	No
	<u></u>	Roadway Info	ormation	
Trafficway T	Гуре		Alignment:	Straight
(Median):		Not divided	Slope:	Level
No. of Lane	es:	3	Speed Limit:	48 km/h
		Cluster Var	iables	
GV14: (01 Noa	voidance actions		
GV64: (02 Slow	ing or stopping in traffic lane		
GV65:	13 This	vehicle traveling off the edge of t	the road on the right side	
		voidance maneuver		
GV66: (0 Noa			

CAUSAL FACTOR:Vehicle Speed - Speed and AlcoholROADSIDE DEPARTURE:Right

The subject vehicle was traveling on a dry, straight, level, four-lane, undivided, urban, asphalt roadway when the driver began to swerve back and forth in the right lane. The vehicle jumped the right 15 cm high barrier curb and struck a tree. The road was marked with full barrier yellow center lines and reflective road lane markers. The road edges were noted by barrier curbs. There were no adverse environmental conditions or sight line restrictions. The police listed the driver as under the influence of alcohol and drugs. The causal factor was vehicle speed with contributing factors of alcohol and drugs.





CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

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·	General Accid	lent Information	
Date:	5-6-93	Weather:	Clear/Cloudy
Time:	1956	Surface Condition:	Dry
Accident Type	: Control/Traction Loss	Lighting:	Daylight
Accident Seve	rity: 4(K)	Land Use:	Rural
Driver/Occupant Information		Vehicle Information	
Driver Age:	17	Year:	1991
Driver Sex:	Female	Vehicle Make:	Saab
Impairment:	None	Vehicle Model:	99/99E/900
Familiarity with Road:	Unknown	ABS:	Unknown
No. of Occupants:	4	Defects:	No
	Roadway	Information	•.=
Trafficway Typ		Alignment:	Straight
(Median):	Physical barrier	Slope:	Level
No. of Lanes:	1	Speed Limit:	80 km/h
	Cluster	Variables	
GV14: 01	No avoidance actions		
GV64: 01	Going straight		
GV65: 09	This vehicle loss of control due to	o unknown	
	No avoidance maneuver		
GV66: 0	No avoidance maneaver		

CAUSAL FACTOR:Driver InattentionROADSIDE DEPARTURE:Left

The subject vehicle was traveling west bound in the left lane of a dry, four-lane, divided, rural, asphalt roadway when the driver veered left and struck the concrete median barrier. The vehicle was redirected across the road, rolled over and struck the right side 15 cm high barrier curb. The police indicated that the driver may have been distracted by the passengers and not paying attention to the driving task. There were no adverse weather conditions or sight line restrictions. The causal factor was driver inattention to the driving task.

