Systems and Computer Engineering Department (SYSC)

Ottawa Collision Data Report:

Homologation Transformations

Enrique Reverón Yanes

January 5th, 2019

Ottawa Collision Data Report

About this Document

Version	Date	Author	Remarks
V1.0	December 10th 2018	Enrique Reverón	First draft version, only includes one feature variable
V2.0	December 13th 2018	Enrique Reverón	Added a Content Table, Version Page and some formatting.
V3.0	December 27th 2018	Enrique Reverón	Decided to split the Homologations and Clean Transformations in two documents
V4.0	January 5th 2019	Enrique Reverón	Added information regarding SEQUENCE and OFFSET allowed NULL values

Table of Contents

Introduction 8
1. Street Location (STREET1, STREET2, STREET3) 9
1.1. All Features in the Dataset 9
1.2. Allowed Features Values 11
1.3. Special Feature Values to Handle 11
1.4. Homologation Transformations 11
2. Coordinates (XCOORD) 12
2.1. All Features in the Dataset 12
2.2. Allowed Features Values 15
2.3. Special Feature Values to Handle 15
2.4. Homologation Transformations 16
3. Coordinates (YCOORD) 17
3.1. All Features in the Dataset 17
3.2. Allowed Features Values 20
3.3. Special Feature Values to Handle 20
3.4. Homologation Transformations 21
4. Accident / Collision Date (ACCIDENT_DATE) 22
4.1. All Features in the Dataset 22
4.2. Allowed Features Values 25
4.3. Special Feature Values to Handle 25
4.4. Homologation Transformations 26
5. Accident / Collision Time (ACCIDENT_TIME) 27
5.1. All Features in the Dataset 27
5.2. Allowed Features Values 29
5.3. Special Feature Values to Handle 29
5.4. Homologation Transformations 29
6. Sex of the Driver (DRIVER_SEX) – MVCR 0209 30
6.1. All Features in the Dataset 30
6.2. Allowed Features Values (MVCR-0209) 31
6.3. Special Feature Values to Handle 32

6.4. Homologation Transformations 33
7. Age of the Driver (DRIVER_AGE) – MVCR 0209 34
7.1. All Features in the Dataset 34
7.2. Allowed Features Values (MVCR-0209) 37
7.3. Special Feature Values to Handle 37
7.4. Homologation Transformations 39
8. Accident / Collision Location (ACCIDENT_LOCATION) - MVCR 0301 40
8.1. All Features in the Dataset 40
8.2. Allowed Features Values (MVCR-0301) 41
8.3. Special Feature Values to Handle 41
8.4. Homologation Transformations 42
9. Environnent Conditions (ENVIRONMENT_CONDITION) - MVCR 0303 43
9.1. All Features in the Dataset 43
9.2. Allowed Features Values (MVCR-0303) 44
9.3. Special Feature Values to Handle 45
9.4. Homologation Transformations 45
10. Light (LIGHT) - MVCR 0304 47
10.1. All Features in the Dataset 47
10.2. Allowed Features Values (MVCR-0304) 48
10.3. Special Feature Values to Handle 49
10.4. Homologation Transformations 49
11. Traffic Control (TRAFFIC_CONTROL) - MVCR 0305 51
11.1. All Features in the Dataset 51
11.2. Allowed Features Values (MVCR-0305) 52
11.3. Special Feature Values to Handle 53
11.4. Homologation Transformations 53
12. Traffic Control Condition (TRAFFIC_CONTROL_CONDITION) - MVCR 0306 55
12.1. All Features in the Dataset 55
12.2. Allowed Features Values (MVCR-0306) 56
12.3. Special Feature Values to Handle 57
12.4. Homologation Transformations 58
13. Road Character (ROAD_CHARACTER) – MVCR 0307 59
13.1. All Features in the Dataset 59

13.2. Allowed Features Values (MVCR-0307) 60
14. Road Surface (ROAD_SURFACE) – MVCR 0308 61
14.1. All Features in the Dataset 61
14.2. Allowed Features Values (MVCR-0308) 62
15. Road Condition (ROAD_CONDITION) – MVCR 0309 63
15.1. All Features in the Dataset 63
15.2. Allowed Features Values (MVCR-0309) 64
15.3. Special Feature Values to Handle 65
15.4. Homologation Transformations 66
16. Road Surface Condition (ROAD_SURFACE_CONDITION) – MVCR 0310 67
16.1. All Features in the Dataset 67
16.2. Allowed Features Values (MVCR-0310) 68
16.3. Special Feature Values to Handle 69
16.4. Homologation Transformations 69
17. Road Alignment (ROAD_ALIGNMENT) – MVCR 0311 71
17.1. All Features in the Dataset 71
17.2. Allowed Features Values (MVCR-0311) 72
17.3. Special Feature Values to Handle 73
17.4. Homologation Transformations 73
18. Road Pavement Markers (ROAD_PAVEMENT_MARKINGS) – MVCR 0312 74
18.1. All Features in the Dataset 74
18.2. Allowed Features Values (MVCR-0312) 75
18.3. Special Feature Values to Handle 76
18.4. Homologation Transformations 76
19. Vehicle Type (VEHICLE_TYPE) – MVCR 0313 77
19.1. All Features in the Dataset 77
19.2. Allowed Features Values (MVCR-0313) 79
19.3. Homologation Transformations 80
20. Vehicle Condition (VEHICLE_CONDITION) – MVCR 0317 83
20.1. All Features in the Dataset 83
20.2. Allowed Features Values (MVCR-0317) 84
20.3. Special Feature Values to Handle 85
20.4. Homologation Transformations 86

21. Driver/ Pedestrian Condition (DRIVER_CONDITION) – MVCR 0319 88
21.1. All Features in the Dataset 88
21.2. Allowed Features Values (MVCR-0319) 89
21.3. Special Feature Values to Handle 90
21.4. Homologation Transformations 91
22. Classification of Accident / Collision (CLASSIFICATION_OF_ACCIDENT) – MVCR 0322 92
22.1. All Features in the Dataset 92
22.2. Allowed Features Values (MVCR-0322) 93
22.3. Special Feature Values to Handle 93
22.4. Homologation Transformations 93
23. Initial Direction of Travel (INITIAL_DIRECTION_OF_TRAVEL) – MVCR 0323 94
23.1. All Features in the Dataset 94
23.2. Allowed Features Values (MVCR-0323) 95
23.3. Special Feature Values to Handle 96
23.4. Homologation Transformations 97
24. Initial Impact Type (INITIAL_IMPACT_TYPE) – MVCR 0324 98
24.1. All Features in the Dataset 98
24.2. Allowed Features Values (MVCR-0324) 99
24.3. Special Feature Values to Handle 100
24.4. Homologation Transformations 100
25. Vehicle Manoeuvre (VEHICLE_MANEUVER) – MVCR 0325 101
25.1. All Features in the Dataset 101
25.2. Allowed Features Values (MVCR-0325) 102
25.3. Special Feature Values to Handle 103
25.4. Homologation Transformations 103
26. Vehicle Damage (VEHICLE_DAMAGE) – MVCR 0331 105
26.1. All Features in the Dataset 105
26.2. Allowed Features Values (MVCR-0331) 106
26.3. Special Feature Values to Handle 107
26.4. Homologation Transformations 108
27. Sequence of Events (SEQUENCE1) – MVCR 0326/0327/0328/0329 109
27.1. All Features in the Dataset 109

27.2. Allowed Features Values (MVCR-0326/0327/0328/0329) 111
27.2.1. MVCR 0327: Movable Objects 111
27.2.2. MVCR 0328: Other Events 112
27.2.3. MVCR 0329: Fixed Object 112
27.3. Special Feature Values to Handle 113
27.4. Homologation Transformations 114
28. Sequence of Events (SEQUENCE2) – MVCR 0326/0327/0328/0329 116
28.1. All Features in the Dataset 116
28.2. Allowed Features Values (MVCR-0326/0327/0328/0329) 118
28.3. Special Feature Values to Handle 119
28.4. Homologation Transformations 120
29. Sequence of Events (SEQUENCE3) – MVCR 0326/0327/0328/0329 123
29.1. All Features in the Dataset 123
29.2. Allowed Features Values (MVCR-0326/0327/0328/0329) 125
29.3. Special Feature Values to Handle 126
29.4. Homologation Transformations 127
30. Offset1 (OFFSET1) – MVCR 0330 130
30.1. All Features in the Dataset 130
30.2. Allowed Features Values (MVCR-0330) 131
30.3. Special Feature Values to Handle 132
30.4. Homologation Transformations 133
31. Offset2 (OFFSET2) – MVCR 0330 134
31.1. All Features in the Dataset 134
31.2. Allowed Features Values (MVCR-0330) 135
31.3. Special Feature Values to Handle 136
31.4. Homologation Transformations 137
32. Offset3 (OFFSET3) – MVCR 0330 138
32.1. All Features in the Dataset 138
32.2. Allowed Features Values (MVCR-0330) 139
32.3. Special Feature Values to Handle 140
32.4. Homologation Transformations 141
Conclusion 142
References 143

Introduction

As part of the results of *Ottawa Collision Report: Feature Values*, we can observe that it is necessary to clean and homologate the feature values in the dataset. This report includes the proposed homologation transformations for each feature aligned with the *MVCR Manual (2011)*.

1. Street Location (STREET1, STREET2, STREET3)

1.1. All Features in the Dataset

The top feature values are shown in the following table:

Feature Value	Counter	Percentage
HIGHWAY 417	19845	5.2099
BANK ST	10492	2.7545
BASELINE RD	6522	1.7122
CARLING AVE	5915	1.5529
INNES RD	4289	1.1260
BRONSON AVE	4166	1.0937
MONTREAL RD	3649	0.9580
GREENBANK RD	3504	0.9199
MERIVALE RD	3321	0.8719
ST. LAURENT BLVD	2881	0.7563
KING EDWARD AVE	2759	0.7243
HUNT CLUB RD	2725	0.7154
PRINCE OF WALES DR	2703	0.7096
RICHMOND RD	2647	0.6949
FALLOWFIELD RD	2532	0.6647
EAGLESON RD	2516	0.6605
BLAIR RD	2358	0.6190
WOODROFFE AVE	2217	0.5820
ALTA VISTA DR	2167	0.5689
MARCH RD	2075	0.5447
REGIONAL ROAD 174	1943	0.5101
JEANNE D'ARC BLVD	1824	0.4789
MEADOWLANDS DR	1737	0.4560
INDUSTRIAL AVE	1706	0.4479
COLONEL BY DR	1660	0.4358
ST. JOSEPH BLVD	1608	0.4221
HIGHWAY 416	1574	0.4132
ALBION RD	1550	0.4069
ALBERT ST	1546	0.4059
LAURIER AVE	1506	0.3954
HERON RD	1478	0.3880
RIVERSIDE DR	1471	0.3862
ELGIN ST	1468	0.3854
WALKLEY RD	1466	0.3849
HAZELDEAN RD	1382	0.3628
RUSSELL RD	1373	0.3605
CATHERINE ST	1369	0.3594
CARP RD	1321	0.3468
CYRVILLE RD	1311	0.3442
RIDEAU ST	1269	0.3331
BELFAST RD	1257	0.3300
GLADSTONE AVE	1239	0.3253

FISHER AVE	1213	0.3184
DONALD ST	1196	0.3140
REGIONAL RD 174	1188	0.3119
CONROY RD	1152	0.3024
COVENTRY RD	1150	0.3019
WEST HUNT CLUB RD	1131	0.2969
MCARTHUR AVE	1125	0.2953
BOOTH ST	1077	0.2827
CAMPEAU DR	1036	0.2720
ISLAND PARK DR	1033	0.2712
MOODIE DR	1027	0.2696
BEECHWOOD AVE	1010	0.2652
CLYDE AVE	995	0.2612
HAWTHORNE RD	980	0.2573
DALHOUSIE ST	964	0.2531
AIRPORT PKWY	921	0.2418
KENT ST	914	0.2400
CARLING AVE WB	886	0.2326
LYON ST	818	0.2147
ROBERTSON RD	801	0.2103
TENTH LINE RD	801	0.2103
PARKDALE AVE	800	0.2100
CEDARVIEW RD	783	0.2056
CASTLEFRANK RD	743	0.1951
REGIONAL RD 174 EB	711	0.1867
O'CONNOR ST	693	0.1819
LANCASTER RD	685	0.1798
CUMBERLAND ST	682	0.1790
BYRON AVE	676	0.1775
AVIATION PKWY	673	0.1767
HOLLAND AVE	670	0.1759
CARLING AVE EB	664	0.1743
OGILVIE RD	663	0.1741
KIRKWOOD AVE	654	0.1717
WELLINGTON ST	650	0.1706
SOMERSET ST	649	0.1704
MITCH OWENS RD	643	0.1688
PRESTON ST	636	0.1670
BESSERER ST	628	0.1649
CUMMINGS AVE	628	0.1649
PINECREST RD	608	0.1596
BAYSHORE DR	606	0.1591
RIVERSIDE DR NB	603	0.1583
ANDERSON RD	569	0.1494
TERRY FOX DR	561	0.1473
TRIM RD	551	0.1447
SMYTH RD	534	0.1402
MAITLAND AVE	532	0.1397
HOG'S BACK RD	526	0.1381
BRIDGE ST	503	0.1321
BAY ST	498	0.1307

WEST HUNT CLUB RD WB	498	0.1307
BANTREE ST	492	0.1292
METCALFE ST	488	0.1281
KNOXDALE RD	487	0.1279
DUNROBIN RD	463	0.1216
WEST HUNT CLUB RD EB	458	0.1202
(Other)	215243	56.5076

1.2. Allowed Features Values

The allowed values for this feature are shown in the following table:

Feature Value	Example
Character	"WEST HUNT CLUB RD" means the name of the street

Is important to notice that feature value *"" (Blank)* should be validated.

1.3. Special Feature Values to Handle

No *"" (Blank)* feature values was found in the complete dataset.

1.4. Homologation Transformations

The STREET1 value will be split it in three values (STREET1, STREET2, STREET3) to match the complete dataset (the previous year's use that format). The following table show the two cases to handle:

Original Feature Value (STREET1)	STREET1	STREET2	STREET3
X btwn Y & Z	X	Y	Z
X @ Y	X	Y	

Those are some examples:

Original Feature Value (STREET1)	STREET1	STREET2	STREET3
BRONSON AVE btwn UNIVERSITY RD & BREWER WAY	BRONSON AVE	UNIVERSITY RD	BREWER WAY
BLAIR PL @ OGILVIE RD	BLAIR PL	OGILVIE RD	

Is important to notice that some of those values could be *"" (Blank).* We will consider the coordinates values (XCOORD, YCOORD) for geo localization purposes.

2. Coordinates (XCOORD)

2.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The top 100 feature values are shown in the following table:

Feature Value	Counter	Percentage
0	716	0.2032
368036.703	169	0.0480
370432.7159	160	0.0454
379860.7426	153	0.0434
366264.5929	143	0.0406
367458.7103	134	0.0380
383951.7603	122	0.0346
371608.7365	121	0.0343
373099.7274	119	0.0338
362549.6902	117	0.0332
364858.6999	113	0.0321
363080.6757	112	0.0318
372093.7129	111	0.0315
368511.7072	104	0.0295
369995.72	103	0.0292
362702.6883	102	0.0289
375578.7349	102	0.0289
363933.6839	99	0.0281
365612.6952	99	0.0281
368037.6022	99	0.0281
361479.677	98	0.0278
368035.8037	95	0.0270
372305.7195	95	0.0270
374674.7439	95	0.0270
363669.787	91	0.0258
383640.9751	89	0.0253
351269.718	87	0.0247
370218.705	87	0.0247
360597.6843	86	0.0244
372860.7241	85	0.0241
362548.7909	84	0.0238
364358.7033	84	0.0238
363419.6899	82	0.0233
362061.6866	80	0.0227
367457.811	79	0.0224
366166.6936	78	0.0221
363671.5855	77	0.0219
362942.6979	76	0.0216
368124.6138	75	0.0213
368248.7013	75	0.0213
370072.7098	75	0.0213
370337.852	74	0.0210
382890.8038	74	0.0210
364351.7005	73	0.0207
373110.7142	73	0.0207
375047.7247	73	0.0207
364521.6983	72	0.0204
368038.5015	72	0.0204

368039.4008	71	0.0201
379858.944	71	0.0201
363298.6953	70	0.0199
363672.4848	70	0.0199
367907.7075	69	0.0196
371609.6358	69	0.0196
372859.8248	69	0.0196
374147.7258	69	0.0196
374507.7237	69	0.0196
370684.7186	68	0.0193
371545.7029	67	0.0190
363670.6862	65	0.0184
370311.7131	65	0.0184
370507.7344	65	0.0184
372091.9144	65	0.0184
383950.861	65	0.0184
352841.6249	64	0.0182
363673.3841	64	0.0182
364276.5915	64	0.0182
367459.6095	64	0.0182
368123.7145	64	0.0182
370884.7238	64	0.0182
372306.6188	64	0.0182
372903.7226	64	0.0182
373705.7232	64	0.0182
379860.7425	64	0.0182
354382.6336	63	0.0179
368125.513	63	0.0179
372092.8136	63	0.0179
372304.8202	63	0.0179
365054.6964	62	0.0176
367948.7099	62	0.0176
374673.8446	62	0.0176
366167.5928	61	0.0173
379859.8433	61	0.0173
363079.7765	60	0.0170
367906.8082	60	0.0170
368034.9044	60	0.0170
368739.7072	60	0.0170
369131.7086	60	0.0170
373098.8281	60	0.0170
349864.6086	59	0.0167
362282.6921	59	0.0167
364357.804	59	0.0167
368122.8152	59	0.0167
374506.8244	59	0.0167
354380.8351	58	0.0165
368370.8092	58	0.0165
361480.5763	57	0.0162
362550.5895	57	0.0162
363668.8877	57	0.0162

(Other)	343884	97.5848

2.2. Allowed Features Values

The allowed values for this feature are shown in the following table:

Feature Value	Example
Double in (316082.007, 402774.195)	"363668.8877" is a coordinate in NAD83 MTM Zone 09

Is important to notice that features values *"" (Blank), "<0"*, or very high/low values (outside of Ottawa map, needs to be checked) should be validated.

2.3. Special Feature Values to Handle

A further study analisis is needed in order to handle this feature value.	A further study analisis is needed in order to handle this feature value.

Is important to mention that the 2009 dataset did not have those values.	

2.4. Homologation Transformations

None. A strategy to handle this value will be defined later.

3. Coordinates (YCOORD)

3.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The top 100 feature values are shown in the following table:

Feature Value	Counter	Percentage
0	716	0.2032
5036471.581	154	0.0437
5031016.344	122	0.0346
5029081.557	100	0.0284
5023465.505	80	0.0227
5036900.456	80	0.0227
5023490.538	78	0.0221
5021946.714	77	0.0219
5036471.986	76	0.0216
5021948.334	75	0.0213
5021947.524	73	0.0207
5021247.706	72	0.0204
5021246.896	69	0.0196
5032475.42	69	0.0196
5026852.757	68	0.0193
5026631.186	66	0.0187
5023774.15	64	0.0182
5021945.904	63	0.0179
5023772.53	63	0.0179
5021892.719	62	0.0176
5036472.796	62	0.0176
5030005.972	59	0.0167
5030006.782	59	0.0167
5021248.516	57	0.0162
5021250.136	57	0.0162
5023725.916	57	0.0162
5036474.416	56	0.0159
5021895.148	55	0.0156
5020502.884	54	0.0153
5030188.97	54	0.0153
5030582.207	54	0.0153
5016735.29	53	0.0150
5021891.909	53	0.0150
5023865.729	53	0.0150
5024100.151	53	0.0150
5030558.785	53	0.0150
5031956.03	53	0.0150
5032477.85	53	0.0150
5033497.429	53	0.0150
5019557.645	52	0.0148
5021949.144	52	0.0148
5028499.947	52	0.0148
5036471.176	52	0.0148
5014788.072	51	0.0145
5020506.124	51	0.0145
5021226.529	51	0.0145
5023773.34	51	0.0145
5026629.566	51	0.0145

5032476.23	51	0.0145
5036473.606	51	0.0145
5021246.086	50	0.0142
5021250.946	50	0.0142
5021950.763	50	0.0142
5025699.176	50	0.0142
5026628.756	50	0.0142
5031954.41	50	0.0142
5033198.98	50	0.0142
5016734.48	49	0.0139
5021943.713	49	0.0139
5021945.094	49	0.0139
5023770.1	49	0.0139
5025949.76	49	0.0139
5030581.397	49	0.0139
5036160.776	49	0.0139
5021949.953	48	0.0136
5031439.96	48	0.0136
5033499.858	48	0.0136
5035571.209	48	0.0136
5021245.276	47	0.0133
5023769.29	47	0.0133
5024099.341	47	0.0133
5024100.961	47	0.0133
5025830.528	47	0.0133
5025948.95	47	0.0133
5025952.19	47	0.0133
5027493.939	47	0.0133
5028499.137	47	0.0133
5014789.692	46	0.0131
5016732.861	46	0.0131
5021891.099	46	0.0131
5021894.338	46	0.0131
5023771.72	46	0.0131
5026630.376	46	0.0131
5030010.022	46	0.0131
5030192.209	46	0.0131
5032416.424	46	0.0131
5033200.6	46	0.0131
5021942.904	45	0.0128
5023171.237	45	0.0128
5024097.721	45	0.0128
5024101.961	45	0.0128
5030578.967	45	0.0128
5030583.017	45	0.0128
5032472.99	45	0.0128
5036163.206	45	0.0128
5036476.036	45	0.0128
5021893.528	44	0.0125
5023727.536	44	0.0125
5023770.91	44	0.0125

(Other)	346250	98.2562

3.2. Allowed Features Values

The allowed values for this feature are shown in the following table:

Feature Value	Example
Double in (4979899.901, 5047442.691)	"5023770.91" is a coordinate in NAD83 MTM Zone 09

Is important to notice that features values *"" (Blank), "<0"*, or very high/low values (outside of Ottawa map, needs to be checked) should be validated.

3.3. Special Feature Values to Handle

A further study analisis is needed in order to handle this feature value.	A further study analisis is needed in order to handle this feature value.

Is important to mention that the 2009 dataset did not have those values.	

3.4. Homologation Transformations

None. A strategy to handle this value will be defined later.

4. Accident / Collision Date (ACCIDENT_DATE)

4.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The top 100 feature values are shown in the following table:

Feature Value	Counter	Percentage
2005-01-21	414	0.1087
2009-01-15	399	0.1047
2004-01-14	390	0.1024
2004-12-20	372	0.0977
2006-12-22	347	0.0911
2004-01-15	343	0.0900
2012-02-24	304	0.0798
2016-02-17	300	0.0788
2013-11-23	294	0.0772
2015-02-02	294	0.0772
2009-01-16	282	0.0740
2014-01-03	279	0.0732
2013-02-08	271	0.0711
2007-02-14	261	0.0685
2007-11-29	251	0.0659
2014-02-14	250	0.0656
2014-01-27	247	0.0648
2004-01-26	238	0.0625
2004-12-21	238	0.0625
2013-01-28	235	0.0617
2009-01-28	231	0.0606
2008-01-22	229	0.0601
2013-02-27	227	0.0596
2016-02-18	227	0.0596
2005-11-24	226	0.0593
2011-01-15	225	0.0591
2016-04-06	223	0.0585
2005-01-28	220	0.0578
2017-03-24	220	0.0578
2005-01-27	219	0.0575
2007-12-17	218	0.0572
2004-01-24	213	0.0559
2007-02-09	212	0.0557
2017-02-15	212	0.0557
2009-12-18	211	0.0554
2007-12-19	210	0.0551
2010-02-25	210	0.0551
2013-01-24	210	0.0551
2008-03-07	208	0.0546
2013-01-23	208	0.0546
2015-01-14	208	0.0546
2005-03-01	205	0.0538
2015-01-30	205	0.0538
2015-02-04	203	0.0533
2006-02-17	202	0.0530
2017-12-14	202	0.0530
2015-02-21	201	0.0528
2009-02-05	200	0.0525

2015-01-29	198	0.0520
2016-02-25	196	0.0515
2005-11-18	195	0.0512
2005-03-07	194	0.0509
2004-01-11	193	0.0507
2017-12-12	193	0.0507
2010-12-14	191	0.0501
2008-02-07	189	0.0496
2012-01-20	189	0.0496
2004-01-23	185	0.0486
2007-01-25	185	0.0486
2007-02-07	185	0.0486
2015-02-17	185	0.0486
2004-12-01	184	0.0483
2008-12-22	184	0.0483
2009-05-27	184	0.0483
2007-01-29	183	0.0480
2016-12-09	183	0.0480
2010-01-29	181	0.0475
2011-02-03	181	0.0475
2013-01-25	181	0.0475
2015-01-08	181	0.0475
2010-01-28	180	0.0473
2011-02-28	180	0.0473
2014-02-18	180	0.0473
2004-12-23	178	0.0467
2007-12-11	177	0.0465
2011-02-02	177	0.0465
2013-11-29	177	0.0465
2004-12-17	176	0.0462
2005-12-15	176	0.0462
2009-12-30	176	0.0462
2014-01-22	176	0.0462
2009-01-30	175	0.0459
2015-02-14	174	0.0457
2004-04-04	173	0.0454
2008-12-11	172	0.0452
2016-12-08	172	0.0452
2007-01-26	171	0.0449
2013-02-05	171	0.0449
2014-01-24	171	0.0449
2014-02-11	171	0.0449
2015-01-07	171	0.0449
2009-12-09	170	0.0446
2012-01-19	170	0.0446
2012-01-18	168	0.0441
2007-11-22	167	0.0438
2008-02-27	167	0.0438
2008-03-10	167	0.0438
2009-01-07	167	0.0438
2011-01-07	166	0.0436

(Other)	359780	94.4528

4.2. Allowed Features Values

The allowed values for this feature are shown in the following table:

Feature Value	Example
Date YYYY-MM-DD	"2017-10-09" means October 09th 2017

Is important to notice that features values *"" (Blank), "0"* should be validated.

4.3. Special Feature Values to Handle

No feature values were found with *"" (Blank)* or *"0"*.

Is important to notice that for dataset before 2013 (2004 – 2012), some observations of the first year of the next year (January 1st) are included, the following is the information related with the 2012 Dataset:

```
## CHECKING FEATURE:ACCIDENT_DATE
## DATA:All 2012.csv...
##
## Number of Blank Values:0
## Number of Zero Values:0
## Number of Negative Values:0
##
##  Summary as Date Feature:
```

```
##
##         Min.      1st Qu.       Median         Mean      3rd Qu.
## "2012-01-01" "2012-03-21" "2012-07-02" "2012-07-02" "2012-10-12"
##         Max.
## "2013-01-01"
```

4.4. Homologation Transformations

Keep only the observations that belongs to each year (remove observations related with next year January 1st).

5. Accident / Collision Time (ACCIDENT_TIME)

5.1. All Features in the Dataset

The top 100 feature values are shown in the following table:

Feature Value	Counter	Percentage
5:00 PM	3422	0.8984
4:00 PM	3361	0.8824
5:30 PM	3190	0.8375
4:30 PM	3176	0.8338
12:00 AM	2994	0.7860
3:30 PM	2909	0.7637
3:00 PM	2659	0.6981
6:00 PM	2595	0.6813
8:30 AM	2385	0.6261
9:00 AM	2255	0.5920
2:00 PM	2243	0.5889
1:00 PM	2228	0.5849
8:00 AM	2225	0.5841
12:00 PM	2085	0.5474
2:30 PM	2039	0.5353
12:30 PM	1981	0.5201
4:15 PM	1942	0.5098
1:30 PM	1935	0.5080
6:30 PM	1922	0.5046
5:15 PM	1913	0.5022
4:45 PM	1869	0.4907
7:00 PM	1783	0.4681
3:45 PM	1765	0.4634
11:00 AM	1740	0.4568
11:30 AM	1739	0.4565
10:00 AM	1661	0.4361
5:20 PM	1626	0.4269
5:45 PM	1570	0.4122
7:30 AM	1553	0.4077
3:15 PM	1548	0.4064
4:20 PM	1514	0.3975
9:30 AM	1495	0.3925
8:45 AM	1451	0.3809
10:30 AM	1437	0.3773
4:50 PM	1413	0.3710
8:15 AM	1386	0.3639
5:10 PM	1342	0.3523
4:40 PM	1337	0.3510
2:45 PM	1333	0.3500
3:50 PM	1326	0.3481
4:10 PM	1299	0.3410

3:20 PM	1280	0.3360
3:40 PM	1252	0.3287
12:15 PM	1242	0.3261
8:00 PM	1232	0.3234
12:45 PM	1227	0.3221
8:20 AM	1203	0.3158
7:30 PM	1199	0.3148
8:50 AM	1189	0.3121
8:40 AM	1177	0.3090
7:45 AM	1172	0.3077
5:40 PM	1166	0.3061
7:00 AM	1154	0.3030
7:50 AM	1126	0.2956
3:10 PM	1106	0.2904
2:15 PM	1097	0.2880
6:15 PM	1082	0.2841
5:50 PM	1078	0.2830
9:15 AM	1058	0.2778
9:00 PM	1025	0.2691
1:15 PM	1021	0.2680
2:50 PM	998	0.2620
8:10 AM	989	0.2596
1:45 PM	985	0.2586
6:45 PM	942	0.2473
6:20 PM	939	0.2465
2:40 PM	938	0.2463
12:20 PM	935	0.2455
9:30 PM	930	0.2442
11:45 AM	921	0.2418
9:45 AM	914	0.2400
12:50 PM	908	0.2384
5:05 PM	878	0.2305
5:25 PM	877	0.2302
4:25 PM	872	0.2289
6:10 PM	872	0.2289
10:00 PM	860	0.2258
8:30 PM	856	0.2247
1:20 PM	851	0.2234
4:35 PM	851	0.2234
5:35 PM	841	0.2208
2:20 PM	839	0.2203
12:10 PM	837	0.2197
10:45 AM	832	0.2184
4:05 PM	830	0.2179
11:15 AM	828	0.2174
10:15 AM	823	0.2161
11:50 AM	815	0.2140
7:40 AM	814	0.2137
6:45 AM	809	0.2124
12:40 PM	799	0.2098
8:55 AM	791	0.2077

4:55 PM	786	0.2063
9:10 AM	783	0.2056
1:50 PM	778	0.2042
7:15 AM	778	0.2042
3:55 PM	777	0.2040
6:30 AM	777	0.2040
3:35 PM	774	0.2032
(Other)	243551	63.9393

5.2. Allowed Features Values

The allowed values for this feature are shown in the following table:

Feature Value	Example
Time HH:MM AM/PM	"3:30 PM"

Is important to notice that features values *"" (Blank), "0"* should be validated.

5.3. Special Feature Values to Handle

No feature values were found with *"" (Blank)* or *"0"*.

5.4. Homologation Transformations

None.

6. Sex of the Driver (DRIVER_SEX) – MVCR 0209

6.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	“” (Blank)	17	0.0045
2	F	96162	25.2453
3	Female	39036	10.2481
4	M	162692	42.7114
5	Male	61548	16.1581
6	U	14498	3.8061
7	Unknown	6957	1.8264

6.2. Allowed Features Values (MVCR-0209)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
M	Male
F	Female

Is important to notice that features values *“” (Blank)*, *”Female”*, *“Male”*, *“U”* and *“Unknown”* are not allowed values according with the MVCR Manual.

6.3. Special Feature Values to Handle

A further study analisis is needed in order to handle this feature value.

This feature value will be homologated to “Unknown”

This feature value will be homologated to “Unknown”

6.4. Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	“” (Blank) (*)	*None, keep as it is (*) (**)*
2	F	01 - Female
3	Female	01 - Female
4	M	02 - Male
5	Male	02 - Make
6	U (*)	00 - Unknown (*)
7	Unknown (*)	00 - Unknown (*)

(*) Not allowed values according with the MVCR Manual.

(**) A strategy to handle this value will be defined later.

7. Age of the Driver (DRIVER_AGE) – MVCR 0209

7.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The top 100 feature values are shown in the following table:

Feature Value	Counter	Percentage
0	21224	5.5719
22	8531	2.2396
21	8518	2.2362
23	8473	2.2244
24	8450	2.2184
25	8271	2.1714
26	8213	2.1562
20	8070	2.1186
46	8053	2.1141
45	7977	2.0942
44	7976	2.0939
42	7936	2.0834
27	7927	2.0811
43	7927	2.0811
41	7814	2.0514
47	7739	2.0317
48	7695	2.0202
28	7656	2.0099
49	7633	2.0039
40	7581	1.9902
19	7552	1.9826
50	7398	1.9422
39	7384	1.9385
37	7262	1.9065
29	7257	1.9052
31	7242	1.9012
51	7222	1.8960
36	7168	1.8818
30	7165	1.8810
38	7118	1.8687
32	7104	1.8650
35	7043	1.8490
34	7020	1.8430
52	6944	1.8230
33	6919	1.8164
53	6669	1.7508
18	6550	1.7196
54	6172	1.6203
55	5895	1.5476
56	5454	1.4318
57	5269	1.3833
58	4862	1.2764
59	4588	1.2045
60	4203	1.1034
61	3865	1.0147
62	3648	0.9577
17	3619	0.9501
63	3404	0.8936

64	3077	0.8078
65	2901	0.7616
66	2630	0.6905
67	2362	0.6201
68	2208	0.5797
69	1942	0.5098
70	1903	0.4996
71	1699	0.4460
72	1607	0.4219
73	1453	0.3815
74	1338	0.3513
75	1260	0.3308
76	1162	0.3051
77	1135	0.2980
78	1017	0.2670
79	988	0.2594
80	865	0.2271
81	774	0.2032
82	704	0.1848
83	605	0.1588
84	566	0.1486
85	465	0.1221
16	439	0.1153
86	390	0.1024
87	315	0.0827
88	258	0.0677
89	213	0.0559
15	161	0.0423
90	156	0.0410
91	108	0.0284
14	103	0.0270
92	80	0.0210
13	68	0.0179
12	58	0.0152
11	42	0.0110
93	38	0.0100
10	25	0.0066
8	21	0.0055
94	20	0.0053
7	18	0.0047
9	17	0.0045
96	15	0.0039
95	14	0.0037
97	9	0.0024
5	5	0.0013
6	5	0.0013
3	2	0.0005
98	2	0.0005
99	2	0.0005
-2959	1	0.0003
-1	1	0.0003

(Other)	3	0.0008

7.2. Allowed Features Values (MVCR-0209)

The allowed values for this feature are shown in the following table:

Feature Value	Example
Integer > 0	"30" means "30 years old"

Is important to notice that features values *"" (Blank), "<0",* or very high values should be validated.

7.3. Special Feature Values to Handle

A further study analisis is needed in order to handle this feature value.

A further study analisis is needed in order to handle this feature value.

A further study analisis is needed in order to handle this feature value.

A further study analisis is needed in order to handle this feature value.

A further study analisis is needed in order to handle this feature value.

A further study analisis is needed in order to handle this feature value.

7.4. Homologation Transformations

None. A strategy to handle this value will be defined later.

8. Accident / Collision Location (ACCIDENT_LOCATION) - MVCR 0301

8.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	01 - Non intersection	36450	9.5718
2	02 - Intersection related	36994	9.7120
3	03 - At intersection	24320	6.3847
4	04 - At/near private drive	9168	2.4069
5	05 - At railway crossing	69	0.0181
6	06 - Underpass or tunnel	48	0.0126
7	07 - Overpass or bridge	494	0.1297
8	1	101629	26.6806
9	2	75439	19.8049
10	3	67285	17.6643
11	4	26739	7.0198
12	5	290	0.0761
13	6	146	0.0383
14	7	1824	0.4789
15	98 - Other	4	0.0011
16	99 - Other	1	0.0003

8.2. Allowed Features Values (MVCR-0301)

The allowed values for this feature are shown in the following table:

Feature Classification	Feature Code	Feature Label
On Highway	01	Non Intersection
	02	Intersection Related
	03	At Intersection
	04	At/ near private drive
	05	At Railway Crossing
	06	Underpass or Tunnel
	07	Overpass or Bridge
	98	Other
Off Highway	08	Trail
	09	Frozen Lake or River
	10	Parking Lot
	99	Other

8.3. Special Feature Values to Handle

None.

8.4. Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	01 - Non intersection	*None, keep as it is*
2	02 - Intersection related	*None, keep as it is*
3	03 - At intersection	*None, keep as it is*
4	04 - At/near private drive	*None, keep as it is*
5	05 - At railway crossing	*None, keep as it is*
6	06 - Underpass or tunnel	*None, keep as it is*
7	07 - Overpass or bridge	*None, keep as it is*
8	1	01 - Non intersection
9	2	02 - Intersection related
10	3	03 - At intersection
11	4	04 - At/near private drive
12	5	05 - At railway crossing
13	6	06 - Underpass or tunnel
14	7	07 - Overpass or bridge
15	98 - Other	*None, keep as it is*
16	99 - Other	*None, keep as it is*

9. Environnent Conditions (ENVIRONMENT_CONDITION) - MVCR 0303

9.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	00 - Unknown	100	0.0263
2	01 – Clear	85644	22.4841
3	02 – Rain	10091	2.6492
4	03 – Snow	9730	2.5544
5	04 - Freezing rain	1087	0.2854
6	05 - Drifting snow	488	0.1281
7	06 - Strong wind	139	0.0365
8	07 – Fog, mist, smoke, dust	251	0.0659
9	99 – Other	28	0.0074
10	Clear	212939	55.9027
11	Drifting snow	1414	0.3712
12	Fog, mist, smoke, dust	887	0.2329
13	Freezing rain	3051	0.8010
14	Other	68	0.0179
15	Rain	30493	8.0053
16	Snow	22552	5.9206
17	Strong wind	507	0.1331
18	Unknown	1441	0.3783

9.2. Allowed Features Values (MVCR-0303)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
01	Clear
02	Rain
03	Snow
04	Freezing Rain
05	Drifting Snow
06	Strong Wind
07	Fog, Mist, Smoke, Dust
99	Other

Is important to notice that features values *"Unknown"* and *"00-Unknown"* are not allowed values according with the MVCR Manual.

9.3. Special Feature Values to Handle

This feature value will be homologated to "00-Unknown"	This feature value will be homologated to "00-Unknown"

9.4. Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	00 – Unknown (*)	*None, keep as it is* (*)
2	01 – Clear	*None, keep as it is*
3	02 – Rain	*None, keep as it is*
4	03 – Snow	*None, keep as it is*
5	04 - Freezing rain	*None, keep as it is*
6	05 - Drifting snow	*None, keep as it is*
7	06 - Strong wind	*None, keep as it is*
8	07 – Fog, mist, smoke, dust	*None, keep as it is*
9	99 – Other	*None, keep as it is*
10	Clear	01 – Clear
11	Drifting snow	05 - Drifting snow
12	Fog, mist, smoke, dust	07 – Fog, mist, smoke, dust
13	Freezing rain	04 - Freezing rain
14	Other	99 – Other

15	Rain	02 – Rain
16	Snow	03 – Snow
17	Strong wind	06 - Strong wind
18	Unknown (*)	00 – Unknown (*)

(*) Not allowed values according with the MVCR Manual.

10. Light (LIGHT) - MVCR 0304

10.1.All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	00 - Unknown	1202	0.3156
2	01 – Daylight	76920	20.1937
3	02 - Daylight, artificial	3	0.0008
4	03 - Dawn	2335	0.6130
5	04 - Dawn, artificial	11	0.0029
6	05 - Dusk	4895	1.2851
7	06 - Dusk, artificial	5	0.0013
8	07 - Dark	22049	5.7885
9	08 - Dark, artificial	124	0.0326
10	99 – Other	14	0.0037
11	Dark	59886	15.7218
12	Dawn	5982	1.5704
13	Daylight	193417	50.7776
14	Dusk	12568	3.2995
15	Unknown	1499	0.3935

10.2.Allowed Features Values (MVCR-0304)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
01	Daylight
02	Daylight Artificial
03	Dawn
04	Dawn Artificial
05	Dusk
06	Dusk Artificial
07	Dark
08	Dark Artificial
99	Other

Is important to notice that features values *"Unknown"* and *"00-Unknown"* are not allowed values according with the MVCR Manual.

10.3.Special Feature Values to Handle

This feature value will be homologated to "00-Unknown"

This feature value will be homologated to "00-Unknown"

10.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	00 – Unknown (*)	*None, keep as it is* (*)
2	01 – Daylight	*None, keep as it is*
3	02 - Daylight, artificial	*None, keep as it is*
4	03 - Dawn	*None, keep as it is*
5	04 - Dawn, artificial	*None, keep as it is*
6	05 - Dusk	*None, keep as it is*
7	06 - Dusk, artificial	*None, keep as it is*
8	07 - Dark	*None, keep as it is*
9	08 - Dark, artificial	*None, keep as it is*
10	99 – Other	*None, keep as it is*
11	Dark	07 - Dark
12	Dawn	03 - Dawn
13	Daylight	01 – Daylight
14	Dusk	05 - Dusk

15	Unknown (*)	00 – Unknown (*)

(*) Not allowed values according with the MVCR Manual.

11. Traffic Control (TRAFFIC_CONTROL) - MVCR 0305

11.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	“” (Blank)	49	0.0129
2	01 - Traffic signal	47095	12.3638
3	02 - Stop sign	11640	3.0558
4	03 - Yield sign	704	0.1848
5	04 - Ped. crossover	4	0.0011
6	07 - School bus	4	0.0011
7	08 - Traffic gate	27	0.0071
8	09 - Traffic controller	14	0.0037
9	1	106971	28.0830
10	10	132530	34.7930
11	10 - No control	47014	12.3425
12	11 - Roundabout	1007	0.2644
13	2	30744	8.0712
14	3	2592	0.6805
15	5	56	0.0147
16	6	8	0.0021
17	7	146	0.0383
18	8	206	0.0541
19	9	84	0.0221
20	99	15	0.0039

11.2.Allowed Features Values (MVCR-0305)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
01	Traffic Signal
02	Stop Sign
03	Yield Sign
04	Pedestrian Crossover
05	Police Control
06	School Guard
07	School Bus
08	Traffic Gate
09	Traffic Controller
10	No Control
99	Other

Is important to notice that feature values *“” (Blank)* and *“11-Roundabout”* are not allowed values according with the MVCR Manual.

11.3.Special Feature Values to Handle

A further study analisis is needed in order to handle this feature value.	This feature value will be keep as is.

11.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	“” Blank (*)	*None, keep as it is (*) (**)*
2	01 - Traffic signal	*None, keep as it is*
3	02 - Stop sign	*None, keep as it is*
4	03 - Yield sign	*None, keep as it is*
5	04 - Ped. crossover	*None, keep as it is*
6	07 - School bus	*None, keep as it is*
7	08 - Traffic gate	*None, keep as it is*
8	09 - Traffic controller	*None, keep as it is*
9	1	01 - Traffic signal
10	10	10 - No control
11	10 - No control	*None, keep as it is*
12	11 – Roundabout (*)	*None, keep as it is* (*) (**)

13	2	02 - Stop sign
14	3	03 - Yield sign
15	5	05 – Police control
16	6	06 - School guard
17	7	07 - School bus
18	8	08 - Traffic gate
19	9	09 - Traffic controller
20	99	99 - Other

(*) Not allowed values according with the MVCR Manual.

(**) A strategy to handle this value will be defined later.

12. Traffic Control Condition (TRAFFIC_CONTROL_CONDITION) - MVCR 0306

12.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	“” Blank	47022	12.3446
2	0	13692	3.5945
3	00 - Unknown	5572	1.4628
4	01 - Functioning	54668	14.3519
5	02 - Not functioning	243	0.0638
6	03 - Obscured	34	0.0089
7	04 - Missing/Damaged	19	0.0050
8	1	127302	33.4205
9	2	465	0.1221
10	3	88	0.0231
11	4	37	0.0097
12	88	131768	34.5929

12.2.Allowed Features Values (MVCR-0306)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
01	Functioning
02	Not Functioning
03	Obscured
04	Missing/ Damaged

Is important to notice that features values *“” (Blank)*, *“0”*, *“00-Unknown”* and *“88”* are not allowed values according with the MVCR Manual.

12.3.Special Feature Values to Handle

A further study analisis is needed in order to handle this feature value.

This feature value will be homologated to “00-Unknown”

This feature value will be homologated to “00-Unknown”

A further study analisis is needed in order to handle this feature value.

12.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	“” (Blank) (*)	*None, keep as it is* (*) (**)
2	00-Unknown (*)	*None, keep as it is* (*)
3	01-Functioning	*None, keep as it is*
4	02-Not functioning	*None, keep as it is*
5	03-Obscured	*None, keep as it is*
6	04-Missing/Damaged	*None, keep as it is*
7	0 (*)	00-Unknown (*)
8	1	01-Functioning
9	2	02-Not functioning
10	3	03-Obscured
11	4	04-Missing/Damaged
12	88 (*)	*None, keep as it is* (*) (**)

(*) Not allowed values according with the MVCR Manual.

(**) A strategy to handle this value will be defined later.

13. Road Character (ROAD_CHARACTER) – MVCR 0307

13.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	“” (Blank)	55159	16.79
2	-1	273352	83.21

13.2.Allowed Features Values (MVCR-0307)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
01	Undivided One-way
02	Undivided Two-way
03	Divided with Restraining Barrier
04	Divided with No-barrier
05	Ramp
06	Collector Lane
07	Express Lane
08	Transfer Lane

Is important to notice that all features values (*“-1”* and *“” Blank)* are not allowed values according with the MVCR Manual, because of that, we will ignore this feature value from the analysis.

14. Road Surface (ROAD_SURFACE) – MVCR 0308

14.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	-1	273352	83.2
2	“” (Blank)	55159	16.8

14.2.Allowed Features Values (MVCR-0308)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
01	Asphalt
02	Oil treated gravel
03	Gravel or crushed stone
04	Concrete
05	Earth
06	Wood
07	Steel
08	Brick/Interlocking Stone
99	Other

Is important to notice that all features values (*"-1"* and *"" Blank)* are not allowed values according with the MVCR Manual, because of that, we will ignore this feature value from the analysis.

15. Road Condition (ROAD_CONDITION) – MVCR 0309

15.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	0	2645	0.6944
2	00 - Unknown	2487	0.6529
3	01 - Good	101305	26.5955
4	02 - Poor	2625	0.6891
5	03 - Under repair or construction	1141	0.2995
6	1	260226	68.3169
7	2	7588	1.9921
8	3	2892	0.7592
9	88	1	0.0003

15.2.Allowed Features Values (MVCR-0309)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
01	Good
02	Poor
03	Under Repair or Construction

Is important to notice that features values *"0", "00-Unknown"* and *"88"* are not allowed values according with the MVCR Manual.

15.3.Special Feature Values to Handle

This feature value will be homologated to “00-Unknown”

This feature value will be homologated to “00-Unknown”

A further study analisis is needed in order to handle this feature value.

15.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	0 (*)	00 – Unknown (*)
2	00 - Unknown (*)	*None, keep as it is* (*)
3	01 - Good	*None, keep as it is*
4	02 - Poor	*None, keep as it is*
5	03 - Under repair or construction	*None, keep as it is*
6	1	01 - Good
7	2	02 - Poor
8	3	03 - Under repair or construction
9	88 (*)	*None, keep as it is (*) (**)*

(*) Not allowed values according with the MVCR Manual.

(**) A strategy to handle this value will be defined later.

16. Road Surface Condition (ROAD_SURFACE_CONDITION) – MVCR 0310

16.1.All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	0	2582	0.6779
2	00 - Unknown	2512	0.6595
3	01 - Dry	70191	18.4272
4	02 - Wet	18603	4.8838
5	03 - Loose snow	6355	1.6684
6	04 - Slush	3013	0.7910
7	05 - Packed snow	2311	0.6067
8	06 - Ice	4417	1.1596
9	07 - Mud	6	0.0016
10	08 - Loose sand or gravel	75	0.0197
11	09 - Spilled liquid	5	0.0013
12	1	172684	45.3346
13	2	57850	15.1873
14	3	14964	3.9285
15	4	6531	1.7146
16	5	5869	1.5408
17	6	12208	3.2050
18	7	42	0.0110
19	8	393	0.1032
20	9	38	0.0100
21	99	191	0.0501
22	99 - Other	70	0.0184

16.2.Allowed Features Values (MVCR-0310)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
01	Dry
02	Wet
03	Loose Snow
04	Slush
05	Packed Snow
06	Ice
07	Mud
08	Loose Sand or Gravel
09	Spilled Liquid
99	Other

Is important to notice that features values *"0"* and *"00-Unknown"* are not allowed values according with the MVCR Manual.

16.3.Special Feature Values to Handle

This feature value will be homologated to “00-Unknown”	This feature value will be homologated to “00-Unknown”

16.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	0 (*)	00 – Unknown (*)
2	00 - Unknown (*)	*None, keep as it is* (*)
3	01 - Dry	*None, keep as it is*
4	02 - Wet	*None, keep as it is*
5	03 - Loose snow	*None, keep as it is*
6	04 - Slush	*None, keep as it is*
7	05 - Packed snow	*None, keep as it is*
8	06 - Ice	*None, keep as it is*
9	07 - Mud	*None, keep as it is*
10	08 - Loose sand or gravel	*None, keep as it is*
11	09 - Spilled liquid	*None, keep as it is*
12	1	01 - Dry

13	2	02 - Wet
14	3	03 - Loose snow
15	4	04 - Slush
16	5	05 - Packed snow
17	6	06 - Ice
18	7	07 - Mud
19	8	08 - Loose sand or gravel
20	9	09 - Spilled liquid
21	99	99 - Other
22	99 - Other	*None, keep as it is*

(*) Not allowed values according with the MVCR Manual.

17. Road Alignment (ROAD_ALIGNMENT) – MVCR 0311

17.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	0	2343	0.6151
2	00 - Unknown	2487	0.6529
3	01 - Straight on level	94221	24.7358
4	02 - Straight on hill	4865	1.2772
5	03 - Curve on level	4778	1.2544
6	04 - Curve on hill	1207	0.3169
7	1	238000	62.4820
8	2	16075	4.2202
9	3	13196	3.4643
10	4	3738	0.9813

17.2.Allowed Features Values (MVCR-0311)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
01	Straight on level
02	Straight on Hill
03	Curve on Level
04	Curve on Hill

Is important to notice that features values *"0"* and *"00-Unknown"* are not allowed values according with the MVCR Manual.

17.3.Special Feature Values to Handle

This feature value will be homologated to “00-Unknown”	This feature value will be homologated to “00-Unknown”

17.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	0 (*)	00 – Unknown (*)
2	00 - Unknown (*)	*None, keep as it is* (*)
3	01 - Straight on level	*None, keep as it is*
4	02 - Straight on hill	*None, keep as it is*
5	03 - Curve on level	*None, keep as it is*
6	04 - Curve on hill	*None, keep as it is*
7	1	01 - Straight on level
8	2	02 - Straight on hill
9	3	03 - Curve on level
10	4	04 - Curve on hill

(*) Not allowed values according with the MVCR Manual.

18. Road Pavement Markers (ROAD_PAVEMENT_MARKINGS) – MVCR 0312

18.1.All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	0	3955	1.0383
2	00 - Unknown	2518	0.6610
3	01 - Exist	95799	25.1500
4	02 - Non-existent	3319	0.8713
5	03 - Obscured	5574	1.4633
6	04 - Faded	348	0.0914
7	1	241578	63.4213
8	2	11416	2.9970
9	3	15026	3.9448
10	4	1377	0.3615

18.2.Allowed Features Values (MVCR-0312)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
01	Exist
02	Non-existent
03	Obscured
04	Faded

Is important to notice that features values *"0"* and *"00-Unknown"* are not allowed values according with the MVCR Manual.

18.3.Special Feature Values to Handle

This feature value will be homologated to “00-Unknown”	This feature value will be homologated to “00-Unknown”

18.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	0 (*)	00 – Unknown (*)
2	00 - Unknown (*)	*None, keep as it is* (*)
3	01 – Exist	*None, keep as it is*
4	02 – Non-existent	*None, keep as it is*
5	03 – Obscured	*None, keep as it is*
6	04 – Faded	*None, keep as it is*
7	1	01 – Exist
8	2	02 – Non-existent
9	3	03 – Obscured
10	4	04 – Faded

(*) Not allowed values according with the MVCR Manual.

19. Vehicle Type (VEHICLE_TYPE) – MVCR 0313

19.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	0	7904	2.0750
2	00 - Unknown	4921	1.2919
3	01 - Automobile, station wagon	65093	17.0888
4	02 - Motorcycle	569	0.1494
5	03 - Moped	7	0.0018
6	04 - Passenger van	6324	1.6602
7	05 - Pick-up truck	22258	5.8434
8	06 - Delivery van	1413	0.3710
9	07 - Tow truck	192	0.0504
10	08 - Truck - open	237	0.0622
11	09 - Truck - closed	656	0.1722
12	1	178400	46.8352
13	10	224	0.0588
14	10 - Truck - tank	111	0.0291
15	11	1629	0.4277
16	11 - Truck - dump	597	0.1567
17	12	69	0.0181
18	12 - Truck - car carrier	16	0.0042
19	13	866	0.2274
20	13 - Truck - tractor	190	0.0499
21	14	3760	0.9871
22	14 - Municipal transit bus	1378	0.3618
23	15	295	0.0774
24	15 - Intercity bus	23	0.0060
25	16	556	0.1460
26	16 - Bus (other)	110	0.0289
27	17	1037	0.2722
28	17 - School bus	337	0.0885
29	18	18	0.0047
30	18 - School van	3	0.0008
31	19	28	0.0074
32	19 - Other school vehicle/bus	14	0.0037
33	2	1541	0.4046
34	20	40	0.0105
35	20 - Motor home	16	0.0042
36	21	8	0.0021
37	21 - Off-road 2 wheels	3	0.0008
38	22	1	0.0003
39	23	27	0.0071
40	23 - Off-road 4 wheels	3	0.0008
41	24	2	0.0005
42	25	25	0.0066
43	25 - Motorized snow vehicle	8	0.0021
44	26	115	0.0302
45	26 - Farm tractor	49	0.0129
46	27	20	0.0053
47	27 - Other farm vehicle	8	0.0021

48	28	346	0.0908
49	28 - Construction equipment	188	0.0494
50	29	7	0.0018
51	3	53	0.0139
52	31	625	0.1641
53	31 - Snow plow	194	0.0509
54	32	240	0.0630
55	32 - Ambulance	82	0.0215
56	33	177	0.0465
57	33 - Fire vehicle	47	0.0123
58	34	1419	0.3725
59	34 - Police vehicle	294	0.0772
60	35	35	0.0092
61	35 - Other emergency vehicle	13	0.0034
62	36	3223	0.8461
63	36 - Bicycle	1127	0.2959
64	37	116	0.0305
65	37 - Car and trailer	17	0.0045
66	38	2402	0.6306
67	38 - Truck and trailer	929	0.2439
68	4	23380	6.1379
69	5	37200	9.7661
70	6	3720	0.9766
71	7	371	0.0974
72	8	818	0.2147
73	9	2451	0.6435
74	98	139	0.0365
75	98 - Truck-other	115	0.0302
76	99	65	0.0171
77	99 - Other	16	0.0042

19.2.Allowed Features Values (MVCR-0313)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
00	Unknown
01	Automobile, Station Wagon
02	Motorcycle
03	Moped
04	Passenger Van
05	Pick-up Truck
06	Delivery Van
07	Tow Truck
08	Truck-Open
09	Truck Closed

10	Truck Tank
11	Truck-Dump
12	Truck-Car Carrier
13	Truck-Tractor
14	Municipal Transit Bus
15	Intercity Bus
16	Bus (other)
17	School Bus
18	School Van
19	Other School Vehicle/Bus
20	Motor Home
21	Off-Road Two Wheels
22	Off-Road Three Wheels
23	Off-Road Four Wheels
24	Off-Road Other
25	Motorized Snow Vehicle
26	Farm Tractor
27	Other Farm Vehicle
28	Construction Equipment
29	Railway Train
30	Street Car
31	Snow Plow
32	Ambulance
33	Fire Vehicle
34	Police Vehicle
35	Other Emergency Vehicle
36	Bicycle / eBike
98	Truck-Other
99	Other

19.3.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	00 - Unknown	*None, keep as it is*
2	01 - Automobile, station wagon	*None, keep as it is*
3	02 - Motorcycle	*None, keep as it is*
4	03 - Moped	*None, keep as it is*
5	04 - Passenger van	*None, keep as it is*
6	05 – Pick-up truck	*None, keep as it is*
7	06 - Delivery van	*None, keep as it is*
8	07 - Tow truck	*None, keep as it is*
9	08 – Truck - open	*None, keep as it is*
10	09 – Truck - closed	*None, keep as it is*
11	10 – Truck - tank	*None, keep as it is*
12	11 - Truck - dump	*None, keep as it is*
13	12 – Truck - car carrier	*None, keep as it is*

14	13 – Truck - tractor	*None, keep as it is*
15	14 - Municipal transit bus	*None, keep as it is*
16	15 - Intercity bus	*None, keep as it is*
17	16 - Bus (other)	*None, keep as it is*
18	17 - School bus	*None, keep as it is*
19	18 - School van	*None, keep as it is*
20	19 - Other school vehicle/bus	*None, keep as it is*
21	20 - Motor home	*None, keep as it is*
22	21 - Off-road 2 wheels	*None, keep as it is*
23	23 - Off-road 4 wheels	*None, keep as it is*
24	25 - Motorized snow vehicle	*None, keep as it is*
25	26 - Farm tractor	*None, keep as it is*
26	27 - Other farm vehicle	*None, keep as it is*
27	28 - Construction equipment	*None, keep as it is*
28	31 - Snow plow	*None, keep as it is*
29	32 - Ambulance	*None, keep as it is*
30	33 - Fire vehicle	*None, keep as it is*
31	34 - Police vehicle	*None, keep as it is*
32	35 - Other emergency vehicle	*None, keep as it is*
33	36 - Bicycle	*None, keep as it is*
34	37 – Car and trailer	*None, keep as it is*
35	38 – Truck and trailer	*None, keep as it is*
36	98 - Truck-other	*None, keep as it is*
37	99 - Other	*None, keep as it is*
38	0	00 - Unknown
39	1	01 - Automobile, station wagon
40	2	02 - Motorcycle
41	3	03 - Moped
42	4	04 - Passenger van
43	5	05 – Pick-up truck
44	6	06 - Delivery van
45	7	07 - Tow truck
46	8	08 – Truck - open
47	9	09 – Truck - closed
48	10	10 – Truck - tank
49	11	11 - Truck - dump
50	12	12 – Truck - car carrier
51	13	13 – Truck - tractor
52	14	14 - Municipal transit bus
53	15	15 - Intercity bus
54	16	16 - Bus (other)
55	17	17 - School bus
56	18	18 - School van
57	19	19 - Other school vehicle/bus
58	20	20 - Motor home
59	21	21 - Off-road 2 wheels
60	22	22 - Off-road 3 Wheels
61	23	23 - Off-road 4 wheels
62	24	24 – Off-road other
63	25	25 - Motorized snow vehicle
64	26	26 - Farm tractor

65	27	27 - Other farm vehicle
66	28	28 - Construction equipment
67	29	29 - Railway train
68	31	31 - Snow plow
69	32	32 - Ambulance
70	33	33 - Fire vehicle
71	34	34 - Police vehicle
72	35	35 - Other emergency vehicle
73	36	36 - Bicycle
74	37	37 – Car and trailer
75	38	38 – Truck and trailer
76	98	98 - Truck-other
77	99	99 - Other

20. Vehicle Condition (VEHICLE_CONDITION) – MVCR 0317

20.1.All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	“” (Blank)	10	0.0026
2	0	16248	4.2656
3	00 - Unknown	6794	1.7836
4	01 - No apparent defect	100242	26.3165
5	02 - Service brakes defective	110	0.0289
6	03 - Steering defective	13	0.0034
7	04 - Tire puncture or blowout	56	0.0147
8	05 - Tire tread insufficient	80	0.0210
9	06 - Headlamps defective	2	0.0005
10	07 - Other lamps or reflectors defective	3	0.0008
11	08 - Engine controls defective	8	0.0021
12	09 - Wheels or suspension defective	55	0.0144
13	1	255798	67.1544
14	10	24	0.0063
15	10 - Vision obscured	1	0.0003
16	11	24	0.0063
17	11 - Trailer hitch defective	9	0.0024
18	13	270	0.0709
19	13 - Other	79	0.0207
20	2	376	0.0987
21	3	40	0.0105
22	4	172	0.0452
23	5	151	0.0396
24	6	11	0.0029
25	7	20	0.0053
26	8	49	0.0129
27	9	169	0.0444
28	99 - Defect	96	0.0252

20.2.Allowed Features Values (MVCR-0317)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
00	Unknown
01	No apparent defect
02	Service brakes defectives
03	Steering defective
04	Tire puncture or blowout
05	Tire tread insufficient
06	Headlamps defective

07	Other lamps or reflectors defective
08	Engine control defective
09	Wheels or suspension defective
10	Vision obscured
11	Trailer hitch defective
99	Other

Is important to notice that features values *“” (Blank)*, *“13”*, *“13 - Other”* and “*99 - Defect*” are not allowed values according with the MVCR Manual.

20.3.Special Feature Values to Handle

This feature value will be homologated to “13-Other”	This feature value will be homologated to “13-Other”

A further study analisis is needed in order to handle this feature value.	A further study analisis is needed in order to handle this feature value.

20.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	“” (Blank) (*)	*None, keep as it is (**)*
2	00 - Unknown	*None, keep as it is*
3	01 - No apparent defect	*None, keep as it is*
4	02 – Service brakes defectives	*None, keep as it is*
5	03 – Steering defective	*None, keep as it is*
6	04 - Tire puncture or blowout	*None, keep as it is*
7	05 – Tire tread insufficient	*None, keep as it is*
8	06 - Headlamps defective	*None, keep as it is*
9	07 - Other lamps or reflectors defective	*None, keep as it is*
10	08 – Engine control defective	*None, keep as it is*
11	09 – Wheels or suspension defective	*None, keep as it is*
12	10 – Vision obscured	*None, keep as it is*
13	11 - Trailer hitch defective	*None, keep as it is*
14	13 - Other (*)	*None, keep as it is (*) (**)*
15	99 – Defect (*)	*None, keep as it is (*) (**)*
16	0	00 - Unknown

17	1	01 - No apparent defect
18	2	02 - Service brakes defectives
19	3	03 - Steering defective
20	4	04 - Tire puncture or blowout
21	5	05 - Tire tread insufficient
22	6	06 - Headlamps defective
23	7	07 - Other lamps or reflectors defective
24	8	08 - Engine control defective
25	9	09 - Wheels or suspension defective
26	10	10 - Vision obscured
27	11	11 - Trailer hitch defective
28	13 (*)	13 – Other *(*) (**)*

(*) Not allowed values according with the MVCR Manual.

(**) A strategy to handle this value will be defined later.

21. Driver/ Pedestrian Condition (DRIVER_CONDITION) – MVCR 0319

21.1.All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	0	25771	6.7656
2	00 - Unknown	12247	3.2152
3	01 - Normal	67071	17.6081
4	02 - Had been drinking	379	0.0995
5	03 - Ability impaired, alcohol (over .08)	538	0.1412
6	04 - Ability impaired, alcohol	169	0.0444
7	05 - Ability impaired, drugs	72	0.0189
8	06 - Fatigue	427	0.1121
9	07 - Medical or physical disability	313	0.0822
10	08 - Inattentive	26027	6.8328
11	1	203056	53.3081
12	2	1511	0.3967
13	3	1485	0.3899
14	4	610	0.1601
15	5	114	0.0299
16	6	856	0.2247
17	7	678	0.1780
18	8	38552	10.1210
19	99	719	0.1888
20	99 - Other	315	0.0827

21.2.Allowed Features Values (MVCR-0319)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
00	Unknown
01	Normal
02	Had Been Drinking
03	Ability Impaired, Alcohol (over .08)
04	Ability Impaired, Alcohol
05	Ability impaired, Drugs
06	Fatigue
07	Medical or Physical Disability
08	Hand Held Device(s)
09	Inattentive
99	Other

Is important to notice that feature value *"08 - Inattentive"* is not an allowed value according with the MVCR Manual.

21.3.Special Feature Values to Handle

This feature value will be homologated to "*08 - Hand Held Device*".

21.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	0	00 - Unknown
2	00 - Unknown	*None, keep as it is*
3	01 - Normal	*None, keep as it is*
4	02 - Had been drinking	*None, keep as it is*
5	03 - Ability impaired, alcohol (over .08)	*None, keep as it is*
6	04 - Ability impaired, alcohol	*None, keep as it is*
7	05 - Ability impaired, drugs	*None, keep as it is*
8	06 - Fatigue	*None, keep as it is*
9	07 - Medical or physical disability	*None, keep as it is*
10	08 – Inattentive (*)	08 - Hand Held Device
11	1	01 - Normal
12	2	02 - Had been drinking
13	3	03 - Ability impaired, alcohol (over .08)
14	4	04 - Ability impaired, alcohol
15	5	05 - Ability impaired, drugs
16	6	06 - Fatigue
17	7	07 - Medical or physical disability
18	8	08 - Hand Held Device
19	99	99 - Other
20	99 - Other	*None, keep as it is*

(*) Not allowed values according with the MVCR Manual.

22. Classification of Accident / Collision (CLASSIFICATION_OF_ACCIDENT) – MVCR 0322

22.1.All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	01 - Fatal injury	163	0.0428
2	02 - Non-fatal injury	20765	5.4514
3	03 - P.D. only	86385	22.6786
4	04 - Non-reportable	245	0.0643
5	1	423	0.1110
6	2	54850	14.3997
7	3	215046	56.4559
8	4	3033	0.7963

22.2.Allowed Features Values (MVCR-0322)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
01	Fatal Injury
02	Non-fatal injury
03	P.D. Only
04	Non- Reportable
99	Other

22.3.Special Feature Values to Handle

None.

22.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	01 - Fatal injury	*None, keep as it is*
2	02 - Non-fatal injury	*None, keep as it is*
3	03 - P.D. only	*None, keep as it is*
4	04 - Non-reportable	*None, keep as it is*
5	1	01 - Fatal injury
6	2	02 - Non-fatal injury
7	3	03 - P.D. only
8	4	04 - Non-reportable

23. Initial Direction of Travel (INITIAL_DIRECTION_OF_TRAVEL) – MVCR 0323

23.1.All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	“” (Blank)	3	0.0008
2	0	5581	1.4652
3	00 – Unknown	2059	0.5405
4	01 – North	25979	6.8202
5	02 – South	23892	6.2723
6	03 – East	28397	7.4550
7	04 – West	27228	7.1481
8	1	64030	16.8097
9	2	61436	16.1287
10	3	71177	18.6860
11	4	71128	18.6732

23.2.Allowed Features Values (MVCR-0323)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
01	North
02	South
03	East
04	West

Is important to notice that feature values *“” (Blank), “0”* and *“00 - Unknown”* are not allowed values according with the MVCR Manual.

23.3.Special Feature Values to Handle

A further study analisis is needed in order to handle this feature value.	This feature value will be homologated to “00 - Unknown”
This feature value will be homologated to “00 - Unknown”	

23.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	“” (Blank) (*)	*None, keep as it is (*) (**)*
2	0 (*)	00 - Unknown (*)
3	00 - Unknown (*)	*None, keep as it is* (*)
4	01 - North	*None, keep as it is*
5	02 - South	*None, keep as it is*
6	03 - East	*None, keep as it is*
7	04 - West	*None, keep as it is*
8	1	01 - North
9	2	02 - South
10	3	03 - East
11	4	04 - West

(*) Not allowed values according with the MVCR Manual.

(**) A strategy to handle this value will be defined later.

24. Initial Impact Type (INITIAL_IMPACT_TYPE) – MVCR 0324

24.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	“” (Blank)	1	0.0003
2	01 - Approaching	1807	0.4744
3	02 - Angle	16276	4.2729
4	03 - Rear end	43496	11.4190
5	04 - Sideswipe	15763	4.1382
6	05 - Turning movement	12766	3.3514
7	06 - SMV unattended vehicle	4737	1.2436
8	07 - SMV other	9670	2.5387
9	1	5414	1.4213
10	2	43453	11.4077
11	3	105279	27.6388
12	4	34986	9.1848
13	5	33453	8.7824
14	6	12217	3.2073
15	7	30596	8.0323
16	99	7954	2.0882
17	99 - Other	3042	0.7986

24.2.Allowed Features Values (MVCR-0324)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
01	Approaching
02	Angle
03	Rear End
04	Sideswipe
05	Turning Movement
06	SMV Unattended Vehicle
07	SMV Other
99	Other

Is important to notice that feature value *“” (Blank)* is not allowed values according with the MVCR Manual.

24.3.Special Feature Values to Handle

A further study analisis is needed in order to handle this feature value.

24.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	“” (Blank) (*)	*None, keep as it is (*) (**)*
2	01 - Approaching	*None, keep as it is*
3	02 - Angle	*None, keep as it is*
4	03 - Rear end	*None, keep as it is*
5	04 - Sideswipe	*None, keep as it is*
6	05 - Turning movement	*None, keep as it is*
7	06 - SMV unattended vehicle	*None, keep as it is*
8	07 - SMV other	*None, keep as it is*
9	1	01 - Approaching
10	2	02 - Angle
11	3	03 - Rear end
12	4	04 - Sideswipe
13	5	05 - Turning movement
14	6	06 - SMV unattended vehicle
15	7	07 - SMV other
16	99	99 - Other
17	99 - Other	*None, keep as it is*

(*) Not allowed values according with the MVCR Manual.

25. Vehicle Manoeuvre (VEHICLE_MANEUVER) – MVCR 0325

25.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	“” (Blank)	13	0.0034
2	0	7650	2.0083
3	00 - Unknown	3796	0.9966
4	01 - Going ahead	44652	11.7225
5	02 - Slowing or stopping	12191	3.2005
6	03 - Overtaking	959	0.2518
7	04 - Turning left	12293	3.2273
8	05 - Turning right	7709	2.0238
9	06 - Making “U” turn	684	0.1796
10	07 - Changing lanes	5908	1.5510
11	08 - Merging	474	0.1244
12	09 - Reversing	2607	0.6844
13	1	118964	31.2315
14	10	36723	9.6409
15	10 - Stopped	15485	4.0653
16	11	4	0.0011
17	11 - Parked	15	0.0039
18	12	24	0.0063
19	12 - Disabled	3	0.0008
20	13	1022	0.2683
21	13 - Pulling away from shoulder or curb	431	0.1132
22	14	627	0.1646
23	14 - Pulling onto shoulder or toward curb	225	0.0591
24	2	33241	8.7267
25	3	2843	0.7464
26	4	30930	8.1200
27	5	17691	4.6444
28	6	1785	0.4686
29	7	11981	3.1454
30	8	1998	0.5245
31	9	7446	1.9548
32	99	423	0.1110
33	99 - Other	113	0.0297

25.2.Allowed Features Values (MVCR-0325)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
00	Unknown
01	Going Ahead
02	Slowing or Stopping
03	Overtaking

04	Turning Left
05	Turning Right
06	Making "U" Turn
07	Changing Lines
08	Merging
09	Reversing
10	Stopped
11	Parked
12	Disabled
13	Pulling Away from the Shoulder or Curb
14	Pulling onto Shoulder or toward Curb
99	Other

Is important to notice that feature value *“” (Blank)* is not allowed values according with the MVCR Manual.

25.3.Special Feature Values to Handle

A further study analisis is needed in order to handle this feature value.

25.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	“” (Blank) (*)	*None, keep as it is (*) (**)*
2	0	00 - Unknown
3	00 - Unknown	*None, keep as it is*
4	01 - Going ahead	*None, keep as it is*
5	02 - Slowing or stopping	*None, keep as it is*
6	03 - Overtaking	*None, keep as it is*
7	04 - Turning left	*None, keep as it is*
8	05 - Turning right	*None, keep as it is*
9	06 - Making “U” turn	*None, keep as it is*
10	07 - Changing lanes	*None, keep as it is*
11	08 - Merging	*None, keep as it is*
12	09 - Reversing	*None, keep as it is*
13	1	01 - Going ahead
14	10	10 - Stopped
15	10 - Stopped	*None, keep as it is*
16	11	11 - Parked
17	11 - Parked	*None, keep as it is*
18	12	12 - Disabled
19	12 - Disabled	*None, keep as it is*
20	13	13 - Pulling away from shoulder or curb
21	13 - Pulling away from shoulder or curb	*None, keep as it is*
22	14	14 - Pulling onto shoulder or toward curb
23	14 - Pulling onto shoulder or toward curb	*None, keep as it is*
24	2	02 - Slowing or stopping
25	3	03 - Overtaking
26	4	04 - Turning left
27	5	05 - Turning right
28	6	06 - Making "U" turn
29	7	07 - Changing lines
30	8	08 - Merging
31	9	09 - Reversing
32	99	99 - Other
33	99 - Other	*None, keep as it is*

(*) Not allowed values according with the MVCR Manual.

(**) A strategy to handle this value will be defined later.

26. Vehicle Damage (VEHICLE_DAMAGE) – MVCR 0331

26.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	“” (Blank)	62	0.0163
2	0	20625	5.4147
3	00 - Unknown	7250	1.9033
4	01 – None	6555	1.7209
5	02 – Light	46150	12.1157
6	03 – Moderate	32952	8.6509
7	04 – Severe	11607	3.0472
8	05 – Demolished	2982	0.7829
9	1	19528	5.1267
10	2	111530	29.2799
11	3	80744	21.1977
12	4	33046	8.6755
13	5	7879	2.0685

26.2.Allowed Features Values (MVCR-0331)

The allowed values for this feature are shown in the following table:

Feature Code	Feature Label
01	None
02	Light
03	Moderate
04	Severe
05	Demolished

Is important to notice that feature values *“” (Blank), “0”* and “*00 – Unknown*” are not allowed values according with the MVCR Manual.

26.3.Special Feature Values to Handle

A further study analisis is needed in order to handle this feature value.	This feature value will be homologated to “00 - Unknown”
This feature value will be homologated to “00 - Unknown”	

26.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	“” (Blank) (*)	*None, keep as it is* (*) (**)
2	0 (*)	00 - Unknown (*)
3	00 – Unknown (*)	*None, keep as it is* (*)
4	01 – None	*None, keep as it is*
5	02 – Light	*None, keep as it is*
6	03 – Moderate	*None, keep as it is*
7	04 – Severe	*None, keep as it is*
8	05 – Demolished	*None, keep as it is*
9	1	01 - None
10	2	02 - Light
11	3	03 - Moderate
12	4	04 - Severe
13	5	05 - Demolished

(*) Not allowed values according with the MVCR Manual.

(**) A strategy to handle this value will be defined later.

27. Sequence of Events (SEQUENCE1) – MVCR 0326/0327/0328/0329

27.1.All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	“” (Blank)	1	0.0003
2	0	21	0.0055
3	01 - Other motor vehicle	90076	23.6476
4	02 - Unattended vehicle	4753	1.2478
5	03 - Pedestrian	1299	0.3410
6	04 - Cyclist	1088	0.2856
7	07 - Farm tractor	27	0.0071
8	08 - Animal - domestic	43	0.0113
9	09 - Animal - wild	1763	0.4628
10	1	221297	58.0969
11	2	12041	3.1611
12	20	5950	1.5620
13	20 - Ran off road	1902	0.4993
14	21	11050	2.9009
15	21 - Skidding/sliding	2975	0.7810
16	22	30	0.0079
17	22 - Jackknifing	9	0.0024
18	23	38	0.0100
19	23 - Load spill	7	0.0018
20	24 - Fire/explosion	1	0.0003
21	25 - Submersion	1	0.0003
22	26	219	0.0575
23	26 - Rollover	48	0.0126
24	27	462	0.1213
25	27 - Debris on road	155	0.0407
26	28	677	0.1777
27	28 - Debris falling off vehicle	310	0.0814
28	3	3457	0.9076
29	4	3037	0.7973
30	5	8	0.0021
31	50	96	0.0252
32	50 - Cable guide rail	35	0.0092
33	51	544	0.1428
34	51 - Concrete guide rail	236	0.0620
35	52	309	0.0811
36	52 - Steel guide rail	162	0.0425
37	53	1194	0.3135
38	53 - Pole (utility, power)	462	0.1213
39	54	671	0.1762
40	54 - Pole (sign, parking meter)	274	0.0719
41	55	139	0.0365
42	55 - Fence/noice barrier	46	0.0121
43	56	14	0.0037
44	56 - Culvert	9	0.0024
45	57	40	0.0105
46	57 - Bridge support	17	0.0045

47	58	16	0.0042
48	58 - Rock face	5	0.0013
49	59	421	0.1105
50	59 - Snowbank/drift	224	0.0588
51	6	1	0.0003
52	60	589	0.1546
53	60 - Ditch	270	0.0709
54	61	1997	0.5243
55	61 - Curb	629	0.1651
56	62	26	0.0068
57	62 - Crash cush/end treat.	15	0.0039
58	63	135	0.0354
59	63 - Building or wall	29	0.0076
60	64	2	0.0005
61	65	54	0.0142
62	65 - Construction marker	27	0.0071
63	66	166	0.0436
64	66 - Tree, shrub, stump	57	0.0150
65	67	79	0.0207
66	67 - Fire Hydrant	12	0.0032
67	7	57	0.0150
68	8	230	0.0604
69	9	6912	1.8146
70	97	490	0.1286
71	97 - Other	82	0.0215
72	98	299	0.0785
73	98 - Other	353	0.0927
74	99	584	0.1533
75	99 - Other	156	0.0410

27.2.Allowed Features Values (MVCR-0326/0327/0328/0329)

The allowed values for this feature are shown in the following tables:

27.2.1. MVCR 0327: Movable Objects

Feature Code	Feature Label
01	Other Motor Vehicle
02	Unattended Vehicles
03	Pedestrian
04	Cyclist
05	Railway Train
06	Street Car
07	Farm Tractor
08	Animal - Domestic
09	Animal - Wild
97	Other

27.2.2. MVCR 0328: Other Events

Feature Code	Feature Label
20	Ran off Road
21	Skidding/ Sliding
22	Jackknifing
23	Load Spill
24	Fire/ Explosion
25	Submersion
26	Rollover
27	Debris on the Road
28	Debris Falling Off Vehicle
98	Other

27.2.3. MVCR 0329: Fixed Object

Feature Code	Feature Label
50	Cable Guide Rail
51	Concrete Guide Rail
52	Steel Guide Rail
53	Pole (Utility, Tower)
54	Pole (Sign, Parking Meter)
55	Fence/Noise Barrier
56	Culvert
57	Bridge Support
58	Rock Face
59	Snowbank/drift
60	Ditch
61	Curb
62	Crash Cushion/End treatment
63	Building or Walls
64	Watercourse
65	Construction Marker
66	Tree, Shrub, Stump
99	Other

Is important to notice that feature values *“” (Blank), “0”*, *“67”* and *“67 – Fire Hydrant”* are not allowed values according with the MVCR Manual.

27.3.Special Feature Values to Handle

A further study analisis is needed in order to handle this feature value.

This feature value will be homologated to “00 - Unknown”

This feature value will be homologated to “67 – Fire Hydrant”

This feature value will be homologated to “67 – Fire Hydrant”

27.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	“” (Blank) (*)	*None, keep as it is (*) (**)*
2	0 (*)	00 - Unknown (*)
3	01 - Other motor vehicle	*None, keep as it is*
4	02 - Unattended vehicle	*None, keep as it is*
5	03 - Pedestrian	*None, keep as it is*
6	04 - Cyclist	*None, keep as it is*
7	07 - Farm tractor	*None, keep as it is*
8	08 - Animal - domestic	*None, keep as it is*
9	09 - Animal - wild	*None, keep as it is*
10	1	01 - Other motor vehicle
11	2	02 - Unattended vehicle
12	20	20 - Ran off road
13	20 - Ran off road	*None, keep as it is*
14	21	21 - Skidding/sliding
15	21 - Skidding/sliding	*None, keep as it is*
16	22	22 - Jackknifing
17	22 - Jackknifing	*None, keep as it is*
18	23	23 - Load spill
19	23 - Load spill	*None, keep as it is*
20	24 - Fire/explosion	*None, keep as it is*
21	25 - Submersion	*None, keep as it is*
22	26	26 - Rollover
23	26 - Rollover	*None, keep as it is*
24	27	27 - Debris on road
25	27 - Debris on road	*None, keep as it is*
26	28	28 - Debris falling off vehicle
27	28 - Debris falling off vehicle	*None, keep as it is*
28	3	03 - Pedestrian
29	4	04 - Cyclist
30	5	05 - Railway Train
31	50	50 - Cable guide rail
32	50 - Cable guide rail	*None, keep as it is*
33	51	51 - Concrete guide rail
34	51 - Concrete guide rail	*None, keep as it is*
35	52	52 - Steel guide rail
36	52 - Steel guide rail	*None, keep as it is*
37	53	53 - Pole (utility, power)
38	53 - Pole (utility, power)	*None, keep as it is*
39	54	54 - Pole (sign, parking meter)
40	54 - Pole (sign, parking meter)	*None, keep as it is*
41	55	55 - Fence/noice barrier
42	55 - Fence/noice barrier	*None, keep as it is*
43	56	56 - Culvert
44	56 - Culvert	*None, keep as it is*

45	57	57 - Bridge support
46	57 - Bridge support	*None, keep as it is*
47	58	58 - Rock face
48	58 - Rock face	*None, keep as it is*
49	59	59 - Snowbank/drift
50	59 - Snowbank/drift	*None, keep as it is*
51	6	06 - Street Car
52	60	60 - Ditch
53	60 - Ditch	*None, keep as it is*
54	61	61 - Curb
55	61 - Curb	*None, keep as it is*
56	62	62 - Crash cush/end treat.
57	62 - Crash cush/end treat.	*None, keep as it is*
58	63	63 - Building or wall
59	63 - Building or wall	*None, keep as it is*
60	64	64 - Watercourse
61	65	65 - Construction marker
62	65 - Construction marker	*None, keep as it is*
63	66	66 - Tree, shrub, stump
64	66 - Tree, shrub, stump	*None, keep as it is*
65	67 (*)	67 - Fire Hydrant (*)
66	67 - Fire Hydrant (*)	*None, keep as it is (*)*
67	7	07 - Farm tractor
68	8	08 - Animal - domestic
69	9	09 - Animal - wild
70	97	97 - Other
71	97 - Other	*None, keep as it is*
72	98	98 - Other
73	98 - Other	*None, keep as it is*
74	99	99 - Other
75	99 - Other	*None, keep as it is*

(*) Not allowed values according with the MVCR Manual.

(**) A strategy to handle this value will be defined later.

28. Sequence of Events (SEQUENCE2) – MVCR 0326/0327/0328/0329

28.1.All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	“” (Blank)	94864	24.9046
2	-1	235146	61.7327
3	0	5	0.0013
4	01 - Other motor vehicle	5460	1.4334
5	02 - Unattended vehicle	190	0.0499
6	03 - Pedestrian	78	0.0205
7	04 - Cyclist	5	0.0013
8	08 - Animal - domestic	1	0.0003
9	09 - Animal - wild	6	0.0016
10	1	15413	4.0464
11	2	636	0.1670
12	20	3078	0.8081
13	20 - Ran off road	837	0.2197
14	21	2360	0.6196
15	21 - Skidding/sliding	505	0.1326
16	22	34	0.0089
17	22 - Jackknifing	15	0.0039
18	23	12	0.0032
19	23 - Load spill	5	0.0013
20	24	12	0.0032
21	24 - Fire/explosion	7	0.0018
22	25	5	0.0013
23	25 - Submersion	3	0.0008
24	26	1379	0.3620
25	26 - Rollover	407	0.1068
26	27	51	0.0134
27	27 - Debris on road	8	0.0021
28	28	69	0.0181
29	28 - Debris falling off vehicle	2	0.0005
30	3	233	0.0612
31	4	30	0.0079
32	5	3	0.0008
33	50	304	0.0798
34	50 - Cable guide rail	79	0.0207
35	51	1645	0.4319
36	51 - Concrete guide rail	537	0.1410
37	52	752	0.1974
38	52 - Steel guide rail	314	0.0824
39	53	1892	0.4967
40	53 - Pole (utility, power)	747	0.1961
41	54	1451	0.3809
42	54 - Pole (sign, parking meter)	501	0.1315
43	55	481	0.1263
44	55 - Fence/noice barrier	141	0.0370
45	56	109	0.0286
46	56 - Culvert	26	0.0068
47	57	30	0.0079

48	57 - Bridge support	15	0.0039
49	58	94	0.0247
50	58 - Rock face	23	0.0060
51	59	966	0.2536
52	59 - Snowbank/drift	468	0.1229
53	6	1	0.0003
54	60	3398	0.8921
55	60 - Ditch	1204	0.3161
56	61	2304	0.6049
57	61 - Curb	656	0.1722
58	62	41	0.0108
59	62 - Crash cush/end treat.	10	0.0026
60	63	241	0.0633
61	63 - Building or wall	61	0.0160
62	64	9	0.0024
63	64 - Water course	2	0.0005
64	65	30	0.0079
65	65 - Construction marker	11	0.0029
66	66	682	0.1790
67	66 - Tree, shrub, stump	236	0.0620
68	67	94	0.0247
69	67 - Fire Hydrant	27	0.0071
70	7	3	0.0008
71	8	7	0.0018
72	9	28	0.0074
73	97	36	0.0095
74	97 - Other	9	0.0024
75	98	28	0.0074
76	98 - Other	12	0.0032
77	99	260	0.0683
78	99 - Other	86	0.0226

28.2.Allowed Features Values (MVCR-0326/0327/0328/0329)

The allowed values for this feature are the same of SEQUENCE1.

Is important to notice that feature values *“” (Blank), “-1”, “0”*, “*67*” and *“67 – Fire Hydrant”* are not allowed values according with the MVCR Manual.

28.3.Special Feature Values to Handle

A further study analisis is needed in order to handle this feature value.	This feature value will be homologated to “00 - Unknown”
This feature value will be homologated to “67 – Fire Hydrant”	This feature value will be homologated to “67 – Fire Hydrant”

A further study analisis is needed in order to handle this feature value.	

28.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	“” (Blank) (*)	*None, keep as it is (*) (**)*
2	-1 (*)	*None, keep as it is (*) (**)*
3	0 (*)	00 – Unknown (*)
4	01 - Other motor vehicle	*None, keep as it is*
5	02 - Unattended vehicle	*None, keep as it is*
6	03 - Pedestrian	*None, keep as it is*
7	04 - Cyclist	*None, keep as it is*
8	08 - Animal - domestic	*None, keep as it is*
9	09 - Animal - wild	*None, keep as it is*
10	1	01 - Other motor vehicle
11	2	02 - Unattended vehicle
12	20	20 - Ran off road
13	20 - Ran off road	*None, keep as it is*
14	21	21 - Skidding/sliding
15	21 - Skidding/sliding	*None, keep as it is*
16	22	22 - Jackknifing
17	22 - Jackknifing	*None, keep as it is*
18	23	23 - Load spill

19	23 - Load spill	*None, keep as it is*
20	24	24 - Fire/explosion
21	24 - Fire/explosion	*None, keep as it is*
22	25	25 - Submersion
23	25 - Submersion	*None, keep as it is*
24	26	26 - Rollover
25	26 - Rollover	*None, keep as it is*
26	27	27 - Debris on road
27	27 - Debris on road	*None, keep as it is*
28	28	28 - Debris falling off vehicle
29	28 - Debris falling off vehicle	*None, keep as it is*
30	3	03 - Pedestrian
31	4	04 - Cyclist
32	5	05 - Railway Train
33	50	50 - Cable guide rail
34	50 - Cable guide rail	*None, keep as it is*
35	51	51 - Concrete guide rail
36	51 - Concrete guide rail	*None, keep as it is*
37	52	52 - Steel guide rail
38	52 - Steel guide rail	*None, keep as it is*
39	53	53 - Pole (utility, power)
40	53 - Pole (utility, power)	*None, keep as it is*
41	54	54 - Pole (sign, parking meter)
42	54 - Pole (sign, parking meter)	*None, keep as it is*
43	55	55 - Fence/noice barrier
44	55 - Fence/noice barrier	*None, keep as it is*
45	56	56 - Culvert
46	56 - Culvert	*None, keep as it is*
47	57	57 - Bridge support
48	57 - Bridge support	*None, keep as it is*
49	58	58 - Rock face
50	58 - Rock face	*None, keep as it is*
51	59	59 - Snowbank/drift
52	59 - Snowbank/drift	*None, keep as it is*
53	6	06 - Street Car
54	60	60 - Ditch
55	60 - Ditch	*None, keep as it is*
56	61	61 - Curb
57	61 - Curb	*None, keep as it is*
58	62	62 - Crash cush/end treat.
59	62 - Crash cush/end treat.	*None, keep as it is*
60	63	63 - Building or wall
61	63 - Building or wall	*None, keep as it is*
62	64	64 - Water course
63	64 - Water course	*None, keep as it is*
64	65	65 - Construction marker
65	65 - Construction marker	*None, keep as it is*
66	66	66 - Tree, shrub, stump
67	66 - Tree, shrub, stump	*None, keep as it is*
68	67 (*)	67 - Fire Hydrant (*)
69	67 - Fire Hydrant (*)	*None, keep as it is* (*)

70	7	07 - Farm tractor
71	8	08 - Animal - domestic
72	9	09 - Animal - wild
73	97	97 – Other
74	97 - Other	*None, keep as it is*
75	98	98 - Other
76	98 - Other	*None, keep as it is*
77	99	99 - Other
78	99 - Other	*None, keep as it is*

(*) Not allowed values according with the MVCR Manual.

(**) A strategy to handle this value will be defined later.

29. Sequence of Events (SEQUENCE3) – MVCR 0326/0327/0328/0329

29.1.All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	“” (Blank)	104331	27.3899
2	-1	262716	68.9706
3	0	2	0.0005
4	01 - Other motor vehicle	397	0.1042
5	02 - Unattended vehicle	69	0.0181
6	03 - Pedestrian	21	0.0055
7	05 - Railway train	1	0.0003
8	1	1350	0.3544
9	2	209	0.0549
10	20	296	0.0777
11	20 - Ran off road	63	0.0165
12	21	132	0.0347
13	21 - Skidding/sliding	21	0.0055
14	22	5	0.0013
15	22 - Jackknifing	1	0.0003
16	23	6	0.0016
17	23 - Load spill	3	0.0008
18	24	13	0.0034
19	24 - Fire/explosion	7	0.0018
20	25	13	0.0034
21	25 - Submersion	3	0.0008
22	26	1486	0.3901
23	26 - Rollover	498	0.1307
24	27	13	0.0034
25	27 - Debris on road	2	0.0005
26	28	16	0.0042
27	28 - Debris falling off vehicle	5	0.0013
28	3	65	0.0171
29	4	12	0.0032
30	5	2	0.0005
31	50	84	0.0221
32	50 - Cable guide rail	32	0.0084
33	51	487	0.1279
34	51 - Concrete guide rail	139	0.0365
35	52	219	0.0575
36	52 - Steel guide rail	81	0.0213
37	53	956	0.2510
38	53 - Pole (utility, power)	280	0.0735
39	54	549	0.1441
40	54 - Pole (sign, parking meter)	173	0.0454
41	55	459	0.1205
42	55 - Fence/noice barrier	111	0.0291
43	56	82	0.0215
44	56 - Culvert	34	0.0089
45	57	17	0.0045
46	57 - Bridge support	10	0.0026
47	58	69	0.0181

48	58 - Rock face	14	0.0037
49	59	324	0.0851
50	59 - Snowbank/drift	147	0.0386
51	6	1	0.0003
52	60	2138	0.5613
53	60 - Ditch	588	0.1544
54	61	398	0.1045
55	61 - Curb	125	0.0328
56	62	15	0.0039
57	62 - Crash cush/end treat.	4	0.0011
58	63	210	0.0551
59	63 - Building or wall	65	0.0171
60	64	8	0.0021
61	64 - Water course	6	0.0016
62	65	6	0.0016
63	65 - Construction marker	1	0.0003
64	66	751	0.1972
65	66 - Tree, shrub, stump	238	0.0625
66	67	56	0.0147
67	67 - Fire Hydrant	18	0.0047
68	7	1	0.0003
69	8	1	0.0003
70	9	3	0.0008
71	97	17	0.0045
72	97 - Other	3	0.0008
73	98	7	0.0018
74	98 - Other	4	0.0011
75	99	158	0.0415
76	99 - Other	63	0.0165

29.2.Allowed Features Values (MVCR-0326/0327/0328/0329)

The allowed values for this feature are the same of SEQUENCE1.

Is important to notice that feature values *“” (Blank), “-1”, “0”*, “*67*” and *“67 – Fire Hydrant”* are not allowed values according with the MVCR Manual.

29.3.Special Feature Values to Handle

A further study analisis is needed in order to handle this feature value.	This feature value will be homologated to “00 - Unknown”
This feature value will be homologated to “67 – Fire Hydrant”	This feature value will be homologated to “67 – Fire Hydrant”

A further study analisis is needed in order to handle this feature value.	

29.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	“” (Blank) (*)	*None, keep as it is (*) (**)*
2	-1 (*)	*None, keep as it is (*) (**)*
3	0 (*)	00 – Unknown (*)
4	01 - Other motor vehicle	*None, keep as it is*
5	02 - Unattended vehicle	*None, keep as it is*
6	03 - Pedestrian	*None, keep as it is*
7	04 - Cyclist	*None, keep as it is*
8	08 - Animal - domestic	*None, keep as it is*
9	09 - Animal - wild	*None, keep as it is*
10	1	01 - Other motor vehicle
11	2	02 - Unattended vehicle
12	20	20 - Ran off road
13	20 - Ran off road	*None, keep as it is*
14	21	21 - Skidding/sliding
15	21 - Skidding/sliding	*None, keep as it is*
16	22	22 - Jackknifing
17	22 - Jackknifing	*None, keep as it is*
18	23	23 - Load spill

19	23 - Load spill	*None, keep as it is*
20	24	24 - Fire/explosion
21	24 - Fire/explosion	*None, keep as it is*
22	25	25 - Submersion
23	25 - Submersion	*None, keep as it is*
24	26	26 - Rollover
25	26 - Rollover	*None, keep as it is*
26	27	27 - Debris on road
27	27 - Debris on road	*None, keep as it is*
28	28	28 - Debris falling off vehicle
29	28 - Debris falling off vehicle	*None, keep as it is*
30	3	03 - Pedestrian
31	4	04 - Cyclist
32	5	05 - Railway Train
33	50	50 - Cable guide rail
34	50 - Cable guide rail	*None, keep as it is*
35	51	51 - Concrete guide rail
36	51 - Concrete guide rail	*None, keep as it is*
37	52	52 - Steel guide rail
38	52 - Steel guide rail	*None, keep as it is*
39	53	53 - Pole (utility, power)
40	53 - Pole (utility, power)	*None, keep as it is*
41	54	54 - Pole (sign, parking meter)
42	54 - Pole (sign, parking meter)	*None, keep as it is*
43	55	55 - Fence/noice barrier
44	55 - Fence/noice barrier	*None, keep as it is*
45	56	56 - Culvert
46	56 - Culvert	*None, keep as it is*
47	57	57 - Bridge support
48	57 - Bridge support	*None, keep as it is*
49	58	58 - Rock face
50	58 - Rock face	*None, keep as it is*
51	59	59 - Snowbank/drift
52	59 - Snowbank/drift	*None, keep as it is*
53	6	06 - Street Car
54	60	60 - Ditch
55	60 - Ditch	*None, keep as it is*
56	61	61 - Curb
57	61 - Curb	*None, keep as it is*
58	62	62 - Crash cush/end treat.
59	62 - Crash cush/end treat.	*None, keep as it is*
60	63	63 - Building or wall
61	63 - Building or wall	*None, keep as it is*
62	64	64 - Water course
63	64 - Water course	*None, keep as it is*
64	65	65 - Construction marker
65	65 - Construction marker	*None, keep as it is*
66	66	66 - Tree, shrub, stump
67	66 - Tree, shrub, stump	*None, keep as it is*
68	67 (*)	67 - Fire Hydrant (*)
69	67 - Fire Hydrant (*)	*None, keep as it is* (*)

70	7	07 - Farm tractor
71	8	08 - Animal - domestic
72	9	09 - Animal - wild
73	97	97 – Other
74	97 - Other	*None, keep as it is*
75	98	98 - Other
76	98 - Other	*None, keep as it is*
77	99	99 - Other
78	99 - Other	*None, keep as it is*

(*) Not allowed values according with the MVCR Manual.

(**) A strategy to handle this value will be defined later.

30. Offset1 (OFFSET1) – MVCR 0330

30.1.All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	“” (Blank)	105238	27.6280
2	-1	259189	68.0447
3	0	6598	1.7322
4	01 - Less than 3.1m (Left)	1189	0.3121
5	02 - 3.1m to 6.0m (Left)	132	0.0347
6	03 - 6.1m to 9.0m (Left)	35	0.0092
7	04 - Greater than 9.0m (Left)	25	0.0066
8	05 - Less than 3.1m (Right)	791	0.2077
9	06 - 3.1m to 6.0m (Right)	102	0.0268
10	07 - 6.1m to 9.0m (Right)	23	0.0060
11	08 - Greater than 9.0m (Right)	23	0.0060
12	1	3997	1.0493
13	2	755	0.1982
14	3	247	0.0648
15	4	165	0.0433
16	5	1806	0.4741
17	6	366	0.0961
18	7	77	0.0202
19	8	152	0.0399

30.2.Allowed Features Values (MVCR-0330)

Feature Code	Feature Label
01	Less than 3.1m
02	3.1m to 6.0m
03	6.1m to 9.0m
04	Greater than 9.0m
05	Less than 3.1m
06	3.1m to 6.0m
07	6.1m to 9.0m
08	Greater than 9.0m

Is important to notice that feature values *“” (Blank), “-1”* and “*0*” are not allowed values according with the MVCR Manual.

30.3.Special Feature Values to Handle

A further study analisis is needed in order to handle this feature value.	This feature value will be homologated to “00 - Unknown”
A further study analisis is needed in order to handle this feature value.	

30.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	“” (Blank) (*)	*None, keep as it is (*) (**)*
2	-1 (*)	*None, keep as it is (*) (**)*
3	0 (*)	00 - Unknown (*)
4	01 - Less than 3.1m (Left)	*None, keep as it is*
5	02 - 3.1m to 6.0m (Left)	*None, keep as it is*
6	03 - 6.1m to 9.0m (Left)	*None, keep as it is*
7	04 - Greater than 9.0m (Left)	*None, keep as it is*
8	05 - Less than 3.1m (Right)	*None, keep as it is*
9	06 - 3.1m to 6.0m (Right)	*None, keep as it is*
10	07 - 6.1m to 9.0m (Right)	*None, keep as it is*
11	08 - Greater than 9.0m (Right)	*None, keep as it is*
12	1	01 - Less than 3.1m (Left)
13	2	02 - 3.1m to 6.0m (Left)
14	3	03 - 6.1m to 9.0m (Left)
15	4	04 - Greater than 9.0m (Left)
16	5	05 - Less than 3.1m (Right)
17	6	06 - 3.1m to 6.0m (Right)
18	7	07 - 6.1m to 9.0m (Right)
19	8	08 - Greater than 9.0m (Right)

(*) Not allowed values according with the MVCR Manual.

(**) A strategy to handle this value will be defined later.

31. Offset2 (OFFSET2) – MVCR 0330

31.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	“” (Blank)	103026	27.0473
2	-1	260497	68.3881
3	0	3775	0.9910
4	01 - Less than 3.1m (Left)	1769	0.4644
5	02 - 3.1m to 6.0m (Left)	473	0.1242
6	03 - 6.1m to 9.0m (Left)	115	0.0302
7	04 - Greater than 9.0m (Left)	58	0.0152
8	05 - Less than 3.1m (Right)	1495	0.3925
9	06 - 3.1m to 6.0m (Right)	436	0.1145
10	07 - 6.1m to 9.0m (Right)	93	0.0244
11	08 - Greater than 9.0m (Right)	93	0.0244
12	1	3825	1.0042
13	2	1095	0.2875
14	3	346	0.0908
15	4	204	0.0536
16	5	2406	0.6316
17	6	810	0.2126
18	7	204	0.0536
19	8	190	0.0499

31.2.Allowed Features Values (MVCR-0330)

The allowed values for this feature are the same of OFFSET1.

Is important to notice that feature values *“” (Blank), “-1”* and “*0*” are not allowed values according with the MVCR Manual.

31.3.Special Feature Values to Handle

A further study analisis is needed in order to handle this feature value.

This feature value will be homologated to “00 - Unknown”

A further study analisis is needed in order to handle this feature value.

31.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	“” (Blank) (*)	*None, keep as it is (*) (**)*
2	-1 (*)	*None, keep as it is (*) (**)*
3	0 (*)	00 - Unknown (*)
4	01 - Less than 3.1m (Left)	*None, keep as it is*
5	02 - 3.1m to 6.0m (Left)	*None, keep as it is*
6	03 - 6.1m to 9.0m (Left)	*None, keep as it is*
7	04 - Greater than 9.0m (Left)	*None, keep as it is*
8	05 - Less than 3.1m (Right)	*None, keep as it is*
9	06 - 3.1m to 6.0m (Right)	*None, keep as it is*
10	07 - 6.1m to 9.0m (Right)	*None, keep as it is*
11	08 - Greater than 9.0m (Right)	*None, keep as it is*
12	1	01 - Less than 3.1m (Left)
13	2	02 - 3.1m to 6.0m (Left)
14	3	03 - 6.1m to 9.0m (Left)
15	4	04 - Greater than 9.0m (Left)
16	5	05 - Less than 3.1m (Right)
17	6	06 - 3.1m to 6.0m (Right)
18	7	07 - 6.1m to 9.0m (Right)
19	8	08 - Greater than 9.0m (Right)

(*) Not allowed values according with the MVCR Manual.

(**) A strategy to handle this value will be defined later.

32. Offset3 (OFFSET3) – MVCR 0330

32.1. All Features in the Dataset

The following picture shows the feature values for the all dataset:

The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	“” (Blank)	105653	27.7370
2	-1	267759	70.2946
3	0	1257	0.3300
4	01 - Less than 3.1m (Left)	536	0.1407
5	02 - 3.1m to 6.0m (Left)	256	0.0672
6	03 - 6.1m to 9.0m (Left)	107	0.0281
7	04 - Greater than 9.0m (Left)	63	0.0165
8	05 - Less than 3.1m (Right)	503	0.1321
9	06 - 3.1m to 6.0m (Right)	289	0.0759
10	07 - 6.1m to 9.0m (Right)	83	0.0218
11	08 - Greater than 9.0m (Right)	68	0.0179
12	1	1264	0.3318
13	2	665	0.1746
14	3	312	0.0819
15	4	200	0.0525
16	5	885	0.2323
17	6	552	0.1449
18	7	234	0.0614
19	8	224	0.0588

32.2.Allowed Features Values (MVCR-0330)

The allowed values for this feature are the same of OFFSET1.

Is important to notice that feature values *“” (Blank), “-1”* and “*0*” are not allowed values according with the MVCR Manual.

32.3.Special Feature Values to Handle

A further study analisis is needed in order to handle this feature value.	This feature value will be homologated to “00 - Unknown”
A further study analisis is needed in order to handle this feature value.	

32.4.Homologation Transformations

The following table show the homologation transformations to be performed:

Feature Number	Current Feature Value	Feature Transformed Value
1	“” (Blank) (*)	*None, keep as it is (*) (**)*
2	-1 (*)	*None, keep as it is (*) (**)*
3	0 (*)	00 - Unknown (*)
4	01 - Less than 3.1m (Left)	*None, keep as it is*
5	02 - 3.1m to 6.0m (Left)	*None, keep as it is*
6	03 - 6.1m to 9.0m (Left)	*None, keep as it is*
7	04 - Greater than 9.0m (Left)	*None, keep as it is*
8	05 - Less than 3.1m (Right)	*None, keep as it is*
9	06 - 3.1m to 6.0m (Right)	*None, keep as it is*
10	07 - 6.1m to 9.0m (Right)	*None, keep as it is*
11	08 - Greater than 9.0m (Right)	*None, keep as it is*
12	1	01 - Less than 3.1m (Left)
13	2	02 - 3.1m to 6.0m (Left)
14	3	03 - 6.1m to 9.0m (Left)
15	4	04 - Greater than 9.0m (Left)
16	5	05 - Less than 3.1m (Right)
17	6	06 - 3.1m to 6.0m (Right)
18	7	07 - 6.1m to 9.0m (Right)
19	8	08 - Greater than 9.0m (Right)

(*) Not allowed values according with the MVCR Manual.

(**) A strategy to handle this value will be defined later.

Conclusion

This document shows the different homologations to be made to the dataset, in a new document we will define a strategy to handle the special feature values identified.

References

Motor Vehicle Collision Report (MVCR) Manual – April 2011