



Systems and Computer Engineering Department (SYSC)

Ottawa Collision Data Report:

Clean Transformations

Enrique Reverón Yanes

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Ottawa Collision Data Report

About this Document

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Introduction

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

1. Street Location (STREET1)

1.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:

Feature Value	Counter	Percentage
HIGHWAY 417	28217	7.4158
BANK ST	14472	3.8034
BASELINE RD	8555	2.2484
CARLING AVE	8106	2.1304
INNES RD	6338	1.6657
BRONSON AVE	5916	1.5548
MONTREAL RD	5328	1.4003
GREENBANK RD	5191	1.3643
MERIVALE RD	4709	1.2376
ST. LAURENT BLVD	4183	1.0993
PRINCE OF WALES DR	4065	1.0683
HUNT CLUB RD	4026	1.0581
RICHMOND RD	3768	0.9903
FALLOWFIELD RD	3658	0.9614
KING EDWARD AVE	3602	0.9467
WOODROFFE AVE	3486	0.9162
EAGLESON RD	3469	0.9117
BLAIR RD	3226	0.8478
REGIONAL ROAD 174	3092	0.8126
MARCH RD	2839	0.7461
ST. JOSEPH BLVD	2723	0.7156
ALTA VISTA DR	2721	0.7151
RIVERSIDE DR	2569	0.6752
INDUSTRIAL AVE	2469	0.6489
MEADOWLANDS DR	2242	0.5892
JEANNE D'ARC BLVD	2187	0.5748
ALBION RD	2130	0.5598
COLONEL BY DR	2121	0.5574
ELGIN ST	2105	0.5532
ALBERT ST	2094	0.5503
HIGHWAY 416	2058	0.5409
HAZELDEAN RD	2001	0.5259
WALKLEY RD	1984	0.5214
CARP RD	1952	0.5130
WEST HUNT CLUB RD	1931	0.5075
CYRVILLE RD	1905	0.5007
HERON RD	1890	0.4967
LAURIER AVE	1813	0.4765
CATHERINE ST	1745	0.4586
FISHER AVE	1711	0.4497
CONROY RD	1701	0.4470

DONALD ST	1698	0.4463
GLADSTONE AVE	1669	0.4386
RUSSELL RD	1626	0.4273
RIDEAU ST	1608	0.4226
BELFAST RD	1603	0.4213
TENTH LINE RD	1545	0.4060
MCARTHUR AVE	1500	0.3942
HAWTHORNE RD	1496	0.3932
BOOTH ST	1460	0.3837
MOODIE DR	1440	0.3785
COVENTRY RD	1416	0.3721
CAMPEAU DR	1396	0.3669
TERRY FOX DR	1354	0.3558
ISLAND PARK DR	1333	0.3503
REGIONAL RD 174	1298	0.3411
DALHOUSIE ST	1270	0.3338
PARKDALE AVE	1258	0.3306
AIRPORT PKWY	1238	0.3254
KENT ST	1229	0.3230
CARLING AVE WB	1158	0.3043
BEECHWOOD AVE	1154	0.3033
CLYDE AVE	1112	0.2922
LYON ST	1096	0.2880
OGILVIE RD	1079	0.2836
CEDARVIEW RD	1077	0.2830
AVIATION PKWY	1059	0.2783
CASTLEFRANK RD	1033	0.2715
ROBERTSON RD	1021	0.2683
BESSERER ST	982	0.2581
HOLLAND AVE	936	0.2460
STRANDHERD DR	932	0.2449
O'CONNOR ST	931	0.2447
RIVERSIDE DR NB	925	0.2431
CUMBERLAND ST	909	0.2389
PRESTON ST	891	0.2342
BYRON AVE	879	0.2310
KIRKWOOD AVE	874	0.2297
MITCH OWENS RD	871	0.2289
CARLING AVE EB	870	0.2286
CUMMINGS AVE	869	0.2284
ANDERSON RD	826	0.2171
WELLINGTON ST	805	0.2116
BAYSHORE DR	798	0.2097
PINECREST RD	795	0.2089
TRIM RD	783	0.2058
OTTAWA RIVER PKWY	782	0.2055
SMYTH RD	776	0.2039
LANCASTER RD	756	0.1987
REGIONAL RD 174 EB	739	0.1942
MAITLAND AVE	738	0.1940
BAY ST	699	0.1837

SOMERSET ST	689	0.1811
METCALFE ST	685	0.1800
BANTREE ST	680	0.1787
DALY AVE	675	0.1774
DUNROBIN RD	665	0.1748
JOCKVALE RD	654	0.1719
COLONNADE RD	639	0.1679
(Other)	148922	39.1386

1.2. Special Feature Values to Handle

None.

1.3. Clean Transformations

None.

2. Street Location (STREET2)

2.1. All Features in the Dataset

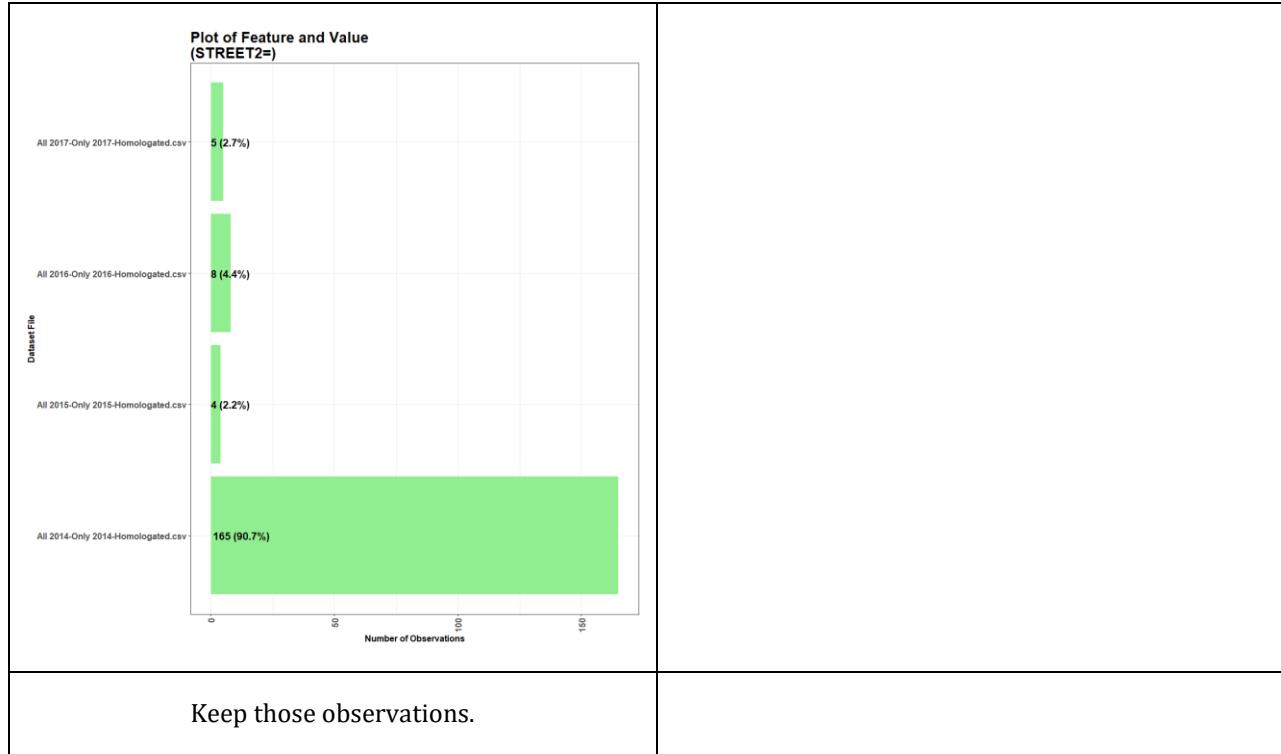
After applying the *Homologation Transformations*, the top feature values are shown in the following table:

Feature Value	Counter	Percentage
WOODROFFE AVE	6904	1.8145
ST. LAURENT BLVD	5764	1.5149
MERIVALE RD	4863	1.2781
WALKLEY RD	4245	1.1156
WEST HUNT CLUB RD	4167	1.0951
RIVERSIDE DR	3885	1.0210
RICHMOND RD	3637	0.9559
BANK ST	3513	0.9233
INNES RD	3482	0.9151
HUNT CLUB RD	3228	0.8484
OGILVIE RD	3024	0.7947
MONTREAL RD	2839	0.7461
GREENBANK RD	2815	0.7398
ST. JOSEPH BLVD	2693	0.7078
CARLING AVE	2641	0.6941
RIDEAU ST	2520	0.6623
PRINCE OF WALES DR	2486	0.6534
TERRY FOX DR	2291	0.6021
TENTH LINE RD	2282	0.5997
HIGHWAY 417	2277	0.5984
HERON RD	2217	0.5827
VANIER PKWY	2174	0.5714
WELLINGTON ST	1799	0.4728
SOMERSET ST	1749	0.4597
JEANNE D'ARC BLVD	1748	0.4594
MARCH RD	1741	0.4576
LAURIER AVE	1696	0.4457
STRANDHERD DR	1681	0.4418
HAZELDEAN RD	1447	0.3803
KENT ST	1441	0.3787
CLYDE AVE	1401	0.3682
METCALFE ST	1381	0.3629
MAITLAND AVE	1280	0.3364
ISLAND PARK DR	1265	0.3325
O'CONNOR ST	1256	0.3301
SMYTH RD	1249	0.3283
BRONSON AVE	1239	0.3256
FALLOWFIELD RD	1213	0.3188
GLADSTONE AVE	1167	0.3067
EAGLESON RD	1160	0.3049
ST. PATRICK ST	1155	0.3035

MEADOWLANDS DR	1081	0.2841
END	1076	0.2828
FISHER AVE	1023	0.2689
RUSSELL RD	1022	0.2686
MOODIE DR	998	0.2623
NICHOLAS ST	997	0.2620
SCOTT ST	947	0.2489
PRESTON ST	944	0.2481
HWY 417 NICHOLA IC118R35	939	0.2468
BASELINE RD	925	0.2431
ELGIN ST	924	0.2428
TRIM RD	912	0.2397
INDUSTRIAL AVE	905	0.2378
SLATER ST	874	0.2297
ORLEANS BLVD	870	0.2286
MITCH OWENS RD	866	0.2276
MCARTHUR AVE	848	0.2229
CUMBERLAND ST	844	0.2218
BLAIR RD RAMP 36	831	0.2184
NAVAHO DR	808	0.2124
HWY 417 CARLING IC124R67	804	0.2113
PARKDALE AVE	804	0.2113
KING EDWARD AVE	803	0.2110
SUSSEX DR	796	0.2092
MAIN ST	795	0.2089
HWY 417 NICHOLA IC118R67	767	0.2016
ALTA VISTA DR	755	0.1984
HWY 417 BRONSO IC121AR16	747	0.1963
BAY ST	746	0.1961
HWY 417 PARKDAL IC122R15	727	0.1911
MURRAY ST	722	0.1898
ROBERTSON RD	703	0.1848
CATHERINE ST	696	0.1829
COVENTRY RD	680	0.1787
COLONEL BY DR	668	0.1756
LEITRIM RD	667	0.1753
OTTAWA RIVER PKWY	656	0.1724
DALHOUSIE ST	647	0.1700
JOHNSTON RD	641	0.1685
SUNNYSIDE AVE	639	0.1679
WALLER ST	633	0.1664
HAWTHORNE RD	607	0.1595
HWY 417 VANIER IC117R26	607	0.1595
KANATA AVE	606	0.1593
STITTSVILLE MAIN ST	602	0.1582
VIEWMOUNT DR	593	0.1558
RIVER RD	580	0.1524
BELFAST RD	570	0.1498
BOOTH ST	567	0.1490
BOURASSA ST	553	0.1453
UPLANDS DR	553	0.1453

CAHILL DR	549	0.1443
CHURCHILL AVE	541	0.1422
HWY 417 METCAL IC119AR75	541	0.1422
CEDARVIEW RD	539	0.1417
HWY 417 PARKDAL IC122R16	538	0.1414
HWY 417 CARLING IC124R55	536	0.1409
ALBION RD	528	0.1388
(Other)	236144	62.0617

2.2. Special Feature Values to Handle



2.3. Clean Transformations

None.

3. Street Location (STREET3)

3.1. All Features in the Dataset

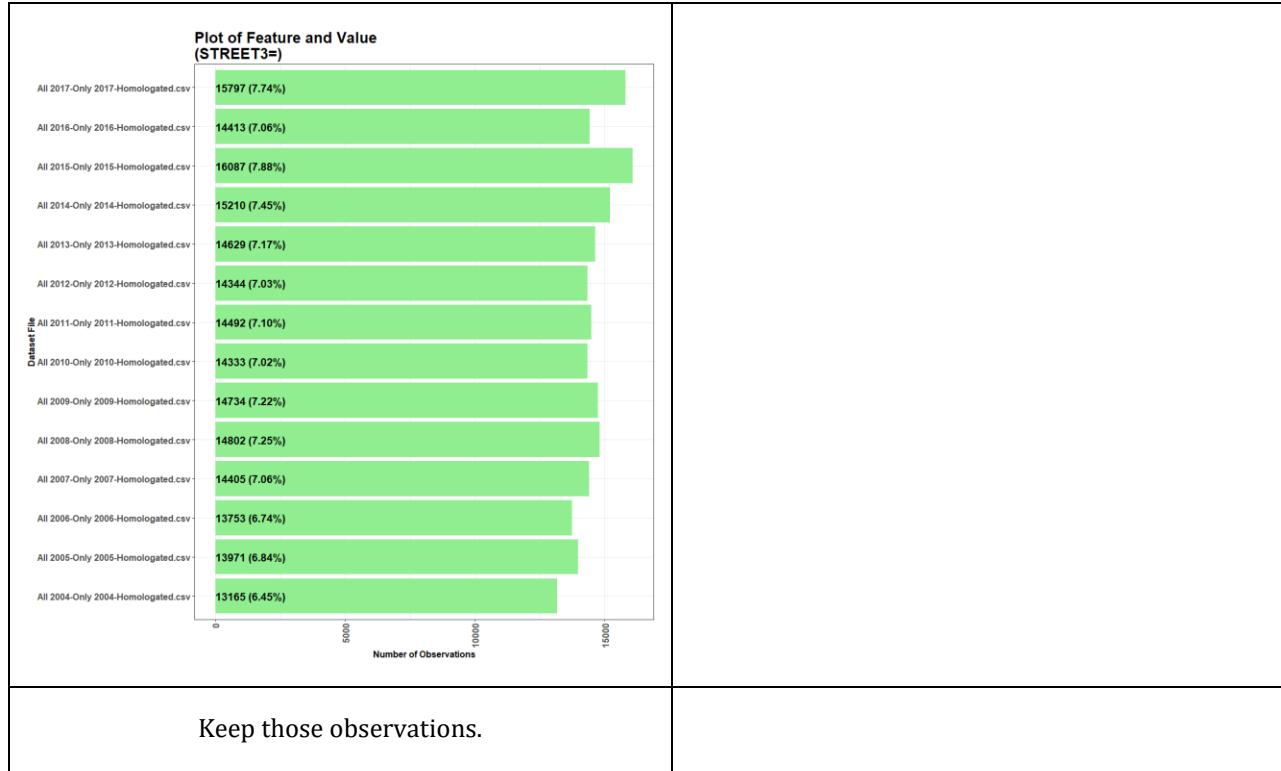
After applying the *Homologation Transformations*, the top feature values are shown in the following table:

Feature Value	Counter	Percentage
"" (Blank)	204135	53.6493
WOODROFFE AVE	1347	0.3540
WEST HUNT CLUB RD	1110	0.2917
TRANSITWAY	1083	0.2846
ST. LAURENT BLVD	1028	0.2702
O'CONNOR ST	969	0.2547
RIVERSIDE DR	967	0.2541
MERIVALE RD	958	0.2518
RUSSELL RD	914	0.2402
HIGHWAY 417	894	0.2350
HWY 417 PARKDAL IC122R51	887	0.2331
END	886	0.2329
HWY 417 VANIER IC117R36	872	0.2292
WALKLEY RD	847	0.2226
HWY 417 RIVERSI IC117R51	814	0.2139
REGIONAL ROAD 174	805	0.2116
INNES RD	751	0.1974
PRINCE OF WALES DR	673	0.1769
RICHMOND RD	671	0.1763
LYON ST	669	0.1758
SUSSEX DR	644	0.1693
TERRY FOX DR	605	0.1590
TREMBLAY RD	598	0.1572
WELLINGTON ST	587	0.1543
HWY 417 NICHOLA IC118R57	575	0.1511
MOODIE DR	569	0.1495
KENT ST	563	0.1480
METCALFE ST	551	0.1448
ST. JOSEPH BLVD	536	0.1409
N/A	532	0.1398
HWY 417 BRONSO IC121AR61	525	0.1380
HWY 417 MOODIE IC134R51	524	0.1377
HWY 417 PARKDAL IC122R61	523	0.1375
INDUSTRIAL AVE	514	0.1351
REGIONAL RD 174	514	0.1351
SOMERSET ST	512	0.1346
STAR TOP RD	512	0.1346
HWY 417 MAITLAN IC126R61	511	0.1343
HWY 417 CARLING IC124R76	510	0.1340
VANIER PKWY	510	0.1340
HWY 417 ROCHE'S IC121BR16	506	0.1330

HWY 417 O'CONN IC119BR57	505	0.1327
RIDEAU RD	504	0.1325
HWY 417 WOODROF IC127R25	476	0.1251
HWY 417 CARLING IC124R57	468	0.1230
HWY 417 ST.LAUR IC115R36	467	0.1227
OTTAWA RIVER PKWY	462	0.1214
MONTREAL RD	458	0.1204
HWY 417 VANIER IC117R61	455	0.1196
HERON RD	443	0.1164
HWY 417 ROCHE'S IC121BR51	434	0.1141
NO NAME	432	0.1135
HWY 417 MOODIE IC134R36	429	0.1127
FALLOWFIELD RD	420	0.1104
TENTH LINE RD	415	0.1091
BANK ST	397	0.1043
HWY 417 BOUNDARY IC96R16	397	0.1043
VIEWMOUNT DR	394	0.1035
MEADOWLANDS DR	393	0.1033
MARCH RD	391	0.1028
KING EDWARD AVE	388	0.1020
PERCY ST	383	0.1007
RIDEAU ST	377	0.0991
HWY 417 WOODROF IC127R51	374	0.0983
OR174 IC112 RAMP 51	371	0.0975
HWY 417 O'CONN IC119BR76	370	0.0972
GREENBANK RD	359	0.0943
HWY 417 ST.LAUR IC115R51	356	0.0936
LANCASTER RD	353	0.0928
ORLEANS BLVD	353	0.0928
HWY 416 ROGERSTE IC49R	351	0.0922
MCARTHUR AVE	346	0.0909
NELSON ST	332	0.0873
HWY 417 WOODROF IC127R67	330	0.0867
STARWOOD RD	328	0.0862
OGILVIE RD	325	0.0854
HUNT CLUB RD	323	0.0849
STRANDHERD DR	317	0.0833
HIGHBURY PARK	308	0.0809
HWY 417 WOODROF IC127R63	304	0.0799
TURN LANE	303	0.0796
SPRATT RD	302	0.0794
YORK ST	301	0.0791
ROCHESTER ST	300	0.0788
MELFORT ST	299	0.0786
NORICE ST	297	0.0781
ELGIN ST	290	0.0762
HWY 417 MOODIE IC134R61	286	0.0752
PARKDALE AVE	284	0.0746
HWY 417 NICHOLA IC118R76	283	0.0744
IRIS ST	276	0.0725
TRANSITWAY ON RAMP	269	0.0707

SUNNYSIDE AVE	267	0.0702
CARLING AVE	265	0.0696
THOMAS A. DOLAN PKWY	265	0.0696
DALHOUSIE ST	263	0.0691
WALLER ST	259	0.0681
HWY 417 GREENBA IC126R51	250	0.0657
PRESTON ST	250	0.0657
(Other)	127201	33.4300

3.2. Special Feature Values to Handle



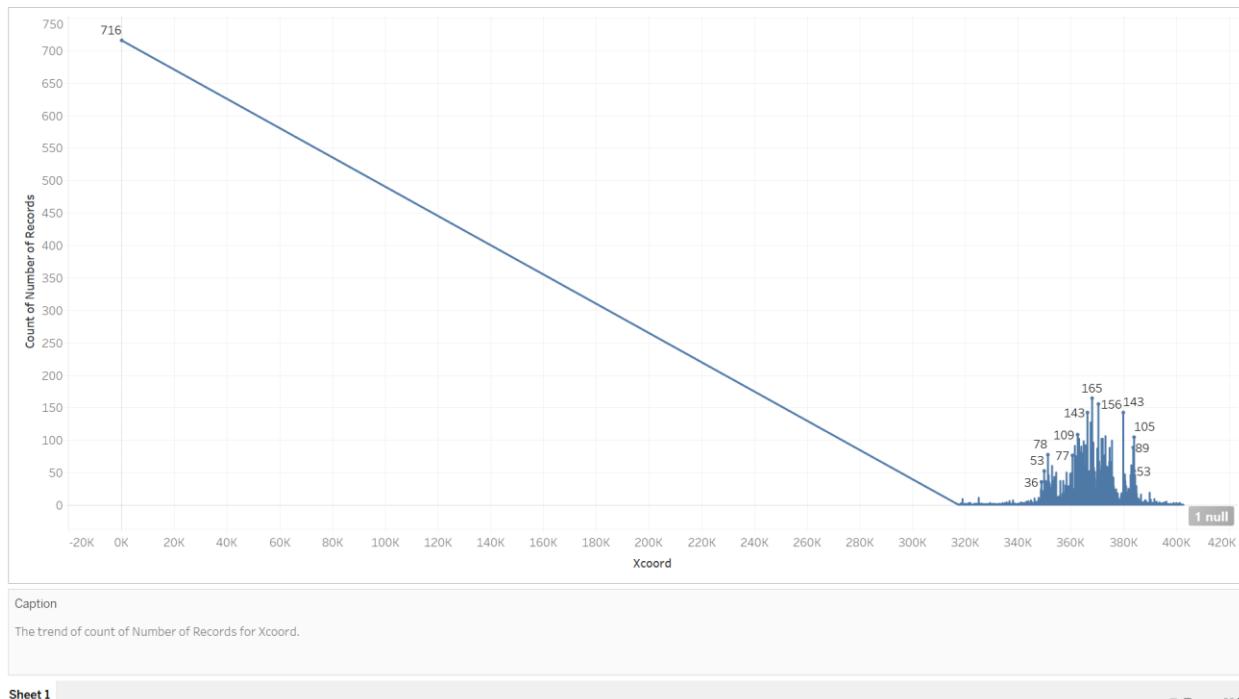
3.3. Clean Transformations

None.

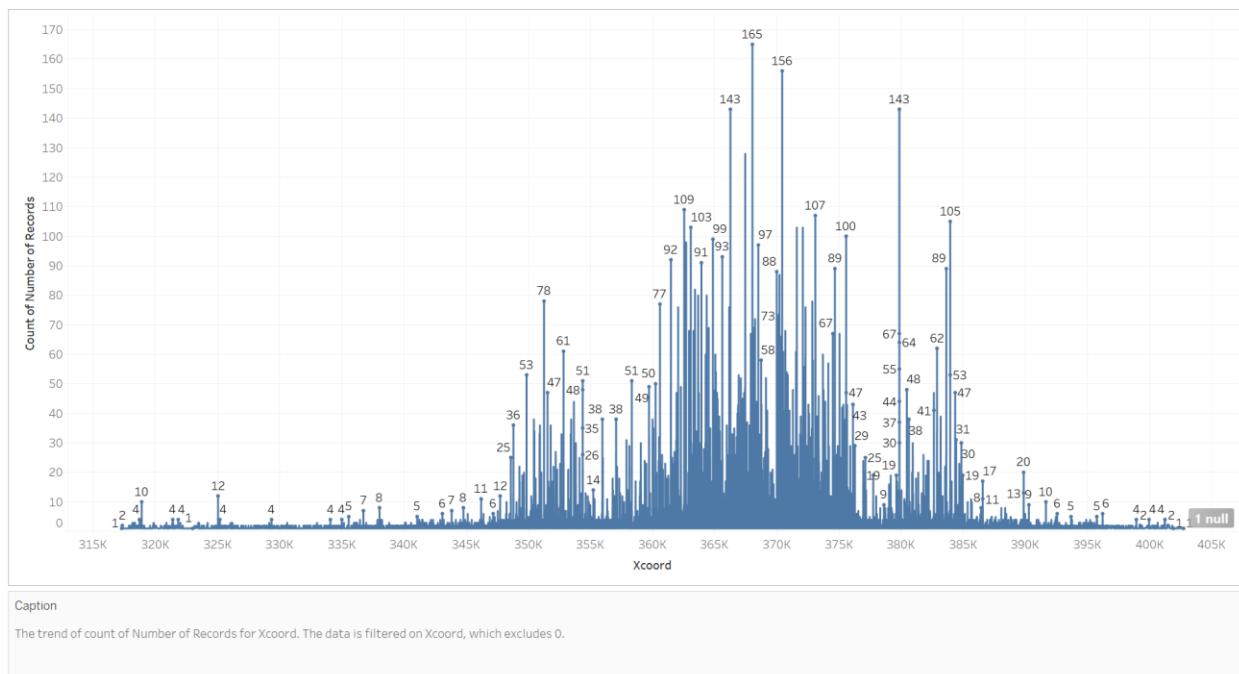
4. Coordinates (XCOORD)

4.1. All Features in the Dataset

5. After applying the *Homologation Transformations*, the top feature values are shown in the following table:



Notice the number of observations with “0” value (716).



Sheet 1

Notice the distribution of the observations without 0 values.

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

Feature Value	Counter	Percentage
0	716	0.1882
368036.703	169	0.0444
370432.7159	160	0.0421
379860.7426	153	0.0402
366264.5929	143	0.0376
367458.7103	134	0.0352
383951.7603	122	0.0321
371608.7365	121	0.0318
373099.7274	119	0.0313
362549.6902	117	0.0307
364858.6999	113	0.0297
363080.6757	112	0.0294
372093.7129	111	0.0292
368511.7072	104	0.0273
369995.72	103	0.0271
362702.6883	102	0.0268
375578.7349	102	0.0268
363933.6839	99	0.0260
365612.6952	99	0.0260
368037.6022	99	0.0260
361479.677	98	0.0258
368035.8037	95	0.0250
372305.7195	95	0.0250
374674.7439	95	0.0250

363669.787	91	0.0239
383640.9751	89	0.0234
351269.718	87	0.0229
370218.705	87	0.0229
360597.6843	86	0.0226
372860.7241	85	0.0223
362548.7909	84	0.0221
364358.7033	84	0.0221
363419.6899	82	0.0216
362061.6866	80	0.0210
367457.811	79	0.0208
366166.6936	78	0.0205
363671.5855	77	0.0202
362942.6979	76	0.0200
368124.6138	75	0.0197
368248.7013	75	0.0197
370072.7098	75	0.0197
370337.852	74	0.0194
382890.8038	74	0.0194
364351.7005	73	0.0192
373110.7142	73	0.0192
375047.7247	73	0.0192
364521.6983	72	0.0189
368038.5015	72	0.0189
368039.4008	71	0.0187
379858.944	71	0.0187
363672.4848	70	0.0184
367907.7075	69	0.0181
371609.6358	69	0.0181
372859.8248	69	0.0181
374147.7258	69	0.0181
374507.7237	69	0.0181
363298.6953	68	0.0179
370684.7186	68	0.0179
371545.7029	67	0.0176
363670.6862	65	0.0171
370311.7131	65	0.0171
370507.7344	65	0.0171
372091.9144	65	0.0171
383950.861	65	0.0171
352841.6249	64	0.0168
363673.3841	64	0.0168
364276.5915	64	0.0168
367459.6095	64	0.0168
368123.7145	64	0.0168
372306.6188	64	0.0168
373705.7232	64	0.0168
379860.7425	64	0.0168
354382.6336	63	0.0166
368125.513	63	0.0166
372092.8136	63	0.0166

372304.8202	63	0.0166
365054.6964	62	0.0163
367948.7099	62	0.0163
372903.7226	62	0.0163
374673.8446	62	0.0163
366167.5928	61	0.0160
370884.7238	61	0.0160
379859.8433	61	0.0160
363079.7765	60	0.0158
367906.8082	60	0.0158
368034.9044	60	0.0158
368739.7072	60	0.0158
373098.8281	60	0.0158
349864.6086	59	0.0155
362282.6921	59	0.0155
364357.804	59	0.0155
368122.8152	59	0.0155
369131.7086	59	0.0155
374506.8244	59	0.0155
354380.8351	58	0.0152
368370.8092	58	0.0152
361480.5763	57	0.0150
362550.5895	57	0.0150
(Other)	343600	90.3025
"" (Blank)	28453	7.4778

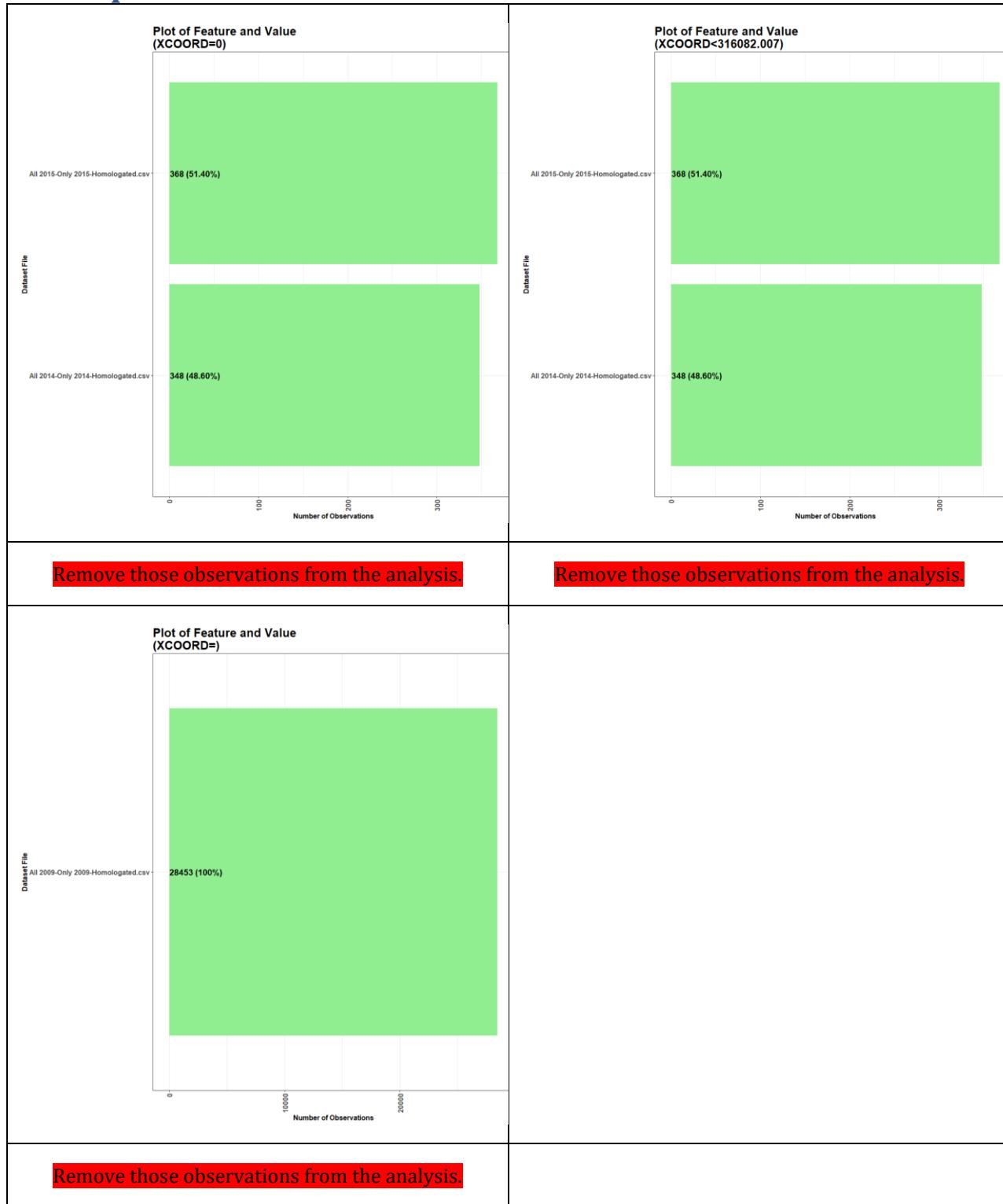
5.1. Allowed Features Values

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.

5.2. Special Feature Values to Handle



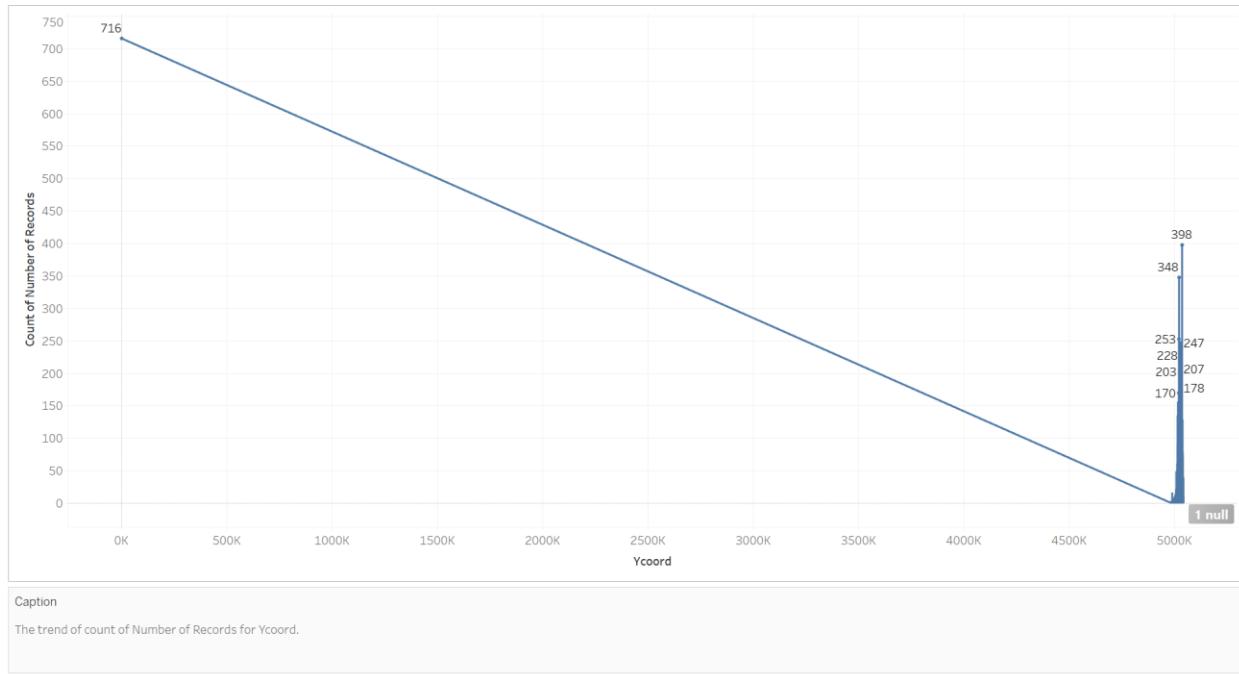
5.3. Clean Transformations

Remove/update observations according with previous section.

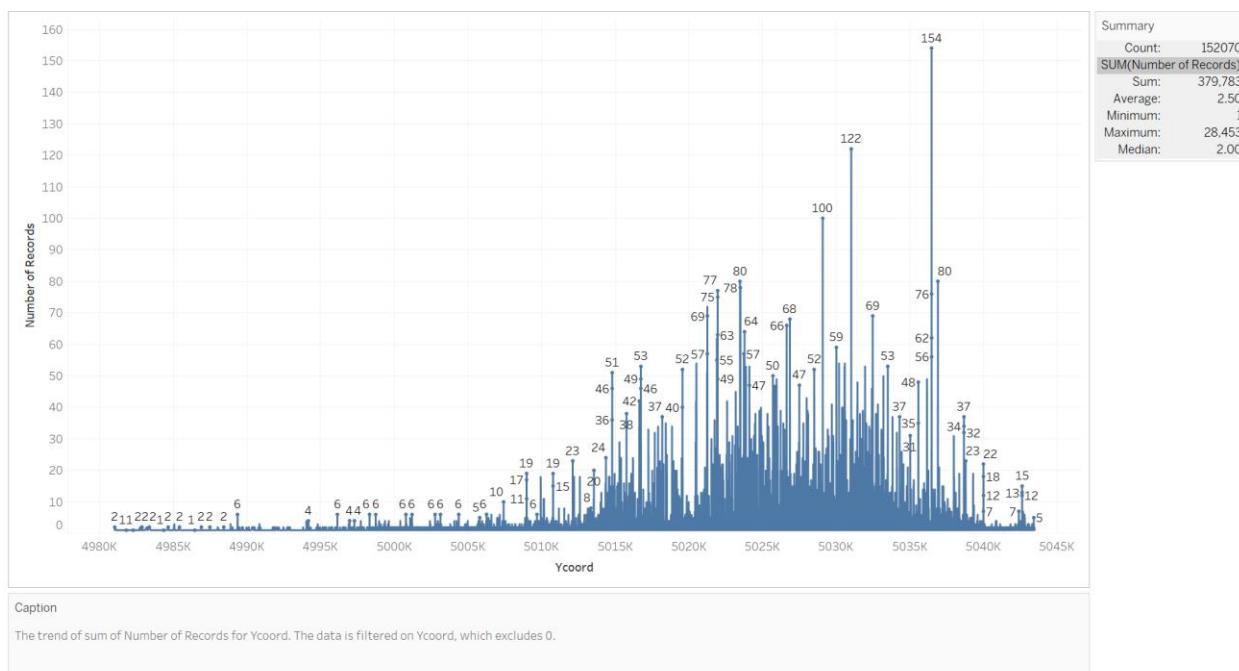
6. Coordinates (YCOORD)

6.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



Notice the number of observations with 0 value (716).



Sheet 1

Notice the distribution of the observations without 0 values.

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

Feature Value	Counter	Percentage
0	716	0.1882
5036471.581	154	0.0405
5031016.344	122	0.0321
5029081.557	100	0.0263
5023465.505	80	0.0210
5036900.456	80	0.0210
5023490.538	78	0.0205
5021946.714	77	0.0202
5036471.986	76	0.0200
5021948.334	75	0.0197
5021947.524	73	0.0192
5021247.706	72	0.0189
5021246.896	69	0.0181
5032475.42	69	0.0181
5026852.757	68	0.0179
5026631.186	66	0.0173
5023774.15	64	0.0168
5021945.904	63	0.0166
5023772.53	63	0.0166
5021892.719	62	0.0163
5036472.796	62	0.0163
5030005.972	59	0.0155
5030006.782	59	0.0155
5021248.516	57	0.0150

5021250.136	57	0.0150
5023725.916	57	0.0150
5036474.416	56	0.0147
5021895.148	55	0.0145
5020502.884	54	0.0142
5030188.97	54	0.0142
5030582.207	54	0.0142
5016735.29	53	0.0139
5021891.909	53	0.0139
5023865.729	53	0.0139
5024100.151	53	0.0139
5030558.785	53	0.0139
5031956.03	53	0.0139
5032477.85	53	0.0139
5033497.429	53	0.0139
5019557.645	52	0.0137
5021949.144	52	0.0137
5028499.947	52	0.0137
5036471.176	52	0.0137
5014788.072	51	0.0134
5020506.124	51	0.0134
5021226.529	51	0.0134
5023773.34	51	0.0134
5026629.566	51	0.0134
5032476.23	51	0.0134
5036473.606	51	0.0134
5021246.086	50	0.0131
5021250.946	50	0.0131
5021950.763	50	0.0131
5025699.176	50	0.0131
5026628.756	50	0.0131
5031954.41	50	0.0131
5033198.98	50	0.0131
5016734.48	49	0.0129
5021943.713	49	0.0129
5021945.094	49	0.0129
5023770.1	49	0.0129
5025949.76	49	0.0129
5030581.397	49	0.0129
5036160.776	49	0.0129
5021949.953	48	0.0126
5031439.96	48	0.0126
5035571.209	48	0.0126
5021245.276	47	0.0124
5023769.29	47	0.0124
5024099.341	47	0.0124
5024100.961	47	0.0124
5025830.528	47	0.0124
5025948.95	47	0.0124
5025952.19	47	0.0124
5027493.939	47	0.0124

5028499.137	47	0.0124
5033499.858	47	0.0124
5014789.692	46	0.0121
5016732.861	46	0.0121
5021891.099	46	0.0121
5021894.338	46	0.0121
5023771.72	46	0.0121
5026630.376	46	0.0121
5030010.022	46	0.0121
5030192.209	46	0.0121
5032416.424	46	0.0121
5033200.6	46	0.0121
5021942.904	45	0.0118
5023171.237	45	0.0118
5024097.721	45	0.0118
5024101.961	45	0.0118
5030578.967	45	0.0118
5030583.017	45	0.0118
5032472.99	45	0.0118
5036163.206	45	0.0118
5036476.036	45	0.0118
5021893.528	44	0.0116
5023727.536	44	0.0116
(Other)	345946	90.9190
"" (Blank)	28453	7.4778

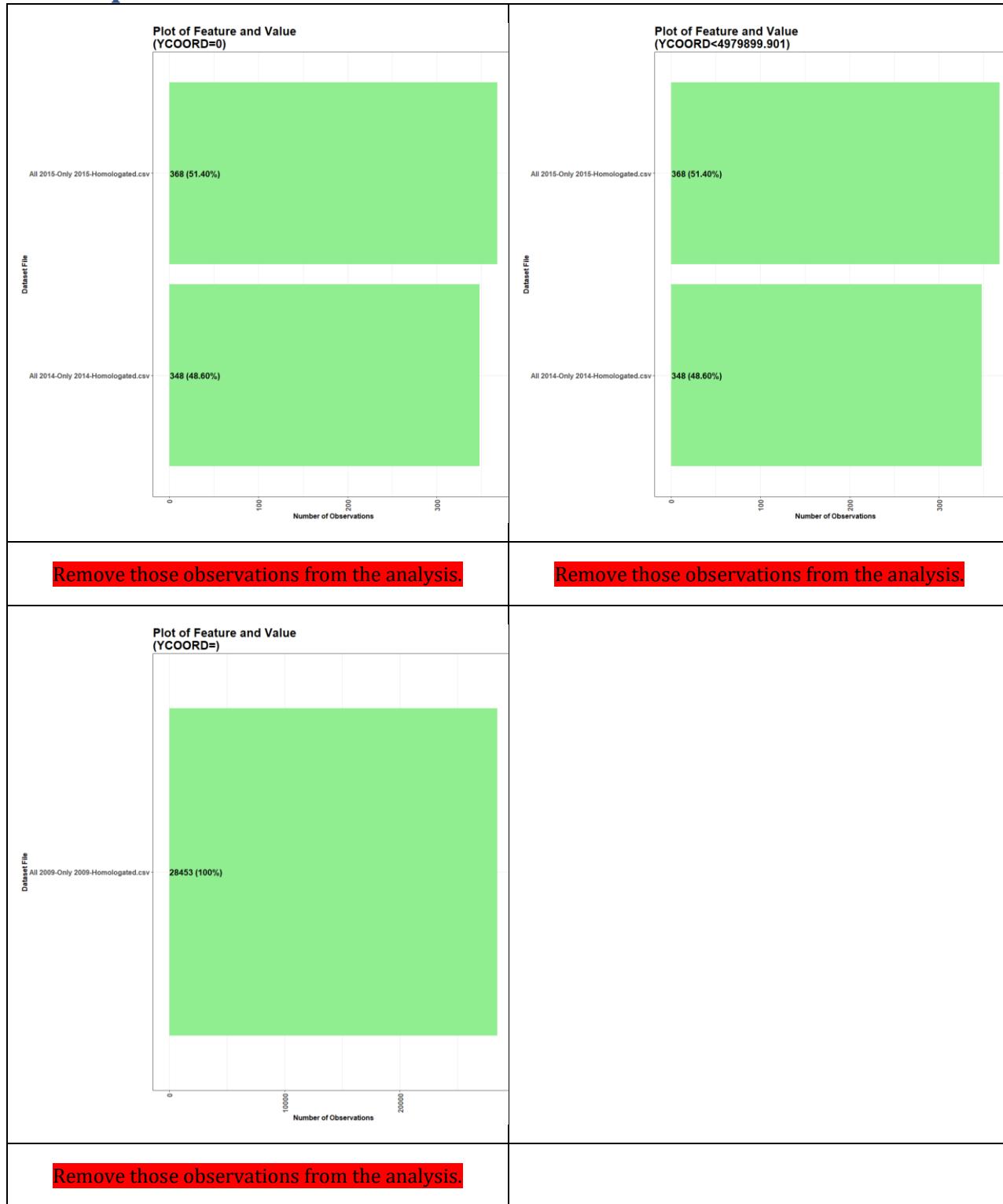
6.2. Allowed Features Values

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.

6.3. Special Feature Values to Handle



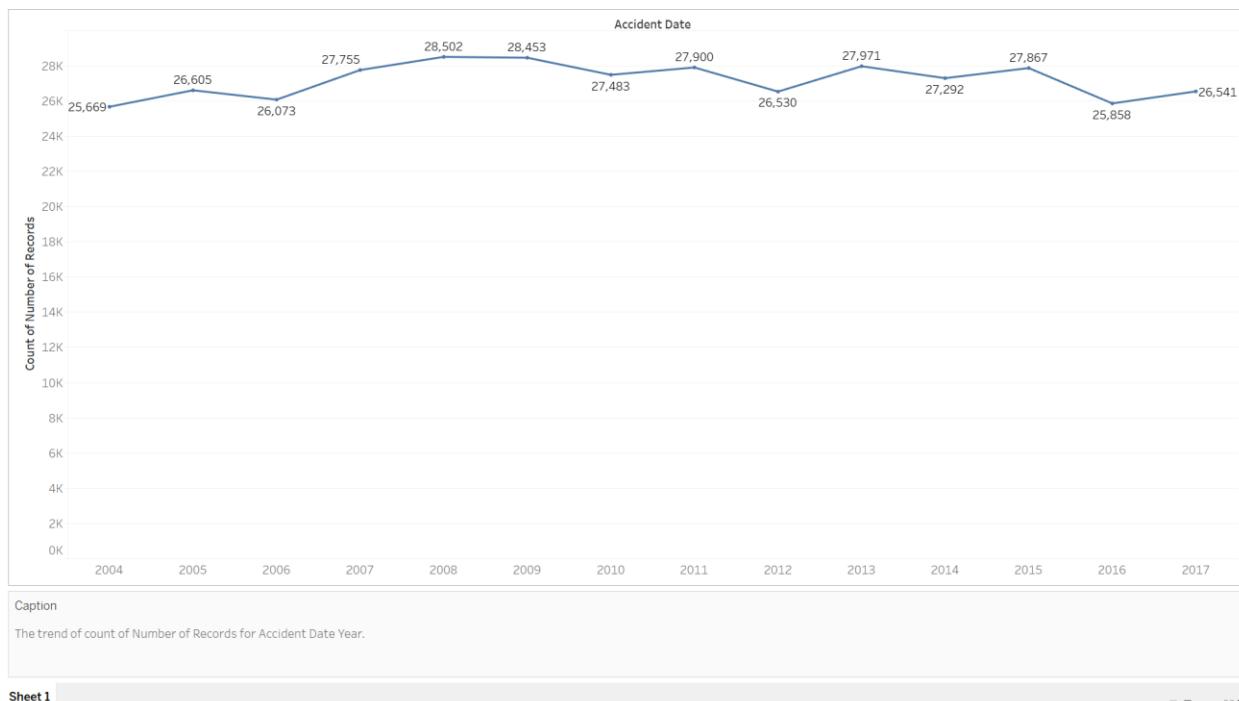
6.4. Clean Transformations

Remove/update observations according with previous section.

7. Accident / Collision Date (ACCIDENT_DATE)

7.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



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

Feature Value	Counter	Percentage
2005-01-21	414	0.1088
2009-01-15	399	0.1049
2004-01-14	390	0.1025
2004-12-20	372	0.0978
2006-12-22	347	0.0912
2004-01-15	343	0.0901
2012-02-24	304	0.0799
2016-02-17	300	0.0788
2013-11-23	294	0.0773
2015-02-02	294	0.0773
2009-01-16	282	0.0741
2014-01-03	279	0.0733
2013-02-08	271	0.0712
2007-02-14	261	0.0686
2007-11-29	251	0.0660

2014-02-14	250	0.0657
2014-01-27	247	0.0649
2004-01-26	238	0.0625
2004-12-21	238	0.0625
2013-01-28	235	0.0618
2009-01-28	231	0.0607
2008-01-22	229	0.0602
2013-02-27	227	0.0597
2016-02-18	227	0.0597
2005-11-24	226	0.0594
2011-01-15	225	0.0591
2016-04-06	223	0.0586
2005-01-28	220	0.0578
2017-03-24	220	0.0578
2005-01-27	219	0.0576
2007-12-17	218	0.0573
2004-01-24	213	0.0560
2007-02-09	212	0.0557
2017-02-15	212	0.0557
2009-12-18	211	0.0555
2007-12-19	210	0.0552
2010-02-25	210	0.0552
2013-01-24	210	0.0552
2008-03-07	208	0.0547
2013-01-23	208	0.0547
2015-01-14	208	0.0547
2005-03-01	205	0.0539
2015-01-30	205	0.0539
2015-02-04	203	0.0534
2006-02-17	202	0.0531
2017-12-14	202	0.0531
2015-02-21	201	0.0528
2009-02-05	200	0.0526
2015-01-29	198	0.0520
2016-02-25	196	0.0515
2005-11-18	195	0.0512
2005-03-07	194	0.0510
2004-01-11	193	0.0507
2017-12-12	193	0.0507
2010-12-14	191	0.0502
2008-02-07	189	0.0497
2012-01-20	189	0.0497
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	0.0484
2008-12-22	184	0.0484
2009-05-27	184	0.0484
2007-01-29	183	0.0481
2016-12-09	183	0.0481

2010-01-29	181	0.0476
2011-02-03	181	0.0476
2013-01-25	181	0.0476
2015-01-08	181	0.0476
2010-01-28	180	0.0473
2011-02-28	180	0.0473
2014-02-18	180	0.0473
2004-12-23	178	0.0468
2007-12-11	177	0.0465
2011-02-02	177	0.0465
2013-11-29	177	0.0465
2004-12-17	176	0.0463
2005-12-15	176	0.0463
2009-12-30	176	0.0463
2014-01-22	176	0.0463
2009-01-30	175	0.0460
2015-02-14	174	0.0457
2004-04-04	173	0.0455
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	0.0447
2012-01-19	170	0.0447
2012-01-18	168	0.0442
2007-11-22	167	0.0439
2008-02-27	167	0.0439
2008-03-10	167	0.0439
2009-01-07	167	0.0439
2011-01-07	166	0.0436
(Other)	359369	94.4468

7.2. Special Feature Values to Handle

No feature values were found with “” (Blank) or “0”.

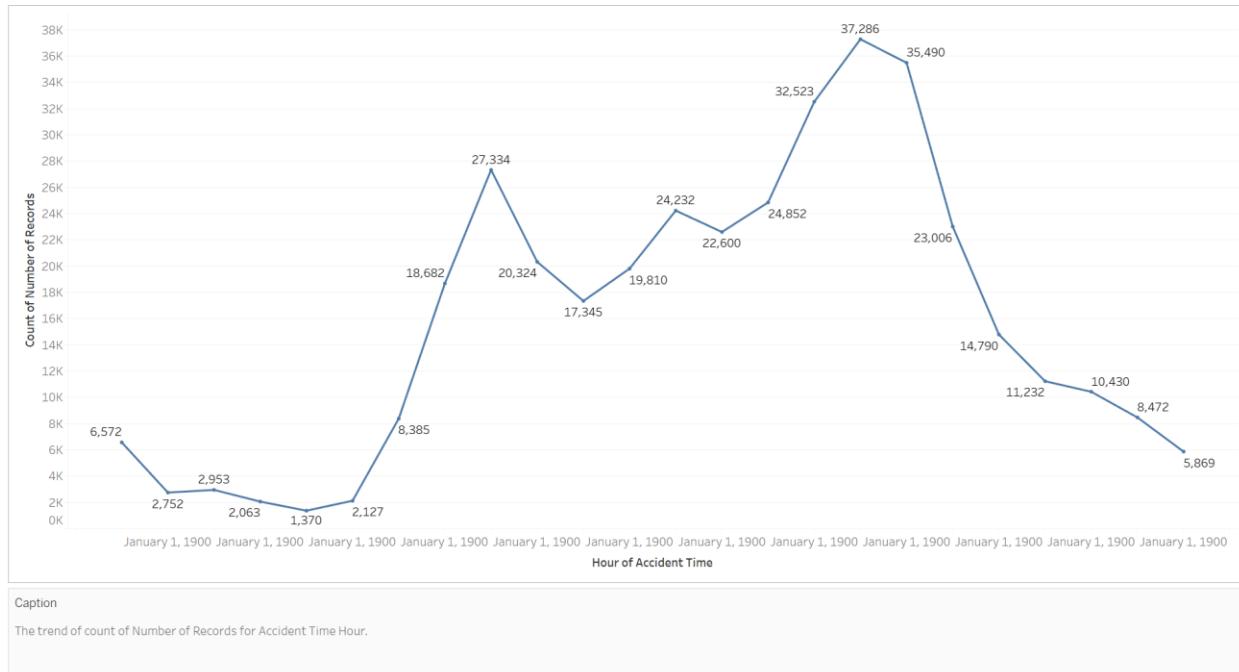
7.3. Clean Transformations

None.

8. Accident / Collision Time (ACCIDENT_TIME)

8.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



Sheet 1

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

Feature Value	Counter	Percentage
5:00 PM	3418	0.8983
4:00 PM	3361	0.8833
5:30 PM	3187	0.8376
4:30 PM	3172	0.8336
12:00 AM	2983	0.7840
3:30 PM	2907	0.7640
3:00 PM	2654	0.6975
6:00 PM	2594	0.6817
8:30 AM	2385	0.6268
9:00 AM	2254	0.5924
2:00 PM	2240	0.5887
1:00 PM	2226	0.5850
8:00 AM	2224	0.5845
12:00 PM	2079	0.5464
2:30 PM	2038	0.5356
12:30 PM	1980	0.5204
4:15 PM	1940	0.5099

1:30 PM	1933	0.5080
6:30 PM	1921	0.5049
5:15 PM	1910	0.5020
4:45 PM	1869	0.4912
7:00 PM	1781	0.4681
3:45 PM	1765	0.4639
11:00 AM	1738	0.4568
11:30 AM	1737	0.4565
10:00 AM	1658	0.4357
5:20 PM	1624	0.4268
5:45 PM	1569	0.4124
7:30 AM	1553	0.4081
3:15 PM	1548	0.4068
4:20 PM	1511	0.3971
9:30 AM	1495	0.3929
8:45 AM	1451	0.3813
10:30 AM	1437	0.3777
4:50 PM	1413	0.3714
8:15 AM	1385	0.3640
5:10 PM	1341	0.3524
4:40 PM	1337	0.3514
2:45 PM	1331	0.3498
3:50 PM	1323	0.3477
4:10 PM	1299	0.3414
3:20 PM	1280	0.3364
3:40 PM	1252	0.3290
12:15 PM	1239	0.3256
8:00 PM	1228	0.3227
12:45 PM	1227	0.3225
8:20 AM	1203	0.3162
7:30 PM	1199	0.3151
8:50 AM	1186	0.3117
8:40 AM	1177	0.3093
7:45 AM	1172	0.3080
5:40 PM	1166	0.3064
7:00 AM	1152	0.3028
7:50 AM	1126	0.2959
3:10 PM	1106	0.2907
2:15 PM	1097	0.2883
6:15 PM	1081	0.2841
5:50 PM	1078	0.2833
9:15 AM	1058	0.2781
9:00 PM	1024	0.2691
1:15 PM	1021	0.2683
2:50 PM	998	0.2623
8:10 AM	989	0.2599
1:45 PM	985	0.2589
6:45 PM	942	0.2476
6:20 PM	939	0.2468
2:40 PM	938	0.2465
12:20 PM	935	0.2457

9:30 PM	929	0.2442
11:45 AM	921	0.2421
9:45 AM	913	0.2399
12:50 PM	906	0.2381
5:25 PM	877	0.2305
5:05 PM	874	0.2297
6:10 PM	872	0.2292
4:25 PM	871	0.2289
10:00 PM	860	0.2260
4:35 PM	851	0.2237
8:30 PM	851	0.2237
1:20 PM	849	0.2231
2:20 PM	839	0.2205
5:35 PM	839	0.2205
12:10 PM	837	0.2200
10:45 AM	831	0.2184
4:05 PM	830	0.2181
11:15 AM	828	0.2176
10:15 AM	823	0.2163
11:50 AM	815	0.2142
7:40 AM	814	0.2139
6:45 AM	808	0.2124
12:40 PM	798	0.2097
8:55 AM	791	0.2079
4:55 PM	786	0.2066
9:10 AM	783	0.2058
7:15 AM	778	0.2045
3:55 PM	777	0.2042
6:30 AM	776	0.2039
1:50 PM	775	0.2037
3:35 PM	771	0.2026
(Other)	243257	63.9310

8.2. Special Feature Values to Handle

No feature values were found with “” (Blank) or “0”.

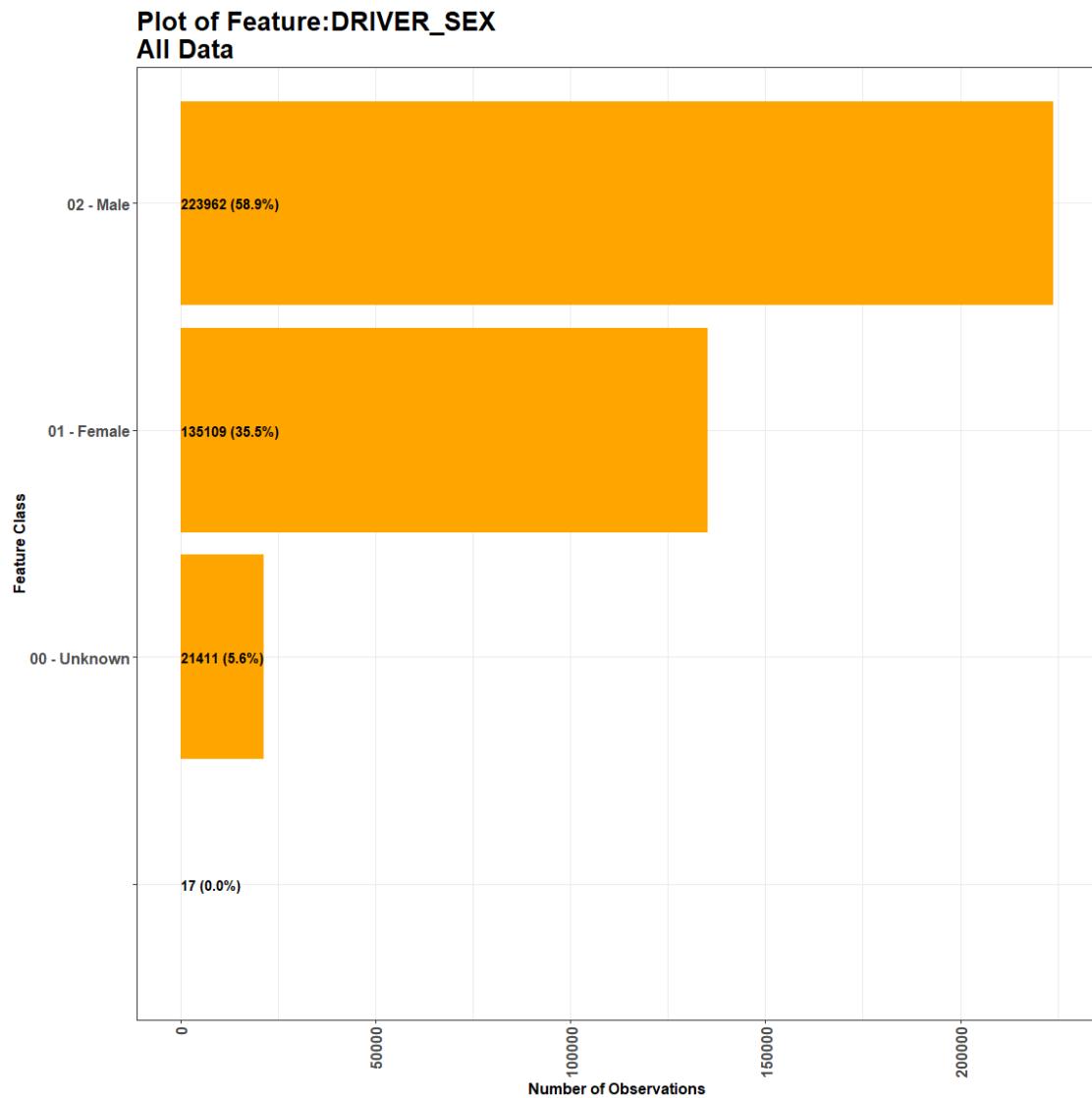
8.3. Clean Transformations

None.

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

9.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	"" (Blank)	17	0.0045
2	00 - Unknown	21411	5.6271
3	01 - Female	135109	35.5084
4	02 - Male	223962	58.8601

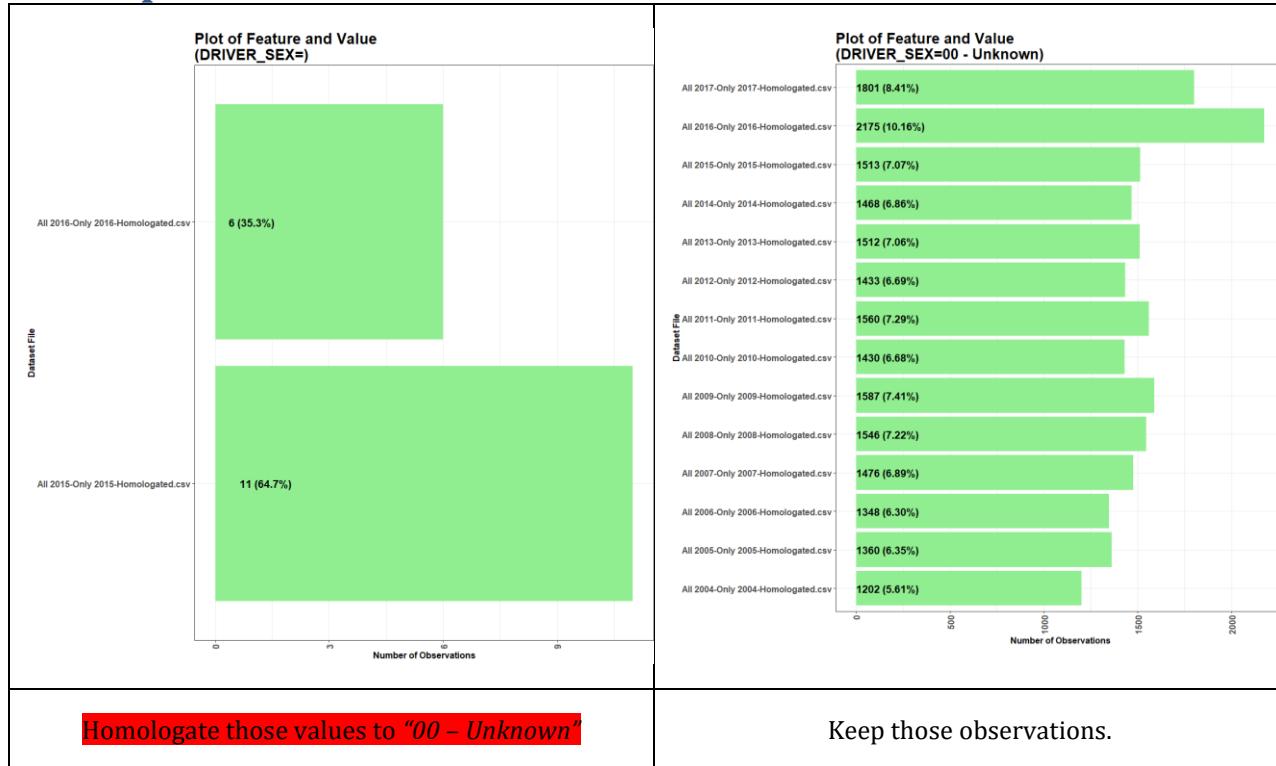
9.2. Allowed Features Values (MVCR-0209)

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) and "00 - Unknown" are not allowed values according with the MVCR Manual.

9.3. Special Feature Values to Handle



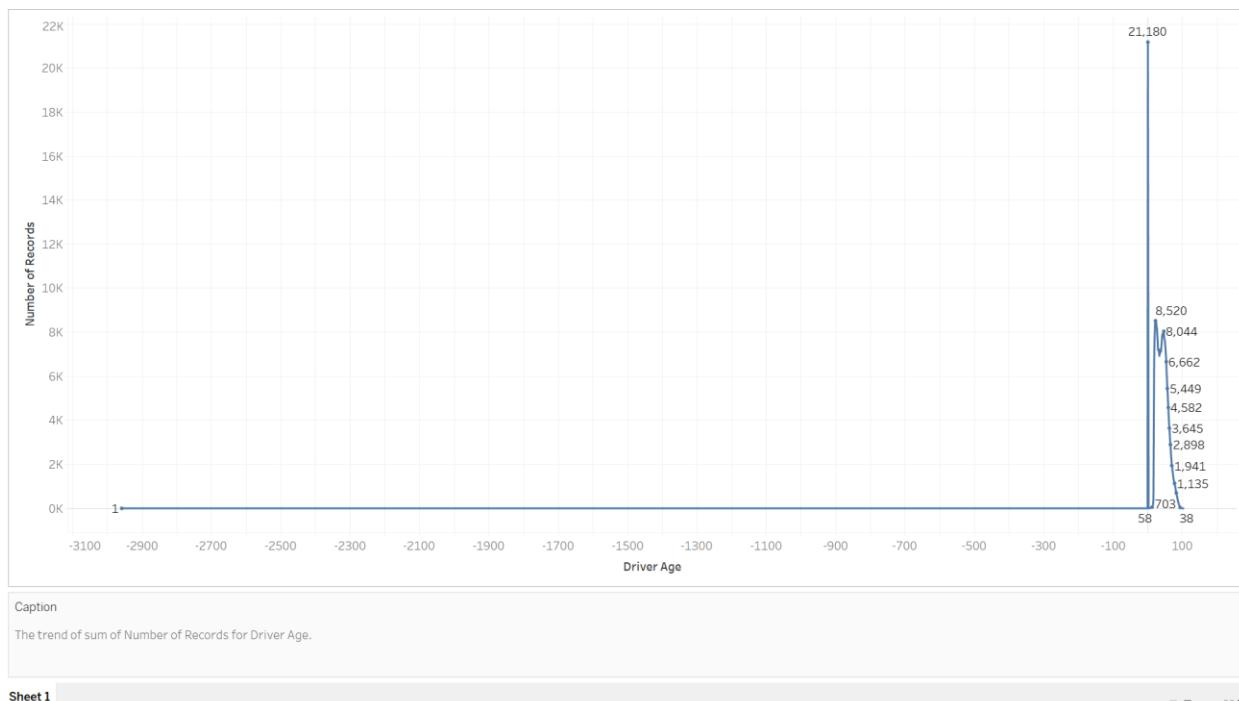
9.4. Clean Transformations

Homologate observations according with previous section.

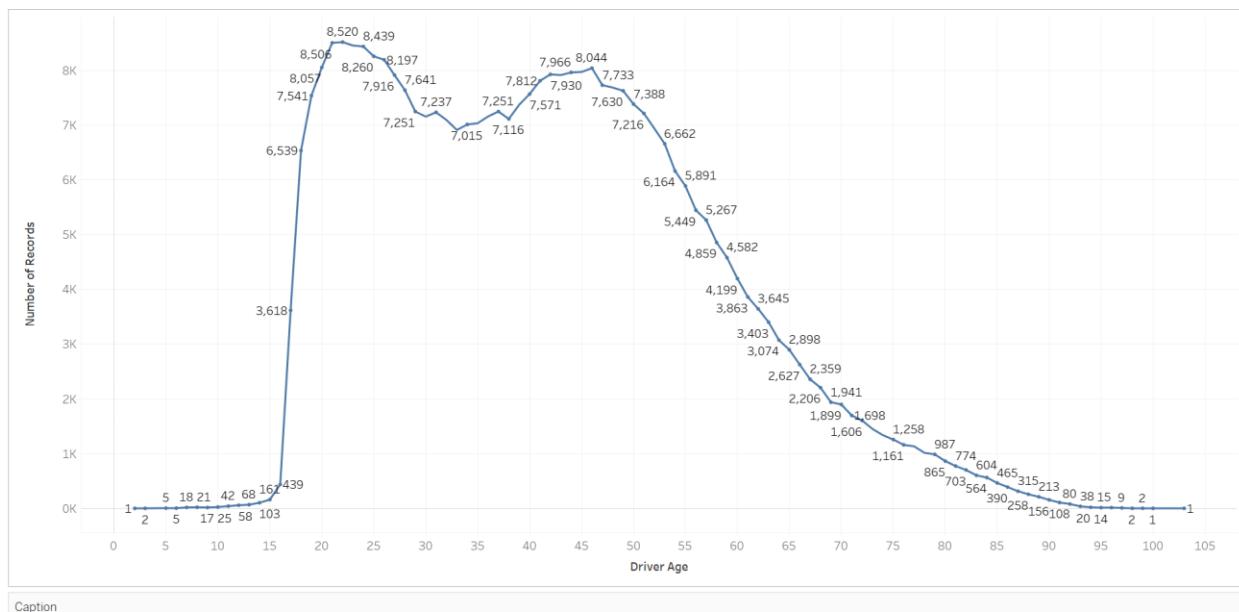
10. Age of the Driver (DRIVER_AGE) - MVCR 0209

10.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



Notice the existence of observations with “0” and negatives (-2959, -1) values.



Caption

The trend of sum of Number of Records for Driver Age. The data is filtered on Driver Age, which excludes -2959, -1 and 0.

Sheet 1

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

Feature Value	Counter	Percentage
0	21180	5.5664
22	8520	2.2392
21	8506	2.2355
23	8457	2.2226
24	8439	2.2179
25	8260	2.1708
26	8197	2.1543
20	8057	2.1175
46	8044	2.1141
45	7974	2.0957
44	7966	2.0936
42	7930	2.0841
43	7917	2.0807
27	7916	2.0804
41	7812	2.0531
47	7733	2.0323
48	7689	2.0208
28	7641	2.0082
49	7630	2.0053
40	7571	1.9898
19	7541	1.9819
50	7388	1.9417
39	7376	1.9385
29	7251	1.9057
37	7251	1.9057
31	7237	1.9020

51	7216	1.8965
36	7161	1.8820
30	7158	1.8812
38	7116	1.8702
32	7096	1.8649
35	7037	1.8494
34	7015	1.8436
52	6943	1.8247
33	6914	1.8171
53	6662	1.7509
18	6539	1.7185
54	6164	1.6200
55	5891	1.5482
56	5449	1.4321
57	5267	1.3842
58	4859	1.2770
59	4582	1.2042
60	4199	1.1036
61	3863	1.0152
62	3645	0.9580
17	3618	0.9509
63	3403	0.8944
64	3074	0.8079
65	2898	0.7616
66	2627	0.6904
67	2359	0.6200
68	2206	0.5798
69	1941	0.5101
70	1899	0.4991
71	1698	0.4463
72	1606	0.4221
73	1452	0.3816
74	1338	0.3516
75	1258	0.3306
76	1161	0.3051
77	1135	0.2983
78	1016	0.2670
79	987	0.2594
80	865	0.2273
81	774	0.2034
82	703	0.1848
83	604	0.1587
84	564	0.1482
85	465	0.1222
16	439	0.1154
86	390	0.1025
87	315	0.0828
88	258	0.0678
89	213	0.0560
15	161	0.0423
90	156	0.0410

91	108	0.0284
14	103	0.0271
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

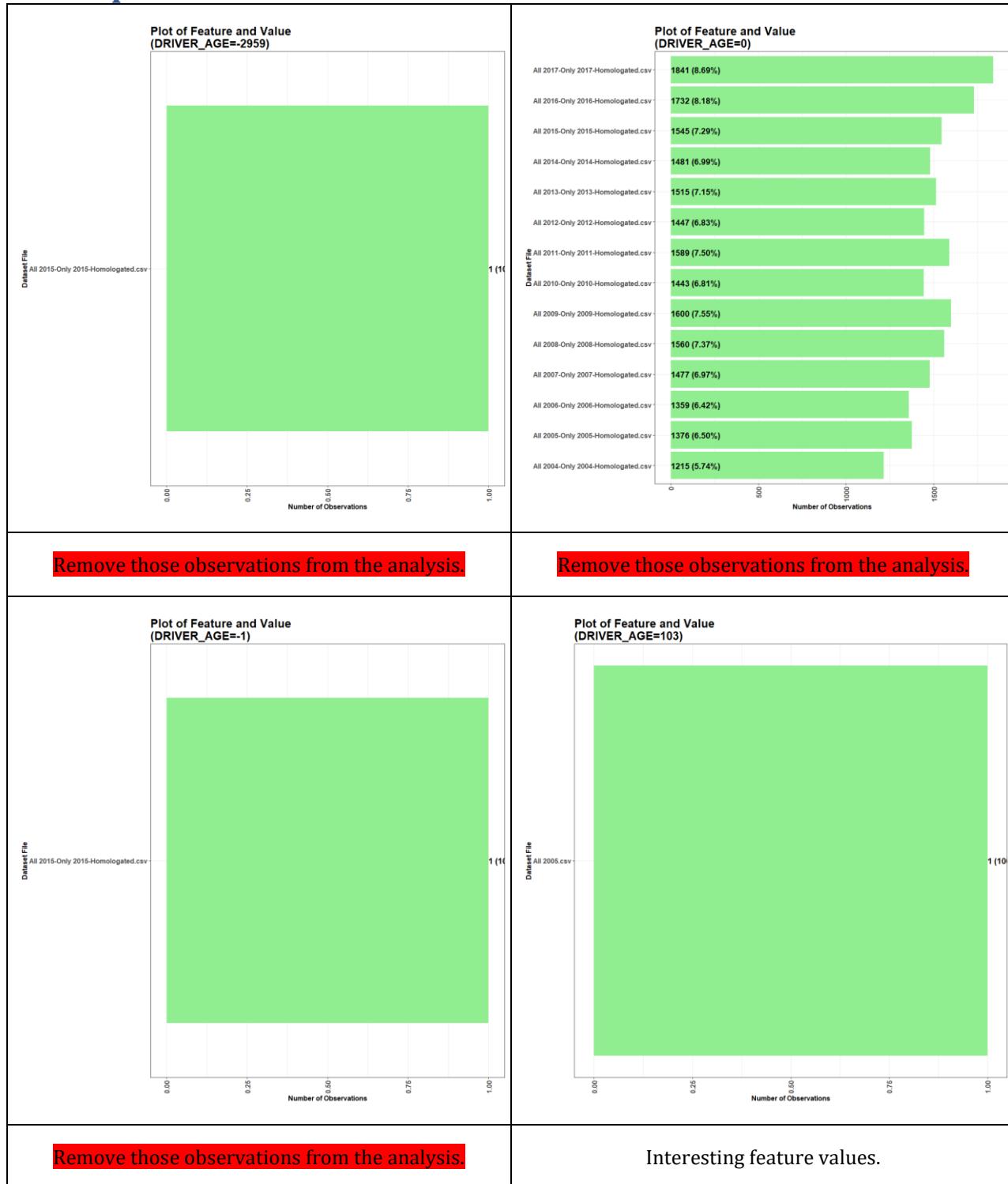
10.2. Allowed Features Values (MVCR-0209)

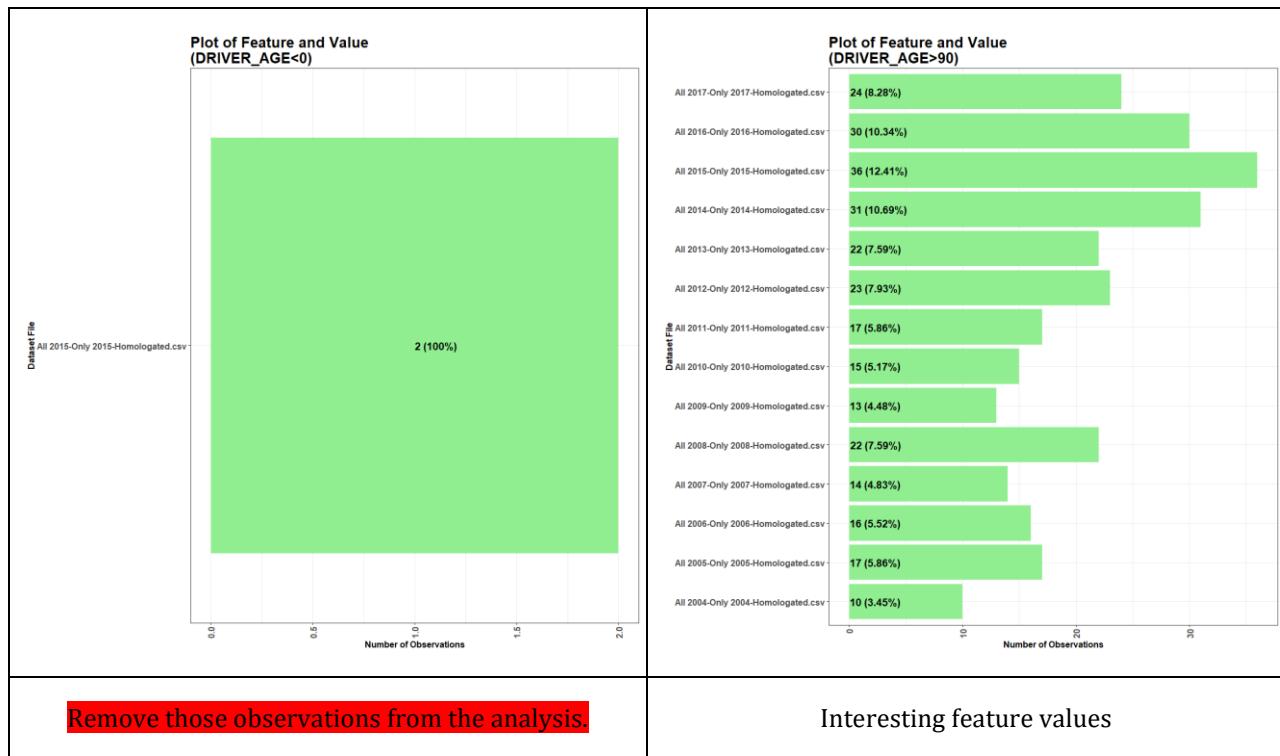
The allowed values for this feature are shown in the following table:

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

It is important to notice that feature values "" (Blank), "<0", or very high values should be validated.

10.3. Special Feature Values to Handle





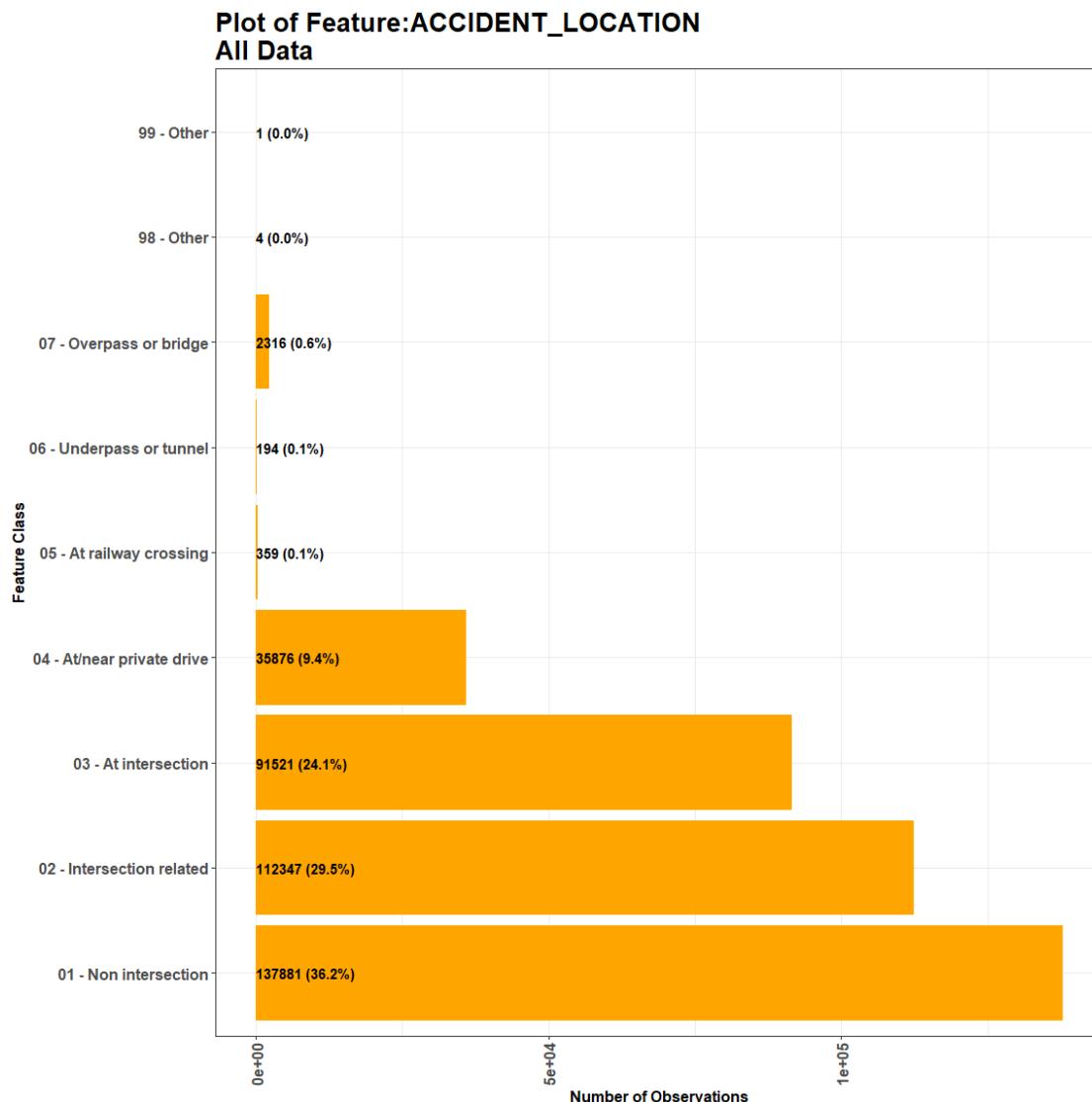
10.4.Clean Transformations

Remove/update observations according with previous section.

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

11.1.All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	01 - Non intersection	137881	36.2369
2	02 - Intersection related	112347	29.5262
3	03 - At intersection	91521	24.0529
4	04 - At/near private drive	35876	9.4287
5	05 - At railway crossing	359	0.0943
6	06 - Underpass or tunnel	194	0.0510
7	07 - Overpass or bridge	2316	0.6087
8	98 - Other	4	0.0011
9	99 - Other	1	0.0003

11.2. 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

11.3. Special Feature Values to Handle

None.

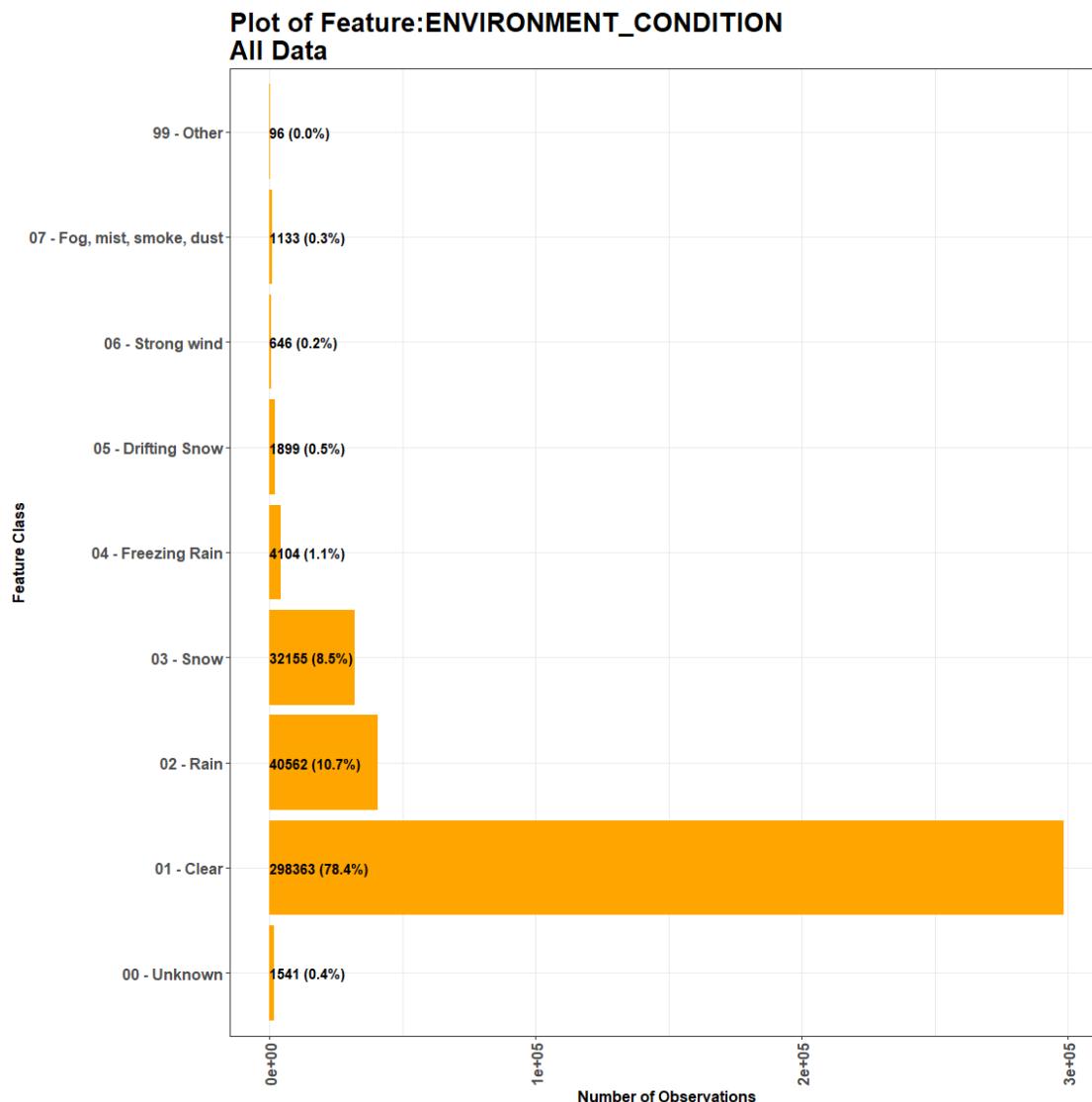
11.4. Clean Transformations

None.

12. Environment Conditions (ENVIRONMENT_CONDITION) - MVC R 0303

12.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	00 - Unknown	1541	0.4050
2	01 - Clear	298363	78.4136
3	02 - Rain	40562	10.6602
4	03 - Snow	32155	8.4507
5	04 - Freezing Rain	4104	1.0786
6	05 - Drifting Snow	1899	0.4991
7	06 - Strong wind	646	0.1698
8	07 - Fog, mist, smoke, dust	1133	0.2978
9	99 - Other	96	0.0252

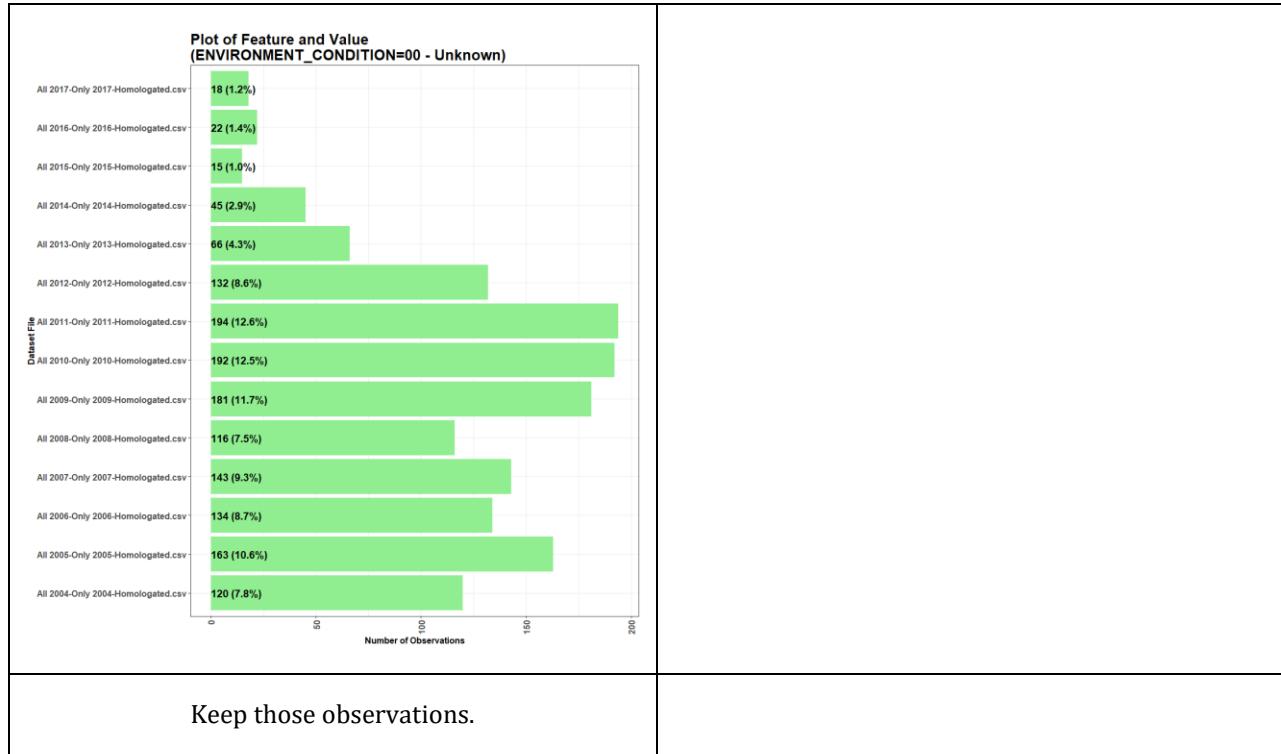
12.2. Allowed Features Values (MVCR-0303)

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

It is important to notice that feature value "00-Unknown" is not an allowed value according with the MVCR Manual.

12.3.Special Feature Values to Handle



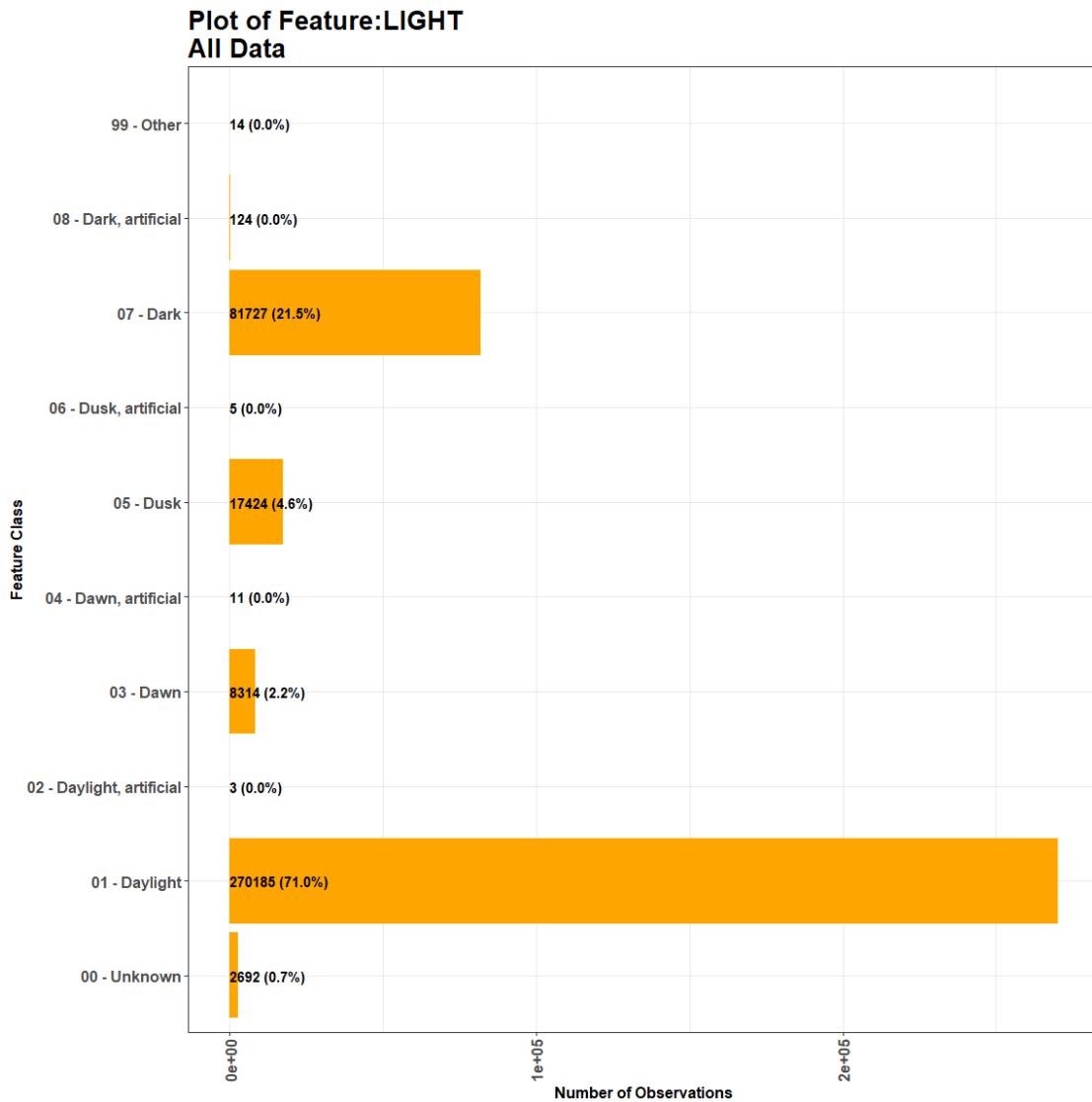
12.4.Clean Transformations

None.

13. Light (LIGHT) - MVCR 0304

13.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	00 - Unknown	2692	0.7075
2	01 - Daylight	270185	71.0081
3	02 - Daylight, artificial	3	0.0008
4	03 - Dawn	8314	2.1850
5	04 - Dawn, artificial	11	0.0029
6	05 - Dusk	17424	4.5792
7	06 - Dusk, artificial	5	0.0013
8	07 - Dark	81727	21.4789
9	08 - Dark, artificial	124	0.0326
10	99 - Other	14	0.0037

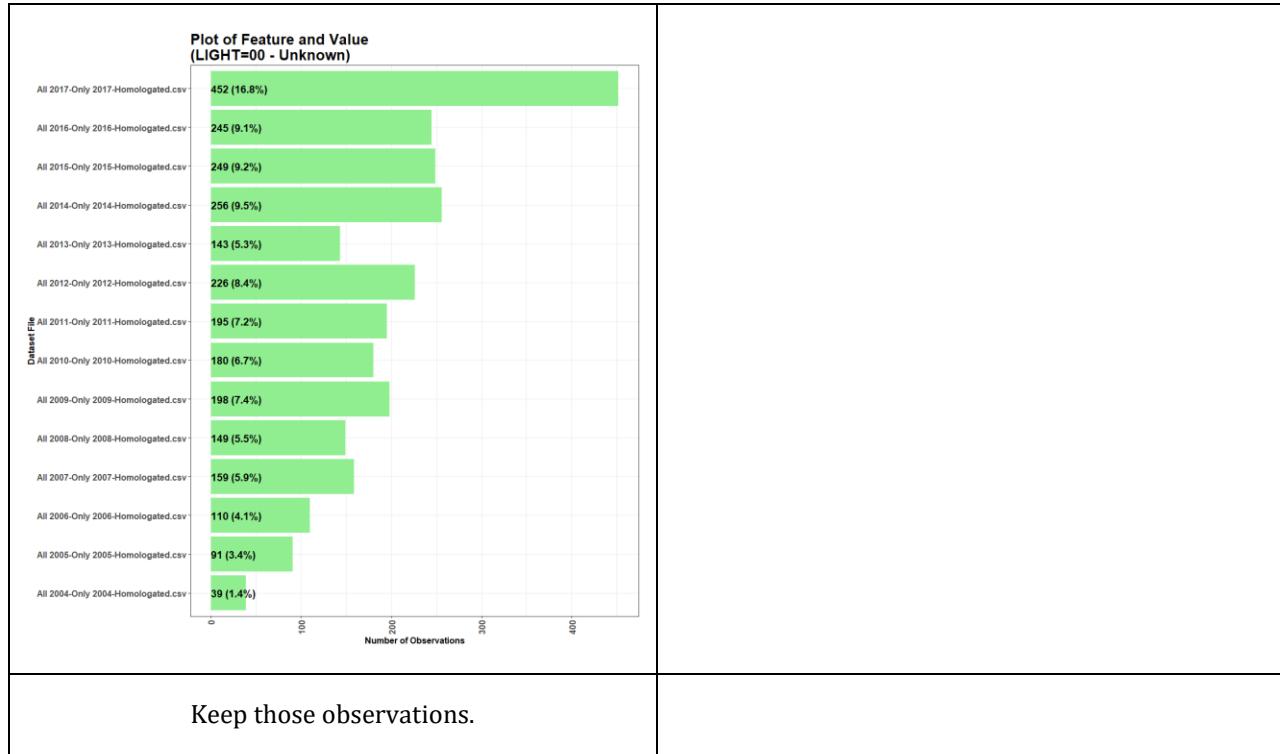
13.2. Allowed Features Values (MVCR-0304)

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

It is important to notice that feature value “00-Unknown” is not allowed values according with the MVCR Manual.

13.3. Special Feature Values to Handle



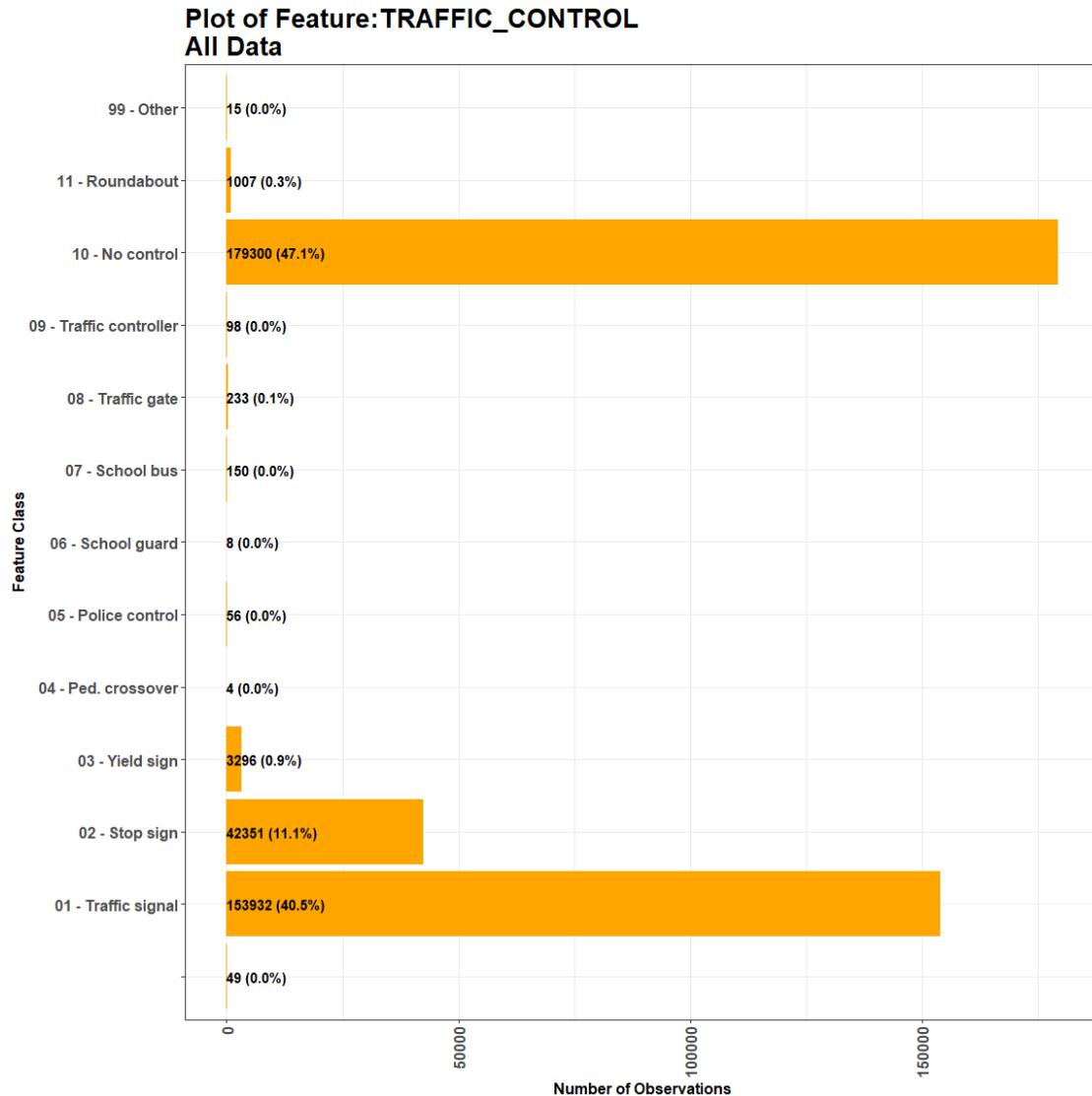
13.4. Clean Transformations

None.

14. Traffic Control (TRAFFIC_CONTROL) - MVCR 0305

14.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



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	153932	40.4553
3	02 - Stop sign	42351	11.1304
4	03 - Yield sign	3296	0.8662
5	04 - Ped. crossover	4	0.0011
6	05 - Police control	56	0.0147
7	06 - School guard	8	0.0021
8	07 - School bus	150	0.0394
9	08 - Traffic gate	233	0.0612
10	09 - Traffic controller	98	0.0258
11	10 - No control	179300	47.1223
12	11 - Roundabout	1007	0.2647
13	99 - Other	15	0.0039

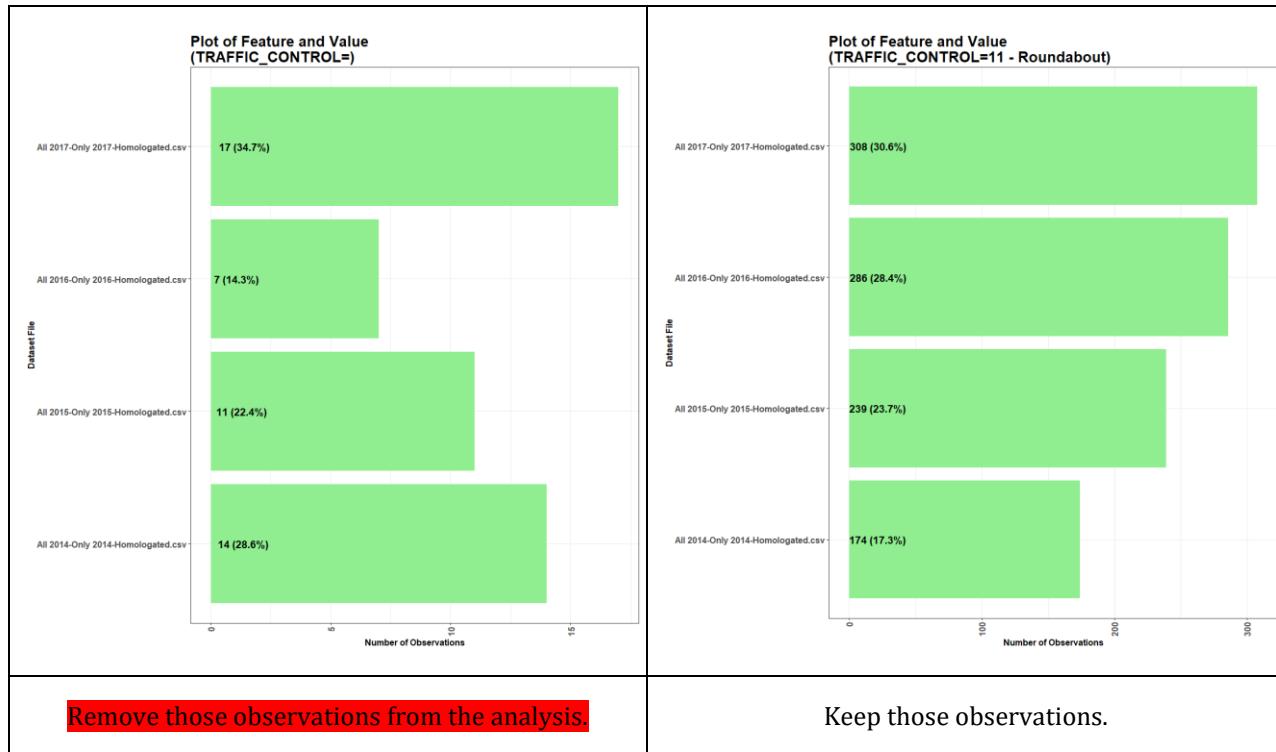
14.2. Allowed Features Values (MVCR-0305)

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.

14.3.Special Feature Values to Handle



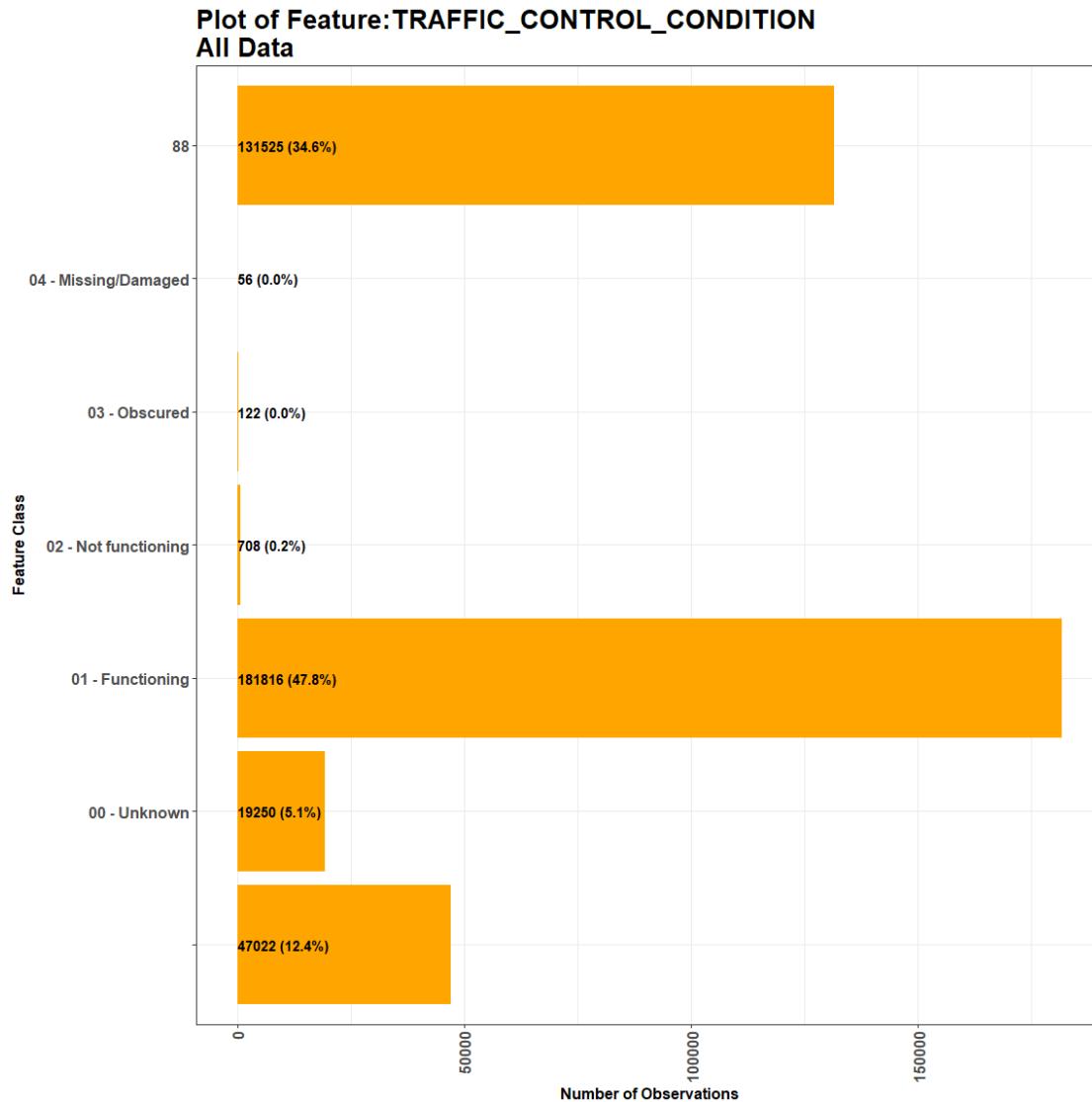
14.4.Clean Transformations

Remove/update observations according with previous section.

15. Traffic Control Condition (TRAFFIC_CONTROL_CONDITION) - MVCR 0306

15.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	"" (Blank)	47022	12.3580
2	00 - Unknown	19250	5.0591
3	01 - Functioning	181816	47.7836
4	02 - Not functioning	708	0.1861
5	03 - Obscured	122	0.0321
6	04 - Missing/Damaged	56	0.0147
7	88	131525	34.5665

15.2. 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

It is important to notice that features values "" (Blank), "00-Unknown" and "88" are not allowed values according with the MVCR Manual.

15.3.Special Feature Values to Handle



15.4.Clean Transformations

Remove/update observations according with previous section.

16. Road Character (ROAD_CHARACTER) - MVCR 0307

Feature removed from the analysis.

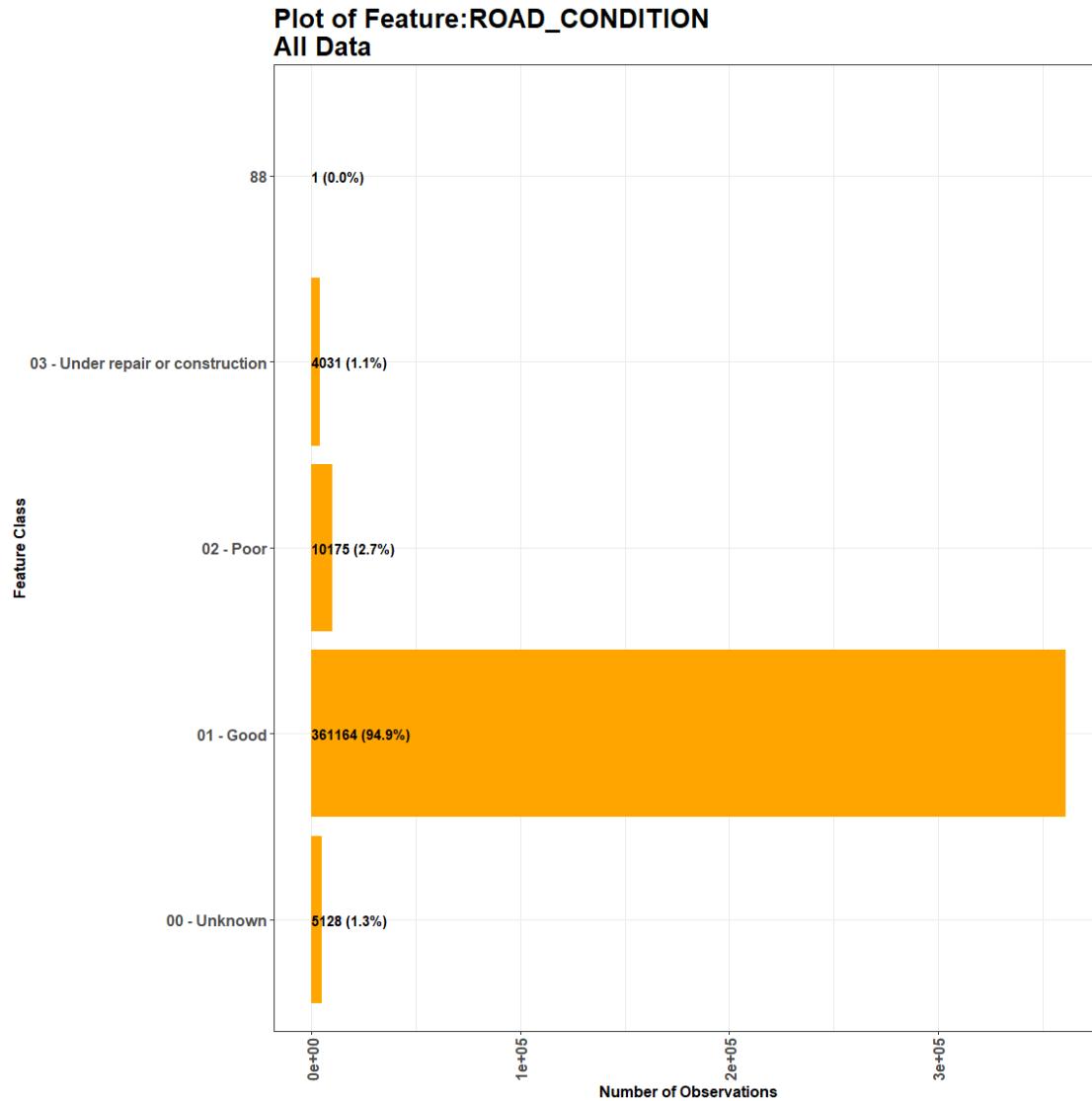
17. Road Surface (ROAD_SURFACE) - MVCR 0308

Feature removed from the analysis.

18. Road Condition (ROAD_CONDITION) – MVCR 0309

18.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	00 - Unknown	5128	1.3477
2	01 - Good	361164	94.9185
3	02 - Poor	10175	2.6741
4	03 - Under repair or construction	4031	1.0594
5	88	1	0.0003

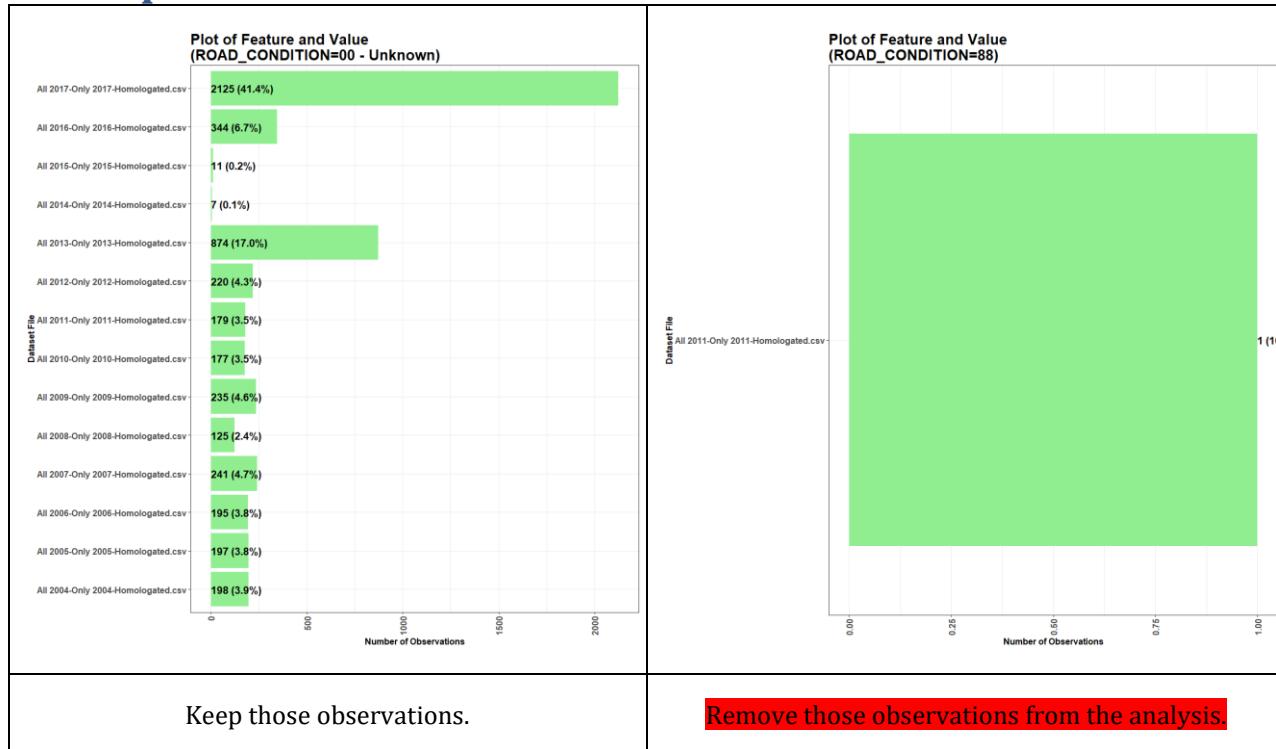
18.2. Allowed Features Values (MVCR-0309)

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

It is important to notice that feature values "00-Unknown" and "88" are not allowed values according with the MVCR Manual.

18.3. Special Feature Values to Handle



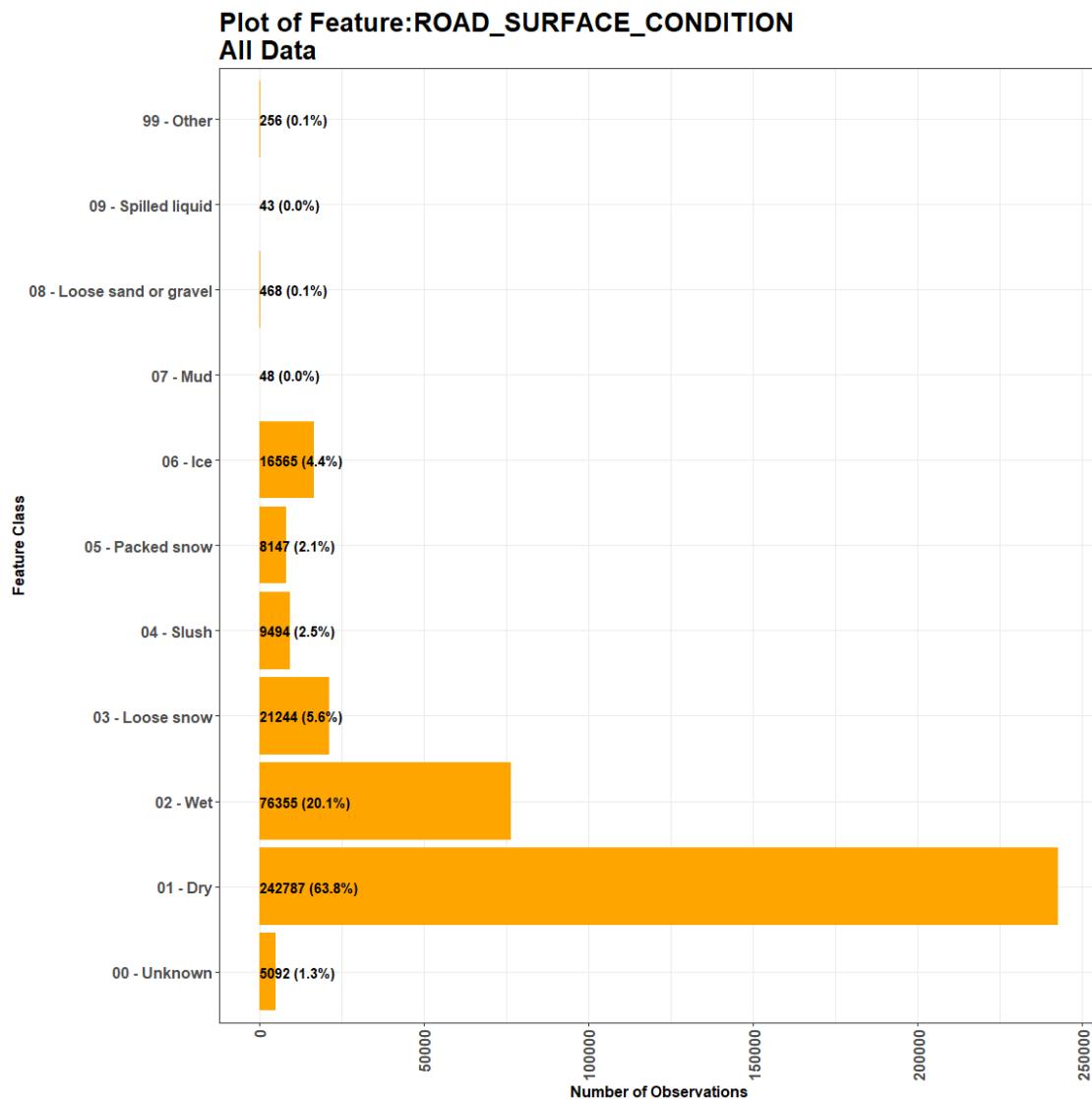
18.4. Clean Transformations

Remove/update observations according with previous section.

19. Road Surface Condition (ROAD_SURFACE_CONDITION) - MVCR 0310

19.1.All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	00 - Unknown	5092	1.3382
2	01 - Dry	242787	63.8075
3	02 - Wet	76355	20.0671
4	03 - Loose snow	21244	5.5832
5	04 - Slush	9494	2.4951
6	05 - Packed snow	8147	2.1411
7	06 - Ice	16565	4.3535
8	07 - Mud	48	0.0126
9	08 - Loose sand or gravel	468	0.1230
10	09 - Spilled liquid	43	0.0113
11	99 - Other	256	0.0673

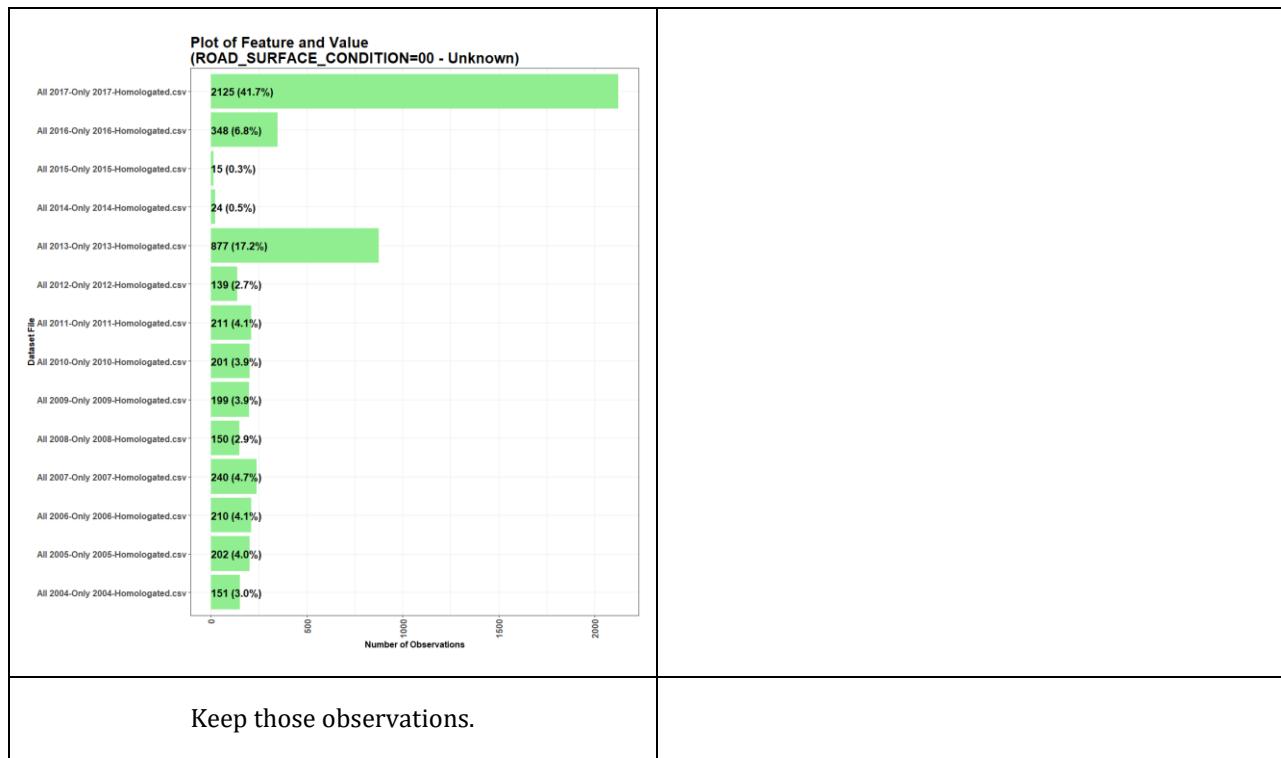
19.2. Allowed Features Values (MVCR-0310)

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 feature value “00-Unknown” is not allowed values according with the MVCR Manual.

19.3. Special Feature Values to Handle



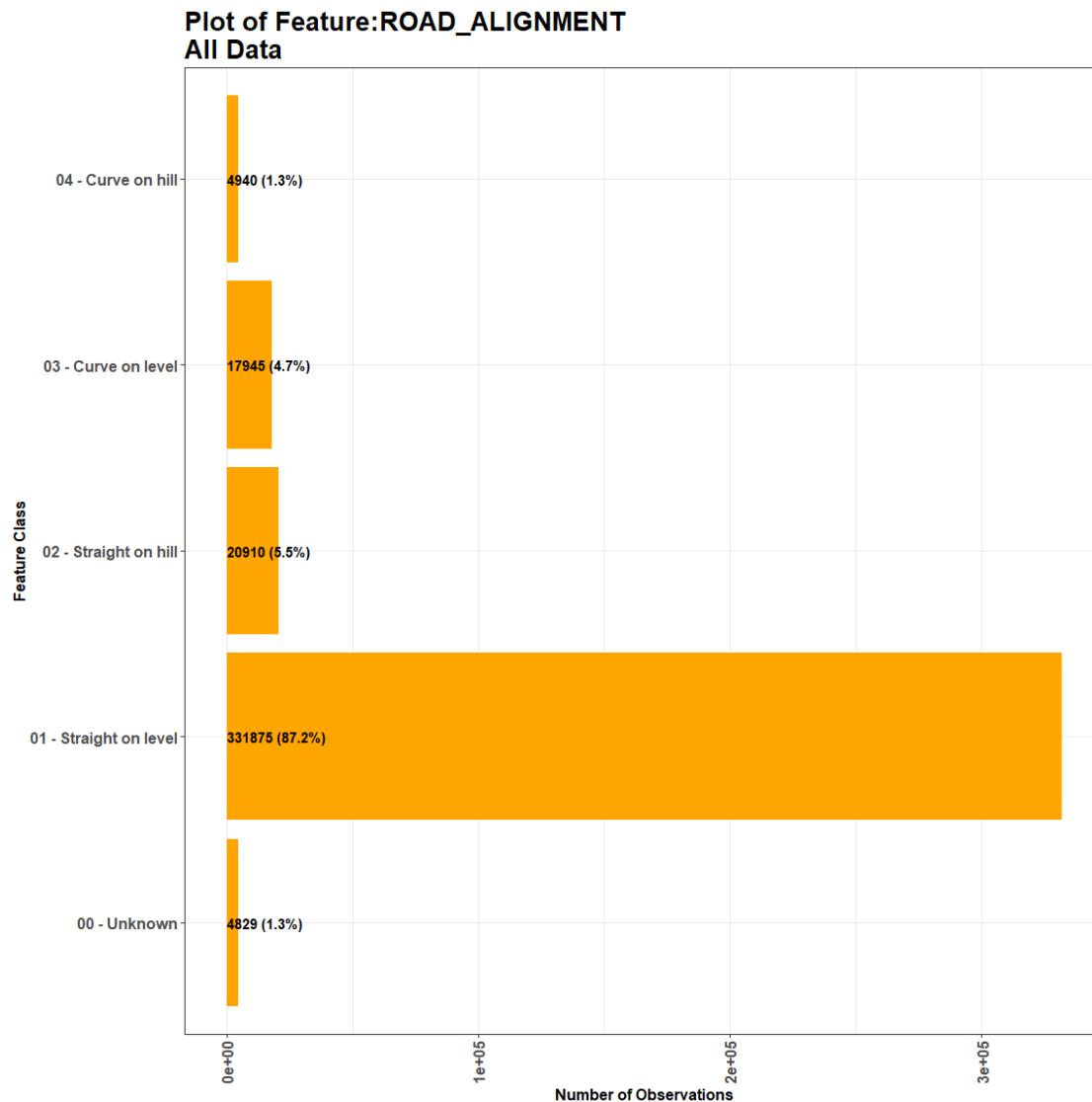
19.4.Clean Transformations

None.

20. Road Alignment (ROAD_ALIGNMENT) – MVCR 0311

20.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	00 - Unknown	4829	1.269
2	01 - Straight on level	331875	87.221
3	02 - Straight on hill	20910	5.495
4	03 - Curve on level	17945	4.716
5	04 - Curve on hill	4940	1.298

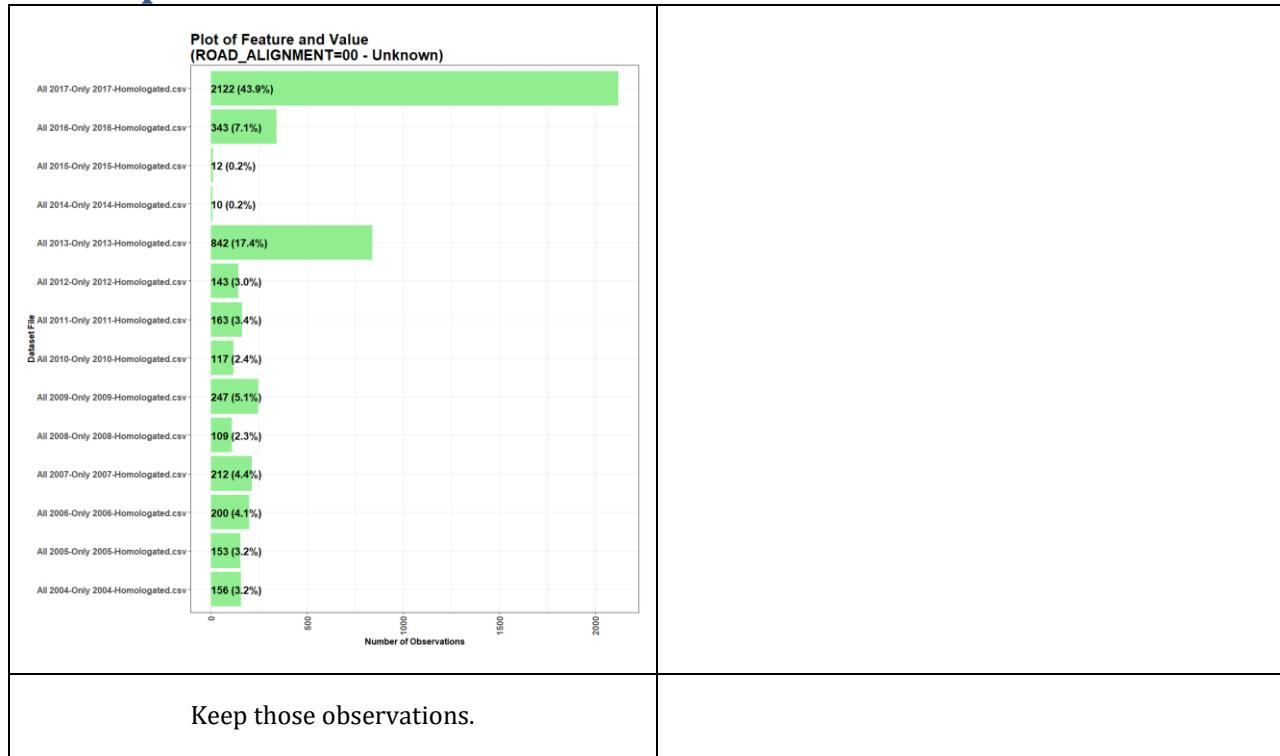
20.2 Allowed Features Values (MVCR-0311)

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 feature value “00-Unknown” is not allowed values according with the MVCR Manual.

20.3.Special Feature Values to Handle



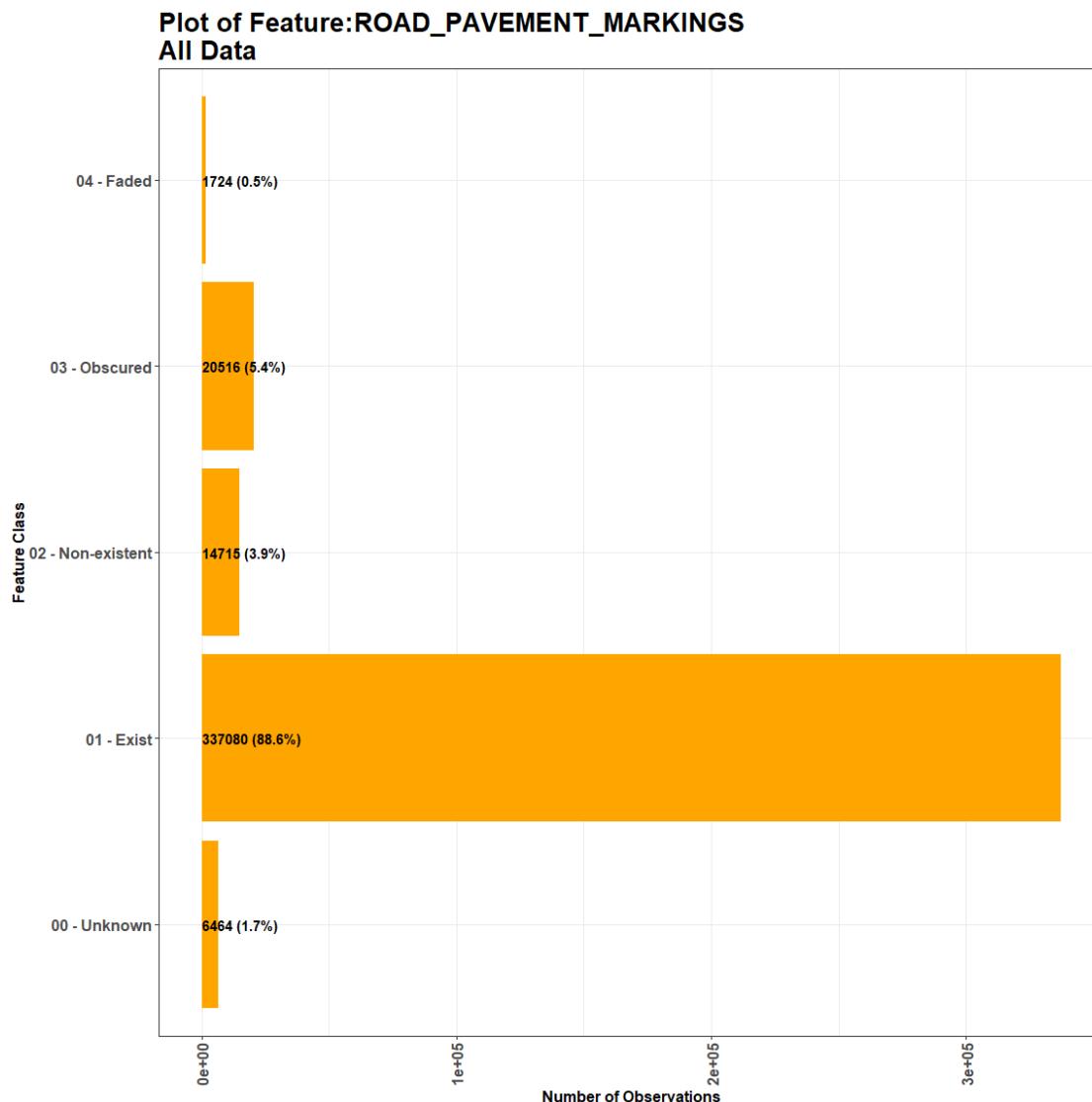
20.4.Clean Transformations

None.

21. Road Pavement Markers (ROAD_PAVEMENT_MARKINGS) – MVCR 0312

21.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	00 - Unknown	6464	1.6988
2	01 - Exist	337080	88.5889
3	02 - Non-existent	14715	3.8673
4	03 - Obscured	20516	5.3919
5	04 - Faded	1724	0.4531

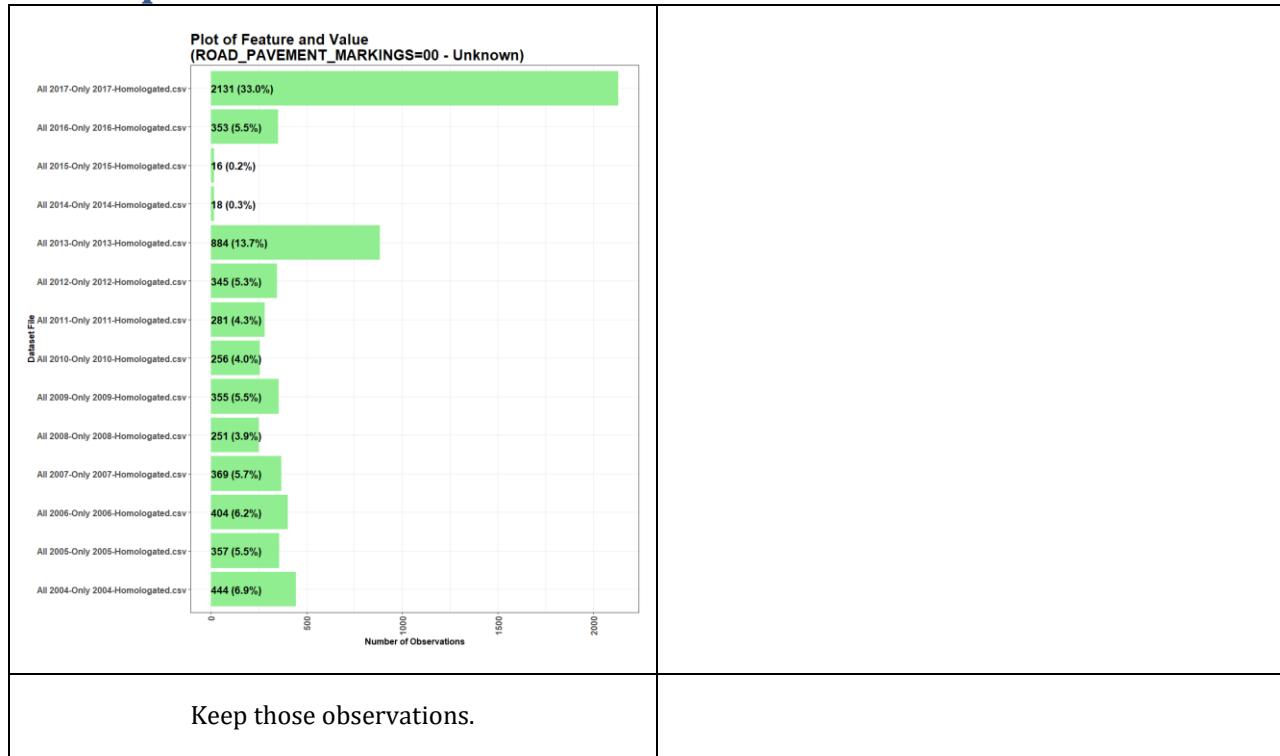
21.2. Allowed Features Values (MVCR-0312)

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 feature value “00-Unknown” is not allowed values according with the MVCR Manual.

21.3.Special Feature Values to Handle



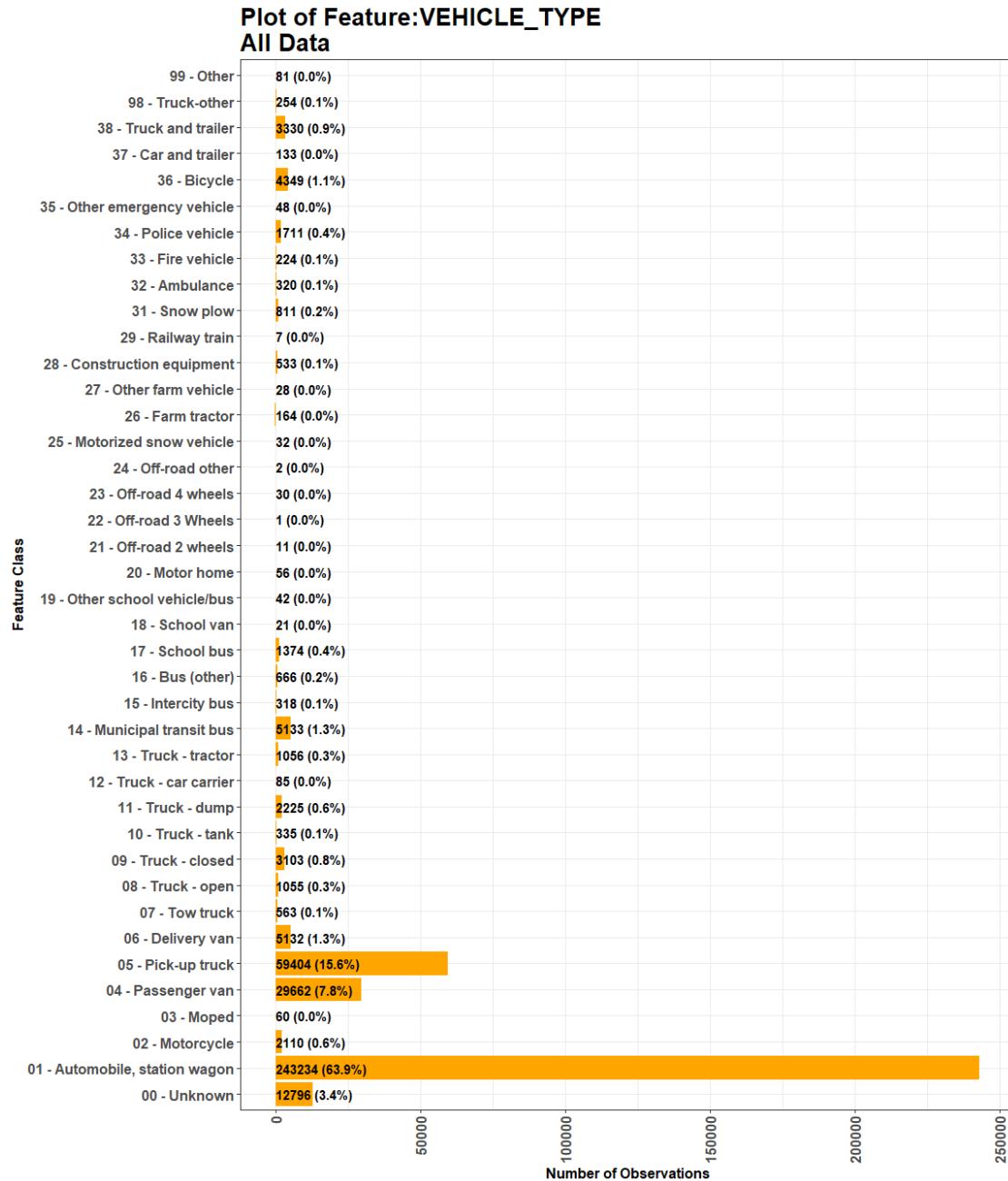
21.4.Clean Transformations

None.

22. Vehicle Type (VEHICLE_TYPE) – MVCR 0313

22.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	00 - Unknown	12796	3.3630
2	01 - Automobile, station wagon	243234	63.9250
3	02 - Motorcycle	2110	0.5545
4	03 - Moped	60	0.0158
5	04 - Passenger van	29662	7.7956
6	05 - Pick-up truck	59404	15.6121
7	06 - Delivery van	5132	1.3488
8	07 - Tow truck	563	0.1480
9	08 - Truck - open	1055	0.2773
10	09 - Truck - closed	3103	0.8155
11	10 - Truck - tank	335	0.0880
12	11 - Truck - dump	2225	0.5848
13	12 - Truck - car carrier	85	0.0223
14	13 - Truck - tractor	1056	0.2775
15	14 - Municipal transit bus	5133	1.3490
16	15 - Intercity bus	318	0.0836
17	16 - Bus (other)	666	0.1750
18	17 - School bus	1374	0.3611
19	18 - School van	21	0.0055
20	19 - Other school vehicle/bus	42	0.0110
21	20 - Motor home	56	0.0147
22	21 - Off-road 2 wheels	11	0.0029
23	22 - Off-road 3 Wheels	1	0.0003
24	23 - Off-road 4 wheels	30	0.0079
25	24 - Off-road other	2	0.0005
26	25 - Motorized snow vehicle	32	0.0084
27	26 - Farm tractor	164	0.0431
28	27 - Other farm vehicle	28	0.0074
29	28 - Construction equipment	533	0.1401
30	29 - Railway train	7	0.0018
31	31 - Snow plow	811	0.2131
32	32 - Ambulance	320	0.0841
33	33 - Fire vehicle	224	0.0589
34	34 - Police vehicle	1711	0.4497
35	35 - Other emergency vehicle	48	0.0126
36	36 - Bicycle	4349	1.1430
37	37 - Car and trailer	133	0.0350
38	38 - Truck and trailer	3330	0.8752
39	98 - Truck-other	254	0.0668
40	99 - Other	81	0.0213

22.2. 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

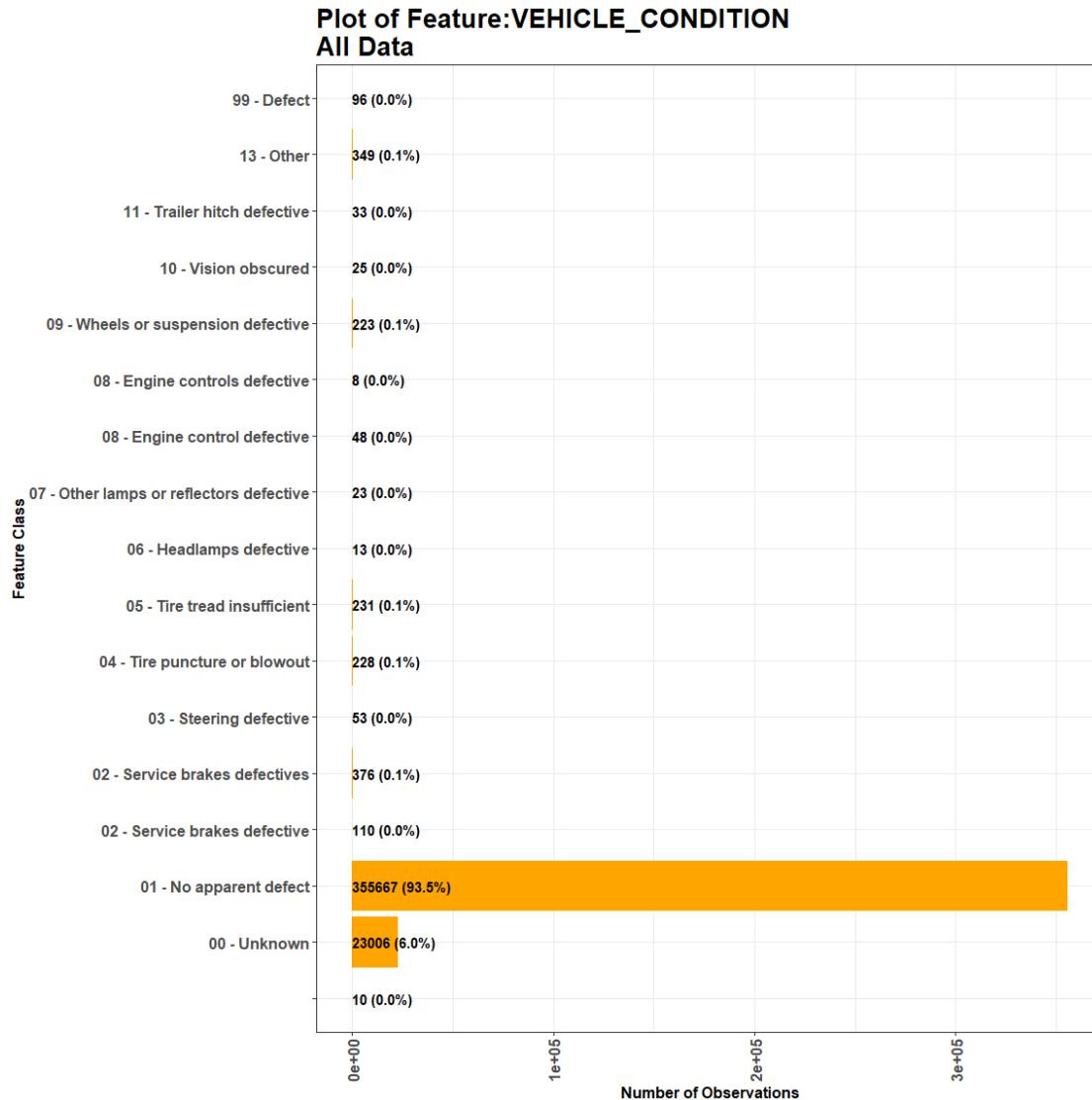
22.3. Clean Transformations

None.

23. Vehicle Condition (VEHICLE_CONDITION) – MVCR 0317

23.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	"" (Blank)	10	0.0026
2	00 - Unknown	23006	6.0463
3	01 - No apparent defect	355667	93.4738
4	02 - Service brakes defective	110	0.0289
5	02 - Service brakes defectives	376	0.0988
6	03 - Steering defective	53	0.0139
7	04 - Tire puncture or blowout	228	0.0599
8	05 - Tire tread insufficient	231	0.0607
9	06 - Headlamps defective	13	0.0034
10	07 - Other lamps or reflectors defective	23	0.0060
11	08 - Engine control defective	48	0.0126
12	08 - Engine controls defective	8	0.0021
13	09 - Wheels or suspension defective	223	0.0586
14	10 - Vision obscured	25	0.0066
15	11 - Trailer hitch defective	33	0.0087
16	13 - Other	349	0.0917
17	99 - Defect	96	0.0252

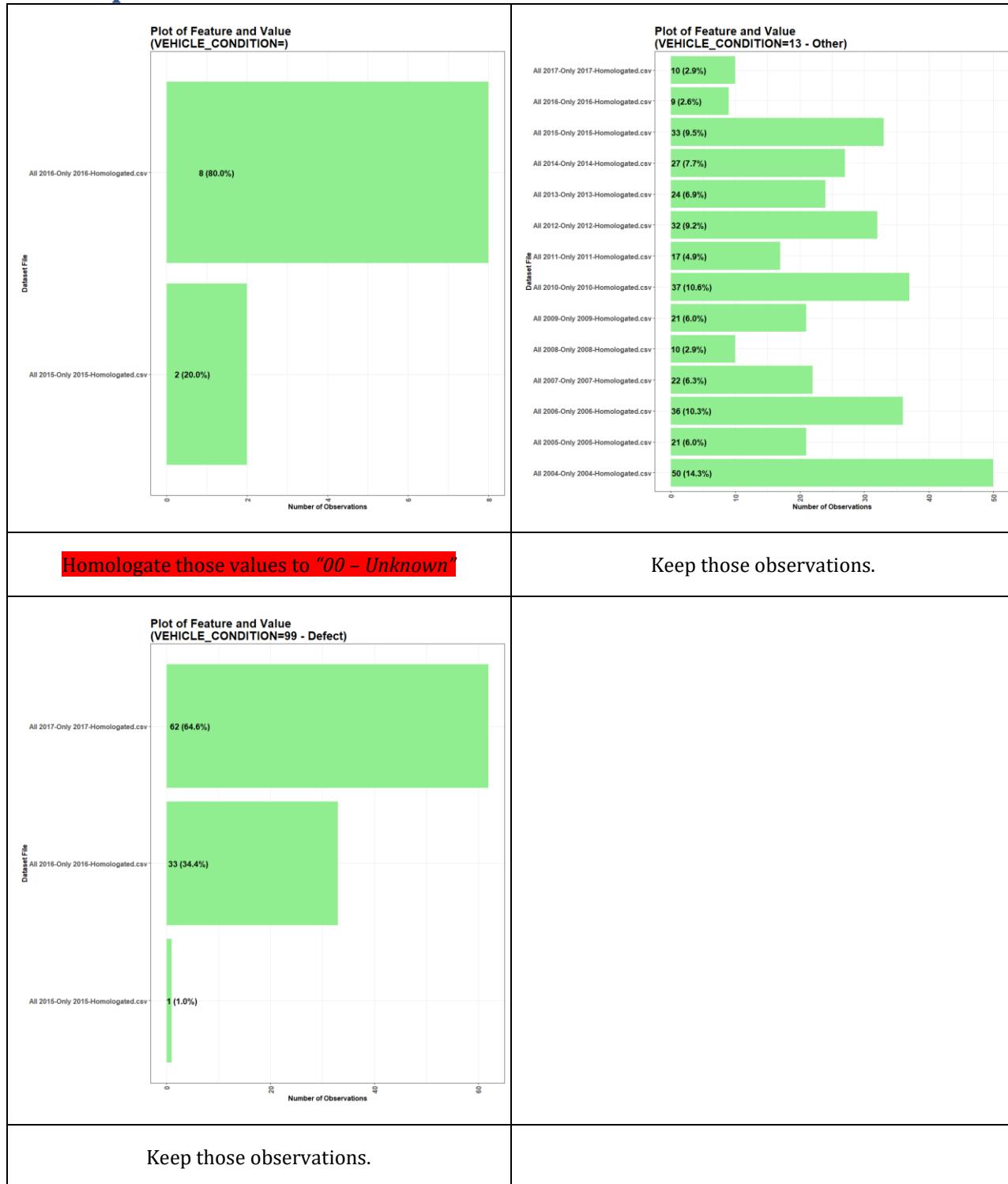
23.2. Allowed Features Values (MVCR-0317)

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 - Other" and "99 - Defect" are not allowed values according with the MVCR Manual.

23.3.Special Feature Values to Handle



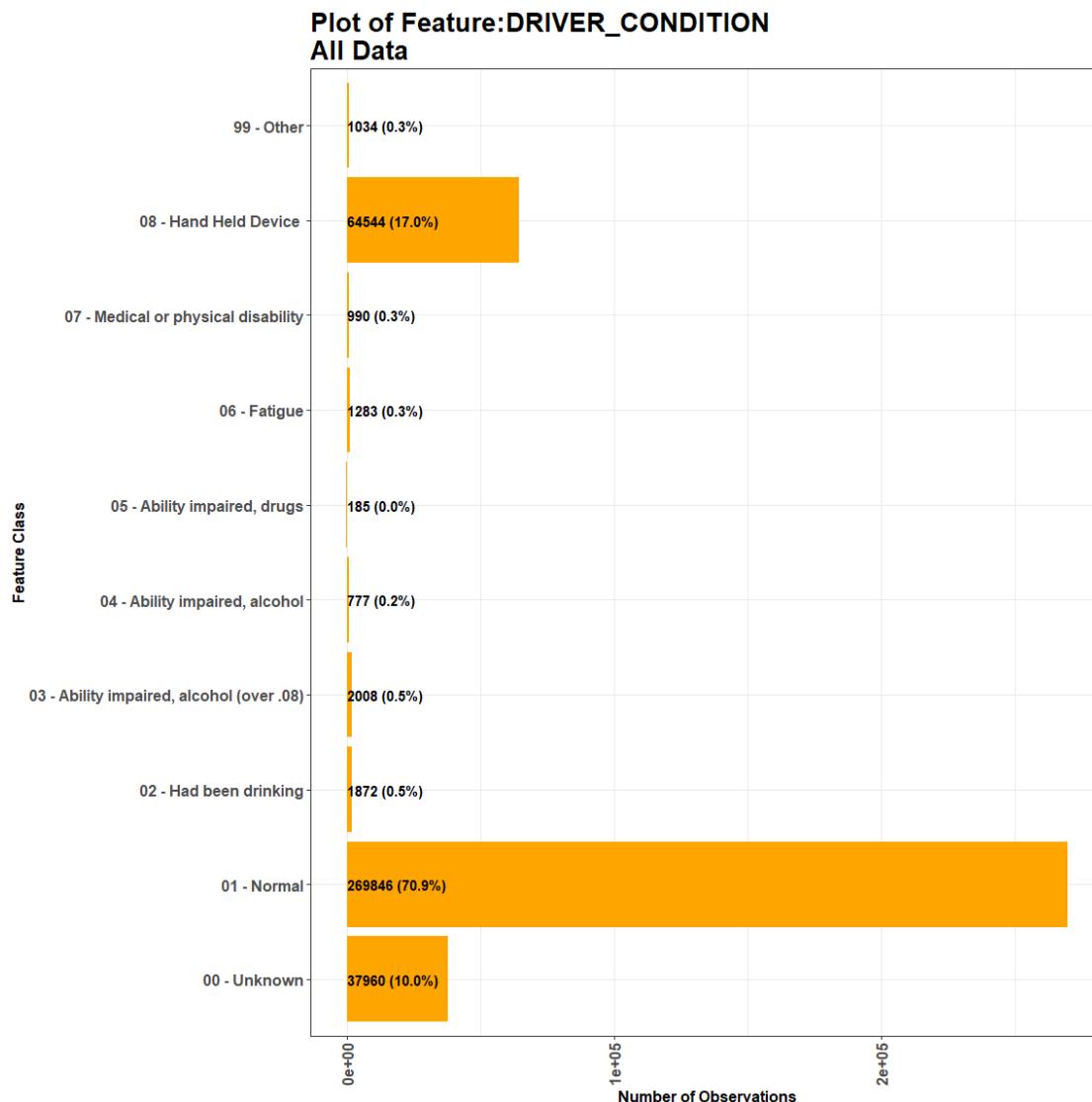
23.4.Clean Transformations

Remove/update observations according with previous section.

24. Driver/ Pedestrian Condition (DRIVER_CONDITION) - MVR 0319

24.1.All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	00 - Unknown	37960	9.9764
2	01 - Normal	269846	70.9190
3	02 - Had been drinking	1872	0.4920
4	03 - Ability impaired, alcohol (over .08)	2008	0.5277
5	04 - Ability impaired, alcohol	777	0.2042
6	05 - Ability impaired, drugs	185	0.0486
7	06 - Fatigue	1283	0.3372
8	07 - Medical or physical disability	990	0.2602
9	08 - Hand Held Device	64544	16.9630
10	99 - Other	1034	0.2717

24.2. 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

24.3. Special Feature Values to Handle

None.

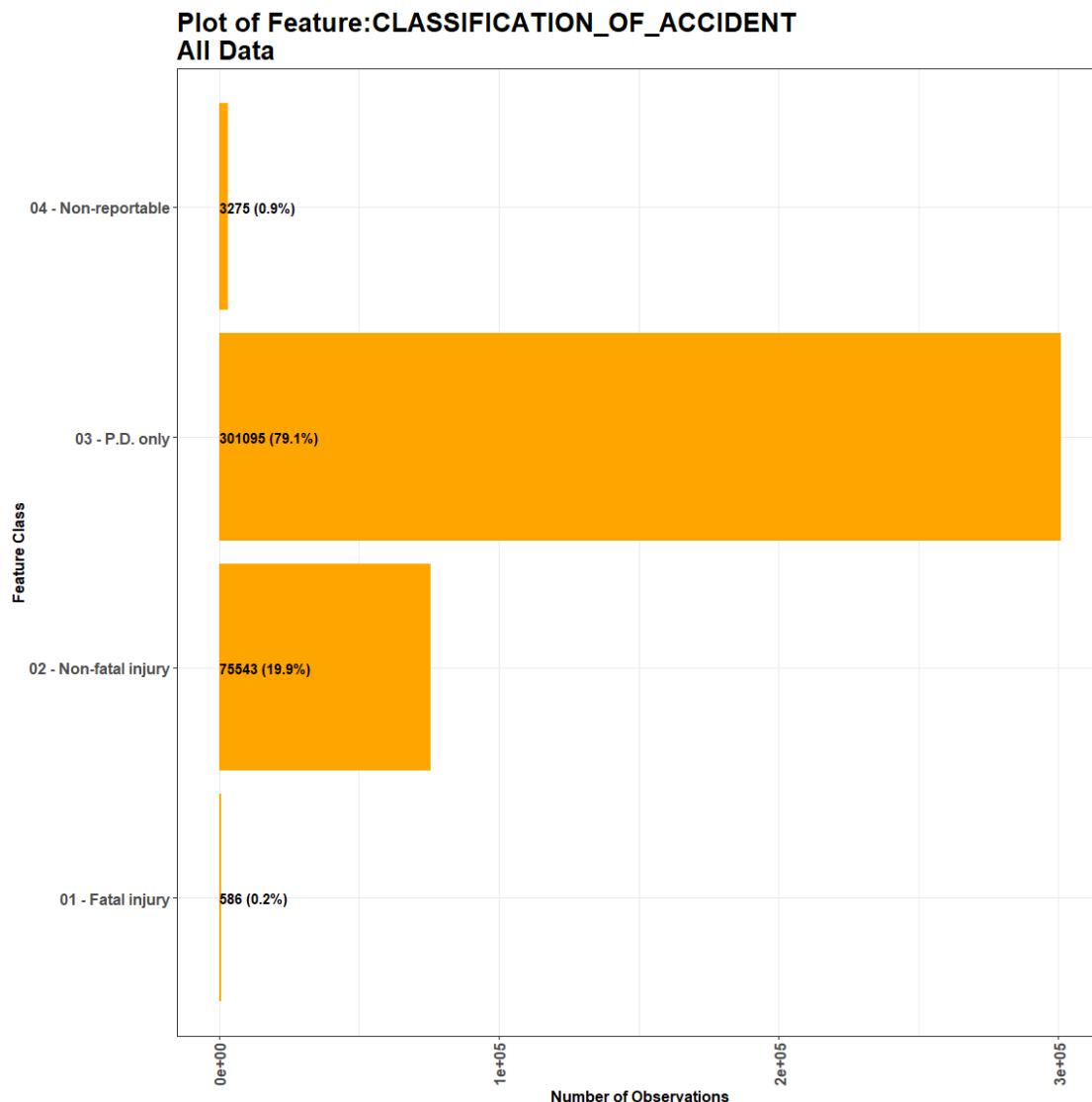
24.4. Clean Transformations

None.

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

25.1.All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	01 - Fatal injury	586	0.1540
2	02 - Non-fatal injury	75543	19.8537
3	03 - P.D. only	301095	79.1316
4	04 - Non-reportable	3275	0.8607

25.2. 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

25.3. Special Feature Values to Handle

None.

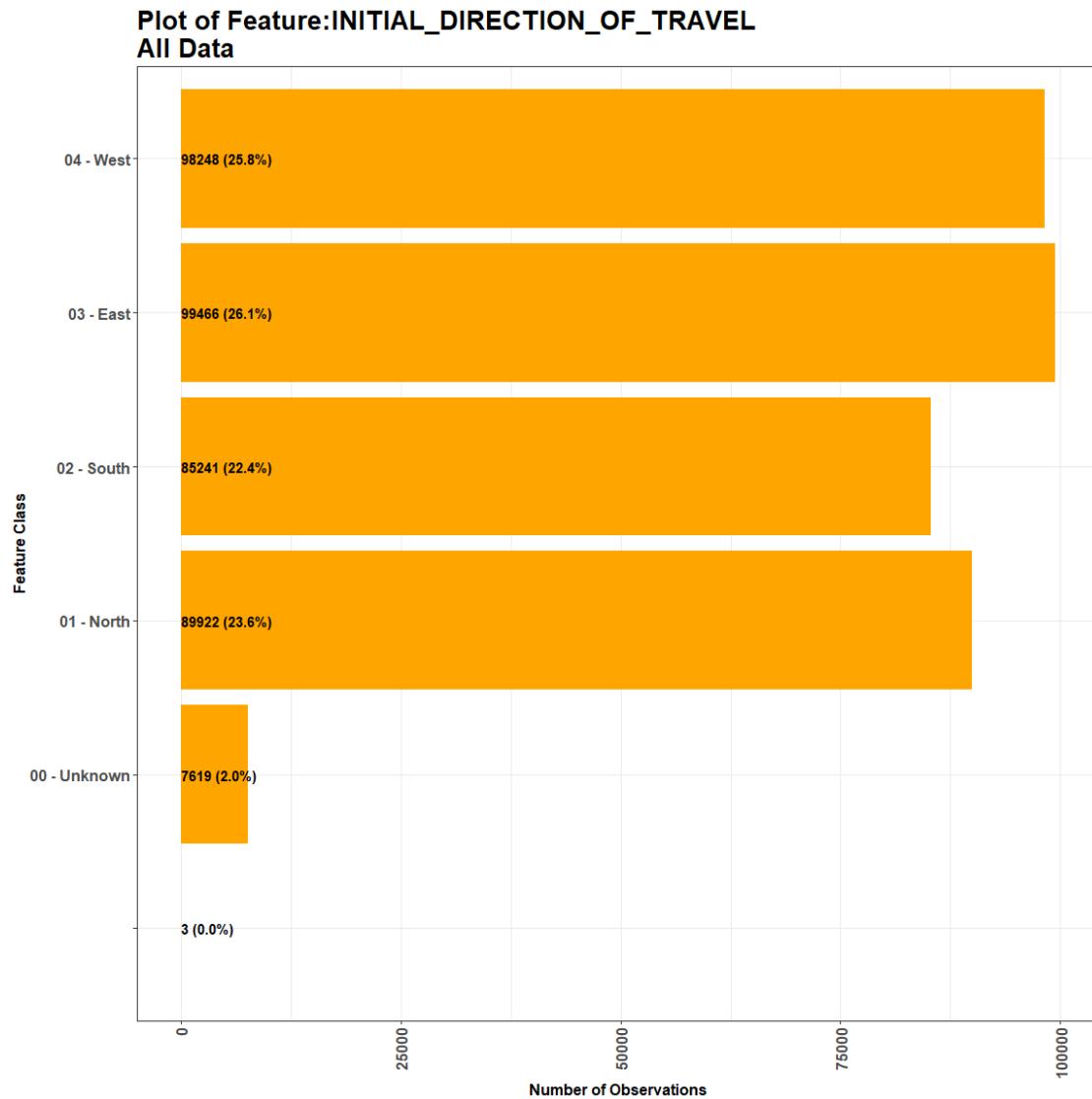
25.4. Clean Transformations

None.

26. Initial Direction of Travel (INITIAL_DIRECTION_OF_TRAVEL) - MVCR 0323

26.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	"" (Blank)	3	0.0008
2	00 - Unknown	7619	2.0024
3	01 - North	89922	23.6327
4	02 - South	85241	22.4024
5	03 - East	99466	26.1409
6	04 - West	98248	25.8208

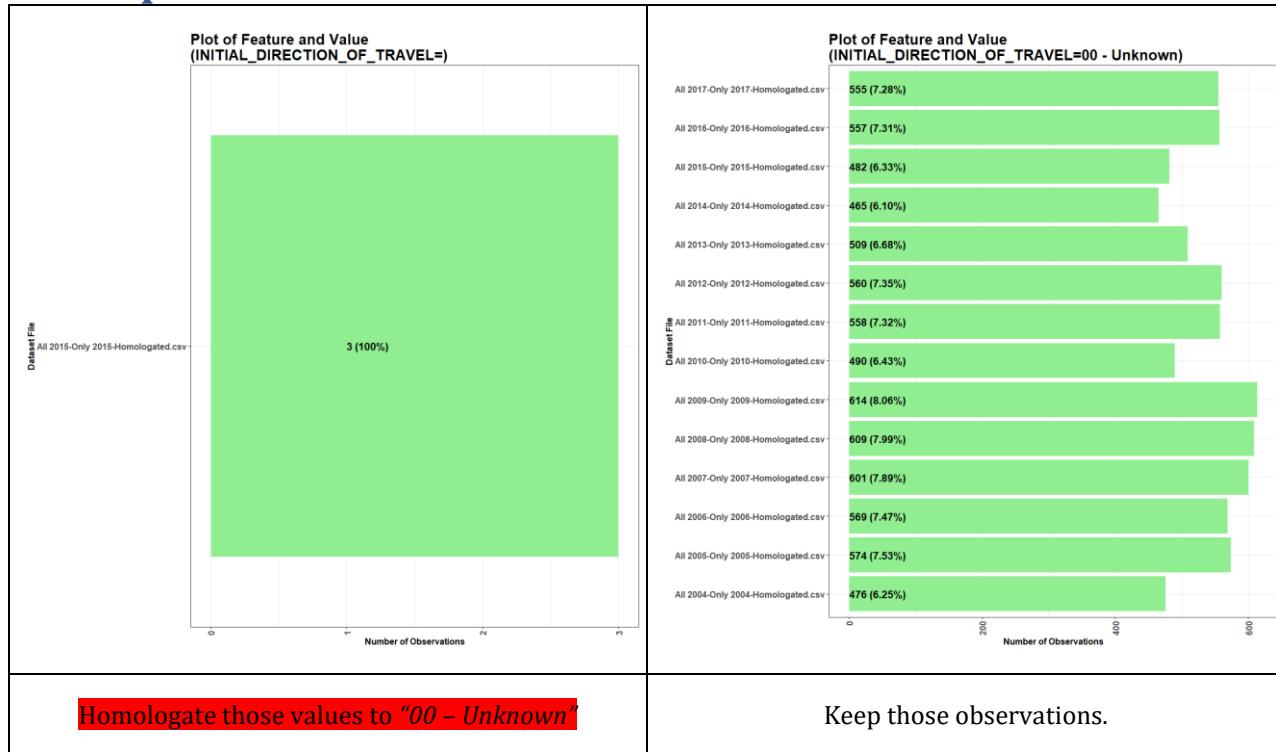
26.2. Allowed Features Values (MVCR-0323)

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) and "00 - Unknown" are not allowed values according with the MVCR Manual.

26.3.Special Feature Values to Handle



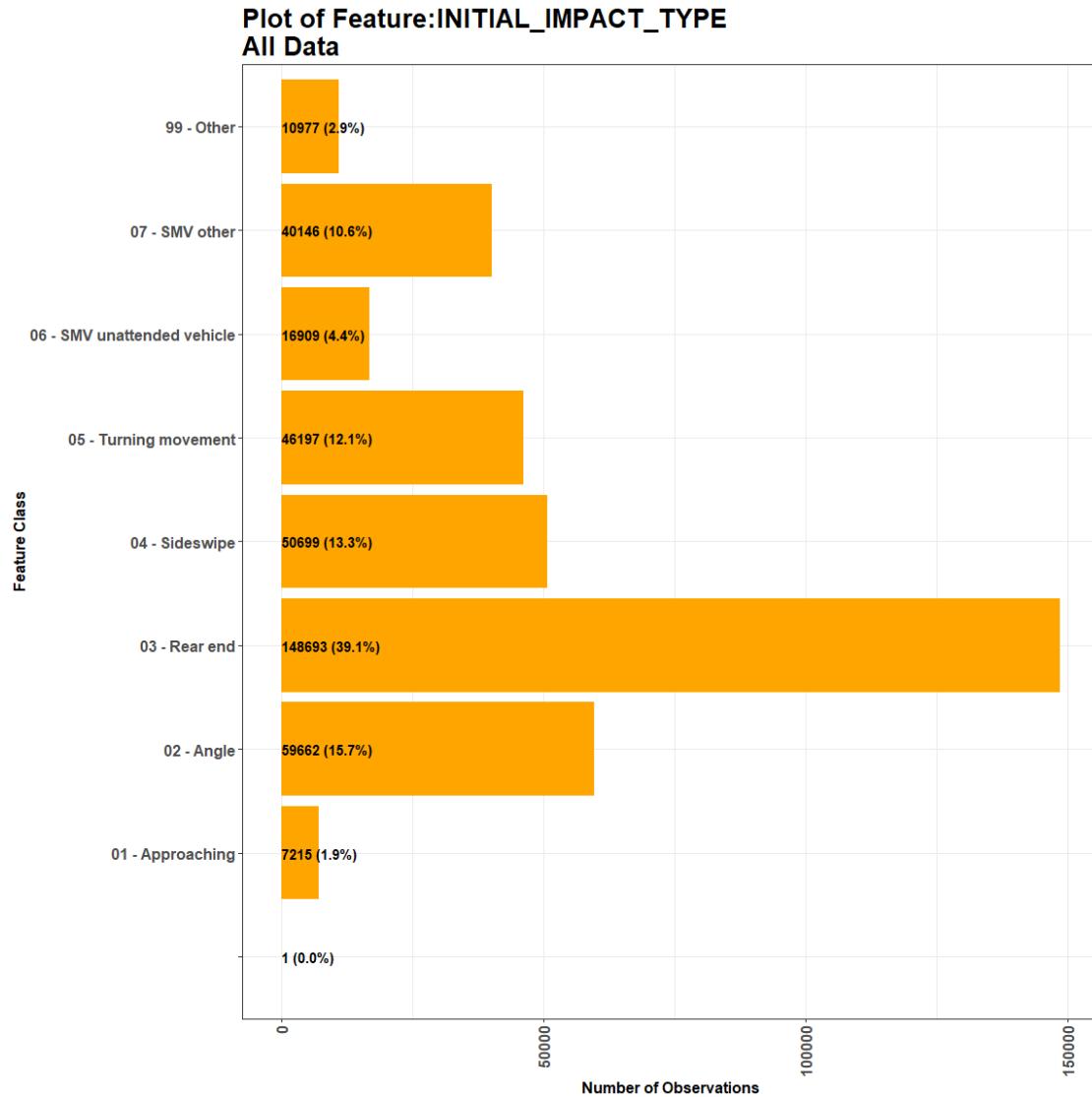
26.4.Clean Transformations

Remove/update observations according with previous section.

27. Initial Impact Type (INITIAL_IMPACT_TYPE) - MVCR 0324

27.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



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	7215	1.8962
3	02 - Angle	59662	15.6799
4	03 - Rear end	148693	39.0784
5	04 - Sideswipe	50699	13.3243
6	05 - Turning movement	46197	12.1412
7	06 - SMV unattended vehicle	16909	4.4439
8	07 - SMV other	40146	10.5509
9	99 - Other	10977	2.8849

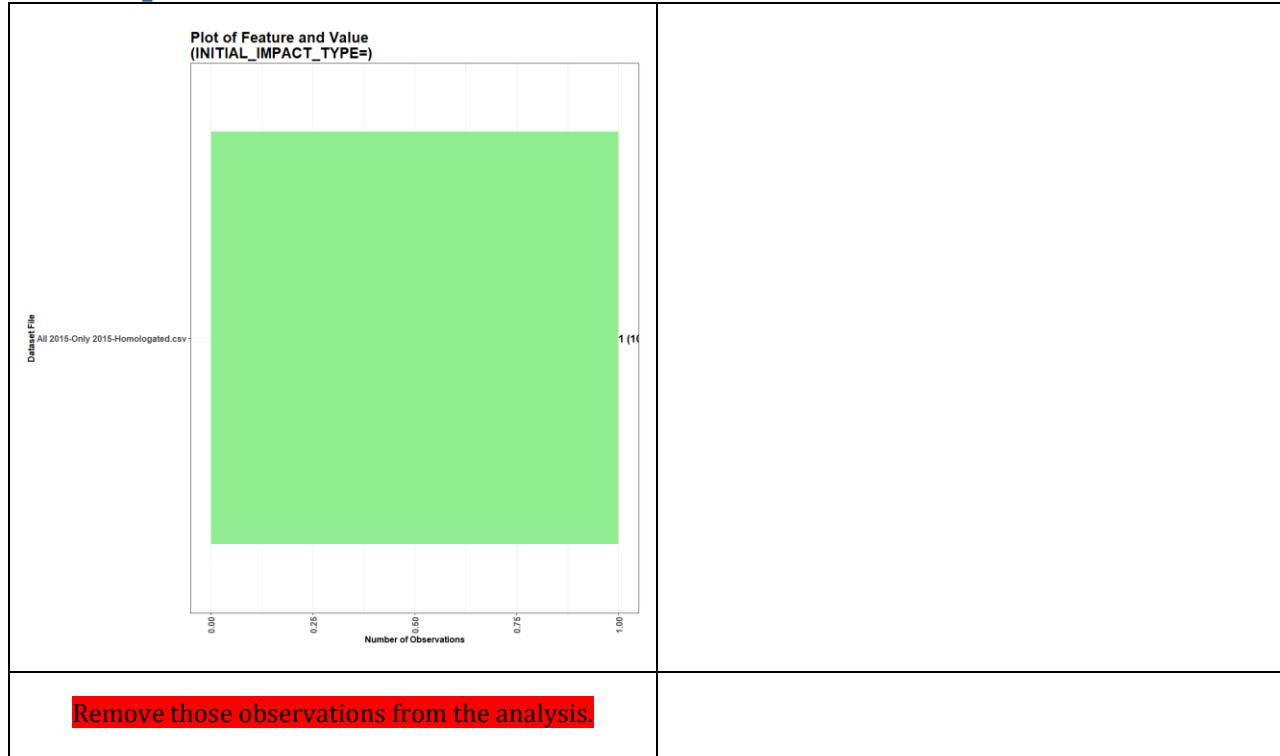
27.2. Allowed Features Values (MVCR-0324)

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.

27.3.Special Feature Values to Handle



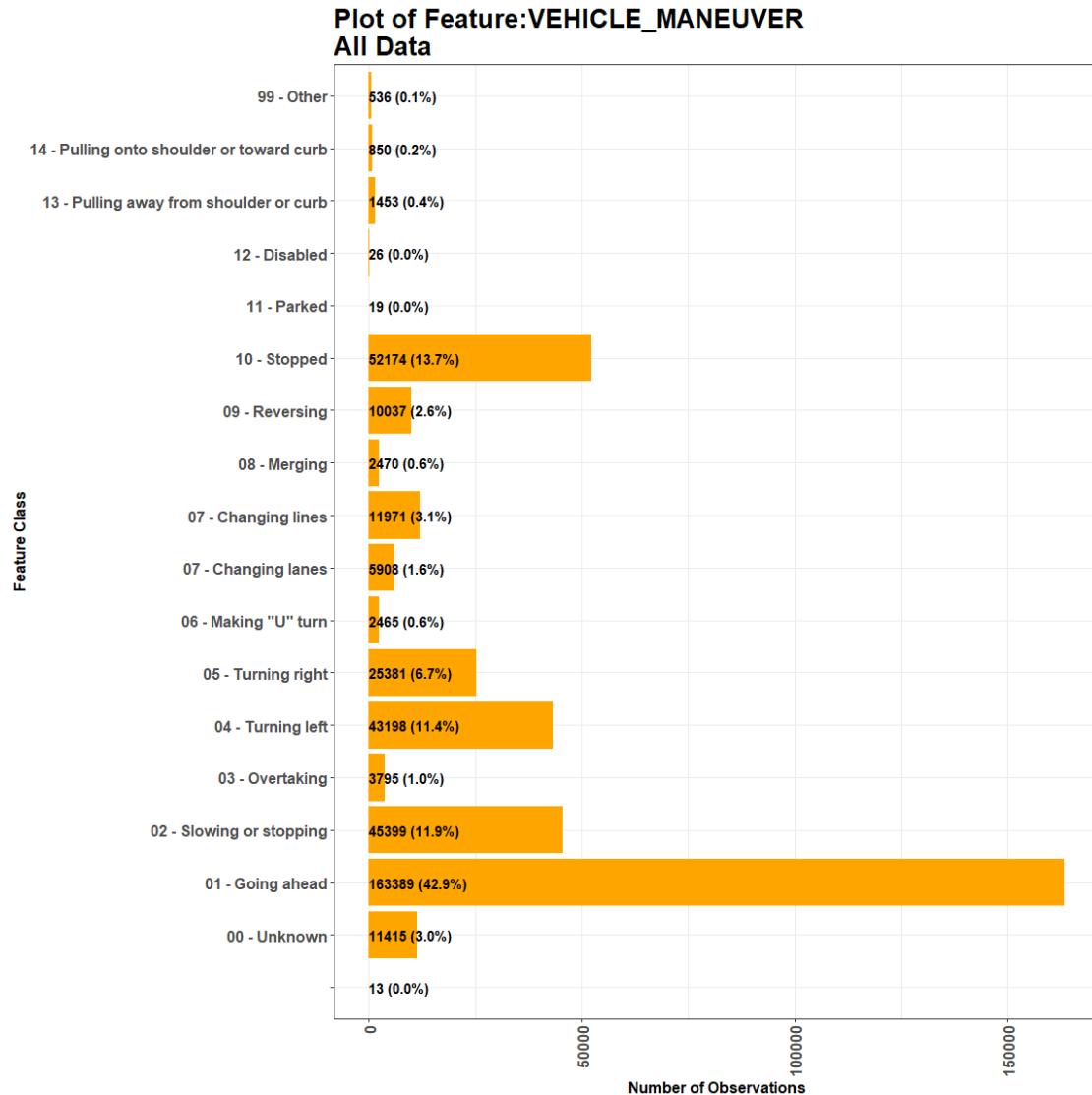
27.4.Clean Transformations

Remove/update observations according with previous section.

28. Vehicle Manoeuvre (VEHICLE_MANEUVER) – MVCR 0325

28.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	" (Blank)	13	0.0034
2	00 - Unknown	11415	3.0000
3	01 - Going ahead	163389	42.9407
4	02 - Slowing or stopping	45399	11.9314
5	03 - Overtaking	3795	0.9974
6	04 - Turning left	43198	11.3530
7	05 - Turning right	25381	6.6705
8	06 - Making "U" turn	2465	0.6478
9	07 - Changing lanes	5908	1.5527
10	07 - Changing lines	11971	3.1461
11	08 - Merging	2470	0.6491
12	09 - Reversing	10037	2.6379
13	10 - Stopped	52174	13.7120
14	11 - Parked	19	0.0050
15	12 - Disabled	26	0.0068
16	13 - Pulling away from shoulder or curb	1453	0.3819
17	14 - Pulling onto shoulder or toward curb	850	0.2234
18	99 - Other	536	0.1409

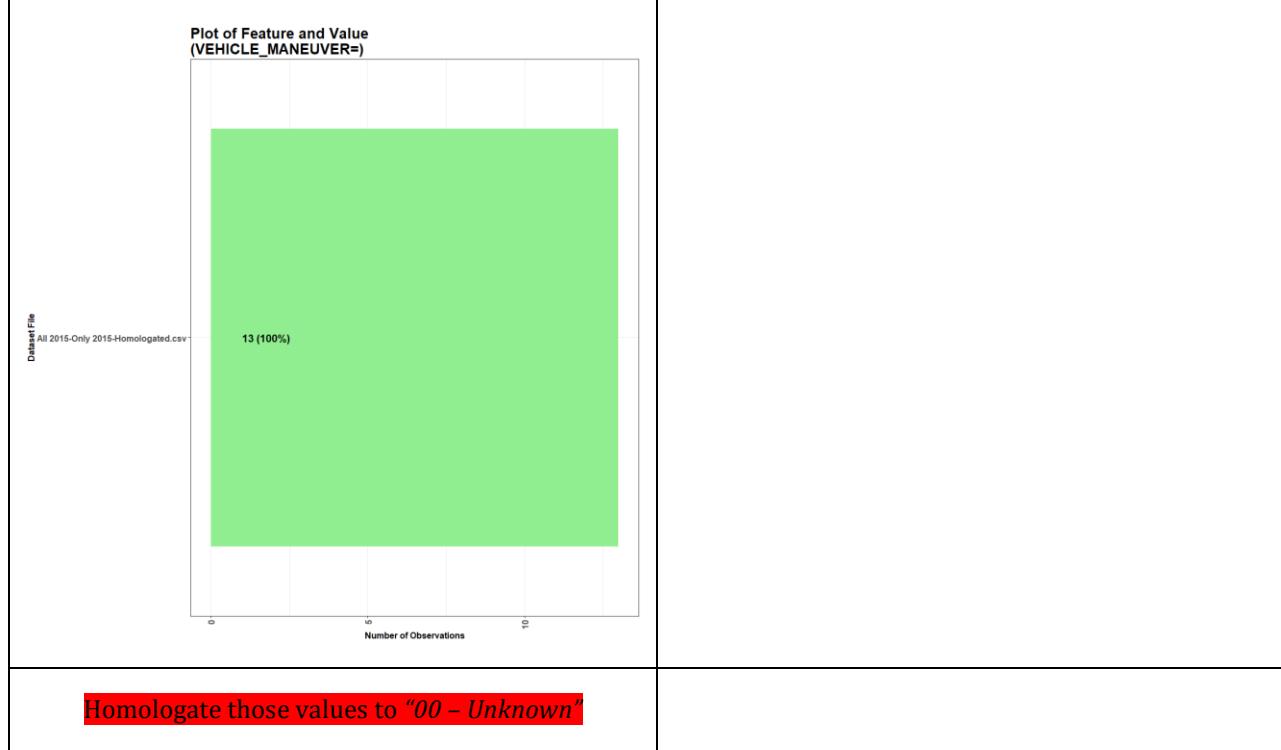
28.2. Allowed Features Values (MVCR-0325)

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.

28.3.Special Feature Values to Handle



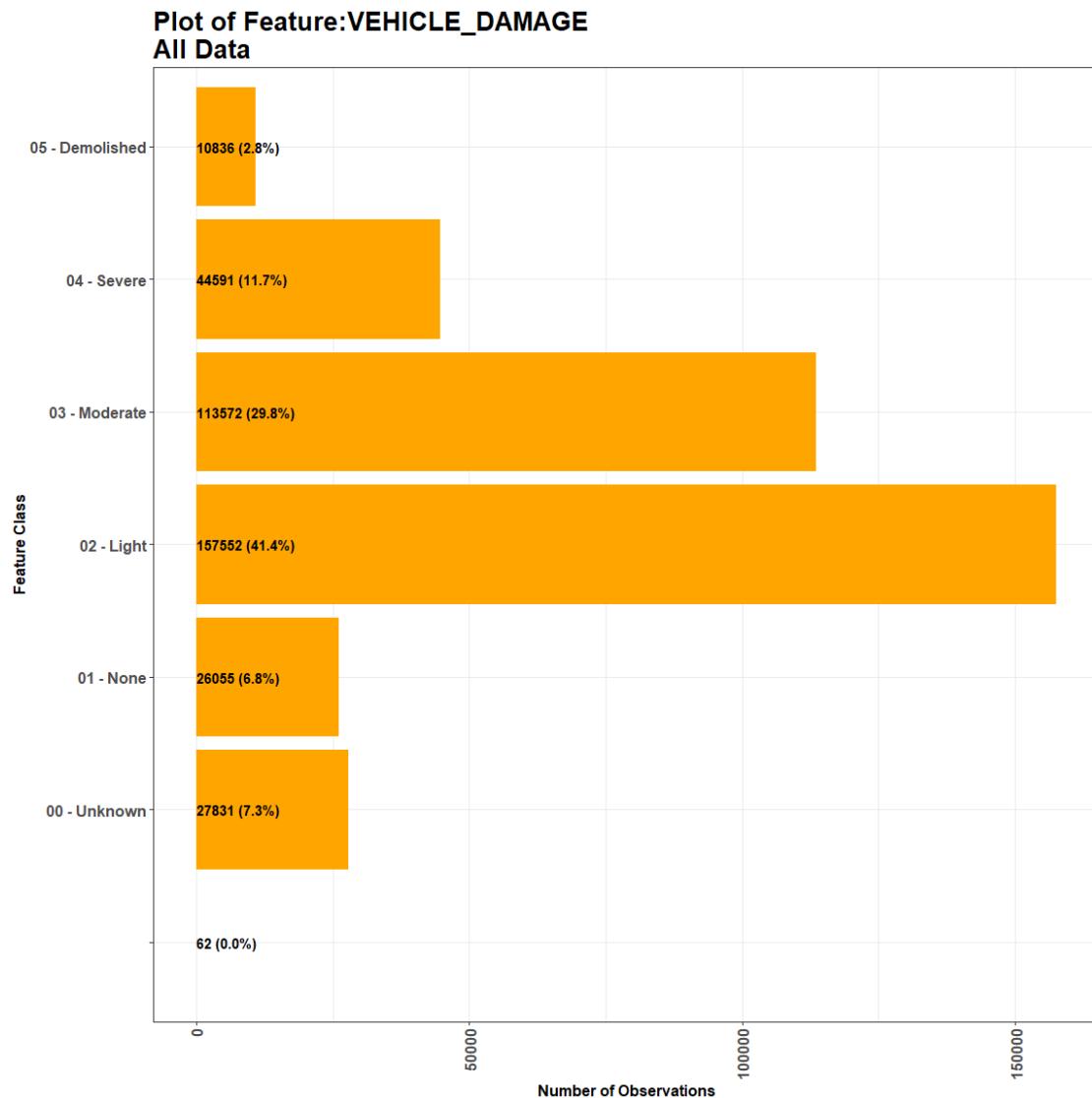
28.4.Clean Transformations

Remove/update observations according with previous section.

29. Vehicle Damage (VEHICLE_DAMAGE) – MVCR 0331

29.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	"" (Blank)	62	0.0163
2	00 - Unknown	27831	7.3143
3	01 - None	26055	6.8476
4	02 - Light	157552	41.4067
5	03 - Moderate	113572	29.8482
6	04 - Severe	44591	11.7191
7	05 - Demolished	10836	2.8478

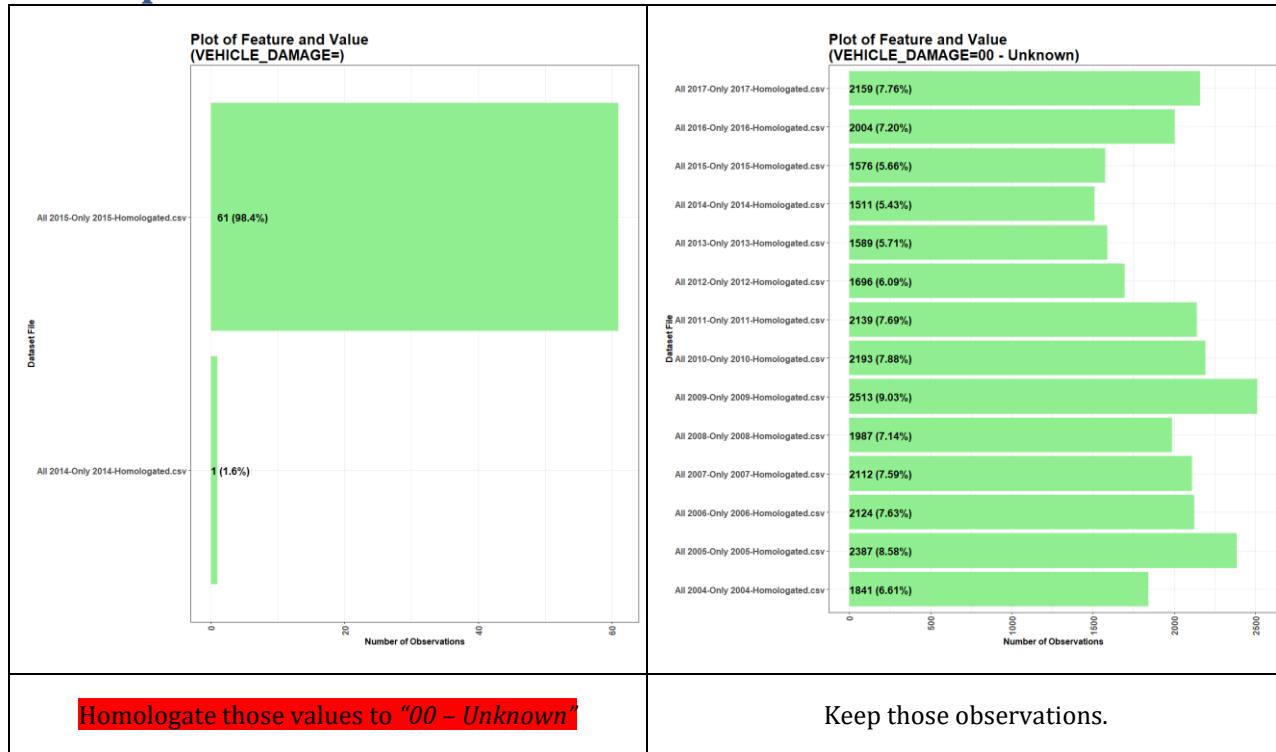
29.2. Allowed Features Values (MVCR-0331)

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) and "00 – Unknown" are not allowed values according with the MVCR Manual.

29.3.Special Feature Values to Handle



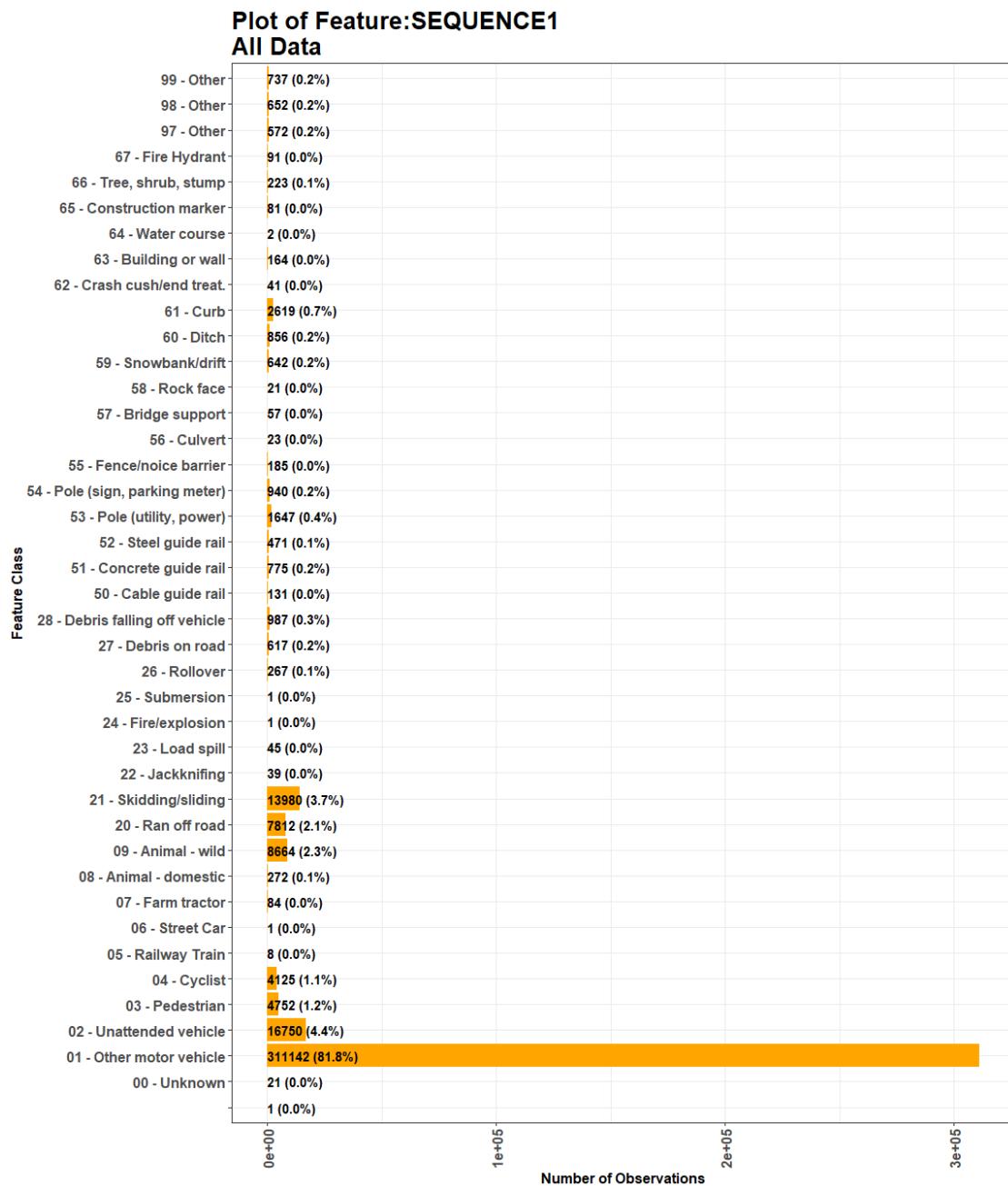
29.4.Clean Transformations

Remove/update observations according with previous section.

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

30.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	" (Blank)	1	0.0003
2	00 - Unknown	21	0.0055
3	01 - Other motor vehicle	311142	81.7721
4	02 - Unattended vehicle	16750	4.4021
5	03 - Pedestrian	4752	1.2489
6	04 - Cyclist	4125	1.0841
7	05 - Railway Train	8	0.0021
8	06 - Street Car	1	0.0003
9	07 - Farm tractor	84	0.0221
10	08 - Animal - domestic	272	0.0715
11	09 - Animal - wild	8664	2.2770
12	20 - Ran off road	7812	2.0531
13	21 - Skidding/sliding	13980	3.6741
14	22 - Jackknifing	39	0.0102
15	23 - Load spill	45	0.0118
16	24 - Fire/explosion	1	0.0003
17	25 - Submersion	1	0.0003
18	26 - Rollover	267	0.0702
19	27 - Debris on road	617	0.1622
20	28 - Debris falling off vehicle	987	0.2594
21	50 - Cable guide rail	131	0.0344
22	51 - Concrete guide rail	775	0.2037
23	52 - Steel guide rail	471	0.1238
24	53 - Pole (utility, power)	1647	0.4329
25	54 - Pole (sign, parking meter)	940	0.2470
26	55 - Fence/noice barrier	185	0.0486
27	56 - Culvert	23	0.0060
28	57 - Bridge support	57	0.0150
29	58 - Rock face	21	0.0055
30	59 - Snowbank/drift	642	0.1687
31	60 - Ditch	856	0.2250
32	61 - Curb	2619	0.6883
33	62 - Crash cush/end treat.	41	0.0108
34	63 - Building or wall	164	0.0431
35	64 - Water course	2	0.0005
36	65 - Construction marker	81	0.0213
37	66 - Tree, shrub, stump	223	0.0586
38	67 - Fire Hydrant	91	0.0239
39	97 - Other	572	0.1503
40	98 - Other	652	0.1714
41	99 - Other	737	0.1937

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

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

30.2.1. 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

30.2.2. 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

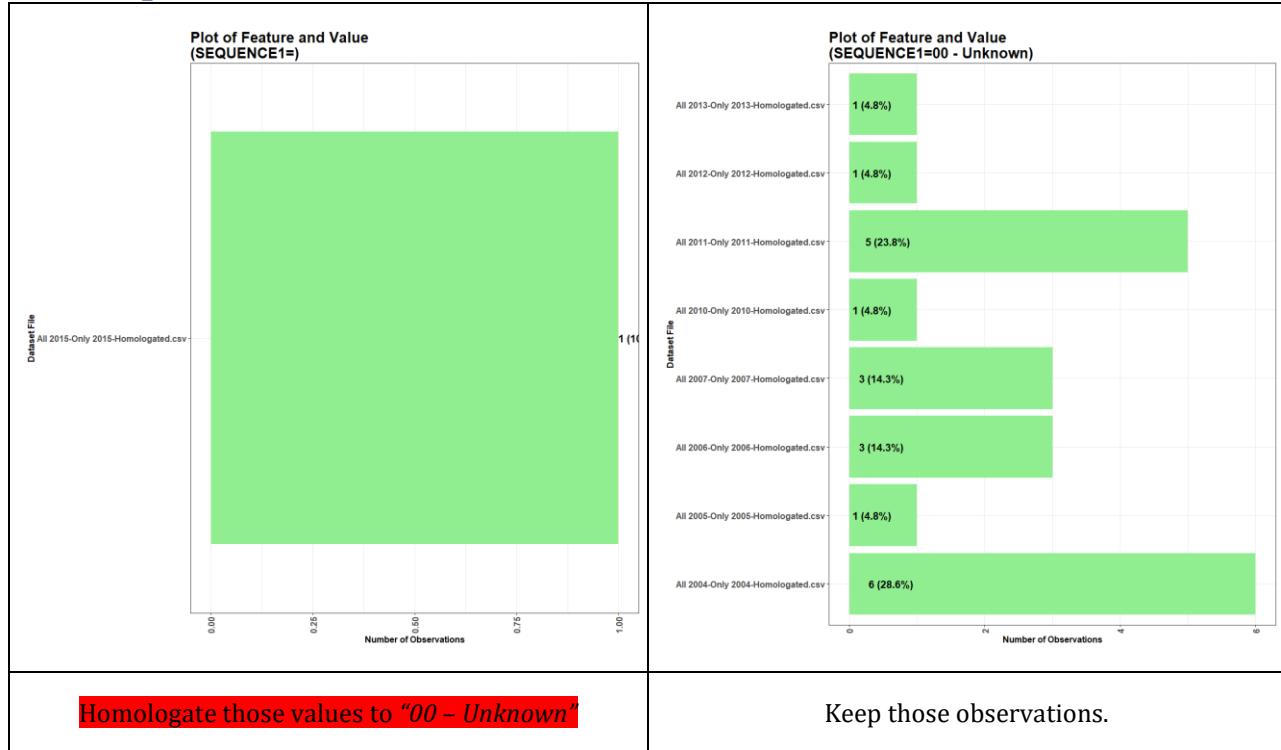
30.2.3. MVCR 0329: Fixed Object

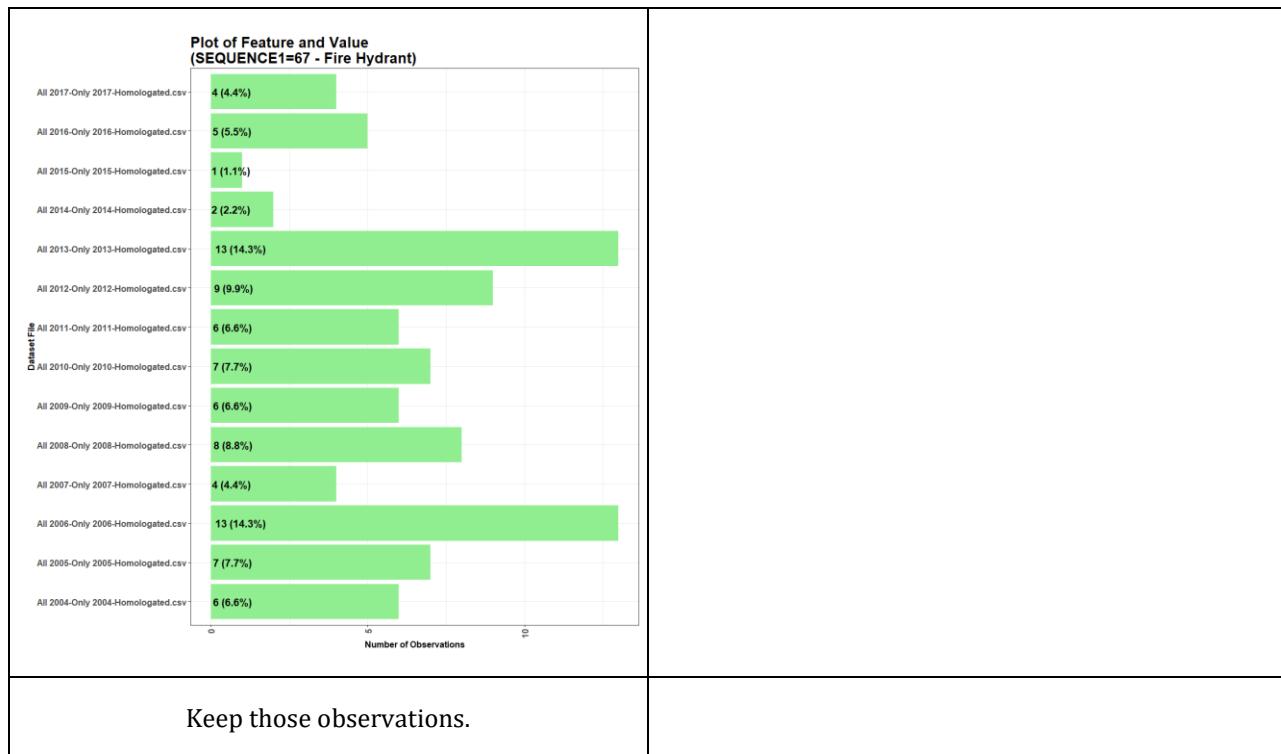
Feature Code	Feature Label
50	Cable Guide Rail
51	Concrete Guide Rail
52	Steel Guide Rail
53	Pole (Utility, Tower)
54	Pole (Sign, Parking Meter)
55	Fence/Noise Barrier
56	Culvert
57	Bridge Support
58	Rock Face
59	Snowbank/drift

60	Ditch
61	Curb
62	Crash Cushion/End treatment
63	Building or Walls
64	Watercourse
65	Construction Marker
66	Tree, Shrub, Stump
99	Other

It is important to notice that feature values “” (Blank), “00 – Unknown” and “67 – Fire Hydrant” are not allowed values according with the MVCR Manual.

30.3.Special Feature Values to Handle





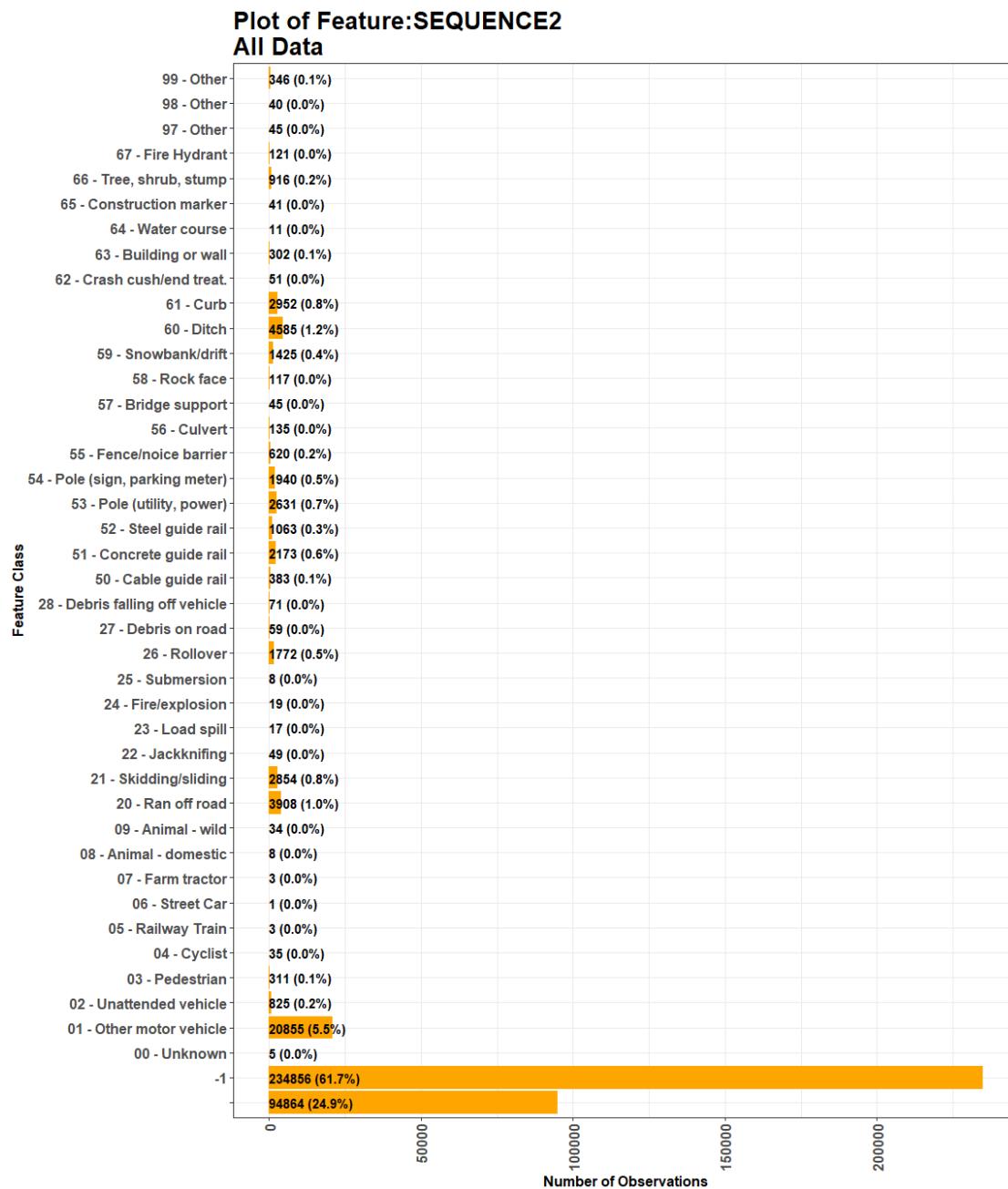
30.4.Clean Transformations

Remove/update observations according with previous section.

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

31.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

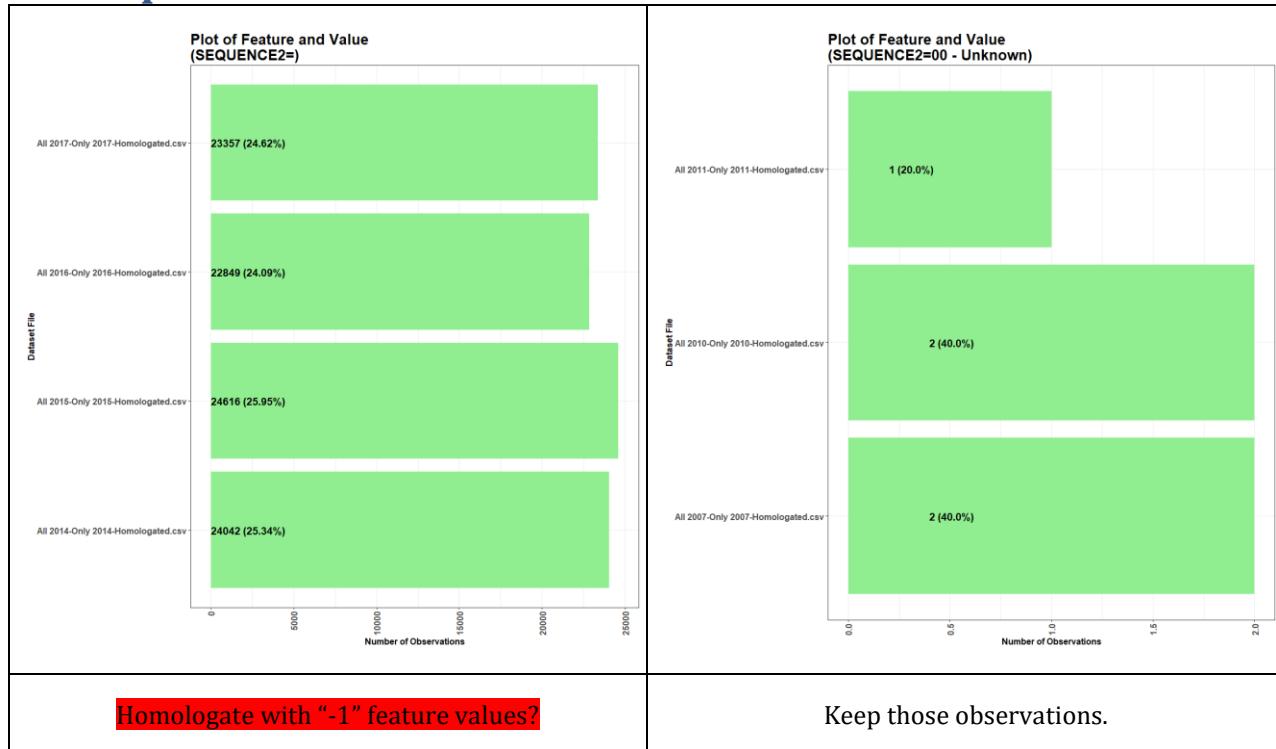
Feature Number	Feature Value	Number of Observations	Percentage
1	" (Blank)	94864	24.9315
2	-1	234856	61.7232
3	00 - Unknown	5	0.0013
4	01 - Other motor vehicle	20855	5.4810
5	02 - Unattended vehicle	825	0.2168
6	03 - Pedestrian	311	0.0817
7	04 - Cyclist	35	0.0092
8	05 - Railway Train	3	0.0008
9	06 - Street Car	1	0.0003
10	07 - Farm tractor	3	0.0008
11	08 - Animal - domestic	8	0.0021
12	09 - Animal - wild	34	0.0089
13	20 - Ran off road	3908	1.0271
14	21 - Skidding/sliding	2854	0.7501
15	22 - Jackknifing	49	0.0129
16	23 - Load spill	17	0.0045
17	24 - Fire/explosion	19	0.0050
18	25 - Submersion	8	0.0021
19	26 - Rollover	1772	0.4657
20	27 - Debris on road	59	0.0155
21	28 - Debris falling off vehicle	71	0.0187
22	50 - Cable guide rail	383	0.1007
23	51 - Concrete guide rail	2173	0.5711
24	52 - Steel guide rail	1063	0.2794
25	53 - Pole (utility, power)	2631	0.6915
26	54 - Pole (sign, parking meter)	1940	0.5099
27	55 - Fence/noice barrier	620	0.1629
28	56 - Culvert	135	0.0355
29	57 - Bridge support	45	0.0118
30	58 - Rock face	117	0.0307
31	59 - Snowbank/drift	1425	0.3745
32	60 - Ditch	4585	1.2050
33	61 - Curb	2952	0.7758
34	62 - Crash cush/end treat.	51	0.0134
35	63 - Building or wall	302	0.0794
36	64 - Water course	11	0.0029
37	65 - Construction marker	41	0.0108
38	66 - Tree, shrub, stump	916	0.2407
39	67 - Fire Hydrant	121	0.0318
40	97 - Other	45	0.0118
41	98 - Other	40	0.0105
42	99 - Other	346	0.0909

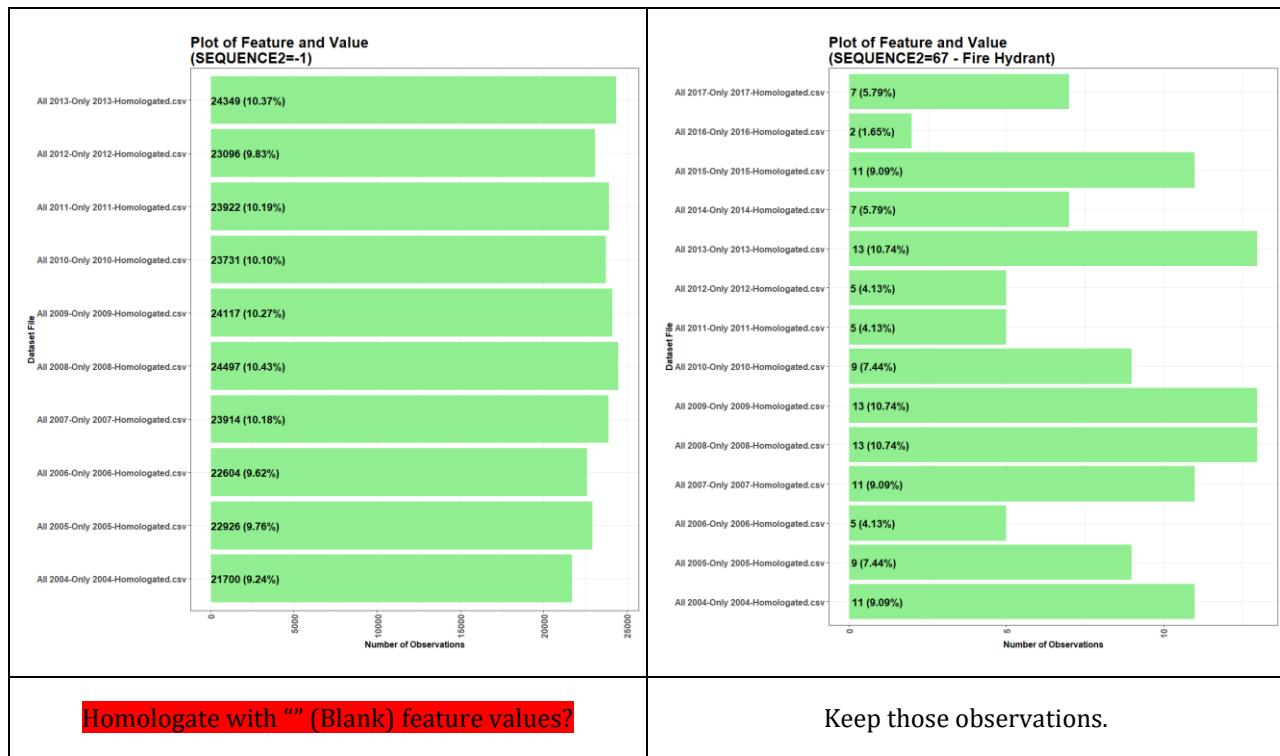
31.2. Allowed Features Values (MVCR-0326/0327/0328/0329)

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

It is important to notice that feature values “” (Blank), “-1”, “00 - Unknown” and “67 – Fire Hydrant” are not allowed values according with the MVCR Manual.

31.3. Special Feature Values to Handle





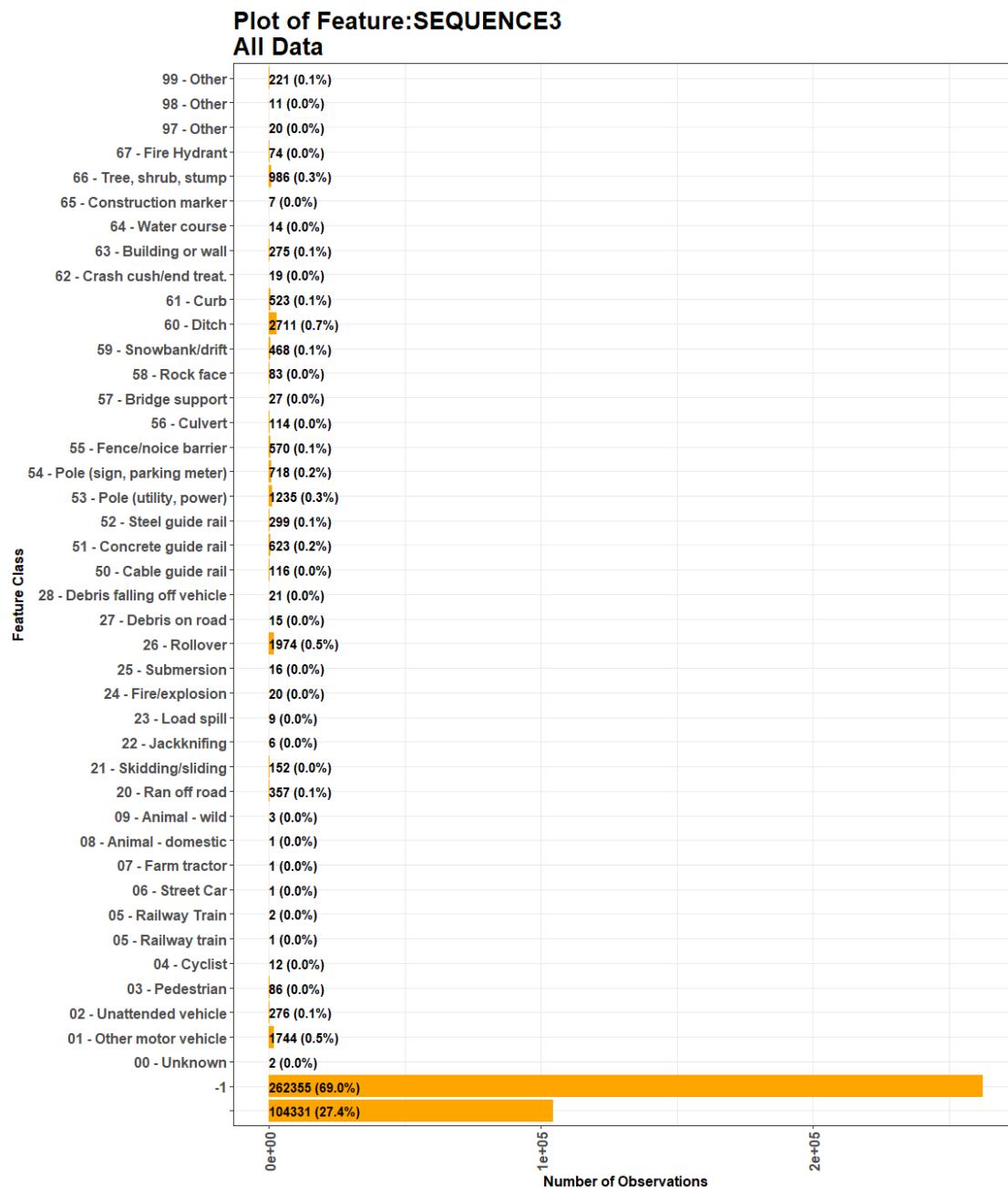
31.4.Clean Transformations

Remove/update observations according with previous section.

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

32.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

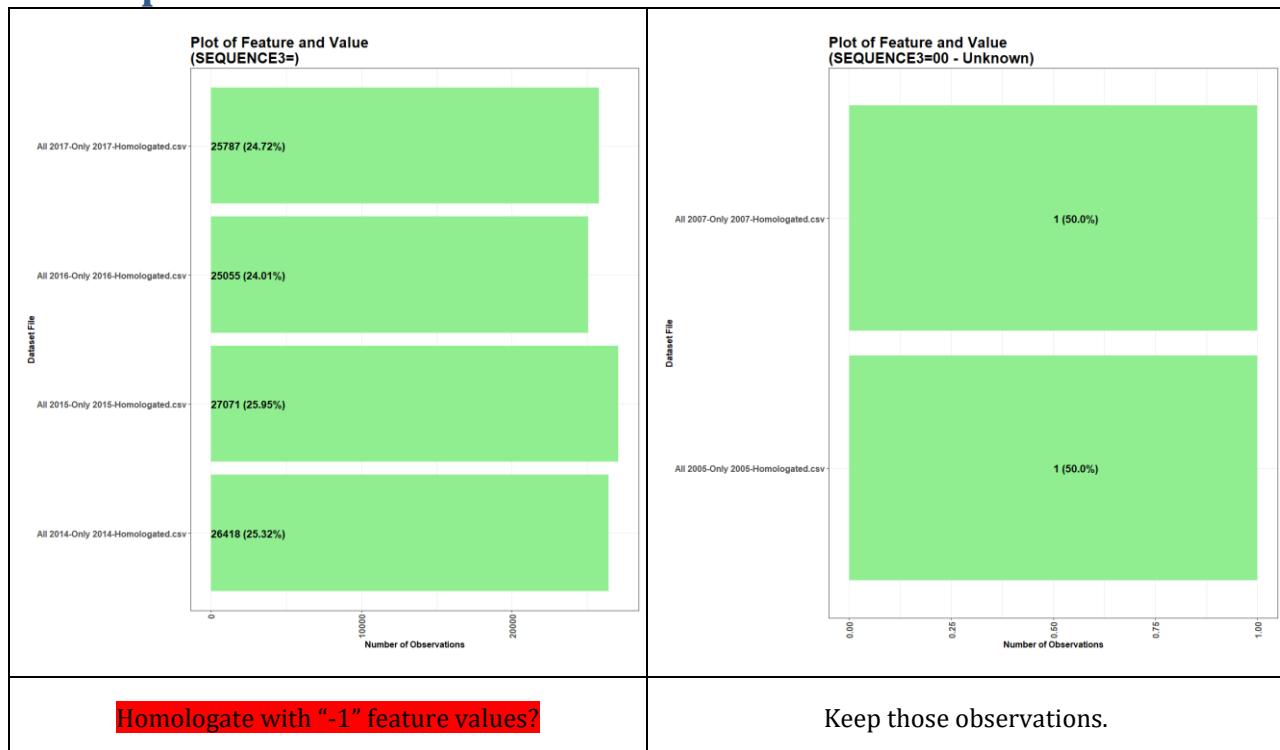
Feature Number	Feature Value	Number of Observations	Percentage
1	"" (Blank)	104331	27.4195
2	-1	262355	68.9502
3	00 - Unknown	2	0.0005
4	01 - Other motor vehicle	1744	0.4583
5	02 - Unattended vehicle	276	0.0725
6	03 - Pedestrian	86	0.0226
7	04 - Cyclist	12	0.0032
8	05 - Railway train	1	0.0003
9	05 - Railway Train	2	0.0005
10	06 - Street Car	1	0.0003
11	07 - Farm tractor	1	0.0003
12	08 - Animal - domestic	1	0.0003
13	09 - Animal - wild	3	0.0008
14	20 - Ran off road	357	0.0938
15	21 - Skidding/sliding	152	0.0399
16	22 - Jackknifing	6	0.0016
17	23 - Load spill	9	0.0024
18	24 - Fire/explosion	20	0.0053
19	25 - Submersion	16	0.0042
20	26 - Rollover	1974	0.5188
21	27 - Debris on road	15	0.0039
22	28 - Debris falling off vehicle	21	0.0055
23	50 - Cable guide rail	116	0.0305
24	51 - Concrete guide rail	623	0.1637
25	52 - Steel guide rail	299	0.0786
26	53 - Pole (utility, power)	1235	0.3246
27	54 - Pole (sign, parking meter)	718	0.1887
28	55 - Fence/noice barrier	570	0.1498
29	56 - Culvert	114	0.0300
30	57 - Bridge support	27	0.0071
31	58 - Rock face	83	0.0218
32	59 - Snowbank/drift	468	0.1230
33	60 - Ditch	2711	0.7125
34	61 - Curb	523	0.1375
35	62 - Crash cush/end treat.	19	0.0050
36	63 - Building or wall	275	0.0723
37	64 - Water course	14	0.0037
38	65 - Construction marker	7	0.0018
39	66 - Tree, shrub, stump	986	0.2591
40	67 - Fire Hydrant	74	0.0194
41	97 - Other	20	0.0053
42	98 - Other	11	0.0029
43	99 - Other	221	0.0581

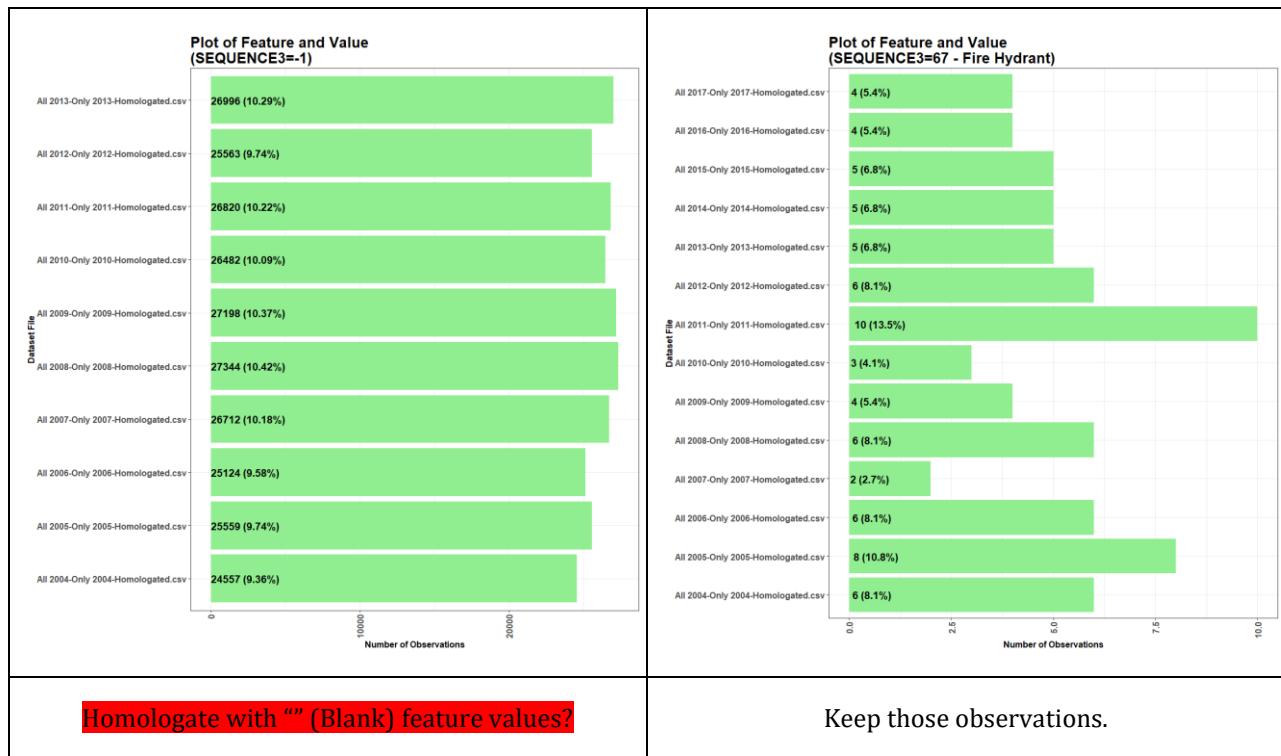
32.2.Allowed Features Values (MVCR-0326/0327/0328/0329)

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

Is important to notice that feature values “” (*Blank*), “-1”, “00 - Unknown” and “67 – Fire Hydrant” are not allowed values according with the MVCR Manual.

32.3.Special Feature Values to Handle





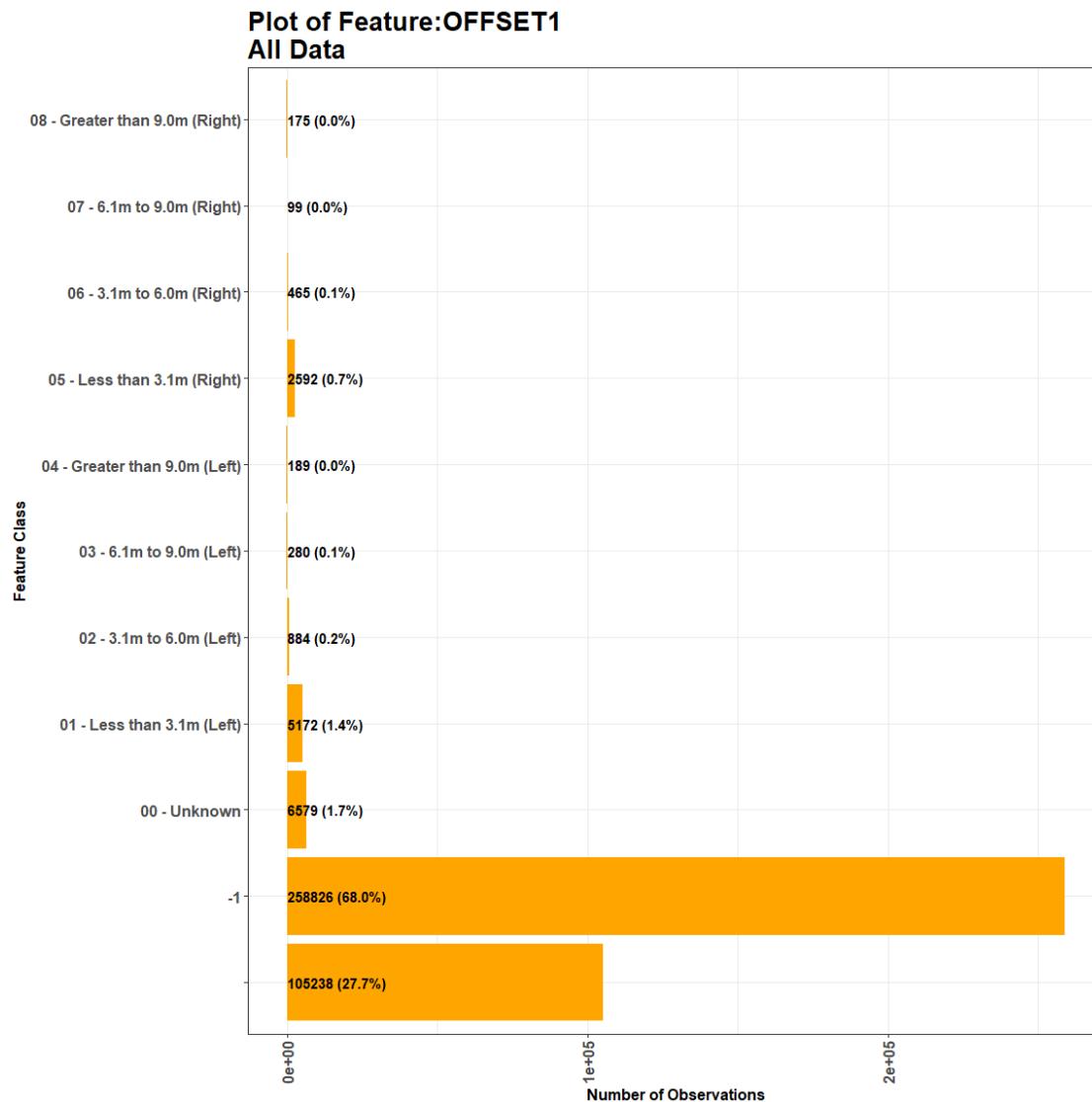
32.4.Clean Transformations

Remove/update observations according with previous section.

33. Offset1 (OFFSET1) – MVCR 0330

33.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

Feature Number	Feature Value	Number of Observations	Percentage
1	"" (Blank)	105238	27.6579
2	-1	258826	68.0228
3	00 - Unknown	6579	1.7290
4	01 - Less than 3.1m (Left)	5172	1.3593
5	02 - 3.1m to 6.0m (Left)	884	0.2323
6	03 - 6.1m to 9.0m (Left)	280	0.0736
7	04 - Greater than 9.0m (Left)	189	0.0497
8	05 - Less than 3.1m (Right)	2592	0.6812
9	06 - 3.1m to 6.0m (Right)	465	0.1222
10	07 - 6.1m to 9.0m (Right)	99	0.0260
11	08 - Greater than 9.0m (Right)	175	0.0460

33.2 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

It is important to notice that feature values "" (Blank), "-1" and "0" are not allowed values according with the MVCR Manual.

33.3.Special Feature Values to Handle



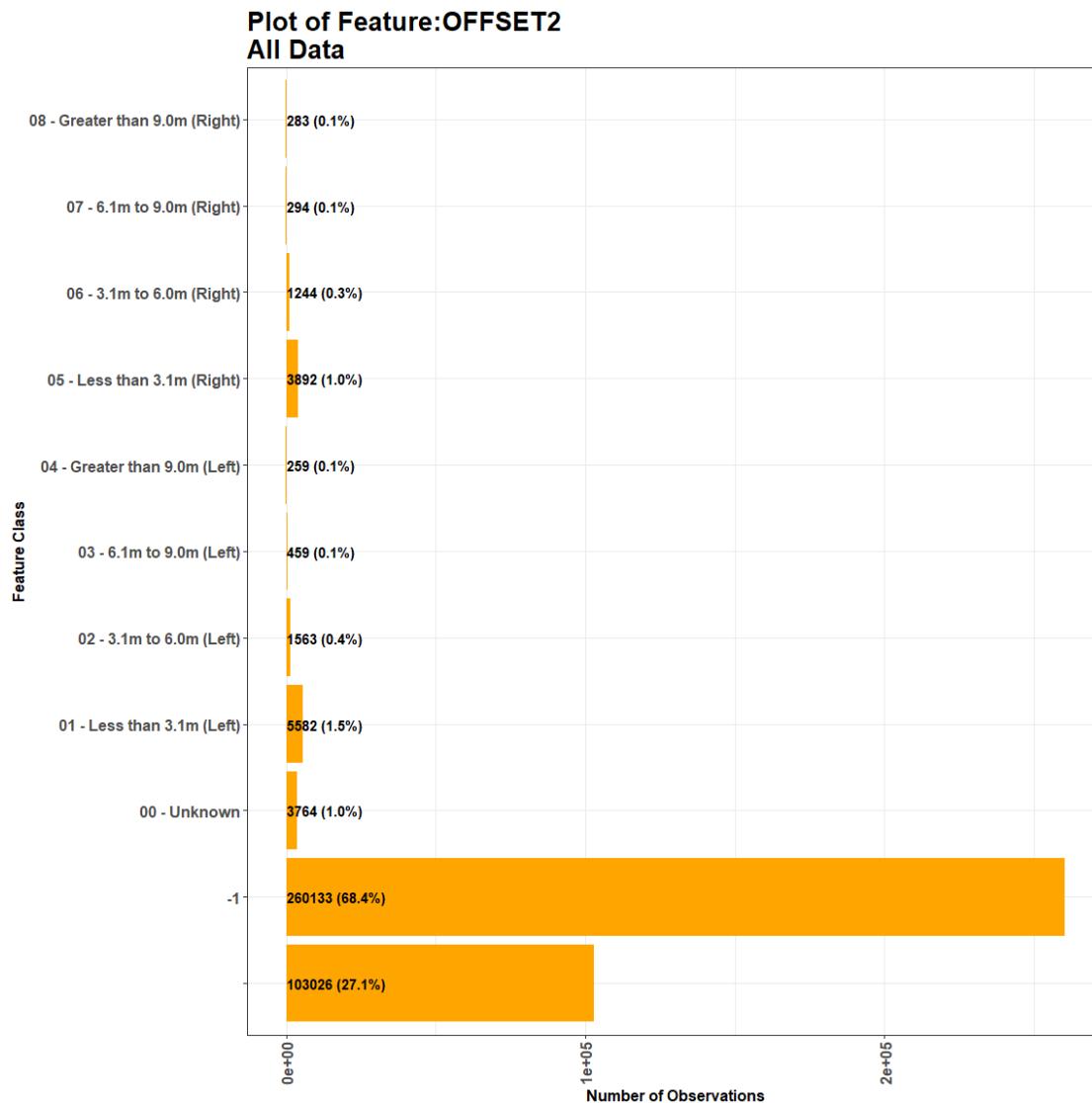
33.4.Clean Transformations

Remove/update observations according with previous section.

34. Offset2 (OFFSET2) – MVCR 0330

34.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

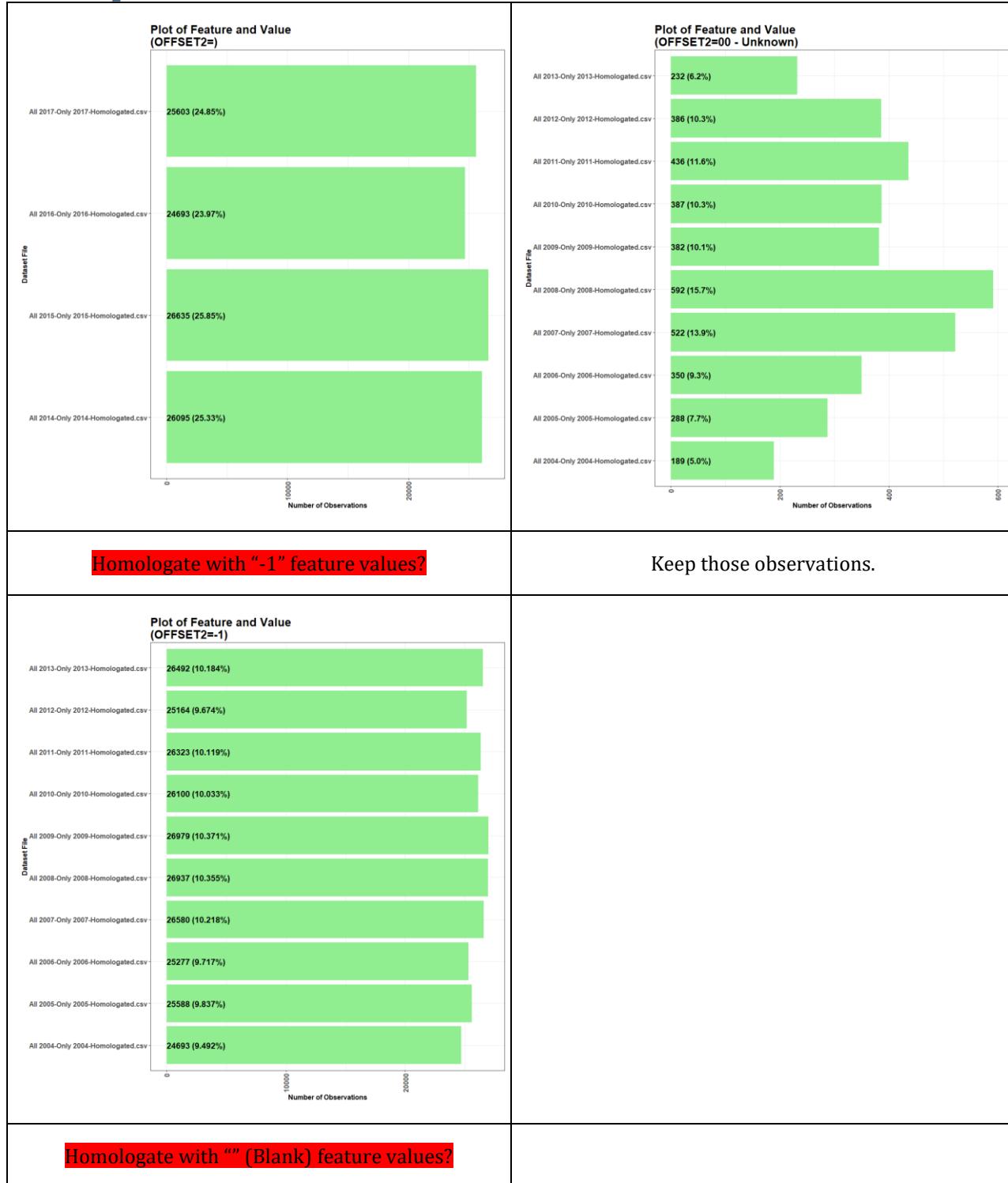
Feature Number	Feature Value	Number of Observations	Percentage
1	"" (Blank)	103026	27.0765
2	-1	260133	68.3663
3	00 - Unknown	3764	0.9892
4	01 - Less than 3.1m (Left)	5582	1.4670
5	02 - 3.1m to 6.0m (Left)	1563	0.4108
6	03 - 6.1m to 9.0m (Left)	459	0.1206
7	04 - Greater than 9.0m (Left)	259	0.0681
8	05 - Less than 3.1m (Right)	3892	1.0229
9	06 - 3.1m to 6.0m (Right)	1244	0.3269
10	07 - 6.1m to 9.0m (Right)	294	0.0773
11	08 - Greater than 9.0m (Right)	283	0.0744

34.2. 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 "00 - Unknown" are not allowed values according with the MVCR Manual.

34.3.Special Feature Values to Handle



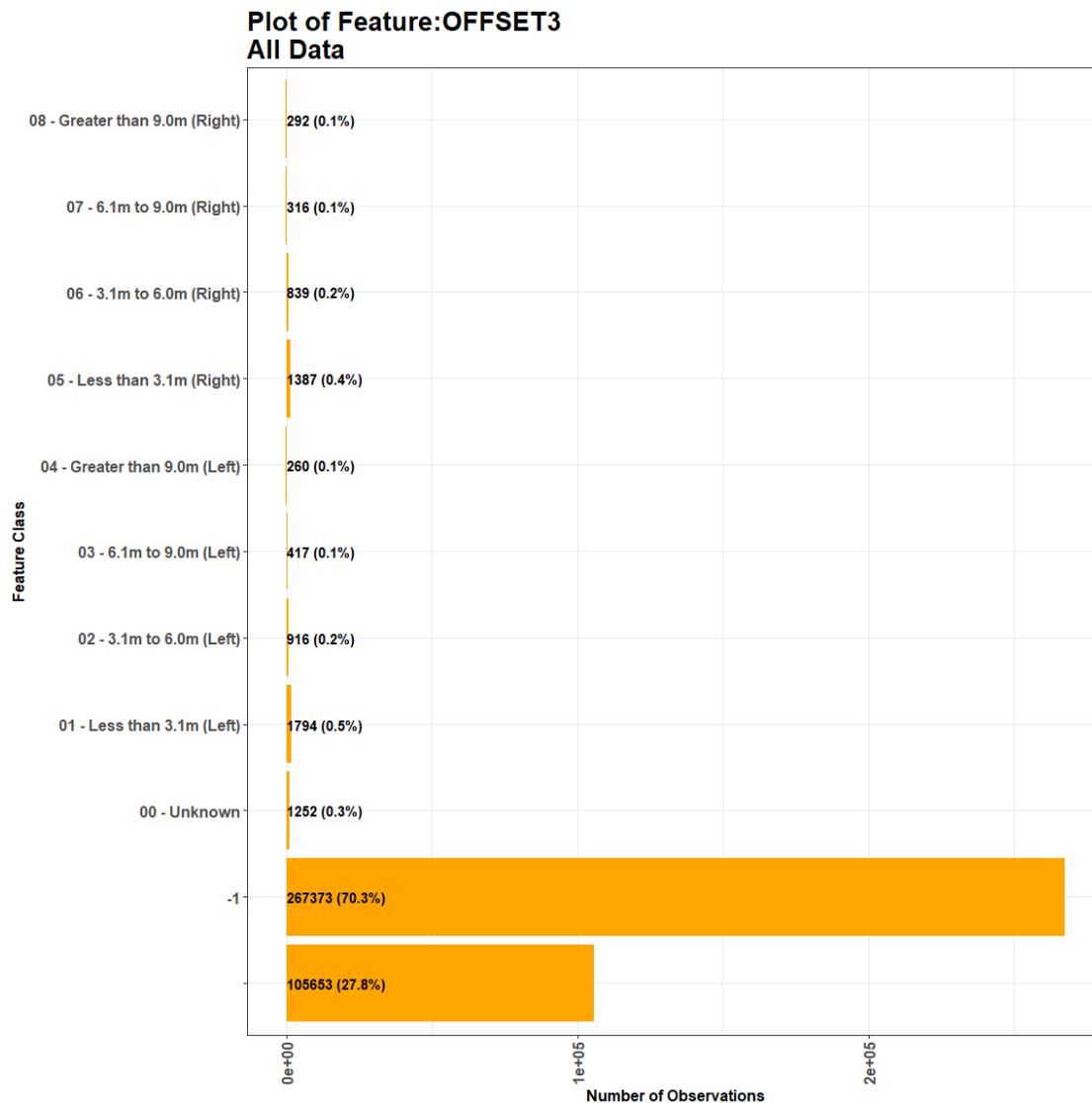
34.4.Clean Transformations

Remove/update observations according with previous section.

35. Offset3 (OFFSET3) – MVCR 0330

35.1. All Features in the Dataset

After applying the *Homologation Transformations*, the top feature values are shown in the following table:



The feature values are shown in the following table:

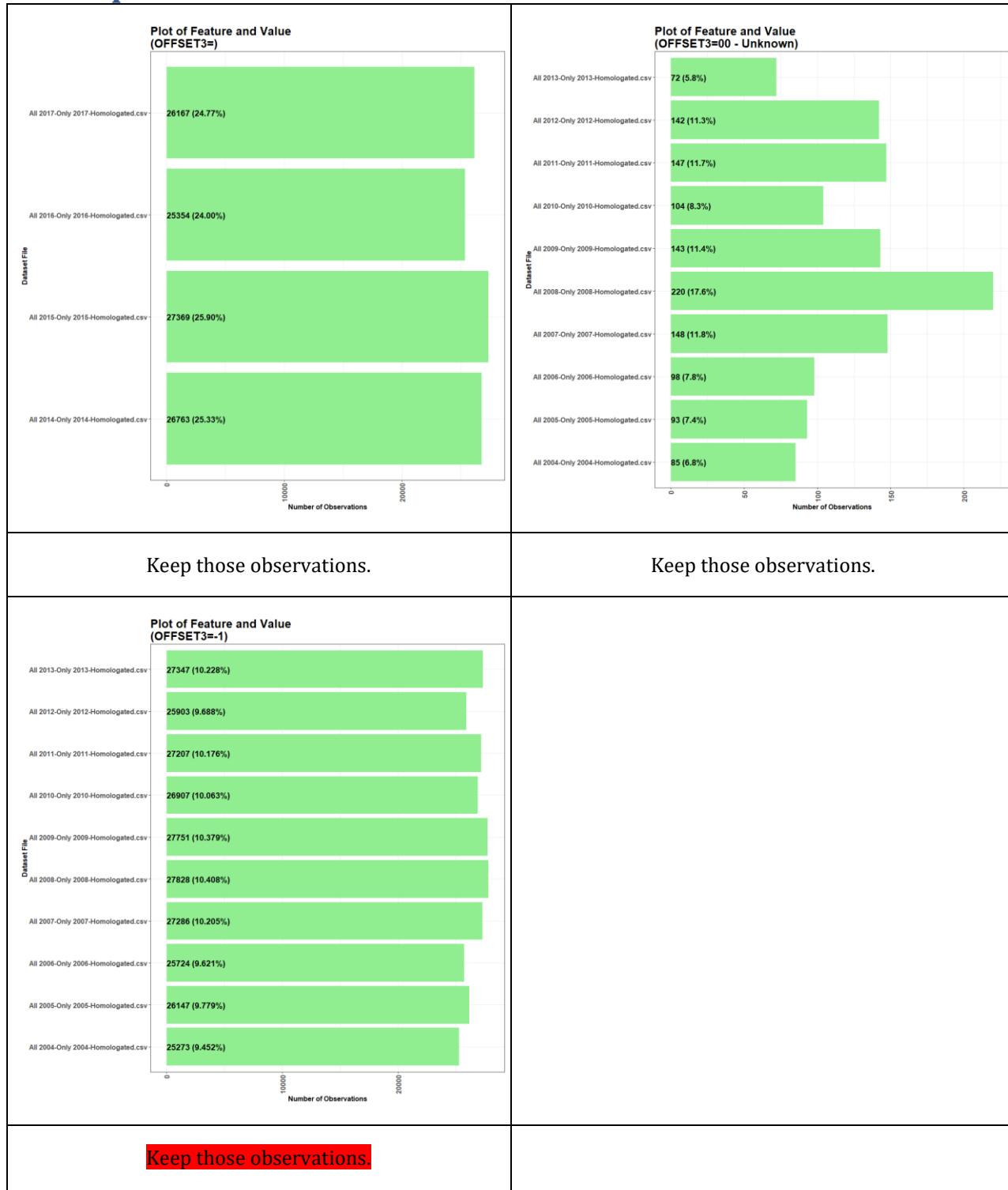
Feature Number	Feature Value	Number of Observations	Percentage
1	"" (Blank)	105653	27.7670
2	-1	267373	70.2690
3	00 - Unknown	1252	0.3290
4	01 - Less than 3.1m (Left)	1794	0.4715
5	02 - 3.1m to 6.0m (Left)	916	0.2407
6	03 - 6.1m to 9.0m (Left)	417	0.1096
7	04 - Greater than 9.0m (Left)	260	0.0683
8	05 - Less than 3.1m (Right)	1387	0.3645
9	06 - 3.1m to 6.0m (Right)	839	0.2205
10	07 - 6.1m to 9.0m (Right)	316	0.0830
11	08 - Greater than 9.0m (Right)	292	0.0767

35.2. 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.

35.3.Special Feature Values to Handle



35.4.Clean Transformations

Remove/update observations according with previous section.

Conclusion

This document shows the different cleaning and homologations to be made to the dataset.

References

Motor Vehicle Collision Report (MVCR) Manual – April 2011