Ewald & Wasserman
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MOTORCYLE LANE-SHARE STUDY AMONG CALIFORNIA MOTORCYCLISTS AND DRIVERS 2014 AND COMPARISON TO 2012 AND 2013 DATA

METHODOLOGICAL AND ANALYSIS REPORT

Conducted on Behalf of:

The California Office of Traffic Safety

The Safe Transportation Research and Education Center - University of California, Berkeley

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TABLE OF CONTENTS

APPENDICES:

I. SUMMARY OF FINDINGS

Motorcycle use

The highest percentage of respondents (39.8%) use their motorcycle for pleasure riding on the weekend, followed by 37.6% using their motorcycle for both commuting and weekend pleasure riding. The difference in MC use for both commuting and pleasure riding between 2014 and 2013 is a significant increase of 6.5% with a concomitant decrease of -9.6% of solely weekend pleasure riding (Table M7).

Lane-splitting on freeways

Daily (6-7 days a week) motorcycle riders more frequently lane-split on freeways, with 36.5% of frequent riders engaging in lane-splitting compared to 7.1% of infrequent riders (less than once a week). The difference in frequency of lane splitting behavior is significant (Table M15). A general emerging trend is that frequent MC riders are more likely to lane split than infrequent riders.

Lane-splitting on roads other than freeways

Of all motorcyclists surveyed, 71.4% lane-split when riding a motorcycle on roads other than freeways - a significant 10.3% increase compared to 2013 (Table M20).

The majority of 62.1% of riders lane-split on both freeways and other roadways, which is a significant increase of 7.5% compared to the 2013 (Table M22).

The younger the rider, the more frequently they lane-split on both freeways and other multiple-lane roads (75.0% of all respondents between the ages of 18 and 24 lane split; Table M23)

Speed of traffic while lane-splitting

Overall, there has been a slight reduction of lane-splitting at all speeds and at traffic being at a standstill, with the exception of traffic moving at a stop-and-go speed, with shows a significant 11.4% increase between 2014 and 2013 (Table M28).

Speed differential while lane-splitting

Overall, there was a marked reduction of riders' lane splitting at any speed faster than traffic going 15MPH or faster, at the same time lane splitting at a traffic speed of about 5MPH has increase significantly since 2013 by 6.9% (Table M29).

Compared to the 2013 calculated differential speed variable, there has been a reduction of speed overall, with a most noted reduction by respondents who lane split on all multiple lane roads, including freeways as well as other roads (Table M31)

Perceived threats while lane-splitting and traffic violations

Compared to the most serious threats stated in 2013, there has been a significant 6.1% increase in 2014 of MC riders mentioning drivers distracted by cells or by texting (Table M32).

Observations and perceptions on lane-splitting on freeways

60.7% of all vehicle drivers stating that lane-splitting for motorcycles on freeways is legal. In comparison to 2013, there has been a significant increase of 5.2% in the awareness of the lane-splitting legality (Table V6).

Compared to 2013, both age groups of 18 – 24 and 25 – 35 year-olds increased in their awareness more than 10% of the legality of lane splitting. (Table V8).

Approval/disapproval of lane-splitting on multiple lane roads

Drivers' perception of lane-splitting being legal on multiple-lane roads has significantly increased by 8.3% between 2013 and 2014 from 44.0% to 52.3% (Table V20).

The approval rate between male and female drivers is significant, with a larger proportion of females disapproving of lane splitting compared to male drivers (Table V22).

Of all drivers, 46.3% believe it to be legal for motorcycles to lane-split on both freeways and multiple-lane roads, compared to 36.6% of drivers in 2013, a significant increase of 9.7% (Table V24).

Among drivers who believe lane-splitting on all multiple-lane roads to be illegal, only 7.7% approved while 34.9% disapproved, indicating a significant relationship between approval of lane-splitting and knowledge of its legality (Table V25).

Motorcyclist and vehicle driver source of lane-splitting information comparison

For most of the drivers, including those in younger age groups, TV and Internet are the most frequently stated sources of information (Table V34). In contrast, MC riders, especially those in the younger age groups, more frequently obtain information from freeway billboards (Table M40).

II. INTRODUCTION

The third annual wave of the Motorcycle Lane-Sharing study was conducted by Ewald & Wasserman (E&W) on behalf of the California Office of Traffic Safety (OTS) and the Safe Transportation Research and Education Center (SafeTREC) at the University of California, Berkeley. This analysis and methodological report describes the survey research data collection methods and results collected from Motorcyclists and Vehicle Drivers in California.

This intercept survey initiated in 2012 and is designed to collect longitudinal information in a statewide statistically representative study of California motorcyclists and California drivers regarding their behavior and opinions on motorcycle lane-sharing on freeways and other multiple-lane roadways. Specifically, the anonymous survey collected data on opinions on motorcycle lane-sharing, its perceived legality and risks, and their personal driving perceptions and behaviors.

Only drivers and motorcyclists that met the following inclusion criteria for the sample frame were eligible for the study: (1), age 18 or older, (2), speak English or Spanish, and, (3), who drove or rode, respectively, to one of the data collection target sites.

The results of the third wave completed in 2014 consisted of completed intercept surveys with 951 vehicle drivers and 709 motorcycle riders for a total of 1,660 completed surveys. In total, 12 California counties were included in the sample frame based on the number of motorcycle registrations and vehicle registrations. A total 35 cities in those 12 counties were selected based on population density. Within those 35 cities, a total of 223 distinct geographic sites were included in the sample frame - five to eight sites within each city area. The target sites were mostly fueling stations, but also included areas and driving destinations within a five-mile radius of the initial target sites to include as many motorcyclists as possible.

III. METHODS

A. Sample Methodology and Sample Site Selection

Included in the study were the following twelve counties: San Bernardino, Ventura, San Diego, Orange, Riverside, and Los Angeles for Southern California; and San Francisco, Alameda, Contra Costa, San Mateo, Santa Clara, and Sacramento for Northern California (Table M1). The number of motorcycle registrations in these 12 counties, based on 2012 DMV records, accounted for 69.5% of all motorcycle licenses in the State of California. Table M1 indicates the number of intercepts with motorcycle riders by county, ranging from Los Angeles with 28.5% of all intercepts (26.8% of all motorcycle registrations of the selected sample frame, and 18.6% of all registrations in the State of California) to Ventura County with 3.4% of all completed intercepts (4.2% of all registrations in the sample frame and 2.9% of registrations in the State).

Overall, 709 motorcyclists were intercepted for the study, resulting in an overall confidence interval of +/- 3.68 at a confidence level of 95%.

Table M1. Sample frame motorcycle riders and completed intercepts by county

MC	Counties	% MC registrations of CA	% MC registrations of sample frame	# completes	% of completes
SOUTH	San Bernardino	5.2%	7.4%	48	6.8%
	Ventura	2.9%	4.2%	24	3.4%
	San Diego	9.8%	14.1%	88	12.4%
	Orange	7.4%	10.6%	71	10.0%
	Riverside	5.5%	7.9%	68	9.6%
	Los Angeles	18.6%	26.8%	203	28.6%
NORTH	San Francisco	2.6%	3.8%	27	3.8%
	Alameda	3.8%	5.5%	36	5.1%
	Contra Costa	3.1%	4.5%	30	4.2%
	San Mateo	2.0%	2.8%	30	4.2%
	Santa Clara	4.7%	6.7%	47	6.6%
	Sacramento	3.9%	5.7%	37	5.2%
	Total CA	**69.5%**	**100.0%**	**709**	**100.0%**

The vehicle driver sample frame was constructed the same way as for the motorcycle riders, and both groups were surveyed at the identical locations. Table M2 shows the distribution of driver's licenses among the 12 selected counties. The number of vehicle registrations in the selected counties based on DMV records counts was the equivalent of 76.5% of all vehicle registrations in the State of California. The comparison of the percent of completes in the sample is similar to the distribution of vehicle registrations by county in California.

Overall, 951 vehicle drivers were intercepted for the study, resulting in an overall confidence interval of +/- 3.18 at a confidence level of 95%.

Table M2. Sample frame vehicle drivers and completed intercepts by county

AUTO	Counties	% Auto registrations of CA	% Auto registrations in sample	# completes	% of completes
SOUTH	San Bernardino	4.8%	6.32%	131	4.1%
	Ventura	2.4%	3.12%	31	2.7%
	San Diego	8.7%	11.36%	128	21.6%
	Orange	8.7%	11.43%	71	7.9%
	Riverside	5.2%	6.83%	63	4.5%
	Los Angeles	26.0%	34.03%	306	24.8%
NORTH	San Francisco	1.7%	2.22%	26	5.1%
	Alameda	4.3%	5.62%	46	6.8%
	Contra Costa	3.1%	4.02%	37	7.9%
	San Mateo	2.5%	3.23%	29	4.6%
	Santa Clara	5.5%	7.13%	50	6.5%
	Sacramento	3.6%	4.69%	33	3.4%
	Total CA	**76.5%**	**100.0%**	**951**	**100.0%**

B. Interview Locations, Times, and Duration

The data collection was implemented from Wednesday, March 12, 2014, through Sunday April 6, 2014, and included both weekdays and weekend days. Field teams in three geographic locations were trained and then collected intercept data at the defined 223 sites included in the sample frame. These sites were identical to the ones visited in the study's previous waves with two exceptions: It excluded sites that did not result in any motorcyclist surveys in the previous wave. In addition, it included a few substitution sites for former sites that were either closed or no longer eligible. The Northern California field team covered the following counties: San Francisco, Alameda, Santa Clara, San Mateo, Contra Costa, and Sacramento. The two Southern California teams conducted the intercept surveys in the following counties: Ventura, San Bernardino, Los Angeles, San Diego, Orange, and Riverside. Data collection at field locations was only conducted during daylight hours, during periods without rain, and in time frames ranging from four to six hours.

A master grid of all selected site locations per county was provided to each team leader and included clusters of five to eight selected gas/fueling stations (or equivalent) per location ranked in the order to be visited from #1 to #5. The protocol for the data collection was to approach of the first site (#1) within a cluster to determine if the business was still in operation and would generate sufficient vehicle and motorcycle traffic to conduct intercepts. All business sites that were closed or had less than 10 vehicle drivers or less than 4 motorcycle riders visiting per hour were excluded from the sample frame and the data collection team moved to the second site (#2) in their cluster. Upon establishing the eligibility of the site, the station manager or similar person was asked for permission to conduct intercepts on their premises. If permission was granted, the intercept commenced. In cases of refusal, the team moved to the next defined site and or split up among eligible sites as necessary. If the team visited all pre-selected locations without any viable options, then the field team consulted the E&W Project Manager to obtain the next site to visit, based on available substitutes within a radius of up to five miles.

C. Staff Training

Training procedures and pilot test of observation form

All staff were trained during the week of March 10, 2014, on sites in San Francisco, Glendale, Los Angeles, and San Diego. Training included an overview of the survey form, eligibility criteria for respondent inclusion and the general survey protocol. After a question-by-question review of the intercept form and role-playing exercise with the team leader, the training was followed by a closely supervised on-site intercept at comparable fueling stations or similar for a 45- to 60-minute round of test intercepts. Letters to fueling station managers or supervising managers as well as letters for respondents were also reviewed prior to use in the field. In addition, a list of frequently asked questions (FAQs) was prepared and location information was created by E&W. The final version of the intercept surveys can be found in Appendix A (for vehicle drivers) and Appendix B (for motorcyclists). The prepared letters for the fueling station manager and respondents can be found in Appendix C.

Field data collection

Each team's designated team leader was responsible for coordinating directly with the E&W Project Manager regarding scheduling, carpooling, mapping, transfer of materials, and other study-related matters. On location, the team leader first introduced the team to the fueling station manager or personnel before beginning the data collection. With the consent of management and all team members being outfitted with a name and photo badge and a safety vest, the team approached respondents for the intercept survey. The surveys for both vehicle drivers and motorcyclists took on average about 4.5 minutes to complete. Eligibility criteria for respondents included, (a), being 18 years or older, (b) either riding a motorcycle or driving a vehicle, and, (c), speaking English or Spanish. Every motorcyclist encountered was approached for the intercept, while every third vehicle driver was included in the survey. The intercept surveys were translated into Spanish for the bilingual field staff members. In addition to the intercepts the survey teams also tallied the number of respondents who were approached and who, after being read the introduction to participate, either declined the survey and/or who did not speak English or Spanish.

D. Response and Refusal Rates

The response and refusal rates for both vehicle drivers and motorcyclists by county are shown in Tables M3MC and M3Auto. Refusals were tallied of respondents, who were approached for the survey, heard the introduction and refused participation. Overall, 1,660 surveys were completed with both groups. A total 256 respondents refused to participate, and 60 respondents did not speak English or Spanish and were therefore not qualified for the study. The eligible refusal rate (Refusals/[Total - Not qualified]) for the vehicle driver sample was 20.0%, the refusal rate for the motorcyclists 2.9%.

The refusal rates for eligible vehicle drivers were highest (27.9%; Table M3auto) in Ventura County whereas the refusal rates for eligible MC riders was tied for lowest (0%; Table M3MC) in this same county. Overall, the MC riders were almost seven-fold (20.0%/2.9%) more likely to participate in a survey.

Table M3MC. Total refusal rates by county for motorcyclist and vehicle driver

	MC				
County	**Completes**	**Refusals**	**Total**	**Not qual. (language)**	**Eligible Refusal Rate**
Alameda	36	5	41	0	12.2%
Contra Costa	30	1	31	0	3.2%
Los Angeles	203	0	205	2	0.0%
Orange	71	0	71	0	0.0%
Riverside	68	6	74	0	8.1%
Sacramento	37	1	38	0	2.6%
San Bernardino	48	0	48	0	0.0%
San Diego	88	4	92	0	4.3%
San Francisco	27	0	27	0	0.0%
San Mateo	30	1	31	0	3.2%
Santa Clara	47	0	47	0	0.0%
Ventura	24	3	27	0	11.1%
Total	709	21	732	2	2.9%

Table M3auto Total refusal rates by county for motorcyclist and vehicle driver

	AUTO				
County	**Completes**	**Refusals**	**Total**	**Not qual. (language)**	**Eligible Refusal Rate**
Alameda	46	5	52	1	9.8%
Contra Costa	37	5	44	2	11.9%
Los Angeles	306	102	432	24	25.0%
Orange	71	23	95	1	24.5%
Riverside	63	10	74	1	13.7%
Sacramento	33	0	35	2	0.0%
San Bernardino	131	28	164	5	17.6%
San Diego	128	35	171	8	21.5%
San Francisco	26	5	33	2	16.1%
San Mateo	29	4	37	4	12.1%
Santa Clara	50	9	61	2	15.3%
Ventura	31	12	49	6	27.9%
Total	951	238	1,247	58	20.0%

III. RESULTS

A. Motorcyclist Intercept Results

Notes:
- The total number of observations listed in this report excludes the "do not know" answers as well as refusals. The totals in the tables are therefore at times lower than the total number of completes.
- Due to rounding to one decimal point, some percentages presented do not always add up to the exact full number.
- Statistical significance is defined as a two-tailed p value of less than p=0.05, all p values in this report are noted with two decimals. The p values equaling or less than a value of 0.00 are noted as p=0.00.
- In the 2014 data collection form, the verbiage for questions: Q6, Q11, Q16 and Q18 were rephrased to: "In the past 12 months…" from previously: "Have you ever…". For that reason some data differences the 2014 and 2013 data were not tested for significance.

Respondent demographics

The demographic information collected from motorcycle riders included the respondent age (as reported by the respondent) and gender (as determined by field staff). The results in Table M4 show the majority of motorcyclists being between 25 and 54 (73.0%) and, thus, overall slightly younger than in the previous wave in 2013.

Table M4. Respondent Age and 2013 - 2012 comparison

Respondent age	Frequency 2014	Percent 2014	Percent 2013	Percent 2012
18-24	32	4.6%	7.6%	6.3%
25-34	169	24.1%	20.0%	21.1%
35-44	161	23.0%	20.1%	23.5%
45-54	181	25.9%	28.6%	30.6%
55-69	147	21.0%	22.0%	17.0%
70 or older	10	1.4%	1.7%	1.4%
Total	700	100.0%	100.0%	100.0%

The distribution of gender of motorcyclist intercepted is shown in Table M5, with a sizable majority of riders being male (94.6%), a percentage which is comparable to the two previous waves.

Table M5. Respondent Gender and 2013 - 2012 comparison

Respondent Gender	Frequency 2014	Percent 2014	Percent 2013	Percent 2012
Male	671	94.6%	93.7%	93.4%
Female	38	5.4%	6.3%	6.6%
Total	709	100.0%	100.0%	100.0%

The distribution of age and gender of respondents is shown in Table M6. There are no significant differences in the gender distribution among the age groups.

Table M6. Respondent Age by Gender

Age/gender	Male	Female
18-24	96.9%	3.1%
25-34	96.4%	3.6%
35-44	93.8%	6.2%
45-54	90.6%	9.4%
55-69	97.3%	2.7%
70 or older	100.0%	0.0%

Motorcycle use

The principal reason for motorcycle use is outlined in Table M7, with an updated response chart for 2014 as well as additional added answers based on coding of open-ended comments. The two coded answer categories included:

- Recreation, fun, pleasure riding at all other times
- Only mode of transportation

The majority of respondents mainly use their motorcycle for pleasure riding on the weekend, with 39.8% of all responses, followed by 37.6% of MC using their motorcycle for both commuting and weekend pleasure riding. The difference in MC use for both commuting and pleasure riding between 2014 and 2013 is a significant increase of 6.5% (p=0.01, see highlighted cells). Comparably, the number of respondents who solely ride on weekends for pleasure decreased by 9.6% between 2014 and 2013 (significant at p=0.00). All other stated uses for motorcycles included use for business, racing or similar.

Table M7. Q1. "What best describes how you use your motorcycle most of the time?" and 2013 - 2012 comparison

Q1	Frequency 2014	Percent 2014	Percent 2013	Percent 2012	Difference 2014-2013
Pleasure riding on weekends	282	39.8%	49.4%	45.9%	-9.6%
Both commuting to work and pleasure riding on weekends	266	37.6%	31.1%	30.8%	+6.5%
Commuting to work	102	14.4%	15.0%	18.0%	-0.6%
Long-distance touring rides	22	3.1%	2.4%	1.6%	+0.7%
Other specified	6	0.8%	1.8%	2.0%	-1.0%
Recreation, fun, pleasure riding at all other times	13	1.8%	0.0%	0.0%	n/a
Only mode of transportation	17	2.4%	0.0%	0.0%	n/a
Bar hopping	--	0.0%	0.3%	0.5%	-0.3%
Total	708	100.0%	100.0%	100.0%	--

The frequency of motorcycle use is shown in Table M8. The majority of respondents, 63.0% stated that they ride between three (3) and seven (7) days a week.

Table M8. Q2. "About how often would you say you ride your motorcycle?" and 2013 - 2012 comparison

Q2	Frequency 2014	Percent 2014	Percent 2013	Percent 2012
6-7 days a week	227	32.3%	29.7%	34.8%
3-5 days a week	216	30.7%	33.2%	25.9%
1-2 times a week	195	27.7%	31.5%	29.9%
Less than once a week	65	9.2%	5.5%	9.4%
Total	703	100.0%	100.0%	100.0%

Motorcycle miles traveled and frequency of use

The number of miles MCs ride their motorcycle on an average day is summarized in Table M9a. The mean number of miles traveled was 85.75 miles for 2014, comparable to 84.35 miles per day on average in 2013.

Table M9a. Q3. Average miles riding per day and 2013 - 2012 comparison

Total responses	2014	2013	2012
Number responses	700	704	553
Missing responses	9	9	7
Mean	85.75	84.35	71.7
Median	55.0	60.0	50.0
Minimum	0	3	2
Maximum	500	1,000	600

A further examination of the frequency of motorcycle use and the average number of miles traveled per day, were coded into four brackets comprising: 0-100 miles a day, 101-200 miles a day, 201-300 miles a day and 301 - 500 miles a day (see Table M9b). The cross-tabulation of the results, with the highest percentage per column highlighted for illustration purposes, show a significant difference among riders' frequency of riding and the number of miles they ride per day. The less frequently MCs ride their bike, the higher the mileage ridden on an average day. In contrast, the MCs who ride almost daily ride average much fewer miles (p=0.00).

Table M9b. Average miles riding per day coded by frequency of MC use

Q2 by coded miles	0 - 100 miles a day	101 – 200 miles a day	201 - 300 miles a day	301 to 500 miles a day
6-7 days a week	35.2%	27.2%	16.2%	9.1%
3-5 days a week	31.7%	29.1%	24.3%	18.2%
1-2 times a week	26.0%	31.1%	43.2%	36.4%
Less than once a week	7.2%	12.6%	16.2%	36.4%
Total	100.0%	100.0%	100.0%	100.0%

Lane-splitting on freeways

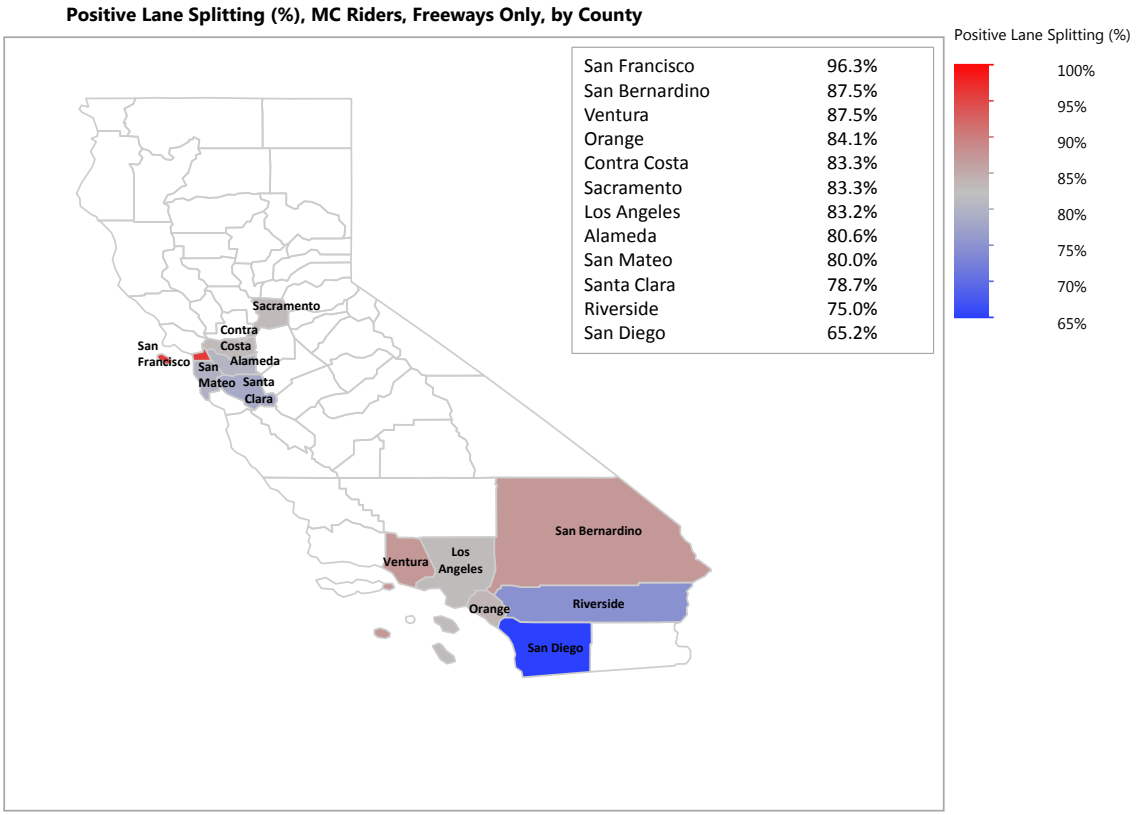
A total of 80.6% of all motorcyclists stated that they lane-split on freeways, a 1.3% reduction from last year (not statistically significant; see Table M10).

Table M10. Q4. "Do you lane-split on your motorcycle when riding on freeways?" and 2013 - 2012 comparison

Q4	Frequency 2014	Percent 2014	Percent 2013	Percent 2012	Difference 2014-2013
Yes	569	80.6%	81.9%	77.6%	-1.3%
No	137	19.4%	18.1%	22.4%	+1.3%
Total	706	100.0%	100.0%	100.0%	--

Figure M1 shows a hot:cold "heat map" of the counties included in the survey and rate of MCs lane splitting on freeways, ranging from 96.3% surveyed in San Francisco County to 65.2% of riders who lane split on freeways and where surveyed in San Diego County. There is no obvious relationship between lane-splitting behavior and county/region. Among the larger metropolitan areas, San Francisco had the highest rate, San Diego had the lowest rate and Los Angeles was approximately in the middle.

Figure M1. Lane splitting on freeways by county



The stated frequency of lane splitting is shown in Table M11, with 37.3% of all MCs "always" lane splitting, while 12.7% "rarely" lane split. The differential in lane-splitting behavior between 2014 and 2013 is not significant.

Table M11. Q5. "How frequently do you lane-split on freeways?" and 2013 - 2012 comparison

Q5	Frequency 2014	Percent 2014	Percent 2013	Percent 2012
Always	212	37.3%	35.4%	30.9%
Often	104	18.3%	17.9%	18.7%
Sometimes	180	31.7%	30.7%	37.5%
Rarely	72	12.7%	16.1%	12.9%
Total	568	100.0%	100.0%	100.0%

A variable created to distinguish between northern and southern California counties and the percentage of lane splitting in each geographic region is shown in Table M12. There are no significant differences between the two regions and no significant changes relative to the 2013 findings.

Table M12. Lane-splitting on CA freeways by region and 2013 - 2012 comparison

Lane-splitting	Percent 2014	Percent 2013	Percent 2012	Difference 2014-2013
Northern CA	83.0%	83.3%	76.9%	-0.3%
Southern CA	79.6%	81.0%	77.9%	-1.4%

Lane-splitting behavior on freeways by gender is shown in Table M13, with 82.2% of male riders stating to lane split on freeways and 52.6% of females. The difference in gender and lanes-splitting is significant; the difference between 2014 and 2013 cannot be computed for the female population due to a sample size too small for comparison in the 2013 data.

Table M13. Q4. "Do you lane-split on your motorcycle when riding on freeways?" by gender and 2013 - 2012 comparison

Gender/Lane split	Percent 2014	Percent 2013	Percent 2012
Male	82.2%	82.0%	79.7%
Female	52.6%	80.0%	48.6%
Total	80.6%	81.9%	77.6%

There is a significant difference in the rate of lane splitting on freeways among riders of different age (p=0.00, see Table M14). The youngest rider group has the highest rate of lane-splitting on freeways (18-24 years, 93.5%), the oldest group has the lowest rate (70 years and older, 50.0%)

The differences to 2013 cannot be computed due to small sample sizes within some of the age groups: 18-24 year olds (n=32) and 70 or older riders (n=10), there are no significant annual differences between riders of the ages from 25 to 54 years old.

Table M14. Q4. "Do you lane-split on your motorcycle when riding on freeways?" by age and 2013 - 2012 comparison

Age/Lane split	Percent 2014	Percent 2013	Percent 2012
18-24	93.5%	77.8%	73.3%
25-34	81.5%	83.1%	88.0%
35-44	86.3%	86.7%	83.2%
45-54	82.8%	81.3%	77.5%
55-70	70.7%	81.4%	71.9%
70 or older	50.0%	41.7%	62.5%

The cross-tabulation of frequency of riding and lane-splitting on freeways is shown in Table M15, together with the 2013 and 2012 data. The more frequently that MCs ride, the more frequently they lane-split on freeways, with 36.5% of MCs riding 6-7 days a week stating to lane-split compared to 7.1% of riders riding less than once a week. The difference in the frequency of riding and lane-splitting for MCs riding 6-7 days a week on freeways is significant (p=0.00), the differences to 2013 data are not.

Table M15. Q4. "Do you lane-split on your motorcycle when riding on freeways?" by frequency of riding and 2013 - 2012 comparison

Frequency riding/Lane split	Percent 2014	Percent 2013	Percent 2012
6-7 days a week	36.5%	32.2%	34.8%
3-5 days a week	31.2%	34.3%	29.9%
1-2 times a week	25.3%	28.7%	25.9%
Less than once a week	7.1%	4.8%	9.4%
Total	100.0%	100.0%	100.0%

Accidents with vehicles while lane-splitting on freeways

Of motorcyclists lane-splitting on freeways, 4.7% reported to have been hit by a vehicle while lane-splitting in the past 12 months, and 1.7% of MCs have hit a vehicle in 2014 (Table M16).

Table M16. Q6. "In the past 12 months have you hit a vehicle or has a vehicle hit you while you were lane-splitting on a freeway?" and 2013 - 2012 data

Q6	Percent 2014	Percent 2013	Percent 2012
Yes, vehicle hit me	4.7%	8.6%	11.8%
Yes, I hit vehicle	1.7%	4.0%	3.2%
No, never	93.5%	87.5%	85.0%
Total	100.0%	100.0%	100.0%

MCs who never hit nor were hit by a vehicle while lane-splitting on a freeway were asked the follow-up question, Q6a, about their experiences of nearly hitting a vehicle. A total of 20.5% of respondents stated that they had nearly hit a vehicle while lane-splitting (Table M17).

Table M17. Q6a. "Did you ever nearly hit a vehicle in the past 12 months?" and 2013 - 2012 data

Q6a	Percent 2014	Percent 2013	Percent 2012
Yes	20.5%	33.4%	46.5%
No	79.5%	66.6%	53.5%
Total	100.0%	100.0	100.0%

Question 7 of the intercept followed-up on the damage caused by a collision. The responses are summarized for respondents who have been hit by a vehicle or who hit a vehicle while lane-splitting on a freeway, combining the multiple answers provided. Overall, 40 responses from 34 respondents were included (excluding respondents who asked to skip this question). A total 27.5% of motorcyclists just hit a car mirror, while 22.5% suffered minor injuries. A total of 10.0% sustained severe injuries as a result of hitting a vehicle or being hit. The differences to the 2013 data are not significant. Eight "other" responses given by motorcyclists included some physical damage to the motorcycle.

Table M18. Respondents who have been hit or did hit a vehicle while lane-splitting: Q7. "What damage was caused by that hit or collision?" (multiple choice) and 2013 - 2012 data

Q7. Damage caused (combined)	Percent 2014	Percent 2013	Percent 2012
Just hit car mirror	27.5%	46.2%	34.6%
I had minor injuries (scrapes/bruises)	22.5%	12.8%	11.1%
I had severe injuries (broken bones, lacerations, trauma)	10.0%	7.7%	9.9%
Scraped/hit side of car	2.5%	11.5%	7.4%
I hit car front bumper	5.0%	2.6%	1.2%
I was run over by car	0.0%	0.0%	1.2%
I hit one or more cars	0.0%	0.0%	2.5%
I was knocked down	7.5%	6.4%	7.4%
Other	20.0%	12.8%	24.7%
None	5.0%	--	--
Total	100.0%	100.0%	100.0%

The speed differential described by lane-splitting MCs on freeways is outlined in Table M19. One additionally added category "at all times" was added based on coded open-ended comments. The majority of 67.4% of respondents only lane-split at speeds between stop and go and traffic going less than 30MPH, compared to 61.5% in 2013. Other responses given included answers indicating lane splitting when "traffic is slower than speed limit", "when it is safe" and other speed differential outside of the answering codes.

Table M19. Q8. "What best describes your lane-splitting on freeways? Would you say you lane-split only when…?" and 2013 - 2012 comparison

Q8	Percent 2014	Percent 2013	Percent 2012
Traffic is at a standstill	12.4%	15.6%	15.7%
Traffic is stop-and-go	25.5%	21.5%	28.6%
Traffic is moving less than 20 MPH	26.8%	25.2%	20.1%
Traffic is moving less than 30 MPH	15.1%	14.8%	15.7%
Traffic is moving less than 40 MPH	7.3%	8.2%	4.9%
Traffic is moving less than 50 MPH	2.1%	4.5%	4.7%
Traffic is moving less than 60 MPH	2.7%	2.8%	2.3%
Traffic is moving less than 70 MPH	0.9%	3.6%	1.6%
Other	3.4%	1.6%	0.7%
At all times	3.9%	2.3%	5.6%
Total	100.0%	100.0%	100.0%

Lane-splitting on roads other than freeways

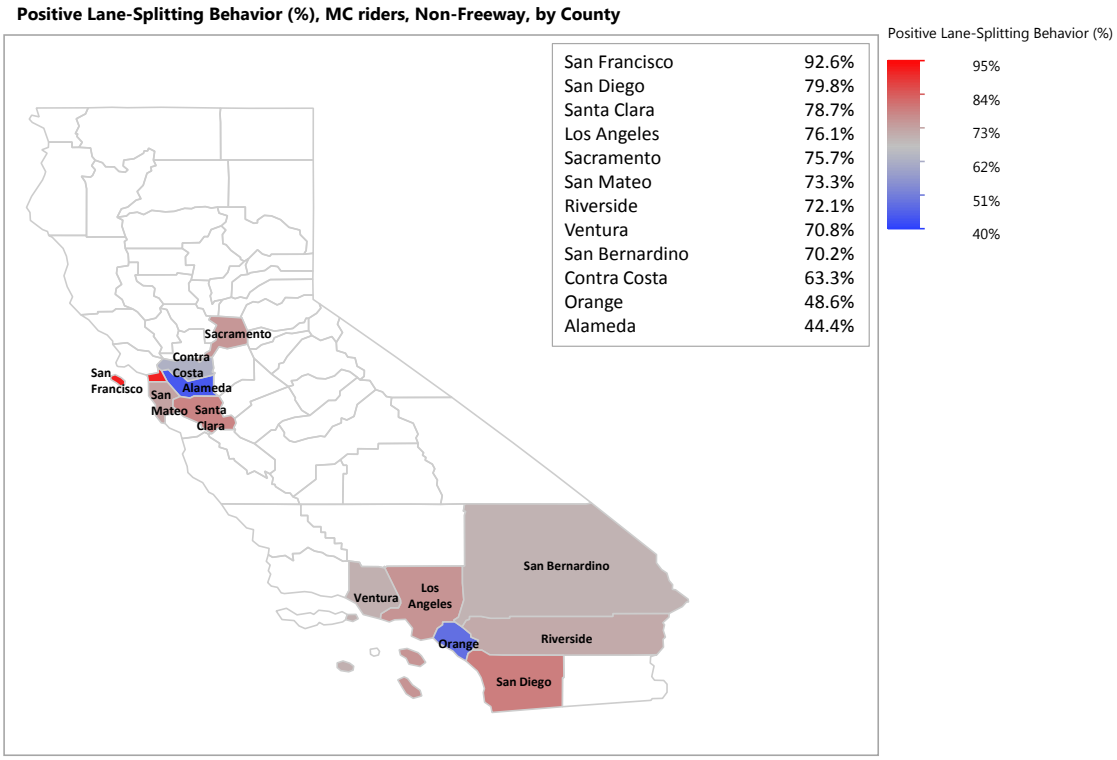
Of all motorcyclists surveyed, 71.4% lane-split when riding a motorcycle on roads other than freeways (Table M20), a 10.3% increase compared to 2013. The changes compared to 2013 are significant (p=0.00)

Table M20. Q9. "Do you lane-split on your motorcycle when riding on multiple-lane roads other than freeways?" and 2013 - 2012 comparison

Q9	Percent 2014	Percent 2013	Percent 2012	Difference 2014-2013
Yes	71.4%	61.1%	63.9%	+10.3%
No	28.6%	38.9%	36.1%	-10.3%
Total	100.0%	100.0%	100.0%	

Figure M2 shows a heat map of the rate of MCs lane splitting on multiple lane roads other than freeways, which ranges from 92.6% surveyed in San Francisco County to 44.4% of riders in Alameda County. In contrast to the lane splitting behavior on freeways (Figure M1), the lane-splitting behavior on non-freeways was highest in the more metropolitan areas of San Francisco, San Diego, Santa Clara (San Jose), and Los Angeles.

Figure M2. Lane splitting on multiple-lane roads by county



The cross-tabulation of MCs lane-splitting on multiple-lane roads other than freeways by the geographic region of northern/southern California is shown in Table M21. There are no significant differences between regions in the rate of lane-splitting on other surface roads.

Table M21. Lane-splitting on CA multiple-lane roads by region

Lane-splitting	Northern CA	Southern CA	Total
Yes	71.0%	71.5%	71.4%
No	29.0%	28.5%	28.6%
Total	100.0%	100.0%	100.0%

For analysis purposes, a variable was computed to count the number of respondents who lane-split on, (a), both freeways and multiple-lane roadways, (b), only on freeways, (c), only on multiple-lane roads, or, (d) never lane split. The frequency of that variable is shown in Table M22. The majority of 62.1% of riders lane-split on both freeways and other roadways, 18.2% lane-split on freeways only, 9.0% lane split on multiple lane roads only, and 10.7% never lane split. The increase of 7.5% of lane splitting on all multiple lane roads compared to the 2013 findings is significant (p=0.00), as is the concomitant decrease of 9.0% of riders only lane-splitting on freeways.

Table M22. Lane-split behavior by road types and 2013 - 2012 comparison

Lane split behavior by road type	Percent 2014	Percent 2013	Percent 2012	Difference 2014-2013
Lane-split on both freeways and roads	62.1%	54.6%	53.9%	+7.5%
Lane-split on freeways only	18.2%	27.2%	23.6%	-9.0%
Never lane-split	10.7%	11.6%	12.9%	-0.9%
Lane-split on multiple-lane roads only	9.0%	6.6%	9.6%	+2.4%
Total	100.0%	100.0%	100.0%	--

Table M23 shows the lane-splitting behavior on the road type by age group of rider. The comparison of the lane-split variable by road type and age is significant (p=0.00 for riders under 25 years or over 54 years of age for lane splitting on both freeways and roads). The younger the respondent, the more frequently they lane-split on both freeways and other multiple-lane roads (75.0% of all respondents between 18 and 34), while 50.0% of respondents age 70 and older never lane-split.

Table M23. Respondent age by lane-split behavior and road types

Respondent Age	Never Lane-Split	Lane-Split on Freeways and Roads	Lane-Split on Freeways Only	Lane-Split on Roads Only	Total
18-24	6.3%	75.0%	15.6%	3.1%	100.0%
25-34	7.7%	68.6%	12.4%	11.2%	100.0%
35-44	7.5%	69.6%	16.8%	6.2%	100.0%
45-54	9.9%	62.4%	19.9%	7.7%	100.0%
55-69	17.0%	47.6%	23.1%	12.2%	100.0%
70 or older	50.0%	20.0%	30.0%	0.0%	100.0%
Total	10.7%	62.4%	18.0%	8.9%	100.0%

The stated frequency of lane-splitting on multiple-lane roadways is shown in Table M24. In 2014, 32.9% of riders stated to "always" lane split on roads other than freeways, while 18.6% "rarely" did. The 7.6% increase in "always" lane-splitting compared to 2013 is significant (p=0.01)

Table M24. Q10. "How frequently do you lane-split on roads other than freeways?" and 2013 - 2012 comparison

Q10	Percent 2014	Percent 2013	Percent 2012	Difference 2014-2013
Always	32.9%	25.3%	22.5%	+7.6%
Often	17.4%	18.9%	16.3%	-1.5%
Sometimes	31.1%	35.7%	37.2%	-4.6%
Rarely	18.6%	20.0%	23.9%	-1.4%
Total	100.0%	100.0%	100.0%	--

Accidents with vehicles while lane-splitting on roads other than freeways

Of MCs who lane-split on roads, 2.0% (10 respondents) stated to have been hit by a vehicle while lane splitting, 1.0% (5 respondents) have hit a vehicle (Table M25).

Table M25. Q11. "In the past 12 months have you hit a vehicle or has a vehicle hit you while you were lane-splitting on roads other than freeways?" and 2013 - 2012 data

Q11	Percent 2014	Percent 2013	Percent 2012
Yes, vehicle hit me	2.0% (10)	7.4%	8.3%
Yes, I hit vehicle	1.0% (5)	1.2%	1.1%
No, never	97.0% (490)	91.5%	90.6%
Total	100.0% (505)	100.0%	100.0%

Of motorcyclists who lane split on roads but never experienced an actual hit or collision 14.7% stated that they nearly hit a vehicle, while 85.3% did not (Table M26). The difference to the 2013 data (8.6% decrease of near-hits) is significant (p=0.00).

Table M26. Q11a. "Did you ever nearly hit a vehicle in the past 12 months?" and 2013 - 2012 data

Q11a	Percent 2014	Percent 2013	Percent 2012	Difference 2014-2013
Yes	14.7%	23.3%	29.7%	-8.6%
No	85.3%	76.7%	70.3%	+8.6%
Total	100.0%	100.0%	100.0%	--

Motorcyclists who hit or who were hit by a vehicle stated the damages caused, the combined results are listed in Table M27, with the added category "none" and a recode of the 2013 and 2012 data to include the new category. The summary of the multiple-choice answers are outlined in comparison with the previous years' data. Overall 35.3% of MC mentioned no damages caused by that hit, 17.6% just hit the car mirror and another 11.8% were knocked down.

The frequencies are based on 15 respondents and 17 responses total, the number of observations is too small for a comparison to last year's data.

Table M27. Q12. Frequencies of damages caused by hit/collision and 2013 - 2012 data

Q12	Percent 2014	Percent 2013	Percent 2012
Just hit car mirror	17.6%	29.3%	20.6%
Scraped/hit side of car	5.9%	12.2%	14.7%
I had severe injuries (broken bones, lacerations, trauma)	0.0%	4.9%	11.8%
I had minor injuries (scrapes/bruises)	5.9%	7.3%	5.9%
I hit one or more cars	0.0%	0.0%	2.9%
I was knocked down	11.8%	12.2%	2.9%
I hit front bumper	5.9%	2.4%	0.0%
Other	17.6%	24.4%	41.2%
None	35.3%	7.3%	n/a
Total	100.0%	100.0%	100.0%

Speed of traffic while lane-splitting

Motorcyclists lane-splitting on roads other than freeways were asked about the traffic speed at which they lane-split and 84.4% of respondents only lane-split with traffic moving at less than 20MPH or not at all.

For the 2014 data the open-ended comments were coded to add the category "at all traffic speeds", which was given by 3.4% of respondents. The 2013 data did not have an added code for these open ends and therefore no percentage change on the open ends was listed as a difference.

Overall, there has been a slight reduction of lane-splitting at all speeds and at traffic being at a standstill, with the exception of traffic moving at a stop-and-go speed, with shows a significant 11.4% increase (p=0.00).

Table M28. Q13. "Would you say you lane-split only when…?" and 2013 - 2012 comparison

Q13	Percent 2014	Percent 2013	Percent 2012	Difference 2014-2013
Traffic is at a standstill	32.8%	36.1%	32.9%	-3.3%
Traffic is stop-and-go	34.6%	23.2%	31.5%	+11.4%
Traffic is moving less than 20 MPH	17.0%	19.4%	16.9%	-2.4%
Traffic is moving less than 30 MPH	6.4%	9.0%	6.1%	-2.6%
Traffic is moving less than 40 MPH	2.2%	3.0%	2.6%	-0.8%
Traffic is moving less than 50 MPH	1.0%	4.0%	2.3%	-3.0%
Other	6.0%	5.3%	7.6%	+0.7%
Total	100.0%	100.0%	100.0%	--

Speed differential while lane-splitting

The speed differential of MCs while lane splitting are listed inn Table M29. The majority of responses, 44.3%, rode about 10 miles per hour faster than the rest of the traffic when lane-splitting, with a total of 77.8% of all lane-splitters stating a speed faster than traffic of 10 MPH, or less, faster than traffic when lane splitting.

Overall, there was a reduction of riders' lane splitting at 15MPH or faster (with a significant reduction of speeds of 20MPH faster, p=0.00), at the same time lane splitting at a speed of about 5MPH has increased significantly since 2013 by 6.9% (p=0.00).

The "Other" answering category was removed from the 2014 data collection form.

Table M29. Q14. "How much faster than the rest of the traffic do you go when lane-splitting?" and 2013 - 2012 comparison

Q14	Percent 2014	Percent 2013	Percent 2012	Difference 2014-2013
about 5MPH faster	33.5%	26.6%	24.1%	+6.9%
about 10MPH faster	44.3%	44.1%	42.1%	+0.2%
about 15MPH faster	14.7%	15.0%	20.5%	-0.3%
about 20MPH faster	5.7%	10.0%	9.4%	-4.3%
about 30MPH faster	1.0%	2.5%	1.1%	-1.5%
about 40MPH faster	0.8%	1.0%	1.3%	-0.2%
about 50MPH faster	0.0%	0.8%	0.4%	-0.8%
Other	--	0.0%	1.1%	--
Total	100.0%	100.0%	100.0%	--

The cross-tabulation of lane-splitting behavior by street type and speed of the motorcyclist is shown in Tables M30a – M30c, divided by lane-splitting by road type behavior. The differences between the lane-splitting speeds on freeways, or on other roads, and both freeways and roads are significant at p=0.00. The comparison to the 2013 data shows a significant increase of lane splitting at a slower speed (7.4% at about 5MPH faster than traffic) for riders who lane split on both freeways and other roadways (p=0.01) as well as a significant decrease of riding 20MPH faster than traffic (p=0.00).

Table M30a. Q14. "How much faster than the rest of the traffic do you go when lane-splitting?" by lane splitting on freeways and roads and 2013 - 2012 comparison

Q14 by lane split on freeways and roads	Lane-split freeways & roads 2014	Lane-split freeways & roads 2013	Lane-split freeways & roads 2012	Difference 2014-2013
about 5MPH faster	28.8%	21.4%	19.7%	+7.4%
about 10MPH faster	46.4%	45.4%	44.4%	+1.0%
about 15MPH faster	16.9%	15.6%	23.4%	+1.3%
about 20MPH faster	6.3%	12.4%	8.1%	-6.1%
about 30MPH faster	0.9%	3.2%	1.4%	-2.3%
about 40MPH faster	0.7%	1.1%	1.4%	-0.4%
about 50MPH faster	0.0%	1.1%	0.3%	-1.1%
Other	--	0.0%	1.4%	--
Total	100%	100.0%	100.0%	--

The comparisons between speed while lane splitting and riders who only lane-split on freeways did not show any significant differences (Table M30b).

Table M30b. Q14. "How much faster than the rest of the traffic do you go when lane-splitting?" by lane splitting on freeways only and 2013 - 2012 comparison

Q14 by lane split on freeways only	Lane-split freeways only 2014	Lane-split freeways only 2013	Lane-split freeways only 2012	Difference 2014-2013
about 5MPH faster	30.4%	28.6%	23.8%	+1.8%
about 10MPH faster	47.2%	45.1%	40.0%	+2.1%
about 15MPH faster	13.6%	16.5%	18.5%	-2.9%
about 20MPH faster	5.6%	6.6%	13.8%	-1.0%
about 30MPH faster	1.6%	1.6%	0.8%	+0.0%
about 40MPH faster	1.6%	1.1%	1.5%	+0.5%
about 50MPH faster	0.0%	0.5%	0.8%	-0.5%
Other	--	0.0%	0.8%	--
Total	100%	100.0%	100.0%	--

The comparisons between speed while lane splitting and riders who only lane-split on multiple-lane roads did not show any significant differences (Table M30c).

Table M30c. Q14. "How much faster than the rest of the traffic do you go when lane-splitting?" by lane splitting on roads only and 2013 - 2012 comparison

Q14 by lane split on roads only	Lane-split roads only 2014	Lane-split roads only 2013	Lane-split roads only 2012	Difference 2014-2013
about 5MPH faster	72.6%	62.2%	50.0%	+10.4%
about 10MPH faster	24.2%	28.9%	34.6%	-4.7%
about 15MPH faster	1.6%	4.4%	9.6%	-2.8%
about 20MPH faster	1.6%	4.4%	5.8%	-2.8%
about 30MPH faster	0.0%	0.0%	0.0%	--
about 40MPH faster	0.0%	0.0%	0.0%	--
about 50MPH faster	0.0%	0.0%	0.0%	--
Other	--	0.0%	0.0%	--
Total	100%	100.0%	100.0%	--

An additional variable was created to make an assumption on the riders' actual average speed while lane-splitting to evaluate the average speed while lane-splitting by road type. The supposition was made that the actual speed equals the stated differential speed from Q14 (*e.g.*, "about 5MPH faster than other traffic" was coded as 5MPH while lane-splitting). This variable calculation in cross-tabulation with the lane-splitting variable resulted in an average speed differential of 10.06MPH overall and an average speed ranging from 6.61MPH for riders who only lane-split on roads to 10.43MPH for speeds of motorcyclists lane-splitting on roads and freeways (Table M31).

In summary, riders who split on all road types do or on freeways only do so at a higher average speed differential (10.43MPH and 10.52MPH respectively faster than other traffic) than riders who split only on multiple lane roads (6.61MPH faster than other traffic).Compared to the 2013 calculated differential

speed variable, there has been a reduction of speed overall, with a most noted reduction by respondents who lane split on all multiple lane roads, including freeways as well as other roads.

Table M31. Differential speed calculation and 2013 comparison

Differential speed by road type	Lane-split on freeways and roads	Lane-split on freeways only	Lane-split on roads only	Total
Differential speed average in MPH 2013	**12.32**	**10.93**	**7.56**	**11.55**
Differential speed average in MPH 2014	**10.43**	**10.52**	**6.61**	**10.06**

Perceived threats while lane-splitting and traffic violations

Question Q15 ask lanes-splitting motorcyclists to state the "most serious threat to motorcyclists when lane-splitting". The results are list in Table M32. The following were added answer categories based on the open-ended comments:

- Cars changing lanes / Cars not signaling lane change (categories combined in 2014 data)
- Cars stopping MC from lane splitting
- Cars opening doors
- Cars changing into carpool lane

The most frequently mentioned serious threat to motorcyclists was "distracted drivers", which included cell phone use and texting as the distraction, with 31.7% of all answers, followed by "drivers not looking in mirror/drivers not seeing MCs", which was given by 30.3% of respondents.

Compared to the 2013 stated most serious threats, there has been a 6.1% increase of MC riders mentioning drivers distracted by cells or by texting (significant at p=0.01) and a 5.7% increase of drivers not paying attention being the most serious threat (no significance test possible due to zero answers in 2013).

An added coding category in the 2014 data based on open-ended comments included "Cars stopping MC from lane splitting", which was mentioned by 5.3% of all riders as the most serious threat while lane splitting. The other specified answers included non-specific responses, including: "cars," "motorcyclist not paying attention" and similar.

Table M32. Q15. "In your opinion, what is the MOST serious threat to your safety when lane-splitting?" and 2013 - 2012 comparison

Q15	Percent 2014	Percent 2013	Percent 2012	Difference 2014-2013
Distracted drivers (cells or texting)	31.7%	25.6%	30.0%	+6.1%
Drivers not looking in mirror (not seeing MC)	30.3%	33.1%	32.5%	-2.8%
Other	8.0%	13.3%	11.7%	-5.3%
Cars change lanes/not signaling lane change	6.9%	9.7%	12.4%	-2.8%
Cars stopping MC from lane splitting	5.3%	--	--	--
Aggressive drivers	8.5%	12.0%	7.3%	-3.5%
Drivers not paying attention	5.7%	0.0%	1.5%	+5.7%
Car's open doors	1.0%	1.8%	1.5%	-0.8%
Narrow Lanes	2.2%	1.5%	1.0%	+0.7%
Cars changing into carpool lane	0.2%	0.0%	0.8%	+0.2%
Big trucks	0.2%	1.6%	0.6%	-1.4%
Poor road surface	0.0%	1.0%	0.4%	-1.0%
Drunk drivers	0.2%	0.5%	0.2%	-0.3%
Total	100.0%	100.0%	100.0%	--

All lane-splitting motorcyclists intercepted were also asked if they have ever received a traffic ticket or citation while lane-splitting in the past 12 months, the results of which can be found in Table M33. Of all motorcyclists, 2.4% of lane-splitting riders did receive a ticket.

Table M33. Q16. "Have you received at traffic ticket or citation while lane-splitting in the past 12 months?" and 2013 - 2012 data

Q16	Percent 2014	Percent 2013	Percent 2012
Yes	2.4%	2.1%	0.4%
No	97.6%	97.9%	99.6%
Total	100.0%	100.0%	100.0%

The violations received while lane-splitting are listed in Table M34, which represent a total of 14 (listed in brackets) respondents who received a ticket and included: "speeding" in 42.9% of all violations, "misuse of lanes" in 28.6%, and "failure to signal lane change" in 7.1%. Other violations received (and combined in "Other specified" in Table M34) while lane-splitting were "lane splitting in AZ," "wrong 'illegal' helmet," and a ticket for lane-splitting in NY.

Table M34. Q17. "What was the violation?" and 2012 data

Q17	Percent 2014	Percent 2013	Percent 2012
Speeding	42.9%(6)	23.1%	63.2%
Misuse of lanes	28.6%(4)	23.1%	15.8%
Failure to signal lane change	7.1%(1)	15.4%	5.3%
Other specified	21.4%(3)	38.5%	15.8%
Total	100.0%(14)	100.0%	100.0%

Motorcyclists were asked if they ever experienced a vehicle trying to prevent them from lane-splitting in the past 12 months. These results can be found in Table M35. In the 2014 wave, 54.0% of riders confirmed an instance of prevention of lane-splitting by a motorist.

Table M35. Q18. "In the past 12 months has a vehicle driver ever tried to prevent you from passing while you were lane-splitting?" and 2013 - 2012 data

Q18	Percent 2014	Percent 2013	Percent 2012
Yes	54.0%	73.5%	67.2%
No	46.0%	26.5%	32.8%
Total	100.0%	100.0%	100.0%

Motorcycle rider training class and motorcycle license

Asked about motorcycle training classes, 62.4% of riders confirmed having taken one, an increase of 3.9% compared to the previous year (though not statistically significant; this was Q19 in 2013).

Table M36. Q22. "Have you taken a motorcycle rider training class?" and 2013 comparison

Q22	Frequency 2014	Percent 2014	Percent 2013	Difference 2014-2013
Yes	439	62.4%	58.5%	+3.9%
No	264	37.6%	41.5%	-3.9%
Total	703	100.0%	100.0%	--

The question if respondents have a valid motorcycle license was changed from asking: "Do you have a valid motorcycle endorsement?" in 2013 to: "Do you have a valid M1 or M2 motorcycle license or permit?". The results can be found in Table M37. Overall, 96.4% of riders stated to have a valid M1 or M2 license, a significant increase of 4.2% compared to 2013 (p=0.00, this was Q21 in 2013 survey form).

Table M37. Q23. "Do you have a valid M1 or M2 motorcycle license or permit?" and 2013 comparison

Q23	Frequency 2014	Percent 2014	Percent 2013	Difference 2014-2013
Yes	667	96.4%	92.2%	+4.2%
No	25	3.6%	7.8%	-4.2%
Total	692	100.0%	100.0%	--

Recall of commercials or advertisement on lane splitting

A new question added in the 2014 wave asked motorcycle riders if, in the past year and half, they have seen or heard anything in any media about lane splitting (Table M38). Overall 33.1% of respondents had seen any coverage on lane-splitting in the media, 66.9% had not.

Table M38. Q19. "In the past year and half, have you seen any commercials or heard anything in the media or Internet about lane splitting?"

Q19	Frequency 2014	Percent 2014
Yes	230	33.1%
No	465	66.9%
Total	695	100.0%

Respondents who stated they had seen or heard about lane splitting in the media were asked in a free recall where they have seen or heard about lane splitting. The results of which are in Table M39. The multiple choice answers combined show that 27.3% of all answers provided recalled freeway billboards, 23.4% TV ads and 18.8% of answers recalled information on lane-splitting from the internet.

Table M39. Q20. "If so, where?" [recall of lane-splitting coverage in media]

Q20	Frequency 2014	Percent 2014
On freeway billboards	70	27.3%
On TV	60	23.4%
On Internet	48	18.8%
Other source	24	9.4%
On Radio	22	8.6%
In newspaper	19	7.4%
In magazine	13	5.1%
Total	256	100.0%

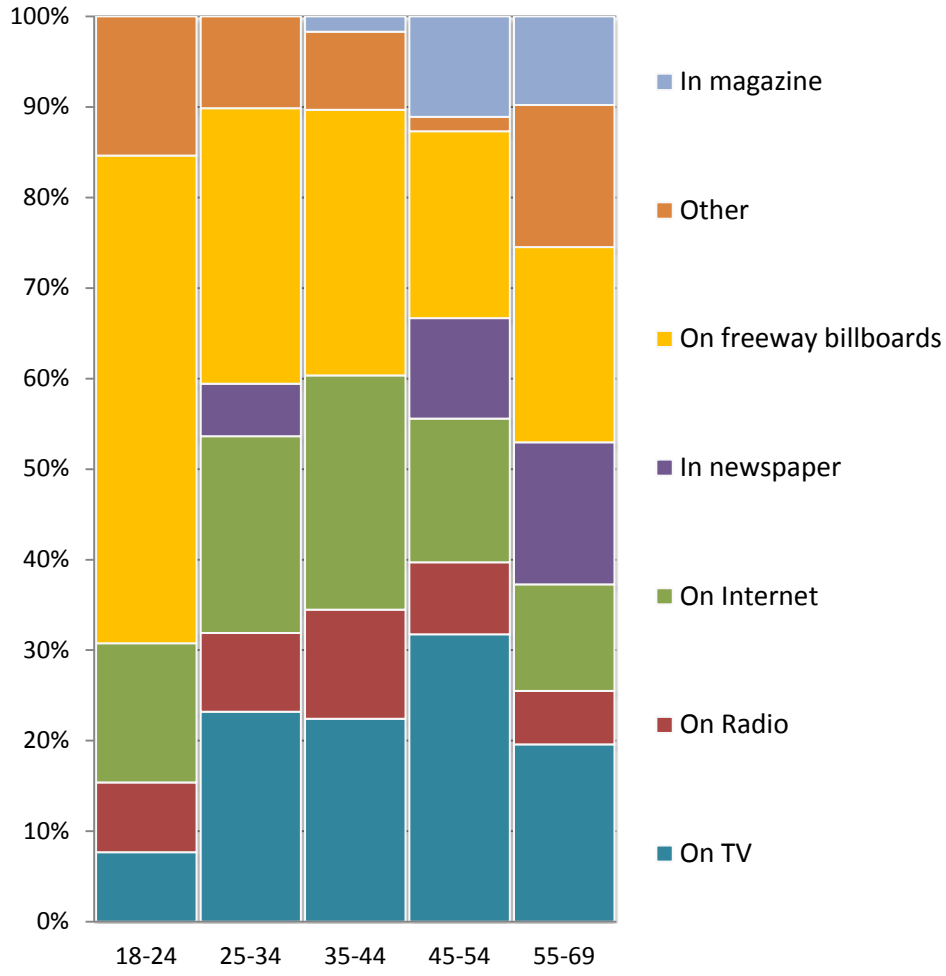
An exploration of the stated source of lane-splitting information by age group is shown in Table M40. For each age group, the information source most frequently mentioned is highlighted in grey. MCs in all age groups, except the 45 to 54 year-old riders, stated that freeway billboards were their source of lane-splitting information. The 45 to 54 year-old riders mentioned TV as the main source. (Note: The number of observations is small in some of the cells, and no respondent age 70 and over had been exposed to media coverage on lane-splitting).

Table M40. Q20 by age group. Crosstabulation of source of information by age of rider

Q20 by age	18-24	25-34	35-44	45-54	55-69
On TV	7.7%	23.2%	22.4%	31.7%	19.6%
On Radio	7.7%	8.7%	12.1%	7.9%	5.9%
On Internet	15.4%	21.7%	25.9%	15.9%	11.8%
In newspaper	0.0%	5.8%	0.0%	11.1%	15.7%
On freeway billboards	53.8%	30.4%	29.3%	20.6%	21.6%
Other source	15.4%	10.1%	8.6%	1.6%	15.7%
In magazine	0.0%	0.0%	1.7%	11.1%	9.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

The graphic representation of the source of lane-splitting information is shown in Figure M3.

Figure M3. Q20 by age group. Source of information by age of rider



B. Vehicle Driver Intercept Results

Note: In the 2014 data collection form, the verbiage for questions: Q4, Q5, Q7, Q9, Q10, Q12, Q16 and Q18 were rephrased to: "In the past 12 months…" from the previous: "Have you ever…". For that reason some data differences in the 2014 and 2013 data were not tested for significance.

Respondent demographics

The age distribution of vehicle drivers in shown in Table V1 from a total of 951 drivers.

Table V1. Respondent Age

Respondent Age	Frequency	Percent
18-24	119	12.7%
25-34	239	25.4%
35-44	233	24.8%
45-54	179	19.0%
55-70	150	16.0%
71 or older	20	2.1%
Total	940	100.0%

As show in Table V2, more male (63.4%) than female (36.6%) vehicle drivers were intercepted, comparable to the gender ratio in previous waves of data collection.

Table V2. Respondent Gender

Respondent Gender	Frequency	Percent 2014	Percent 2013	Percent 2012
Male	603	63.4%	66.2%	63.4%
Female	348	36.6%	33.8%	36.6%
Total	951	100.0%	100.0%	100.0%

The distribution of the age and gender of vehicle drivers intercepted is outlined in Table V3. The distribution is comparable to the overall gender distribution and there is no significant difference among the age groups.

Table V3. Respondent Age by Gender

Respondent Age	Male	Female	Total
18-24	57.1%	42.9%	100.0%
25-34	66.9%	33.1%	100.0%
35-44	64.8%	35.2%	100.0%
45-54	62.0%	38.0%	100.0%
55-70	61.3%	38.7%	100.0%
71 or older	80.0%	20.0%	100.0%

Driving frequency by the California region variable is shown in Table V4, with a comparable distribution between Northern and Southern California drivers (and no significant differences).

Table V4. Driving frequency on CA freeways by region

Q1 by region	Northern CA	Southern CA
6-7 days a week	50.4%	54.8%
3-5 days a week	28.6%	28.7%
1-2 times a week	14.1%	11.5%
Less than once a week	6.8%	5.1%
Total	100.0%	100.0%

Observations and perceptions on lane-splitting on freeways

The observation of motorcyclists lane-splitting on freeways in an average week is shown in Table V5 with a comparison to previous years. The number of lane-splitting MCs observed ranged from "zero" to 125 riders per week, with a median number of six observed motorcycles and a mean of 12.7 – both slightly higher values compared to last year.

Table V5. Q2. Lane-splitting MCs observed on freeways and 2013 – 2012 comparison

	2014	2013	2012
Total responses	**928**	**991**	**704**
Missing responses	23	29	29
Mean	12.7	9.6	9.8
Median	6.0	5.0	5.0
Minimum	0	0	0
Maximum	125	120	210

Vehicle drivers were asked if they believe lane-splitting for motorcycles on freeways to be legal. Table V6 shows the answers, with 60.7% of all vehicle drivers stating that lane-splitting for motorcycles on freeways is legal, while 29.5% did not think it to be legal. The remaining 9.8% respondents did not know. In comparison to 2013, there has been a significant increase of 5.2% in the awareness of the legality of lane-splitting (p=0.01).

Table V6. Q3. "Do you think it is legal for motorcycles to lane-split on freeways?" 2013 – 2012 comparison

Legal to lane-split freeways	Percentage 2014	Percentage 2013	Percentage 2012	Difference 2014 -2013
Yes	60.7%	55.5%	52.2%	+5.2%
No	29.5%	35.6%	36.9%	-6.1%
Don't know	9.8%	9.0%	9.9%	+0.8%
Total	100.0%	100.0%	100.0%	--

The cross-tabulation of frequency of driving on freeways and the legality of lane-splitting on freeways is shown in Table V7, together with previous years' data. There is no significant difference in the perception of legality of lane splitting and frequency of driving, and the findings are similar in distribution to the 2013 data.

Table V7. Frequency of driving on freeway and perception of legality for motorcycles to lane-split on freeways 2013 – 2012 comparison

Frequency driving and perception of lane-splitting	Legal for MCs to lane-split freeways		
	2014	2013	2012
6-7 days a week	68.3%	62.9%	61.1%
3-5 days a week	69.8%	61.3%	59.5%
1-2 times a week	62.6%	52.5%	58.0%
Less than once a week	56.3%	57.7%	32.1%
Total	67.4%	60.9%	59.1%

In Table V8 the relationship between respondent's age and the perceived legality of lane-splitting on freeways is shown. There are not any significant differences among the age groups.

Compared to 2013, both age groups of 18 – 24 and 25 – 35 year-olds increased significantly (p=0.02 for both age groups) in their awareness of the legality of lane splitting. (Note the decrease in awareness among drivers age 70 or older has too small a sample size for valid comparisons).

Table V8. Perception of legality for motorcycles to lane-split on freeways and age 2013 – 2012 comparison

Respondent age	Legal for MCs to lane-split freeways			Difference 2014 -2013
	2014	2013	2012	
18-24	67.9%	53.7%	44.5%	14.2%
25-34	68.7%	58.6%	62.0%	10.1%
35-44	73.7%	67.4%	60.7%	6.3%
45-54	61.6%	59.1%	65.7%	2.5%
55-70	64.0%	67.2%	63.3%	-3.2%
71 or older	50.0%	63.2%	50.0%	-13.2%
Total	67.4%	60.9%	59.3%	--

Overall, 83.8% of vehicle drivers experienced a motorcyclist lane-splitting between the vehicle they were in and another vehicle while on a freeway in the past 12 months (Table V9, question changed to limit recall to past 12 months).

Table V9. Q4. "In the past 12 months, have you had a motorcyclist lane-splitting between the vehicle you were in and another vehicle?" 2013 – 2012 data

Q4	Percentage 2014	Percentage 2013	Percentage 2012
Yes	83.8%	88.0%	86.8%
No	16.2%	12.0%	13.2%
Total	100.0%	100.0%	100.0%

Accidents with lane-splitting motorcyclists while on freeways

Vehicle drivers who observed a motorcycle lane-splitting on a freeway were asked if they hit a motorcyclist or if they have been hit by a lane-splitting motorcyclist in the past 12 months (question was changed to past 12 months in the 2014 data collection). Table V10 shows the results with 3.3% of all drivers stated to have hit or been hit by a motorcycle that was lane-splitting on freeway.

Table V10. Q5. "In the past 12 months, have you hit a motorcycle or has a motorcycle hit you while driving on a freeway?" 2013 – 2012 data

Q5	Percentage 2014	Percentage 2013	Percentage 2012
Yes, MC hit me/my car & I hit motorcycle	3.3%	3.0%	5.3%
No, never	96.7%	97.0%	94.7%
Total	100.0%	100.0%	100.0%

Those vehicle drivers who were never hit nor hit a motorcycle that was lane-splitting were asked a follow-up question about their experiences of nearly being hit by a motorcycle (see Table V11). Of those drivers, 26.7% stated that they had nearly been hit by a motorcyclist who was lane-splitting on a freeway, similarly to previous waves.

Table V11. Q5a. "Were you ever nearly hit by a motorcycle in the past 12 months?" [on freeway] 2013 – 2012 data

Q5a	Percentage 2014	Percentage 2013	Percentage 2012
Yes	26.7%	28.3%	34.6%
No	73.3%	71.7%	65.4%
Total	100.0%	100.0%	100.0%

Drivers who experienced a collision with a lane-splitting motorcycle were asked about the damage caused, the combined 8 multiple choice answers from 25 respondents are shown in Table V12. An additional category based on open-ended comments was added in the 2014 data collection, the "none" response.

The "other" answers given included hitting the handle bar and mirror of the motorcyclist.

Table V12. Q6. "What damage was caused by that hit or collision?" 2013 – 2012 data

Q6	Percentage 2014	Percentage 2013	Percentage 2012
Just hit car mirror	48.0%	57.1%	58.8%
Scraped/hit side of car	24.0%	25.0%	26.5%
MC hit my front bumper	4.0%	3.6%	0.0%
I knocked down MC	8.0%	3.6%	0.0%
Other	4.0%	10.7%	14.7%
None	12.0%	--	--
Total	100.0%	100.0%	100.0%

Vehicle drivers were also asked if they witnessed a collision involving a lane-splitting motorcycle on a freeway in the past 12 months, and 12.7% of respondents stated that they did (Table V13).

Table V13. Q7. "In the past 12 months, have you witnessed a collision that involved a motorcycle that was lane-splitting on a freeway?" 2013 – 2012 data

Q7	Percentage 2014	Percentage 2013	Percentage 2012
Yes	12.7%	17.3%	19.1%
No	87.3%	82.7%	80.9%
Total	100.0%	100.0%	100.0%

Observations and perceptions on lane-splitting on multiple-lane roads

The number of motorcyclists observed lane-splitting on multiple-lane roads in an average week is shown in Table V14. The number of lane-splitting motorcyclists observed ranged from "zero" to 100 per week, with a median number of three observations and a mean of 5.84 motorcyclists per week. These results are comparable to previous year data.

Table V14. Q8. Lane-splitting MCs observed on multiple-lane roads 2013 – 2012 comparison

	Percentage 2014	Percentage 2013	Percentage 2012
Total responses	903	978	677
Missing responses	48	42	56
Mean	5.84	5.83	5.37
Median	3.0	2.0	3.0
Minimum	0	0	0
Maximum	100	150	250

The vehicle observations of motorcycles lane-splitting on a multiple-lane road is shown in Table V15, with 62.3% of drivers confirming this.

Table V15. Q9. "Thinking about driving on a multiple lane road in the past 12 months, have you had a motorcyclist lane-splitting between the vehicle you were in and another vehicle?" 2013 – 2012 data

Q9	Percentage 2014	Percentage 2013	Percentage 2012
Yes	62.3%	68.7%	69.4%
No	37.7%	31.3%	30.6%
Total	100.0%	100.0%	100.0%

Accidents with lane-splitting motorcyclists while on multiple-lane roads

A total of 1.7% of all drivers (10 responses in total) confirmed that they were hit by a lane-splitting motorcyclist in the past 12 months.

Table V16. Q10. "In the past 12 months, have you hit a motorcycle or has a motorcycle hit you that was lane-splitting on roads other than freeways?" 2013 – 2012 data

Q10	Percentage 2014	Percentage 2013	Percentage 2012
Yes, MC hit me/my car	1.7%	1.9%	1.6%
No, never	98.3%	98.1%	98.4%
Total	100.0%	100.0%	100.0%

Of the drivers who were never hit by a lane-splitting motorcycle on a multiple-lane road 18.5% stated that they were nearly hit by a motorcycle (see Table V17).

Table V17. Q10a. "Were you ever nearly hit by a motorcycle in the past 12 months?" 2013 – 2012 data

Q10a	Percentage 2014	Percentage 2013	Percentage 2012
Yes	18.5%	25.0%	24.9%
No	81.5%	75.0%	75.1%
Total	100.0%	100.0%	100.0%

The stated damage caused to vehicles by lane-splitting motorcycles on multiple-lane roads is shown in Table V18, with a combined total of 10 answers. The majority of answers, 60.0%, stated the MC just hit their car mirror, 10.0% of vehicle drivers knocked the MC down. Other answers not coded included "hitting the back bumper" and leaving MC "crippled with a totaled car and $100,000 in injuries".

Table V18. Q11. "What damage was caused by that hit or collision?" 2013 – 2012 comparison

Q11	Percentage 2014	Percentage 2013	Percentage 2012
Just hit my car mirror	60.0%	23.5%	37.5%
Scraped/hit side of car	0.0%	35.3%	50.0%
MC had minor injuries (scrapes/bruises)	0.0%	5.9%	0.0%
MC hit my front bumper	10.0%	0.0%	0.0%
I knocked down MC	10.0%	0.0%	0.0%
Other	20.0%	11.8%	12.5%
None	0.0%	23.5%	0.0%
Total	100.0	100.0%	100.0%

The question if they ever witnessed a collision that involved a MC that was lane-splitting on a multiple-lane road in the past 12 months was confirmed by 8.1% of drivers (Table V19).

Table V19. Q12. "In the past 12 months, have you witnessed a collision that involved a motorcycle that was lane-splitting on roads other than freeways?" 2013 – 2012 data

Q12	Percentage 2014	Percentage 2013	Percentage 2012
Yes	8.1%	13.2%	16.0%
No	91.9%	86.8%	84.0%
Total	100.0%	100.0%	100.0%

Perceived legality and approval/disapproval of lane-splitting

Drivers' perception of lane-splitting being legal on multiple-lane roads is shown in Table V20 with a comparison to previous waves. A total of 52.3% of all drivers confirmed lane-splitting being legal, compared to 44.0% in 2013, a significant increase of 8.3% (p=0.00).

Table V20. Q13. "Do you think it is legal for motorcycles to lane-split on multiple-lane roads?" 2013 – 2012 comparison

Q13	Percentage 2014	Percentage 2013	Percentage 2012	Difference 2014 -2013
Yes	52.3%	44.0%	41.7%	+8.3%
No	35.8%	45.9%	45.5%	-10.1%
Don't know	11.9%	10.0%	12.8%	+1.9%
Total	100.0%	100.0%	100.0%	100.0%

Overall, 9.7% of all vehicle drivers "strongly approve" and 29.5% "somewhat approve" of lane-splitting in general, a similar approval rate compared to previous years. The majority of drivers, 60.8% "somewhat disapprove" or "strongly disapprove" of it (Table V21).

Table V21. Q14. "How would rate your approval or disapproval of lane-splitting?" 2013 – 2012 comparison

Q14	Percentage 2014	Percentage 2013	Percentage 2012
Strongly approve	9.7%	9.2%	8.3%
Somewhat approve	29.5%	27.4%	28.3%
Somewhat disapprove	26.8%	24.9%	26.1%
Strongly disapprove	34.0%	38.5%	37.3%
Total	100.0%	100.0%	100.0%

Table V22 shows the frequencies of the combined answers to Q14 as "Approval of lane splitting" based on the grouped positive or negative responses, together with the cross-tabulation of the respondent's gender. The differences in approval rate between male and female drivers is significant (p=0.02), with a larger proportion of females disapproving of lane splitting compared to male drivers, similarly to previous waves.

Table V22. Approval or disapproval of lane-splitting by gender

Gender	Approval 2012	Disapproval 2012	Total
Male	41.9%	58.1%	100.0%
Female	25.7%	74.3%	100.0%
Total	36.0%	64.0%	100.0%
Gender	**Approval 2013**	**Disapproval 2013**	**Total**
Male	42.8%	57.2%	100.0%
Female	24.3%	75.7%	100.0%
Total	36.5%	63.5%	100.0%
Gender	**Approval 2014**	**Disapproval 2014**	**Total**
Male	42.6%	57.4%	100.0%
Female	33.3%	66.7%	100.0%
Total	39.2%	60.8%	100.0%

The reason for approval or disapproval of lane-splitting was asked in a multiple choice format, with open-ended comments provided additionally coded into new answer categories.

The following three answering categories were added:

- Safe only when traffic stopped or at slow speed;
- MCs hard to see or are in blind spot;
- Approval if rider is careful/lane splitting when safe.

Note: The answering option: “It is unfair they get ahead of me” was amended with the addition of “same rules for vehicles and MCs.” The answering option “might cause me to have an accident” includes answer given including: “might cause me (or others) to have an accident.”

The majority of 22.9% respondents who approve of lane splitting gave as a reason that “it is legal”, 22.7% approved because it helps reduce traffic congestion, while 19.3% of vehicle drivers stated it is safe. The most frequently given reason for disapproval is lane-splitting being perceived as unsafe, with 54.7% of all answer; 8.6% of drivers also stated that it might cause them (or others) to have an accident (Table V23).

The other specified reasons include having ridden or riding a motorcycle, motorcycles overheating and similar.

Table V23. Approval of lane-splitting by reason for approval/disapproval

Approval by reason	Approval	Disapproval
It is legal	22.9%	1.4%
Helps reduce traffic congestion	22.7%	1.9%
It is safe	19.3%	0.4%
Other	8.9%	4.0%
It is unsafe	8.3%	54.7%
Approval if rider is careful/lane splitting when safe	6.6%	0.5%
It scares me they might crash	3.2%	6.2%
Safe only when traffic stopped or at slow speed	2.3%	0.1%
They ride too fast	1.9%	5.3%
It startles/surprises me	1.5%	6.8%
Might cause me or others to have an accident	1.1%	8.6%
It is illegal	0.8%	4.0%
It's hard to see MCs/they are in blind spot	0.4%	2.4%
It is unfair they get ahead of me	0.2%	3.8%
Total	100.0%	100.0%

A variable was created combining the perception on lane-splitting legality on freeways and other multiple-lane roads, with the frequency of answers shown in Table V24. Of all drivers, 46.3% believe it to be legal for motorcycles to lane-split on both freeways and multiple-lane roads, compared to 36.6% of drivers in 2013. The increase of 9.7% is significant (p=0.00; Table V24).

The perception of lane-splitting being illegal on all road types also decreased significantly by 5.0% between 2014 and 2013 (p=0.01) as has the perception of lane-splitting being legal on freeways only (5.2% decrease significant; p=0.00).

Table V24. Perception of legality of lane-splitting on both freeways and multiple-lane roads 2013 – 2012 comparison

Perception of legality	Percentage 2014	Percentage 2013	Percentage 2012	Difference 2014 -2013
Both legal	46.3%	36.6%	34.2%	+9.7%
Both illegal	23.9%	28.9%	29.2%	-5.0%
FWY legal - Road illegal	8.8%	14.0%	13.2%	-5.2%
FWY illegal - Road legal	4.1%	5.1%	5.6%	-1.0%
Both - do not know	5.0%	3.9%	5.2%	+1.1%
FWY legal	5.7%	4.8%	5.3%	+0.9%
Road legal	1.7%	2.3%	1.6%	-0.6%
FWY illegal	1.5%	1.5%	2.9%	+0.0%
Road illegal	3.1%	2.9%	2.7%	+0.2%
Total	100.0%	100.0%	100.0%	--

The cross-tabulation of the perception of legality of lane-splitting and the approval is outlined in Table V25, with significant differences in the approval and disapproval rate among drivers. Of respondents who believed lane-splitting to be legal on all roads 63.7% approved of lane splitting, while 35.6% did not. Of drivers who believed lane-splitting on all multiple-lane roads to be illegal, only 7.7% approved while 34.9% did not approve – indicating a reciprocal relationship between approval of lane-splitting and knowledge of its legality (differences significant at p=0.00).

Table V25. Approval or disapproval of lane-splitting by perception of legality of lane-splitting 2013 – 2012 comparison

Perception of legality	Approval 2014	Disapproval 2014	Approval 2013	Disapproval 2013	Approval 2012	Disapproval 2012
Both legal	63.7%	35.6%	57.0%	25.5%	56.8%	21.5%
Both illegal	7.7%	34.9%	10.9%	39.4%	8.3%	40.9%
FWY legal - Road illegal	10.7%	7.3%	17.3%	12.0%	17.0%	11.1%
FWY illegal - Road legal	3.3%	4.8%	4.5%	5.6%	6.4%	5.1%
Both - do not know	4.4%	5.2%	2.2%	4.6%	1.1%	7.5%
FWY legal	6.0%	4.6%	3.6%	5.1%	4.5%	5.8%
Road Legal	1.4%	1.8%	3.6%	1.6%	3.0%	0.9%
FWY illegal	0.5%	2.1%	0.0%	2.1%	1.9%	3.4%
Road illegal	2.2%	3.7%	0.8%	4.0%	0.8%	3.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

The approval rating of lane-splitting by the regions of Northern and Southern California is shown in Table V26, without any significant differences in the approval between the two regions and similar distribution to previous waves of data collection.

Table V26. Approval or disapproval of lane-splitting by California region 2013 – 2012 comparison

Region	Approval 2014	Approval 2013	Approval 2012
Northern CA	39.6%	37.6%	39.9%
Southern CA	39.1%	35.9%	34.3%
Total	39.2%	36.5%	36.0%

The legality of lane-splitting variable by California region is shown in Table V27 with a similar distribution of perception between northern and southern regions.

Table V27. CA region variable by perception of legality of lane-splitting 2013 – 2012 comparison

Perception of legality	2014		2013		2012	
	Northern CA	Southern CA	Northern CA	Southern CA	Northern CA	Southern CA
Both legal	47.4%	45.9%	41.0%	34.3%	31.4%	35.5%
Both illegal	24.4%	23.7%	25.2%	30.8%	24.2%	31.4%
FWY legal - Road illegal	7.3%	9.3%	14.3%	13.8%	16.6%	11.8%
FWY illegal - Road legal	4.7%	3.9%	6.0%	4.6%	6.3%	5.3%
Both DK	3.4%	5.5%	5.2%	3.3%	4.5%	5.5%
FWY legal	6.0%	5.6%	5.2%	4.6%	8.1%	4.1%
Road Legal	1.7%	1.7%	0.6%	3.1%	2.7%	1.2%
FWY illegal	2.1%	1.3%	1.7%	1.3%	2.2%	3.1%
Road illegal	3.0%	3.1%	0.9%	4.0%	4.0%	2.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

The perception of lane-splitting being legal by county is shown in Table V28. Responses of lane-splitting being legal on both multiple-lane road types range from 58.6% in San Mateo County to 36.7% in San Diego County. Lane-splitting being illegal on both freeways and multiple-lane roads range from 38.5% in San Francisco to 13.8% in San Mateo County. The differences among counties are not significant.

Table V28. Perception of legality of lane-splitting by California County

County	Both LEGAL	Both ILLEGAL	FWY legal - Road illegal	FWY illegal - Road legal	Both DK	FWY legal	Road Legal	FWY illegal	Road illegal	Total
San Mateo	58.6%	13.8%	3.4%	6.9%	6.9%	6.9%	0.0%	0.0%	3.4%	100.0%
Ventura	56.7%	20.0%	10.0%	6.7%	0.0%	3.3%	3.3%	0.0%	0.0%	100.0%
Sacramento	54.5%	21.2%	3.0%	3.0%	3.0%	9.1%	0.0%	0.0%	6.1%	100.0%
Santa Clara	54.0%	30.0%	4.0%	4.0%	4.0%	2.0%	0.0%	0.0%	2.0%	100.0%
San Bernardino	51.9%	27.5%	11.5%	3.1%	1.5%	1.5%	1.5%	0.0%	1.5%	100.0%
Riverside	47.6%	27.0%	7.9%	6.3%	6.3%	4.8%	0.0%	0.0%	0.0%	100.0%
Los Angeles	46.9%	20.8%	8.6%	4.0%	4.0%	7.6%	2.3%	1.0%	5.0%	100.0%
Contra Costa	43.2%	16.2%	10.8%	8.1%	0.0%	8.1%	5.4%	2.7%	5.4%	100.0%
Orange	40.0%	20.0%	8.6%	5.7%	10.0%	7.1%	4.3%	2.9%	1.4%	100.0%
Alameda	39.1%	26.1%	10.9%	2.2%	2.2%	8.7%	2.2%	6.5%	2.2%	100.0%
San Francisco	38.5%	38.5%	3.8%	7.7%	7.7%	0.0%	0.0%	3.8%	0.0%	100.0%
San Diego	36.7%	28.1%	10.9%	1.6%	10.9%	5.5%	0.0%	3.1%	3.1%	100.0%

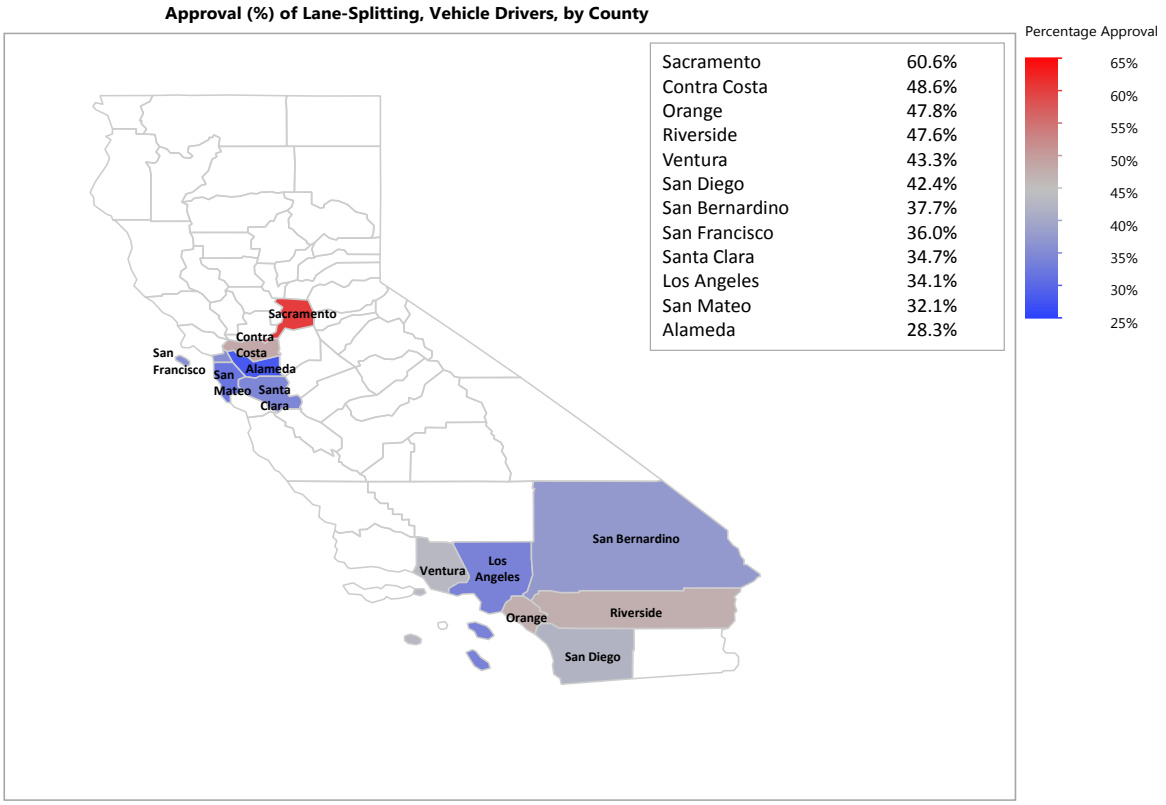
The approval or disapproval of lane-splitting by county is shown in Table V29. The approval rates ranged from 60.6% in Sacramento to 28.3% in Alameda County, which with 71.7% also has the highest disapproval rate. The differences between counties are not significant.

Table V29. CA County by approval of legality of lane-splitting 2013 – 2012 comparison

County	Approval of lane-splitting 2014		Approval of lane-splitting 2013		Approval of lane-splitting 2012		Total
	Approval	Disapproval	Approval	Disapproval	Approval	Disapproval	
Sacramento	60.6%	39.4%	52.9%	47.1%	27.5%	72.5%	100.0%
Contra Costa	48.6%	51.4%	42.5%	57.5%	48.0%	52.0%	100.0%
Orange	47.8%	52.2%	37.5%	62.5%	36.5%	63.5%	100.0%
Riverside	47.6%	52.4%	30.4%	69.6%	25.0%	75.0%	100.0%
Ventura	43.3%	56.7%	52.0%	48.0%	57.1%	42.9%	100.0%
San Diego	42.4%	57.6%	35.5%	64.5%	39.8%	60.2%	100.0%
San Bernardino	37.7%	62.3%	26.8%	73.2%	28.6%	71.4%	100.0%
San Francisco	36.0%	64.0%	27.5%	72.5%	41.2%	58.8%	100.0%
Santa Clara	34.7%	65.3%	35.5%	64.5%	29.6%	70.4%	100.0%
Los Angeles	34.1%	65.9%	36.8%	63.2%	32.2%	67.8%	100.0%
San Mateo	32.1%	67.9%	26.1%	73.9%	81.0%	19.0%	100.0%
Alameda	28.3%	71.7%	41.8%	58.2%	42.9%	57.1%	100.0%

The graphic representation of vehicle drivers approval rate of motorcyclist lane-splitting, by county, is shown in Figure V1 using a heat map.

Figure V1. Vehicle Drivers approval rate of lane splitting by county



Preventing motorcycles from lane-splitting

Of all drivers, 3.8% stated that they tried to prevent a motorcycle from lane spitting in the past 12 months (see Table V30.)

Table V30. Q16. "In the past 12 months, have you tried to prevent a motorcycle that was lane-splitting from passing you?" 2013 – 2012 data

Q16	Percentage 2014	Percentage 2013	Percentage 2012
Yes	3.8%	6.4%	7.3%
No	96.2%	93.6%	92.7%
Total	100.0%	100.0%	100.0%

The reason given by drivers on why they tried to prevent a motorcyclist from lane-splitting is shown in Table V31. Most drivers mentioned that is it unfair for motorcyclists to get ahead of them (23.8%) followed by the mention of lane-splitting being unsafe (21.4%).

Table V31. Q17. "Why did you try to prevent the motorcyclist from lane-splitting?" 2013 – 2012 data

Q17	Percentage 2014	Percentage 2013	Percentage 2012
It is illegal	4.8%	2.9%	4.5%
It is unsafe	21.4%	14.5%	25.4%
It is unfair they get ahead of me	23.8%	11.6%	13.4%
It startles/surprises me	11.9%	7.2%	3.0%
It scares me they might crash	7.1%	7.2%	4.5%
They ride too fast	11.9%	7.2%	4.5%
Might cause me to have an accident	11.9%	17.4%	19.4%
Other	7.1%	31.9%	25.4%
Total	100.0%	100.0%	100.0%

A new survey question was added to the 2014 wave of surveys, asking respondents if they had heard or seen any media coverage on lane splitting in the past year and a half. The frequency of results are shown in Table V32. Overall, 13.7% have heard or seen any media coverage on lane-splitting.

Table V32. Q18. "In the past year and a half, have you seen or heard any commercials or heard anything in the media or internet about lane splitting?

Q18	Frequency	Percentage 2014
Yes	129	13.7%
No	810	86.3%
Total	939	100.0%

Respondents who had seen or heard any coverage on lane-splitting were asked about the information source, and the summary of which can be found in Table V33. The largest percentage of drivers mentioned TV (25.2%), followed closely by freeway billboards (24.4%). The other mentioned sources included magazines, social media and similar.

Table V33. Q19.Source of information on lane-splitting

Q19	Frequency	Percentage 2014
On TV	33	25.2%
On Radio	24	18.3%
On Internet	24	18.3%
In newspaper	11	8.4%
On freeway billboards	32	24.4%
Other	7	5.3%
Total	131	100.0%

The cross-tabulation table of source of information on lane-splitting and age is shown in Table V34, with the highest percentage per age group highlighted in gray. Most drivers under age 35 and those 55 – 69 had seen or heard media coverage on lane-splitting on TV, the majority of 35 – 44 year olds stated the radio or Internet as a source and among the 45-54 year-olds 39.1% mentioned freeway billboards.

Table V34. Q20 by age group. Crosstabulation of source of information by age of rider

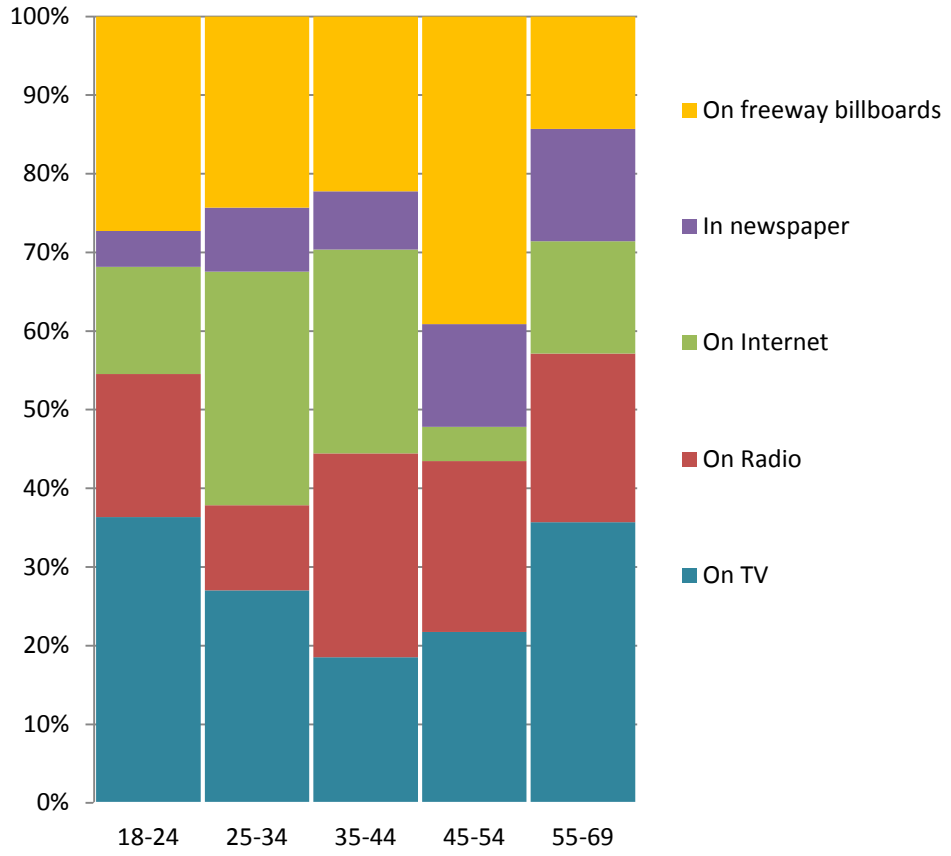
Q20 by age	18-24	25-34	35-44	45-54	55-69	71 and older
On TV	33.3%	25.6%	17.2%	21.7%	33.3%	0.0%
On Radio	16.7%	10.3%	24.1%	21.7%	20.0%	100.0%
On Internet	12.5%	28.2%	24.1%	4.3%	13.3%	0.0%
In newspaper	4.2%	7.7%	6.9%	13.0%	13.3%	0.0%
On freeway billboards	25.0%	23.1%	20.7%	39.1%	13.3%	0.0%
Other source	8.3%	5.1%	6.9%	0.0%	6.7%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Vehicle driver source of lane-splitting information comparison

The comparison of motorcycle riders and vehicle drivers on the source of information on lane-splitting information shows a different pathway of reaching each group with information on lane-splitting. While for most of the drivers, including those in younger age groups, TV is the most frequently stated source of information, the MC rider group, especially younger age groups more frequently obtain information from freeway billboards (see Tables V34 and M40).

The graphic representation of the source of lane-splitting for vehicle drivers is shown in Figure V1.

Figure V1. Q20 by age group. Source of information by age of rider



Appendix A– Intercept Form Vehicle Drivers

Ewald & Wasserman
RESEARCH CONSULTANTS, LLC

VEHICLE SURVEY 2014

Hi, my name is _____. I am doing a brief survey on safety issues for the Office of Traffic Safety and UC Berkeley. It will take a few minutes and will help traffic safety researchers learn more about the opinions of CA drivers on lane splitting. This is completely anonymous and you can skip any question you do not want to answer.

First, are you over 18 years old?
[If NO – do not proceed]

1 ☐ Yes

1 About how often would you say you drive on a freeway in CA?

1 ☐ 6-7 days a week
2 ☐ 3-5 days a week
3 ☐ 1-2 times a week
4 ☐ Less than once a week
88 ☐ DK
99 ☐ Skip

For the purpose of this survey, the term "lane splitting" means a motorcyclist riding between two lanes of slower moving or stopped traffic heading in the same direction.

2 Thinking about driving on a freeway – and not any other street, how many motorcycles do you see lane splitting in an average week?

_____(# of events/week)
888 ☐ DK
999 ☐ Skip

3 Do you think it is LEGAL for motorcycles to lane split on freeways?

1 ☐ Yes
2 ☐ No
88 ☐ DK
99 ☐ Skip

4 Still thinking about driving on a freeway in the past 12 months, have you had a motorcyclist lane splitting between the vehicle you were in and another vehicle?

1 ☐ Yes
2 ☐ No **(GO TO Q7)**
88 ☐ DK
99 ☐ Skip

5 In the past 12 months, have you hit a motorcycle OR has a motorcycle hit you that was lane splitting on a freeway?

3 ☐ No, never –
5a. Were you nearly hit by a motorcycle in the past 12 months?
1 ☐ Yes **(GO TO Q7)**
2 ☐ No **(GO TO Q7)**

1 ☐ Yes, MC hit me/my car
2 ☐ Yes, I hit MC
88 ☐ DK
99 ☐ Skip

6 What damage was caused by that hit or collision? (DO not read - Select All)

1 ☐ Just hit my car mirror
2 ☐ Scraped/hit side of car
3 ☐ MC had severe injuries (broken bones, lacerations, trauma)
4 ☐ MC had minor injuries (scrapes/bruises)
5 ☐ MC hit my front bumper
6 ☐ I knocked down MC
7 ☐ Other _____
8 ☐ None
88 ☐ DK
99 ☐ Skip

7 In the past 12 months, have you witnessed a collision that involved a motorcycle that was lane splitting on a freeway? *(Not just any collision)*

1 ☐ Yes
2 ☐ No
88 ☐ DK
99 ☐ Skip

NOW I AM GOING TO ASK YOU ABOUT ROADS OTHER THAN FREEWAYS THAT HAVE MULTIPLE LANES GOING IN THE SAME DIRECTION.

8 Thinking about driving on a multiple lane road, not a freeway, how many motorcycles do you see lane splitting in an average week?

_____(# of events/week)
888 ☐ DK
999 ☐ Skip

9 And thinking about driving on a multiple lane road in the past 12 months, have you had a motorcyclist lane splitting between the vehicle you were in and another vehicle?

1 ☐ Yes
2 ☐ No **(GO TO Q12)**
88 ☐ DK
99 ☐ Skip

10 In the past 12 months, have you hit a motorcycle OR has a motorcycle hit you that was lane splitting on a road other than a freeway?

3 ☐ No, never –
10a. Were you nearly hit by a motorcycle in the past 12 months?
1 ☐ Yes **(GO TO Q12)**
2 ☐ No **(GO TO Q12)**

1 ☐ Yes, MC hit me/my car
2 ☐ Yes, I hit MC
88 ☐ DK
99 ☐ Skip

11 What damage was caused by that hit or collision? *(DO not read - Select All)*

1 ☐ Just hit my mirror
2 ☐ Scraped/hit side of car
3 ☐ MC had severe injuries (broken bones, lacerations, trauma)
4 ☐ MC had minor injuries (scrapes/bruises)
5 ☐ Hit my front bumper
6 ☐ I knocked down MC
7 ☐ Other_____
8 ☐ None
88 ☐ DK
99 ☐ Skip

12 In the past 12 months, have you witnessed a collision that involved a motorcycle that was lane splitting on a multiple lane road other than a freeway? *(Not just any collision)*

1 ☐ Yes
2 ☐ No
88 ☐ DK
99 ☐ Skip

13 **Do you think it is LEGAL for motorcycles to lane split on multiple lane roads other than freeways?**

1 ☐ Yes
2 ☐ No
88 ☐ DK
99 ☐ Skip

14 **Overall, how would rate your approval or disapproval of lane splitting? Would you say you…**

1 ☐ Strongly approve
2 ☐ Somewhat approve
3 ☐ Somewhat disapprove
4 ☐ Strongly disapprove
88 ☐ DK
99 ☐ Skip

15 **Why do you say that?** *(DO not read - Select All)*

1 ☐ It is illegal
2 ☐ It is unsafe
3 ☐ It is unfair they get ahead of me
4 ☐ It startles/surprises me
5 ☐ It scares me they might crash
6 ☐ They ride too fast
7 ☐ Might cause me to have an accident
8 ☐ It is legal
9 ☐ It is safe
10 ☐ Helps reduce traffic congestion
11 ☐ Other _____
88 ☐ DK
99 ☐ Skip

16 **In the past 12 months, have you tried to prevent a motorcycle that was lane splitting from passing you?**

1 ☐ Yes
2 ☐ No **(GO TO Q18)**
88 ☐ DK
99 ☐ Skip

17 **Why did you try to prevent the motorcycle from lane splitting?** *(DO not read - Select All)*

1 ☐ It is illegal
2 ☐ It is unsafe
3 ☐ It is unfair they get ahead of me
4 ☐ It startles/surprises me
5 ☐ It scares me they might crash
6 ☐ They ride too fast
7 ☐ Might cause me to have an accident
8 ☐ Other _____
88 ☐ DK
99 ☐ Skip

18 **In the past year and a half, have you seen any commercials or heard anything in the media or Internet about lane splitting?**

1 ☐ Yes
2 ☐ No **(GO TO Q20)**
88 ☐ DK
99 ☐ Skip

19 **If so, where?** *(DO not read - Select All)*

1 ☐ On TV
2 ☐ On Radio
3 ☐ On Internet
4 ☐ In newspaper
5 ☐ On freeway billboards
6 ☐ Other _____
88 ☐ DK
99 ☐ Skip

20 **And lastly, for statistical purposes, please stop me when I get to your age range: Are you between?**

1 ☐ 18-24
2 ☐ 25-34
3 ☐ 35-44
4 ☐ 45-54
5 ☐ 55-69
6 ☐ 70 or older
99 ☐ Skip

Thank you very much for your time. Those are all the questions.

FOR E&W STAFF TO FILL OUT:

Date: _____ Interviewer: _____

Location: _____

Time: 7 / 8 / 9 / 10 / 11 / 12 / 1 / 2 / 3 / 4 / 5 / 6 AM/PM

Respondent's gender: **(DO NOT ASK)** 1 ☐ M 2 ☐ F

Appendix B– Intercept Form Motorcycle Riders

Ewald & Wasserman
RESEARCH CONSULTANTS, LLC

MOTORCYCLE SURVEY 2014

Hi, my name is _____. I am doing a brief survey on safety issues for the Office of Traffic Safety and UC Berkeley. It will take a few minutes and will help traffic safety researchers learn more about the opinions of CA drivers on lane splitting. This is completely anonymous and you can skip any question you do not want to answer.

First, are you over 18 years old?
[If NO – do not proceed]

1 ☐ Yes

1 What best describes how you use your motorcycle MOST of the time? *(DO not read - Select ONE)*

1 ☐ Commuting to work
2 ☐ Pleasure riding on weekends
3 ☐ Both commuting to work and pleasure riding on weekends
4 ☐ Long-distance touring rides
5 ☐ Other _____
88 ☐ DK
99 ☐ Skip

2 About how often would you say you ride your motorcycle?

1 ☐ 6-7 days a week
2 ☐ 3-5 days a week
3 ☐ 1-2 times a week
4 ☐ Less than once a week
88 ☐ DK
99 ☐ Skip

3 On an average day about how many miles do you ride your motorcycle?

_____(number of miles/range)
888 ☐ DK
999 ☐ Skip

For the purpose of this survey, the term "Lane splitting" means a motorcyclist riding between two lanes of slower moving or stopped traffic heading in the same direction.

4 Do you lane split on your motorcycle when riding on freeways?

1 ☐ Yes
2 ☐ No **(GO TO Q9)**
88 ☐ DK
99 ☐ Skip

5 How frequently do you lane split on freeways? Would you say…

1 ☐ Always
2 ☐ Often
3 ☐ Sometimes
4 ☐ Rarely
88 ☐ DK
99 ☐ Skip

6 In the past 12 months, have you hit a vehicle or has a vehicle hit you while you were lane splitting on a freeway?

3 ☐ No, never –
6a. Did you nearly hit a vehicle in the past 12 months?
1 ☐ Yes **(GO TO Q8)**
2 ☐ No **(GO TO Q8)**
1 ☐ Yes, vehicle hit me/my bike
2 ☐ Yes, I hit vehicle
88 ☐ DK
99 ☐ Skip

7 What damage was caused by that hit or collision? *(DO not read - Select All)*

1 ☐ Just hit car mirror
2 ☐ Scraped/hit side of car
3 ☐ I had severe injuries (broken bones, lacerations, trauma)
4 ☐ I had minor injuries (scrapes/bruises)
5 ☐ I hit car front bumper
6 ☐ I was knocked down
7 ☐ Other _____
8 ☐ None
88 ☐ DK
99 ☐ Skip

8 What best describes your lane splitting on freeways? Would you say you lane split only when… *(Select ONE)*

1 ☐ Traffic is at a standstill
2 ☐ Traffic is stop-and-go
3 ☐ Traffic is moving less than 20 MPH
4 ☐ Traffic is moving less than 30 MPH
5 ☐ Traffic is moving less than 40 MPH
6 ☐ Traffic is moving less than 50 MPH
7 ☐ Traffic is moving less than 60 MPH
8 ☐ Traffic is moving less than 70 MPH
9 ☐ Other _____
88 ☐ DK
99 ☐ Skip

NOW I AM GOING TO ASK YOU ABOUT ROADS OTHER THAN FREEWAYS THAT HAVE MULTIPLE LANES GOING IN THE SAME DIRECTION.

9 Do you lane split on your motorcycle when riding on multiple lane roads other than freeways?

1 ☐ Yes
2 ☐ No **(GO TO Q14 when Q4=1 else go to Q19)**
88 ☐ DK
99 ☐ Skip

10 How frequently do you lane split on roads other than freeways? Would you say…

1 ☐ Always
2 ☐ Often
3 ☐ Sometimes
4 ☐ Rarely
88 ☐ DK
99 ☐ Skip

11 **In the past 12 months, have you hit a vehicle or has a vehicle hit you while you were lane splitting on a multiple lane road other than a freeway?**

3 ☐ No, never –
11a. Did you nearly hit a vehicle in the past 12 months?
1 ☐ Yes **(GO TO Q13)** 2 ☐ No **(GO TO Q13)**

1 ☐ Yes, vehicle hit me/my bike 2 ☐ Yes, I hit vehicle
88 ☐ DK 99 ☐ Skip

12 **What damage was caused by that hit or collision?** *(DO not read - Select ALL)*

1 ☐ Just hit car mirror
2 ☐ Scraped/hit side of car
3 ☐ I had severe injuries (broken bones, lacerations, trauma)
4 ☐ I had minor injuries (scrapes/bruises)
5 ☐ I hit car front bumper
6 ☐ I was knocked down
7 ☐ Other_____
8 ☐ None
88 ☐ DK 99 ☐ Skip

13 **What best describes your lane splitting on roads other than freeways? Would you say you lane split only when…** *(Select ONE)*

1 ☐ Traffic is at a standstill
2 ☐ Traffic is stop-and-go
3 ☐ Traffic is moving less than 20 MPH
4 ☐ Traffic is moving less than 30 MPH
5 ☐ Traffic is moving less than 40 MPH
6 ☐ Traffic is moving less than 50 MPH
7 ☐ Other _____
88 ☐ DK 99 ☐ Skip

14 **If you had to guess, when lane splitting – how much faster (in general) than the rest of the traffic do you go? Would you say you go about…**

5MPH -- 10MPH -- 15MPH -- 20MPH -- 30MPH -- 40MPH -- 50MPH faster than other traffic
88 ☐ DK 99 ☐ Skip

15 **In your opinion, what is the MOST serious threat to your safety when lane splitting?** *(DO not read - Select ONE)*

1 ☐ Distracted Drivers (cells or texting)
2 ☐ Drivers not looking in mirror (drivers don't see me)
3 ☐ Aggressive drivers
4 ☐ Drunk drivers
5 ☐ Big trucks
6 ☐ Poor road surface
7 ☐ Narrow Lanes
8 ☐ Other _____
88 ☐ DK 99 ☐ Skip

16 **Have you received a traffic ticket or citation while lane splitting in the past 12 months?**

1 ☐ Yes 2 ☐ No **(GO TO Q18)**
88 ☐ DK 99 ☐ Skip

SEE Q17

17 **What was the violation?** *(DO not read - Select ONE)*

1 ☐ Speeding
2 ☐ Following too closely
3 ☐ Mis-use of lanes
4 ☐ Failure to signal lane change
5 ☐ Other _____
88 ☐ DK 99 ☐ Skip

18 **In the past 12 months, has a vehicle driver tried to prevent you from passing while you were lane splitting?**

1 ☐ Yes 2 ☐ No
88 ☐ DK 99 ☐ Skip

19 **In the past year and half, have you seen any commercials or heard anything in the media or Internet about lane splitting?**

1 ☐ Yes 2 ☐ No **(GO TO Q21)**
88 ☐ DK 99 ☐ Skip

20 **If so, where?** *(DO not read - Select ALL)*

1 ☐ On TV
2 ☐ On Radio
3 ☐ On Internet
4 ☐ In newspaper
5 ☐ On freeway billboards
6 ☐ Other _____
88 ☐ DK 99 ☐ Skip

21 **And have you taken a motorcycle rider training class?**

1 ☐ Yes 2 ☐ No **(GO TO Q23)**
88 ☐ DK 99 ☐ Skip

22 **Who provided the class?**

1 ☐ Name of Organization_____
88 ☐ DK 99 ☐ Skip

23 **One more question, and remember your response is anonymous: Do you have a valid M1 or M2 motorcycle license or permit?**

1 ☐ Yes 2 ☐ No
88 ☐ DK 99 ☐ Skip

24 **And lastly, for statistical purposes, please stop me when I get to your age range: Are you between?**

1 ☐ 18-24
2 ☐ 25-34
3 ☐ 35-44
4 ☐ 45-54
5 ☐ 55-69
6 ☐ 70 or older
99 ☐ Skip

Thank you very much for your time. Those are all the questions

FOR E&W STAFF TO FILL OUT:

Date: _____ Interviewer: _____
Location: _____
Time: 7 / 8 / 9 / 10 / 11 / 12 / 1 / 2 / 3 / 4 / 5 / 6 AM/PM
Respondent's gender: **(DO NOT ASK)** 1 ☐ M 2 ☐ F

Appendix C–- Letters of Confirmation

UNIVERSITY OF CALIFORNIA, BERKELEY

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SAFE TRANSPORTATION
RESEARCH AND EDUCATION CENTER
2614 Dwight Way, MC 7374
BERKELEY, CA 94720-7374
Phone: (510) 642-0566 Fax: (510) 643-9922

March 2014

Dear California Driver:

The purpose of this letter is to tell you about a public safety survey being conducted by the University of California, Berkeley Safe Transportation Research and Education Center and the California Office of Traffic Safety on motorcyclists and lane splitting. The survey will take less than five minutes and will help traffic safety researchers learn more about the opinions of CA automobile drivers and motorcyclists on this topic. The results of the study will provide the State with ideas for making the roads of California safer.

We are working with Ewald & Wasserman Research Consultants, a survey research firm in San Francisco. The trained interviewers will not write down any information that identifies you and your answers will be confidential. Your participation is voluntary and you can stop answering questions at any time.

If you have any questions about the research study, please call Jill Cooper at 510-643-4259.

Thank you in advance for your cooperation and your participation in this study.

Sincerely,

David R. Ragland, Ph.D.
Professor, UC Berkeley School of Public Health

Russia Chavis
Deputy Secretary for Transportation Safety and Enforcement
Acting Director, California Office of Traffic Safety

UNIVERSITY OF CALIFORNIA, BERKELEY

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SAFE TRANSPORTATION
RESEARCH AND EDUCATION CENTER
2614 Dwight Way, MC 7374
BERKELEY, CA 94720-7374
Phone: (510) 642-0566 Fax: (510) 643-9922

March 2014

Dear Fueling Station Manager:

The purpose of this letter is to tell you about a public safety survey being conducted by the University of California, Berkeley Safe Transportation Research and Education Center and the California Office of Traffic Safety on motorcyclists and lane splitting. The survey will take less than five minutes and will help traffic safety researchers learn more about the opinions of CA automobile drivers and motorcyclists on this topic. The results of the study will provide the State with ideas for making the roads of California safer.

We are working with Ewald & Wasserman Research Consultants, a survey research firm in San Francisco. We have selected this location to conduct the surveys because it is in a well-travelled geographic area of the state. The trained interviewers who are conducting the surveys at your location will be courteous of your customers, and will not interfere with business conduct. They will complete the surveys within a few days. Additionally, customers will be allowed to stop answering questions at any point they want, and all responses will be anonymous.

If you have any questions about the research study, please call Jill Cooper at 510-643-4259.

Thank you in advance for your cooperation and your participation in this study.

Sincerely,

David R. Ragland, Ph.D.
Professor, UC Berkeley School of Public Health

Russia Chavis
Deputy Secretary for Transportation Safety and Enforcement
Acting Director, California Office of Traffic Safety